

Spatialisateur

spat5 reference pages

ircam
Centre
Pompidou



STMS Lab (UMR 9912), Ircam – CNRS – Sorbonne Université

1 place Igor-Stravinsky,
75004, Paris, France

<http://www.ircam.fr>
<http://www.stms-lab.fr>

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spat5.abs2rel Conversion from absolute to relative coordinates

description

spat5.abs2rel converts coordinates messages from absolute coordinates to relative coordinates (relative to the listener's position).

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`. Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/listener/xyz [number] [number] [number] : set the position of the listener using cartesian coordinates
/listener/aed [number] [number] [number] : set the position of the listener using navigation coordinates (azimuth/elevation/distance)
/listener/orientation [number] [number] [number] [number] : set listener orientation from quaternion (xyzw)
/listener/yaw [number] : set listener yaw angle (in deg), using Euler zyx convention
/listener/pitch [number] : set listener pitch angle (in deg), using Euler zyx convention
/listener/roll [number] : set listener roll angle (in deg), using Euler zyx convention
/clear : reset state
```

see also

- spat5.viewer
- spat5.converter
- spat5.distance
- spat5.binaural~
- spat5.transform
- spat5.oper
- spat5.quat.fromeuler
- spat5.quat.toeuler
- spat5.quat.transform
- spat5.trajectories
- spat5.boids

spat5.adm.extractxml

Extract aXML chunk for a BWF-ADM file

description

spat5.adm.extractxml extracts aXML chunk for a BWF-ADM file (mostly for debug purpose).

Reference(s) :

M. Geier, T. Carpentier, M. Noisternig, and O. Warusfel. Software tools for object-based audio production using the audio definition model. In Proc. of the 4th International Conference on Spatial Audio (ICSA), Graz, Austria, Sept 2017.

attributes

@initwith [string]

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Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. '\n')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. '\n')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file
```


see also

- [spat5.adm.renderer~](#)
- [spat5.adm.record~](#)
- [spat5.adm.record](#)
- [spat5.adm.play~](#)
- [spat5.adm.mute](#)

spat5.adm.mute

Allow interaction with ADM entities

description

spat5.adm.mute, when used in cooperation with **spat5.adm.renderer**, allows to interact (e.g. mute/solo) with ADM entities.

Reference(s) :

M. Geier, T. Carpentier, M. Noisternig, and O. Warusfel. Software tools for object-based audio production using the audio definition model. In Proc. of the 4th International Conference on Spatial Audio (ICSA), Graz, Austria, Sept 2017.

attributes

@initwith [string]

The **initwith** attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via **loadbang** or **loadmess**.

Have a look at the **spat5.tuto-osc-3.maxpat** example for further details.

Note that the **initwith** attribute cannot be set via message, **attrui** or **inspector**; it must be typed directly within the object box.

@parameter_enable [boolean]

The **parameter_enable** attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
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/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
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/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. '\n')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. '\n')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file
/window/title [string] : set the window title (in the window titlebar)
/window/visible [boolean] : set the window visibility
```

```
/window/moveable [boolean] : set the window movability
/window/resizable [boolean] : set the window resizability
/window/enable [boolean] : enable/disable the window
/window/background/color [color] : set the window background color
/window/opaque [boolean] : set the window opaque flag (optimize repaint efficiency)
/window/fullscreen [boolean] : enable/disable fullscreen mode
/window/minimise [boolean] : minimize the window
/window/open : open the window (and bring it to front)
/window/close : close the window
/window/openorclose : open the window if it was closed; close it if it was opened
/window/size [number] [number] : set the window size (width, height) (in pixels)
/window/width [number] : set the window width (in pixels)
/window/height [number] : set the window height (in pixels)
/window/bounds [number] [number] [number] [number] : set the window bounds (top left position, width, height) (in pixels)
/window/topleft [number] [number] : set the window top left position (in pixels)
/window/centre : open the window, centering it on the screen
/window/rendering/engine [string] : set the graphical rendering engine of the window
/window/fps/visible [boolean] : display the FPS performances of the window
/window/scale [number] : set the global scale factor of the window (in /window/floating [boolean] : make the window 'floating' (always on top)
/window/hidesondeactivate [boolean] : make the window 'hides on deactivate' (when always on top)
/window/buttons/close [boolean] : enable/disable the close button (in the window titlebar)
/window/buttons/minimise [boolean] : enable/disable the minimise button (in the window titlebar)
/window/buttons/maximise [boolean] : enable/disable the maximise button (in the window titlebar)
/window/export/image [string] : export the window as an image file (png or jpeg)
```

see also

- spat5.adm.renderer~
- spat5.adm.record~
- spat5.adm.record
- spat5.adm.extractxml
- spat5.adm.play~

spat5.adm.mute.embedded

Allow interaction with ADM entities

description

spat5.adm.mute, when used in cooperation with spat5.adm.renderer~, allows to interact (e.g. mute/solo) with ADM entities.

Reference(s) :

M. Geier, T. Carpentier, M. Noisternig, and O. Warusfel. Software tools for object-based audio production using the audio definition model. In Proc. of the 4th International Conference on Spatial Audio (ICSA), Graz, Austria, Sept 2017.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. '\n')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. '\n')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file
```

see also

- [spat5.adm.renderer~](#)
- [spat5.adm.record~](#)
- [spat5.adm.record](#)
- [spat5.adm.extractxml](#)
- [spat5.adm.play~](#)

spat5.adm.play~

Play ADM file and deliver metadata stream

description

spat5.adm.play~ plays BWF-ADM file, and delivers associated metadata stream.

Reference(s) :

M. Geier, T. Carpentier, M. Noisternig, and O. Warusfel. Software tools for object-based audio production using the audio definition model. In Proc. of the 4th International Conference on Spatial Audio (ICSA), Graz, Austria, Sept 2017.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@outlets [int]

The `outlets` attribute represents the number of output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or `attrui` or `inspector`), since the number of signal inlets or outlets can not be changed dynamically.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max `inspector`).

methods

```
/open [string] : open new ADM file for playing
/start : start playing
/seek [number] : jump to a given time (in milliseconds)
/stop : stop playing
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
```

`/status/copytoclipboard` : copy the status to (the OS) clipboard
`/status/copytoclipboard [string]` : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
`/dump` : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
`/dump [string]` : dump a subset of the state of the object over the rightmost outlet. See `spat5.tuto-dump-1.maxpat` for usage examples.
`/snapshot/clear` : delete all the snapshots currently in memory
`/snapshot/add` : create a new snapshot with the current state
`/snapshot/add [string]` : create a new snapshot with the current state, and set its name
`/snapshot/[index]/store` : store the current state in the i-th snapshot (in memory)
`/snapshot/[index]/recall` : recall the current state from the i-th snapshot
`/snapshot/[index]/name [string]` : set the name of the i-th snapshot
`/snapshot/interpolate [int] [int] [number]` : interpolate between the i-th and j-th snapshots
`/snapshot/interpolate [string] [string] [number]` : interpolate between two snapshots, given their names
`/snapshot/[index]/delete` : delete the i-th snapshot
`/snapshot/[index]/copytoclipboard` : copy the i-th snapshot to (the OS) clipboard
`/snapshot/[index]/copytoclipboard [string]` : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
`/snapshot/[index]/export [string]` : export the i-th snapshot to file
`/snapshot/[index]/export/content [string]` : export the content of the i-th snapshot to file
`/snapshot/export [string]` : export all snapshots to file
`/snapshot/import [string]` : import all snapshots from file

see also

- `spat5.adm.renderer~`
- `spat5.adm.record~`
- `spat5.adm.record`
- `spat5.adm.extractxml`
- `spat5.adm.mute`
- `spat5.multi.connect`

spat5.adm.record

GUI for spat5.adm.record~

description

spat5.adm.record is a control interface for **spat5.adm.record~**.

Reference(s) :

M. Geier, T. Carpentier, M. Noisternig, and O. Warusfel. Software tools for object-based audio production using the audio definition model. In Proc. of the 4th International Conference on Spatial Audio (ICSA), Graz, Austria, Sept 2017.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@inlets [int]

The `inlets` attribute represents the number of input channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or `attrui` or `inspector`), since the number of signal inlets or outlets can not be changed dynamically.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max `inspector`).

methods

```

/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')

```



```

/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file
/window/title [string] : set the window title (in the window titlebar)
/window/visible [boolean] : set the window visibility
/window/moveable [boolean] : set the window movability
/window/resizable [boolean] : set the window resizability
/window/enable [boolean] : enable/disable the window
/window/background/color [color] : set the window background color
/window/opaque [boolean] : set the window opaque flag (optimize repaint efficiency)
/window/fullscreen [boolean] : enable/disable fullscreen mode
/window/minimise [boolean] : minimize the window
/window/open : open the window (and bring it to front)
/window/close : close the window
/window/openorclose : open the window if it was closed; close it if it was opened
/window/size [number] [number] : set the window size (width, height) (in pixels)
/window/width [number] : set the window width (in pixels)
/window/height [number] : set the window height (in pixels)
/window/bounds [number] [number] [number] [number] : set the window bounds (top left position, width, height) (in pixels)
/window/topleft [number] [number] : set the window top left position (in pixels)
/window/centre : open the window, centering it on the screen
/window/rendering/engine [string] : set the graphical rendering engine of the window
/window/fps/visible [boolean] : display the FPS performances of the window
/window/scale [number] : set the global scale factor of the window (in /window/floating [boolean] : make the window 'floating' (always on top)
/window/hidesondeactivate [boolean] : make the window 'hides on deactivate' (when always on top)
/window/buttons/close [boolean] : enable/disable the close button (in the window titlebar)
/window/buttons/minimise [boolean] : enable/disable the minimise button (in the window titlebar)
/window/buttons/maximise [boolean] : enable/disable the maximise button (in the window titlebar)
/window/export/image [string] : export the window as an image file (png or jpeg)

```

see also

- spat5.adm.renderer~
- spat5.adm.record~
- spat5.adm.record~
- spat5.adm.play~
- spat5.adm.mute

spat5.adm.record~

Record ADM file and associated metadata stream

description

spat5.adm.record~ records BWF-ADM file and associated metadata stream.

Reference(s) :

M. Geier, T. Carpentier, M. Noisternig, and O. Warusfel. Software tools for object-based audio production using the audio definition model. In Proc. of the 4th International Conference on Spatial Audio (ICSA), Graz, Austria, Sept 2017.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@inlets [int]

The `inlets` attribute represents the number of input channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or `attrui` or `inspector`), since the number of signal inlets or outlets can not be changed dynamically.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max `inspector`).

methods

```

/open [string] : open new ADM file for recording
/start : start recording
/stop : stop recording
/audioProgramme/name [string] : specify the programme name
/audioContent/name [string] : specify the content name
/track/number [int] : specify the number of tracks to record
/track/[index]/name [string] : specify channel name
/track/[index]/aed [number] [number] [number] : set position (azimuth, elevation, distance)
/track/[index]/xyz [number] [number] [number] : set cartesian position (x, y, z) of the i-th track
/track/[index]/gain [number] : set gain (linear)
/overwrite [boolean] : set overwrite flag
/bitdepth [int] : set file bit depth
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened

```

```

/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- spat5.adm.renderer~
- spat5.adm.play~
- spat5.adm.record
- spat5.adm.extractxml
- spat5.adm.mute
- spat5.multi.connect

spat5.adm.renderer~

Render ADM file

description

spat5.adm.renderer~ render BWF-ADM file and associated metadata. It is meant to work in collaboration with **spat5.adm.play~**.

Reference(s) :

M. Geier, T. Carpentier, M. Noisternig, and O. Warusfel. Software tools for object-based audio production using the audio definition model. In Proc. of the 4th International Conference on Spatial Audio (ICSA), Graz, Austria, Sept 2017.

attributes

@initwith [string]

The **initwith** attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via **loadbang** or **loadmess**.

Have a look at the **spat5.tuto-osc-3.maxpat** example for further details.

Note that the **initwith** attribute cannot be set via message, **attrui** or **inspector**; it must be typed directly within the object box.

@inlets [int]

The **inlets** attribute represents the number of input channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or **attrui** or **inspector**), since the number of signal inlets or outlets can not be changed dynamically.

@outlets [int]

The **outlets** attribute represents the number of output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or **attrui** or **inspector**), since the number of signal inlets or outlets can not be changed dynamically.

@parameter_enable [boolean]

The **parameter_enable** attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max **inspector**).

methods

/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied without ramping/crossfade, so this might generate clicks

/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied without ramping/crossfade, so this might generate clicks

/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)

/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting

/dsp/post : post various information to the Max console (audio should be turned on)

/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up

/dump/dsp/latency : send the processor latency (in samples) through the dump outlet

/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed

/post/version : print the version in the Max Console

/post/version [details] : print detailed version in the Max Console

/post/doc : print the help documentation in the Max Console

/post/state : print the OSC status in the Max Console

/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the **coll** object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.

/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the **coll** object). '.txt' is the default file format.

/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the **coll** object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)

/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the **coll** object). '.txt' is the default file format.

/status : open the status window and bring it to front

/status/open : open the status window and bring it to front

/status/close : close the status window

/status/openorclose : open the status window if it was closed; close it if it was opened

/status/font/size [number] : set the font size of the status window

/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)

/help : open the help window and bring it to front

/help/open : open the help window and bring it to front

/help/close : close the help window

/help/openorclose : open the help window if it was closed; close it if it was opened

/help/font/size [number] : set the font size of the help window

/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)

/snapshot : open the snapshot window and bring it to front

/snapshot/open : open the snapshot window and bring it to front

/snapshot/close : close the snapshot window

/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened

/snapshot/font/size [number] : set the font size of the snapshot window

```

/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- spat5.adm.play~
- spat5.adm.record~
- spat5.adm.record
- spat5.adm.extractxml
- spat5.adm.mute
- spat5.multi.connect

spat5.adm.room~ Simplified room module

description

spat5.adm.room~ is a simplified room module. It can e.g. be used to generated reverberation signals for use with ADM.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@internals [int]

The `internals` attribute represents the number of internal channels of the artificial reverberator.

Spat uses a Feedback Delay Network (FDN) reverberator engine.

Basically this can be seen as an array of delay lines which are fed back into a mixing matrix. The `internals` attributes represents the size of the feedback matrix.

Choosing the size of this matrix is a trade-off between CPU consumption and the echo density.

Increasing the size of the matrix will generate a densier reverb tail at the expense of a higher CPU load.

A typical value of 8 is a good compromise between CPU load and natural sounding reverb. A value of 16 may be useful especially when dealing with a very long reverberation time or with very percussive sound (where a smaller FDN might sometimes sounds too poor).

It is recommended not to use a value below 6.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

@sources [int]

The `sources` attribute represents the number of input channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or attrui or inspector), since the number of signal inlets or outlets can not be changed dynamically.

methods

`/dsp/mute [boolean]` : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied whitout ramping/crossfade, so this might generate clicks

`/dsp/bypass [boolean]` : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied whitout ramping/crossfade, so this might generate clicks

`/dsp/automute [boolean]` : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)

`/dsp/automute/attack [number]` : set the duration (in seconds) before auto-muting

`/dsp/post` : post various information to the Max console (audio should be turned on)

`/dsp/clear` : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up

`/dump/dsp/latency` : send the processor latency (in samples) through the dump outlet

`/verbose [string]` : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed

`/post/version` : print the version in the Max Console

`/post/version [details]` : print detailed version in the Max Console

`/post/doc` : print the help documentation in the Max Console

`/post/state` : print the OSC status in the Max Console

`/preset/load [string]` : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.

`/preset/load` : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format.

`/preset/export [string]` : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)

`/preset/export` : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format.

`/status` : open the status window and bring it to front

`/status/open` : open the status window and bring it to front

`/status/close` : close the status window

`/status/openorclose` : open the status window if it was closed; close it if it was opened

`/status/font/size [number]` : set the font size of the status window

`/status/floating [boolean]` : make the help window 'floating' (i.e. always on top of other windows)

`/help` : open the help window and bring it to front

`/help/open` : open the help window and bring it to front

`/help/close` : close the help window

`/help/openorclose` : open the help window if it was closed; close it if it was opened

`/help/font/size [number]` : set the font size of the help window

`/help/floating [boolean]` : make the help window 'floating' (i.e. always on top of other windows)

`/snapshot` : open the snapshot window and bring it to front

`/snapshot/open` : open the snapshot window and bring it to front

`/snapshot/close` : close the snapshot window

/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
 /snapshot/font/size [number] : set the font size of the snapshot window
 /snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
 /status/copytoclipboard : copy the status to (the OS) clipboard
 /status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
 /dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
 /dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
 /snapshot/clear : delete all the snapshots currently in memory
 /snapshot/add : create a new snapshot with the current state
 /snapshot/add [string] : create a new snapshot with the current state, and set its name
 /snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
 /snapshot/[index]/recall : recall the current state from the i-th snapshot
 /snapshot/[index]/name [string] : set the name of the i-th snapshot
 /snapshot/interpolate [int] [int] [number] : interpolate between the i-th and j-th snapshots
 /snapshot/interpolate [string] [string] [number] : interpolate between two snapshots, given their names
 /snapshot/[index]/delete : delete the i-th snapshot
 /snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
 /snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
 /snapshot/[index]/export [string] : export the i-th snapshot to file
 /snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
 /snapshot/export [string] : export all snapshots to file
 /snapshot/import [string] : import all snapshots from file

see also

- spat5.adm.renderer~
- spat5.adm.record
- spat5.adm.record~
- spat5.multi.connect

spat5.air~ Simulates air absorption filtering

description

spat5.air~ processes incoming signal and treats it with a filter simulating air absorption.

attributes

@channels [int]

The `channels` attribute represents the number of input and output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or `attrui` or `inspector`), since the number of signal inlets or outlets can not be changed dynamically.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max `inspector`).

methods

```

/channel/number [int] : set the number of channels
/channel/[index]/distance [number] : set distance (m) for the i-th channel
/channel/[index]/rolloff [number] : set rolloff (Hz) for the i-th channel
/channel/[index]/mute [boolean] : mute the i-th channel
/channel/[index]/bypass [boolean] : bypass the i-th channel
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened

```


`/snapshot/font/size [number]` : set the font size of the snapshot window
`/snapshot/floating [boolean]` : make the snapshot window 'floating' (i.e. always on top of other windows)
`/status/copytoclipboard` : copy the status to (the OS) clipboard
`/status/copytoclipboard [string]` : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
`/dump` : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
`/dump [string]` : dump a subset of the state of the object over the rightmost outlet. See `spat5.tuto-dump-1.maxpat` for usage examples.
`/snapshot/clear` : delete all the snapshots currently in memory
`/snapshot/add` : create a new snapshot with the current state
`/snapshot/add [string]` : create a new snapshot with the current state, and set its name
`/snapshot/[index]/store` : store the current state in the i-th snapshot (in memory)
`/snapshot/[index]/recall` : recall the current state from the i-th snapshot
`/snapshot/[index]/name [string]` : set the name of the i-th snapshot
`/snapshot/interpolate [int] [int] [number]` : interpolate between the i-th and j-th snapshots
`/snapshot/interpolate [string] [string] [number]` : interpolate between two snapshots, given their names
`/snapshot/[index]/delete` : delete the i-th snapshot
`/snapshot/[index]/copytoclipboard` : copy the i-th snapshot to (the OS) clipboard
`/snapshot/[index]/copytoclipboard [string]` : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
`/snapshot/[index]/export [string]` : export the i-th snapshot to file
`/snapshot/[index]/export/content [string]` : export the content of the i-th snapshot to file
`/snapshot/export [string]` : export all snapshots to file
`/snapshot/import [string]` : import all snapshots from file

see also

- `spat5.doppler~`
- `spat5.source~`
- `spat5.spat~`
- `spat5.panoramix~`
- `spat5.viewer`
- `spat5.multi.connect`

spat5.align~ Speaker delay and gain alignment

description

In general you want to time align your speaker setup so that all speakers are in phase according to a given reference position (usually in the middle of the room). This means you have to compensate for variations in propagation delays between speakers.

spat5.align~ compensates time delay and gain for a given speaker layout based on geometric coordinates.

Default reference position is $(x,y,z) = (0,0,0)$.

In cases of unknown or possibly unreliable information about the speaker placement, see **spat5.calibrate.delay~**.

attributes

@initwith [string]

The **initwith** attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via **loadbang** or **loadmess**.

Have a look at the **spat5.tuto-osc-3.maxpat** example for further details.

Note that the **initwith** attribute cannot be set via message, **attrui** or **inspector**; it must be typed directly within the object box.

@mc [int]

The **mc** attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the **mc** attribute cannot be set via message, **attrui** or **inspector**; it must be typed directly within the object box.

@parameter_enable [boolean]

The **parameter_enable** attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

@speakers [int]

The **speakers** attribute represents the number of output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or **attrui** or **inspector**), since the number of signal inlets or outlets can not be changed dynamically.

methods

```
/correction/delay [boolean] : enable delay correction
/correction/gain [boolean] : enable gain correction
/speakers/aed [nnnn...] : set the list of speaker coordinates (with aed format)
/speakers/xyz [nnnn...] : set the list of speaker coordinates (with xyz format)
/speakers/ade [nnnn...] : set the list of speaker coordinates (with ade format)
/speakers/xy [nnnn...] : set the list of speaker coordinates (with xy format)
/speakers/ae [nnnn...] : set the list of speaker coordinates (with ae format)
/speaker/[index]/aed [number][number][number] : set the position of the i-th loudspeaker using navigation coordinates (azimuth/elevation/distance)
/speaker/[index]/ade [number][number][number] : set the position of the i-th loudspeaker using navigation coordinates (azimuth/distance/elevation)
/speaker/[index]/xyz [number][number][number] : set the position of the i-th loudspeaker using cartesian coordinates
/speaker/[index]/xy [number][number] : set the xy-coordinate of the i-th loudspeaker, and use default z (=0)
/speaker/[index]/ae [number][number] : set the azimuth/elevation of the i-th loudspeaker, using default distance (=1)
/speaker/[index]/az [number] : set the azimuth of the i-th loudspeaker, using default distance (=1) and elevation (=0)
/reference/xyz [number][number][number] : set the position of the reference point (xyz)
/reference/aed [number][number][number] : set the position of the reference point (aed)
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied without ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied without ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
```

```

/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- spat5.delay~
- spat5.calibrate.delay~
- spat5.calibrate.gain~
- spat5.oper
- spat5.spat~
- spat5.viewer
- spat5.speaker.config
- spat5.diagmatrix~
- spat5.decoder~
- spat5.pan~
- spat5.virtualspeakers~
- spat5.multi.connect

spat5.allpass~ Multichannel feedback allpass section

description

spat5.allpass~ is a multichannel Schroeder all-pass section with feedback gain.

Reference(s) :

M. R. Schroeder and B. Logan. Colorless artificial reverberation. Journal of the Audio Engineering Society, 9(3), 1961.

T. I. Laakso, V. Välimäki, M. Karjalainen, and U. K. Laine. Splitting the unit delay. IEEE Signal Processing Magazine, 13(1):30 – 60, January 1996.

attributes

@channels [int]

The `channels` attribute represents the number of input and output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or `attrui` or `inspector`), since the number of signal inlets or outlets can not be changed dynamically.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character `"`). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/channel/number [int] : set the number of channels
/delays [number] [number] [number] ... : set the list of delays (in msec)
/gains [number] [number] [number] ... : set the list of gains (linear)
/interpolation/mode [string] : set the interpolation mode (for all channels). Possible values: nearest, linear, lagrange3, allpass, hermite3, watte3, bspline3, parabolic, allpass2, allpass3, nearestxfade
/interpolation/time [number] : set the interpolation time (in msec) (for all channels)
/length [number] : set the allocated delay length (in msec)
/channel/[index]/delay [number] : set the delay (in msec) for the i-th channel
/channel/[index]/gain [number] : set the feedback gain (linear) for the i-th channel
/channel/[index]/gain/db [number] : set the feedback gain (in dB) for the i-th channel
/channel/[index]/interpolation/mode [string] : set the interpolation mode for the i-th channel. Possible values: nearest, linear, lagrange3, allpass, hermite3, watte3, bspline3, parabolic, allpass2, allpass3, nearestxfade
/channel/[index]/interpolation/time [number] : set the interpolation time (in msec) for the i-th channel
/channel/[index]/length [number] : set the allocation length (in msec) for the i-th channel
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front

```

```

/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int] [int] [number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string] [string] [number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- spat5.comb~
- comb~
- allpass~
- spat5.delay~
- spat5.tapout~
- spat5.reverb~
- spat5.roomsize
- spat5.multi.connect

spat5.barycenter

Barycenter calculation

description

spat5.barycenter computes barycenter of a set of points.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- [spat5.viewer](#)

- spat5.knn
- spat5.scale
- spat5.transform
- spat5.rotate
- spat5.translate
- spat5.normalize
- spat5.converter
- spat5.converter~
- spat5.abs2rel
- spat5.distance
- spat5.trajectories
- spat5.boids

spat5.binaural~ Binaural panning

description

spat5.binaural~ synthesizes binaural (HRTF-based) signals for 3D headphones panning.

Custom HRTF can be loaded from SOFA files (see `spat5.sofa.loader` for details). Supported SOFA conventions are: SimpleFreeFieldHRIR and SimpleFreeFieldHRSOS.

spat5.binaural~ can further simulate rotations of the listener's head, e.g. for head-tracked binaural experiment.

spat5.binaural~ is similar to `spat5.pan~` operating with `/panning/type binaural`.

Further information (adapted from "T. Carpentier. Binaural synthesis with the Web Audio API. In Proc. of the 1st Web Audio Conference, Paris, France, Jan 2015.") : The term "binaural hearing" refers to being able to integrate information that the auditory system and the brain receive from the two ears. Indeed our auditory percepts are essentially built on the basis of two inputs, namely the sound-pressure signals captured at our two eardrums. One remarkable property of humans, is its ability to localize sound in three-dimensional space to an accuracy of a few degrees. It is the direction-dependent characteristics of the sound signals reaching our two ears which enable us to localize the sound sources. Psychophysical studies have shown that various mechanisms are involved in the human auditory system for sound localization. For sounds located in the horizontal plane, the angular direction is predominantly determined from interaural time differences (ITD) and interaural level differences (ILD), whereas sound elevation mainly depends on direction-dependent spectral cues generated by the obstruction of an incoming sound wave by the listener (diffraction and scattering effects of the pinna, head, and torso).

These acoustic interactions of an incoming sound with the listener's anatomy can be described by spatial filters called head-related transfer functions (HRTFs) or equivalently head-related impulse responses (HRIRs). HRTFs completely and uniquely capture all linear properties of the sound transmission and they contain all proposed descriptors of localization cues.

As a consequence, any sound source can be virtually simulated anywhere in the 3D auditory space by filtering an audio signal with the HRTFs corresponding to the desired location and presenting the resulting binaural signals over headphones. Such audio processing is denoted "binaural synthesis".

Since they depend on anatomic features such as the size and shape of head and ears, the cues for sound localization (especially the spectral cues) are idiosyncratic and HRTFs differ considerably among individuals. Measuring the HRTFs of a listener is a tedious task and it is yet restricted to a few laboratories (the measurements are often made in anechoic conditions). However databases of HRTFs for several hundreds of human subjects are available and can be used in a binaural synthesizer. .

Reference(s) :

V. Larcher. Techniques de spatialisation des sons pour la realite virtuelle. PhD thesis, Universite de Paris VI, 2001.

J.-M. Jot, V. Larcher, and O. Warusfel. Digital signal processing issues in the context of binaural and transaural stereophony. In Proc. of the 98th Convention of the Audio Engineering Society (AES), Paris, France, Feb. 1995.

D. Rombom and B. Cook. Near-field compensation for hrtf processing. In Proc. of the 125th Convention of the Audio Engineering Society (AES), San Francisco, CA, USA, 2008.

R. O. Duda and W. L. Martens. Range dependence of the response of a spherical head model. Journal of the Acoustical Society of America, 104(5):3048 – 3058, 1998.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max `inspector`).

@sources [int]

The `sources` attribute represents the number of input channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or `attrui` or `inspector`), since the number of signal inlets or outlets can not be changed dynamically.

methods

`/hrtf [string]` : load hrtf from file or url (sofa format)

`/hrtf` : open a dialog for choosing hrtf file (sofa format)

`/source/[index]/mute [boolean]` : mute/unmute the i-th source

`/itd/scaling [number]` : set ITD scaling factor (in `/itd/type [string]` : set ITD type. Possible values: basic, woodworth, larcherjot, savioja, miller, measurement, none

`/itd/latencymode [string]` : set ITD processing mode. Possible values: fixedlatency, nolatency

`/itd/interpolation/mode [string]` : set interpolation mode for fractional delay. Possible values: nearest, linear, lagrange3, allpass, hermite3, watter3, bspline3, parabolic, allpass2, allpass3, nearestxfade

`/itd/interpolation/time [number]` : set interpolation duration for fractional delay (in msec)

`/crossfade/duration [number]` : set filter crossfade duration (in msec)

`/crossfade/type [string]` : set type of filter crossfade. Possible values: linear, cosine, squarecosine


```

/listener/orientation [number][number][number][number] : set listener orientation from quaternion (xyzw)
/listener/yp [number][number][number] : set listener yaw, pitch and roll (in deg), using Euler zyx convention
/listener/yaw [number] : set listener yaw angle (in deg), using Euler zyx convention
/listener/pitch [number] : set listener pitch angle (in deg), using Euler zyx convention
/listener/roll [number] : set listener roll angle (in deg), using Euler zyx convention
/source/[index]/xyz [number][number][number] : set the position of the i-th source using cartesian coordinates
/source/[index]/aed [number][number][number] : set the position of the i-th source using navigation coordinates (azimuth/elevation/distance)
/source/[index]/xy [number][number] : set the xy-coordinate of the i-th source, and use default z (=0)
/source/[index]/az [number] : set the azimuth of the i-th source, using default distance (=1) and elevation (=0)
/source/[index]/x [number][number] : set the x-coordinate of the i-th source, and keep y and z unchanged
/source/[index]/y [number][number] : set the y-coordinate of the i-th source, and keep x and z unchanged
/source/[index]/z [number][number] : set the z-coordinate of the i-th source, and keep x and y unchanged
/source/[index]/ade [number][number][number] : set the position of the i-th source using navigation coordinates (azimuth/distance/elevation)
/source/[index]/ae [number][number] : set the azimuth/elevation of the i-th source, using default distance (=1)
/source/[index]/ad [number][number] : set the azimuth/distance of the i-th source, using default elevation (=0)
/source/[index]/azim [number] : set the azimuth of the i-th source. Elevation and distance remain unchanged
/source/[index]/elev [number] : set the elevation of the i-th source. Azimuth and distance remain unchanged
/source/[index]/dist [number] : set the distance of the i-th source. Azimuth and elevation remain unchanged
/source/[index]/azimelev [number][number] : set the azimuth and elevation of the i-th source. Distance remains unchanged
/source/[index]/azimd [number][number] : set the azimuth and distance of the i-th source. Elevation remains unchanged
/sources/aed [nnnn...] : set the list of source coordinates (with aed format)
/sources/xyz [nnnn...] : set the list of source coordinates (with xyz format)
/sources/ade [nnnn...] : set the list of source coordinates (with ade format)
/sources/xy [nnnn...] : set the list of source coordinates (with xy format)
/sources/ae [nnnn...] : set the list of source coordinates (with ae format)
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied without ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied without ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file

```

`/snapshot/[index]/export/content [string]` : export the content of the i-th snapshot to file
`/snapshot/export [string]` : export all snapshots to file
`/snapshot/import [string]` : import all snapshots from file

see also

- `spat5.pan~`
- `spat5.viewer`
- `spat5.sofa.loader`
- `spat5.sofa.infos`
- `spat5.hrtf.infos`
- `spat5.virtualspeakers~`
- `spat5.ctc~`
- `spat5.trajectories`
- `spat5.transpan~`
- `spat5.spat~`
- `spat5.multi.connect`

spat5.boids

Flock simulator

description

spat5.boids is a bird flight and animal flock simulator. It is adapted from the legacy **boids3d** object.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/move : move the boids and output their now position
/point/number [int] : set the number of boids
/neighbors/number [int] : set the number of neighbors each boid consults when flocking
/maxspeed [number] : set the maximum speed of speed range
/minspeed [number] : set the minimum speed of speed range
/center [number] : set the strength of centering instinct
/attract [number] : set the strength of attraction to point
/match [number] : set the strength of neighbor speed matching instinct
/avoid [number] : set the strength of neighbor avoidance instinct
/repel [number] : set the strength of wall avoidance instinct
/edgedist [number] : set the distance of vision for avoiding wall edges
/speed [number] : set the overall speed
/inertia [number] : set the willingness to change speed and direction
/accel [number] : set the speed of acceleration
/prefdist [number] : set the preferred distance from neighbors
/flyrect [number][number][number][number][number][number] : set the bounding box (walls) in which to fly (left/top/right/bottom/front/back)
/attract/xyz [number][number][number] : set the point to which boids are attracted
/reset : reset boids randomly inside the flyrect
/point/[index]/speed [number] : set speed for the i-th boid
/point/[index]/speed/inverse : inverse speed for the i-th boid
/point/[index]/direction/xyz [number][number][number] : set direction for the i-th boid
/point/[index]/position/xyz [number][number][number] : set position for the i-th boid
```

see also

- spat5.viewer
- spat5.converter
- spat5.trajectories
- boids3d
- spat5.simone
- spat5.simone.generator
- spat5.transform
- spat5.converter
- spat5.grids
- spat5.rotate
- spat5.scale
- spat5.translate
- spat5.mirror
- spat5.jitter
- spat5.oper
- spat5.constraint
- spat5.barycenter

spat5.calibrate.delay~

Measurement of propagation delays

description

In general you want to time align your speaker setup so that all speakers are in phase according to a given reference position (usually in the middle of the room).

This means you have to compensate for variations in propagation delays between speakers. To do so, you could either rely on geometrical coordinates (see `spat5.align~`), or measure the actual propagation delays in the reference position.

In this case, you can use `spat5.calibrate.delay` to measure and calculate the appropriate delays. Basic protocol for measuring delays with `spat5.calibrate.delay~` involves placing a omni-directional microphone in the desired reference position; `spat5.calibrate.delay~` will emit a test signal sequentially on each speaker and measure the propagation delay based on the received signals on the microphone.

When the measurement is done, the object outputs the estimated correction delays that must be used to re-align the speaker signals.

All speakers will be aligned according to the maximum delay detected; i.e. the speaker with the longest delay becomes the reference delay.

All other speakers are offset by the channel with the largest latency.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character `"`). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max `inspector`).

@speakers [int]

The `speakers` attribute represents the number of output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or `attrui` or `inspector`), since the number of signal inlets or outlets can not be changed dynamically.

methods

`/sweep/order [int]` : set sweep order (the sweep will be $\text{pow}(2, \text{order})$ samples long)

`/start` : start a new calibration

`/dump/results` : dump the last results

`/dsp/mute [boolean]` : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied without ramping/crossfade, so this might generate clicks

`/dsp/bypass [boolean]` : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied without ramping/crossfade, so this might generate clicks

`/dsp/automute [boolean]` : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)

`/dsp/automute/attack [number]` : set the duration (in seconds) before auto-muting

`/dsp/post` : post various information to the Max console (audio should be turned on)

`/dsp/clear` : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up

`/dump/dsp/latency` : send the processor latency (in samples) through the dump outlet

`/verbose [string]` : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed

`/post/version` : print the version in the Max Console

`/post/version [details]` : print detailed version in the Max Console

`/post/doc` : print the help documentation in the Max Console

`/post/state` : print the OSC status in the Max Console

`/preset/load [string]` : load a preset from file. Supported file extensions : `.txt` for human-readable OSC text file, `.osc` for binary encoded OSC file, `.coll` for human-readable Max coll file (compatible with the `coll` object). `.txt` is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.

`/preset/load` : open a user dialog to load a preset file. Supported file extensions : `.txt` for human-readable OSC text file, `.osc` for binary encoded OSC file, `.coll` for human-readable Max coll file (compatible with the `coll` object). `.txt` is the default file format.

`/preset/export [string]` : export a preset to file. Supported file extensions : `.txt` for human-readable OSC text file, `.osc` for binary encoded OSC file, `.coll` for human-readable Max coll file (compatible with the `coll` object). `.txt` is the default file format. If the file extension is not provided, `.txt` will be used by default. If the destination folder is not provided, the file will be saved in your home folder (`/Users/yourlogin`)

`/preset/export` : open a user dialog to export a preset to file. Supported file extensions : `.txt` for human-readable OSC text file, `.osc` for binary encoded OSC file, `.coll` for human-readable Max coll file (compatible with the `coll` object). `.txt` is the default file format.

`/status` : open the status window and bring it to front

`/status/open` : open the status window and bring it to front

`/status/close` : close the status window

`/status/openorclose` : open the status window if it was closed; close it if it was opened

`/status/font/size [number]` : set the font size of the status window

`/status/floating [boolean]` : make the status window 'floating' (i.e. always on top of other windows)

`/help` : open the help window and bring it to front

```

/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- spat5.align~
- spat5.calibrate.gain~
- spat5.smk~
- spat5.pan~
- spat5.multi.connect

spat5.calibrate.gain~

Measurement of propagation delays

description

Generally you want to calibrate the gains of your speaker setup so that all speakers are at equal-power measured at a given reference position (usually in the middle of the room).

This means you have to compensate for variations in gains between speakers.

To do so, you could either rely on geometrical coordinates (see `spat5.align~`), or measure the actual power in the reference position.

In this case, you can use **spat5.calibrate.gain~** to measure and calculate the appropriate gains. Basic protocol for measuring gains with **spat5.calibrate.gain~** involves placing a omni-directional microphone in the desired reference position;

spat5.calibrate.gain~ emits a test signal (white noise) sequentially on each speaker and measures the received RMS levels. It then determines the calibration gains that must be applied to each speaker in order to obtain constant power at the measurement position.

When the measurement is done, the object outputs the estimated correction gains that must be used to re-align the speaker signals.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character `"`). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max `inspector`).

@speakers [int]

The `speakers` attribute represents the number of output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or `attrui` or `inspector`), since the number of signal inlets or outlets can not be changed dynamically.

methods

`/length [int]` : set length of the test signal (in milliseconds)
`/start` : start a new calibration
`/stop` : interrupt the calibration
`/type [string]` : set noise type. Possible values: white, pink
`/dump/results` : dump the last results
`/dsp/mute [boolean]` : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied whitout ramping/crossfade, so this might generate clicks
`/dsp/bypass [boolean]` : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied whitout ramping/crossfade, so this might generate clicks
`/dsp/automute [boolean]` : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
`/dsp/automute/attack [number]` : set the duration (in seconds) before auto-muting
`/dsp/post` : post various information to the Max console (audio should be turned on)
`/dsp/clear` : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
`/dump/dsp/latency` : send the processor latency (in samples) through the dump outlet
`/verbose [string]` : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
`/post/version` : print the version in the Max Console
`/post/version [details]` : print detailed version in the Max Console
`/post/doc` : print the help documentation in the Max Console
`/post/state` : print the OSC status in the Max Console
`/preset/load [string]` : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
`/preset/load` : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format.
`/preset/export [string]` : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (`/Users/yourlogin`)
`/preset/export` : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format.
`/status` : open the status window and bring it to front
`/status/open` : open the status window and bring it to front
`/status/close` : close the status window
`/status/openorclose` : open the status window if it was closed; close it if it was opened
`/status/font/size [number]` : set the font size of the status window

```

/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- spat5.align~
- spat5.calibrate.delay~
- spat5.smk~
- spat5.pan~
- spat5.multi.connect

spat5.cascade.inverse

Inverse a cascade filter

description

spat5.cascade.inverse computes the inverse coefficients of an IIR cascade filter.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- `spat5.cascade~`

- cascade~
- biquad~
- filtergraph~
- spat5.frequencyresponse
- spat5.equalizer
- spat5.filterdesign
- spat5.hlsshelf~
- spat5.hlsshelf
- spat5.zplane
- spat5.graphiceq~
- spat5.graphiceq
- spat5.cross3~
- spat5.cascade.resample
- spat5.octavebank~
- spat5.complementarybank~
- spat5.gammatone
- spat5.multi.connect

spat5.cascade.resample

Cascade resampling

description

spat5.cascade.resample resamples biquad/cascade coefficients.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/sampleinput [number] : input samplerate (Hz)
/sampleoutput [number] : output samplerate (Hz)
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- `spat5.cascade~`
- `cascade~`
- `biquad~`
- `filtergraph~`
- `spat5.frequencyresponse`
- `spat5.equalizer`
- `spat5.filterdesign`
- `spat5.hlshelf~`
- `spat5.hlshelf`
- `spat5.zplane`
- `spat5.graphiceq~`
- `spat5.graphiceq`
- `spat5.cross3~`
- `spat5.cascade.inverse`
- `spat5.multi.connect`

spat5.cascade~ Multichannel cascade~

description

spat5.cascade~ is similar to **Max/MSP cascade~** but can perform several channels in parallel. Each channel has its own set of filter coefficients.

attributes

@channels [int]

The `channels` attribute represents the number of input and output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or `attrui` or `inspector`), since the number of signal inlets or outlets can not be changed dynamically.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max `inspector`).

methods

```
/channel/number [int] : set the number of channels
/channel/[index]/cascade [number][number][number]... : set the filter coefficients for the i-th channel
/channel/[index]/mute [boolean] : mute/unmute the DSP rendering for the i-th channel
/channel/[index]/bypass [boolean] : bypass the DSP rendering for the i-th channel
/crossfade/duration [number] : set filter crossfade duration (in msec) (applied to all channels)
/crossfade/type [string] : set type of filter crossfade (applied to all channels)
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied without ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied without ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
```

/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
 /snapshot/font/size [number] : set the font size of the snapshot window
 /snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
 /status/copytoclipboard : copy the status to (the OS) clipboard
 /status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
 /dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
 /dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
 /snapshot/clear : delete all the snapshots currently in memory
 /snapshot/add : create a new snapshot with the current state
 /snapshot/add [string] : create a new snapshot with the current state, and set its name
 /snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
 /snapshot/[index]/recall : recall the current state from the i-th snapshot
 /snapshot/[index]/name [string] : set the name of the i-th snapshot
 /snapshot/interpolate [int] [int] [number] : interpolate between the i-th and j-th snapshots
 /snapshot/interpolate [string] [string] [number] : interpolate between two snapshots, given their names
 /snapshot/[index]/delete : delete the i-th snapshot
 /snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
 /snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
 /snapshot/[index]/export [string] : export the i-th snapshot to file
 /snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
 /snapshot/export [string] : export all snapshots to file
 /snapshot/import [string] : import all snapshots from file

see also

- cascade~
- biquad~
- filtergraph~
- spat5.frequencyresponse
- spat5.equalizer
- spat5.filterdesign
- spat5.hlsshelf~
- spat5.hlsshelf
- spat5.octavebank~
- spat5.zplane
- spat5.graphiceq~
- spat5.graphiceq
- spat5.cross3~
- spat5.cascade.inverse
- spat5.cascade.resample
- spat5.octavebank~
- spat5.eq
- spat5.multi.connect

spat5.clip~ Limit signal amplitude

description

spat5.clip~ is similar to Max/MSP **clip~** but can perform several channels in parallel. **spat5.clip~** constrains input signals between two specified values.

attributes

@channels [int]

The **channels** attribute represents the number of input and output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or attrui or inspector), since the number of signal inlets or outlets can not be changed dynamically.

@initwith [string]

The **initwith** attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via **loadbang** or **loadmess**.

Have a look at the **spat5.tuto-osc-3.maxpat** example for further details.

Note that the **initwith** attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@mc [int]

The **mc** attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the **mc** attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The **parameter_enable** attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/channel/number [int] : set the number of channels
/min [number] : set minimum value for all channels
/max [number] : set maximum value for all channels
/range [number][number] : set minimum and maximum values for all channels
/channel/[index]/min [number] : set minimum value for the i-th channel
/channel/[index]/max [number] : set maximum value for the i-th channel
/channel/[index]/range [number][number] : set minimum and maximum values for the i-th channel
/channel/[index]/mute [boolean] : mute the i-th channel
/channel/[index]/bypass [boolean] : bypass the i-th channel
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
```

```

/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- clip~
- spat5.delta~
- spat5.deltaclick~
- delta~
- deltaclick~
- trunc~
- spat5.multi.connect

spat5.cluster~ reflections

Second stage of the Spat room module. Generates diffuse reflections

description

spat5.cluster~ corresponds to the second processing stage in the spat room module. It generates a diffuse set of reflections from the incoming early reflection stage.

When using **spat5.cluster~** inside a reverberator engine, the number of delayed channels (**channels** attribute) corresponds to the number of "internal channels" (**internals** attribute of **spat5.spat~** object).

Reference(s) :

J.-M. Jot and A. Chaigne. Digital delay networks for designing artificial reverberators. In Proc. of the 90th Convention of the Audio Engineering Society (AES), Paris, France, Feb 1991.

T. I. Laakso, V. Välimäki, M. Karjalainen, and U. K. Laine. Splitting the unit delay. IEEE Signal Processing Magazine, 13(1):30 – 60, January 1996.

attributes

@channels [int]

The **channels** attribute represents the number of input and output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or attrui or inspector), since the number of signal inlets or outlets can not be changed dynamically.

@initwith [string]

The **initwith** attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via **loadbang** or **loadmess**. Have a look at the **spat5.tuto-osc-3.maxpat** example for further details.

Note that the **initwith** attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@mc [int]

The **mc** attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the **mc** attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The **parameter_enable** attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/channel/number [int] : set the number of channels
/delays [number] [number] [number] ... : set the list of delays (in msec)
/delays/samples [number] [number] [number] ... : set the list of delays (in samples)
/interpolation/mode [string] : set the interpolation mode. Possible values: nearest, linear, lagrange3, allpass, hermite3, watte3, bspline3, parabolic, allpass2, allpass3, nearestxfade
/interpolation/time [number] : set the interpolation time (in msec)
/channel/[index]/delay [number] : set the delay (in msec) for the i-th channel
/channel/[index]/delay/samples [number] : set the delay (in samples) for the i-th channel
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied without ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied without ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
```



```

/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- spat5.source~
- spat5.early~
- spat5.reverb~
- spat5.spat~
- spat5.ircamverb~
- spat5.delgen
- spat5.roomsize
- spat5.room~
- spat5.shuffle~
- spat5.tapout~
- delay~
- tapout~
- spat5.comb~
- spat5.allpass~
- spat5.reverb.timeview
- spat5.multi.connect

spat5.colormap

Utility functions for color manipulations

description

spat5.colormap provides utility functions for color manipulations.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- [swatch](#)

- colorpicker

spat5.comb~ Multichannel Comb filter

description

spat.comb~ is a multichannel feedback comb filter.

Reference(s) :

M. R. Schroeder and B. Logan. Colorless artificial reverberation. Journal of the Audio Engineering Society, 9(3), 1961.

T. I. Laakso, V. Välimäki, M. Karjalainen, and U. K. Laine. Splitting the unit delay. IEEE Signal Processing Magazine, 13(1):30 – 60, January 1996.

attributes

@channels [int]

The `channels` attribute represents the number of input and output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or `attrui` or `inspector`), since the number of signal inlets or outlets can not be changed dynamically.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/channel/number [int] : set the number of channels
/delays [number] [number] [number] ... : set the list of delays (in msec)
/gains [number] [number] [number] ... : set the list of gains (linear)
/interpolation/mode [string] : set the interpolation mode (for all channels). Possible values: nearest, linear, lagrange3, allpass, hermite3, watte3, bspline3, parabolic, allpass2, allpass3, nearestxfade
/interpolation/time [number] : set the interpolation time (in msec) (for all channels)
/length [number] : set the allocated delay length (in msec)
/channel/[index]/delay [number] : set the delay (in msec) for the i-th channel
/channel/[index]/gain [number] : set the feedback gain (linear) for the i-th channel
/channel/[index]/gain/db [number] : set the feedback gain (in dB) for the i-th channel
/channel/[index]/lowpass [boolean] : enables lowpass filtering the i-th channel
/channel/[index]/lowpass/freq [number] : set frequency of lowpass filtering the i-th channel (in Hz)
/channel/[index]/interpolation/mode [string] : set the interpolation mode for the i-th channel. Possible values: nearest, linear, lagrange3, allpass, hermite3, watte3, bspline3, parabolic, allpass2, allpass3, nearestxfade
/channel/[index]/interpolation/time [number] : set the interpolation time (in msec) for the i-th channel
/channel/[index]/length [number] : set the allocation length (in msec) for the i-th channel
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
```

```

/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- spat5.allpass~
- comb~
- allpass~
- spat5.delay~
- spat5.tapout~
- spat5.reverb~
- spat5.roomsize
- spat5.multi.connect

spat5.complementarybank~

Complementary N-Band IIR Filterbank

description

spat5.complementarybank~ is a N-band complementary filterbank using IIR filters.

Reference(s) :

A. Favrot and C. Faller. Complementary N-Band IIR Filterbank Based on 2-Band Complementary Filters. In Proc. of the International Workshop on Acoustic Echo and Noise Control (IWAENC), Tel- Aviv, Israel, Sept 2010.

attributes

@bands [int]

The `bands` attribute represents the number frequency bands. It can not be changed dynamically (via message or attrui or inspector).

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/band/number [int] : set the number of frequency bands
/order [int] : set the filter order
/freq/limits [number] [number] [number]... : set frequency limits (in Hz) for the bands. The length of the list should be (number of bands - 1)
/freq/center [number] [number] [number]... : set center frequencies (in Hz) for the bands. The length of the list should be = (number of bands)
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied without ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied without ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
```

```

/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- spat5.octavebank~
- spat5.hlsshelf
- biquad~
- spat5.gammatone
- spat5.equalizer
- spat5.cascade~
- spat5.frequencyresponse
- spat5.filterdesign
- cascade~
- filtergraph~
- spat5.oper
- spat5.ircamverb~
- spat5.graphiceq~
- spat5.graphiceq
- spat5.cascade.inverse
- spat5.cascade.resample
- spat5.multi.connect

spat5.compressor

Control interface for spat5.compressor~

description

spat5.compressor is a GUI for **spat5.compressor~**.

attributes

@embed [boolean]

The `embed` attribute allows to store the state of the object within the patcher. The complete state of the object is stored whenever the patcher is saved to disk. Upon loading the patcher or copying the object box, the state is restored.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int] [int] [number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string] [string] [number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file
```



```

/window/title [string] : set the window title (in the window titlebar)
/window/visible [boolean] : set the window visibility
/window/moveable [boolean] : set the window movability
/window/resizable [boolean] : set the window resizability
/window/enable [boolean] : enable/disable the window
/window/background/color [color] : set the window background color
/window/opaque [boolean] : set the window opaque flag (optimize repaint efficiency)
/window/fullscreen [boolean] : enable/disable fullscreen mode
/window/minimise [boolean] : minimize the window
/window/open : open the window (and bring it to front)
/window/close : close the window
/window/openorclose : open the window if it was closed; close it if it was opened
/window/size [number] [number] : set the window size (width, height) (in pixels)
/window/width [number] : set the window width (in pixels)
/window/height [number] : set the window height (in pixels)
/window/bounds [number] [number] [number] [number] : set the window bounds (top left position, width, height) (in pixels)
/window/topleft [number] [number] : set the window top left position (in pixels)
/window/centre : open the window, centering it on the screen
/window/rendering/engine [string] : set the graphical rendering engine of the window
/window/fps/visible [boolean] : display the FPS performances of the window
/window/scale [number] : set the global scale factor of the window (in /window/floating [boolean] : make the window 'floating' (always on top)
/window/hidesondeactivate [boolean] : make the window 'hides on deactivate' (when always on top)
/window/buttons/close [boolean] : enable/disable the close button (in the window titlebar)
/window/buttons/minimise [boolean] : enable/disable the minimise button (in the window titlebar)
/window/buttons/maximise [boolean] : enable/disable the maximise button (in the window titlebar)
/window/export/image [string] : export the window as an image file (png or jpeg)

```

see also

- spat5.compressor~
- spat5.equalizer
- spat5.limiter~
- spat5.noisegate~
- spat5.clip~
- spat5.softclipping~
- spat5.delta~
- spat5.deltacip~
- spat5.tanh~
- spat5.fixnan~
- spat5.rms~
- spat5.ebur128~

spat5.compressor.embedded

Control interface for spat5.compressor~

description

spat5.compressor is a GUI for spat5.compressor~.

attributes

@embed [boolean]

The `embed` attribute allows to store the state of the object within the patcher. The complete state of the object is stored whenever the patcher is saved to disk. Upon loading the patcher or copying the object box, the state is restored.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
```

/snapshot/import [string] : import all snapshots from file

see also

- spat5.compressor~
- spat5.equalizer
- spat5.limiter~
- spat5.noisegate~
- spat5.clip~
- spat5.softclipping~
- spat5.delta~
- spat5.deltaclip~
- spat5.tanh~
- spat5.fixnan~
- spat5.rms~
- spat5.ebur128~

spat5.compressor~

Multichannel Compressor/Expander

description

spat5.compressor~ is a multichannel compressor/expander.

attributes

@channels [int]

The `channels` attribute represents the number of input and output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or `attrui` or `inspector`), since the number of signal inlets or outlets can not be changed dynamically.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max `inspector`).

methods

`/dsp/mute [boolean]` : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied without ramping/crossfade, so this might generate clicks

`/dsp/bypass [boolean]` : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied without ramping/crossfade, so this might generate clicks

`/dsp/automute [boolean]` : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)

`/dsp/automute/attack [number]` : set the duration (in seconds) before auto-muting

`/dsp/post` : post various information to the Max console (audio should be turned on)

`/dsp/clear` : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up

`/dump/dsp/latency` : send the processor latency (in samples) through the dump outlet

`/verbose [string]` : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed

`/post/version` : print the version in the Max Console

`/post/version [details]` : print detailed version in the Max Console

`/post/doc` : print the help documentation in the Max Console

`/post/state` : print the OSC status in the Max Console

`/preset/load [string]` : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.

`/preset/load` : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format.

`/preset/export [string]` : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)

`/preset/export` : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format.

`/status` : open the status window and bring it to front

`/status/open` : open the status window and bring it to front

`/status/close` : close the status window

`/status/openorclose` : open the status window if it was closed; close it if it was opened

`/status/font/size [number]` : set the font size of the status window

`/status/floating [boolean]` : make the status window 'floating' (i.e. always on top of other windows)

`/help` : open the help window and bring it to front

`/help/open` : open the help window and bring it to front

`/help/close` : close the help window

`/help/openorclose` : open the help window if it was closed; close it if it was opened

`/help/font/size [number]` : set the font size of the help window

`/help/floating [boolean]` : make the help window 'floating' (i.e. always on top of other windows)

`/snapshot` : open the snapshot window and bring it to front

`/snapshot/open` : open the snapshot window and bring it to front

`/snapshot/close` : close the snapshot window

`/snapshot/openorclose` : open the snapshot window if it was closed; close it if it was opened

`/snapshot/font/size [number]` : set the font size of the snapshot window

`/snapshot/floating [boolean]` : make the snapshot window 'floating' (i.e. always on top of other windows)

`/status/copytoclipboard` : copy the status to (the OS) clipboard

`/status/copytoclipboard [string]` : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')

/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
 /dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
 /snapshot/clear : delete all the snapshots currently in memory
 /snapshot/add : create a new snapshot with the current state
 /snapshot/add [string] : create a new snapshot with the current state, and set its name
 /snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
 /snapshot/[index]/recall : recall the current state from the i-th snapshot
 /snapshot/[index]/name [string] : set the name of the i-th snapshot
 /snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
 /snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
 /snapshot/[index]/delete : delete the i-th snapshot
 /snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
 /snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
 /snapshot/[index]/export [string] : export the i-th snapshot to file
 /snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
 /snapshot/export [string] : export all snapshots to file
 /snapshot/import [string] : import all snapshots from file

see also

- spat5.limiter~
- spat5.noisegate~
- spat5.clip~
- omx.peaklim~
- omx.comp~
- spat5.multi.connect

spat5.constraint Geometrical constraints

description

spat5.constraint applies geometrical constraints to source, speaker or listener coordinate messages.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`. Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/x/min/constant [boolean] : enable constraint for x min
/x/max/constant [boolean] : enable constraint for x max
/x/min [number] : bound for x min (in meters)
/x/max [number] : bound for x max (in meters)
/y/min/constant [boolean] : enable constraint for y min
/y/max/constant [boolean] : enable constraint for y max
/y/min [number] : bound for y min (in meters)
/y/max [number] : bound for y max (in meters)
/z/min/constant [boolean] : enable constraint for z min
/z/max/constant [boolean] : enable constraint for z max
/z/min [number] : bound for z min (in meters)
/z/max [number] : bound for z max (in meters)
/dist/min/constant [boolean] : enable constraint for dist min
/dist/max/constant [boolean] : enable constraint for dist max
/dist/min [number] : bound for dist min (in meters)
/dist/max [number] : bound for dist max (in meters)
```

see also

- spat5.scale
- spat5.rotate
- spat5.translate
- spat5.normalize
- spat5.mirror
- spat5.jitter
- spat5.viewer
- spat5.converter
- spat5.converter~
- spat5.abs2rel
- spat5.distance
- spat5.trajectories
- spat5.boids

spat5.converb~

Convolution reverb with filtering

description

spat5.converb~ is a convolution reverb with additional parametric filtering of the different temporal sections of the impulse response (direct sound, early reflections, cluster and late reverb).

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@outputs [int]

The `outputs` attribute represents the number of output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or `attrui` or `inspector`), since the number of signal inlets or outlets can not be changed dynamically.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/load [string] : load IR from audio file
/predelay [number] : set pre-delay (in msec)
/poweroftwo [boolean] : round all section length to the nearest power of 2 (in samples). More efficient
/direct/length [number] : set length for direct sound (in msec)
/early/length [number] : set length for early section (in msec)
/cluster/length [number] : set length for cluster section (in msec)
/direct/G0 [number] : set the global gain (in dB) for direct section
/direct/Gl [number] : set the gain (in dB) for low frequencies for direct section
/direct/Gm [number] : set the gain (in dB) for medium frequencies for direct section
/direct/Gh [number] : set the gain (in dB) for high frequencies for direct section
/direct/fl [number] : set the low/med crossover frequency (in Hz) for direct section
/direct/fh [number] : set the med/high crossover frequency (in Hz) for direct section
/direct/params [number][number][number][number][number][number] : set the filter parameters (G0,Gl,Gm,Gh,fl,fh) for direct section
/direct/params [number][number][number][number][number] : set the filter parameters (G0,Gl,Gm,Gh,fl) for direct section
/direct/params [number][number][number][number] : set the filter parameters (G0,Gl,Gm,Gh) for direct section
/early/G0 [number] : set the global gain (in dB) for early section
/early/Gl [number] : set the gain (in dB) for low frequencies for early section
/early/Gm [number] : set the gain (in dB) for medium frequencies for early section
/early/Gh [number] : set the gain (in dB) for high frequencies for early section
/early/fl [number] : set the low/med crossover frequency (in Hz) for early section
/early/fh [number] : set the med/high crossover frequency (in Hz) for early section
/early/params [number][number][number][number][number][number] : set the filter parameters (G0,Gl,Gm,Gh,fl,fh) for early section
/early/params [number][number][number][number][number] : set the filter parameters (G0,Gl,Gm,Gh,fl) for early section
/early/params [number][number][number][number] : set the filter parameters (G0,Gl,Gm,Gh) for early section
/cluster/G0 [number] : set the global gain (in dB) for cluster section
/cluster/Gl [number] : set the gain (in dB) for low frequencies for cluster section
/cluster/Gm [number] : set the gain (in dB) for medium frequencies for cluster section
/cluster/Gh [number] : set the gain (in dB) for high frequencies for cluster section
/cluster/fl [number] : set the low/med crossover frequency (in Hz) for cluster section
/cluster/fh [number] : set the med/high crossover frequency (in Hz) for cluster section
/cluster/params [number][number][number][number][number][number] : set the filter parameters (G0,Gl,Gm,Gh,fl,fh) for cluster section
/cluster/params [number][number][number][number][number] : set the filter parameters (G0,Gl,Gm,Gh,fl) for cluster section
/cluster/params [number][number][number][number] : set the filter parameters (G0,Gl,Gm,Gh) for cluster section
/reverb/G0 [number] : set the global gain (in dB) for reverb section
/reverb/Gl [number] : set the gain (in dB) for low frequencies for reverb section
/reverb/Gm [number] : set the gain (in dB) for medium frequencies for reverb section
/reverb/Gh [number] : set the gain (in dB) for high frequencies for reverb section
/reverb/fl [number] : set the low/med crossover frequency (in Hz) for reverb section
/reverb/fh [number] : set the med/high crossover frequency (in Hz) for reverb section
/reverb/params [number][number][number][number][number][number] : set the filter parameters (G0,Gl,Gm,Gh,fl,fh) for reverb section
/reverb/params [number][number][number][number][number] : set the filter parameters (G0,Gl,Gm,Gh,fl) for reverb section
/reverb/params [number][number][number][number] : set the filter parameters (G0,Gl,Gm,Gh) for reverb section
/omni/G0 [number] : set the global gain (in dB) for omni
/omni/Gl [number] : set the gain (in dB) for low frequencies for omni
/omni/Gm [number] : set the gain (in dB) for medium frequencies for omni
```

```

/omni/Gh [number] : set the gain (in dB) for high frequencies for omni
/omni/fl [number] : set the low/med crossover frequency (in Hz) for omni
/omni/fh [number] : set the med/high crossover frequency (in Hz) for omni
/omni/params [number] [number] [number] [number] [number] [number] : set the filter parameters (G0,Gl,Gm,Gh,fl,fh) for omni
/omni/params [number] [number] [number] [number] [number] : set the filter parameters (G0,Gl,Gm,Gh,fl) for omni
/omni/params [number] [number] [number] [number] : set the filter parameters (G0,Gl,Gm,Gh) for omni
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied whitout ramping/crossfade, so this might
generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied whitout ramping/crossfade, so this
might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio
settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for
human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is
inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for
human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for
human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the
destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll'
for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int] [int] [number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string] [string] [number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- spat5.conv~
- spat5.oper
- spat5.hlsshelf
- spat5.hlsshelf~
- spat5.multi.connect

spat5.converter

Coordinate format conversion

description

spat5.converter allows easy conversion between different coordinate formats. **spat5.converter** can also function as a routing utility, with its unmatched outlet (rightmost).

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file
```

see also

- [spat5.converter~](#)

- spat5.viewer
- spat5.abs2rel
- poltocar
- cartopol
- spat5.transform
- spat5.scale
- spat5.rotate
- spat5.translate
- spat5.normalize

spat5.converter~

Signal-rate coordinate format conversion

description

spat5.converter~ converts coordinate formats at signal-rate.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character `"`). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@input []

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@output []

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/format/input [string] : set input coordinate format
/format/output [string] : set output coordinate format
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. '\n')

```

`/dump` : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
`/dump [string]` : dump a subset of the state of the object over the rightmost outlet. See `spat5.tuto-dump-1.maxpat` for usage examples.
`/snapshot/clear` : delete all the snapshots currently in memory
`/snapshot/add` : create a new snapshot with the current state
`/snapshot/add [string]` : create a new snapshot with the current state, and set its name
`/snapshot/[index]/store` : store the current state in the i-th snapshot (in memory)
`/snapshot/[index]/recall` : recall the current state from the i-th snapshot
`/snapshot/[index]/name [string]` : set the name of the i-th snapshot
`/snapshot/interpolate [int][int][number]` : interpolate between the i-th and j-th snapshots
`/snapshot/interpolate [string][string][number]` : interpolate between two snapshots, given their names
`/snapshot/[index]/delete` : delete the i-th snapshot
`/snapshot/[index]/copytoclipboard` : copy the i-th snapshot to (the OS) clipboard
`/snapshot/[index]/copytoclipboard [string]` : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
`/snapshot/[index]/export [string]` : export the i-th snapshot to file
`/snapshot/[index]/export/content [string]` : export the content of the i-th snapshot to file
`/snapshot/export [string]` : export all snapshots to file
`/snapshot/import [string]` : import all snapshots from file

see also

- `spat5.converter`
- `spat5.viewer`
- `spat5.abs2rel`
- `poltoacar`
- `cartopol`
- `spat5.transform`
- `spat5.scale`
- `spat5.rotate`
- `spat5.translate`
- `spat5.normalize`

spat5.conv~ Realtime convolution

description

spat5.conv~ is a new implementation of the `spat.rtconv~`. It is a real-time convolver using an overlap-save block partition fft-based convolution algorithm. Unlike `spat.rtconv~`, the object uses a dynamic load-balancing algorithm and has a multithreaded implementation. The overall CPU cost is higher than `rtconv~`, but most of the processing is deferred in a background thread.

Like `rtconv~`, the object has a 'blocksize' attribute which allows to set a trade-off between latency and CPU cost.

attributes

@channels [int]

The `channels` attribute represents the number of input and output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or `attrui` or `inspector`), since the number of signal inlets or outlets can not be changed dynamically.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@inputs [int]

The `inputs` attribute represents the number of input channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or `attrui` or `inspector`), since the number of signal inlets or outlets can not be changed dynamically.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max `inspector`).

methods

`/blocksize [int]` : set block-size. `blocksize` is a parameter of the algorithm. The larger it is, the greater the input/output delay is and the less CPU time is used. It has to be a power of two greater than the signal vector size of Max. The input/output delay is = (`max(blocksize, 32)` - `vectorsize`)

`/load [string]` : load an impulse response from file (e.g. WAV or AIFF)

`/open [string]` : similar to `/load`

`/open` : open a dialog box for choosing an impulse response file

`/buffer [string]` : load impulse response from a Max buffer~

`/info` : post various information to the Max console

`/clear` : clear impulse response (all channels)

`/ir/[index]/channel/[index]/clear` : clear impulse response for the i-th channel

`/ir/[index]/channel/[index]/reverse` : reverse impulse response for the i-th channel

`/ir/[index]/channel/[index]/normalize [boolean]` : normalize impulse response for the i-th channel

`/ir/[index]/channel/[index]/crop [boolean]` : crop impulse response for the i-th channel (removes leading zeros)

`/ir/[index]/channel/[index]/fir [nnnnnn...]` : set impulse response for the i-th channel

`/ir/[index]/normalize [boolean]` : normalize impulse response (normalize each channel independently)

`/ir/[index]/reverse [boolean]` : reverse impulse response (reverse each channel independently)

`/dsp/mute [boolean]` : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied without ramping/crossfade, so this might generate clicks

`/dsp/bypass [boolean]` : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied without ramping/crossfade, so this might generate clicks

`/dsp/automute [boolean]` : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)

`/dsp/automute/attack [number]` : set the duration (in seconds) before auto-muting

`/dsp/post` : post various information to the Max console (audio should be turned on)

`/dsp/clear` : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up

`/dump/dsp/latency` : send the processor latency (in samples) through the dump outlet

`/verbose [string]` : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed

`/post/version` : print the version in the Max Console

`/post/version [details]` : print detailed version in the Max Console

`/post/doc` : print the help documentation in the Max Console

`/post/state` : print the OSC status in the Max Console

`/preset/load [string]` : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.

`/preset/load` : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format.

`/preset/export [string]` : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the

destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)

/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.

/status : open the status window and bring it to front

/status/open : open the status window and bring it to front

/status/close : close the status window

/status/openorclose : open the status window if it was closed; close it if it was opened

/status/font/size [number] : set the font size of the status window

/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)

/help : open the help window and bring it to front

/help/open : open the help window and bring it to front

/help/close : close the help window

/help/openorclose : open the help window if it was closed; close it if it was opened

/help/font/size [number] : set the font size of the help window

/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)

/snapshot : open the snapshot window and bring it to front

/snapshot/open : open the snapshot window and bring it to front

/snapshot/close : close the snapshot window

/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened

/snapshot/font/size [number] : set the font size of the snapshot window

/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)

/status/copytoclipboard : copy the status to (the OS) clipboard

/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')

/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)

/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.

/snapshot/clear : delete all the snapshots currently in memory

/snapshot/add : create a new snapshot with the current state

/snapshot/add [string] : create a new snapshot with the current state, and set its name

/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)

/snapshot/[index]/recall : recall the current state from the i-th snapshot

/snapshot/[index]/name [string] : set the name of the i-th snapshot

/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots

/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names

/snapshot/[index]/delete : delete the i-th snapshot

/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard

/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')

/snapshot/[index]/export [string] : export the i-th snapshot to file

/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file

/snapshot/export [string] : export all snapshots to file

/snapshot/import [string] : import all snapshots from file

see also

- spat5.converb~
- buffir~
- buffer~
- spat5.smk~
- spat5.hybrid~
- spat5.ir.infos
- spat5.ir.analysis

spat5.cpu Report CPU and RAM usage

description

spat5.cpu reports CPU and RAM usage.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

`/rate [number]` : set reporting rate (in msec). NB: same rate for all `spat5.cpu` instances

see also

- `adstatus`
- `dspstate~`
- `spat5.hostinfos`

spat5.cross3~ 3-band crossover filtering

description

spat5.cross3~ performs 3-band crossover filtering using Linkwitz-Riley topology. It uses cascades of biquad filters with low-pass and high-pass Butterworth design.

Reference(s) :

S. H. Linkwitz. Active crossover networks for noncoincident drivers. Journal of the Audio Engineering Society, 24(1):2 – 8, Feb 1976.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character `"`). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/f1 [number] : set low crossover frequency (in Hz)
/fh [number] : set high crossover frequency (in Hz)
/crossover [number] [number] : set crossover frequencies (in Hz)
/order [number] : set filter order
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied without ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied without ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard

```


/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
 /dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
 /dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
 /snapshot/clear : delete all the snapshots currently in memory
 /snapshot/add : create a new snapshot with the current state
 /snapshot/add [string] : create a new snapshot with the current state, and set its name
 /snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
 /snapshot/[index]/recall : recall the current state from the i-th snapshot
 /snapshot/[index]/name [string] : set the name of the i-th snapshot
 /snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
 /snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
 /snapshot/[index]/delete : delete the i-th snapshot
 /snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
 /snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
 /snapshot/[index]/export [string] : export the i-th snapshot to file
 /snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
 /snapshot/export [string] : export all snapshots to file
 /snapshot/import [string] : import all snapshots from file

see also

- cross~
- spat5.filterdesign
- spat5.graphiceq~
- spat5.graphiceq
- cascade~
- spat5.cascade~
- biquad~
- spat5.limiter~
- spat5.clip~
- spat5.softclipping~
- spat5.delta~
- spat5.deltaclip~
- spat5.tanh~
- spat5.rms~
- spat5.ebur128~
- spat5.zplane
- filtergraph~
- spat5.compressor~
- spat5.compressor
- spat5.cascade.inverse
- spat5.cascade.resample
- spat5.eq
- spat5.octavebank~
- spat5.complementarybank~

spat5.ctc~ Crosstalk-canceller

description

spat5.ctc~ is a crosstalk-cancellation (CTC) processor. It can transcode a binaural stream into a stereo compatible stream (2.0 loudspeaker setup).

spat5.ctc~ implements a transaural decoder, using the feedforward general symmetric topology.

The determinant filter of the CTC (actually the inverse of the determinant) is computed on the fly i.e. upon loading binaural hrtf data. The determinant filter can have an arbitrary length; it is processed with a real-time convolver.

Further information, adapted from "J.-M. Jot, V. Larcher, and O. Warusfel. Digital signal processing issues in the context of binaural and transaural stereophony. In Proc. of the 98th Convention of the Audio Engineering Society (AES), Paris, France, Feb. 1995."

Binaural signals (either recorded or synthesized) can be reproduced over headphones or further converted into loudspeaker-compatible signals, by means of a "cross-talk cancelling" process assuming that the listener will be placed at a particular position with respect to the loudspeaker pair. This loudspeaker reproduction technique, initially invented by Schroeder and Atal was further optimized by Cooper and Bauck, who coined the term "transaural" for this reproduction mode. Due to the fact that spatial cues are conveyed by reproducing the signals at the listener's ears rather than recreating a sound field in an extended listening space, binaural techniques are, in essence, individual reproduction techniques: they are not intended for addressing a large audience with a loudspeaker system.

The major challenges to binaural or transaural reproduction include:

- out-of-head localization of virtual sound sources in headphone simulation,
- minimization of front-back reversals and faithful reproduction of source elevation,
- accurate and natural-sounding reproduction of the room effect.

The major factors which influence the success of the simulation include:

- the techniques used for measuring and modeling the HRTFs,
- headphone equalization and reproductibility of headphone donning,
- variations of the HRTFs between individuals,
- the listener's free-field localization performance,
- the possibility of tracking listener movements during reproduction,
- interference of non-auditory (e.g. visual) information or cognitive cues, - the presence of a synthetic room effect in the simulation,
- the techniques used for synthesizing the room effect.

Reference(s) :

J.-M. Lyzwa and A. Baskind. Use of binaural and transaural spatialization techniques in multichannel 5.1 production: technical and aesthetic principles, from recording to post-production. In Proc. of the 7th Conference of Audio Engineering Society (AES) Brazil, Sao Paolo, Brazil, 2009.

A. Baskind, T. Carpentier, J.-M. Lyzwa, and O. Warusfel. Surround and 3D-Audio Production on Two-Channel and 2D-Multichannel Loudspeaker Setups. In Proc. of the 3rd International Conference on Spatial Audio (ICSA), Graz, Austria, Sept 2015.

A. Baskind, T. Carpentier, M. Noisternig, O. Warusfel, and J.-M. Lyzwa. Binaural and transaural spatialization techniques in multichannel 5.1 production. In Proc. of the 27th Tonmeisterstagung - VDT International Convention, Koln, Germany, November 2012.

J.-M. Jot, V. Larcher, and O. Warusfel. Digital signal processing issues in the context of binaural and transaural stereophony. In Proc. of the 98th Convention of the Audio Engineering Society (AES), Paris, France, Feb. 1995.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or inspector; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, `attrui` or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/method [string] : set method used for computing the CTC EQ filter. Possible values: single, singlesmooth, equalweighting, sidesweighting
/highpass [boolean] : enable high-pass filtering
/highpass/cutoff [number] : set cutoff frequency (in Hz) for high-pass filtering
/highpass/order [int] : set order for high-pass filter
/fftsize [int] : set fft size for computing the CTC EQ filter
/blur [number] : set blur factor (in /determinant/bypass [boolean] : bypass the determinant equalizer in the CTC
/hrtf [string] : load hrtf from file or url (sofa format)
/load [string] : similar to /hrtf
/speakers/aed [nnnn...] : set the list of speaker coordinates (with aed format)
/speakers/xyz [nnnn...] : set the list of speaker coordinates (with xyz format)
/speakers/ade [nnnn...] : set the list of speaker coordinates (with ade format)
/speakers/xy [nnnn...] : set the list of speaker coordinates (with xy format)
/speakers/ae [nnnn...] : set the list of speaker coordinates (with ae format)
/speaker/[index]/aed [number][number][number] : set the position of the i-th loudspeaker using navigation coordinates (azimuth/elevation/distance)

```

```

/speaker/[index]/ade [number][number][number] : set the position of the i-th loudspeaker using navigation coordinates (azimuth/distance/elevation)
/speaker/[index]/xyz [number][number][number] : set the position of the i-th loudspeaker using cartesian coordinates
/speaker/[index]/xy [number][number] : set the xy-coordinate of the i-th loudspeaker, and use default z (=0)
/speaker/[index]/ae [number][number] : set the azimuth/elevation of the i-th loudspeaker, using default distance (=1)
/speaker/[index]/az [number] : set the azimuth of the i-th loudspeaker, using default distance (=1) and elevation (=0)
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied whitout ramping/crossfade, so this might
generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied whitout ramping/crossfade, so this
might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio
settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for
human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is
inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for
human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for
human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the
destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll'
for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- spat5.binaural~
- spat5.decoder~
- spat5.pan~
- spat5.transpan~
- spat5.transpan.downmixer~
- spat5.transpan.enlarger~
- spat5.virtualspeakers~
- spat5.sofa.loader
- spat5.hrtf.infos
- spat5.multi.connect

spat5.dcfilter~

Multichannel DC removal filter

description

spat5.dcfilter~ filters the DC component.

attributes

@channels [int]

The `channels` attribute represents the number of input and output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or `attrui` or `inspector`), since the number of signal inlets or outlets can not be changed dynamically.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max `inspector`).

methods

```

/cutoff [number] : set cutoff frequency (in Hz)
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
```

`/dump` : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
`/dump [string]` : dump a subset of the state of the object over the rightmost outlet. See `spat5.tuto-dump-1.maxpat` for usage examples.
`/snapshot/clear` : delete all the snapshots currently in memory
`/snapshot/add` : create a new snapshot with the current state
`/snapshot/add [string]` : create a new snapshot with the current state, and set its name
`/snapshot/[index]/store` : store the current state in the i-th snapshot (in memory)
`/snapshot/[index]/recall` : recall the current state from the i-th snapshot
`/snapshot/[index]/name [string]` : set the name of the i-th snapshot
`/snapshot/interpolate [int][int][number]` : interpolate between the i-th and j-th snapshots
`/snapshot/interpolate [string][string][number]` : interpolate between two snapshots, given their names
`/snapshot/[index]/delete` : delete the i-th snapshot
`/snapshot/[index]/copytoclipboard` : copy the i-th snapshot to (the OS) clipboard
`/snapshot/[index]/copytoclipboard [string]` : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
`/snapshot/[index]/export [string]` : export the i-th snapshot to file
`/snapshot/[index]/export/content [string]` : export the content of the i-th snapshot to file
`/snapshot/export [string]` : export all snapshots to file
`/snapshot/import [string]` : import all snapshots from file

see also

- `cascade~`
- `biquad~`
- `filtergraph~`
- `spat5.frequencyresponse`
- `spat5.equalizer`
- `spat5.filterdesign`
- `spat5.hlsshelf~`
- `spat5.hlsshelf`
- `spat5.octavebank~`
- `spat5.zplane`
- `spat5.graphiceq~`
- `spat5.graphiceq`
- `spat5.cross3~`
- `spat5.cascade.inverse`
- `spat5.cascade.resample`
- `spat5.multi.connect`

spat5.decoder~

Generic decoder/transcoder module

description

spat5.decoder~ is the primary object for the spat decoding/transcoding module.

It functions to convert from one spatial encoding to another. Depending on the panning law, this module may not be necessary.

Examples of typical usage would be :

- decoding ambisonic streams for a given speaker layout,
- decoding MS (mid/side) microphone stream to stereo speakers,
- transcoding a binaural stream to speaker signals (also known as transaural),
- etc.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@inputs [int]

The `inputs` attribute represents the number of input channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or `attrui` or `inspector`), since the number of signal inlets or outlets can not be changed dynamically.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@outputs [int]

The `outputs` attribute represents the number of output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or `attrui` or `inspector`), since the number of signal inlets or outlets can not be changed dynamically.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

`/dsp/mute [boolean]` : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied without ramping/crossfade, so this might generate clicks

`/dsp/bypass [boolean]` : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied without ramping/crossfade, so this might generate clicks

`/dsp/automute [boolean]` : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)

`/dsp/automute/attack [number]` : set the duration (in seconds) before auto-muting

`/dsp/post` : post various information to the Max console (audio should be turned on)

`/dsp/clear` : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up

`/dump/dsp/latency` : send the processor latency (in samples) through the dump outlet

`/verbose [string]` : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed

`/post/version` : print the version in the Max Console

`/post/version [details]` : print detailed version in the Max Console

`/post/doc` : print the help documentation in the Max Console

`/post/status` : print the OSC status in the Max Console

`/preset/load [string]` : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.

`/preset/load` : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format.

`/preset/export [string]` : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)

`/preset/export` : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format.

`/status` : open the status window and bring it to front

`/status/open` : open the status window and bring it to front

`/status/close` : close the status window

`/status/openorclose` : open the status window if it was closed; close it if it was opened

`/status/font/size [number]` : set the font size of the status window

`/status/floating [boolean]` : make the status window 'floating' (i.e. always on top of other windows)

`/help` : open the help window and bring it to front

`/help/open` : open the help window and bring it to front

`/help/close` : close the help window

```

/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- spat5.pan~
- spat5.pansig~
- spat5.hoa.decoder~
- spat5.virtualspeakers~
- spat5.spat~
- spat5.align~
- spat5.ctc~
- spat5.hoa.binaural~
- spat5.panner.metrics
- spat5.multi.connect

spat5.decorrelate~

Multichannel decorrelation

description

spat5.decorrelation~ generates uncorrelated versions of the incoming signal.

attributes

@channels [int]

The `channels` attribute represents the number of input and output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or `attrui` or `inspector`), since the number of signal inlets or outlets can not be changed dynamically.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max `inspector`).

methods

`/seed [int]` : generate a new set of decorrelation filters using a given random seed
`/seed` : generate a new set of decorrelation filters with an arbitrary random seed
`/export` : export decorrelation filters to audio files
`/truncate [boolean]` : truncate decorrelation filters (might save some cpu)
`/dsp/mute [boolean]` : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied whitout ramping/crossfade, so this might generate clicks
`/dsp/bypass [boolean]` : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied whitout ramping/crossfade, so this might generate clicks
`/dsp/automute [boolean]` : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
`/dsp/automute/attack [number]` : set the duration (in seconds) before auto-muting
`/dsp/post` : post various information to the Max console (audio should be turned on)
`/dsp/clear` : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
`/dump/dsp/latency` : send the processor latency (in samples) through the dump outlet
`/verbose [string]` : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
`/post/version` : print the version in the Max Console
`/post/version [details]` : print detailed version in the Max Console
`/post/doc` : print the help documentation in the Max Console
`/post/state` : print the OSC status in the Max Console
`/preset/load [string]` : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
`/preset/load` : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format.
`/preset/export [string]` : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
`/preset/export` : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format.
`/status` : open the status window and bring it to front
`/status/open` : open the status window and bring it to front
`/status/close` : close the status window
`/status/openorclose` : open the status window if it was closed; close it if it was opened
`/status/font/size [number]` : set the font size of the status window
`/status/floating [boolean]` : make the status window 'floating' (i.e. always on top of other windows)
`/help` : open the help window and bring it to front
`/help/open` : open the help window and bring it to front
`/help/close` : close the help window
`/help/openorclose` : open the help window if it was closed; close it if it was opened
`/help/font/size [number]` : set the font size of the help window
`/help/floating [boolean]` : make the help window 'floating' (i.e. always on top of other windows)
`/snapshot` : open the snapshot window and bring it to front
`/snapshot/open` : open the snapshot window and bring it to front
`/snapshot/close` : close the snapshot window
`/snapshot/openorclose` : open the snapshot window if it was closed; close it if it was opened
`/snapshot/font/size [number]` : set the font size of the snapshot window

/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
 /status/copytoclipboard : copy the status to (the OS) clipboard
 /status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
 /dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
 /dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
 /snapshot/clear : delete all the snapshots currently in memory
 /snapshot/add : create a new snapshot with the current state
 /snapshot/add [string] : create a new snapshot with the current state, and set its name
 /snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
 /snapshot/[index]/recall : recall the current state from the i-th snapshot
 /snapshot/[index]/name [string] : set the name of the i-th snapshot
 /snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
 /snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
 /snapshot/[index]/delete : delete the i-th snapshot
 /snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
 /snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
 /snapshot/[index]/export [string] : export the i-th snapshot to file
 /snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
 /snapshot/export [string] : export all snapshots to file
 /snapshot/import [string] : import all snapshots from file

see also

- spat5.delay~
- spat5.reverb~
- spat5.pan~
- spat5.shuffle~
- spat5.multi.connect

spat5.delay~

Multichannel variable delay line

description

spat5.delay~ is quite similar to Max/MSP **delay~**. It however allows to process several delay lines in parallel. **spat5.delay~** uses a continuously interpolated fractional delay for smooth variations. Delays are specified either in milliseconds or samples.

Reference(s) :

T. I. Laakso, V. Välimäki, M. Karjalainen, and U. K. Laine. Splitting the unit delay. IEEE Signal Processing Magazine, 13(1):30 – 60, January 1996.

attributes

@channels [int]

The `channels` attribute represents the number of input and output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or `attrui` or `inspector`), since the number of signal inlets or outlets can not be changed dynamically.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character `"`). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max `inspector`).

methods

```
/channel/number [int] : set the number of channels
/delays [number] [number] [number]... : set the list of delays (in msec)
/delays/samples [number] [number] [number]... : set the list of delays (in samples)
/interpolation/mode [string] : set the interpolation mode (for all channels). Possible values: nearest, linear, lagrange3, allpass, hermite3, watte3, bspline3, parabolic, allpass2, allpass3, nearestxfade
/interpolation/time [number] : set the interpolation time (in msec) (for all channels)
/length [number] : set the allocated delay length (in msec)
/channel/[index]/delay [number] : set the delay (in msec) for the i-th channel
/channel/[index]/delay/samples [number] : set the delay (in samples) for the i-th channel
/channel/[index]/interpolation/mode [string] : set the interpolation mode for the i-th channel. Possible values: nearest, linear, lagrange3, allpass, hermite3, watte3, bspline3, parabolic, allpass2, allpass3, nearestxfade
/channel/[index]/interpolation/time [number] : set the interpolation time (in msec) for the i-th channel
/channel/[index]/length [number] : set the allocation length (in msec) for the i-th channel
/freeze [boolean] : freeze input (for all channels)
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied without ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied without ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
```

```

/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- delay~
- spat5.tapout~
- spat5.delgen
- tapin~
- tapout~
- spat5.comb~
- spat5.allpass~
- spat5.early~
- spat5.cluster~
- spat5.reverb~
- spat5.roomsize
- spat5.multi.connect

spat5.delgen Delay distribution generator

description

spat5.delgen generates a distribution of delays that can be used by `spat5.early~`, `spat5.cluster~` or `spat5.reverb~`. It is based on algorithms that attempt to maximize the decorrelation between delayed signals for perceptually smoothed reverberation.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/min [number] : set minimum delay (in msec)
/max [number] : set maximum delay (in msec)
/distr [number] : set delay distribution
/sum [number] : set sum of delays (in msec)
/minmax [number][number][number] : set minimum, maximum, and distribution of delays (in msec)
/minmax [number][number] : set minimum and maximum of delays (in msec)
/minsum [number][number][number] : set minimum, sum, and distribution of delays (in msec)
/minsum [number][number] : set minimum and sum of delays (in msec)
/delay/number [int] : set number of delays
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
```

/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

see also

- delay~
- spat5.delay~
- spat5.roomsize
- spat5.early~
- spat5.cluster~
- spat5.reverb~
- spat5.room~
- tapin~
- tapout~
- spat5.reverb.timeview

spat5.deltaclip~ Limit changes in signal amplitude

description

spat5.deltaclip~ is similar to Max/MSP **deltaclip~** but can process several channels in parallel. **spat5.deltaclip~** limits the change between samples in an incoming signal. It is similar to the **spat5.clip~** object, but it limits amplitude changes with respect to slope rather than amplitude.

attributes

@channels [int]

The **channels** attribute represents the number of input and output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or attrui or inspector), since the number of signal inlets or outlets can not be changed dynamically.

@initwith [string]

The **initwith** attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via **loadbang** or **loadmess**.

Have a look at the **spat5.tuto-osc-3.maxpat** example for further details.

Note that the **initwith** attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@mc [int]

The **mc** attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the **mc** attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The **parameter_enable** attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/min [number] : set minimum slope value
/max [number] : set maximum slope value
/minmax [number][number] : set minimum and maximum slope values
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
```

`/snapshot/floating` [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
`/status/copytoclipboard` : copy the status to (the OS) clipboard
`/status/copytoclipboard` [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
`/dump` : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
`/dump` [string] : dump a subset of the state of the object over the rightmost outlet. See `spat5.tuto-dump-1.maxpat` for usage examples.
`/snapshot/clear` : delete all the snapshots currently in memory
`/snapshot/add` : create a new snapshot with the current state
`/snapshot/add` [string] : create a new snapshot with the current state, and set its name
`/snapshot/[index]/store` : store the current state in the i-th snapshot (in memory)
`/snapshot/[index]/recall` : recall the current state from the i-th snapshot
`/snapshot/[index]/name` [string] : set the name of the i-th snapshot
`/snapshot/interpolate` [int][int][number] : interpolate between the i-th and j-th snapshots
`/snapshot/interpolate` [string][string][number] : interpolate between two snapshots, given their names
`/snapshot/[index]/delete` : delete the i-th snapshot
`/snapshot/[index]/copytoclipboard` : copy the i-th snapshot to (the OS) clipboard
`/snapshot/[index]/copytoclipboard` [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
`/snapshot/[index]/export` [string] : export the i-th snapshot to file
`/snapshot/[index]/export/content` [string] : export the content of the i-th snapshot to file
`/snapshot/export` [string] : export all snapshots to file
`/snapshot/import` [string] : import all snapshots from file

see also

- `spat5.clip~`
- `spat5.delta~`
- `clip~`
- `delta~`
- `deltaclip~`

spat5.delta~ Signal of sample differences

description

spat5.delta~ is similar to Max/MSP **delta~** but can process several channels in parallel. **spat5.delta~** outputs a signal which represents the differences between each incoming sample value in the input signal.

attributes

@channels [int]

The **channels** attribute represents the number of input and output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or attrui or inspector), since the number of signal inlets or outlets can not be changed dynamically.

@initwith [string]

The **initwith** attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via **loadbang** or **loadmess**.

Have a look at the **spat5.tuto-osc-3.maxpat** example for further details.

Note that the **initwith** attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@mc [int]

The **mc** attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the **mc** attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The **parameter_enable** attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied whitout ramping/crossfade, so this might generate clicks

/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied whitout ramping/crossfade, so this might generate clicks

/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)

/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting

/dsp/post : post various information to the Max console (audio should be turned on)

/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up

/dump/dsp/latency : send the processor latency (in samples) through the dump outlet

/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed

/post/version : print the version in the Max Console

/post/version [details] : print detailed version in the Max Console

/post/doc : print the help documentation in the Max Console

/post/state : print the OSC status in the Max Console

/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.

/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.

/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)

/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.

/status : open the status window and bring it to front

/status/open : open the status window and bring it to front

/status/close : close the status window

/status/openorclose : open the status window if it was closed; close it if it was opened

/status/font/size [number] : set the font size of the status window

/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)

/help : open the help window and bring it to front

/help/open : open the help window and bring it to front

/help/close : close the help window

/help/openorclose : open the help window if it was closed; close it if it was opened

/help/font/size [number] : set the font size of the help window

/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)

/snapshot : open the snapshot window and bring it to front

/snapshot/open : open the snapshot window and bring it to front

/snapshot/close : close the snapshot window

/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened

/snapshot/font/size [number] : set the font size of the snapshot window

/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)

/status/copytoclipboard : copy the status to (the OS) clipboard

/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')

/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
 /dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
 /snapshot/clear : delete all the snapshots currently in memory
 /snapshot/add : create a new snapshot with the current state
 /snapshot/add [string] : create a new snapshot with the current state, and set its name
 /snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
 /snapshot/[index]/recall : recall the current state from the i-th snapshot
 /snapshot/[index]/name [string] : set the name of the i-th snapshot
 /snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
 /snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
 /snapshot/[index]/delete : delete the i-th snapshot
 /snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
 /snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
 /snapshot/[index]/export [string] : export the i-th snapshot to file
 /snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
 /snapshot/export [string] : export all snapshots to file
 /snapshot/import [string] : import all snapshots from file

see also

- spat5.clip~
- spat5.deltaclick~
- clip~
- delta~
- deltaclick~

spat5.diagmatrix~ Diagonal signal matrix

description

spat5.diagmatrix~ is similar to **matrix~** but restricted to diagonal matrix (for efficiency).

attributes

@channels [int]

The **channels** attribute represents the number of input and output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or **attrui** or **inspector**), since the number of signal inlets or outlets can not be changed dynamically.

@initwith [string]

The **initwith** attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via **loadbang** or **loadmess**.

Have a look at the **spat5.tuto-osc-3.maxpat** example for further details.

Note that the **initwith** attribute cannot be set via message, **attrui** or **inspector**; it must be typed directly within the object box.

@mc [int]

The **mc** attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the **mc** attribute cannot be set via message, **attrui** or **inspector**; it must be typed directly within the object box.

@parameter_enable [boolean]

The **parameter_enable** attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/channel/number [int] : set the number of channels
/gains [number] [number] [number] ... : set the list of gains (linear)
/gains/db [number] [number] [number] ... : set the list of gains (in dB)
/channel/[index]/gain [number] : set gain (linear) for the i-th channel
/channel/[index]/gain/db [number] : set gain (in dB) for the i-th channel
/ramp/time [number] : set ramp time (in msec)
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied without ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied without ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
```

/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
 /snapshot/font/size [number] : set the font size of the snapshot window
 /snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
 /status/copytoclipboard : copy the status to (the OS) clipboard
 /status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
 /dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
 /dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
 /snapshot/clear : delete all the snapshots currently in memory
 /snapshot/add : create a new snapshot with the current state
 /snapshot/add [string] : create a new snapshot with the current state, and set its name
 /snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
 /snapshot/[index]/recall : recall the current state from the i-th snapshot
 /snapshot/[index]/name [string] : set the name of the i-th snapshot
 /snapshot/interpolate [int] [int] [number] : interpolate between the i-th and j-th snapshots
 /snapshot/interpolate [string] [string] [number] : interpolate between two snapshots, given their names
 /snapshot/[index]/delete : delete the i-th snapshot
 /snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
 /snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
 /snapshot/[index]/export [string] : export the i-th snapshot to file
 /snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
 /snapshot/export [string] : export all snapshots to file
 /snapshot/import [string] : import all snapshots from file

see also

- spat5.times~
- *~
- mc.*~
- matrix~
- matrixctrl
- spat5.routing~
- spat5.matrix
- spat5.matrix~
- spat5.multi.connect

spat5.distance Distance and angle between sources and speakers

description

spat5.distance computes distances and relative angles between the sources and loudspeakers.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character `"`). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/source/number [int] : set the number of sources
/speaker/number [int] : set the number of speakers
/source/[index]/xyz [number] [number] [number] : set the position of the i-th source using cartesian coordinates
/source/[index]/xy [number] [number] : set the xy-coordinate of the i-th source, and use default z (=0)
/speaker/[index]/aed [number] [number] [number] : set the position of the i-th speaker using navigation coordinates (azimuth/elevation/distance)
/speaker/[index]/xyz [number] [number] [number] : set the position of the i-th speaker using cartesian coordinates
/speaker/[index]/xy [number] [number] : set the xy-coordinate of the i-th speaker, and use default z (=0)
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int] [int] [number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string] [string] [number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file

```

`/snapshot/import [string]` : import all snapshots from file

see also

- `spat5.viewer`
- `spat5.abs2rel`
- `spat5.constraint`
- `spat5.scale`
- `spat5.rotate`
- `spat5.translate`
- `spat5.normalize`
- `spat5.mirror`
- `spat5.converter`
- `spat5.converter~`
- `spat5.knn`

spat5.doppler~

Doppler simulation

description

spat5.doppler~ simulates Doppler effect for a moving source.

attributes

@channels [int]

The `channels` attribute represents the number of input and output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or `attrui` or `inspector`), since the number of signal inlets or outlets can not be changed dynamically.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/channel/number [int] : set the number of channels
/channel/[index]/delay [number] : set delay (in msec) for the i-th channel
/channel/[index]/distance [number] : set distance (in meters) for the i-th channel
/channel/[index]/mute [boolean] : mute the i-th channel
/channel/[index]/bypass [boolean] : bypass the i-th channel
/soundvelocity [number] : set the speed of sound (m/sec)
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
```

/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
 /snapshot/font/size [number] : set the font size of the snapshot window
 /snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
 /status/copytoclipboard : copy the status to (the OS) clipboard
 /status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
 /dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
 /dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
 /snapshot/clear : delete all the snapshots currently in memory
 /snapshot/add : create a new snapshot with the current state
 /snapshot/add [string] : create a new snapshot with the current state, and set its name
 /snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
 /snapshot/[index]/recall : recall the current state from the i-th snapshot
 /snapshot/[index]/name [string] : set the name of the i-th snapshot
 /snapshot/interpolate [int] [int] [number] : interpolate between the i-th and j-th snapshots
 /snapshot/interpolate [string] [string] [number] : interpolate between two snapshots, given their names
 /snapshot/[index]/delete : delete the i-th snapshot
 /snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
 /snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
 /snapshot/[index]/export [string] : export the i-th snapshot to file
 /snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
 /snapshot/export [string] : export all snapshots to file
 /snapshot/import [string] : import all snapshots from file

see also

- spat5.delay~
- spat5.air~
- spat5.source~
- spat5.leslie~
- spat5.spat~
- spat5.panoramix~
- spat5.viewer
- spat5.multi.connect

spat5.early~

First stage of the Spat room module. Generates early reflections

description

spat5.early~ corresponds to the first processing stage in the spat room module. It generates first order discrete echoes.

When using **spat5.early~** inside a reverberator engine, the number of delayed channels (**channels** attribute) corresponds to the number of "internal channels" (**internals** attribute of **spat5.spat~** object).

Reference(s) :

J.-M. Jot and A. Chaigne. Digital delay networks for designing artificial reverberators. In Proc. of the 90th Convention of the Audio Engineering Society (AES), Paris, France, Feb 1991.

T. I. Laakso, V. Välimäki, M. Karjalainen, and U. K. Laine. Splitting the unit delay. IEEE Signal Processing Magazine, 13(1):30 – 60, January 1996.

attributes

@channels [int]

The **channels** attribute represents the number of input and output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or attrui or inspector), since the number of signal inlets or outlets can not be changed dynamically.

@initwith [string]

The **initwith** attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via **loadbang** or **loadmess**.

Have a look at the **spat5.tuto-osc-3.maxpat** example for further details.

Note that the **initwith** attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@inputs [int]

The **inputs** attribute represents the number of input channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or attrui or inspector), since the number of signal inlets or outlets can not be changed dynamically.

@mc [int]

The **mc** attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the **mc** attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The **parameter_enable** attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/channel/number [int] : set the number of channels
/delays [number] [number] [number] ... : set the list of delays (in msec)
/delays/samples [number] [number] [number] ... : set the list of delays (in samples)
/interpolation/mode [string] : set the interpolation mode. Possible values: nearest, linear, lagrange3, allpass, hermite3, watte3, bspline3, parabolic, allpass2, allpass3, nearestxfade
/interpolation/time [number] : set the interpolation time (in msec)
/channel/[index]/delay [number] : set the delay (in msec) for the i-th channel
/channel/[index]/delay/samples [number] : set the delay (in samples) for the i-th channel
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied without ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied without ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
```


/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.

/status : open the status window and bring it to front

/status/open : open the status window and bring it to front

/status/close : close the status window

/status/openorclose : open the status window if it was closed; close it if it was opened

/status/font/size [number] : set the font size of the status window

/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)

/help : open the help window and bring it to front

/help/open : open the help window and bring it to front

/help/close : close the help window

/help/openorclose : open the help window if it was closed; close it if it was opened

/help/font/size [number] : set the font size of the help window

/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)

/snapshot : open the snapshot window and bring it to front

/snapshot/open : open the snapshot window and bring it to front

/snapshot/close : close the snapshot window

/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened

/snapshot/font/size [number] : set the font size of the snapshot window

/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)

/status/copytoclipboard : copy the status to (the OS) clipboard

/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')

/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)

/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.

/snapshot/clear : delete all the snapshots currently in memory

/snapshot/add : create a new snapshot with the current state

/snapshot/add [string] : create a new snapshot with the current state, and set its name

/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)

/snapshot/[index]/recall : recall the current state from the i-th snapshot

/snapshot/[index]/name [string] : set the name of the i-th snapshot

/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots

/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names

/snapshot/[index]/delete : delete the i-th snapshot

/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard

/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')

/snapshot/[index]/export [string] : export the i-th snapshot to file

/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file

/snapshot/export [string] : export all snapshots to file

/snapshot/import [string] : import all snapshots from file

see also

- spat5.source~
- spat5.cluster~
- spat5.reverb~
- spat5.spat~
- spat5.ircamverb~
- spat5.delgen
- spat5.roomsize
- spat5.shuffle~
- spat5.tapout~
- delay~
- tapout~
- spat5.comb~
- spat5.allpass~
- spat5.reverb.timeview
- spat5.multi.connect

spat5.ebur128~

Loudness metering according to EBU R128

description

spat5.ebur128~ measures the loudness levels according to EBU R128 recommendations (ITU-R BS.1770-4). According to the recommendation, the object can operate on mono, stereo, 5.0 or 5.1 signals.

Reference(s) :

EBU R128 - Loudness normalization and permitted maximum level of audio signals. Technical report, EBU, 2010.

attributes

@channels [int]

The `channels` attribute represents the number of input and output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or attrui or inspector), since the number of signal inlets or outlets can not be changed dynamically.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

`/rate [number]` : set report rate (in msec)
`/clear` : clears history
`/dsp/mute [boolean]` : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied without ramping/crossfade, so this might generate clicks
`/dsp/bypass [boolean]` : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied without ramping/crossfade, so this might generate clicks
`/dsp/automute [boolean]` : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
`/dsp/automute/attack [number]` : set the duration (in seconds) before auto-muting
`/dsp/post` : post various information to the Max console (audio should be turned on)
`/dsp/clear` : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
`/dump/dsp/latency` : send the processor latency (in samples) through the dump outlet
`/verbose [string]` : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
`/post/version` : print the version in the Max Console
`/post/version [details]` : print detailed version in the Max Console
`/post/doc` : print the help documentation in the Max Console
`/post/state` : print the OSC status in the Max Console
`/preset/load [string]` : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
`/preset/load` : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format.
`/preset/export [string]` : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
`/preset/export` : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format.
`/status` : open the status window and bring it to front
`/status/open` : open the status window and bring it to front
`/status/close` : close the status window
`/status/openorclose` : open the status window if it was closed; close it if it was opened
`/status/font/size [number]` : set the font size of the status window
`/status/floating [boolean]` : make the status window 'floating' (i.e. always on top of other windows)
`/help` : open the help window and bring it to front
`/help/open` : open the help window and bring it to front
`/help/close` : close the help window
`/help/openorclose` : open the help window if it was closed; close it if it was opened
`/help/font/size [number]` : set the font size of the help window
`/help/floating [boolean]` : make the help window 'floating' (i.e. always on top of other windows)
`/snapshot` : open the snapshot window and bring it to front
`/snapshot/open` : open the snapshot window and bring it to front
`/snapshot/close` : close the snapshot window

/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
 /snapshot/font/size [number] : set the font size of the snapshot window
 /snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
 /status/copytoclipboard : copy the status to (the OS) clipboard
 /status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
 /dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
 /dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
 /snapshot/clear : delete all the snapshots currently in memory
 /snapshot/add : create a new snapshot with the current state
 /snapshot/add [string] : create a new snapshot with the current state, and set its name
 /snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
 /snapshot/[index]/recall : recall the current state from the i-th snapshot
 /snapshot/[index]/name [string] : set the name of the i-th snapshot
 /snapshot/interpolate [int] [int] [number] : interpolate between the i-th and j-th snapshots
 /snapshot/interpolate [string] [string] [number] : interpolate between two snapshots, given their names
 /snapshot/[index]/delete : delete the i-th snapshot
 /snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
 /snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
 /snapshot/[index]/export [string] : export the i-th snapshot to file
 /snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
 /snapshot/export [string] : export all snapshots to file
 /snapshot/import [string] : import all snapshots from file

see also

- spat5.meter~
- meter~
- live.gain~
- spat5.snapshot~
- spat5.minmax~
- mc.live.gain~
- spat5.weightingfilter
- spat5.multi.connect

spat5.edc Schroeder estimation of reverberation time

description

spat5.edc computes Schroeder decay curve.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character `"`). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

`/load [string]` : load IR from audio file, and analyze the first channel

`/load [string] [int]` : load IR from audio file, and analyze the i-th channel

`/toaremoval [boolean]` : ignore the samples before direct sound for the analysis

`/channel [int]` : analyze the i-th channel of the IR

see also

- `spat5.smk~`
- `spat5.edc`
- `spat5.ir.analysis`
- `spat5.ir.infos`
- `spat5.hybrid~`

spat5.eq Parametric equalizer

description

spat5.eq is a parametric equalizer. It computes coefficients of second-order filters (cascade~)
Like the `filtergraph~` object, it does not process audio signals by itself, but it does react internally to the current MSP sampling rate.

attributes

@embed [boolean]

The `embed` attribute allows to store the state of the object within the patcher. The complete state of the object is stored whenever the patcher is saved to disk. Upon loading the patcher or copying the object box, the state is restored.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
```

```

/snapshot/import [string] : import all snapshots from file
/window/title [string] : set the window title (in the window titlebar)
/window/visible [boolean] : set the window visibility
/window/moveable [boolean] : set the window movability
/window/resizable [boolean] : set the window resizability
/window/enable [boolean] : enable/disable the window
/window/background/color [color] : set the window background color
/window/opaque [boolean] : set the window opaque flag (optimize repaint efficiency)
/window/fullscreen [boolean] : enable/disable fullscreen mode
/window/minimise [boolean] : minimize the window
/window/open : open the window (and bring it to front)
/window/close : close the window
/window/openorclose : open the window if it was closed; close it if it was opened
/window/size [number] [number] : set the window size (width, height) (in pixels)
/window/width [number] : set the window width (in pixels)
/window/height [number] : set the window height (in pixels)
/window/bounds [number] [number] [number] [number] : set the window bounds (top left position, width, height) (in pixels)
/window/topleft [number] [number] : set the window top left position (in pixels)
/window/centre : open the window, centering it on the screen
/window/rendering/engine [string] : set the graphical rendering engine of the window
/window/fps/visible [boolean] : display the FPS performances of the window
/window/scale [number] : set the global scale factor of the window (in /window/floating [boolean] : make the window 'floating' (always on top)
/window/hidesondeactivate [boolean] : make the window 'hides on deactivate' (when always on top)
/window/buttons/close [boolean] : enable/disable the close button (in the window titlebar)
/window/buttons/minimise [boolean] : enable/disable the minimise button (in the window titlebar)
/window/buttons/maximise [boolean] : enable/disable the maximise button (in the window titlebar)
/window/export/image [string] : export the window as an image file (png or jpeg)

```

see also

- cascade~
- spat5.cascade~
- spat5.equalizer
- biquad~
- filtergraph~
- spat5.filterdesign
- spat5.frequencyresponse
- spat5.compressor
- spat5.limiter~
- spat5.noisegate~
- spat5.clip~
- spat5.softclipping~
- spat5.delta~
- spat5.deltaclip~
- spat5.tanh~
- spat5.fixnan~
- spat5.rms~
- spat5.ebur128~
- spat5.zplane
- zplane~
- spat5.gammatone
- spat5.octavebank~
- spat5.cascade.inverse
- spat5.cascade.resample
- spat5.complementarybank~
- spat5.graphiceq
- spat5.graphiceq~
- spat5.cross3~
- spat5.graphiceq2
- spat5.graphiceq3

spat5.eq.embedded Parametric equalizer

description

spat5.eq is a parametric equalizer. It computes coefficients of second-order filters (cascade~)
Like the `filtergraph~` object, it does not process audio signals by itself, but it does react internally to the current MSP sampling rate.

attributes

@embed [boolean]

The `embed` attribute allows to store the state of the object within the patcher. The complete state of the object is stored whenever the patcher is saved to disk. Upon loading the patcher or copying the object box, the state is restored.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
```

/snapshot/import [string] : import all snapshots from file

see also

- cascade~
- spat5.cascade~
- spat5.equalizer
- biquad~
- filtergraph~
- spat5.filterdesign
- spat5.frequencyresponse
- spat5.compressor
- spat5.limiter~
- spat5.noisegate~
- spat5.clip~
- spat5.softclipping~
- spat5.delta~
- spat5.deltaclip~
- spat5.tanh~
- spat5.fixnan~
- spat5.rms~
- spat5.ebur128~
- spat5.zplane
- zplane~
- spat5.gammatone
- spat5.octavebank~
- spat5.cascade.inverse
- spat5.cascade.resample
- spat5.complementarybank~
- spat5.graphiceq
- spat5.graphiceq~
- spat5.cross3~
- spat5.graphiceq2
- spat5.graphiceq3

spat5.equalizer

Parametric equalizer

description

spat5.equalizer is a parametric equalizer. It computes coefficients of second-order filters (cascade~)
Like the `filtergraph~` object, it does not process audio signals by itself, but it does react internally to the current MSP sampling rate.

attributes

@channels [int]

The `channels` attribute represents the number of input and output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or `attrui` or `inspector`), since the number of signal inlets or outlets can not be changed dynamically.

@embed [boolean]

The `embed` attribute allows to store the state of the object within the patcher. The complete state of the object is stored whenever the patcher is saved to disk. Upon loading the patcher or copying the object box, the state is restored.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.
Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.
Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max `inspector`).

methods

```
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
```

```

/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file
/window/title [string] : set the window title (in the window titlebar)
/window/visible [boolean] : set the window visibility
/window/moveable [boolean] : set the window movability
/window/resizable [boolean] : set the window resizability
/window/enable [boolean] : enable/disable the window
/window/background/color [color] : set the window background color
/window/opaque [boolean] : set the window opaque flag (optimize repaint efficiency)
/window/fullscreen [boolean] : enable/disable fullscreen mode
/window/minimise [boolean] : minimize the window
/window/open : open the window (and bring it to front)
/window/close : close the window
/window/openorclose : open the window if it was closed; close it if it was opened
/window/size [number] [number] : set the window size (width, height) (in pixels)
/window/width [number] : set the window width (in pixels)
/window/height [number] : set the window height (in pixels)
/window/bounds [number] [number] [number] [number] : set the window bounds (top left position, width, height) (in pixels)
/window/topleft [number] [number] : set the window top left position (in pixels)
/window/centre : open the window, centering it on the screen
/window/rendering/engine [string] : set the graphical rendering engine of the window
/window/fps/visible [boolean] : display the FPS performances of the window
/window/scale [number] : set the global scale factor of the window (in /window/floating [boolean] : make the window 'floating' (always on top)
/window/hidesondeactivate [boolean] : make the window 'hides on deactivate' (when always on top)
/window/buttons/close [boolean] : enable/disable the close button (in the window titlebar)
/window/buttons/minimise [boolean] : enable/disable the minimise button (in the window titlebar)
/window/buttons/maximise [boolean] : enable/disable the maximise button (in the window titlebar)
/window/export/image [string] : export the window as an image file (png or jpeg)

```

see also

- cascade~
- spat5.cascade~
- spat5.eq
- biquad~
- filtergraph~
- spat5.filterdesign
- spat5.frequencyresponse
- spat5.compressor
- spat5.limiter~
- spat5.noisegate~
- spat5.clip~
- spat5.softclipping~
- spat5.delta~
- spat5.deltaclip~
- spat5.tanh~
- spat5.fixnan~
- spat5.rms~
- spat5.ebur128~
- spat5.zplane
- zplane~
- spat5.gammatone
- spat5.cascade.inverse
- spat5.cascade.resample
- spat5.octavebank~
- spat5.complementarybank~

spat5.equalizer.embedded

Parametric equalizer

description

spat5.equalizer is a parametric equalizer. It computes coefficients of second-order filters (cascade~)
Like the filtergraph~ object, it does not process audio signals by itself, but it does react internally to the current MSP sampling rate.

attributes

@channels [int]

The `channels` attribute represents the number of input and output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or attrui or inspector), since the number of signal inlets or outlets can not be changed dynamically.

@embed [boolean]

The `embed` attribute allows to store the state of the object within the patcher. The complete state of the object is stored whenever the patcher is saved to disk. Upon loading the patcher or copying the object box, the state is restored.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via loadbang or loadmess.
Have a look at the spat5.tuto-osc-3.maxpat example for further details.
Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int] [int] [number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string] [string] [number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
```

`/snapshot/[index]/copytoclipboard` : copy the i-th snapshot to (the OS) clipboard
`/snapshot/[index]/copytoclipboard [string]` : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
`/snapshot/[index]/export [string]` : export the i-th snapshot to file
`/snapshot/[index]/export/content [string]` : export the content of the i-th snapshot to file
`/snapshot/export [string]` : export all snapshots to file
`/snapshot/import [string]` : import all snapshots from file

see also

- `cascade~`
- `spat5.cascade~`
- `spat5.eq`
- `biquad~`
- `filtergraph~`
- `spat5.filterdesign`
- `spat5.frequencyresponse`
- `spat5.compressor`
- `spat5.limiter~`
- `spat5.noisegate~`
- `spat5.clip~`
- `spat5.softclipping~`
- `spat5.delta~`
- `spat5.deltacclip~`
- `spat5.tanh~`
- `spat5.fixnan~`
- `spat5.rms~`
- `spat5.ebur128~`
- `spat5.zplane`
- `zplane~`
- `spat5.gammatone`
- `spat5.cascade.inverse`
- `spat5.cascade.resample`
- `spat5.octavebank~`
- `spat5.complementarybank~`

spat5.evert Accelerated beam tracing algorithm

description

spat5.evert performs beam tracing simulation.

Reference(s) :

M. Noisternig, B. F. G. Katz, S. Siltanen, and L. Savioja. Framework for real-time auralization in architectural acoustics. *Acta Acustica united with Acustica*, 99:1000 – 1015, Sept 2008.

S. Laine, S. Siltanen, T. Lokki, and L. Savioja. Accelerated beam tracing algorithm. *Applied Acoustics*, 70:172 – 181, 2009.

L. Savioja and U. P. Svensson. Overview of geometrical room acoustic modeling techniques. *Journal of the Acoustical Society of America*, 138(2):708 – 730, Aug. 2015.

D. Poirier-Quinot, B. Katz, and M. Noisternig. Evertims: Open source framework for real-time auralization in architectural acoustics and virtual reality. In *Proc. of the 20th International Conference on Digital Audio Effects (DAFx-17)*, Edinburgh, UK, Sept. 2017.

D. Poirier-Quinot, B. F. Katz, and M. Noisternig. Evertims: Open source framework for real-time auralization in VR. In *Proc. of the 12th International Audio Mostly Conference on Augmented and Participatory Sound and Music Experiences*, London, UK, Aug 2017.

M. Noisternig, L. Savioja, and B. F. Katz. Real-time auralization system based on beam-tracing and mixed-order ambisonics. *Journal of the Acoustical Society of America*, 123(5):3935 – 3935, 2008.

attributes

@bands [int]

The `bands` attribute represents the number frequency bands. It can not be changed dynamically (via message or attrui or inspector).

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/soundvelocity [number] : set the speed of sound (m/sec)
/band/number [int] : set the number of frequency bands
/freq/center [number] [number]... : set center frequency for each band (in Hz)
/freq/limits [number] [number]... : set edge frequency for each band (in Hz)
/room/number [int] : set the number of rooms
/source/number [int] : set the number of sources
/listener/number [int] : set the number of listeners
/hoa/order [int] : set HOA order (for directivity simulation)
/air [boolean] : enable/disable air absorption (in the simulated paths)
/order [int] : set maximum order for the simulation of image sources
/export/matlab : export all the solutions as matlab script(s), in the home folder
/export/matlab [string] : export all the solutions as matlab script(s), in the designated folder
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front

```

```

/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- spat5.evert~
- spat5.viewer
- spat5.hoa.directivity
- spat5.multi.connect

spat5.evert~ Evert auralization engine

description

Evert auralization engine.

attributes

@bands [int]

The `bands` attribute represents the number frequency bands. It can not be changed dynamically (via message or attrui or inspector).

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@mode [string]

The `mode` attribute is used to specify the "input type" of each source. `spat5.spat~` supports mono and stereo input sources.

Note that the `mode` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

Possible syntax:

@mode "mono" : all sources are mono (default)

@mode "stereo" : all sources are stereo

@mode "mono mono stereo" : a list of modes for each of the 3 sources

You can also use the shorthand notation : @mode "m m s"

@mode "mono 2 stereo 1" : 2 mono sources, followed by 1 stereo source

You can also use the shorthand notation : @mode "m 2 s 1"

@order [int]

The `order` attribute represents the Ambisonic order of the stream.

For 2D Ambisonic, the number of components is $(2 \times \text{order} + 1)$.

For 3D Ambisonic, the number of components is $(\text{order}+1) \times (\text{order}+1)$.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

@sources [int]

The `sources` attribute represents the number of input channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or attrui or inspector), since the number of signal inlets or outlets can not be changed dynamically.

methods

/soundvelocity [number] : set the speed of sound (m/sec)

/crossfade/duration [number] : set (absorption) filter crossfade duration (in msec)

/crossfade/type [string] : set type of (absorption) filter crossfade. Possible values: linear, cosine, squarecosine

/interpolation/mode [string] : set interpolation mode for fractional delay. Possible values: nearest, linear, lagrange3, allpass, hermite3, watte3, bspline3, parabolic, allpass2, allpass3, nearestxfade

/interpolation/time [number] : set interpolation duration for fractional delay (in msec)

/norm [string] : set HOA normalization. Possible values: sn3d, sn2d, n3d, n2d, fuma, maxn, unnormalized

/paths/maximum [int] : set maximum number of paths to render (per source)

/paths/maxlength [number] : set maximum path length. Paths with a longer length wont be rendered

/paths/polarity [string] : set phase polarity for paths

/fdn/enable [boolean] : enable/disable FDN(s) rendering (applies to all solutions)(for debug purpose only)

/direct/enable [boolean] : enable/disable direct sound rendering (applies to all solutions)(for debug purpose only)

/fdn/mute [boolean] : mute FDN(s) (applies to all solutions)

/direct/mute [boolean] : mute direct sound (applies to all solutions)

/fdn/[name]/mute [boolean] : mute the corresponding FDN (applies to all solutions connected to this FDN)

/fdn/[name]/tr0 [number] : set global reverberation time (in seconds)

/fdn/[name]/decay/times [number] [number] [number] ... : set relative decay times for each frequency band

/fdn/[name]/early/delays [number] [number] ... : set early delays (in msec)

/fdn/[name]/cluster/delays [number] [number] ... : set cluster delays (in msec)

/fdn/[name]/reverb/delays [number] [number] ... : set reverb delays (in msec)

```

/fdn/[name]/antiphase [boolean] : enable/disable antiphase filter for the corresponding FDN
/source/[index]/mute [boolean] : mute/unmute the i-th source
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied without ramping/crossfade, so this might
generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied without ramping/crossfade, so this
might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio
settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for
human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is
inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for
human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for
human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the
destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll'
for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- spat5.evert
- spat5.viewer
- spat5.hoa.directivity

spat5.evert.fdn~

FDN reverberation

description

spat5.evert.fdn~ generates reverberation with a feedback delay network. It includes early, cluster, reverb, and optional cancelling of the beginning of the FDN (so-called 'antiphase' filter).

Reference(s) :

J.-M. Jot and A. Chaigne. Digital delay networks for designing artificial reverberators. In Proc. of the 90th Convention of the Audio Engineering Society (AES), Paris, France, Feb 1991.

T. I. Laakso, V. Välimäki, M. Karjalainen, and U. K. Laine. Splitting the unit delay. IEEE Signal Processing Magazine, 13(1):30 – 60, January 1996.

attributes

@bands [int]

The `bands` attribute represents the number frequency bands. It can not be changed dynamically (via message or attrui or inspector).

@channels [int]

The `channels` attribute represents the number of input and output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or attrui or inspector), since the number of signal inlets or outlets can not be changed dynamically.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/channel/number [int] : set the number of feedback channels
/band/number [int] : set the number of frequency bands
/cascade/number [int] : set the number of SOS filters for decay rendering
/tr0 [number] : set global reverberation time (in seconds)
/decay/times [number][number][number]... : set relative decay times for each frequency band
/freq/center [number][number]... : set center frequency for each band (in Hz)
/freq/limits [number][number]... : set edge frequency for each band (in Hz)
/early/delays [number][number]... : set early delays (in msec)
/cluster/delays [number][number]... : set cluster delays (in msec)
/reverb/delays [number][number]... : set reverb delays (in msec)
/early/delays/samples [number][number]... : set early delays (in samples)
/cluster/delays/samples [number][number]... : set cluster delays (in samples)
/reverb/delays/samples [number][number]... : set reverb delays (in samples)
/antiphase [boolean] : enable/disable antiphase filter
/antiphase/length [int] : set length of the antiphase filter (in msec)
/cluster/enable [boolean] : enable/disable cluster stage
/air [boolean] : enable/disable air absorption in the FDN
/air/freq [number] : set air absorption rolloff frequency (in Hz) in the FDN
/interpolation/mode [string] : set interpolation mode for fractional delay. Possible values: nearest, linear, lagrange3, allpass, hermite3, watte3, bspline3, parabolic, allpass2, allpass3, nearestxfade
/interpolation/time [number] : set interpolation duration for fractional delay (in msec)
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
```

/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

see also

- spat5.early~
- spat5.cluster~
- spat5.reverb~
- spat5.spat~
- spat5.room~
- spat5.ircamverb~
- spat5.delgen
- spat5.multiverb~
- spat5.roomsize
- spat5.shuffle~
- spat5.multiverb~
- spat5.conv~
- spat5.converb~
- spat5.tapout~
- delay~
- tapout~
- spat5.comb~
- spat5.allpass~
- spat5.reverb.timeview
- spat5.multi.connect

spat5.fact2crit

Conversion between perceptual factors and acoustical criteria

description

spat5.fact2crit converts between perceptual factors and acoustical criteria.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- [spat5.oper](#)

- spat5.spat~
- spat5.oper_

spat5.file.infos File information

description

spat5.file.infos retrieves various information about file on disk.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file
```

see also

- [spat5.folder.infos](#)

- spat5.hostinfos
- opendialog
- conformpath
- dropfile
- date
- filedate
- filepath
- strippath
- savedialog
- folder

spat5.filterdesign

Filter design

description

spat5.filterdesign generates filter coefficients with various topologies.

Like the `filtergraph~` object, it does not process audio signals by itself, but it does react internally to the current MSP sampling rate.

The Butterworth filter is a type of signal processing filter designed to have a frequency response as flat as possible in the passband. It is also referred to as a maximally flat magnitude filter.

Properties of the Butterworth filter are:

- Monotonic amplitude response in both passband and stopband
- Quick roll-off around the cutoff frequency, which improves with increasing order
- Considerable overshoot and ringing in step response, which worsens with increasing order
- Slightly non-linear phase response
- Group delay largely frequency-dependent

Chebyshev filters are digital filters having a steeper roll-off than Butterworth filters, and have passband ripple (type I) or stopband ripple (type II). Chebyshev filters have the property that they minimize the error between the idealized and the actual filter characteristic over the range of the filter but with ripples in the passband. Chebyshev filters are sharper than the Butterworth filter; they are not as sharp as the elliptic one, but they show fewer ripples over the bandwidth.

An elliptic filter (also known as a Cauer filter or as a Zolotarev filter) is a signal processing filter with equalized ripple (equiripple) behavior in both the passband and the stopband. The amount of ripple in each band is independently adjustable, and no other filter of equal order can have a faster transition in gain between the passband and the stopband, for the given values of ripple.

Bessel filter is a type of analog linear filter with a maximally flat group/phase delay (maximally linear phase response), which preserves the wave shape of filtered signals in the passband. Bessel filters are often used in audio crossover systems.

attributes

@embed [boolean]

The `embed` attribute allows to store the state of the object within the patcher. The complete state of the object is stored whenever the patcher is saved to disk. Upon loading the patcher or copying the object box, the state is restored.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

`/post/version` : print the version in the Max Console

`/post/version [details]` : print detailed version in the Max Console

`/post/doc` : print the help documentation in the Max Console

`/post/state` : print the OSC status in the Max Console

`/preset/load [string]` : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.

`/preset/load` : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format.

`/preset/export [string]` : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)

`/preset/export` : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format.

`/status` : open the status window and bring it to front

`/status/open` : open the status window and bring it to front

`/status/close` : close the status window

`/status/openorclose` : open the status window if it was closed; close it if it was opened

`/status/font/size [number]` : set the font size of the status window

`/status/floating [boolean]` : make the status window 'floating' (i.e. always on top of other windows)

`/help` : open the help window and bring it to front

`/help/open` : open the help window and bring it to front

`/help/close` : close the help window

`/help/openorclose` : open the help window if it was closed; close it if it was opened

`/help/font/size [number]` : set the font size of the help window

`/help/floating [boolean]` : make the help window 'floating' (i.e. always on top of other windows)

`/snapshot` : open the snapshot window and bring it to front

`/snapshot/open` : open the snapshot window and bring it to front

`/snapshot/close` : close the snapshot window

`/snapshot/openorclose` : open the snapshot window if it was closed; close it if it was opened

```

/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int] [int] [number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string] [string] [number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file
/window/title [string] : set the window title (in the window titlebar)
/window/visible [boolean] : set the window visibility
/window/moveable [boolean] : set the window movability
/window/resizable [boolean] : set the window resizability
/window/enable [boolean] : enable/disable the window
/window/background/color [color] : set the window background color
/window/opaque [boolean] : set the window opaque flag (optimize repaint efficiency)
/window/fullscreen [boolean] : enable/disable fullscreen mode
/window/minimise [boolean] : minimize the window
/window/open : open the window (and bring it to front)
/window/close : close the window
/window/openorclose : open the window if it was closed; close it if it was opened
/window/size [number] [number] : set the window size (width, height) (in pixels)
/window/width [number] : set the window width (in pixels)
/window/height [number] : set the window height (in pixels)
/window/bounds [number] [number] [number] [number] : set the window bounds (top left position, width, height) (in pixels)
/window/topleft [number] [number] : set the window top left position (in pixels)
/window/centre : open the window, centering it on the screen
/window/rendering/engine [string] : set the graphical rendering engine of the window
/window/fps/visible [boolean] : display the FPS performances of the window
/window/scale [number] : set the global scale factor of the window (in /window/floating [boolean] : make the window 'floating' (always on top)
/window/hidesondeactivate [boolean] : make the window 'hides on deactivate' (when always on top)
/window/buttons/close [boolean] : enable/disable the close button (in the window titlebar)
/window/buttons/minimise [boolean] : enable/disable the minimise button (in the window titlebar)
/window/buttons/maximise [boolean] : enable/disable the maximise button (in the window titlebar)
/window/export/image [string] : export the window as an image file (png or jpeg)

```

see also

- cascade~
- spat5.cascade~
- biquad~
- filtergraph~
- filterdesign
- spat5.zplane
- spat5.equalizer
- spat5.hlsshelf
- spat5.hlsshelf~
- spat5.frequencyresponse
- spat5.gammatone
- spat5.octavebank~
- spat5.cascade.inverse
- spat5.cascade.resample
- spat5.complementarybank~
- spat5.graphiceq
- spat5.graphiceq~
- spat5.cross3~
- spat5.graphiceq2
- spat5.graphiceq3
- spat5.weightingfilterspat5.eq

spat5.filterdesign.embedded

Filter design

description

spat5.filterdesign generates filter coefficients with various topologies.

Like the `filtergraph~` object, it does not process audio signals by itself, but it does react internally to the current MSP sampling rate.

The Butterworth filter is a type of signal processing filter designed to have a frequency response as flat as possible in the passband. It is also referred to as a maximally flat magnitude filter.

Properties of the Butterworth filter are:

- Monotonic amplitude response in both passband and stopband
- Quick roll-off around the cutoff frequency, which improves with increasing order
- Considerable overshoot and ringing in step response, which worsens with increasing order
- Slightly non-linear phase response
- Group delay largely frequency-dependent

Chebyshev filters are digital filters having a steeper roll-off than Butterworth filters, and have passband ripple (type I) or stopband ripple (type II). Chebyshev filters have the property that they minimize the error between the idealized and the actual filter characteristic over the range of the filter but with ripples in the passband. Chebyshev filters are sharper than the Butterworth filter; they are not as sharp as the elliptic one, but they show fewer ripples over the bandwidth.

An elliptic filter (also known as a Cauer filter or as a Zolotarev filter) is a signal processing filter with equalized ripple (equiripple) behavior in both the passband and the stopband. The amount of ripple in each band is independently adjustable, and no other filter of equal order can have a faster transition in gain between the passband and the stopband, for the given values of ripple.

Bessel filter is a type of analog linear filter with a maximally flat group/phase delay (maximally linear phase response), which preserves the wave shape of filtered signals in the passband. Bessel filters are often used in audio crossover systems.

attributes

@embed [boolean]

The `embed` attribute allows to store the state of the object within the patcher. The complete state of the object is stored whenever the patcher is saved to disk. Upon loading the patcher or copying the object box, the state is restored.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

`/post/version` : print the version in the Max Console

`/post/version [details]` : print detailed version in the Max Console

`/post/doc` : print the help documentation in the Max Console

`/post/state` : print the OSC status in the Max Console

`/preset/load [string]` : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.

`/preset/load` : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format.

`/preset/export [string]` : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)

`/preset/export` : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format.

`/status` : open the status window and bring it to front

`/status/open` : open the status window and bring it to front

`/status/close` : close the status window

`/status/openorclose` : open the status window if it was closed; close it if it was opened

`/status/font/size [number]` : set the font size of the status window

`/status/floating [boolean]` : make the status window 'floating' (i.e. always on top of other windows)

`/help` : open the help window and bring it to front

`/help/open` : open the help window and bring it to front

`/help/close` : close the help window

`/help/openorclose` : open the help window if it was closed; close it if it was opened

`/help/font/size [number]` : set the font size of the help window

`/help/floating [boolean]` : make the help window 'floating' (i.e. always on top of other windows)

`/snapshot` : open the snapshot window and bring it to front

`/snapshot/open` : open the snapshot window and bring it to front

`/snapshot/close` : close the snapshot window

`/snapshot/openorclose` : open the snapshot window if it was closed; close it if it was opened

```

/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int] [int] [number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string] [string] [number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- cascade~
- spat5.cascade~
- biquad~
- filtergraph~
- filterdesign
- spat5.zplane
- spat5.equalizer
- spat5.hlshef
- spat5.hlshef~
- spat5.frequencyresponse
- spat5.gammatone
- spat5.octavebank~
- spat5.cascade.inverse
- spat5.cascade.resample
- spat5.complementarybank~
- spat5.graphiceq
- spat5.graphiceq~
- spat5.cross3~
- spat5.graphiceq2
- spat5.graphiceq3
- spat5.weightingfilterspat5.eq

spat5.fir~ Multichannel FIR filter

description

spat5.fir~ is similar to **Max/MSP buffir~** but can perform several channels in parallel. Each channel has its own set of filter coefficients.

attributes

@channels [int]

The `channels` attribute represents the number of input and output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or `attrui` or `inspector`), since the number of signal inlets or outlets can not be changed dynamically.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/channel/number [int] : set the number of channels
/channel/[index]/fir [number][number][number]... : set the filter coefficients for the i-th channel
/channel/[index]/fir/clear : clear filter coefficients for the i-th channel
/channel/[index]/mute [boolean] : mute/unmute the DSP rendering for the i-th channel
/channel/[index]/bypass [boolean] : bypass the DSP rendering for the i-th channel
/crossfade/duration [number] : set filter crossfade duration (in msec) (applied to all channels)
/crossfade/type [string] : set type of filter crossfade (applied to all channels)
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front

```

```

/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- buffir~
- spat5.cascade~
- spat5.conv~
- cascade~
- biquad~
- filtergraph~
- spat5.frequencyresponse
- spat5.equalizer
- spat5.filterdesign
- spat5.hlsshelf~
- spat5.hlsshelf
- spat5.octavebank~
- spat5.zplane
- spat5.graphiceq~
- spat5.graphiceq
- spat5.cross3~
- spat5.cascade.inverse
- spat5.cascade.resample
- spat5.octavebank~
- spat5.eq
- spat5.multi.connect

spat5.fixnan~ Filters out NaN or Inf

description

spat5.fixnan~ replaces NaN or Inf values in a signal.

attributes

@channels [int]

The `channels` attribute represents the number of input and output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or `attrui` or `inspector`), since the number of signal inlets or outlets can not be changed dynamically.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max `inspector`).

methods

```

/mode [string] : set the processing mode
/replacement [number] : set the replacement value (for 'givenvalue' mode only)
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard

```

`/status/copytoclipboard [string]` : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
`/dump` : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
`/dump [string]` : dump a subset of the state of the object over the rightmost outlet. See `spat5.tuto-dump-1.maxpat` for usage examples.
`/snapshot/clear` : delete all the snapshots currently in memory
`/snapshot/add` : create a new snapshot with the current state
`/snapshot/add [string]` : create a new snapshot with the current state, and set its name
`/snapshot/[index]/store` : store the current state in the i-th snapshot (in memory)
`/snapshot/[index]/recall` : recall the current state from the i-th snapshot
`/snapshot/[index]/name [string]` : set the name of the i-th snapshot
`/snapshot/interpolate [int][int][number]` : interpolate between the i-th and j-th snapshots
`/snapshot/interpolate [string][string][number]` : interpolate between two snapshots, given their names
`/snapshot/[index]/delete` : delete the i-th snapshot
`/snapshot/[index]/copytoclipboard` : copy the i-th snapshot to (the OS) clipboard
`/snapshot/[index]/copytoclipboard [string]` : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
`/snapshot/[index]/export [string]` : export the i-th snapshot to file
`/snapshot/[index]/export/content [string]` : export the content of the i-th snapshot to file
`/snapshot/export [string]` : export all snapshots to file
`/snapshot/import [string]` : import all snapshots from file

see also

- `spat5.fixnan`
- `spat5.isnan~`
- `spat5.noisegate~`
- `spat5.clip~`
- `spat5.delta~`
- `spat5.deltaclip~`
- `spat5.tanh~`
- `spat5.softclipping~`
- `spat5.compressor~`
- `spat5.limiter~`
- `spat5.multi.connect`

spat5.folder.infos List folder content

description

`spat5.folder.infos` can list the content of a folder.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- [spat5.file.infos](#)

- spat5.hostinfos
- opendialog
- conformpath
- dropfile
- date
- filedate
- filepath
- strippath
- savedialog
- folder

spat5.frequencyresponse

Plot frequency response

description

spat5.frequencyresponse displays the frequency response of FIR or IIR filters.

Like the `filtergraph~` object, it does not process audio signals by itself, but it does react internally to the current MSP sampling rate.

attributes

@embed [boolean]

The `embed` attribute allows to store the state of the object within the patcher. The complete state of the object is stored whenever the patcher is saved to disk. Upon loading the patcher or copying the object box, the state is restored.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
```

```
/snapshot/import [string] : import all snapshots from file
>window/title [string] : set the window title (in the window titlebar)
>window/visible [boolean] : set the window visibility
>window/moveable [boolean] : set the window movability
>window/resizable [boolean] : set the window resizability
>window/enable [boolean] : enable/disable the window
>window/background/color [color] : set the window background color
>window/opaque [boolean] : set the window opaque flag (optimize repaint efficiency)
>window/fullscreen [boolean] : enable/disable fullscreen mode
>window/minimise [boolean] : minimize the window
>window/open : open the window (and bring it to front)
>window/close : close the window
>window/openorclose : open the window if it was closed; close it if it was opened
>window/size [number] [number] : set the window size (width, height) (in pixels)
>window/width [number] : set the window width (in pixels)
>window/height [number] : set the window height (in pixels)
>window/bounds [number] [number] [number] [number] : set the window bounds (top left position, width, height) (in pixels)
>window/topleft [number] [number] : set the window top left position (in pixels)
>window/centre : open the window, centering it on the screen
>window/rendering/engine [string] : set the graphical rendering engine of the window
>window/fps/visible [boolean] : display the FPS performances of the window
>window/scale [number] : set the global scale factor of the window (in /window/floating [boolean] : make the window 'floating' (always on top)
>window/hidesondeactivate [boolean] : make the window 'hides on deactivate' (when always on top)
>window/buttons/close [boolean] : enable/disable the close button (in the window titlebar)
>window/buttons/minimise [boolean] : enable/disable the minimise button (in the window titlebar)
>window/buttons/maximise [boolean] : enable/disable the maximise button (in the window titlebar)
>window/export/image [string] : export the window as an image file (png or jpeg)
```

see also

- biquad~
- cascade~
- spat5.hlsshelf
- spat5.hlsshelf~
- spat5.equalizer
- spat5.cascade~
- spat5.filterdesign
- filtergraph~
- spat5.graphiceq~
- spat5.graphiceq
- spat5.eq
- spat5.zplane
- zplane~
- spat5.gammatone
- spat5.octavebank~
- spat5.gammatone
- spat5.cascade.inverse
- spat5.cascade.resample
- spat5.complementarybank~
- spat5.cross3~
- spat5.graphiceq2
- spat5.graphiceq3

spat5.frequencyresponse.embedded

Plot frequency response

description

spat5.frequencyresponse displays the frequency response of FIR or IIR filters.

Like the `filtergraph~` object, it does not process audio signals by itself, but it does react internally to the current MSP sampling rate.

attributes

@embed [boolean]

The `embed` attribute allows to store the state of the object within the patcher. The complete state of the object is stored whenever the patcher is saved to disk. Upon loading the patcher or copying the object box, the state is restored.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character `"`). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
```

/snapshot/import [string] : import all snapshots from file

see also

- biquad~
- cascade~
- spat5.hlshef
- spat5.hlshef~
- spat5.equalizer
- spat5.cascade~
- spat5.filterdesign
- filtergraph~
- spat5.graphiceq~
- spat5.graphiceq
- spat5.eq
- spat5.zplane
- zplane~
- spat5.gammatone
- spat5.octavebank~
- spat5.gammatone
- spat5.cascade.inverse
- spat5.cascade.resample
- spat5.complementarybank~
- spat5.cross3~
- spat5.graphiceq2
- spat5.graphiceq3

spat5.gammatone

Gammatone filter design

description

spat5.gammatone generates a gammatone filter bank, using IIR filters.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
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/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file
```

see also

- [cascade~](#)

- biquad~
- filtergraph~
- spat5.frequencyresponse
- spat5.equalizer
- spat5.filterdesign
- spat5.hlsshelf~
- spat5.hlsshelf
- spat5.zplane
- spat5.graphiceq~
- spat5.graphiceq
- spat5.cross3~
- spat5.cascade.inverse
- spat5.cascade.resample
- spat5.octavebank~

spat5.gate~ Route a signal to one of several outlets

description

spat5.gate~ is similar to **Max/MSP gate~**.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character `"`). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with `Max8` or higher). Note that the `mc` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@outputs [int]

The `outputs` attribute represents the number of output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or `attrui` or `inspector`), since the number of signal inlets or outlets can not be changed dynamically.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with `Max` snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the `Max` `inspector`).

methods

```

/output [int] : set index of open outlet
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
```

`/dump` : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
`/dump [string]` : dump a subset of the state of the object over the rightmost outlet. See `spat5.tuto-dump-1.maxpat` for usage examples.
`/snapshot/clear` : delete all the snapshots currently in memory
`/snapshot/add` : create a new snapshot with the current state
`/snapshot/add [string]` : create a new snapshot with the current state, and set its name
`/snapshot/[index]/store` : store the current state in the i-th snapshot (in memory)
`/snapshot/[index]/recall` : recall the current state from the i-th snapshot
`/snapshot/[index]/name [string]` : set the name of the i-th snapshot
`/snapshot/interpolate [int][int][number]` : interpolate between the i-th and j-th snapshots
`/snapshot/interpolate [string][string][number]` : interpolate between two snapshots, given their names
`/snapshot/[index]/delete` : delete the i-th snapshot
`/snapshot/[index]/copytoclipboard` : copy the i-th snapshot to (the OS) clipboard
`/snapshot/[index]/copytoclipboard [string]` : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
`/snapshot/[index]/export [string]` : export the i-th snapshot to file
`/snapshot/[index]/export/content [string]` : export the content of the i-th snapshot to file
`/snapshot/export [string]` : export all snapshots to file
`/snapshot/import [string]` : import all snapshots from file

see also

- `gate~`
- `selector~`
- `matrix~`
- `spat5.selector~`
- `spat5.routing~`
- `spat5.routing`
- `spat5.diagmatrix~`
- `spat5.multi.connect`

spat5.gopro.decode

Decode GoPro VR Player packets

description

spat5.gopro receives JSON packet from Kolor GoPro VR Player, and transcodes it to OSC bundles.

attributes

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int] [int] [number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string] [string] [number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file
```

see also

- spat5.osc.view
- spat5.osc.display
- spat5.osc.print
- udpsend
- udpreceive

spat5.graphiceq Graphic equalizer

description

spat5.graphiceq is a control interface for **spat5.graphiceq~**, a graphic EQ.

Reference(s) :

M. Holters and U. Zölzer. Parametric higher-order shelving filters. In Proc. of the 14th European Signal Processing Conference, 2006.

attributes

@embed [boolean]

The `embed` attribute allows to store the state of the object within the patcher. The complete state of the object is stored whenever the patcher is saved to disk. Upon loading the patcher or copying the object box, the state is restored.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
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/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file

```

```
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file
/window/title [string] : set the window title (in the window titlebar)
/window/visible [boolean] : set the window visibility
/window/moveable [boolean] : set the window movability
/window/resizable [boolean] : set the window resizability
/window/enable [boolean] : enable/disable the window
/window/background/color [color] : set the window background color
/window/opaque [boolean] : set the window opaque flag (optimize repaint efficiency)
/window/fullscreen [boolean] : enable/disable fullscreen mode
/window/minimise [boolean] : minimize the window
/window/open : open the window (and bring it to front)
/window/close : close the window
/window/openorclose : open the window if it was closed; close it if it was opened
/window/size [number] [number] : set the window size (width, height) (in pixels)
/window/width [number] : set the window width (in pixels)
/window/height [number] : set the window height (in pixels)
/window/bounds [number] [number] [number] [number] : set the window bounds (top left position, width, height) (in pixels)
/window/topleft [number] [number] : set the window top left position (in pixels)
/window/centre : open the window, centering it on the screen
/window/rendering/engine [string] : set the graphical rendering engine of the window
/window/fps/visible [boolean] : display the FPS performances of the window
/window/scale [number] : set the global scale factor of the window (in /window/floating [boolean] : make the window 'floating' (always on top)
/window/hidesondeactivate [boolean] : make the window 'hides on deactivate' (when always on top)
/window/buttons/close [boolean] : enable/disable the close button (in the window titlebar)
/window/buttons/minimise [boolean] : enable/disable the minimise button (in the window titlebar)
/window/buttons/maximise [boolean] : enable/disable the maximise button (in the window titlebar)
/window/export/image [string] : export the window as an image file (png or jpeg)
```

see also

- spat5.graphiceq~
- spat5.equalizer
- spat5.filterdesign
- cascade~
- spat5.cascade~
- filtergraph~
- cascade~
- biquad~
- spat5.hlshelf
- spat5.hlshelf~
- spat5.frequencyresponse
- spat5.gammatone
- spat5.octavebank~
- spat5.cascade.inverse
- spat5.cascade.resample
- spat5.complementarybank~
- spat5.cross3~
- spat5.eq
- spat5.graphiceq2
- spat5.graphiceq3

spat5.graphiceq.embedded

Graphic equalizer

description

spat5.graphiceq is a control interface for spat5.graphiceq~, a graphic EQ.

Reference(s) :

M. Holters and U. Zölzer. Parametric higher-order shelving filters. In Proc. of the 14th European Signal Processing Conference, 2006.

attributes

@embed [boolean]

The `embed` attribute allows to store the state of the object within the patcher. The complete state of the object is stored whenever the patcher is saved to disk. Upon loading the patcher or copying the object box, the state is restored.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the spat5.tuto-osc-3.maxpat example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file

```

`/snapshot/[index]/export/content [string]` : export the content of the i-th snapshot to file
`/snapshot/export [string]` : export all snapshots to file
`/snapshot/import [string]` : import all snapshots from file

see also

- `spat5.graphiceq~`
- `spat5.equalizer`
- `spat5.filterdesign`
- `cascade~`
- `spat5.cascade~`
- `filtergraph~`
- `cascade~`
- `biquad~`
- `spat5.hlshelf`
- `spat5.hlshelf~`
- `spat5.frequencyresponse`
- `spat5.gammatone`
- `spat5.octavebank~`
- `spat5.cascade.inverse`
- `spat5.cascade.resample`
- `spat5.complementarybank~`
- `spat5.cross3~`
- `spat5.eq`
- `spat5.graphiceq2`
- `spat5.graphiceq3`

spat5.graphiceq2

Graphic equalizer

description

spat5.graphiceq2 is a graphic EQ. It uses a set of 2nd order IIR peaking filters in order to approximate the desired magnitude spectrum at the control frequencies. The number of used 2nd order sections is equal to the number of frequency bands (plus optional high/low shelf filters for extremal bands). The update of the filter coefficients is rather efficient, and be can used in real-time context.

Reference(s) :

R. J. Oliver and J.-M. Jot. Efficient Multi-Band Digital Audio Graphic Equalizer with Accurate Frequency Response Control. In Proc. of the 139th AES Convention, New York, NY, USA, Oct 2015.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`. Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/band/number [int] : set number of frequency bands
/lowshelf [boolean] : enable low-shelf filter for 1st frequency band
/highshelf [boolean] : enable high-shelf filter for last frequency band
/gain/db [number] : set global gain (in dB)
/band/[index]/gain/db [number] : set gain (in dB) for the i-th frequency band
/gains/db [number] [number] [number]... : set gains (in dB) for each band
/freq/center [number] [number] [number]... : set center frequencies (in Hz) for the bands. The length of the list should be = (number of bands)
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int] [int] [number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string] [string] [number] : interpolate between two snapshots, given their names

```

`/snapshot/[index]/delete` : delete the i-th snapshot
`/snapshot/[index]/copytoclipboard` : copy the i-th snapshot to (the OS) clipboard
`/snapshot/[index]/copytoclipboard [string]` : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
`/snapshot/[index]/export [string]` : export the i-th snapshot to file
`/snapshot/[index]/export/content [string]` : export the content of the i-th snapshot to file
`/snapshot/export [string]` : export all snapshots to file
`/snapshot/import [string]` : import all snapshots from file

see also

- `spat5.graphiceq`
- `spat5.graphiceq3`
- `spat5.equalizer`
- `spat5.filterdesign`
- `cascade~`
- `spat5.cascade~`
- `filtergraph~`
- `cascade~`
- `biquad~`
- `spat5.cascade.inverse`
- `spat5.cascade.resample`
- `spat5.eq`
- `spat5.multi.connect`

spat5.graphiceq3

Graphic equalizer

description

spat5.graphiceq3 is a graphic EQ. It uses a set of 2nd order IIR filters in order to approximate the desired magnitude spectrum at the control frequencies. The number of used 2nd order sections adjustable, allowing for a trade-off between spectral accuracy and cpu cost for rendering. The update of the filter coefficients is cpu intensive, and should be discouraged in real-time context.

Reference(s) :

K. Steiglitz, and L. E. McBride. A Technique for the Identification of Linear Systems. IEEE Transactions on Automatic Control. Vol. AC-10, 1965, pp. 461,Äi464

B. Friedlander, and B. Porat.The Modified Yule-Walker Method of ARMA Spectral Estimation. IEEE Transactions on Aerospace Electronic Systems. Vol. AES-20, Number 2, 1984, pp. 158,Äi173.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/band/number [int] : set number of frequency bands
/order [int] : set the filter order (the number of 2nd order section is half the filter order)
/fftsize [int] : set the fft size used for the filter design
/gain/db [number] : set global gain (in dB)
/band/[index]/gain/db [number] : set gain (in dB) for the i-th frequency band
/gains/db [number] [number] [number] ... : set gains (in dB) for each band
/freq/center [number] [number] [number] ... : set center frequencies (in Hz) for the bands. The length of the list should be = (number of bands)
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
```


`/snapshot/interpolate [int][int][number]` : interpolate between the i-th and j-th snapshots
`/snapshot/interpolate [string][string][number]` : interpolate between two snapshots, given their names
`/snapshot/[index]/delete` : delete the i-th snapshot
`/snapshot/[index]/copytoclipboard` : copy the i-th snapshot to (the OS) clipboard
`/snapshot/[index]/copytoclipboard [string]` : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
`/snapshot/[index]/export [string]` : export the i-th snapshot to file
`/snapshot/[index]/export/content [string]` : export the content of the i-th snapshot to file
`/snapshot/export [string]` : export all snapshots to file
`/snapshot/import [string]` : import all snapshots from file

see also

- `spat5.graphiceq`
- `spat5.graphiceq2`
- `spat5.equalizer`
- `spat5.filterdesign`
- `cascade~`
- `spat5.cascade~`
- `filtergraph~`
- `cascade~`
- `biquad~`
- `spat5.cascade.inverse`
- `spat5.cascade.resample`
- `spat5.eq`
- `spat5.multi.connect`

spat5.graphiceq~ Graphic equalizer

description

spat5.graphiceq~ is a graphic EQ. It can be controlled with **spat5.graphiceq**.

Reference(s) :

M. Holters and U. Zölzer. Parametric higher-order shelving filters. In Proc. of the 14th European Signal Processing Conference, 2006.

attributes

@channels [int]

The **channels** attribute represents the number of input and output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or **attrui** or **inspector**), since the number of signal inlets or outlets can not be changed dynamically.

@initwith [string]

The **initwith** attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via **loadbang** or **loadmess**.

Have a look at the **spat5.tuto-osc-3.maxpat** example for further details.

Note that the **initwith** attribute cannot be set via message, **attrui** or **inspector**; it must be typed directly within the object box.

@mc [int]

The **mc** attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the **mc** attribute cannot be set via message, **attrui** or **inspector**; it must be typed directly within the object box.

@parameter_enable [boolean]

The **parameter_enable** attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/band/number [int] : set number of frequency bands
/cascade/number [int] : set number of 2nd order cascades used in the bandpass bands
/gain/db [number] : set global gain (in dB)
/band/[index]/gain/db [number] : set gain (in dB) for the i-th frequency band
/gains/db [number] [number] [number] [...] : set gains (in dB) for each band
/gains [number] [number] [number] [...] : set linear gains for each band
/freq/limits [number] [number] [number] [...] : set frequency limits (in Hz) for the bands. The length of the list should be (number of bands - 1)
/freq/center [number] [number] [number] [...] : set center frequencies (in Hz) for the bands. The length of the list should be = (number of bands)
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied without ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied without ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened

```

```

/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- spat5.graphiceq
- spat5.graphiceq2
- spat5.graphiceq3
- spat5.equalizer
- spat5.filterdesign
- cascade~
- spat5.cascade~
- filtergraph~
- cascade~
- biquad~
- spat5.cascade.inverse
- spat5.cascade.resample
- spat5.eq
- spat5.multi.connect

spat5.granulator~ Multichannel granular synthesis

description

spat5.granulator~ is a multichannel granular synthesis processor.

Reference(s) :

B. Truax. Real-time granular synthesis with a digital signal processor. Computer Music Journal, 12(2):14 – 26, Summer 1988.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@outputs [int]

The `outputs` attribute represents the number of output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or `attrui` or `inspector`), since the number of signal inlets or outlets can not be changed dynamically.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/delay/length [number] : set length of the ring buffer (in msec)
/grains/number [int] : set the maximum number of overlapping grains
/grains/gain [number] : set gain of the grains (linear scale)
/grains/gain/db [number] : set gain of the grains (dB scale)
/grains/gain/variation [number] : set amount of (random) variation for the gain of the grains
/grains/speed [number] : set playback speed of the grains (in /grains/speed/variation [number] : set amount of (random) variation for playback speed of the grains
/grains/position [number] : set playback position of the grains (in /grains/position/variation [number] : set amount of (random) variation for the grains position
/grains/duration [number] : set duration of the grains (in msec)
/grains/duration/variation [number] : set amount of (random) variation for the duration of the grains
/grains/duration/min [number] : set minimum duration of the grains
/grains/duration/max [number] : set maximum duration of the grains
/grains/period [number] : set time between consecutive grains (in msec)
/grains/period/variation [number] : set amount of (random) variation for time between consecutive grains (in /grains/attack [number] : set attack time of the grains (in /grains/release [number] : set attack time of the grains (in /grains/direction [string] : set playback direction of the grains
/grains/destination [string] : set output channel of the grains
/grains/filter/type [string] : set filter type for grains
/grains/filter/freq [number] : set frequency (in Hz) for grains filtering
/grains/filter/freq/variation [number] : set amount of (random) variation for frequency for grains filtering
/grains/filter/q [number] : set resonance for grains filtering
/grains/filter/q/variation [number] : set amount of (random) variation for Q for grains filtering
/grains/filter/gain [number] : set gain (in dB) for grains filtering
/grains/filter/gain/variation [number] : set amount of (random) variation for gain for grains filtering
/delay/clear : brutally clear the ring buffer
/stop : brutally stop all grains currently playing
/freeze [boolean] : freeze the ring buffer i.e. stop recording the incoming samples
/gain/compensation [boolean] : apply an output gain compensation, taken into account the number of overlapping grains
/seed : change the seed for random number generators
/seed [int] : set the seed for random number generators
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
```

/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.

/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.

/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)

/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.

/status : open the status window and bring it to front

/status/open : open the status window and bring it to front

/status/close : close the status window

/status/openorclose : open the status window if it was closed; close it if it was opened

/status/font/size [number] : set the font size of the status window

/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)

/help : open the help window and bring it to front

/help/open : open the help window and bring it to front

/help/close : close the help window

/help/openorclose : open the help window if it was closed; close it if it was opened

/help/font/size [number] : set the font size of the help window

/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)

/snapshot : open the snapshot window and bring it to front

/snapshot/open : open the snapshot window and bring it to front

/snapshot/close : close the snapshot window

/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened

/snapshot/font/size [number] : set the font size of the snapshot window

/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)

/status/copytoclipboard : copy the status to (the OS) clipboard

/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')

/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)

/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.

/snapshot/clear : delete all the snapshots currently in memory

/snapshot/add : create a new snapshot with the current state

/snapshot/add [string] : create a new snapshot with the current state, and set its name

/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)

/snapshot/[index]/recall : recall the current state from the i-th snapshot

/snapshot/[index]/name [string] : set the name of the i-th snapshot

/snapshot/interpolate [int] [int] [number] : interpolate between the i-th and j-th snapshots

/snapshot/interpolate [string] [string] [number] : interpolate between two snapshots, given their names

/snapshot/[index]/delete : delete the i-th snapshot

/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard

/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')

/snapshot/[index]/export [string] : export the i-th snapshot to file

/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file

/snapshot/export [string] : export all snapshots to file

/snapshot/import [string] : import all snapshots from file

see also

- mubu.granular~
- spat5.tapout~
- spat5.delay~
- spat5.multi.connect

spat5.grids

Grids generator

description

spat5.grids generates a list of positions, for a set of pre-defined grids.

Reference(s) :

M. Graef and D. Potts. On the computation of spherical designs by a new optimization approach based on fast spherical fourier transforms. Numer. Math., 119:699 ,Äi 724, 2011.

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W. Shukowsky. A quadrature formula over the sphere with applications to high resolution spherical harmonic analysis. Journal Of Geodesy 60(1): 1 - 14, 1986.

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T.-T. Wong, W.-S. Luk, and P.-A. Heng. Sampling with hammersley and halton points. Journal of Graphics Tools, 2(2):9 ,Äi 24, 1997.

V. I. Lebedev. Spherical quadrature formulas exact to orders 25-29. Translated from Sibirskii Math. Zhurnal, 18(1):132 ,Äi 142, Jan/Feb 1977.

I. H. Sloan and R. S. Womersley. Extremal systems of points and numerical integration on the sphere. Advances in Computational Mathematics, 21:107 ,Äi 125, 2004.

N. Sneeuw. Global spherical harmonic analysis by least-squares and numerical quadrature methods in historical perspective. Geophys. J. Int., 118:707 ,Äi 716, 1994.

J. Fliege and U. Maier. A two-stage approach for computing cubature formulae for the sphere. Technical report, Dortmund Universitat, 1996.

R. S. Womersley. Efficient Spherical Designs with Good Geometric Properties. In: Dick J., Kuo F., Wozniakowski H. (eds) Contemporary Computational Mathematics - A Celebration of the 80th Birthday of Ian Sloan, pp 1243 - 1285. Springer.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/type [string] : set type of grid
/project/tocube [boolean] : project the grid onto a cube or square
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front

```

```

/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- spat5.viewer
- spat5.transform
- spat5.scale
- spat5.translate
- spat5.rotate
- spat5.converter
- spat5.abs2rel
- spat5.converter~
- spat5.speaker.config
- spat5.speaker.layout

spat5.hilbert~ Phase quadrature filter

description

spat5.hilbert~ is similar to Max/MSP **hilbert~**.

attributes

@initwith [string]

The **initwith** attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via **loadbang** or **loadmess**.

Have a look at the **spat5.tuto-osc-3.maxpat** example for further details.

Note that the **initwith** attribute cannot be set via message, **attrui** or **inspector**; it must be typed directly within the object box.

@mc [int]

The **mc** attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the **mc** attribute cannot be set via message, **attrui** or **inspector**; it must be typed directly within the object box.

@parameter_enable [boolean]

The **parameter_enable** attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied without ramping/crossfade, so this might generate clicks

/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied without ramping/crossfade, so this might generate clicks

/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)

/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting

/dsp/post : post various information to the Max console (audio should be turned on)

/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up

/dump/dsp/latency : send the processor latency (in samples) through the dump outlet

/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed

/post/version : print the version in the Max Console

/post/version [details] : print detailed version in the Max Console

/post/doc : print the help documentation in the Max Console

/post/state : print the OSC status in the Max Console

/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the **coll** object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.

/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the **coll** object). '.txt' is the default file format.

/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the **coll** object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)

/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the **coll** object). '.txt' is the default file format.

/status : open the status window and bring it to front

/status/open : open the status window and bring it to front

/status/close : close the status window

/status/openorclose : open the status window if it was closed; close it if it was opened

/status/font/size [number] : set the font size of the status window

/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)

/help : open the help window and bring it to front

/help/open : open the help window and bring it to front

/help/close : close the help window

/help/openorclose : open the help window if it was closed; close it if it was opened

/help/font/size [number] : set the font size of the help window

/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)

/snapshot : open the snapshot window and bring it to front

/snapshot/open : open the snapshot window and bring it to front

/snapshot/close : close the snapshot window

/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened

/snapshot/font/size [number] : set the font size of the snapshot window

/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)

/status/copytoclipboard : copy the status to (the OS) clipboard

/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')

/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)

/dump [string] : dump a subset of the state of the object over the rightmost outlet. See **spat5.tuto-dump-1.maxpat** for usage examples.

/snapshot/clear : delete all the snapshots currently in memory

/snapshot/add : create a new snapshot with the current state

/snapshot/add [string] : create a new snapshot with the current state, and set its name

/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)

`/snapshot/[index]/recall` : recall the current state from the i-th snapshot
`/snapshot/[index]/name [string]` : set the name of the i-th snapshot
`/snapshot/interpolate [int][int][number]` : interpolate between the i-th and j-th snapshots
`/snapshot/interpolate [string][string][number]` : interpolate between two snapshots, given their names
`/snapshot/[index]/delete` : delete the i-th snapshot
`/snapshot/[index]/copytoclipboard` : copy the i-th snapshot to (the OS) clipboard
`/snapshot/[index]/copytoclipboard [string]` : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
`/snapshot/[index]/export [string]` : export the i-th snapshot to file
`/snapshot/[index]/export/content [string]` : export the content of the i-th snapshot to file
`/snapshot/export [string]` : export all snapshots to file
`/snapshot/import [string]` : import all snapshots from file

see also

- `hilbert~`
- `spat5.multi.connect`

spat5.hlsshelf

Control interface for spat5.hlsshelf~

description

spat5.hlsshelf is a control interface for **spat5.hlsshelf~**, a three band parametric shelving filter with multiple inputs / multiple outputs.

attributes

@embed [boolean]

The `embed` attribute allows to store the state of the object within the patcher. The complete state of the object is stored whenever the patcher is saved to disk. Upon loading the patcher or copying the object box, the state is restored.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/G0 [number] : set the global gain (in dB)
/G1 [number] : set the gain (in dB) for low frequencies
/Gm [number] : set the gain (in dB) for medium frequencies
/Gh [number] : set the gain (in dB) for high frequencies
/fl [number] : set the low/med crossover frequency (in Hz)
/fh [number] : set the med/high crossover frequency (in Hz)
/params [number] [number] [number] [number] [number] [number] : set the filter parameters (G0,G1,Gm,Gh,fl,fh)
/params [number] [number] [number] [number] [number] : set the filter parameters (G0,G1,Gm,Gh,fl)
/params [number] [number] [number] [number] : set the filter parameters (G0,G1,Gm,Gh)
/bypass [boolean] : bypass the filter
/mute [boolean] : mute the filter
/title [string] : set title
/title/visible [boolean] : set visibility for the title
/window/title [string] : set the window title (in the window titlebar)
/window/visible [boolean] : set the window visibility
/window/moveable [boolean] : set the window movability
/window/resizable [boolean] : set the window resizability
/window/enable [boolean] : enable/disable the window
/window/background/color [color] : set the window background color
/window/opaque [boolean] : set the window opaque flag (optimize repaint efficiency)
/window/fullscreen [boolean] : enable/disable fullscreen mode
/window/minimise [boolean] : minimize the window
/window/open : open the window (and bring it to front)
/window/close : close the window
/window/openorclose : open the window if it was closed; close it if it was opened
/window/size [number] [number] : set the window size (width, height) (in pixels)
/window/width [number] : set the window width (in pixels)
/window/height [number] : set the window height (in pixels)
/window/bounds [number] [number] [number] [number] : set the window bounds (top left position, width, height) (in pixels)
/window/topleft [number] [number] : set the window top left position (in pixels)
/window/centre : open the window, centering it on the screen
/window/rendering/engine [string] : set the graphical rendering engine of the window
/window/fps/visible [boolean] : display the FPS performances of the window
/window/scale [number] : set the global scale factor of the window (in /window/floating [boolean] : make the window 'floating' (always on top)
/window/hidesondeactivate [boolean] : make the window 'hides on deactivate' (when always on top)
/window/buttons/close [boolean] : enable/disable the close button (in the window titlebar)
/window/buttons/minimise [boolean] : enable/disable the minimise button (in the window titlebar)
/window/buttons/maximise [boolean] : enable/disable the maximise button (in the window titlebar)
/window/export/image [string] : export the window as an image file (png or jpeg)
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
```

/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.

/status : open the status window and bring it to front

/status/open : open the status window and bring it to front

/status/close : close the status window

/status/openorclose : open the status window if it was closed; close it if it was opened

/status/font/size [number] : set the font size of the status window

/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)

/help : open the help window and bring it to front

/help/open : open the help window and bring it to front

/help/close : close the help window

/help/openorclose : open the help window if it was closed; close it if it was opened

/help/font/size [number] : set the font size of the help window

/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)

/snapshot : open the snapshot window and bring it to front

/snapshot/open : open the snapshot window and bring it to front

/snapshot/close : close the snapshot window

/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened

/snapshot/font/size [number] : set the font size of the snapshot window

/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)

/status/copytoclipboard : copy the status to (the OS) clipboard

/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')

/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)

/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.

/snapshot/clear : delete all the snapshots currently in memory

/snapshot/add : create a new snapshot with the current state

/snapshot/add [string] : create a new snapshot with the current state, and set its name

/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)

/snapshot/[index]/recall : recall the current state from the i-th snapshot

/snapshot/[index]/name [string] : set the name of the i-th snapshot

/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots

/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names

/snapshot/[index]/delete : delete the i-th snapshot

/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard

/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')

/snapshot/[index]/export [string] : export the i-th snapshot to file

/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file

/snapshot/export [string] : export all snapshots to file

/snapshot/import [string] : import all snapshots from file

see also

- spat5.hlsself~
- spat5.hlsself.embedded
- biquad~
- spat5.equalizer
- spat5.cascade~
- spat5.frequencyresponse
- spat5.frequencyresponse.embedded
- spat5.ircamverb
- spat5.oper
- spat5.filterdesign
- filtergraph~
- cascade~
- spat5.zplane
- zplane~
- spat5.gammatone
- spat5.eq
- spat5.octavebank~
- spat5.gammatone
- spat5.cascade.inverse
- spat5.cascade.resample
- spat5.complementarybank~
- spat5.cross3~
- spat5.eq

spat5.hlsshelf.embedded

Control interface for spat5.hlsshelf~

description

spat5.hlsshelf is a control interface for spat5.hlsshelf~, a three band parametric shelving filter with multiple inputs / multiple outputs.

attributes

@embed [boolean]

The `embed` attribute allows to store the state of the object within the patcher. The complete state of the object is stored whenever the patcher is saved to disk. Upon loading the patcher or copying the object box, the state is restored.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/G0 [number] : set the global gain (in dB)
/G1 [number] : set the gain (in dB) for low frequencies
/Gm [number] : set the gain (in dB) for medium frequencies
/Gh [number] : set the gain (in dB) for high frequencies
/fl [number] : set the low/med crossover frequency (in Hz)
/fh [number] : set the med/high crossover frequency (in Hz)
/params [number] [number] [number] [number] [number] [number] : set the filter parameters (G0,G1,Gm,Gh,fl,fh)
/params [number] [number] [number] [number] [number] : set the filter parameters (G0,G1,Gm,Gh,fl)
/params [number] [number] [number] [number] : set the filter parameters (G0,G1,Gm,Gh)
/bypass [boolean] : bypass the filter
/mute [boolean] : mute the filter
/title [string] : set title
/title/visible [boolean] : set visibility for the title
```

see also

- spat5.hlsshelf~
- spat5.hlsshelf.embedded
- biquad~
- spat5.equalizer
- spat5.cascade~
- spat5.frequencyresponse
- spat5.frequencyresponse.embedded
- spat5.ircamverb
- spat5.oper
- spat5.filterdesign
- filtergraph~
- cascade~
- spat5.zplane
- zplane~
- spat5.gammatone
- spat5.eq
- spat5.octavebank~
- spat5.gammatone
- spat5.cascade.inverse
- spat5.cascade.resample
- spat5.complementarybank~
- spat5.cross3~
- spat5.eq

spat5.hlshef~ Parametric shelving filter

description

spat5.hlshef~ is a three band parametric shelving filter with multiple inputs / multiple outputs (all channels have the same filters parameters).

The filter characteristics can e.g. be controlled by **spat5.hlshef**.

attributes

@channels [int]

The **channels** attribute represents the number of input and output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or attrui or inspector), since the number of signal inlets or outlets can not be changed dynamically.

@initwith [string]

The **initwith** attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via **loadbang** or **loadmess**.

Have a look at the **spat5.tuto-osc-3.maxpat** example for further details.

Note that the **initwith** attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@mc [int]

The **mc** attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the **mc** attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The **parameter_enable** attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

/G0 [number] : set the global gain (in dB)
/G1 [number] : set the gain (in dB) for low frequencies
/Gm [number] : set the gain (in dB) for medium frequencies
/Gh [number] : set the gain (in dB) for high frequencies
/fl [number] : set the low/med crossover frequency (in Hz)
/fh [number] : set the med/high crossover frequency (in Hz)
/params [number][number][number][number][number] : set the filter parameters (G0,G1,Gm,Gh,fl,fh)
/params [number][number][number][number][number] : set the filter parameters (G0,G1,Gm,Gh,fl)
/params [number][number][number][number] : set the filter parameters (G0,G1,Gm,Gh)
/crossfade/duration [number] : set crossfade duration (in msec)
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front

```

/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- spat5.hlsshelf
- biquad~
- spat5.equalizer
- spat5.cascade~
- spat5.frequencyresponse
- spat5.filterdesign
- cascade~
- filtergraph~
- spat5.eqspat5.oper
- spat5.ircamverb~
- spat5.graphiceq~
- spat5.graphiceq
- spat5.cascade.inverse
- spat5.cascade.resample
- spat5.octavebank~
- spat5.multi.connect

spat5.hoa.aformat~

Ambisonic A-format to B-format conversion

description

spat5.hoa.aformat~ transcodes A-format ambisonic signals to B-format signals. A-format represents the 4 signals coming from the capsules of a Soundfield-like microphone (e.g. Soundfield ST-250, Soundfield STS-200, DPA-4, Core Sound TetraMic, Sennheiser Ambeo). These 4 signals must be processed to be converted into a B-format Ambisonic stream conveying the W,X,Y, and Z ambisonic components. The processing involves 1) signal matrixing and 2) components filtering.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/type [string] : set microphone type
/radius [number] : set distance of each capsule from the center of the tetrahedron (in millimeters)
/filtering [boolean] : enable/disable the filters
/highcut [boolean] : enable/disable the highcut filter
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
```

`/dump` : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
`/dump [string]` : dump a subset of the state of the object over the rightmost outlet. See `spat5.tuto-dump-1.maxpat` for usage examples.
`/snapshot/clear` : delete all the snapshots currently in memory
`/snapshot/add` : create a new snapshot with the current state
`/snapshot/add [string]` : create a new snapshot with the current state, and set its name
`/snapshot/[index]/store` : store the current state in the i-th snapshot (in memory)
`/snapshot/[index]/recall` : recall the current state from the i-th snapshot
`/snapshot/[index]/name [string]` : set the name of the i-th snapshot
`/snapshot/interpolate [int][int][number]` : interpolate between the i-th and j-th snapshots
`/snapshot/interpolate [string][string][number]` : interpolate between two snapshots, given their names
`/snapshot/[index]/delete` : delete the i-th snapshot
`/snapshot/[index]/copytoclipboard` : copy the i-th snapshot to (the OS) clipboard
`/snapshot/[index]/copytoclipboard [string]` : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
`/snapshot/[index]/export [string]` : export the i-th snapshot to file
`/snapshot/[index]/export/content [string]` : export the content of the i-th snapshot to file
`/snapshot/export [string]` : export all snapshots to file
`/snapshot/import [string]` : import all snapshots from file

see also

- `spat5.decoder~`
- `spat5.hoa.em32~`
- `spat5.hoa.zm1~`
- `spat5.pan~`
- `spat5.hoa.decoder~`
- `spat5.hoa.converter~`
- `spat5.hoa.sorting~`
- `spat5.hoa.intensity~`
- `spat5.multi.connect`

spat5.hoa.binaural~

Transcode HOA stream to binaural

description

spat5.hoa.binaural~ transcodes HOA stream to binaural.

attributes

@dimension [int]

The `dimension` attribute represents the dimension of the Ambisonic stream: either 2D or 3D.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@order [int]

The `order` attribute represents the Ambisonic order of the stream.

For 2D Ambisonic, the number of components is $(2 \times \text{order} + 1)$.

For 3D Ambisonic, the number of components is $(\text{order}+1) \times (\text{order}+1)$.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/hrtf [string] : load hrtf from file or url (sofa format)
/norm [string] : set input normalization. Possible values: sn3d, sn2d, n3d, n2d, fuma, maxn, unnormalized
/blocksize [int] : set block-size. blocksize is a parameter of the algorithm. The larger it is, the greater the input/output delay is and the less CPU time is used. It has to be a power of two greater than the signal vector size of Max. The input/output delay is = ( max( blocksize, 32 ) - vectorsize )
/hrir/length [int] : set maximum length for hrir filters
/method [string] : set transcoding method
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied without ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied without ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
```

```

/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- spat5.hoa.encoder~
- spat5.hoa.decoder~
- spat5.binaural~
- spat5.multi.connect

spat5.hoa.beam~ HOA beamforming

description

spat5.hoa.beam~ creates virtual beams steering in various directions, and with adjustable pattern (simple weight-and-sum beamformer). Unlike **spat5.hoa.focus~**, the output of **spat5.hoa.beam~** is a monophonic signal (for each beam).

spat5.hoa.beam~ can be controlled with **spat5.hoa.beam**.

attributes

@beams [int]

The **beams** attribute represents the number of beamforming voices.

@dimension [int]

The **dimension** attribute represents the dimension of the Ambisonic stream: either 2D or 3D.

@initwith [string]

The **initwith** attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via **loadbang** or **loadmess**.

Have a look at the **spat5.tuto-osc-3.maxpat** example for further details.

Note that the **initwith** attribute cannot be set via message, **attrui** or **inspector**; it must be typed directly within the object box.

@mc [int]

The **mc** attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the **mc** attribute cannot be set via message, **attrui** or **inspector**; it must be typed directly within the object box.

@order [int]

The **order** attribute represents the Ambisonic order of the stream.

For 2D Ambisonic, the number of components is $(2 \times \text{order} + 1)$.

For 3D Ambisonic, the number of components is $(\text{order}+1) \times (\text{order}+1)$.

@parameter_enable [boolean]

The **parameter_enable** attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/beam/number [int] : set the number of beams
/order [int] : set HOA order
/dimension [int] : set HOA dimension. Possible values: 2, 3
/norm [string] : set HOA normalization. Possible values: sn3d, sn2d, n3d, n2d, fuma, maxn, unnormalized
/beam/[index]/direction/az [number] : set steering direction for the i-th beam
/beam/[index]/pattern [string] : set directivity pattern for the i-th beam
/beam/[index]/mute [boolean] : mute the i-th beam
/ramp/time [number] : set ramping time (msec)
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied without ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied without ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
```

```

/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- spat5.hoa.beam
- spat5.hoa.beam.embedded
- spat5.hoa.focus~
- spat5.hoa.focus
- spat5.hoa.encoder~
- spat5.hoa.scope~
- spat5.hoa.warp~
- spat5.hoa.dominance~
- spat5.hoa.mirror~
- spat5.hoa.blur
- spat5.hoa.intensity~
- spat5.hoa.directivity
- spat5.multi.connect

spat5.hoa.beam

Beamforming in the HOA domain

description

spat5.hoa.beam is a control interface for `spat5.hoa.beam~`.

attributes

@dimension [int]

The `dimension` attribute represents the dimension of the Ambisonic stream: either 2D or 3D.

@embed [boolean]

The `embed` attribute allows to store the state of the object within the patcher. The complete state of the object is stored whenever the patcher is saved to disk. Upon loading the patcher or copying the object box, the state is restored.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or inspector; it must be typed directly within the object box.

@order [int]

The `order` attribute represents the Ambisonic order of the stream.

For 2D Ambisonic, the number of components is $(2 \times \text{order} + 1)$.

For 3D Ambisonic, the number of components is $(\text{order}+1) \times (\text{order}+1)$.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
```

```

/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. '\n')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file
/window/title [string] : set the window title (in the window titlebar)
/window/visible [boolean] : set the window visibility
/window/moveable [boolean] : set the window movability
/window/resizable [boolean] : set the window resizability
/window/enable [boolean] : enable/disable the window
/window/background/color [color] : set the window background color
/window/opaque [boolean] : set the window opaque flag (optimize repaint efficiency)
/window/fullscreen [boolean] : enable/disable fullscreen mode
/window/minimise [boolean] : minimize the window
/window/open : open the window (and bring it to front)
/window/close : close the window
/window/openorclose : open the window if it was closed; close it if it was opened
/window/size [number][number] : set the window size (width, height) (in pixels)
/window/width [number] : set the window width (in pixels)
/window/height [number] : set the window height (in pixels)
/window/bounds [number][number][number][number] : set the window bounds (top left position, width, height) (in pixels)
/window/topleft [number][number] : set the window top left position (in pixels)
/window/centre : open the window, centering it on the screen
/window/rendering/engine [string] : set the graphical rendering engine of the window
/window/fps/visible [boolean] : display the FPS performances of the window
/window/scale [number] : set the global scale factor of the window (in /window/floating [boolean] : make the window 'floating' (always on top)
/window/hidesondeactivate [boolean] : make the window 'hides on deactivate' (when always on top)
/window/buttons/close [boolean] : enable/disable the close button (in the window titlebar)
/window/buttons/minimise [boolean] : enable/disable the minimise button (in the window titlebar)
/window/buttons/maximise [boolean] : enable/disable the maximise button (in the window titlebar)
/window/export/image [string] : export the window as an image file (png or jpeg)

```

see also

- spat5.hoa.beam~
- spat5.hoa.focus~
- spat5.hoa.focus
- spat5.hoa.focus.embedded
- spat5.hoa.encoder~
- spat5.hoa.decoder~
- spat5.hoa.rotate~
- spat5.hoa.optim~
- spat5.hoa.blur~
- spat5.hoa.directivity
- spat5.hoa.display
- spat5.hoa.display.embedded

spat5.hoa.beam.embedded

Beamforming in the HOA domain

description

spat5.hoa.beam is a control interface for spat5.hoa.beam~.

attributes

@dimension [int]

The `dimension` attribute represents the dimension of the Ambisonic stream: either 2D or 3D.

@embed [boolean]

The `embed` attribute allows to store the state of the object within the patcher. The complete state of the object is stored whenever the patcher is saved to disk. Upon loading the patcher or copying the object box, the state is restored.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the spat5.tuto-osc-3.maxpat example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@order [int]

The `order` attribute represents the Ambisonic order of the stream.

For 2D Ambisonic, the number of components is $(2 \times \text{order} + 1)$.

For 3D Ambisonic, the number of components is $(\text{order}+1) \times (\text{order}+1)$.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
```

`/snapshot/[index]/recall` : recall the current state from the i-th snapshot
`/snapshot/[index]/name [string]` : set the name of the i-th snapshot
`/snapshot/interpolate [int][int][number]` : interpolate between the i-th and j-th snapshots
`/snapshot/interpolate [string][string][number]` : interpolate between two snapshots, given their names
`/snapshot/[index]/delete` : delete the i-th snapshot
`/snapshot/[index]/copytoclipboard` : copy the i-th snapshot to (the OS) clipboard
`/snapshot/[index]/copytoclipboard [string]` : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
`/snapshot/[index]/export [string]` : export the i-th snapshot to file
`/snapshot/[index]/export/content [string]` : export the content of the i-th snapshot to file
`/snapshot/export [string]` : export all snapshots to file
`/snapshot/import [string]` : import all snapshots from file

see also

- `spat5.hoa.beam~`
- `spat5.hoa.focus~`
- `spat5.hoa.focus`
- `spat5.hoa.focus.embedded`
- `spat5.hoa.encoder~`
- `spat5.hoa.decoder~`
- `spat5.hoa.rotate~`
- `spat5.hoa.optim~`
- `spat5.hoa.blur~`
- `spat5.hoa.directivity`
- `spat5.hoa.display`
- `spat5.hoa.display.embedded`

spat5.hoa.blur~

Blur effect in the HOA domain

description

spat5.hoa.blur~ implements a technique for controlling the spatial resolution of an Ambisonic sound field while preserving its overall energy. The proposed method allows to transform a stream encoded in N-order Ambisonic to a lower order resolution. The transformation can be continuously operated, indeed simulating fractional order representation of the Ambisonic stream and varying the 'bluriness' of the spatial image.

Reference(s) :

T. Carpentier. Ambisonic spatial blur. In Proc. of the 142nd Convention of the Audio Engineering Society (AES), Berlin, Germany, May 2017.

F. Zotter, M. Frank. Ambisonics: A Practical 3D Audio Theory for Recording, Studio Production, Sound Reinforcement, and Virtual Reality. Springer, 2019.

attributes

@dimension [int]

The `dimension` attribute represents the dimension of the Ambisonic stream: either 2D or 3D.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or inspector; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, `attrui` or inspector; it must be typed directly within the object box.

@order [int]

The `order` attribute represents the Ambisonic order of the stream.

For 2D Ambisonic, the number of components is $(2 \times \text{order} + 1)$.

For 3D Ambisonic, the number of components is $(\text{order}+1) \times (\text{order}+1)$.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/blur [number] : set blur factor (/tau [number] : set tau factor
/order [int] : set HOA order
/dimension [int] : set HOA dimension. Possible values: 2, 3
/ramp/time [number] : set ramping time (msec)
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied without ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied without ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
```

```

/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
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/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- spat5.hoa.focus~
- spat5.hoa.focus
- spat5.hoa.focus.embedded
- spat5.hoa.reduce~
- spat5.hoa.encoder~
- spat5.hoa.decoder~
- spat5.hoa.warp~
- spat5.hoa.dominance~
- spat5.hoa.beam~
- spat5.hoa.beam
- spat5.hoa.optim~
- spat5.hoa.rotate~
- spat5.hoa.scope~
- spat5.hoa.display
- spat5.hoa.display.embedded
- spat5.hoa.intensity~
- spat5.hoa.directivity
- spat5.multi.connect

spat5.hoa.compensation~

Energy compensation in HOA decoding

description

Two different HOA decoders (i.e. two decoders with different settings/speaker layout) may result in large energy discrepancy. **spat5.hoa.compensation~** applies a compensation gain in order to reduce these differences.

This eases the comparison of decoders/decoder settings without variation of the overall loudness.

NB: the compensation is evaluated under the diffuse-field assumption. Point-like sources may still result in large energy differences.

attributes

@dimension [int]

The `dimension` attribute represents the dimension of the Ambisonic stream: either 2D or 3D.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@order [int]

The `order` attribute represents the Ambisonic order of the stream.

For 2D Ambisonic, the number of components is (2 x order + 1).

For 3D Ambisonic, the number of components is (order+1) x (order+1).

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

@speakers [int]

The `speakers` attribute represents the number of output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or attrui or inspector), since the number of signal inlets or outlets can not be changed dynamically.

methods

```

/speakers/number [int] : set the number of loudspeakers
/speakers/aed [nnnn...] : set the list of speaker coordinates (with aed format)
/speakers/xyz [nnnn...] : set the list of speaker coordinates (with xyz format)
/speakers/ade [nnnn...] : set the list of speaker coordinates (with ade format)
/speakers/xy [nnnn...] : set the list of speaker coordinates (with xy format)
/speakers/ae [nnnn...] : set the list of speaker coordinates (with ae format)
/speaker/[index]/aed [number] [number] [number] : set the position of the i-th loudspeaker using navigation coordinates (azimuth/elevation/distance)
/speaker/[index]/ade [number] [number] [number] : set the position of the i-th loudspeaker using navigation coordinates (azimuth/distance/elevation)
/speaker/[index]/xyz [number] [number] [number] : set the position of the i-th loudspeaker using cartesian coordinates
/speaker/[index]/xy [number] [number] : set the xy-coordinate of the i-th loudspeaker, and use default z (=0)
/speaker/[index]/ae [number] [number] : set the azimuth/elevation of the i-th loudspeaker, using default distance (=1)
/speaker/[index]/az [number] : set the azimuth of the i-th loudspeaker, using default distance (=1) and elevation (=0)
/method [string] : set HOA decoder method. Possible values: direct-sampling, mode-matching, regularized-mode-matching, energy-preserving, all-rad, all-rad2, all-radknn, allrad+, mvlad, csad, no decoding
/norm [string] : set HOA normalization. Possible values: sn3d, sn2d, n3d, n2d, fuma, maxn, unnormalized
/type [string] : set HOA optimization type. Possible values: basic, in-phase, maxre, basic-maxre, maxre-inphase, inphase-maxre
/order [int] : set HOA order
/dimension [int] : set HOA dimension. Possible values: 2, 3
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied without ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied without ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console

```

/post/state : print the OSC status in the Max Console

/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.

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/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)

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/status : open the status window and bring it to front

/status/open : open the status window and bring it to front

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/status/openorclose : open the status window if it was closed; close it if it was opened

/status/font/size [number] : set the font size of the status window

/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)

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/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)

/snapshot : open the snapshot window and bring it to front

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/status/copytoclipboard : copy the status to (the OS) clipboard

/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')

/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)

/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.

/snapshot/clear : delete all the snapshots currently in memory

/snapshot/add : create a new snapshot with the current state

/snapshot/add [string] : create a new snapshot with the current state, and set its name

/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)

/snapshot/[index]/recall : recall the current state from the i-th snapshot

/snapshot/[index]/name [string] : set the name of the i-th snapshot

/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots

/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names

/snapshot/[index]/delete : delete the i-th snapshot

/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard

/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')

/snapshot/[index]/export [string] : export the i-th snapshot to file

/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file

/snapshot/export [string] : export all snapshots to file

/snapshot/import [string] : import all snapshots from file

see also

- spat5.hoa.encoder~
- spat5.hoa.decoder~
- spat5.hoa.aformat~
- spat5.hoa.sorting~
- spat5.hoa.converter~
- spat5.hoa.shelving
- spat5.panner.metrics
- spat5.hoa.intensity~
- spat5.multi.connect

spat5.hoa.converter~

Ambisonic normalization converter

description

Higher-Order Ambisonic (HOA) is not standardized, and various conventions exist for the scaling of ambisonic components. Popular normalization schemes are SN3D, N3D, FuMa, etc.

spat5.hoa.converter~ allows to convert between HOA normalizations. This is especially useful if you need to import/export data from/to spat and another ambisonic system.

Reference(s) :

T. Carpentier. Normalization schemes in Ambisonic: does it matter? In Proc. of the 142nd Convention of the Audio Engineering Society (AES), Berlin, Germany, May 2017.

J. Daniel. Représentation de champs acoustiques, application à la transmission et à la reproduction de scènes sonores complexes dans un contexte multimedia. PhD thesis, Université de Paris VI, 2001.

F. Zotter, M. Frank. Ambisonics: A Practical 3D Audio Theory for Recording, Studio Production, Sound Reinforcement, and Virtual Reality. Springer, 2019.

attributes

@dimension [int]

The `dimension` attribute represents the dimension of the Ambisonic stream: either 2D or 3D.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@order [int]

The `order` attribute represents the Ambisonic order of the stream.

For 2D Ambisonic, the number of components is $(2 \times \text{order} + 1)$.

For 3D Ambisonic, the number of components is $(\text{order}+1) \times (\text{order}+1)$.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

`/norm/input [string]` : set input normalization. Possible values: `sn3d`, `sn2d`, `n3d`, `n2d`, `fuma`, `maxn`, `unnormalized`

`/norm/output [string]` : set output normalization. Possible values: `sn3d`, `sn2d`, `n3d`, `n2d`, `fuma`, `maxn`, `unnormalized`

`/order [int]` : set HOA order

`/dimension [int]` : set HOA dimension. Possible values: 2, 3

`/dsp/mute [boolean]` : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied without ramping/crossfade, so this might generate clicks

`/dsp/bypass [boolean]` : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied without ramping/crossfade, so this might generate clicks

`/dsp/automute [boolean]` : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)

`/dsp/automute/attack [number]` : set the duration (in seconds) before auto-muting

`/dsp/post` : post various information to the Max console (audio should be turned on)

`/dsp/clear` : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up

`/dump/dsp/latency` : send the processor latency (in samples) through the dump outlet

`/verbose [string]` : set verbosity i.e. change the way information is posted to the Max console. Possible values: `silent`, `minimal`, `normal`, `detailed`

`/post/version` : print the version in the Max Console

`/post/version [details]` : print detailed version in the Max Console

`/post/doc` : print the help documentation in the Max Console

`/post/state` : print the OSC status in the Max Console

`/preset/load [string]` : load a preset from file. Supported file extensions : `.txt` for human-readable OSC text file, `.osc` for binary encoded OSC file, `.coll` for human-readable Max coll file (compatible with the `coll` object). `.txt` is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.

`/preset/load` : open a user dialog to load a preset file. Supported file extensions : `.txt` for human-readable OSC text file, `.osc` for binary encoded OSC file, `.coll` for human-readable Max coll file (compatible with the `coll` object). `.txt` is the default file format.

`/preset/export [string]` : export a preset to file. Supported file extensions : `.txt` for human-readable OSC text file, `.osc` for binary encoded OSC file, `.coll` for human-readable Max coll file (compatible with the `coll` object). `.txt` is the default file format. If the file extension is not provided, `.txt` will be used by default. If the destination folder is not provided, the file will be saved in your home folder (`/Users/yourlogin`)

`/preset/export` : open a user dialog to export a preset to file. Supported file extensions : `.txt` for human-readable OSC text file, `.osc` for binary encoded OSC file, `.coll`

for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.

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/status/open : open the status window and bring it to front

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/help/close : close the help window

/help/openorclose : open the help window if it was closed; close it if it was opened

/help/font/size [number] : set the font size of the help window

/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)

/snapshot : open the snapshot window and bring it to front

/snapshot/open : open the snapshot window and bring it to front

/snapshot/close : close the snapshot window

/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened

/snapshot/font/size [number] : set the font size of the snapshot window

/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)

/status/copytoclipboard : copy the status to (the OS) clipboard

/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')

/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)

/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.

/snapshot/clear : delete all the snapshots currently in memory

/snapshot/add : create a new snapshot with the current state

/snapshot/add [string] : create a new snapshot with the current state, and set its name

/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)

/snapshot/[index]/recall : recall the current state from the i-th snapshot

/snapshot/[index]/name [string] : set the name of the i-th snapshot

/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots

/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names

/snapshot/[index]/delete : delete the i-th snapshot

/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard

/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')

/snapshot/[index]/export [string] : export the i-th snapshot to file

/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file

/snapshot/export [string] : export all snapshots to file

/snapshot/import [string] : import all snapshots from file

see also

- spat5.hoa.sorting~
- spat5.pan~
- spat5.decoder~
- spat5.hoa.encoder~
- spat5.hoa.decoder~
- spat5.hoa.aformat~
- spat5.hoa.downscale~
- spat5.multi.connect

spat5.hoa.decoder~

Ambisonic decoder

description

spat5.hoa.decoder~ decodes an Ambisonic (HOA) stream for a given loudspeaker array.

Various decoding methods are proposed:

- Direct-Sampling decoder, also referred to as the Sampling Ambisonic Decoder (SAD)
- Energy-Preserving Ambisonic decoder (EPAD), which is the default in Spat
- Mode-Matching Ambisonic decoder (MMAD)
- All-Round Ambisonic decoder (AllRAD)
- Improved All-Round Ambisonic decoder (AllRAD+)
- All-Round alternative for panning-invariant loudness (AllRAD2)
- Constant angular Spread Ambisonic decoder (CSAD)
- Most VBAP-like Ambisonic decoder (MVLAD)
- Regularized Mode-Matching Ambisonic decoder (RMMAD), aka Energy-Limited Mode-Matching Ambisonic decoder

Please note that HOA components in **spat5.hoa.decoder~** are ordered with the ACN sorting scheme (cf **spat5.hoa.sorting~** for further information)

The 'sampling ambisonic decoding' (SAD) is the simplest decoding. It samples the virtual panning function at the loudspeaker directions. SAD is optimal for loudspeakers arranged as t-design layouts, with $t \geq (2N+1)$ (N being the Ambisonic order). Typically, the SAD should only be used for 2D loudspeaker layouts, i.e. arranged regularly in a circle. Avoids this decoder for 3D setups.

The 'mode-matching decoder' (MMAD) is suitable for both 2D and 3D. It is based on a pseudo-inverse of the re-encoding matrix. MMAD is well-behaved for regular loudspeaker arrangements. It can also give good results with slightly irregular setups. However it can become unstable with strongly irregular setups, i.e. it can completely blow up the speaker feeds. So, be careful. With the '/info' message, you obtain the conditioning number of MMAD. This number gives you an estimate of how well-balanced the system is. A conditioning number close to 0 dB is excellent. Values less than 10 dB are usually quite acceptable. With values higher than 20 dB, the decoding can become problematic (or dangerous).

The 'regularized-mode-matching decoder' (RMMAD) is somehow similar to MMAD, however it uses a regularization factor for stabilization of the pseudo-inverse. This regularization factor (α) varies from 0% to 100%. A value of 0% provides results similar to MMAD. A value of 100% generates even energy distribution, i.e. results similar to EPAD. Intermediate values of α allow to 'blend' MMAD and EPAD.

EPAD and AllRAD are other HOA decoding methods suitable for 2D and 3D HOA, and they can cope with any kind of loudspeaker arrangement. These decoding methods always work, as soon as there are enough loudspeakers; they are always feasible and by nature numerically stable.

EPAD uses a regularized matrix inversion such that the decoded energy is preserved even with non-uniformly arranged arrays (and even for directions with only sparse loudspeaker coverage). EPAD is the default method in spat5 (and the one we usually recommend).

'All-round Ambisonic decoding' (AllRAD) is designed in two steps. First, an optimal virtual loudspeaker layout using t-design arrangement is considered (for which the SAD is optimal); Secondly, the signals of these virtual loudspeakers are mapped to the real loudspeakers via VBAP.

'Improved All-Round Ambisonic Decoding' (AllRAD+) combines AllRAD and SAD. Constant energy that is achieved for the idealized virtual loudspeaker setup in AllRAD is corrupted by the VBAP stage as, per loudspeaker pair, all virtual sources are superimposed linearly instead of energetically. The prevailing linear superposition increases the energy wherever the loudspeaker spacing is large. Roughly, at such directions AllRAD doubles the energy, whereas it is halved at directions with dense loudspeaker spacing. Conversely, SAD might lose all energy where the loudspeaker spacing is large and roughly doubles it where the loudspeaker spacing is dense. AllRAD+ tries to solve this issue by combining (i.e. mixing) SAD and AllRAD. The loudness variation of AllRAD+ is competitive with EPAD and its angular mapping resembles AllRAD.

The 'Constant angular Spread Ambisonic decoder' (CSAD) calculates an ambisonic decoding matrix providing a nearly constant angular spread across source directions while maintaining a constant energy and very low energy-vector direction mismatch. The computed HOA decoding matrix optimally fits the MDIP (Multiple-Direction Intensity Panning) gains corresponding to several virtual source directions. This typically provides energy vectors that point in the desired direction while having a constant norm.

The 'Most VBAP-like decoder (MVLAD)' was proposed by Epain. MVLAD minimizes the squared deviation to gains calculated with VBAP. It essentially uses the same approach as AllRAD but using MMAD (instead of SAD) for mapping the virtual speakers. With t-design virtual speakers, the MMAD is well-behaved, and Zotter et al. have shown that MVLAD is equivalent to AllRAD.

Reference(s) :

F. Zotter, H. Pomberger, and M. Noisternig. Energy-preserving ambisonic decoding. *Acta Acustica united with Acustica*, 98:37 – 47, 2012.

F. Zotter, M. Frank, and H. Pomberger. Comparison of energy-preserving and all-round Ambisonic decoders. In *Proc. the Fortschritt der Akustik, AIA-DAGA*, March 2013.

J. Daniel. *Représentation de champs acoustiques, application à la transmission et à la reproduction de scènes sonores complexes dans un contexte multimedia*. PhD thesis, Université de Paris VI, 2001.

F. Zotter and M. Frank. All-round ambisonic panning and decoding. *Journal of the Audio Engineering Society*, 60(10):807 – 820, 2012.

N. Epain, C. Jin, and F. Zotter. Ambisonic decoding with constant angular spread. *Acta Acustica united with Acustica*, 100:928 – 936, 2014.

F. Zotter, M. Frank. *Ambisonics: A Practical 3D Audio Theory for Recording, Studio Production, Sound Reinforcement, and Virtual Reality*. Springer, 2019.

F. Zotter, H. Pomberger, and M. Noisternig. Ambisonic decoding with and without mode-matching: A case study using the hemisphere. In *Proc. of the 2nd International Symposium on Ambisonics and Spherical Acoustics*, Paris, France, May 2010.

F. Zotter, M. Frank, and A. Sontacchi. The virtual t-design ambisonics-rig using VBAP. In *Proc. of the 1st EAA-EuroRegio 2010 Congress on Sound and Vibration*, Ljubljana, Slovenia, Sept 2010.

F. Zotter, M. Frank. Ambisonic decoding with panning-invariant loudness on small layouts (AllRAD2). In *Proc. of the AES 144th Convention*, Milan, Italy, May 2018.

A. J. Heller, R. Lee, and E. M. Benjamin. Is My Decoder Ambisonic? In Proc. of the 125th Convention of Audio Engineering Society (AES), San Francisco, CA, USA, Oct 2008.

A. J. Heller, and E. M. Benjamin. Design and implementation of filters for Ambisonic decoders In Proc. of the 1st International Faust Conference (IFC), Mainz, Germany, July 2018.

A. J. Heller, R. Lee, and E. M. Benjamin. A Toolkit for the Design of Ambisonic Decoders. In Proc. of the Linux Audio Conference (LAC), Stanford, California, USA, April 2012.

D. Scaini and D. Arteaga. Decoding of Higher Order Ambisonics to Irregular Periphonic Loudspeaker Arrays. In Proc. of the 55th AES Conference, Helsinki, Finland, Aug 2014.

D. Arteaga. An Ambisonics Decoder for Irregular 3-D Loudspeaker Arrays. In Proc. of the 134th AES Convention, Rome, Italy, May 2013.

H. Pomberger and F. Zotter. Ambisonic panning with constant energy constraint. In Proc of the 38th German Annual Conference on Acoustics (DAGA), Darmstadt, Germany, March 2012.

J.-M. Batke and F. Keiler. Using VBAP-Derived Panning Functions for 3D Ambisonics Decoding. In Proc. of the 2nd International Symposium on Ambisonics and Spherical Acoustics, Paris, France, May 2010.

attributes

@dimension [int]

The `dimension` attribute represents the dimension of the Ambisonic stream: either 2D or 3D.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@order [int]

The `order` attribute represents the Ambisonic order of the stream.

For 2D Ambisonic, the number of components is $(2 \times \text{order} + 1)$.

For 3D Ambisonic, the number of components is $(\text{order}+1) \times (\text{order}+1)$.

@outputs [int]

The `outputs` attribute represents the number of output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or attrui or inspector), since the number of signal inlets or outlets can not be changed dynamically.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/decoding/type [string] : set the decoding type
/speakers/number [int] : set the number of loudspeakers
/speakers/aed [nnnn...] : set the list of speaker coordinates (with aed format)
/speakers/xyz [nnnn...] : set the list of speaker coordinates (with xyz format)
/speakers/ade [nnnn...] : set the list of speaker coordinates (with ade format)
/speakers/xy [nnnn...] : set the list of speaker coordinates (with xy format)
/speakers/ae [nnnn...] : set the list of speaker coordinates (with ae format)
/speaker/[index]/aed [number][number][number] : set the position of the i-th loudspeaker using navigation coordinates (azimuth/elevation/distance)
/speaker/[index]/ade [number][number][number] : set the position of the i-th loudspeaker using navigation coordinates (azimuth/distance/elevation)
/speaker/[index]/xyz [number][number][number] : set the position of the i-th loudspeaker using cartesian coordinates
/speaker/[index]/xy [number][number] : set the xy-coordinate of the i-th loudspeaker, and use default z (=0)
/speaker/[index]/ae [number][number] : set the azimuth/elevation of the i-th loudspeaker, using default distance (=1)
/speaker/[index]/az [number] : set the azimuth of the i-th loudspeaker, using default distance (=1) and elevation (=0)
/norm [string] : set HOA normalization. Possible values: sn3d, sn2d, n3d, n2d, fuma, maxn, unnormalized
/order [int] : set HOA order
/dimension [int] : set HOA dimension. Possible values: 2, 3
/method [string] : set HOA decoder method. Possible values: direct-sampling, mode-matching, regularized-mode-matching, energy-preserving, all-rad, all-rad2, all-radknn, allrad+, mvlad, csad, no decoding
/type [string] : set HOA optimization type. Possible values: basic, in-phase, maxre, basic-maxre, maxre-inphase, inphase-maxre
/crossover [number] : set HOA crossover frequency (Hz) for dual band decoding
/powercompensation [boolean] : enable power compensation i.e. diffuse field energy normalization (for HOA decoder)
```


/phantom/zenith [boolean] : insert a phantom speaker at the zenith (for HOA decoder)
 /phantom/nadir [boolean] : insert a phantom speaker at the nadir (for HOA decoder)
 /format [string] : set coordinate format used in the status window
 /dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied whitout ramping/crossfade, so this might generate clicks
 /dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied whitout ramping/crossfade, so this might generate clicks
 /dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
 /dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
 /dsp/post : post various information to the Max console (audio should be turned on)
 /dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
 /dump/dsp/latency : send the processor latency (in samples) through the dump outlet
 /verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
 /post/version : print the version in the Max Console
 /post/version [details] : print detailed version in the Max Console
 /post/doc : print the help documentation in the Max Console
 /post/state : print the OSC status in the Max Console
 /preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
 /preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
 /preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
 /preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
 /status : open the status window and bring it to front
 /status/open : open the status window and bring it to front
 /status/close : close the status window
 /status/openorclose : open the status window if it was closed; close it if it was opened
 /status/font/size [number] : set the font size of the status window
 /status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
 /help : open the help window and bring it to front
 /help/open : open the help window and bring it to front
 /help/close : close the help window
 /help/openorclose : open the help window if it was closed; close it if it was opened
 /help/font/size [number] : set the font size of the help window
 /help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
 /snapshot : open the snapshot window and bring it to front
 /snapshot/open : open the snapshot window and bring it to front
 /snapshot/close : close the snapshot window
 /snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
 /snapshot/font/size [number] : set the font size of the snapshot window
 /snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
 /status/copytoclipboard : copy the status to (the OS) clipboard
 /status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
 /dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
 /dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
 /snapshot/clear : delete all the snapshots currently in memory
 /snapshot/add : create a new snapshot with the current state
 /snapshot/add [string] : create a new snapshot with the current state, and set its name
 /snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
 /snapshot/[index]/recall : recall the current state from the i-th snapshot
 /snapshot/[index]/name [string] : set the name of the i-th snapshot
 /snapshot/interpolate [int] [int] [number] : interpolate between the i-th and j-th snapshots
 /snapshot/interpolate [string] [string] [number] : interpolate between two snapshots, given their names
 /snapshot/[index]/delete : delete the i-th snapshot
 /snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
 /snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
 /snapshot/[index]/export [string] : export the i-th snapshot to file
 /snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
 /snapshot/export [string] : export all snapshots to file
 /snapshot/import [string] : import all snapshots from file

see also

- spat5.hoa.encoder~
- spat5.decoder~
- spat5.pan~
- spat5.hoa.converter~
- spat5.hoa.sorting~
- spat5.hoa.optim~
- spat5.hoa.rotate~
- spat5.hoa.focus
- spat5.hoa.focus~
- spat5.hoa.blur~
- spat5.panner.metrics
- spat5.hoa.reduce~
- spat5.hoa.shelving
- spat5.hoa.warp~

- spat5.hoa.dominance~
- spat5.hoa.beam~
- spat5.virtualspeakers~
- spat5.hoa.binaural~
- spat5.hoa.aformat~
- spat5.hoa.scope~
- spat5.hoa.intensity~
- spat5.hoa.downscale~
- spat5.hoa.directivity
- spat5.multi.connect

spat5.hoa.directivity

HOA Directivity patterns

description

spat5.hoa.directivity synthesizes directivity patterns in the HOA domain.

Reference(s) :

B. Rafaely. Fundamentals of Spherical Array Processing - Second edition. Springer, 2019.

F. Zotter, M. Frank. Ambisonics: A Practical 3D Audio Theory for Recording, Studio Production, Sound Reinforcement, and Virtual Reality. Springer, 2019.

A. Politis and D. Poirier-Quinot. JSambisonics: a web audio library for interactive spatial sound processing on the web. In Proc. of the Interactive Audio Systems Symposium, York, UK, Sept 2016.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/order [int] : set HOA order
/dimension [int] : set HOA dimension. Possible values: 2, 3
/pattern [string] : set directivity pattern
/selectivity [number] : set selectivity factor (in /direction/az [number] : set steering direction
/query/az [number] : query the resulting (linear) gain in a given direction
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
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/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
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/help/openorclose : open the help window if it was closed; close it if it was opened
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/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
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/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
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/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names

```

`/snapshot/[index]/delete` : delete the i-th snapshot
`/snapshot/[index]/copytoclipboard` : copy the i-th snapshot to (the OS) clipboard
`/snapshot/[index]/copytoclipboard [string]` : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
`/snapshot/[index]/export [string]` : export the i-th snapshot to file
`/snapshot/[index]/export/content [string]` : export the content of the i-th snapshot to file
`/snapshot/export [string]` : export all snapshots to file
`/snapshot/import [string]` : import all snapshots from file

see also

- `spat5.hoa.focus`
- `spat5.hoa.warp~`
- `spat5.hoa.dominance~`
- `spat5.hoa.encoder~`
- `spat5.hoa.decoder~`
- `spat5.hoa.rotate~`
- `spat5.hoa.beam`
- `spat5.hoa.beam~`
- `spat5.hoa.optim~`
- `spat5.hoa.blur~`
- `spat5.hoa.display`
- `spat5.hoa.display.embedded`
- `spat5.hoa.reduce~`
- `spat5.hoa.intensity~`
- `spat5.hoa.directivity`
- `spat5.multi.connect`

spat5.hoa.display Spherical harmonics visualization

description

spat5.hoa.display displays a 2D representation of a linear combination of spherical harmonics.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
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/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file
/window/title [string] : set the window title (in the window titlebar)
/window/visible [boolean] : set the window visibility
/window/moveable [boolean] : set the window movability
/window/resizable [boolean] : set the window resizability
/window/enable [boolean] : enable/disable the window
/window/background/color [color] : set the window background color

```

```

/window/opaque [boolean] : set the window opaque flag (optimize repaint efficiency)
/window/fullscreen [boolean] : enable/disable fullscreen mode
/window/minimise [boolean] : minimize the window
/window/open : open the window (and bring it to front)
/window/close : close the window
/window/openorclose : open the window if it was closed; close it if it was opened
/window/size [number] [number] : set the window size (width, height) (in pixels)
/window/width [number] : set the window width (in pixels)
/window/height [number] : set the window height (in pixels)
/window/bounds [number] [number] [number] [number] : set the window bounds (top left position, width, height) (in pixels)
/window/topleft [number] [number] : set the window top left position (in pixels)
/window/centre : open the window, centering it on the screen
/window/rendering/engine [string] : set the graphical rendering engine of the window
/window/fps/visible [boolean] : display the FPS performances of the window
/window/scale [number] : set the global scale factor of the window (in /window/floating [boolean] : make the window 'floating' (always on top)
/window/hidesondeactivate [boolean] : make the window 'hides on deactivate' (when always on top)
/window/buttons/close [boolean] : enable/disable the close button (in the window titlebar)
/window/buttons/minimise [boolean] : enable/disable the minimise button (in the window titlebar)
/window/buttons/maximise [boolean] : enable/disable the maximise button (in the window titlebar)
/window/export/image [string] : export the window as an image file (png or jpeg)

```

see also

- spat5.hoa.focus
- spat5.hoa.focus~
- spat5.hoa.encoder~
- spat5.hoa.decoder~
- spat5.hoa.rotate~
- spat5.hoa.optim~
- spat5.hoa.blur~

spat5.hoa.display.embedded

Spherical harmonics visualization

description

spat5.hoa.display displays a 2D representation of a linear combination of spherical harmonics.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- [spat5.hoa.focus](#)

- spat5.hoa.focus~
- spat5.hoa.encoder~
- spat5.hoa.decoder~
- spat5.hoa.rotate~
- spat5.hoa.optim~
- spat5.hoa.blur~

spat5.hoa.dominance~ Ambisonic dominance effect

description

spat5.hoa.dominance~ applies a dominance effect to a 1st order Ambisonic stream.

Reference(s) :

J. Daniel. Representation de champs acoustiques, application a la transmission et a la reproduction de scenes sonores complexes dans un contexte multimedia. PhD thesis, Universite de Paris VI, 2001.

M. A. Gerzon, and G. J. Barton. Ambisonic Decoders for HDTV. In Proc. of the 92nd Convention of Audio Engineering Society (AES), Vienna, Austria, March 1992.

F. Zotter, M. Frank. Ambisonics: A Practical 3D Audio Theory for Recording, Studio Production, Sound Reinforcement, and Virtual Reality. Springer, 2019.

attributes

@dimension [int]

The `dimension` attribute represents the dimension of the Ambisonic stream: either 2D or 3D.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`. Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/norm [string] : set normalization. Possible values: sn3d, sn2d, n3d, n2d, fuma, maxn, unnormalized
/order [int] : set HOA order
/dimension [int] : set HOA dimension. Possible values: 2, 3
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
```

```

/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- spat5.hoa.warp~
- spat5.hoa.focus~
- spat5.hoa.blur~
- spat5.decoder~
- spat5.hoa.encoder~
- spat5.hoa.decoder~
- spat5.hoa.aformat~
- spat5.hoa.scope~
- spat5.hoa.beam~
- spat5.hoa.intensity~
- spat5.hoa.directivity
- spat5.multi.connect

spat5.hoa.downscale~

Downscale 3D HOA to 2D

description

spat5.hoa.downscale~ downscales 3D HOA stream to 2D HOA.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@order [int]

The `order` attribute represents the Ambisonic order of the stream.

For 2D Ambisonic, the number of components is $(2 \times \text{order} + 1)$.

For 3D Ambisonic, the number of components is $(\text{order}+1) \times (\text{order}+1)$.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/order [int] : set HOA order
/norm [string] : set HOA normalization. Possible values: sn3d, sn2d, n3d, n2d, fuma, maxn, unnormalized
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied without ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied without ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)

```

`/status/copytoclipboard` : copy the status to (the OS) clipboard
`/status/copytoclipboard [string]` : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
`/dump` : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
`/dump [string]` : dump a subset of the state of the object over the rightmost outlet. See `spat5.tuto-dump-1.maxpat` for usage examples.
`/snapshot/clear` : delete all the snapshots currently in memory
`/snapshot/add` : create a new snapshot with the current state
`/snapshot/add [string]` : create a new snapshot with the current state, and set its name
`/snapshot/[index]/store` : store the current state in the i-th snapshot (in memory)
`/snapshot/[index]/recall` : recall the current state from the i-th snapshot
`/snapshot/[index]/name [string]` : set the name of the i-th snapshot
`/snapshot/interpolate [int] [int] [number]` : interpolate between the i-th and j-th snapshots
`/snapshot/interpolate [string] [string] [number]` : interpolate between two snapshots, given their names
`/snapshot/[index]/delete` : delete the i-th snapshot
`/snapshot/[index]/copytoclipboard` : copy the i-th snapshot to (the OS) clipboard
`/snapshot/[index]/copytoclipboard [string]` : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
`/snapshot/[index]/export [string]` : export the i-th snapshot to file
`/snapshot/[index]/export/content [string]` : export the content of the i-th snapshot to file
`/snapshot/export [string]` : export all snapshots to file
`/snapshot/import [string]` : import all snapshots from file

see also

- `spat5.hoa.reduce~`
- `spat5.hoa.encoder~`
- `spat5.hoa.warp~`
- `spat5.hoa.decoder~`
- `spat5.hoa.focus~`
- `spat5.hoa.focus`
- `spat5.hoa.blur~`
- `spat5.hoa.display`
- `spat5.hoa.display.embedded`
- `spat5.hoa.scope~`
- `spat5.hoa.beam~`
- `spat5.hoa.beam`
- `spat5.hoa.directivity`
- `spat5.multi.connect`

spat5.hoa.em32~

Eigenmike encoding

description

spat5.hoa.em32~ encodes signals from an Eigenmike microphone (MH acoustics) to the HOA domain.

Reference(s) :

J. Daniel and S. Moreau. Further Study of Sound Field Coding with Higher Order Ambisonics. In Proc. of the 116th Convention of the Audio Engineering Society (AES), Berlin, Germany, May 2004.

J. Daniel. Spherical arrays for capturing 3D sound fields: Prototype measurements versus analytical models. In Proc. of the 19th International Congress on Acoustics (ICA), Madrid, 2007.

F. Zotter, M. Frank. Ambisonics: A Practical 3D Audio Theory for Recording, Studio Production, Sound Reinforcement, and Virtual Reality. Springer, 2019.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/norm [string] : set HOA normalization. Possible values: sn3d, sn2d, n3d, n2d, fuma, maxn, unnormalized
/mode [string] : set encoding mode
/regularization/type [string] : set type of regularization for filters
/regularization [number] : set regularization factor (dB) for filters
/filtering [boolean] : enable/disable encoding filter
/highcut [number] : cutoff frequency for high-cut filter (Hz)
/export/filters [string] : export filters to audio file
/export/filters : export filters to audio file (in the home directory)
/export/matrix [string] : export encoding matrix
/export/matrix : export encoding matrix (in the home directory)
/compensation [boolean] : apply energy compensation (so that the different methods are somehow comparable)
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
```

/help : open the help window and bring it to front
 /help/open : open the help window and bring it to front
 /help/close : close the help window
 /help/openorclose : open the help window if it was closed; close it if it was opened
 /help/font/size [number] : set the font size of the help window
 /help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
 /snapshot : open the snapshot window and bring it to front
 /snapshot/open : open the snapshot window and bring it to front
 /snapshot/close : close the snapshot window
 /snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
 /snapshot/font/size [number] : set the font size of the snapshot window
 /snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
 /status/copytoclipboard : copy the status to (the OS) clipboard
 /status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
 /dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
 /dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
 /snapshot/clear : delete all the snapshots currently in memory
 /snapshot/add : create a new snapshot with the current state
 /snapshot/add [string] : create a new snapshot with the current state, and set its name
 /snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
 /snapshot/[index]/recall : recall the current state from the i-th snapshot
 /snapshot/[index]/name [string] : set the name of the i-th snapshot
 /snapshot/interpolate [int] [int] [number] : interpolate between the i-th and j-th snapshots
 /snapshot/interpolate [string] [string] [number] : interpolate between two snapshots, given their names
 /snapshot/[index]/delete : delete the i-th snapshot
 /snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
 /snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
 /snapshot/[index]/export [string] : export the i-th snapshot to file
 /snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
 /snapshot/export [string] : export all snapshots to file
 /snapshot/import [string] : import all snapshots from file

see also

- spat5.hoa.encoder~
- spat5.hoa.decoder~
- spat5.hoa.aformat~
- spat5.hoa.sorting~
- spat5.hoa.converter~
- spat5.hoa.binaural~
- spat5.hoa.zm1~
- spat5.hoa.scope~
- spat5.hoa.beam~
- spat5.hoa.intensity~
- spat5.hoa.directivity
- spat5.multi.connect

spat5.hoa.encoder~ HOA encoder

description

spat5.hoa.encoder~ generates Higher-Order Ambisonic (HOA) encoded signals.

HOA signals cannot be directly played-back; they need to be decoded e.g. with **spat5.hoa.decoder~**.

Please note that HOA components in **spat5.hoa.encoder~** are ordered with the ACN sorting scheme (cf **spat5.hoa.sorting~** for further information).

spat5.binaural~ is similar to **spat5.pan~** operating with `/panning/type hoa2d` or `/panning/type hoa3d`.

attributes

@dimension [int]

The `dimension` attribute represents the dimension of the Ambisonic stream: either 2D or 3D.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character `"`). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the **spat5.tuto-osc-3.maxpat** example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@inputs [int]

The `inputs` attribute represents the number of input channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or attrui or inspector), since the number of signal inlets or outlets can not be changed dynamically.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@order [int]

The `order` attribute represents the Ambisonic order of the stream.

For 2D Ambisonic, the number of components is $(2 \times \text{order} + 1)$.

For 3D Ambisonic, the number of components is $(\text{order}+1) \times (\text{order}+1)$.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/source/[index]/mute [boolean] : mute the i-th source
/source/[index]/xyz [number] [number] [number] : set the position of the i-th source using cartesian coordinates
/source/[index]/aed [number] [number] [number] : set the position of the i-th source using navigation coordinates (azimuth/elevation/distance)
/source/[index]/xy [number] [number] : set the xy-coordinate of the i-th source, and use default z (=0)
/source/[index]/az [number] : set the azimuth of the i-th source, using default distance (=1) and elevation (=0)
/source/[index]/x [number] [number] : set the x-coordinate of the i-th source, and keep y and z unchanged
/source/[index]/y [number] [number] : set the y-coordinate of the i-th source, and keep x and z unchanged
/source/[index]/z [number] [number] : set the z-coordinate of the i-th source, and keep x and y unchanged
/source/[index]/ade [number] [number] [number] : set the position of the i-th source using navigation coordinates (azimuth/distance/elevation)
/source/[index]/ae [number] [number] : set the azimuth/elevation of the i-th source, using default distance (=1)
/source/[index]/ad [number] [number] : set the azimuth/distance of the i-th source, using default elevation (=0)
/source/[index]/azim [number] : set the azimuth of the i-th source. Elevation and distance remain unchanged
/source/[index]/elev [number] : set the elevation of the i-th source. Azimuth and distance remain unchanged
/source/[index]/dist [number] : set the distance of the i-th source. Azimuth and elevation remain unchanged
/source/[index]/azimelev [number] [number] : set the azimuth and elevation of the i-th source. Distance remains unchanged
/source/[index]/azimdist [number] [number] : set the azimuth and distance of the i-th source. Elevation remains unchanged
/sources/aed [nnnn...] : set the list of source coordinates (with aed format)
/sources/xyz [nnnn...] : set the list of source coordinates (with xyz format)
/sources/ade [nnnn...] : set the list of source coordinates (with ade format)
/sources/xy [nnnn...] : set the list of source coordinates (with xy format)
/sources/ae [nnnn...] : set the list of source coordinates (with ae format)
/norm [string] : set HOA normalization. Possible values: sn3d, sn2d, n3d, n2d, fuma, maxn, unnormalized
/order [int] : set HOA order
/dimension [int] : set HOA dimension. Possible values: 2, 3
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)

```


/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
 /dsp/post : post various information to the Max console (audio should be turned on)
 /dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
 /dump/dsp/latency : send the processor latency (in samples) through the dump outlet
 /verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
 /post/version : print the version in the Max Console
 /post/version [details] : print detailed version in the Max Console
 /post/doc : print the help documentation in the Max Console
 /post/state : print the OSC status in the Max Console
 /preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
 /preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
 /preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
 /preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
 /status : open the status window and bring it to front
 /status/open : open the status window and bring it to front
 /status/close : close the status window
 /status/openorclose : open the status window if it was closed; close it if it was opened
 /status/font/size [number] : set the font size of the status window
 /status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
 /help : open the help window and bring it to front
 /help/open : open the help window and bring it to front
 /help/close : close the help window
 /help/openorclose : open the help window if it was closed; close it if it was opened
 /help/font/size [number] : set the font size of the help window
 /help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
 /snapshot : open the snapshot window and bring it to front
 /snapshot/open : open the snapshot window and bring it to front
 /snapshot/close : close the snapshot window
 /snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
 /snapshot/font/size [number] : set the font size of the snapshot window
 /snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
 /status/copytoclipboard : copy the status to (the OS) clipboard
 /status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
 /dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
 /dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
 /snapshot/clear : delete all the snapshots currently in memory
 /snapshot/add : create a new snapshot with the current state
 /snapshot/add [string] : create a new snapshot with the current state, and set its name
 /snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
 /snapshot/[index]/recall : recall the current state from the i-th snapshot
 /snapshot/[index]/name [string] : set the name of the i-th snapshot
 /snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
 /snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
 /snapshot/[index]/delete : delete the i-th snapshot
 /snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
 /snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
 /snapshot/[index]/export [string] : export the i-th snapshot to file
 /snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
 /snapshot/export [string] : export all snapshots to file
 /snapshot/import [string] : import all snapshots from file

see also

- spat5.pan~
- spat5.viewer
- spat5.hoa.decoder~
- spat5.decoder~
- spat5.hoa.sorting~
- spat5.hoa.converter~
- spat5.hoa.rotate~
- spat5.hoa.focus
- spat5.hoa.focus~
- spat5.hoa.blur~
- spat5.hoa.reduce~
- spat5.hoa.warp~
- spat5.hoa.dominance~
- spat5.hoa.sorting~
- spat5.hoa.converter~
- spat5.hoa.display
- spat5.hoa.display.embedded
- spat5.hoa.scope~
- spat5.hoa.aformat~
- spat5.hoa.binaural~
- spat5.panner.metrics
- spat5.hoa.map

- spat5.hoa.em32~
- spat5.hoa.zm1~
- spat5.hoa.intensity~
- spat5.trajectories
- spat5.multi.connect

spat5.hoa.focus

Virtual beamforming in the HOA domain

description

spat5.hoa.focus is a control interface for `spat5.hoa.focus~`.

attributes

@embed [boolean]

The `embed` attribute allows to store the state of the object within the patcher. The complete state of the object is stored whenever the patcher is saved to disk. Upon loading the patcher or copying the object box, the state is restored.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int] [int] [number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string] [string] [number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

```

/window/title [string] : set the window title (in the window titlebar)
/window/visible [boolean] : set the window visibility
/window/moveable [boolean] : set the window movability
/window/resizable [boolean] : set the window resizability
/window/enable [boolean] : enable/disable the window
/window/background/color [color] : set the window background color
/window/opaque [boolean] : set the window opaque flag (optimize repaint efficiency)
/window/fullscreen [boolean] : enable/disable fullscreen mode
/window/minimise [boolean] : minimize the window
/window/open : open the window (and bring it to front)
/window/close : close the window
/window/openorclose : open the window if it was closed; close it if it was opened
/window/size [number] [number] : set the window size (width, height) (in pixels)
/window/width [number] : set the window width (in pixels)
/window/height [number] : set the window height (in pixels)
/window/bounds [number] [number] [number] [number] : set the window bounds (top left position, width, height) (in pixels)
/window/topleft [number] [number] : set the window top left position (in pixels)
/window/centre : open the window, centering it on the screen
/window/rendering/engine [string] : set the graphical rendering engine of the window
/window/fps/visible [boolean] : display the FPS performances of the window
/window/scale [number] : set the global scale factor of the window (in /window/floating [boolean] : make the window 'floating' (always on top)
/window/hidesondeactivate [boolean] : make the window 'hides on deactivate' (when always on top)
/window/buttons/close [boolean] : enable/disable the close button (in the window titlebar)
/window/buttons/minimise [boolean] : enable/disable the minimise button (in the window titlebar)
/window/buttons/maximise [boolean] : enable/disable the maximise button (in the window titlebar)
/window/export/image [string] : export the window as an image file (png or jpeg)

```

see also

- spat5.hoa.focus~
- spat5.hoa.encoder~
- spat5.hoa.decoder~
- spat5.hoa.rotate~
- spat5.hoa.optim~
- spat5.hoa.blur~
- spat5.hoa.beam
- spat5.hoa.beam~
- spat5.hoa.directivity
- spat5.hoa.display
- spat5.hoa.display.embedded

spat5.hoa.focus~

Virtual beamforming in the HOA domain

description

spat5.hoa.focus~ creates virtual beams steering in various directions, and with adjustable selectivity pattern. This allows to emphasize certain area of the sound field.

spat5.hoa.focus~ can be controlled with **spat5.hoa.focus**.

Reference(s) :

M. Kronlachner and F. Zotter. Warping and Directional Loudness Manipulation Tools for Ambisonics. In Proc. of the EAA Symposium on Auralization and Ambisonics, Berlin, Germany, April 2014.

M. Kronlachner and F. Zotter. Spatial transformations for the enhancement of Ambisonic recordings. In Proc. of the 2nd International Conference on Spatial Audio (ICSA), Erlangen, Germany, February 2014.

M. Kronlachner. Spatial transformations for the alteration of ambisonic recordings. Master's thesis, Institute of Electronic Music and Acoustics, Graz, June 2014.

F. Zotter, M. Frank. Ambisonics: A Practical 3D Audio Theory for Recording, Studio Production, Sound Reinforcement, and Virtual Reality. Springer, 2019.

attributes

@dimension [int]

The `dimension` attribute represents the dimension of the Ambisonic stream: either 2D or 3D.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@order [int]

The `order` attribute represents the Ambisonic order of the stream.

For 2D Ambisonic, the number of components is $(2 \times \text{order} + 1)$.

For 3D Ambisonic, the number of components is $(\text{order}+1) \times (\text{order}+1)$.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

`/dsp/mute [boolean]` : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied without ramping/crossfade, so this might generate clicks

`/dsp/bypass [boolean]` : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied without ramping/crossfade, so this might generate clicks

`/dsp/automute [boolean]` : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)

`/dsp/automute/attack [number]` : set the duration (in seconds) before auto-muting

`/dsp/post` : post various information to the Max console (audio should be turned on)

`/dsp/clear` : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up

`/dump/dsp/latency` : send the processor latency (in samples) through the dump outlet

`/verbose [string]` : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed

`/post/version` : print the version in the Max Console

`/post/version [details]` : print detailed version in the Max Console

`/post/doc` : print the help documentation in the Max Console

`/post/state` : print the OSC status in the Max Console

`/preset/load [string]` : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.

`/preset/load` : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format.

`/preset/export [string]` : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)

`/preset/export` : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format.

`/status` : open the status window and bring it to front

`/status/open` : open the status window and bring it to front

```

/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int] [int] [number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string] [string] [number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- spat5.hoa.focus
- spat5.hoa.warp~
- spat5.hoa.dominance~
- spat5.hoa.encoder~
- spat5.hoa.decoder~
- spat5.hoa.rotate~
- spat5.hoa.beam
- spat5.hoa.beam~
- spat5.hoa.optim~
- spat5.hoa.blur~
- spat5.hoa.display
- spat5.hoa.display.embedded
- spat5.hoa.reduce~
- spat5.hoa.intensity~
- spat5.hoa.directivity
- spat5.multi.connect

spat5.hoa.intensity~

HOA intensity and diffuseness estimation

description

spat5.hoa.intensity~ estimates the active acoustical intensity (energy density of the sound field).

Reference(s) :

J. Daniel. Representation de champs acoustiques, application a la transmission et a la reproduction de scenes sonores complexes dans un contexte multimedia. PhD thesis, Universite de Paris VI, 2001.

J. Merimaa and V. Pulkki. Spatial Impulse Response Rendering (Part I): Analysis and Synthesis. Journal of the Audio Engineering Society, 53(12):1115 ,À 1127, Dec 2005.

J. Merimaa and V. Pulkki. Spatial Impulse Response Rendering. In Proc. of the 7th Int. Conference on Digital Audio Effects (DAFx,À04), pages 139 ,À 144, Naples, Italy, 2004.

attributes

@dimension [int]

The `dimension` attribute represents the dimension of the Ambisonic stream: either 2D or 3D.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@order [int]

The `order` attribute represents the Ambisonic order of the stream.

For 2D Ambisonic, the number of components is $(2 \times \text{order} + 1)$.

For 3D Ambisonic, the number of components is $(\text{order}+1) \times (\text{order}+1)$.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/norm [string] : set normalization. Possible values: sn3d, sn2d, n3d, n2d, fuma, maxn, unnormalized
/order [int] : set HOA order
/dimension [int] : set HOA dimension. Possible values: 2, 3
/format [string] : set output format. Possible values: xyz, aed
/fftsize [int] : set FFT size
/window/size [int] : set FFT window size
/averaging/time [number] : set averaging time (in msec)
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)

```

/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.

/status : open the status window and bring it to front

/status/open : open the status window and bring it to front

/status/close : close the status window

/status/openorclose : open the status window if it was closed; close it if it was opened

/status/font/size [number] : set the font size of the status window

/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)

/help : open the help window and bring it to front

/help/open : open the help window and bring it to front

/help/close : close the help window

/help/openorclose : open the help window if it was closed; close it if it was opened

/help/font/size [number] : set the font size of the help window

/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)

/snapshot : open the snapshot window and bring it to front

/snapshot/open : open the snapshot window and bring it to front

/snapshot/close : close the snapshot window

/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened

/snapshot/font/size [number] : set the font size of the snapshot window

/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)

/status/copytoclipboard : copy the status to (the OS) clipboard

/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')

/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)

/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.

/snapshot/clear : delete all the snapshots currently in memory

/snapshot/add : create a new snapshot with the current state

/snapshot/add [string] : create a new snapshot with the current state, and set its name

/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)

/snapshot/[index]/recall : recall the current state from the i-th snapshot

/snapshot/[index]/name [string] : set the name of the i-th snapshot

/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots

/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names

/snapshot/[index]/delete : delete the i-th snapshot

/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard

/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')

/snapshot/[index]/export [string] : export the i-th snapshot to file

/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file

/snapshot/export [string] : export all snapshots to file

/snapshot/import [string] : import all snapshots from file

see also

- spat5.hoa.encoder~
- spat5.hoa.decoder~
- spat5.hoa.rotate~
- spat5.hoa.focus~
- spat5.hoa.focus
- spat5.hoa.blur~
- spat5.hoa.optim~
- spat5.hoa.blur~
- spat5.hoa.display
- spat5.hoa.display.embedded
- spat5.hoa.scope~
- spat5.hoa.reduce~
- spat5.multi.connect

spat5.hoa.map

Spherical harmonics visualization

description

spat5.hoa.map.

attributes

@embed [boolean]

The `embed` attribute allows to store the state of the object within the patcher. The complete state of the object is stored whenever the patcher is saved to disk. Upon loading the patcher or copying the object box, the state is restored.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int] [int] [number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string] [string] [number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```



```

/window/title [string] : set the window title (in the window titlebar)
/window/visible [boolean] : set the window visibility
/window/moveable [boolean] : set the window movability
/window/resizable [boolean] : set the window resizability
/window/enable [boolean] : enable/disable the window
/window/background/color [color] : set the window background color
/window/opaque [boolean] : set the window opaque flag (optimize repaint efficiency)
/window/fullscreen [boolean] : enable/disable fullscreen mode
/window/minimise [boolean] : minimize the window
/window/open : open the window (and bring it to front)
/window/close : close the window
/window/openorclose : open the window if it was closed; close it if it was opened
/window/size [number] [number] : set the window size (width, height) (in pixels)
/window/width [number] : set the window width (in pixels)
/window/height [number] : set the window height (in pixels)
/window/bounds [number] [number] [number] [number] : set the window bounds (top left position, width, height) (in pixels)
/window/topleft [number] [number] : set the window top left position (in pixels)
/window/centre : open the window, centering it on the screen
/window/rendering/engine [string] : set the graphical rendering engine of the window
/window/fps/visible [boolean] : display the FPS performances of the window
/window/scale [number] : set the global scale factor of the window (in /window/floating [boolean] : make the window 'floating' (always on top)
/window/hidesondeactivate [boolean] : make the window 'hides on deactivate' (when always on top)
/window/buttons/close [boolean] : enable/disable the close button (in the window titlebar)
/window/buttons/minimise [boolean] : enable/disable the minimise button (in the window titlebar)
/window/buttons/maximise [boolean] : enable/disable the maximise button (in the window titlebar)
/window/export/image [string] : export the window as an image file (png or jpeg)

```

see also

- spat5.hoa.encoder~
- spat5.hoa.plot
- spat5.hoa.display
- spat5.hoa.display.embedded
- spat5.hoa.scope~
- spat5.hoa.triangle

spat5.hoa.mirror~ Ambisonic mirroring

description

spat5.hoa.mirror~ applies mirroring along the x,y or z axis.

attributes

@dimension [int]

The `dimension` attribute represents the dimension of the Ambisonic stream: either 2D or 3D.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@order [int]

The `order` attribute represents the Ambisonic order of the stream.

For 2D Ambisonic, the number of components is $(2 \times \text{order} + 1)$.

For 3D Ambisonic, the number of components is $(\text{order}+1) \times (\text{order}+1)$.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/type [string] : set mirroring type
/order [int] : set HOA order
/dimension [int] : set HOA dimension. Possible values: 2, 3
/ramp/time [number] : set ramping time (msec)
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window

```

```

/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- spat5.hoa.rotate~
- spat5.hoa.focus
- spat5.hoa.focus~
- spat5.hoa.encoder~
- spat5.hoa.decoder~
- spat5.hoa.sorting~
- spat5.hoa.converter~
- spat5.hoa.warp~
- spat5.hoa.dominance~
- spat5.hoa.blur~
- spat5.hoa.beam~
- spat5.hoa.scope~
- spat5.hoa.directivity
- spat5.multi.connect

spat5.hoa.optim~ Ambisonic optimization

description

spat5.hoa.optim~ applies max-Re or in-phase optimization gains to HOA stream.

attributes

@dimension [int]

The `dimension` attribute represents the dimension of the Ambisonic stream: either 2D or 3D.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@order [int]

The `order` attribute represents the Ambisonic order of the stream.

For 2D Ambisonic, the number of components is $(2 \times \text{order} + 1)$.

For 3D Ambisonic, the number of components is $(\text{order}+1) \times (\text{order}+1)$.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/type [string] : set optimization type. Possible values: basic, in-phase, maxre, basic-maxre, maxre-inphase, inphase-maxre
/order [int] : set HOA order
/dimension [int] : set HOA dimension. Possible values: 2, 3
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
```

```

/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int] [int] [number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string] [string] [number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- spat5.hoa.encoder~
- spat5.hoa.decoder~
- spat5.hoa.rotate~
- spat5.hoa.focus
- spat5.hoa.focus~
- spat5.hoa.sorting~
- spat5.hoa.converter~
- spat5.hoa.scope~
- spat5.hoa.display
- spat5.hoa.display.embedded
- spat5.hoa.mirror~
- spat5.hoa.warp~
- spat5.hoa.dominance~
- spat5.hoa.blur~
- spat5.hoa.beam~
- spat5.panner.metrics
- spat5.hoa.intensity~
- spat5.hoa.directivity
- spat5.multi.connect

spat5.hoa.plot Spherical harmonics plot

description

spat5.hoa.plot plot real-value spherical harmonics.

attributes

@embed [boolean]

The `embed` attribute allows to store the state of the object within the patcher. The complete state of the object is stored whenever the patcher is saved to disk. Upon loading the patcher or copying the object box, the state is restored.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file
```

```

/window/title [string] : set the window title (in the window titlebar)
/window/visible [boolean] : set the window visibility
/window/moveable [boolean] : set the window movability
/window/resizable [boolean] : set the window resizability
/window/enable [boolean] : enable/disable the window
/window/background/color [color] : set the window background color
/window/opaque [boolean] : set the window opaque flag (optimize repaint efficiency)
/window/fullscreen [boolean] : enable/disable fullscreen mode
/window/minimise [boolean] : minimize the window
/window/open : open the window (and bring it to front)
/window/close : close the window
/window/openorclose : open the window if it was closed; close it if it was opened
/window/size [number] [number] : set the window size (width, height) (in pixels)
/window/width [number] : set the window width (in pixels)
/window/height [number] : set the window height (in pixels)
/window/bounds [number] [number] [number] [number] : set the window bounds (top left position, width, height) (in pixels)
/window/topleft [number] [number] : set the window top left position (in pixels)
/window/centre : open the window, centering it on the screen
/window/rendering/engine [string] : set the graphical rendering engine of the window
/window/fps/visible [boolean] : display the FPS performances of the window
/window/scale [number] : set the global scale factor of the window (in /window/floating [boolean] : make the window 'floating' (always on top)
/window/hidesondeactivate [boolean] : make the window 'hides on deactivate' (when always on top)
/window/buttons/close [boolean] : enable/disable the close button (in the window titlebar)
/window/buttons/minimise [boolean] : enable/disable the minimise button (in the window titlebar)
/window/buttons/maximise [boolean] : enable/disable the maximise button (in the window titlebar)
/window/export/image [string] : export the window as an image file (png or jpeg)

```

see also

- spat5.hoa.encoder~
- spat5.hoa.map
- spat5.hoa.display
- spat5.hoa.display.embedded
- spat5.hoa.scope~
- spat5.hoa.triangle

spat5.hoa.reduce~

Ambisonic order reduction

description

spat5.hoa.reduce~ 'downgrades' a HOA stream to a lower order.

Reference(s) :

T. Carpentier. Ambisonic spatial blur. In Proc. of the 142nd Convention of the Audio Engineering Society (AES), Berlin, Germany, May 2017.

attributes

@dimension [int]

The `dimension` attribute represents the dimension of the Ambisonic stream: either 2D or 3D.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@order [int]

The `order` attribute represents the Ambisonic order of the stream.

For 2D Ambisonic, the number of components is $(2 \times \text{order} + 1)$.

For 3D Ambisonic, the number of components is $(\text{order}+1) \times (\text{order}+1)$.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/order/output [int] : set output HOA order
/order/input [int] : set input HOA order
/mode [string] : set downgrading mode. Possible values: discard, diffuse-field compensation
/dimension [int] : set HOA dimension. Possible values: 2, 3
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
```



```

/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- spat5.hoa.sorting~
- spat5.hoa.converter~
- spat5.hoa.blur~
- spat5.hoa.decoder~
- spat5.hoa.scope~
- spat5.hoa.beam~
- spat5.hoa.directivity
- spat5.multi.connect

spat5.hoa.rotate~ Ambisonic rotations

description

spat5.hoa.rotate~ applies rotations HOA stream.

attributes

@dimension [int]

The `dimension` attribute represents the dimension of the Ambisonic stream: either 2D or 3D.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@order [int]

The `order` attribute represents the Ambisonic order of the stream.

For 2D Ambisonic, the number of components is $(2 \times \text{order} + 1)$.

For 3D Ambisonic, the number of components is $(\text{order}+1) \times (\text{order}+1)$.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max `inspector`).

methods

```

/quat [number] [number] [number] [number] : set quaternion rotation (xyzw)
/yaw [number] : set yaw rotation angle (in deg) using Euler zyx convention
/pitch [number] : set pitch rotation angle (in deg) using Euler zyx convention
/roll [number] : set roll rotation angle (in deg) using Euler zyx convention
/ypr [number] [number] [number] : set yaw, pitch, and roll (in deg) using Euler zyx convention
/order [int] : set HOA order
/dimension [int] : set HOA dimension. Possible values: 2, 3
/ramp/time [number] : set ramping time (in msec)
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front

```

```
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file
```

see also

- spat5.hoa.encoder~
- spat5.hoa.decoder~
- spat5.hoa.mirror~
- spat5.hoa.focus
- spat5.hoa.focus~
- spat5.hoa.warp~
- spat5.hoa.dominance~
- spat5.hoa.blur~
- spat5.hoa.beam~
- spat5.hoa.sorting~
- spat5.hoa.converter~
- spat5.hoa.aformat~
- spat5.multi.connect

spat5.hoa.shelving

Ambisonic band-splitting filters

description

spat5.hoa.shelving computes phase-matched, band-splitting shelving filters for Ambisonic decoder.

Reference(s) :

A. J. Heller, R. Lee, and E. M. Benjamin. Is My Decoder Ambisonic? In Proc. of the 125th Convention of Audio Engineering Society (AES), San Francisco, CA, USA, Oct 2008.

A. J. Heller, and E. M. Benjamin. Design and implementation of filters for Ambisonic decoders In Proc. of the 1st International Faust Conference (IFC), Mainz, Germany, July 2018.

J. Daniel. Representation de champs acoustiques, application a la transmission et a la reproduction de scenes sonores complexes dans un contexte multimedia. PhD thesis, Universite de Paris VI, 2001.

F. Zotter, M. Frank. Ambisonics: A Practical 3D Audio Theory for Recording, Studio Production, Sound Reinforcement, and Virtual Reality. Springer, 2019.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character `"`). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/crossover [number] : set crossover frequency (in Hz)
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard

```

`/status/copytoclipboard [string]` : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
`/dump` : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
`/dump [string]` : dump a subset of the state of the object over the rightmost outlet. See `spat5.tuto-dump-1.maxpat` for usage examples.
`/snapshot/clear` : delete all the snapshots currently in memory
`/snapshot/add` : create a new snapshot with the current state
`/snapshot/add [string]` : create a new snapshot with the current state, and set its name
`/snapshot/[index]/store` : store the current state in the i-th snapshot (in memory)
`/snapshot/[index]/recall` : recall the current state from the i-th snapshot
`/snapshot/[index]/name [string]` : set the name of the i-th snapshot
`/snapshot/interpolate [int][int][number]` : interpolate between the i-th and j-th snapshots
`/snapshot/interpolate [string][string][number]` : interpolate between two snapshots, given their names
`/snapshot/[index]/delete` : delete the i-th snapshot
`/snapshot/[index]/copytoclipboard` : copy the i-th snapshot to (the OS) clipboard
`/snapshot/[index]/copytoclipboard [string]` : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
`/snapshot/[index]/export [string]` : export the i-th snapshot to file
`/snapshot/[index]/export/content [string]` : export the content of the i-th snapshot to file
`/snapshot/export [string]` : export all snapshots to file
`/snapshot/import [string]` : import all snapshots from file

see also

- `spat5.hoa.decoder~`
- `spat5.hoa.scope~`
- `spat5.multi.connect`

spat5.hoa.slaconv~

Convolver for spherical loudspeaker array (SLA)

description

spat5.hoa.slaconv~ is a real-time convolver for spherical loudspeaker array.

Reference(s) :

F. Zotter Analysis and synthesis of sound-radiation with spherical arrays. PhD. Thesis, University of Music and Performing Arts, Graz, 2009.

F. Zotter, M. Frank. Ambisonics: A Practical 3D Audio Theory for Recording, Studio Production, Sound Reinforcement, and Virtual Reality. Springer, 2019.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@order [int]

The `order` attribute represents the Ambisonic order of the stream.

For 2D Ambisonic, the number of components is $(2 \times \text{order} + 1)$.

For 3D Ambisonic, the number of components is $(\text{order}+1) \times (\text{order}+1)$.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max `inspector`).

@speakers [int]

The `speakers` attribute represents the number of output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or `attrui` or `inspector`), since the number of signal inlets or outlets can not be changed dynamically.

methods

```
/speaker/[index]/acn/[index]/load [string] : load filter for the i-th speaker and j-th ACN channel
/speaker/[index]/acn/[index]/clear : clear filter for the i-th speaker and j-th ACN channel
/blocksize [int] : set block-size. blocksize is a parameter of the algorithm. The larger it is, the greater the input/output delay is and the less CPU time is used. It has to be a power of two greater than the signal vector size of Max. The input/output delay is = ( max( blocksize, 32 ) - vectorsize )
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
```

```

/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int] [int] [number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string] [string] [number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- spat5.conv~
- spat5.hoa.em32~
- spat5.hoa.encoder~
- spat5.hoa.decoder~
- spat5.hoa.aformat~
- spat5.hoa.sorting~
- spat5.hoa.converter~
- spat5.hoa.binaural~
- spat5.hoa.zm1~
- spat5.hoa.scope~
- spat5.hoa.beam~
- spat5.hoa.intensity~
- spat5.hoa.directivity
- spat5.multi.connect

spat5.hoa.sorting~

Ambisonic channel sorting method converter

description

There are three main conventions for the ordering of the ambisonic channels: ACN, SID and FMH. Spat has adopted the "ACN" convention. This is the convention used in all spat5.* objects. **spat5.hoa.sorting~** allows you to easily convert to/from other conventions.

attributes

@dimension [int]

The `dimension` attribute represents the dimension of the Ambisonic stream: either 2D or 3D.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`. Have a look at the `spat5.tuto-osc-3.maxpat` example for further details. Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@order [int]

The `order` attribute represents the Ambisonic order of the stream. For 2D Ambisonic, the number of components is $(2 \times \text{order} + 1)$. For 3D Ambisonic, the number of components is $(\text{order}+1) \times (\text{order}+1)$.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/sorting/input [string] : set input sorting. Possible values: acn, sid, fmh
/sorting/output [string] : set output sorting. Possible values: acn, sid, fmh
/order [int] : set HOA order
/dimension [int] : set HOA dimension. Possible values: 2, 3
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied without ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied without ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/status : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
```



```

/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- spat5.hoa.converter~
- spat5.pan~
- spat5.decoder~
- spat5.hoa.encoder~
- spat5.hoa.decoder~
- spat5.hoa.aformat~
- spat5.hoa.downscale~
- spat5.multi.connect

spat5.hoa.triangle

Spherical harmonics display

description

spat5.hoa.triangle displays spherical harmonics components.

attributes

@embed [boolean]

The `embed` attribute allows to store the state of the object within the patcher. The complete state of the object is stored whenever the patcher is saved to disk. Upon loading the patcher or copying the object box, the state is restored.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int] [int] [number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string] [string] [number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

```

/window/title [string] : set the window title (in the window titlebar)
/window/visible [boolean] : set the window visibility
/window/moveable [boolean] : set the window movability
/window/resizable [boolean] : set the window resizability
/window/enable [boolean] : enable/disable the window
/window/background/color [color] : set the window background color
/window/opaque [boolean] : set the window opaque flag (optimize repaint efficiency)
/window/fullscreen [boolean] : enable/disable fullscreen mode
/window/minimise [boolean] : minimize the window
/window/open : open the window (and bring it to front)
/window/close : close the window
/window/openorclose : open the window if it was closed; close it if it was opened
/window/size [number] [number] : set the window size (width, height) (in pixels)
/window/width [number] : set the window width (in pixels)
/window/height [number] : set the window height (in pixels)
/window/bounds [number] [number] [number] [number] : set the window bounds (top left position, width, height) (in pixels)
/window/topleft [number] [number] : set the window top left position (in pixels)
/window/centre : open the window, centering it on the screen
/window/rendering/engine [string] : set the graphical rendering engine of the window
/window/fps/visible [boolean] : display the FPS performances of the window
/window/scale [number] : set the global scale factor of the window (in /window/floating [boolean] : make the window 'floating' (always on top)
/window/hidesondeactivate [boolean] : make the window 'hides on deactivate' (when always on top)
/window/buttons/close [boolean] : enable/disable the close button (in the window titlebar)
/window/buttons/minimise [boolean] : enable/disable the minimise button (in the window titlebar)
/window/buttons/maximise [boolean] : enable/disable the maximise button (in the window titlebar)
/window/export/image [string] : export the window as an image file (png or jpeg)

```

see also

- spat5.hoa.encoder~
- spat5.hoa.map
- spat5.hoa.plot
- spat5.hoa.display
- spat5.hoa.display.embedded
- spat5.hoa.scope~

spat5.hoa.triangle.embedded

Spherical harmonics display

description

spat5.hoa.triangle displays spherical harmonics components.

attributes

@embed [boolean]

The `embed` attribute allows to store the state of the object within the patcher. The complete state of the object is stored whenever the patcher is saved to disk. Upon loading the patcher or copying the object box, the state is restored.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for
human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is
inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for
human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for
human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the
destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll'
for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int] [int] [number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string] [string] [number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file

```

`/snapshot/import [string]` : import all snapshots from file

see also

- `spat5.hoa.encoder~`
- `spat5.hoa.map`
- `spat5.hoa.plot`
- `spat5.hoa.display`
- `spat5.hoa.display.embedded`
- `spat5.hoa.scope~`

spat5.hoa.warp~

Warping in the HOA domain

description

spat5.hoa.warp~ distorts the HOA sound field, stretching a certain region of the surround image.

towards pole :

warp = 0% : neutral

warp is positive : warp towards the north pole

warp is negative : warp towards the south pole

stretch equator (preserving the elevation of the equator) :

warp = 0% : neutral

warp is positive : pushes surround sound content away from the equator

warp is negative : pulls it towards the equator

front :

warp = 0% : neutral

warp is positive : warp towards the front direction (+Y axis)

warp is negative : warp towards the back direction (-Y axis)

.

Reference(s) :

M. Kronlachner and F. Zotter. Warping and Directional Loudness Manipulation Tools for Ambisonics. In Proc. of the EAA Symposium on Auralization and Ambisonics, Berlin, Germany, April 2014.

M. Kronlachner and F. Zotter. Spatial transformations for the enhancement of Ambisonic recordings. In Proc. of the 2nd International Conference on Spatial Audio (ICSA), Erlangen, Germany, February 2014.

M. Kronlachner. Spatial transformations for the alteration of ambisonic recordings. Master's thesis, Institute of Electronic Music and Acoustics, Graz, June 2014.

F. Zotter and H. Pomberger. Warping of the Recording Angle in Ambisonics. In Proc. of the 1st International Conference on Spatial Audio, Detmold, Germany, Nov 2011.

H. Pomberger and F. Zotter. Warping of 3D ambisonic recordings. In Proc. of the Ambisonics Symposium, Lexington, KY, USA, June 2011.

F. Zotter, M. Frank. Ambisonics: A Practical 3D Audio Theory for Recording, Studio Production, Sound Reinforcement, and Virtual Reality. Springer, 2019.

attributes

@dimension [int]

The `dimension` attribute represents the dimension of the Ambisonic stream: either 2D or 3D.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@order [int]

The `order` attribute represents the Ambisonic order of the stream.

For 2D Ambisonic, the number of components is $(2 \times \text{order} + 1)$.

For 3D Ambisonic, the number of components is $(\text{order}+1) \times (\text{order}+1)$.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

`/order [int]` : set HOA order

`/dimension [int]` : set HOA dimension. Possible values: 2, 3

`/dsp/mute [boolean]` : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied without ramping/crossfade, so this might generate clicks

`/dsp/bypass [boolean]` : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied without ramping/crossfade, so this might generate clicks

/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
 /dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
 /dsp/post : post various information to the Max console (audio should be turned on)
 /dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
 /dump/dsp/latency : send the processor latency (in samples) through the dump outlet
 /verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
 /post/version : print the version in the Max Console
 /post/version [details] : print detailed version in the Max Console
 /post/doc : print the help documentation in the Max Console
 /post/state : print the OSC status in the Max Console
 /preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
 /preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
 /preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
 /preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
 /status : open the status window and bring it to front
 /status/open : open the status window and bring it to front
 /status/close : close the status window
 /status/openorclose : open the status window if it was closed; close it if it was opened
 /status/font/size [number] : set the font size of the status window
 /status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
 /help : open the help window and bring it to front
 /help/open : open the help window and bring it to front
 /help/close : close the help window
 /help/openorclose : open the help window if it was closed; close it if it was opened
 /help/font/size [number] : set the font size of the help window
 /help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
 /snapshot : open the snapshot window and bring it to front
 /snapshot/open : open the snapshot window and bring it to front
 /snapshot/close : close the snapshot window
 /snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
 /snapshot/font/size [number] : set the font size of the snapshot window
 /snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
 /status/copytoclipboard : copy the status to (the OS) clipboard
 /status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
 /dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
 /dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
 /snapshot/clear : delete all the snapshots currently in memory
 /snapshot/add : create a new snapshot with the current state
 /snapshot/add [string] : create a new snapshot with the current state, and set its name
 /snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
 /snapshot/[index]/recall : recall the current state from the i-th snapshot
 /snapshot/[index]/name [string] : set the name of the i-th snapshot
 /snapshot/interpolate [int] [int] [number] : interpolate between the i-th and j-th snapshots
 /snapshot/interpolate [string] [string] [number] : interpolate between two snapshots, given their names
 /snapshot/[index]/delete : delete the i-th snapshot
 /snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
 /snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
 /snapshot/[index]/export [string] : export the i-th snapshot to file
 /snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
 /snapshot/export [string] : export all snapshots to file
 /snapshot/import [string] : import all snapshots from file

see also

- spat5.hoa.dominance~
- spat5.hoa.focus~
- spat5.hoa.focus
- spat5.hoa.encoder~
- spat5.hoa.decoder~
- spat5.hoa.rotate~
- spat5.hoa.optim~
- spat5.hoa.blur~
- spat5.hoa.display
- spat5.hoa.display.embedded
- spat5.hoa.scope~
- spat5.hoa.reduce~
- spat5.hoa.intensity~
- spat5.multi.connect

spat5.hoa.zm1~ Zylia ZM-1 encoding

description

spat5.hoa.zm1~ encodes signals from a Zylia ZM-1 microphone to the HOA domain.

Reference(s) :

J. Daniel and S. Moreau. Further Study of Sound Field Coding with Higher Order Ambisonics. In Proc. of the 116th Convention of the Audio Engineering Society (AES), Berlin, Germany, May 2004.

J. Daniel. Spherical arrays for capturing 3D sound fields: Prototype measurements versus analytical models. In Proc. of the 19th International Congress on Acoustics (ICA), Madrid, 2007.

F. Zotter, M. Frank. Ambisonics: A Practical 3D Audio Theory for Recording, Studio Production, Sound Reinforcement, and Virtual Reality. Springer, 2019.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/norm [string] : set HOA normalization. Possible values: sn3d, sn2d, n3d, n2d, fuma, maxn, unnormalized
/regularization/type [string] : set type of regularization for filters
/regularization [number] : set regularization factor (dB) for filters
/filtering [boolean] : enable/disable encoding filter
/highcut [number] : cutoff frequency for high-cut filter (Hz)
/export/filters [string] : export filters to audio file
/export/filters : export filters to audio file (in the home directory)
/export/matrix [string] : export encoding matrix
/export/matrix : export encoding matrix (in the home directory)
/compensation [boolean] : apply energy compensation
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied without ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied without ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front

```



```

/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- spat5.hoa.em32~
- spat5.hoa.encoder~
- spat5.hoa.decoder~
- spat5.hoa.aformat~
- spat5.hoa.sorting~
- spat5.hoa.converter~
- spat5.hoa.scope~
- spat5.hoa.binaural~
- spat5.hoa.beam~
- spat5.hoa.intensity~
- spat5.hoa.directivity
- spat5.multi.connect

spat5.hostinfos

Host information

description

spat5.hostinfos retrieves various information about the host computer.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file
```

see also

- [gestalt](#)

- spat5.file.infos
- spat5.folder.infos
- adstatus
- thispatcher
- dspstate~
- spat5.cpu
- folder
- filepath
- screensize
- date
- spat5.screencapture
- spat5.ping

spat5.hrtf.infos

Report information about HRTF-SOFA files

description

spat5.hrtf.infos reports information about HRTF-SOFA files.

Reference(s) :

P. Majdak, Y. Iwaya, T. Carpentier, R. Nicol, M. Parmentier, A. Roginska, Y. Suzuki, K. Watanabe, H. Wierstorf, H. Ziegelwanger, and M. Noisternig. Spatially Oriented Format for Acoustics: A Data Exchange Format Representing Head-Related Transfer Functions. In Proc. of the 134th Convention of the Audio Engineering Society (AES), Roma, Italy, May 4-7 2013.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file
```

see also

- [spat5.sofa.loader](#)
- [spat5.binaural~](#)
- [spat5.spat~](#)
- [spat5.ctc~](#)
- [spat5.sofa.infos](#)
- [spat5.conv~](#)
- [spat5.cascade~](#)
- [spat5.virtualspeakers~](#)
- [spat5.viewer](#)

spat5.hybrid~ Hybrid reverberation engine

description

spat5.hybrid~ creates a hybrid reverberation effect, combining convolution for the early part and FDN for the late reverb.

Reference(s) :

T. Carpentier, M. Noisternig, and O. Warusfel. Hybrid Reverberation Processor with Perceptual Control. In Proc. of the 17th International Conference on Digital Audio Effects (DAFx-14), pages 93 – 100, Erlangen, Germany, Sept. 2014.

J.-M. Jot, L. Cerveau, and O. Warusfel. Analysis and synthesis of room reverberation based on a statistical time-frequency model. In Proc. of the 103rd Convention of the Audio Engineering Society (AES), New York, NY, USA, 1997.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max `inspector`).

methods

```
/open [string] : load impulse response from file
/load [string] : load impulse response from file
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied without ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied without ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
```

```

/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- spat5.reverb~
- spat5.conv~
- spat5.converb~
- spat5.multiverb~
- spat5.ir.infos
- spat5.multi.connect

spat5.hull Convex hull

description

spat5.hull computes the convex hull, delaunay triangulation, or voronoi diagram of a set of positions.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- [spat5.viewer](#)

- spat5.transform
- spat5.scale
- spat5.translate
- spat5.rotate
- spat5.converter
- spat5.abs2rel
- spat5.converter~
- spat5.speaker.config
- spat5.speaker.layout
- spat5.grids

spat5.ircamverb

Low-level control interface for spat5.ircamverb~

description

spat5.ircamverb is a control interface for **spat5.ircamverb~**.

attributes

@embed [boolean]

The `embed` attribute allows to store the state of the object within the patcher. The complete state of the object is stored whenever the patcher is saved to disk. Upon loading the patcher or copying the object box, the state is restored.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/direct/filter/params [number][number]... : set direct filter parameters
/direct/filter/mute [boolean] : mute direct filter
/direct/filter/bypass [boolean] : bypass direct filter
/room/filter/params [number][number]... : set room filter parameters
/room/filter/mute [boolean] : mute room filter
/room/filter/bypass [boolean] : bypass room filter
/early/filter/params [number][number]... : set early filter parameters
/early/filter/mute [boolean] : mute early filter
/early/filter/bypass [boolean] : bypass early filter
/cluster/filter/params [number][number]... : set cluster filter parameters
/cluster/filter/mute [boolean] : mute cluster filter
/cluster/filter/bypass [boolean] : bypass cluster filter
/early/min [number] : set the early start (in msec)
/early/max [number] : set the early end (in msec)
/early/distr [number] : set the early distribution
/early/width [number] : set the early width angle (in deg)
/early/shape [number] : set the early shape (in /cluster/min [number] : set the cluster start (in msec)
/cluster/max [number] : set the cluster end (in msec)
/cluster/distr [number] : set the cluster distribution
/reverb/min [number] : set the reverb start (in msec)
/reverb/density [number] : set the reverb modal density
/reverb/air [boolean] : enable air absorption
/reverb/air/freq [number] : set air absorption frequency
/reverb/tr0 [number] : set global reverberation time (in seconds)
/reverb/tr1 [number] : set relative decay time in low frequencies
/reverb/trm [number] : set relative decay time in mid frequencies
/reverb/trh [number] : set relative decay time in high frequencies
/reverb/fl [number] : set reverb low/mid crossover frequency (in Hz)
/reverb/fh [number] : set reverb mid/high crossover frequency (in Hz)
/reverb/gain [number] : set reverb gain (in dB)
/reverb/roomoffset [number] : set room offset (in msec)
/source/[index]/xyz [number][number][number] : set the position of the i-th source using cartesian coordinates
/source/[index]/aed [number][number][number] : set the position of the i-th source using navigation coordinates (azimuth/elevation/distance)
/source/[index]/xy [number][number] : set the xy-coordinate of the i-th source, and use default z (=0)
/source/[index]/az [number] : set the azimuth of the i-th source, using default distance (=1) and elevation (=0)
/source/[index]/x [number][number] : set the x-coordinate of the i-th source, and keep y and z unchanged
/source/[index]/y [number][number] : set the y-coordinate of the i-th source, and keep x and z unchanged
/source/[index]/z [number][number] : set the z-coordinate of the i-th source, and keep x and y unchanged
/source/[index]/ade [number][number][number] : set the position of the i-th source using navigation coordinates (azimuth/distance/elevation)
/source/[index]/ae [number][number] : set the azimuth/elevation of the i-th source, using default distance (=1)
/source/[index]/ad [number][number] : set the azimuth/distance of the i-th source, using default elevation (=0)
/source/[index]/azim [number] : set the azimuth of the i-th source. Elevation and distance remain unchanged
/source/[index]/elev [number] : set the elevation of the i-th source. Azimuth and distance remain unchanged
/source/[index]/dist [number] : set the distance of the i-th source. Azimuth and elevation remain unchanged
/source/[index]/azimelev [number][number] : set the azimuth and elevation of the i-th source. Distance remains unchanged
/source/[index]/azimdistr [number][number] : set the azimuth and distance of the i-th source. Elevation remains unchanged
/sources/aed [nnnn...] : set the list of source coordinates (with aed format)
/sources/xyz [nnnn...] : set the list of source coordinates (with xyz format)
/sources/ade [nnnn...] : set the list of source coordinates (with ade format)
/sources/xy [nnnn...] : set the list of source coordinates (with xy format)
/sources/ae [nnnn...] : set the list of source coordinates (with ae format)

```

```

/speakers/aed [nnnn...] : set the list of speaker coordinates (with aed format)
/speakers/xyz [nnnn...] : set the list of speaker coordinates (with xyz format)
/speakers/ade [nnnn...] : set the list of speaker coordinates (with ade format)
/speakers/xy [nnnn...] : set the list of speaker coordinates (with xy format)
/speakers/ae [nnnn...] : set the list of speaker coordinates (with ae format)
/speaker/[index]/aed [number][number][number] : set the position of the i-th loudspeaker using navigation coordinates (azimuth/elevation/distance)
/speaker/[index]/ade [number][number][number] : set the position of the i-th loudspeaker using navigation coordinates (azimuth/distance/elevation)
/speaker/[index]/xyz [number][number][number] : set the position of the i-th loudspeaker using cartesian coordinates
/speaker/[index]/xy [number][number] : set the xy-coordinate of the i-th loudspeaker, and use default z (=0)
/speaker/[index]/ae [number][number] : set the azimuth/elevation of the i-th loudspeaker, using default distance (=1)
/speaker/[index]/az [number] : set the azimuth of the i-th loudspeaker, using default distance (=1) and elevation (=0)
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for
human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is
inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for
human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for
human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the
destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll'
for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file
/window/title [string] : set the window title (in the window titlebar)
/window/visible [boolean] : set the window visibility
/window/moveable [boolean] : set the window movability
/window/resizable [boolean] : set the window resizability
/window/enable [boolean] : enable/disable the window
/window/background/color [color] : set the window background color
/window/opaque [boolean] : set the window opaque flag (optimize repaint efficiency)
/window/fullscreen [boolean] : enable/disable fullscreen mode
/window/minimise [boolean] : minimize the window
/window/open : open the window (and bring it to front)
/window/close : close the window
/window/openorclose : open the window if it was closed; close it if it was opened
/window/size [number][number] : set the window size (width, height) (in pixels)
/window/width [number] : set the window width (in pixels)
/window/height [number] : set the window height (in pixels)
/window/bounds [number][number][number][number] : set the window bounds (top left position, width, height) (in pixels)
/window/topleft [number][number] : set the window top left position (in pixels)
/window/centre : open the window, centering it on the screen
/window/rendering/engine [string] : set the graphical rendering engine of the window
/window/fps/visible [boolean] : display the FPS performances of the window
/window/scale [number] : set the global scale factor of the window (in /window/floating [boolean] : make the window 'floating' (always on top)
/window/hidesondeactivate [boolean] : make the window 'hides on deactivate' (when always on top)

```

/window/buttons/close [boolean] : enable/disable the close button (in the window titlebar)
 /window/buttons/minimise [boolean] : enable/disable the minimise button (in the window titlebar)
 /window/buttons/maximise [boolean] : enable/disable the maximise button (in the window titlebar)
 /window/export/image [string] : export the window as an image file (png or jpeg)

see also

- spat5.ircamverb~
- spat5.spat~
- spat5.oper
- spat5.reverb~
- spat5.early~
- spat5.cluster~
- spat5.hlsshelf~
- spat5.hlsshelf
- spat5.panoramix
- spat5.panoramix~
- spat5.roomsize
- spat5.reverb.timeview
- spat5.delgen
- spat5.trajectories

spat5.ircamverb.embedded

Low-level control interface for spat5.ircamverb~

description

spat5.ircamverb is a control interface for spat5.ircamverb~.

attributes

@embed [boolean]

The `embed` attribute allows to store the state of the object within the patcher. The complete state of the object is stored whenever the patcher is saved to disk. Upon loading the patcher or copying the object box, the state is restored.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/direct/filter/params [number][number]... : set direct filter parameters
/direct/filter/mute [boolean] : mute direct filter
/direct/filter/bypass [boolean] : bypass direct filter
/room/filter/params [number][number]... : set room filter parameters
/room/filter/mute [boolean] : mute room filter
/room/filter/bypass [boolean] : bypass room filter
/early/filter/params [number][number]... : set early filter parameters
/early/filter/mute [boolean] : mute early filter
/early/filter/bypass [boolean] : bypass early filter
/cluster/filter/params [number][number]... : set cluster filter parameters
/cluster/filter/mute [boolean] : mute cluster filter
/cluster/filter/bypass [boolean] : bypass cluster filter
/early/min [number] : set the early start (in msec)
/early/max [number] : set the early end (in msec)
/early/distr [number] : set the early distribution
/early/width [number] : set the early width angle (in deg)
/early/shape [number] : set the early shape (in /cluster/min [number] : set the cluster start (in msec)
/cluster/max [number] : set the cluster end (in msec)
/cluster/distr [number] : set the cluster distribution
/reverb/min [number] : set the reverb start (in msec)
/reverb/density [number] : set the reverb modal density
/reverb/air [boolean] : enable air absorption
/reverb/air/freq [number] : set air absorption frequency
/reverb/tr0 [number] : set global reverberation time (in seconds)
/reverb/tr1 [number] : set relative decay time in low frequencies
/reverb/trm [number] : set relative decay time in mid frequencies
/reverb/trh [number] : set relative decay time in high frequencies
/reverb/fl [number] : set reverb low/mid crossover frequency (in Hz)
/reverb/fh [number] : set reverb mid/high crossover frequency (in Hz)
/reverb/gain [number] : set reverb gain (in dB)
/reverb/roomoffset [number] : set room offset (in msec)
/source/[index]/xyz [number][number][number] : set the position of the i-th source using cartesian coordinates
/source/[index]/aed [number][number][number] : set the position of the i-th source using navigation coordinates (azimuth/elevation/distance)
/source/[index]/xy [number][number] : set the xy-coordinate of the i-th source, and use default z (=0)
/source/[index]/az [number] : set the azimuth of the i-th source, using default distance (=1) and elevation (=0)
/source/[index]/x [number][number] : set the x-coordinate of the i-th source, and keep y and z unchanged
/source/[index]/y [number][number] : set the y-coordinate of the i-th source, and keep x and z unchanged
/source/[index]/z [number][number] : set the z-coordinate of the i-th source, and keep x and y unchanged
/source/[index]/ade [number][number][number] : set the position of the i-th source using navigation coordinates (azimuth/distance/elevation)
/source/[index]/ae [number][number] : set the azimuth/elevation of the i-th source, using default distance (=1)
/source/[index]/ad [number][number] : set the azimuth/distance of the i-th source, using default elevation (=0)
/source/[index]/azim [number] : set the azimuth of the i-th source. Elevation and distance remain unchanged
/source/[index]/elev [number] : set the elevation of the i-th source. Azimuth and distance remain unchanged
/source/[index]/dist [number] : set the distance of the i-th source. Azimuth and elevation remain unchanged
/source/[index]/azimelev [number][number] : set the azimuth and elevation of the i-th source. Distance remains unchanged
/source/[index]/azimdistr [number][number] : set the azimuth and distance of the i-th source. Elevation remains unchanged
/sources/aed [nnnn...] : set the list of source coordinates (with aed format)
/sources/xyz [nnnn...] : set the list of source coordinates (with xyz format)
/sources/ade [nnnn...] : set the list of source coordinates (with ade format)
/sources/xy [nnnn...] : set the list of source coordinates (with xy format)
/sources/ae [nnnn...] : set the list of source coordinates (with ae format)
```

```

/speakers/aed [nnnn...] : set the list of speaker coordinates (with aed format)
/speakers/xyz [nnnn...] : set the list of speaker coordinates (with xyz format)
/speakers/ade [nnnn...] : set the list of speaker coordinates (with ade format)
/speakers/xy [nnnn...] : set the list of speaker coordinates (with xy format)
/speakers/ae [nnnn...] : set the list of speaker coordinates (with ae format)
/speaker/[index]/aed [number][number][number] : set the position of the i-th loudspeaker using navigation coordinates (azimuth/elevation/distance)
/speaker/[index]/ade [number][number][number] : set the position of the i-th loudspeaker using navigation coordinates (azimuth/distance/elevation)
/speaker/[index]/xyz [number][number][number] : set the position of the i-th loudspeaker using cartesian coordinates
/speaker/[index]/xy [number][number] : set the xy-coordinate of the i-th loudspeaker, and use default z (=0)
/speaker/[index]/ae [number][number] : set the azimuth/elevation of the i-th loudspeaker, using default distance (=1)
/speaker/[index]/az [number] : set the azimuth of the i-th loudspeaker, using default distance (=1) and elevation (=0)
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- spat5.ircamverb~
- spat5.spat~
- spat5.oper
- spat5.reverb~
- spat5.early~
- spat5.cluster~
- spat5.hlshef~
- spat5.hlshef
- spat5.panoramix
- spat5.panoramix~
- spat5.roomsize
- spat5.reverb.timeview
- spat5.delgen
- spat5.trajectories

spat5.ircamverb~

Artificial room reverberator

description

spat5.ircamverb~ is a room reverberator with a 'low level' control interface.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@internals [int]

The `internals` attribute represents the number of internal channels of the artificial reverberator.

Spat uses a Feedback Delay Network (FDN) reverberator engine.

Basically this can be seen as an array of delay lines which are fed back into a mixing matrix. The `internals` attributes represents the size of the feedback matrix.

Choosing the size of this matrix is a trade-off between CPU consumption and the echo density.

Increasing the size of the matrix will generate a denser reverb tail at the expense of a higher CPU load.

A typical value of 8 is a good compromise between CPU load and natural sounding reverb. A value of 16 may be useful especially when dealing with a very long reverberation time or with very percussive sound (where a smaller FDN might sometimes sounds too poor).

It is recommended not to use a value below 6.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

@sources [int]

The `sources` attribute represents the number of input channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or attrui or inspector), since the number of signal inlets or outlets can not be changed dynamically.

@speakers [int]

The `speakers` attribute represents the number of output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or attrui or inspector), since the number of signal inlets or outlets can not be changed dynamically.

methods

```
/direct/filter/params [number][number]... : set direct filter parameters
/direct/filter/mute [boolean] : mute direct filter
/direct/filter/bypass [boolean] : bypass direct filter
/room/filter/params [number][number]... : set room filter parameters
/room/filter/mute [boolean] : mute room filter
/room/filter/bypass [boolean] : bypass room filter
/early/filter/params [number][number]... : set early filter parameters
/early/filter/mute [boolean] : mute early filter
/early/filter/bypass [boolean] : bypass early filter
/cluster/filter/params [number][number]... : set cluster filter parameters
/cluster/filter/mute [boolean] : mute cluster filter
/cluster/filter/bypass [boolean] : bypass cluster filter
/early/min [number] : set the early start (in msec)
/early/max [number] : set the early end (in msec)
/early/distr [number] : set the early distribution
/early/interpolation/mode [string] : set the interpolation mode. Possible values: nearest, linear, lagrange3, allpass, hermite3, watte3, bspline3, parabolic, allpass2, allpass3, nearestxfade
/early/interpolation/time [number] : set the interpolation time (in msec)
/cluster/min [number] : set the cluster start (in msec)
/cluster/max [number] : set the cluster end (in msec)
/cluster/distr [number] : set the cluster distribution
/cluster/interpolation/mode [string] : set the interpolation mode. Possible values: nearest, linear, lagrange3, allpass, hermite3, watte3, bspline3, parabolic, allpass2, allpass3, nearestxfade
/cluster/interpolation/time [number] : set the interpolation time (in msec)
/early/width [number] : set the early width angle (in deg)
/early/shape [number] : set the early shape (in /reverb/min [number] : set the reverb start (in msec)
/reverb/density [number] : set the reverb modal density
/reverb/air [boolean] : enable air absorption
/reverb/air/freq [number] : set air absorption frequency
```



```

/reverb/tr0 [number] : set global reverberation time (in seconds)
/reverb/trl [number] : set relative decay time in low frequencies
/reverb/trm [number] : set relative decay time in mid frequencies
/reverb/trh [number] : set relative decay time in high frequencies
/reverb/fl [number] : set reverb low/mid crossover frequency (in Hz)
/reverb/fh [number] : set reverb mid/high crossover frequency (in Hz)
/reverb/gain [number] : set reverb gain (in dB)
/reverb/interpolation/mode [string] : set the interpolation mode. Possible values: nearest, linear, lagrange3, allpass, hermite3, watte3, bspline3, parabolic, allpass2,
allpass3, nearestxfade
/reverb/interpolation/time [number] : set the interpolation time (in msec)
/source/[index]/xyz [number][number][number] : set the position of the i-th source using cartesian coordinates
/source/[index]/aed [number][number][number] : set the position of the i-th source using navigation coordinates (azimuth/elevation/distance)
/source/[index]/xy [number][number] : set the xy-coordinate of the i-th source, and use default z (=0)
/source/[index]/az [number] : set the azimuth of the i-th source, using default distance (=1) and elevation (=0)
/source/[index]/x [number][number] : set the x-coordinate of the i-th source, and keep y and z unchanged
/source/[index]/y [number][number] : set the y-coordinate of the i-th source, and keep x and z unchanged
/source/[index]/z [number][number] : set the z-coordinate of the i-th source, and keep x and y unchanged
/source/[index]/ade [number][number][number] : set the position of the i-th source using navigation coordinates (azimuth/distance/elevation)
/source/[index]/ae [number][number] : set the azimuth/elevation of the i-th source, using default distance (=1)
/source/[index]/ad [number][number] : set the azimuth/distance of the i-th source, using default elevation (=0)
/source/[index]/azim [number] : set the azimuth of the i-th source. Elevation and distance remain unchanged
/source/[index]/elev [number] : set the elevation of the i-th source. Azimuth and distance remain unchanged
/source/[index]/dist [number] : set the distance of the i-th source. Azimuth and elevation remain unchanged
/source/[index]/azimelev [number][number] : set the azimuth and elevation of the i-th source. Distance remains unchanged
/source/[index]/azimdistant [number][number] : set the azimuth and distance of the i-th source. Elevation remains unchanged
/sources/aed [nnnn...] : set the list of source coordinates (with aed format)
/sources/xyz [nnnn...] : set the list of source coordinates (with xyz format)
/sources/ade [nnnn...] : set the list of source coordinates (with ade format)
/sources/xy [nnnn...] : set the list of source coordinates (with xy format)
/sources/ae [nnnn...] : set the list of source coordinates (with ae format)
/speakers/aed [nnnn...] : set the list of speaker coordinates (with aed format)
/speakers/xyz [nnnn...] : set the list of speaker coordinates (with xyz format)
/speakers/ade [nnnn...] : set the list of speaker coordinates (with ade format)
/speakers/xy [nnnn...] : set the list of speaker coordinates (with xy format)
/speakers/ae [nnnn...] : set the list of speaker coordinates (with ae format)
/speaker/[index]/aed [number][number][number] : set the position of the i-th loudspeaker using navigation coordinates (azimuth/elevation/distance)
/speaker/[index]/ade [number][number][number] : set the position of the i-th loudspeaker using navigation coordinates (azimuth/distance/elevation)
/speaker/[index]/xyz [number][number][number] : set the position of the i-th loudspeaker using cartesian coordinates
/speaker/[index]/xy [number][number] : set the xy-coordinate of the i-th loudspeaker, and use default z (=0)
/speaker/[index]/ae [number][number] : set the azimuth/elevation of the i-th loudspeaker, using default distance (=1)
/speaker/[index]/az [number] : set the azimuth of the i-th loudspeaker, using default distance (=1) and elevation (=0)
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied whitout ramping/crossfade, so this might
generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied whitout ramping/crossfade, so this
might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio
settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for
human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is
inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for
human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for
human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the
destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll'
for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)

```


`/status/copytoclipboard` : copy the status to (the OS) clipboard
`/status/copytoclipboard [string]` : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
`/dump` : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
`/dump [string]` : dump a subset of the state of the object over the rightmost outlet. See `spat5.tuto-dump-1.maxpat` for usage examples.
`/snapshot/clear` : delete all the snapshots currently in memory
`/snapshot/add` : create a new snapshot with the current state
`/snapshot/add [string]` : create a new snapshot with the current state, and set its name
`/snapshot/[index]/store` : store the current state in the i-th snapshot (in memory)
`/snapshot/[index]/recall` : recall the current state from the i-th snapshot
`/snapshot/[index]/name [string]` : set the name of the i-th snapshot
`/snapshot/interpolate [int] [int] [number]` : interpolate between the i-th and j-th snapshots
`/snapshot/interpolate [string] [string] [number]` : interpolate between two snapshots, given their names
`/snapshot/[index]/delete` : delete the i-th snapshot
`/snapshot/[index]/copytoclipboard` : copy the i-th snapshot to (the OS) clipboard
`/snapshot/[index]/copytoclipboard [string]` : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
`/snapshot/[index]/export [string]` : export the i-th snapshot to file
`/snapshot/[index]/export/content [string]` : export the content of the i-th snapshot to file
`/snapshot/export [string]` : export all snapshots to file
`/snapshot/import [string]` : import all snapshots from file

see also

- `spat5.ircamverb`
- `spat5.spat~`
- `spat5.oper`
- `spat5.reverb~`
- `spat5.early~`
- `spat5.cluster~`
- `spat5.room~`
- `spat5.hlsshelf~`
- `spat5.hlsshelf`
- `spat5.panoramix`
- `spat5.panoramix~`
- `spat5.pan~`
- `spat5.roomsize`
- `spat5.reverb.timeview`
- `spat5.viewer`
- `spat5.trajectories`
- `spat5.multi.connect`

spat5.irma2hoa~

Encode Ircam microphone array to HOA

description

spat5.irma2hoa~ encodes signals from the Ircam microphone array to the HOA domain.

Reference(s) :

J. Daniel and S. Moreau. Further Study of Sound Field Coding with Higher Order Ambisonics. In Proc. of the 116th Convention of the Audio Engineering Society (AES), Berlin, Germany, May 2004.

J. Daniel. Spherical arrays for capturing 3D sound fields: Prototype measurements versus analytical models. In Proc. of the 19th International Congress on Acoustics (ICA), Madrid, 2007.

F. Zotter, M. Frank. Ambisonics: A Practical 3D Audio Theory for Recording, Studio Production, Sound Reinforcement, and Virtual Reality. Springer, 2019.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character `"`). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

`/norm [string]` : set HOA normalization. Possible values: `sn3d`, `sn2d`, `n3d`, `n2d`, `fuma`, `maxn`, `unnormalized`

`/regularization [number]` : set regularization factor (dB) for filters

`/order [int]` : set HOA order

`/dsp/mute [boolean]` : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied without ramping/crossfade, so this might generate clicks

`/dsp/bypass [boolean]` : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied without ramping/crossfade, so this might generate clicks

`/dsp/automute [boolean]` : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)

`/dsp/automute/attack [number]` : set the duration (in seconds) before auto-muting

`/dsp/post` : post various information to the Max console (audio should be turned on)

`/dsp/clear` : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up

`/dump/dsp/latency` : send the processor latency (in samples) through the dump outlet

`/verbose [string]` : set verbosity i.e. change the way information is posted to the Max console. Possible values: `silent`, `minimal`, `normal`, `detailed`

`/post/version` : print the version in the Max Console

`/post/version [details]` : print detailed version in the Max Console

`/post/doc` : print the help documentation in the Max Console

`/post/state` : print the OSC status in the Max Console

`/preset/load [string]` : load a preset from file. Supported file extensions : `'.txt'` for human-readable OSC text file, `'.osc'` for binary encoded OSC file, `'.coll'` for human-readable Max coll file (compatible with the `coll` object). `'.txt'` is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.

`/preset/load` : open a user dialog to load a preset file. Supported file extensions : `'.txt'` for human-readable OSC text file, `'.osc'` for binary encoded OSC file, `'.coll'` for human-readable Max coll file (compatible with the `coll` object). `'.txt'` is the default file format.

`/preset/export [string]` : export a preset to file. Supported file extensions : `'.txt'` for human-readable OSC text file, `'.osc'` for binary encoded OSC file, `'.coll'` for human-readable Max coll file (compatible with the `coll` object). `'.txt'` is the default file format. If the file extension is not provided, `'.txt'` will be used by default. If the destination folder is not provided, the file will be saved in your home folder (`/Users/yourlogin`)

`/preset/export` : open a user dialog to export a preset to file. Supported file extensions : `'.txt'` for human-readable OSC text file, `'.osc'` for binary encoded OSC file, `'.coll'` for human-readable Max coll file (compatible with the `coll` object). `'.txt'` is the default file format.

`/status` : open the status window and bring it to front

`/status/open` : open the status window and bring it to front

`/status/close` : close the status window

`/status/openorclose` : open the status window if it was closed; close it if it was opened

`/status/font/size [number]` : set the font size of the status window

`/status/floating [boolean]` : make the status window 'floating' (i.e. always on top of other windows)

`/help` : open the help window and bring it to front

`/help/open` : open the help window and bring it to front

`/help/close` : close the help window

`/help/openorclose` : open the help window if it was closed; close it if it was opened

`/help/font/size [number]` : set the font size of the help window

`/help/floating [boolean]` : make the help window 'floating' (i.e. always on top of other windows)

`/snapshot` : open the snapshot window and bring it to front

`/snapshot/open` : open the snapshot window and bring it to front

```

/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- spat5.hoa.em32~
- spat5.hoa.encoder~
- spat5.hoa.decoder~
- spat5.hoa.aformat~
- spat5.hoa.sorting~
- spat5.hoa.converter~
- spat5.hoa.intensity~
- spat5.multi.connect

spat5.ir.analysis

EDR analysis of Room Impulse Response (RIR)

description

spat5.ir.analysis computes and analyzes the Energy Decay Relief of a RIR.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character `"`). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- [spat5.edc](#)

- spat5.smk~
- spat5.ir.infos
- spat5.hybrid~

spat5.ir.infos

Report information about Room Impulse Response (RIR)

description

spat5.ir.infos reports basic information about a RIR.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character `"`). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- [spat5.edc](#)

- spat5.smk~
- spat5.ir.analysis
- spat5.plot
- spat5.sweep~

spat5.isnan~ Detect NaN or Inf values

description

spat5.isnan~ detects NaN or Inf values.

attributes

@channels [int]

The `channels` attribute represents the number of input and output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or `attrui` or `inspector`), since the number of signal inlets or outlets can not be changed dynamically.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. '\n')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
```


`/dump [string]` : dump a subset of the state of the object over the rightmost outlet. See `spat5.tuto-dump-1.maxpat` for usage examples.
`/snapshot/clear` : delete all the snapshots currently in memory
`/snapshot/add` : create a new snapshot with the current state
`/snapshot/add [string]` : create a new snapshot with the current state, and set its name
`/snapshot/[index]/store` : store the current state in the i-th snapshot (in memory)
`/snapshot/[index]/recall` : recall the current state from the i-th snapshot
`/snapshot/[index]/name [string]` : set the name of the i-th snapshot
`/snapshot/interpolate [int][int][number]` : interpolate between the i-th and j-th snapshots
`/snapshot/interpolate [string][string][number]` : interpolate between two snapshots, given their names
`/snapshot/[index]/delete` : delete the i-th snapshot
`/snapshot/[index]/copytoclipboard` : copy the i-th snapshot to (the OS) clipboard
`/snapshot/[index]/copytoclipboard [string]` : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
`/snapshot/[index]/export [string]` : export the i-th snapshot to file
`/snapshot/[index]/export/content [string]` : export the content of the i-th snapshot to file
`/snapshot/export [string]` : export all snapshots to file
`/snapshot/import [string]` : import all snapshots from file

see also

- `spat5.fixnan~`

spat5.jitter

Deviate and randomize coordinate messages

description

spat5.jitter applies jitter to the incoming coordinate messages.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/jitter/x [number] : set jitter factor along the x-axis (in /jitter/y [number] : set jitter factor along the y-axis (in /jitter/z [number] : set jitter factor along the
z-axis (in /jitter/x/step [number] : set jitter step along the x-axis (in /jitter/y/step [number] : set jitter step along the y-axis (in /jitter/z/step [number] : set
jitter step along the z-axis (in /seed [int] : set seed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for
human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is
inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for
human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for
human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the
destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll'
for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int] [int] [number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string] [string] [number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- `spat5.transform`
- `spat5.scale`
- `spat5.rotate`
- `spat5.translate`
- `spat5.normalize`
- `spat5.mirror`
- `spat5.viewer`
- `spat5.converter`
- `spat5.converter~`
- `spat5.abs2rel`
- `spat5.distance`
- `spat5.trajectories`
- `spat5.boids`

spat5.knn K-nearest neighbors search

description

spat5.knn allows fast nearest neighbors search.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- [spat5.viewer](#)

- spat5.scale
- spat5.transform
- spat5.rotate
- spat5.translate
- spat5.normalize
- spat5.converter
- spat5.converter~
- spat5.abs2rel
- spat5.distance
- spat5.barycenter

spat5.leslie~ Leslie cabinet simulation

description

spat5.leslie~ simulates a Leslie cabinet.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character `"`). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

@speakers [int]

The `speakers` attribute represents the number of output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or attrui or inspector), since the number of signal inlets or outlets can not be changed dynamically.

methods

`/dsp/mute [boolean]` : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied without ramping/crossfade, so this might generate clicks

`/dsp/bypass [boolean]` : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied without ramping/crossfade, so this might generate clicks

`/dsp/automute [boolean]` : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)

`/dsp/automute/attack [number]` : set the duration (in seconds) before auto-muting

`/dsp/post` : post various information to the Max console (audio should be turned on)

`/dsp/clear` : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up

`/dump/dsp/latency` : send the processor latency (in samples) through the dump outlet

`/verbose [string]` : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed

`/post/version` : print the version in the Max Console

`/post/version [details]` : print detailed version in the Max Console

`/post/doc` : print the help documentation in the Max Console

`/post/state` : print the OSC status in the Max Console

`/preset/load [string]` : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.

`/preset/load` : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format.

`/preset/export [string]` : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)

`/preset/export` : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format.

`/status` : open the status window and bring it to front

`/status/open` : open the status window and bring it to front

`/status/close` : close the status window

`/status/openorclose` : open the status window if it was closed; close it if it was opened

`/status/font/size [number]` : set the font size of the status window

`/status/floating [boolean]` : make the status window 'floating' (i.e. always on top of other windows)

`/help` : open the help window and bring it to front

`/help/open` : open the help window and bring it to front

`/help/close` : close the help window

`/help/openorclose` : open the help window if it was closed; close it if it was opened

`/help/font/size [number]` : set the font size of the help window

`/help/floating [boolean]` : make the help window 'floating' (i.e. always on top of other windows)

`/snapshot` : open the snapshot window and bring it to front

`/snapshot/open` : open the snapshot window and bring it to front

`/snapshot/close` : close the snapshot window

`/snapshot/openorclose` : open the snapshot window if it was closed; close it if it was opened

`/snapshot/font/size [number]` : set the font size of the snapshot window

`/snapshot/floating [boolean]` : make the snapshot window 'floating' (i.e. always on top of other windows)

`/status/copytoclipboard` : copy the status to (the OS) clipboard

`/status/copytoclipboard [string]` : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. '\')

`/dump` : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)

`/dump [string]` : dump a subset of the state of the object over the rightmost outlet. See `spat5.tuto-dump-1.maxpat` for usage examples.
`/snapshot/clear` : delete all the snapshots currently in memory
`/snapshot/add` : create a new snapshot with the current state
`/snapshot/add [string]` : create a new snapshot with the current state, and set its name
`/snapshot/[index]/store` : store the current state in the i-th snapshot (in memory)
`/snapshot/[index]/recall` : recall the current state from the i-th snapshot
`/snapshot/[index]/name [string]` : set the name of the i-th snapshot
`/snapshot/interpolate [int][int][number]` : interpolate between the i-th and j-th snapshots
`/snapshot/interpolate [string][string][number]` : interpolate between two snapshots, given their names
`/snapshot/[index]/delete` : delete the i-th snapshot
`/snapshot/[index]/copytoclipboard` : copy the i-th snapshot to (the OS) clipboard
`/snapshot/[index]/copytoclipboard [string]` : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
`/snapshot/[index]/export [string]` : export the i-th snapshot to file
`/snapshot/[index]/export/content [string]` : export the content of the i-th snapshot to file
`/snapshot/export [string]` : export all snapshots to file
`/snapshot/import [string]` : import all snapshots from file

see also

- `spat5.doppler~`
- `spat5.source~`
- `spat5.delay~`
- `spat5.binaural~`
- `spat5.pan~`
- `spat5.air~`
- `spat5.pan~`
- `spat5.multi.connect`

spat5.limiter~ Peak limiter

description

spat5.limiter~ is a multichannel peak limiter.

attributes

@channels [int]

The `channels` attribute represents the number of input and output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or `attrui` or `inspector`), since the number of signal inlets or outlets can not be changed dynamically.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/channel/number [int] : set the number of channels
/channel/[index]/attack [number] : set attack time (in msec) for the i-th channel
/channel/[index]/release [number] : set release time (in msec) for the i-th channel
/channel/[index]/lookahead [number] : set lookahead time (in msec) for the i-th channel
/channel/[index]/threshold [number] : set threshold (in dB) for the i-th channel
/channel/[index]/mute [boolean] : mute the i-th channel
/channel/[index]/bypass [boolean] : bypass the i-th channel
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
```



```

/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- spat5.compressor~
- spat5.noisegate~
- spat5.clip~
- spat5.softclipping~
- spat5.delta~
- spat5.deltaclick~
- spat5.tanh~
- spat5.fixnan~
- spat5.rms~
- spat5.ebur128~
- spat5.tanh~
- spat5.multi.connect

spat5.ltc.decode~ Time code decoder

description

spat5.ltc.decode~ decodes a SMPTE time code.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

`/fps [number]` : set initial guess for the decoder FPS. The actual FPS will be automatically estimated after a few frames

`/dsp/mute [boolean]` : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied without ramping/crossfade, so this might generate clicks

`/dsp/bypass [boolean]` : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied without ramping/crossfade, so this might generate clicks

`/dsp/automute [boolean]` : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)

`/dsp/automute/attack [number]` : set the duration (in seconds) before auto-muting

`/dsp/post` : post various information to the Max console (audio should be turned on)

`/dsp/clear` : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up

`/dump/dsp/latency` : send the processor latency (in samples) through the dump outlet

`/verbose [string]` : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed

`/post/version` : print the version in the Max Console

`/post/version [details]` : print detailed version in the Max Console

`/post/doc` : print the help documentation in the Max Console

`/post/state` : print the OSC status in the Max Console

`/preset/load [string]` : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.

`/preset/load` : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format.

`/preset/export [string]` : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)

`/preset/export` : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format.

`/status` : open the status window and bring it to front

`/status/open` : open the status window and bring it to front

`/status/close` : close the status window

`/status/openorclose` : open the status window if it was closed; close it if it was opened

`/status/font/size [number]` : set the font size of the status window

`/status/floating [boolean]` : make the status window 'floating' (i.e. always on top of other windows)

`/help` : open the help window and bring it to front

`/help/open` : open the help window and bring it to front

`/help/close` : close the help window

`/help/openorclose` : open the help window if it was closed; close it if it was opened

`/help/font/size [number]` : set the font size of the help window

`/help/floating [boolean]` : make the help window 'floating' (i.e. always on top of other windows)

`/snapshot` : open the snapshot window and bring it to front

`/snapshot/open` : open the snapshot window and bring it to front

`/snapshot/close` : close the snapshot window

`/snapshot/openorclose` : open the snapshot window if it was closed; close it if it was opened

`/snapshot/font/size [number]` : set the font size of the snapshot window

`/snapshot/floating [boolean]` : make the snapshot window 'floating' (i.e. always on top of other windows)

`/status/copytoclipboard` : copy the status to (the OS) clipboard

`/status/copytoclipboard [string]` : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')

`/dump` : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)

`/dump [string]` : dump a subset of the state of the object over the rightmost outlet. See `spat5.tuto-dump-1.maxpat` for usage examples.

`/snapshot/clear` : delete all the snapshots currently in memory

`/snapshot/add` : create a new snapshot with the current state

`/snapshot/add [string]` : create a new snapshot with the current state, and set its name

```

/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- spat5.ltc.easydecode~
- spat5.ltc.encode~
- spat5.ltc.trigger~
- spat5.snapshot~
- spat5.ltc.toms
- spat5.ltc.fromms
- spat5.multi.connect

spat5.ltc.easydecode~

Simplified time code decoder

description

spat5.ltc.easydecode~ decodes a SMPTE time code. It is a simplified version of **spat5.ltc.decode~**.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/fps [number] : set initial guess for the decoder FPS. The actual FPS will be automatically estimated after a few frames
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name

```

`/snapshot/[index]/store` : store the current state in the i-th snapshot (in memory)
`/snapshot/[index]/recall` : recall the current state from the i-th snapshot
`/snapshot/[index]/name [string]` : set the name of the i-th snapshot
`/snapshot/interpolate [int][int][number]` : interpolate between the i-th and j-th snapshots
`/snapshot/interpolate [string][string][number]` : interpolate between two snapshots, given their names
`/snapshot/[index]/delete` : delete the i-th snapshot
`/snapshot/[index]/copytoclipboard` : copy the i-th snapshot to (the OS) clipboard
`/snapshot/[index]/copytoclipboard [string]` : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
`/snapshot/[index]/export [string]` : export the i-th snapshot to file
`/snapshot/[index]/export/content [string]` : export the content of the i-th snapshot to file
`/snapshot/export [string]` : export all snapshots to file
`/snapshot/import [string]` : import all snapshots from file

see also

- `spat5.ltc.decode~`
- `spat5.ltc.encode~`
- `spat5.ltc.trigger~`
- `spat5.snapshot~`
- `spat5.ltc.toms`
- `spat5.ltc.fromms`
- `spat5.multi.connect`

spat5.ltc.encode~ Time code generator

description

spat5.ltc.encode~ generates a SMPTE time code.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/fps [number] : set FPS
/time [number] : jump to a given time (expressed in milliseconds)
/time [string] : jump to a given time (expressed in hh:mm:ss:ff format)
/speed [number] : set speed factor
/pause : pause
/resume : resume after a pause
/switch : switch between pause and resume
/forward [number] : increase time by a given amount (expressed in milliseconds)
/forward [string] : increase time by a given amount (expressed in hh:mm:ss:ff format)
/backward [number] : decrease time by a given amount (expressed in milliseconds)
/backward [string] : decrease time by a given amount (expressed in hh:mm:ss:ff format)
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window

```

/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
 /snapshot/font/size [number] : set the font size of the snapshot window
 /snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
 /status/copytoclipboard : copy the status to (the OS) clipboard
 /status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
 /dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
 /dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
 /snapshot/clear : delete all the snapshots currently in memory
 /snapshot/add : create a new snapshot with the current state
 /snapshot/add [string] : create a new snapshot with the current state, and set its name
 /snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
 /snapshot/[index]/recall : recall the current state from the i-th snapshot
 /snapshot/[index]/name [string] : set the name of the i-th snapshot
 /snapshot/interpolate [int] [int] [number] : interpolate between the i-th and j-th snapshots
 /snapshot/interpolate [string] [string] [number] : interpolate between two snapshots, given their names
 /snapshot/[index]/delete : delete the i-th snapshot
 /snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
 /snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
 /snapshot/[index]/export [string] : export the i-th snapshot to file
 /snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
 /snapshot/export [string] : export all snapshots to file
 /snapshot/import [string] : import all snapshots from file

see also

- spat5.ltc.decode~
- spat5.ltc.easydecode~
- spat5.ltc.trigger~
- spat5.snapshot~
- spat5.ltc.toms
- spat5.ltc.fromms
- spat5.multi.connect

spat5.ltc.fromms

Converts milliseconds to LTC/SMPTE Time code

description

spat5.ltc.fromms converts milliseconds to time code (expressed in hh:mm:ss:ff format).

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- [spat5.ltc.encode~](#)

- spat5.ltc.decode~
- spat5.ltc.easydecode~
- spat5.ltc.trigger~
- spat5.ltc.toms

spat5.ltc.toms

Converts LTC/SMPTE Time code to milliseconds

description

spat5.ltc.toms converts time code (expressed in hh:mm:ss:ff format) to milliseconds.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

`/post/version` : print the version in the Max Console
`/post/version [details]` : print detailed version in the Max Console
`/post/doc` : print the help documentation in the Max Console
`/post/state` : print the OSC status in the Max Console
`/preset/load [string]` : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
`/preset/load` : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format.
`/preset/export [string]` : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
`/preset/export` : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format.
`/status` : open the status window and bring it to front
`/status/open` : open the status window and bring it to front
`/status/close` : close the status window
`/status/openorclose` : open the status window if it was closed; close it if it was opened
`/status/font/size [number]` : set the font size of the status window
`/status/floating [boolean]` : make the status window 'floating' (i.e. always on top of other windows)
`/help` : open the help window and bring it to front
`/help/open` : open the help window and bring it to front
`/help/close` : close the help window
`/help/openorclose` : open the help window if it was closed; close it if it was opened
`/help/font/size [number]` : set the font size of the help window
`/help/floating [boolean]` : make the help window 'floating' (i.e. always on top of other windows)
`/snapshot` : open the snapshot window and bring it to front
`/snapshot/open` : open the snapshot window and bring it to front
`/snapshot/close` : close the snapshot window
`/snapshot/openorclose` : open the snapshot window if it was closed; close it if it was opened
`/snapshot/font/size [number]` : set the font size of the snapshot window
`/snapshot/floating [boolean]` : make the snapshot window 'floating' (i.e. always on top of other windows)
`/status/copytoclipboard` : copy the status to (the OS) clipboard
`/status/copytoclipboard [string]` : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
`/dump` : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
`/dump [string]` : dump a subset of the state of the object over the rightmost outlet. See `spat5.tuto-dump-1.maxpat` for usage examples.
`/snapshot/clear` : delete all the snapshots currently in memory
`/snapshot/add` : create a new snapshot with the current state
`/snapshot/add [string]` : create a new snapshot with the current state, and set its name
`/snapshot/[index]/store` : store the current state in the i-th snapshot (in memory)
`/snapshot/[index]/recall` : recall the current state from the i-th snapshot
`/snapshot/[index]/name [string]` : set the name of the i-th snapshot
`/snapshot/interpolate [int][int][number]` : interpolate between the i-th and j-th snapshots
`/snapshot/interpolate [string][string][number]` : interpolate between two snapshots, given their names
`/snapshot/[index]/delete` : delete the i-th snapshot
`/snapshot/[index]/copytoclipboard` : copy the i-th snapshot to (the OS) clipboard
`/snapshot/[index]/copytoclipboard [string]` : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
`/snapshot/[index]/export [string]` : export the i-th snapshot to file
`/snapshot/[index]/export/content [string]` : export the content of the i-th snapshot to file
`/snapshot/export [string]` : export all snapshots to file
`/snapshot/import [string]` : import all snapshots from file

see also

- `spat5.ltc.encode~`

- spat5.ltc.decode~
- spat5.ltc.easydecode~
- spat5.ltc.trigger~
- spat5.ltc.fromms

spat5.ltc.trigger~ Time code decoder

description

spat5.ltc.trigger~ holds a list of cues (with a time stamp), and triggers notification whenever the time code reaches one of the cues.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

`/dsp/mute [boolean]` : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied without ramping/crossfade, so this might generate clicks

`/dsp/bypass [boolean]` : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied without ramping/crossfade, so this might generate clicks

`/dsp/automute [boolean]` : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)

`/dsp/automute/attack [number]` : set the duration (in seconds) before auto-muting

`/dsp/post` : post various information to the Max console (audio should be turned on)

`/dsp/clear` : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up

`/dump/dsp/latency` : send the processor latency (in samples) through the dump outlet

`/verbose [string]` : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed

`/post/version` : print the version in the Max Console

`/post/version [details]` : print detailed version in the Max Console

`/post/doc` : print the help documentation in the Max Console

`/post/state` : print the OSC status in the Max Console

`/preset/load [string]` : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.

`/preset/load` : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format.

`/preset/export [string]` : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)

`/preset/export` : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format.

`/status` : open the status window and bring it to front

`/status/open` : open the status window and bring it to front

`/status/close` : close the status window

`/status/openorclose` : open the status window if it was closed; close it if it was opened

`/status/font/size [number]` : set the font size of the status window

`/status/floating [boolean]` : make the status window 'floating' (i.e. always on top of other windows)

`/help` : open the help window and bring it to front

`/help/open` : open the help window and bring it to front

`/help/close` : close the help window

`/help/openorclose` : open the help window if it was closed; close it if it was opened

`/help/font/size [number]` : set the font size of the help window

`/help/floating [boolean]` : make the help window 'floating' (i.e. always on top of other windows)

`/snapshot` : open the snapshot window and bring it to front

`/snapshot/open` : open the snapshot window and bring it to front

`/snapshot/close` : close the snapshot window

`/snapshot/openorclose` : open the snapshot window if it was closed; close it if it was opened

`/snapshot/font/size [number]` : set the font size of the snapshot window

`/snapshot/floating [boolean]` : make the snapshot window 'floating' (i.e. always on top of other windows)

`/status/copytoclipboard` : copy the status to (the OS) clipboard

`/status/copytoclipboard [string]` : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')

`/dump` : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)

`/dump [string]` : dump a subset of the state of the object over the rightmost outlet. See `spat5.tuto-dump-1.maxpat` for usage examples.

`/snapshot/clear` : delete all the snapshots currently in memory

`/snapshot/add` : create a new snapshot with the current state

`/snapshot/add [string]` : create a new snapshot with the current state, and set its name

`/snapshot/[index]/store` : store the current state in the i-th snapshot (in memory)

`/snapshot/[index]/recall` : recall the current state from the i-th snapshot
`/snapshot/[index]/name [string]` : set the name of the i-th snapshot
`/snapshot/interpolate [int][int][number]` : interpolate between the i-th and j-th snapshots
`/snapshot/interpolate [string][string][number]` : interpolate between two snapshots, given their names
`/snapshot/[index]/delete` : delete the i-th snapshot
`/snapshot/[index]/copytoclipboard` : copy the i-th snapshot to (the OS) clipboard
`/snapshot/[index]/copytoclipboard [string]` : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
`/snapshot/[index]/export [string]` : export the i-th snapshot to file
`/snapshot/[index]/export/content [string]` : export the content of the i-th snapshot to file
`/snapshot/export [string]` : export all snapshots to file
`/snapshot/import [string]` : import all snapshots from file

see also

- `spat5.ltc.encode~`
- `spat5.ltc.decode~`
- `spat5.ltc.easydecode~`
- `spat5.snapshot~`
- `spat5.multi.connect`

spat5.matrix Matrix controller

description

spat5.matrix is a matrix control interface.

attributes

@embed [boolean]

The `embed` attribute allows to store the state of the object within the patcher. The complete state of the object is stored whenever the patcher is saved to disk. Upon loading the patcher or copying the object box, the state is restored.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@inputs [int]

The `inputs` attribute represents the number of input channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or `attrui` or `inspector`), since the number of signal inlets or outlets can not be changed dynamically.

@outputs [int]

The `outputs` attribute represents the number of output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or `attrui` or `inspector`), since the number of signal inlets or outlets can not be changed dynamically.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/row/number [int] : set the number of rows
/col/number [int] : set the number of rows
/row/[index]/col/[index] [number] : set (linear) value of the i-th row and j-th column
/row/[index]/col/[index]/value [number] : set (linear) value of the i-th row and j-th column
/row/[index]/col/[index]/db [number] : set (dB) value of the i-th row and j-th column
/row/[index]/col/[index]/add/db [number] : add offset (in dB) of the i-th row and j-th column
/row/[index]/col/[index]/visible [boolean] : show the i-th row and j-th column
/row/[index]/col/[index]/phase/visible [boolean] : show phase for the i-th row and j-th column
/row/[index]/col/[index]/slider/color [number] [number] [number] [number] : set slider color for the i-th row and j-th column
/row/[index]/col/[index]/background/color [number] [number] [number] [number] : set background color for the i-th row and j-th column
/row/[index]/col/[index]/editable [boolean] : enable the i-th row and j-th column
/col/[index]/row/[index] [number] : set (linear) value of the i-th row and j-th column
/col/[index]/row/[index]/value [number] : set (linear) value of the i-th row and j-th column
/col/[index]/row/[index]/db [number] : set (dB) value of the i-th row and j-th column
/col/[index]/row/[index]/add/db [number] : add offset (in dB) of the i-th row and j-th column
/fill [number] : fill the whole matrix
/fill/db [number] : fill the whole matrix (in dB)
/diag [number] : fill the diagonal
/diag/db [number] : fill the diagonal (in dB)
/export/coll : export matrix as coll file
/export/coll [string] : export matrix as coll file
/export/mat : export matrix as matlab file
/export/mat [string] : export matrix as matlab file
/clear : clear matrix
/reset : reset matrix
/cursor/visible [boolean] : highlight the selected row/column
/cursor/color [number] [number] [number] [number] : set highlight color
/editable [boolean] : enable/disable the matrix
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)

```

/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.

/status : open the status window and bring it to front

/status/open : open the status window and bring it to front

/status/close : close the status window

/status/openorclose : open the status window if it was closed; close it if it was opened

/status/font/size [number] : set the font size of the status window

/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)

/help : open the help window and bring it to front

/help/open : open the help window and bring it to front

/help/close : close the help window

/help/openorclose : open the help window if it was closed; close it if it was opened

/help/font/size [number] : set the font size of the help window

/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)

/snapshot : open the snapshot window and bring it to front

/snapshot/open : open the snapshot window and bring it to front

/snapshot/close : close the snapshot window

/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened

/snapshot/font/size [number] : set the font size of the snapshot window

/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)

/status/copytoclipboard : copy the status to (the OS) clipboard

/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')

/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)

/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.

/snapshot/clear : delete all the snapshots currently in memory

/snapshot/add : create a new snapshot with the current state

/snapshot/add [string] : create a new snapshot with the current state, and set its name

/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)

/snapshot/[index]/recall : recall the current state from the i-th snapshot

/snapshot/[index]/name [string] : set the name of the i-th snapshot

/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots

/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names

/snapshot/[index]/delete : delete the i-th snapshot

/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard

/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')

/snapshot/[index]/export [string] : export the i-th snapshot to file

/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file

/snapshot/export [string] : export all snapshots to file

/snapshot/import [string] : import all snapshots from file

/window/title [string] : set the window title (in the window titlebar)

/window/visible [boolean] : set the window visibility

/window/moveable [boolean] : set the window movability

/window/resizable [boolean] : set the window resizability

/window/enable [boolean] : enable/disable the window

/window/background/color [color] : set the window background color

/window/opaque [boolean] : set the window opaque flag (optimize repaint efficiency)

/window/fullscreen [boolean] : enable/disable fullscreen mode

/window/minimise [boolean] : minimize the window

/window/open : open the window (and bring it to front)

/window/close : close the window

/window/openorclose : open the window if it was closed; close it if it was opened

/window/size [number][number] : set the window size (width, height) (in pixels)

/window/width [number] : set the window width (in pixels)

/window/height [number] : set the window height (in pixels)

/window/bounds [number][number][number][number] : set the window bounds (top left position, width, height) (in pixels)

/window/topleft [number][number] : set the window top left position (in pixels)

/window/centre : open the window, centering it on the screen

/window/rendering/engine [string] : set the graphical rendering engine of the window

/window/fps/visible [boolean] : display the FPS performances of the window

/window/scale [number] : set the global scale factor of the window (in /window/floating [boolean] : make the window 'floating' (always on top)

/window/hidesondeactivate [boolean] : make the window 'hides on deactivate' (when always on top)

/window/buttons/close [boolean] : enable/disable the close button (in the window titlebar)

/window/buttons/minimise [boolean] : enable/disable the minimise button (in the window titlebar)

/window/buttons/maximise [boolean] : enable/disable the maximise button (in the window titlebar)

/window/export/image [string] : export the window as an image file (png or jpeg)

see also

- spat5.routing
- spat5.routing~
- matrix~

spat5.matrix.embedded

Matrix controller

description

spat5.matrix is a matrix control interface.

attributes

@embed [boolean]

The `embed` attribute allows to store the state of the object within the patcher. The complete state of the object is stored whenever the patcher is saved to disk. Upon loading the patcher or copying the object box, the state is restored.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@inputs [int]

The `inputs` attribute represents the number of input channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or `attrui` or `inspector`), since the number of signal inlets or outlets can not be changed dynamically.

@outputs [int]

The `outputs` attribute represents the number of output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or `attrui` or `inspector`), since the number of signal inlets or outlets can not be changed dynamically.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/row/number [int] : set the number of rows
/col/number [int] : set the number of rows
/row/[index]/col/[index] [number] : set (linear) value of the i-th row and j-th column
/row/[index]/col/[index]/value [number] : set (linear) value of the i-th row and j-th column
/row/[index]/col/[index]/db [number] : set (dB) value of the i-th row and j-th column
/row/[index]/col/[index]/add/db [number] : add offset (in dB) of the i-th row and j-th column
/row/[index]/col/[index]/visible [boolean] : show the i-th row and j-th column
/row/[index]/col/[index]/phase/visible [boolean] : show phase for the i-th row and j-th column
/row/[index]/col/[index]/slider/color [number] [number] [number] : set slider color for the i-th row and j-th column
/row/[index]/col/[index]/background/color [number] [number] [number] [number] : set background color for the i-th row and j-th column
/row/[index]/col/[index]/editable [boolean] : enable the i-th row and j-th column
/col/[index]/row/[index] [number] : set (linear) value of the i-th row and j-th column
/col/[index]/row/[index]/value [number] : set (linear) value of the i-th row and j-th column
/col/[index]/row/[index]/db [number] : set (dB) value of the i-th row and j-th column
/col/[index]/row/[index]/add/db [number] : add offset (in dB) of the i-th row and j-th column
/fill [number] : fill the whole matrix
/fill/db [number] : fill the whole matrix (in dB)
/diag [number] : fill the diagonal
/diag/db [number] : fill the diagonal (in dB)
/export/coll : export matrix as coll file
/export/coll [string] : export matrix as coll file
/export/mat : export matrix as matlab file
/export/mat [string] : export matrix as matlab file
/clear : clear matrix
/reset : reset matrix
/cursor/visible [boolean] : highlight the selected row/column
/cursor/color [number] [number] [number] [number] : set highlight color
/editable [boolean] : enable/disable the matrix
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
```


/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.

/status : open the status window and bring it to front

/status/open : open the status window and bring it to front

/status/close : close the status window

/status/openorclose : open the status window if it was closed; close it if it was opened

/status/font/size [number] : set the font size of the status window

/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)

/help : open the help window and bring it to front

/help/open : open the help window and bring it to front

/help/close : close the help window

/help/openorclose : open the help window if it was closed; close it if it was opened

/help/font/size [number] : set the font size of the help window

/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)

/snapshot : open the snapshot window and bring it to front

/snapshot/open : open the snapshot window and bring it to front

/snapshot/close : close the snapshot window

/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened

/snapshot/font/size [number] : set the font size of the snapshot window

/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)

/status/copytoclipboard : copy the status to (the OS) clipboard

/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')

/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)

/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.

/snapshot/clear : delete all the snapshots currently in memory

/snapshot/add : create a new snapshot with the current state

/snapshot/add [string] : create a new snapshot with the current state, and set its name

/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)

/snapshot/[index]/recall : recall the current state from the i-th snapshot

/snapshot/[index]/name [string] : set the name of the i-th snapshot

/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots

/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names

/snapshot/[index]/delete : delete the i-th snapshot

/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard

/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')

/snapshot/[index]/export [string] : export the i-th snapshot to file

/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file

/snapshot/export [string] : export all snapshots to file

/snapshot/import [string] : import all snapshots from file

see also

- spat5.routing
- spat5.routing~
- matrix~

spat5.meter~ Multichannel signal metering interface

description

spat5.meter~ is a multichannel signal metering interface.

attributes

@channels [int]

The `channels` attribute represents the number of input and output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or `attrui` or `inspector`), since the number of signal inlets or outlets can not be changed dynamically.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard

```

/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
 /snapshot/[index]/export [string] : export the i-th snapshot to file
 /snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
 /snapshot/export [string] : export all snapshots to file
 /snapshot/import [string] : import all snapshots from file
 /window/title [string] : set the window title (in the window titlebar)
 /window/visible [boolean] : set the window visibility
 /window/moveable [boolean] : set the window movability
 /window/resizable [boolean] : set the window resizable
 /window/enable [boolean] : enable/disable the window
 /window/background/color [color] : set the window background color
 /window/opaque [boolean] : set the window opaque flag (optimize repaint efficiency)
 /window/fullscreen [boolean] : enable/disable fullscreen mode
 /window/minimise [boolean] : minimize the window
 /window/open : open the window (and bring it to front)
 /window/close : close the window
 /window/openorclose : open the window if it was closed; close it if it was opened
 /window/size [number][number] : set the window size (width, height) (in pixels)
 /window/width [number] : set the window width (in pixels)
 /window/height [number] : set the window height (in pixels)
 /window/bounds [number][number][number][number] : set the window bounds (top left position, width, height) (in pixels)
 /window/topleft [number][number] : set the window top left position (in pixels)
 /window/centre : open the window, centering it on the screen
 /window/rendering/engine [string] : set the graphical rendering engine of the window
 /window/fps/visible [boolean] : display the FPS performances of the window
 /window/scale [number] : set the global scale factor of the window (in /window/floating [boolean] : make the window 'floating' (always on top)
 /window/hidesondeactivate [boolean] : make the window 'hides on deactivate' (when always on top)
 /window/buttons/close [boolean] : enable/disable the close button (in the window titlebar)
 /window/buttons/minimise [boolean] : enable/disable the minimise button (in the window titlebar)
 /window/buttons/maximise [boolean] : enable/disable the maximise button (in the window titlebar)
 /window/export/image [string] : export the window as an image file (png or jpeg)

see also

- spat5.rms~
- meter~
- live.gain~
- spat5.times~
- mc.live.gain~
- spat5.spectroscope~
- spat5.ebur128~
- spat5.snapshot~
- gain~
- spat5.multi.connect

spat5.minmax~

Compute minimum/maximum signal values

description

spat5.minmax~ computes minimum/maximum signal values. It is similar to **Max/MSP minmax~**, but can process multiple channels in parallel.

attributes

@channels [int]

The `channels` attribute represents the number of input and output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or `attrui` or `inspector`), since the number of signal inlets or outlets can not be changed dynamically.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max `inspector`).

methods

```

/mode [string] : set mode
/reset : reset the current minimum and maximum values to the default (0)
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied without ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied without ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)

```

```

/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int] [int] [number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string] [string] [number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- minmax~
- meter~
- snapshot~
- spat5.meter~
- spat5.snapshot~
- spat5.multi.connect

spat5.mirror Mirror coordinate messages

description

spat5.mirror applies mirroring to coordinate messages.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`. Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

`/mirror/x` [boolean] : mirror along the x-axis
`/mirror/y` [boolean] : mirror along the y-axis
`/mirror/z` [boolean] : mirror along the z-axis

see also

- `spat5.scale`
- `spat5.transform`
- `spat5.rotate`
- `spat5.translate`
- `spat5.normalize`
- `spat5.jitter`
- `spat5.viewer`
- `spat5.converter`
- `spat5.converter~`
- `spat5.abs2rel`
- `spat5.distance`
- `spat5.trajectories`
- `spat5.boids`

spat5.multispeakerbrir~

BRIR convention

Read and render SOFA files with the MultiSpeaker-

description

spat5.multispeakerbrir~ reads and renders SOFA files with the MultiSpeakerBRIR convention.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@inputs [int]

The `inputs` attribute represents the number of input channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or `attrui` or `inspector`), since the number of signal inlets or outlets can not be changed dynamically.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max `inspector`).

methods

`/open [string]` : load SOFA file
`/dsp/mute [boolean]` : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied without ramping/crossfade, so this might generate clicks
`/dsp/bypass [boolean]` : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied without ramping/crossfade, so this might generate clicks
`/dsp/automute [boolean]` : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
`/dsp/automute/attack [number]` : set the duration (in seconds) before auto-muting
`/dsp/post` : post various information to the Max console (audio should be turned on)
`/dsp/clear` : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
`/dump/dsp/latency` : send the processor latency (in samples) through the dump outlet
`/verbose [string]` : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
`/post/version` : print the version in the Max Console
`/post/version [details]` : print detailed version in the Max Console
`/post/doc` : print the help documentation in the Max Console
`/post/state` : print the OSC status in the Max Console
`/preset/load [string]` : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
`/preset/load` : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format.
`/preset/export [string]` : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
`/preset/export` : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format.
`/status` : open the status window and bring it to front
`/status/open` : open the status window and bring it to front
`/status/close` : close the status window
`/status/openorclose` : open the status window if it was closed; close it if it was opened
`/status/font/size [number]` : set the font size of the status window
`/status/floating [boolean]` : make the status window 'floating' (i.e. always on top of other windows)
`/help` : open the help window and bring it to front
`/help/open` : open the help window and bring it to front
`/help/close` : close the help window
`/help/openorclose` : open the help window if it was closed; close it if it was opened
`/help/font/size [number]` : set the font size of the help window
`/help/floating [boolean]` : make the help window 'floating' (i.e. always on top of other windows)
`/snapshot` : open the snapshot window and bring it to front
`/snapshot/open` : open the snapshot window and bring it to front
`/snapshot/close` : close the snapshot window
`/snapshot/openorclose` : open the snapshot window if it was closed; close it if it was opened
`/snapshot/font/size [number]` : set the font size of the snapshot window

```

/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- [spat5.sofa.infos](#)
- [spat5.sofa.loader](#)
- [spat5.singleroomdir](#)
- [spat5.hrtf.infos](#)

spat5.multiverb~ Multiband feedback delay network

description

spat5.multiverb~ generates late reverberation from an echo bus using a feedback delay network.

The decay profile can be controlled over an arbitrary number of frequency bands.

spat5.multiverb~ is very similar to **spat5.reverb~**; the difference being that **spat5.reverb~** uses 3-band shelving filters to control the decay, while **spat5.multiverb~** can control the decay profile over an arbitrary number of frequency bands.

Of course, increasing the number of frequency bands will impact the CPU load.

attributes

@channels [int]

The `channels` attribute represents the number of input and output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or `attrui` or `inspector`), since the number of signal inlets or outlets can not be changed dynamically.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character `"`). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max `inspector`).

methods

```

/channel/number [int] : set the number of feedback channels
/band/number [int] : set the number of frequency bands
/cascade/number [int] : set the number cascades used for the reverberant filters
/freq/limits [number] [number] [number] ... : set the frequency limits of each band (in Hz)
/tr0 [number] : set global reverberation time (in seconds)
/decay/times [number] [number] [number] ... : set the relative decay times for each band
/infinite [boolean] : enable/disable infinite reverb
/air [boolean] : enable/disable air absorption in the FDN
/air/freq [number] : set air absorption rolloff frequency (in Hz) in the FDN
/delays [number] [number] [number] ... : set the list of delays (in msec)
/delays/samples [number] [number] [number] ... : set the list of delays (in samples)
/interpolation/mode [string] : set the interpolation mode. Possible values: nearest, linear, lagrange3, allpass, hermite3, watte3, bspline3, parabolic, allpass2, allpass3, nearestxfade
/interpolation/time [number] : set the interpolation time (in msec)
/channel/[index]/delay [number] : set the delay (in msec) for the i-th channel
/channel/[index]/delay/samples [number] : set the delay (in samples) for the i-th channel
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front

```

```

/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- spat5.reverb~
- spat5.early~
- spat5.cluster~
- spat5.spat~
- spat5.room~
- spat5.ircamverb~
- spat5.delgen
- spat5.multiverb~
- spat5.roomsize
- spat5.shuffle~
- spat5.conv~
- spat5.converb~
- spat5.tapout~
- delay~
- tapout~
- spat5.comb~
- spat5.allpass~
- spat5.reverb.timeview
- spat5.multi.connect

spat5.noisegate~

Multichannel noise gate

description

spat5.noisegate~ is a multichannel noise gate.

attributes

@channels [int]

The `channels` attribute represents the number of input and output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or `attrui` or `inspector`), since the number of signal inlets or outlets can not be changed dynamically.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max `inspector`).

methods

```
/channel/number [int] : set the number of channels
/channel/[index]/attack [number] : set attack time (in msec) for the i-th channel
/channel/[index]/release [number] : set release time (in msec) for the i-th channel
/channel/[index]/lookahead [number] : set lookahead time (in msec) for the i-th channel
/channel/[index]/threshold [number] : set threshold (in dB) for the i-th channel
/channel/[index]/reduction [number] : set reduction (in dB) for the i-th channel
/channel/[index]/mute [boolean] : mute the i-th channel
/channel/[index]/bypass [boolean] : bypass the i-th channel
/reset : reset to default values (all channels)
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
```

```

/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int] [int] [number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string] [string] [number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- spat5.compressor~
- spat5.compressor
- cascade~
- spat5.cascade~
- biquad~
- spat5.compressor
- spat5.limiter~
- spat5.clip~
- spat5.softclipping~
- spat5.delta~
- spat5.deltaclip~
- spat5.tanh~
- spat5.fixnan~
- spat5.rms~
- spat5.ebur128~
- spat5.zplane
- filtergraph~
- spat5.multi.connect

spat5.noise~

Generate white noise

description

spat5.noise~ is similar to Max/MSP **noise~** but can process several channels in parallel. It generates a signal consisting of uniformly distributed random white-noise with values between -1.0 and 1.0. All channels are independent.

attributes

@channels [int]

The **channels** attribute represents the number of input and output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or attrui or inspector), since the number of signal inlets or outlets can not be changed dynamically.

@initwith [string]

The **initwith** attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via **loadbang** or **loadmess**.

Have a look at the **spat5.tuto-osc-3.maxpat** example for further details.

Note that the **initwith** attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@mc [int]

The **mc** attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the **mc** attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The **parameter_enable** attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied whitout ramping/crossfade, so this might generate clicks

/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied whitout ramping/crossfade, so this might generate clicks

/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)

/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting

/dsp/post : post various information to the Max console (audio should be turned on)

/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up

/dump/dsp/latency : send the processor latency (in samples) through the dump outlet

/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed

/post/version : print the version in the Max Console

/post/version [details] : print detailed version in the Max Console

/post/doc : print the help documentation in the Max Console

/post/state : print the OSC status in the Max Console

/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.

/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.

/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)

/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.

/status : open the status window and bring it to front

/status/open : open the status window and bring it to front

/status/close : close the status window

/status/openorclose : open the status window if it was closed; close it if it was opened

/status/font/size [number] : set the font size of the status window

/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)

/help : open the help window and bring it to front

/help/open : open the help window and bring it to front

/help/close : close the help window

/help/openorclose : open the help window if it was closed; close it if it was opened

/help/font/size [number] : set the font size of the help window

/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)

/snapshot : open the snapshot window and bring it to front

/snapshot/open : open the snapshot window and bring it to front

/snapshot/close : close the snapshot window

/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened

/snapshot/font/size [number] : set the font size of the snapshot window

/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)

/status/copytoclipboard : copy the status to (the OS) clipboard

/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')

`/dump` : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
`/dump [string]` : dump a subset of the state of the object over the rightmost outlet. See `spat5.tuto-dump-1.maxpat` for usage examples.
`/snapshot/clear` : delete all the snapshots currently in memory
`/snapshot/add` : create a new snapshot with the current state
`/snapshot/add [string]` : create a new snapshot with the current state, and set its name
`/snapshot/[index]/store` : store the current state in the i-th snapshot (in memory)
`/snapshot/[index]/recall` : recall the current state from the i-th snapshot
`/snapshot/[index]/name [string]` : set the name of the i-th snapshot
`/snapshot/interpolate [int][int][number]` : interpolate between the i-th and j-th snapshots
`/snapshot/interpolate [string][string][number]` : interpolate between two snapshots, given their names
`/snapshot/[index]/delete` : delete the i-th snapshot
`/snapshot/[index]/copytoclipboard` : copy the i-th snapshot to (the OS) clipboard
`/snapshot/[index]/copytoclipboard [string]` : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
`/snapshot/[index]/export [string]` : export the i-th snapshot to file
`/snapshot/[index]/export/content [string]` : export the content of the i-th snapshot to file
`/snapshot/export [string]` : export all snapshots to file
`/snapshot/import [string]` : import all snapshots from file

see also

- `noise~`
- `pink~`
- `spat5.pink~`
- `mc.noise~`
- `spat5.multi.connect`

spat5.normalize Normalize coordinate messages

description

spat5.normalize normalizes coordinate messages to unit distance.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character `"`). This is similar to sending the list of commands via `loadbang` or `loadmess`. Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

see also

- `spat5.scale`
- `spat5.transform`
- `spat5.rotate`
- `spat5.translate`
- `spat5.mirror`
- `spat5.jitter`
- `spat5.viewer`
- `spat5.converter`
- `spat5.converter~`
- `spat5.abs2rel`
- `spat5.distance`
- `spat5.trajectories`
- `spat5.boids`

spat5.octavebank~ Octave filter bank

description

spat5.octavebank~ is an octave filter bank using IIR filters.

attributes

@bands [int]

The `bands` attribute represents the number frequency bands. It can not be changed dynamically (via message or attrui or inspector).

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/band/number [int] : set the number of frequency bands
/order [int] : set the filter order
/band/[index]/frequency [number] : set the center frequency for the i-th band
/freq/center [number] [number] [number]... : set center frequencies (in Hz) for the bands. The length of the list should be = (number of bands)
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
```



```

/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int] [int] [number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string] [string] [number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- spat5.complementarybank~
- spat5.hlsshelf
- biquad~
- spat5.gammatone
- spat5.equalizer
- spat5.cascade~
- spat5.frequencyresponse
- spat5.filterdesign
- cascade~
- filtergraph~
- spat5.oper
- spat5.ircamverb~
- spat5.graphiceq~
- spat5.graphiceq
- spat5.cascade.inverse
- spat5.cascade.resample
- spat5.eq
- spat5.multi.connect

spat5.oper Perceptual control interface (for spat5.spat~)

description

spat5.oper is the main control interface for **spat5.spat~**.

The core of **spat5.oper** is a perceptual control module based on research carried out in the Ircam room acoustics team on the objective and perceptual characterization of room acoustic quality. This control interface can be set to imitate the interaction between source(s) and the acoustics of an existing room and it allows to interpolate or extrapolate naturally between different acoustic qualities.

The graphical user-interface in **spat5.oper** is divided into tabs :

- Source tabs provide controls for the perceptual description of the source's acoustic quality, virtual localization, orientation and directivity,
- Reverb tabs provide controls for the perceptual description of the virtual room's acoustic quality.

attributes

@embed [boolean]

The **embed** attribute allows to store the state of the object within the patcher. The complete state of the object is stored whenever the patcher is saved to disk. Upon loading the patcher or copying the object box, the state is restored.

@initwith [string]

The **initwith** attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via **loadbang** or **loadmess**.

Have a look at the **spat5.tuto-osc-3.maxpat** example for further details.

Note that the **initwith** attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@internals [int]

The **internals** attribute represents the number of internal channels of the artificial reverberator.

Spat uses a Feedback Delay Network (FDN) reverberator engine.

Basically this can be seen as an array of delay lines which are fed back into a mixing matrix. The **internals** attributes represents the size of the feedback matrix.

Choosing the size of this matrix is a trade-off between CPU consumption and the echo density.

Increasing the size of the matrix will generate a denser reverb tail at the expense of a higher CPU load.

A typical value of 8 is a good compromise between CPU load and natural sounding reverb. A value of 16 may be useful especially when dealing with a very long reverberation time or with very percussive sound (where a smaller FDN might sometimes sounds too poor).

It is recommended not to use a value below 6.

@parameter_enable [boolean]

The **parameter_enable** attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/source/number [int] : set the number of sources
/room/number [int] : set the number of rooms
/source/[index]/pres [number] : set the (source) presence for the i-th source. The "source presence" factor defines the early sound (energy of direct sound and early room effect). A variation of the "source presence" creates a convincing effect of proximity or remoteness of the sound source.
/source/[index]/warm [number] : set the warmth for the i-th source. The "source warmth" factor defines the variation of early sound at high frequencies
/source/[index]/bril [number] : set the brilliance for the i-th source. The "source brilliance" factor defines the variation of early sound at low frequencies
/source/[index]/prer [number] : set the (room) presence for the i-th source. The "room presence" factor defines the energy of later reflections and reverberation (late sound)
/source/[index]/revp [number] : set the running reverberance for the i-th source. The "running reverberance" factor defines the early decay time. The term "reverberance" refers to the sensation that sounds are prolonged by the room reverberation. Late reverberance differs from "running reverberance" by the fact that it is essentially perceived during interruptions of the message radiated by the source. Running reverberance, on the contrary, remains perceived during continuous music.
/source/[index]/env [number] : set the envelopment for the i-th source. The "envelopment" factor defines the energy of early room effect relative to direct sound
/source/[index]/air [boolean] : enable air absorption for the i-th source
/source/[index]/doppler [boolean] : enable doppler effect for the i-th source
/source/[index]/drop [number] : set the drop factor (in dB) for the i-th source
/source/[index]/drop/mode [string] : set the drop mode for the i-th source. Possible values: linear, log2
/source/[index]/radius [number] : set the radius (in meters) for the i-th source. The "radius" parameter defines the radius of a virtual sphere surrounding the listener. When a sound source comes closer to the listener, its energy progressively increases. When the source reaches the "radius sphere", its energy no longer increases. It is clipped. The "radius" parameter hence represents the minimum radius under which the sound level is limited. This provides a "safety area" around the listener in order to avoid over-amplified sounds for nearby sources.
```

The "radius" parameter is also associated to another phenomenon for 3D panning techniques (such as VBAP, 3D-Ambisonic, and binaural or transaural) : When sound sources comes close enough to reach the "radius sphere", they will smoothly slide over the sphere surface (and thus pass over the listener head). This guarantees a smooth sound trajectory for sources that "crosses" the sphere.

```
/source/[index]/room/destination [int] : set the destination room for the i-th source
/source/[index]/axis/G0 [number] : set the global gain (in dB) for the axis filter of the i-th source
/source/[index]/axis/Gl [number] : set the gain (in dB) for the axis filter of the i-th source
/source/[index]/axis/Gm [number] : set the gain (in dB) for medium frequencies for the axis filter of the i-th source
/source/[index]/axis/Gh [number] : set the gain (in dB) for high frequencies for the axis filter of the i-th source
/source/[index]/axis/fl [number] : set the low/med crossover frequency (in Hz) for the axis filter of the i-th source
/source/[index]/axis/fh [number] : set the med/high crossover frequency (in Hz) for the axis filter of the i-th source
/source/[index]/axis/params [number] [number] [number] [number] [number] [number] : set the filter parameters (G0,Gl,Gm,Gh,fl,fh) for the axis filter of the i-th source
```

/source/[index]/axis/params [number] [number] [number] [number] [number] : set the filter parameters (G0,G1,Gm,Gh,fl) for the axis filter of the i-th source
/source/[index]/axis/params [number] [number] [number] [number] : set the filter parameters (G0,G1,Gm,Gh) for the axis filter of the i-th source
/source/[index]/axis/mute [boolean] : mute the axis filter of the i-th source
/source/[index]/axis/bypass [boolean] : bypass the axis filter of the i-th source
/source/[index]/axis/reset : reset the axis filter of the i-th source
/source/[index]/omni/G0 [number] : set the global gain (in dB) for the omni filter of the i-th source
/source/[index]/omni/G1 [number] : set the gain (in dB) for low frequencies for the omni filter of the i-th source
/source/[index]/omni/Gm [number] : set the gain (in dB) for medium frequencies for the omni filter of the i-th source
/source/[index]/omni/Gh [number] : set the gain (in dB) for high frequencies for the omni filter of the i-th source
/source/[index]/omni/fl [number] : set the low/med crossover frequency (in Hz) for the omni filter of the i-th source
/source/[index]/omni/fh [number] : set the med/high crossover frequency (in Hz) for the omni filter of the i-th source
/source/[index]/omni/params [number] [number] [number] [number] [number] [number] : set the filter parameters (G0,G1,Gm,Gh,fl,fh) for the omni filter of the i-th source
/source/[index]/omni/params [number] [number] [number] [number] [number] [number] : set the filter parameters (G0,G1,Gm,Gh,fl) for the omni filter of the i-th source
/source/[index]/omni/params [number] [number] [number] [number] : set the filter parameters (G0,G1,Gm,Gh) for the omni filter of the i-th source
/source/[index]/omni/mute [boolean] : mute the omni filter of the i-th source
/source/[index]/omni/bypass [boolean] : bypass the omni filter of the i-th source
/source/[index]/omni/reset : reset the omni filter of the i-th source
/source/[index]/direct/mute [boolean] : mute direct sound for the i-th source
/source/[index]/early/mute [boolean] : mute early for the i-th source
/source/[index]/cluster/mute [boolean] : mute cluster for the i-th source
/source/[index]/reverb/mute [boolean] : mute late reverb for the i-th source
/source/[index]/early/width [number] : set the early width angle (in deg) for the i-th source. In Spat, early reflections (discrete echoes) are panned as a "stereo pair" spatially surrounding the direct sound. The "early with" parameter specifies the width of this stereo pair.
/source/[index]/early/shape [number] : set the early shape (in The "early shape" parameter characterizes the amplitude distribution of the early echoes. By default, all early reflections (discrete echoes) have the same amplitude. This corresponds to early shape = 50 /source/[index]/panrev [number] : set the panrev factor (in By default, the late reflections (a.k.a "cluster" in spat dialect) and the late reverb (tail) are fully diffuse (coming from all spatial directions). When you increase the "pan rev" parameter, some of the cluster reflections will be panned (similarly to the early reflections), making the reverberation effect more directional (less diffuse).
/source/[index]/lock [boolean] : lock the i-th source
/room/[index]/reverberance [number] : set the reverberance for the i-th room. The "reverberance" factor defines the mid-frequency decay time. The term "reverberance" refers to the sensation that sounds are prolonged by the room reverberation. Late reverberance differs from "running reverberance" by the fact that it is essentially perceived during interruptions of the message radiated by the source. Running reverberance, on the contrary, remains perceived during continuous music.
/room/[index]/heaviness [number] : set the heaviness for the i-th room. The "heaviness" factor defines the relative decay time at low frequencies
/room/[index]/liveness [number] : set the liveness for the i-th room. The "liveness" factor defines the relative decay time at high frequencies
/room/[index]/reverb/roomsize [number] : set the room size for the i-th room
/room/[index]/early/min [number] : set the early start (in msec) for the i-th room
/room/[index]/early/max [number] : set the early end (in msec) for the i-th room
/room/[index]/early/distr [number] : set the early distribution for the i-th room
/room/[index]/cluster/min [number] : set the cluster start (in msec) for the i-th room
/room/[index]/cluster/max [number] : set the cluster end (in msec) for the i-th room
/room/[index]/cluster/distr [number] : set the cluster distribution for the i-th room
/room/[index]/reverb/min [number] : set the reverb start (in msec) for the i-th room
/room/[index]/reverb/density [number] : set the modal density for the i-th room
/room/[index]/air [boolean] : enable air absorption for the i-th room
/room/[index]/air/freq [number] : set air absorption frequency for the i-th room
/room/[index]/infinite [boolean] : enables infinite reverb for the i-th room
/room/[index]/mute [boolean] : mute the i-th room
/tab [string] : open a given tab of the interface
/internals [int] : set the number of internal channels for FDN reverb
/viewer/visible [boolean] : set visibility of the scene viewer
/viewer/only [boolean] : display only the scene viewer
/source/number [int] : set the number of sources
/source/[index]/visible [boolean] : set the visibility of the i-th source
/source/[index]/editable [boolean] : set the editability of the i-th source
/source/[index]/select [boolean] : select the i-th source
/source/[index]/mute [boolean] : mute the i-th source
/source/[index]/color [color] : set the color of the i-th source
/source/[index]/color/alpha [number] : change alpha for the color of the i-th source
/source/[index]/color/alpha/add [number] : increase/decrease alpha for the color of the i-th source
/source/[index]/proportion [number] : set the proportion the i-th source
/source/[index]/proportion/add [number] : increase/decrease the proportion the i-th source by a certain amount
/source/[index]/constraint/circular [boolean] : set the circular constraints for the i-th source
/source/[index]/label [string] : set the label for the i-th source
/source/[index]/label/visible [boolean] : set the visibility for the label for the i-th source
/source/[index]/label/color [color] : set the color for the label for the i-th source
/source/[index]/label/justification [string] : set the text justification for the label for the i-th source
/source/[index]/vumeter/visible [boolean] : set the visibility for the vumeter for the i-th source
/source/[index]/level [number] : set the vumeter level (in dB) for the i-th source
/source/[index]/xyz [number] [number] [number] : set the position of the i-th source using cartesian coordinates
/source/[index]/aed [number] [number] [number] : set the position of the i-th source using navigation coordinates (azimuth/elevation/distance)
/source/[index]/xy [number] [number] : set the xy-coordinate of the i-th source, and use default z (=0)
/source/[index]/az [number] : set the azimuth of the i-th source, using default distance (=1) and elevation (=0)
/source/[index]/x [number] [number] : set the x-coordinate of the i-th source, and keep y and z unchanged
/source/[index]/y [number] [number] : set the y-coordinate of the i-th source, and keep x and z unchanged
/source/[index]/z [number] [number] : set the z-coordinate of the i-th source, and keep x and y unchanged
/source/[index]/ade [number] [number] [number] : set the position of the i-th source using navigation coordinates (azimuth/distance/elevation)
/source/[index]/ae [number] [number] : set the azimuth/elevation of the i-th source, using default distance (=1)
/source/[index]/ad [number] [number] : set the azimuth/distance of the i-th source, using default elevation (=0)
/source/[index]/azim [number] : set the azimuth of the i-th source. Elevation and distance remain unchanged
/source/[index]/elev [number] : set the elevation of the i-th source. Azimuth and distance remain unchanged
/source/[index]/dist [number] : set the distance of the i-th source. Azimuth and elevation remain unchanged
/source/[index]/azimelev [number] [number] : set the azimuth and elevation of the i-th source. Distance remains unchanged
/source/[index]/azimdist [number] [number] : set the azimuth and distance of the i-th source. Elevation remains unchanged
/sources/aed [nnnn...] : set the list of source coordinates (with aed format)
/sources/xyz [nnnn...] : set the list of source coordinates (with xyz format)

```

/sources/ade [nnnn...] : set the list of source coordinates (with ade format)
/sources/xy [nnnn...] : set the list of source coordinates (with xy format)
/sources/ae [nnnn...] : set the list of source coordinates (with ae format)
/source/[index]/aperture [number] : set the aperture of the i-th source
/source/[index]/aperture/visible [boolean] : set the visibility for the aperture of the i-th source
/source/[index]/aperture/color [color] : set the color for the aperture of the i-th source
/source/[index]/yaw/mode [string] : set the yaw mode of the i-th source
/source/[index]/yaw [number] : set the yaw angle (in deg) of the i-th source, using Euler zyx convention
/source/[index]/pitch [number] : set the pitch angle (in deg) of the i-th source, using Euler zyx convention
/source/[index]/roll [number] : set the roll angle (in deg) of the i-th source, using Euler zyx convention
/source/[index]/orientation [number][number][number][number] : set the orientation quaternion (xyzw) of the i-th source
/source/[index]/history/visible [boolean] : set the visibility for the history of the i-th source
/source/[index]/history/color [color] : set the color for the history of the i-th source
/source/[index]/history/thickness [number] : set the line thickness for the history of the i-th source
/source/[index]/history/size [int] : set the (past) size for the history of the i-th source
/source/[index]/history/clear : clear the history of the i-th source
/source/[index]/tofront : bring the i-th source to the front of its siblings
/source/[index]/toback : bring the i-th source to the back of its siblings
/source/[index]/tofront [boolean] : bring the i-th source to the front or back of its siblings
/source/[index]/image [string] : set the image file (svg, jpg, png, etc.) to use for the i-th source
/source/[index]/image/clear : use the default image for the i-th source
/sources/level [nnnn...] : set the vumeter levels (in dB) for all sources
/sources/visible [bbbb...] : set the visibility for all sources
/speaker/[index]/number [int] : set the number of speakers
/speaker/[index]/visible [boolean] : set the visibility of the i-th speaker
/speaker/[index]/editable [boolean] : set the editability of the i-th speaker
/speaker/[index]/select [boolean] : select the i-th speaker
/speaker/[index]/color [color] : set the color of the i-th speaker
/speaker/[index]/proportion [number] : set the proportion the i-th speaker
/speaker/[index]/constraint/circular [boolean] : set the circular constraints for the i-th speaker
/speaker/[index]/label [string] : set the label for the i-th speaker
/speaker/[index]/label/visible [boolean] : set the visibility for the label for the i-th speaker
/speaker/[index]/label/color [color] : set the color for the label for the i-th speaker
/speaker/[index]/label/justification [string] : set the text justification for the label for the i-th speaker
/speaker/[index]/vumeter/visible [boolean] : set the visibility for the vumeter for the i-th speaker
/speaker/[index]/level [number] : set the vumeter level (in dB) for the i-th speaker
/speakers/aed [nnnn...] : set the list of speaker coordinates (with aed format)
/speakers/xyz [nnnn...] : set the list of speaker coordinates (with xyz format)
/speakers/ade [nnnn...] : set the list of speaker coordinates (with ade format)
/speakers/xy [nnnn...] : set the list of speaker coordinates (with xy format)
/speakers/ae [nnnn...] : set the list of speaker coordinates (with ae format)
/speaker/[index]/aed [number][number][number] : set the position of the i-th loudspeaker using navigation coordinates (azimuth/elevation/distance)
/speaker/[index]/ade [number][number][number] : set the position of the i-th loudspeaker using navigation coordinates (azimuth/distance/elevation)
/speaker/[index]/xyz [number][number][number] : set the position of the i-th loudspeaker using cartesian coordinates
/speaker/[index]/xy [number][number] : set the xy-coordinate of the i-th loudspeaker, and use default z (=0)
/speaker/[index]/ae [number][number] : set the azimuth/elevation of the i-th loudspeaker, using default distance (=1)
/speaker/[index]/az [number] : set the azimuth of the i-th loudspeaker, using default distance (=1) and elevation (=0)
/speaker/[index]/tofront : bring the i-th speaker to the front of its siblings
/speaker/[index]/toback : bring the i-th speaker to the back of its siblings
/speaker/[index]/tofront [boolean] : bring the i-th speaker to the front or back of its siblings
/speaker/[index]/image [string] : set the image file (svg, jpg, png, etc.) to use for the i-th speaker
/speaker/[index]/image/clear : use the default image for the i-th speaker
/speakers/level [nnnn...] : set the vumeter levels (in dB) for all speakers
/speakers/visible [bbbb...] : set the visibility for all speakers
/stereo/[index]/number [int] : set the number of stereo pairs
/stereo/[index]/visible [boolean] : set the visibility of the i-th stereo pair
/stereo/[index]/editable [boolean] : set the editability of the i-th stereo pair
/stereo/[index]/select [boolean] : select the i-th stereo pair
/stereo/[index]/color [color] : set the color of the i-th stereo pair
/stereo/[index]/proportion [number] : set the proportion the i-th stereo pair
/stereo/[index]/constraint/circular [boolean] : set the circular constraints for the i-th stereo pair
/stereo/[index]/label [string] : set the label for the i-th stereo pair
/stereo/[index]/label/visible [boolean] : set the visibility for the label for the i-th stereo pair
/stereo/[index]/label/color [color] : set the color for the label for the i-th stereo pair
/stereo/[index]/label/justification [string] : set the text justification for the label for the i-th stereo pair
/stereo/[index]/vumeter/visible [boolean] : set the visibility for the vumeter for the i-th stereo pair
/stereo/[index]/level [number] : set the vumeter level (in dB) for the i-th stereo pair
/stereo/[index]/xyz [number][number][number] : set the position of the i-th stereo pair
/stereo/[index]/xy [number][number] : set the position of the i-th stereo pair
/stereo/[index]/x [number] : set the position of the i-th stereo pair
/stereo/[index]/y [number] : set the position of the i-th stereo pair
/stereo/[index]/z [number] : set the position of the i-th stereo pair
/stereo/[index]/aed [number][number][number] : set the position of the i-th stereo pair
/stereo/[index]/ade [number][number][number] : set the position of the i-th stereo pair
/stereo/[index]/ae [number][number] : set the position of the i-th stereo pair
/stereo/[index]/ad [number][number][number] : set the position of the i-th stereo pair
/stereo/[index]/az [number] : set the position of the i-th stereo pair
/stereo/[index]/azim [number] : set the position of the i-th stereo pair
/stereo/[index]/elev [number] : set the position of the i-th stereo pair
/stereo/[index]/dist [number] : set the position of the i-th stereo pair
/stereo/[index]/azim++ [number] : set the position of the i-th stereo pair
/stereo/[index]/elev++ [number] : set the position of the i-th stereo pair
/stereo/[index]/dist++ [number] : set the position of the i-th stereo pair
/stereo/[index]/dist*= [number] : set the position of the i-th stereo pair

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/stereo/[index]/aperture [number] : set the aperture of the i-th stereo pair
/stereo/[index]/aperture/visible [boolean] : set the visibility for the aperture of the i-th stereo pair
/stereo/[index]/aperture/color [color] : set the color for the aperture of the i-th stereo pair
/stereo/[index]/yaw/mode [string] : set the yaw mode of the i-th stereo pair
/stereo/[index]/yaw [number] : set the yaw angle (in deg) of the i-th stereo pair, using Euler zyx convention
/stereo/[index]/pitch [number] : set the pitch angle (in deg) of the i-th stereo pair, using Euler zyx convention
/stereo/[index]/roll [number] : set the roll angle (in deg) of the i-th stereo pair, using Euler zyx convention
/stereo/[index]/orientation [number][number][number][number] : set the orientation quaternion (xyzw) of the i-th stereo pair
/stereos/level [nnnn...] : set the vumeter levels (in dB) for all stereo pairs
/listener/visible [boolean] : set the visibility of the listener
/listener/editable [boolean] : set the listener editable
/listener/headphones/visible [boolean] : set the visibility of the headphones
/listener/orientation [quaternion] : set the orientation of the listener
/listener/proportion [number] : set the display proportion of the listener
/listener/select [boolean] : select/unselect the listener
/listener/aed [number][number][number] : set the listener position (azimuth/elevation/distance)
/hoa/number [int] : set the number of HOA fields
/hoa/[index]/yaw [number] : set the yaw angle of the i-th HOA field
/background/color [color] : set the window background color
/backgroundimage/file [string] : set the background image (png, jpg, etc.)
/backgroundimage/visible [boolean] : set the visibility of the background image
/backgroundimage/opacity [number] : set the opacity of the background image
/backgroundimage/scale [number] : set the scale factor of the background image
/backgroundimage/angle [number] : set the rotation angle of the background image
/backgroundimage/offset/x [number] : set the x translation offset of the background image
/backgroundimage/offset/y [number] : set the y translation offset of the background image
/backgroundimage/offset/xy [number][number] : set the x/y translation offset of the background image
/backgroundimage/quality [string] : set the resampling quality of the background image (low, medium, high)
/display/zoom [number] : set the display zoom factor (/display/offset/x [number] : set the display x translation offset (in pixels)
/display/offset/y [number] : set the display y translation offset (in pixels)
/display/offset/z [number] : set the display z translation offset (in pixels)
/display/offset/xy [number][number] : set the display x/y translation offsets (in pixels)
/display/offset/xyz [number][number][number] : set the display x/y/z translation offsets (in pixels)
/display/zoom/lock [boolean] : enable/disable zooming with the mouse wheel
/axis/visible [boolean] : set the visibility of the axis
/axis/color [color] : set the axis color
/axis/label/visible [boolean] : set the visibility of the axis label
/axis/origin/visible [boolean] : set the visibility of the axis origin
/axis/thickness [number] : set line thickness
/grid/visible [boolean] : set the visibility of the grid
/grid/mode [string] : set the grid mode. Possible values: none, circular, cartesian
/grid/spacing [number] : set the spacing between grid lines (in meters)
/grid/line/number [number] : set the number of grid lines
/grid/angulardivisions/number [number] : set the number of angular divisions
/grid/angulardivisions/visible [boolean] : set the visibility of angular divisions
/grid/dashed [boolean] : set the line style
/grid/color [color] : set the line color
/grid/thickness [number] : set line thickness
/legend/visible [boolean] : set the visibility of the legend
/legend/color [color] : set the legend color
/legend/unit [string] : set distance unit
/emphasis/source [boolean] : emphasize sources when mouse in proximity
/emphasis/speaker [boolean] : emphasize speakers when mouse in proximity
/emphasis/microphone [boolean] : emphasize microphones when mouse in proximity
/ruler/visible [boolean] : set the visibility of the ruler
/ruler/color [color] : set the ruler color
/area/number [int] : set the number of areas
/area/[index]/vertex/number [int] : set the number of vertex for the i-th area
/area/[index]/vertex/[index]/xy [number][number] : set position of the j-th vertex of the i-th area
/area/[index]/vertex/[index]/xyz [number][number][number] : set position of the j-th vertex of the i-th area
/area/[index]/vertex/[index]/aed [number][number][number] : set position of the j-th vertex of the i-th area
/area/[index]/visible [boolean] : set visibility for the i-th area
/area/[index]/color [color] : set color for the i-th area
/area/[index]/name [string] : set name for the i-th area
/speakerhull/color [color] : set the hull color
/speakerhull/visible [boolean] : set the visibility of the hull
/speakerhull/fill/color [color] : set the hull interior color
/speakerhull/fill [boolean] : fill the hull
/layout [string] : set the window layout. Possible values: single, leftright, topbottom, automatic
/window/title [string] : set the window title (in the window titlebar)
/window/visible [boolean] : set the window visibility
/window/moveable [boolean] : set the window movability
/window/resizable [boolean] : set the window resizability
/window/enable [boolean] : enable/disable the window
/window/background/color [color] : set the window background color
/window/opaque [boolean] : set the window opaque flag (optimize repaint efficiency)
/window/fullscreen [boolean] : enable/disable fullscreen mode
/window/minimise [boolean] : minimize the window
/window/open : open the window (and bring it to front)
/window/close : close the window
/window/openorclose : open the window if it was closed; close it if it was opened
/window/size [number][number] : set the window size (width, height) (in pixels)
/window/width [number] : set the window width (in pixels)
/window/height [number] : set the window height (in pixels)

```


/window/bounds [number] [number] [number] [number] : set the window bounds (top left position, width, height) (in pixels)
 /window/topLeft [number] [number] : set the window top left position (in pixels)
 /window/centre : open the window, centering it on the screen
 /window/rendering/engine [string] : set the graphical rendering engine of the window
 /window/fps/visible [boolean] : display the FPS performances of the window
 /window/scale [number] : set the global scale factor of the window (in /window/floating [boolean] : make the window 'floating' (always on top)
 /window/hidesondeactivate [boolean] : make the window 'hides on deactivate' (when always on top)
 /window/buttons/close [boolean] : enable/disable the close button (in the window titlebar)
 /window/buttons/minimise [boolean] : enable/disable the minimise button (in the window titlebar)
 /window/buttons/maximise [boolean] : enable/disable the maximise button (in the window titlebar)
 /window/export/image [string] : export the window as an image file (png or jpeg)
 /post/version : print the version in the Max Console
 /post/version [details] : print detailed version in the Max Console
 /post/doc : print the help documentation in the Max Console
 /post/state : print the OSC status in the Max Console
 /preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
 /preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
 /preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
 /preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
 /status : open the status window and bring it to front
 /status/open : open the status window and bring it to front
 /status/close : close the status window
 /status/openorclose : open the status window if it was closed; close it if it was opened
 /status/font/size [number] : set the font size of the status window
 /status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
 /help : open the help window and bring it to front
 /help/open : open the help window and bring it to front
 /help/close : close the help window
 /help/openorclose : open the help window if it was closed; close it if it was opened
 /help/font/size [number] : set the font size of the help window
 /help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
 /snapshot : open the snapshot window and bring it to front
 /snapshot/open : open the snapshot window and bring it to front
 /snapshot/close : close the snapshot window
 /snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
 /snapshot/font/size [number] : set the font size of the snapshot window
 /snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
 /status/copytoclipboard : copy the status to (the OS) clipboard
 /status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
 /dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
 /dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
 /snapshot/clear : delete all the snapshots currently in memory
 /snapshot/add : create a new snapshot with the current state
 /snapshot/add [string] : create a new snapshot with the current state, and set its name
 /snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
 /snapshot/[index]/recall : recall the current state from the i-th snapshot
 /snapshot/[index]/name [string] : set the name of the i-th snapshot
 /snapshot/interpolate [int] [int] [number] : interpolate between the i-th and j-th snapshots
 /snapshot/interpolate [string] [string] [number] : interpolate between two snapshots, given their names
 /snapshot/[index]/delete : delete the i-th snapshot
 /snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
 /snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
 /snapshot/[index]/export [string] : export the i-th snapshot to file
 /snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
 /snapshot/export [string] : export all snapshots to file
 /snapshot/import [string] : import all snapshots from file

see also

- spat5.spat~
- spat5.viewer
- spat5.ircamverb
- spat5.hlshef
- spat5.oper_
- spat5.ircamverb
- spat5.panoramix
- spat5.trajectories

spat5.oper.embedded Perceptual control interface (for spat5.spat~)

description

spat5.oper is the main control interface for spat5.spat~.

The core of spat5.oper is a perceptual control module based on research carried out in the Ircam room acoustics team on the objective and perceptual characterization of room acoustic quality. This control interface can be set to imitate the interaction between source(s) and the acoustics of an existing room and it allows to interpolate or extrapolate naturally between different acoustic qualities.

The graphical user-interface in spat5.oper is divided into tabs :

- Source tabs provide controls for the perceptual description of the source's acoustic quality, virtual localization, orientation and directivity,
- Reverb tabs provide controls for the perceptual description of the virtual room's acoustic quality.

attributes

@embed [boolean]

The `embed` attribute allows to store the state of the object within the patcher. The complete state of the object is stored whenever the patcher is saved to disk. Upon loading the patcher or copying the object box, the state is restored.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@internals [int]

The `internals` attribute represents the number of internal channels of the artificial reverberator.

Spat uses a Feedback Delay Network (FDN) reverberator engine.

Basically this can be seen as an array of delay lines which are fed back into a mixing matrix. The `internals` attributes represents the size of the feedback matrix.

Choosing the size of this matrix is a trade-off between CPU consumption and the echo density.

Increasing the size of the matrix will generate a denser reverb tail at the expense of a higher CPU load.

A typical value of 8 is a good compromise between CPU load and natural sounding reverb. A value of 16 may be useful especially when dealing with a very long reverberation time or with very percussive sound (where a smaller FDN might sometimes sounds too poor).

It is recommended not to use a value below 6.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

/source/number [int] : set the number of sources

/room/number [int] : set the number of rooms

/source/[index]/pres [number] : set the (source) presence for the i-th source. The "source presence" factor defines the early sound (energy of direct sound and early room effect). A variation of the "source presence" creates a convincing effect of proximity or remoteness of the sound source.

/source/[index]/warm [number] : set the warmth for the i-th source. The "source warmth" factor defines the variation of early sound at high frequencies

/source/[index]/bril [number] : set the brilliance for the i-th source. The "source brilliance" factor defines the variation of early sound at low frequencies

/source/[index]/prer [number] : set the (room) presence for the i-th source. The "room presence" factor defines the energy of later reflections and reverberation (late sound)

/source/[index]/revp [number] : set the running reverberance for the i-th source. The "running reverberance" factor defines the early decay time. The term "reverberance" refers to the sensation that sounds are prolonged by the room reverberation. Late reverberance differs from "running reverberance" by the fact that it is essentially perceived during interruptions of the message radiated by the source. Running reverberance, on the contrary, remains perceived during continuous music.

/source/[index]/env [number] : set the envelopment for the i-th source. The "envelopment" factor defines the energy of early room effect relative to direct sound

/source/[index]/air [boolean] : enable air absorption for the i-th source

/source/[index]/doppler [boolean] : enable doppler effect for the i-th source

/source/[index]/drop [number] : set the drop factor (in dB) for the i-th source

/source/[index]/drop/mode [string] : set the drop mode for the i-th source. Possible values: linear, log2

/source/[index]/radius [number] : set the radius (in meters) for the i-th source. The "radius" parameter defines the radius of a virtual sphere surrounding the listener. When a sound source comes closer to the listener, its energy progressively increases. When the source reaches the "radius sphere", its energy no longer increases. It is clipped. The "radius" parameter hence represents the minimum radius under which the sound level is limited. This provides a "safety area" around the listener in order to avoid over-amplified sounds for nearby sources.

The "radius" parameter is also associated to another phenomenon for 3D panning techniques (such as VBAP, 3D-Ambisonic, and binaural or transaural) : When sound sources comes close enough to reach the "radius sphere", they will smoothly slide over the sphere surface (and thus pass over the listener head). This guarantees a smooth sound trajectory for sources that "crosses" the sphere.

/source/[index]/room/destination [int] : set the destination room for the i-th source

/source/[index]/axis/G0 [number] : set the global gain (in dB) for the axis filter of the i-th source

/source/[index]/axis/Gl [number] : set the gain (in dB) for the axis filter of the i-th source

/source/[index]/axis/Gm [number] : set the gain (in dB) for medium frequencies for the axis filter of the i-th source

/source/[index]/axis/Gh [number] : set the gain (in dB) for high frequencies for the axis filter of the i-th source

/source/[index]/axis/fl [number] : set the low/med crossover frequency (in Hz) for the axis filter of the i-th source

/source/[index]/axis/fh [number] : set the med/high crossover frequency (in Hz) for the axis filter of the i-th source

/source/[index]/axis/params [number] [number] [number] [number] [number] [number] : set the filter parameters (G0,Gl,Gm,Gh,fl,fh) for the axis filter of the i-th source

/source/[index]/axis/params [number] [number] [number] [number] [number] : set the filter parameters (G0,G1,Gm,Gh,fl) for the axis filter of the i-th source
/source/[index]/axis/params [number] [number] [number] [number] : set the filter parameters (G0,G1,Gm,Gh) for the axis filter of the i-th source
/source/[index]/axis/mute [boolean] : mute the axis filter of the i-th source
/source/[index]/axis/bypass [boolean] : bypass the axis filter of the i-th source
/source/[index]/axis/reset : reset the axis filter of the i-th source
/source/[index]/omni/G0 [number] : set the global gain (in dB) for the omni filter of the i-th source
/source/[index]/omni/G1 [number] : set the gain (in dB) for low frequencies for the omni filter of the i-th source
/source/[index]/omni/Gm [number] : set the gain (in dB) for medium frequencies for the omni filter of the i-th source
/source/[index]/omni/Gh [number] : set the gain (in dB) for high frequencies for the omni filter of the i-th source
/source/[index]/omni/fl [number] : set the low/med crossover frequency (in Hz) for the omni filter of the i-th source
/source/[index]/omni/fh [number] : set the med/high crossover frequency (in Hz) for the omni filter of the i-th source
/source/[index]/omni/params [number] [number] [number] [number] [number] [number] : set the filter parameters (G0,G1,Gm,Gh,fl,fh) for the omni filter of the i-th source
/source/[index]/omni/params [number] [number] [number] [number] [number] [number] : set the filter parameters (G0,G1,Gm,Gh,fl) for the omni filter of the i-th source
/source/[index]/omni/params [number] [number] [number] [number] : set the filter parameters (G0,G1,Gm,Gh) for the omni filter of the i-th source
/source/[index]/omni/mute [boolean] : mute the omni filter of the i-th source
/source/[index]/omni/bypass [boolean] : bypass the omni filter of the i-th source
/source/[index]/omni/reset : reset the omni filter of the i-th source
/source/[index]/direct/mute [boolean] : mute direct sound for the i-th source
/source/[index]/early/mute [boolean] : mute early for the i-th source
/source/[index]/cluster/mute [boolean] : mute cluster for the i-th source
/source/[index]/reverb/mute [boolean] : mute late reverb for the i-th source
/source/[index]/early/width [number] : set the early width angle (in deg) for the i-th source. In Spat, early reflections (discrete echoes) are panned as a "stereo pair" spatially surrounding the direct sound. The "early with" parameter specifies the width of this stereo pair.
/source/[index]/early/shape [number] : set the early shape (in The "early shape" parameter characterizes the amplitude distribution of the early echoes. By default, all early reflections (discrete echoes) have the same amplitude. This corresponds to early shape = 50 /source/[index]/panrev [number] : set the panrev factor (in By default, the late reflections (a.k.a "cluster" in spat dialect) and the late reverb (tail) are fully diffuse (coming from all spatial directions). When you increase the "pan rev" parameter, some of the cluster reflections will be panned (similarly to the early reflections), making the reverberation effect more directional (less diffuse).
/source/[index]/lock [boolean] : lock the i-th source
/room/[index]/reverberance [number] : set the reverberance for the i-th room. The "reverberance" factor defines the mid-frequency decay time. The term "reverberance" refers to the sensation that sounds are prolonged by the room reverberation. Late reverberance differs from "running reverberance" by the fact that it is essentially perceived during interruptions of the message radiated by the source. Running reverberance, on the contrary, remains perceived during continuous music.
/room/[index]/heaviness [number] : set the heaviness for the i-th room. The "heaviness" factor defines the relative decay time at low frequencies
/room/[index]/liveness [number] : set the liveness for the i-th room. The "liveness" factor defines the relative decay time at high frequencies
/room/[index]/reverb/roomsize [number] : set the room size for the i-th room
/room/[index]/early/min [number] : set the early start (in msec) for the i-th room
/room/[index]/early/max [number] : set the early end (in msec) for the i-th room
/room/[index]/early/distr [number] : set the early distribution for the i-th room
/room/[index]/cluster/min [number] : set the cluster start (in msec) for the i-th room
/room/[index]/cluster/max [number] : set the cluster end (in msec) for the i-th room
/room/[index]/cluster/distr [number] : set the cluster distribution for the i-th room
/room/[index]/reverb/min [number] : set the reverb start (in msec) for the i-th room
/room/[index]/reverb/density [number] : set the modal density for the i-th room
/room/[index]/air [boolean] : enable air absorption for the i-th room
/room/[index]/air/freq [number] : set air absorption frequency for the i-th room
/room/[index]/infinite [boolean] : enables infinite reverb for the i-th room
/room/[index]/mute [boolean] : mute the i-th room
/tab [string] : open a given tab of the interface
/internals [int] : set the number of internal channels for FDN reverb
/viewer/visible [boolean] : set visibility of the scene viewer
/viewer/only [boolean] : display only the scene viewer
/source/number [int] : set the number of sources
/source/[index]/visible [boolean] : set the visibility of the i-th source
/source/[index]/editable [boolean] : set the editability of the i-th source
/source/[index]/select [boolean] : select the i-th source
/source/[index]/mute [boolean] : mute the i-th source
/source/[index]/color [color] : set the color of the i-th source
/source/[index]/color/alpha [number] : change alpha for the color of the i-th source
/source/[index]/color/alpha/add [number] : increase/decrease alpha for the color of the i-th source
/source/[index]/proportion [number] : set the proportion the i-th source
/source/[index]/proportion/add [number] : increase/decrease the proportion the i-th source by a certain amount
/source/[index]/constraint/circular [boolean] : set the circular constraints for the i-th source
/source/[index]/label [string] : set the label for the i-th source
/source/[index]/label/visible [boolean] : set the visibility for the label for the i-th source
/source/[index]/label/color [color] : set the color for the label for the i-th source
/source/[index]/label/justification [string] : set the text justification for the label for the i-th source
/source/[index]/vumeter/visible [boolean] : set the visibility for the vumeter for the i-th source
/source/[index]/level [number] : set the vumeter level (in dB) for the i-th source
/source/[index]/xyz [number] [number] [number] : set the position of the i-th source using cartesian coordinates
/source/[index]/aed [number] [number] [number] : set the position of the i-th source using navigation coordinates (azimuth/elevation/distance)
/source/[index]/xy [number] [number] : set the xy-coordinate of the i-th source, and use default z (=0)
/source/[index]/az [number] : set the azimuth of the i-th source, using default distance (=1) and elevation (=0)
/source/[index]/x [number] [number] : set the x-coordinate of the i-th source, and keep y and z unchanged
/source/[index]/y [number] [number] : set the y-coordinate of the i-th source, and keep x and z unchanged
/source/[index]/z [number] [number] : set the z-coordinate of the i-th source, and keep x and y unchanged
/source/[index]/ade [number] [number] [number] : set the position of the i-th source using navigation coordinates (azimuth/distance/elevation)
/source/[index]/ae [number] [number] : set the azimuth/elevation of the i-th source, using default distance (=1)
/source/[index]/ad [number] [number] : set the azimuth/distance of the i-th source, using default elevation (=0)
/source/[index]/azim [number] : set the azimuth of the i-th source. Elevation and distance remain unchanged
/source/[index]/elev [number] : set the elevation of the i-th source. Azimuth and distance remain unchanged
/source/[index]/dist [number] : set the distance of the i-th source. Azimuth and elevation remain unchanged
/source/[index]/azimelev [number] [number] : set the azimuth and elevation of the i-th source. Distance remains unchanged
/source/[index]/azimdist [number] [number] : set the azimuth and distance of the i-th source. Elevation remains unchanged
/sources/aed [nnnn...] : set the list of source coordinates (with aed format)
/sources/xyz [nnnn...] : set the list of source coordinates (with xyz format)


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/sources/ade [nnnn...] : set the list of source coordinates (with ade format)
/sources/xy [nnnn...] : set the list of source coordinates (with xy format)
/sources/ae [nnnn...] : set the list of source coordinates (with ae format)
/source/[index]/aperture [number] : set the aperture of the i-th source
/source/[index]/aperture/visible [boolean] : set the visibility for the aperture of the i-th source
/source/[index]/aperture/color [color] : set the color for the aperture of the i-th source
/source/[index]/yaw/mode [string] : set the yaw mode of the i-th source
/source/[index]/yaw [number] : set the yaw angle (in deg) of the i-th source, using Euler zyx convention
/source/[index]/pitch [number] : set the pitch angle (in deg) of the i-th source, using Euler zyx convention
/source/[index]/roll [number] : set the roll angle (in deg) of the i-th source, using Euler zyx convention
/source/[index]/orientation [number][number][number][number] : set the orientation quaternion (xyzw) of the i-th source
/source/[index]/history/visible [boolean] : set the visibility for the history of the i-th source
/source/[index]/history/color [color] : set the color for the history of the i-th source
/source/[index]/history/thickness [number] : set the line thickness for the history of the i-th source
/source/[index]/history/size [int] : set the (past) size for the history of the i-th source
/source/[index]/history/clear : clear the history of the i-th source
/source/[index]/tofront : bring the i-th source to the front of its siblings
/source/[index]/toback : bring the i-th source to the back of its siblings
/source/[index]/tofront [boolean] : bring the i-th source to the front or back of its siblings
/source/[index]/image [string] : set the image file (svg, jpg, png, etc.) to use for the i-th source
/source/[index]/image/clear : use the default image for the i-th source
/sources/level [nnnn...] : set the vumeter levels (in dB) for all sources
/sources/visible [bbbb...] : set the visibility for all sources
/speaker/number [int] : set the number of speakers
/speaker/[index]/visible [boolean] : set the visibility of the i-th speaker
/speaker/[index]/editable [boolean] : set the editability of the i-th speaker
/speaker/[index]/select [boolean] : select the i-th speaker
/speaker/[index]/color [color] : set the color of the i-th speaker
/speaker/[index]/proportion [number] : set the proportion the i-th speaker
/speaker/[index]/constraint/circular [boolean] : set the circular constraints for the i-th speaker
/speaker/[index]/label [string] : set the label for the i-th speaker
/speaker/[index]/label/visible [boolean] : set the visibility for the label for the i-th speaker
/speaker/[index]/label/color [color] : set the color for the label for the i-th speaker
/speaker/[index]/label/justification [string] : set the text justification for the label for the i-th speaker
/speaker/[index]/vumeter/visible [boolean] : set the visibility for the vumeter for the i-th speaker
/speaker/[index]/level [number] : set the vumeter level (in dB) for the i-th speaker
/speakers/aed [nnnn...] : set the list of speaker coordinates (with aed format)
/speakers/xyz [nnnn...] : set the list of speaker coordinates (with xyz format)
/speakers/ade [nnnn...] : set the list of speaker coordinates (with ade format)
/speakers/xy [nnnn...] : set the list of speaker coordinates (with xy format)
/speakers/ae [nnnn...] : set the list of speaker coordinates (with ae format)
/speaker/[index]/aed [number][number][number] : set the position of the i-th loudspeaker using navigation coordinates (azimuth/elevation/distance)
/speaker/[index]/ade [number][number][number] : set the position of the i-th loudspeaker using navigation coordinates (azimuth/distance/elevation)
/speaker/[index]/xyz [number][number][number] : set the position of the i-th loudspeaker using cartesian coordinates
/speaker/[index]/xy [number][number] : set the xy-coordinate of the i-th loudspeaker, and use default z (=0)
/speaker/[index]/ae [number][number] : set the azimuth/elevation of the i-th loudspeaker, using default distance (=1)
/speaker/[index]/az [number] : set the azimuth of the i-th loudspeaker, using default distance (=1) and elevation (=0)
/speaker/[index]/tofront : bring the i-th speaker to the front of its siblings
/speaker/[index]/toback : bring the i-th speaker to the back of its siblings
/speaker/[index]/tofront [boolean] : bring the i-th speaker to the front or back of its siblings
/speaker/[index]/image [string] : set the image file (svg, jpg, png, etc.) to use for the i-th speaker
/speaker/[index]/image/clear : use the default image for the i-th speaker
/speakers/level [nnnn...] : set the vumeter levels (in dB) for all speakers
/speakers/visible [bbbb...] : set the visibility for all speakers
/stereo/number [int] : set the number of stereo pairs
/stereo/[index]/visible [boolean] : set the visibility of the i-th stereo pair
/stereo/[index]/editable [boolean] : set the editability of the i-th stereo pair
/stereo/[index]/select [boolean] : select the i-th stereo pair
/stereo/[index]/color [color] : set the color of the i-th stereo pair
/stereo/[index]/proportion [number] : set the proportion the i-th stereo pair
/stereo/[index]/constraint/circular [boolean] : set the circular constraints for the i-th stereo pair
/stereo/[index]/label [string] : set the label for the i-th stereo pair
/stereo/[index]/label/visible [boolean] : set the visibility for the label for the i-th stereo pair
/stereo/[index]/label/color [color] : set the color for the label for the i-th stereo pair
/stereo/[index]/label/justification [string] : set the text justification for the label for the i-th stereo pair
/stereo/[index]/vumeter/visible [boolean] : set the visibility for the vumeter for the i-th stereo pair
/stereo/[index]/level [number] : set the vumeter level (in dB) for the i-th stereo pair
/stereo/[index]/xyz [number][number][number] : set the position of the i-th stereo pair
/stereo/[index]/xy [number][number] : set the position of the i-th stereo pair
/stereo/[index]/x [number] : set the position of the i-th stereo pair
/stereo/[index]/y [number] : set the position of the i-th stereo pair
/stereo/[index]/z [number] : set the position of the i-th stereo pair
/stereo/[index]/aed [number][number][number] : set the position of the i-th stereo pair
/stereo/[index]/ade [number][number][number] : set the position of the i-th stereo pair
/stereo/[index]/ae [number][number] : set the position of the i-th stereo pair
/stereo/[index]/ad [number][number][number] : set the position of the i-th stereo pair
/stereo/[index]/az [number] : set the position of the i-th stereo pair
/stereo/[index]/azim [number] : set the position of the i-th stereo pair
/stereo/[index]/elev [number] : set the position of the i-th stereo pair
/stereo/[index]/dist [number] : set the position of the i-th stereo pair
/stereo/[index]/azim++ [number] : set the position of the i-th stereo pair
/stereo/[index]/elev++ [number] : set the position of the i-th stereo pair
/stereo/[index]/dist++ [number] : set the position of the i-th stereo pair
/stereo/[index]/dist*= [number] : set the position of the i-th stereo pair

```

```

/stereo/[index]/aperture [number] : set the aperture of the i-th stereo pair
/stereo/[index]/aperture/visible [boolean] : set the visibility for the aperture of the i-th stereo pair
/stereo/[index]/aperture/color [color] : set the color for the aperture of the i-th stereo pair
/stereo/[index]/yaw/mode [string] : set the yaw mode of the i-th stereo pair
/stereo/[index]/yaw [number] : set the yaw angle (in deg) of the i-th stereo pair, using Euler zyx convention
/stereo/[index]/pitch [number] : set the pitch angle (in deg) of the i-th stereo pair, using Euler zyx convention
/stereo/[index]/roll [number] : set the roll angle (in deg) of the i-th stereo pair, using Euler zyx convention
/stereo/[index]/orientation [number][number][number][number] : set the orientation quaternion (xyzw) of the i-th stereo pair
/stereos/level [nnnn...] : set the vumeter levels (in dB) for all stereo pairs
/listener/visible [boolean] : set the visibility of the listener
/listener/editable [boolean] : set the listener editable
/listener/headphones/visible [boolean] : set the visibility of the headphones
/listener/orientation [quaternion] : set the orientation of the listener
/listener/proportion [number] : set the display proportion of the listener
/listener/select [boolean] : select/unselect the listener
/listener/aed [number][number][number] : set the listener position (azimuth/elevation/distance)
/hoa/number [int] : set the number of HOA fields
/hoa/[index]/yaw [number] : set the yaw angle of the i-th HOA field
/background/color [color] : set the window background color
/backgroundimage/file [string] : set the background image (png, jpg, etc.)
/backgroundimage/visible [boolean] : set the visibility of the background image
/backgroundimage/opacity [number] : set the opacity of the background image
/backgroundimage/scale [number] : set the scale factor of the background image
/backgroundimage/angle [number] : set the rotation angle of the background image
/backgroundimage/offset/x [number] : set the x translation offset of the background image
/backgroundimage/offset/y [number] : set the y translation offset of the background image
/backgroundimage/offset/xy [number][number] : set the x/y translation offset of the background image
/backgroundimage/quality [string] : set the resampling quality of the background image (low, medium, high)
/display/zoom [number] : set the display zoom factor (/display/offset/x [number] : set the display x translation offset (in pixels)
/display/offset/y [number] : set the display y translation offset (in pixels)
/display/offset/z [number] : set the display z translation offset (in pixels)
/display/offset/xy [number][number] : set the display x/y translation offsets (in pixels)
/display/offset/xyz [number][number][number] : set the display x/y/z translation offsets (in pixels)
/display/zoom/lock [boolean] : enable/disable zooming with the mouse wheel
/axis/visible [boolean] : set the visibility of the axis
/axis/color [color] : set the axis color
/axis/label/visible [boolean] : set the visibility of the axis label
/axis/origin/visible [boolean] : set the visibility of the axis origin
/axis/thickness [number] : set line thickness
/grid/visible [boolean] : set the visibility of the grid
/grid/mode [string] : set the grid mode. Possible values: none, circular, cartesian
/grid/spacing [number] : set the spacing between grid lines (in meters)
/grid/line/number [number] : set the number of grid lines
/grid/angulardivisions/number [number] : set the number of angular divisions
/grid/angulardivisions/visible [boolean] : set the visibility of angular divisions
/grid/dashed [boolean] : set the line style
/grid/color [color] : set the line color
/grid/thickness [number] : set line thickness
/legend/visible [boolean] : set the visibility of the legend
/legend/color [color] : set the legend color
/legend/unit [string] : set distance unit
/emphasis/source [boolean] : emphasize sources when mouse in proximity
/emphasis/speaker [boolean] : emphasize speakers when mouse in proximity
/emphasis/microphone [boolean] : emphasize microphones when mouse in proximity
/ruler/visible [boolean] : set the visibility of the ruler
/ruler/color [color] : set the ruler color
/area/number [int] : set the number of areas
/area/[index]/vertex/number [int] : set the number of vertex for the i-th area
/area/[index]/vertex/[index]/xy [number][number] : set position of the j-th vertex of the i-th area
/area/[index]/vertex/[index]/xyz [number][number][number] : set position of the j-th vertex of the i-th area
/area/[index]/vertex/[index]/aed [number][number][number] : set position of the j-th vertex of the i-th area
/area/[index]/visible [boolean] : set visibility for the i-th area
/area/[index]/color [color] : set color for the i-th area
/area/[index]/name [string] : set name for the i-th area
/speakerhull/color [color] : set the hull color
/speakerhull/visible [boolean] : set the visibility of the hull
/speakerhull/fill/color [color] : set the hull interior color
/speakerhull/fill [boolean] : fill the hull
/layout [string] : set the window layout. Possible values: single, leftright, topbottom, automatic

```

see also

- spat5.spat~
- spat5.viewer
- spat5.ircamverb
- spat5.hlshef
- spat5.oper_
- spat5.ircamverb
- spat5.panoramix
- spat5.trajectories

spat5.oper_ Convert high-level (perceptual) messages to low-level

description

spat5.oper_ converts high-level (perceptual) messages from **spat5.oper** to low-level (DSP) messages. This is similar to **spat5.oper** left-most outlet.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character `"`). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@internals [int]

The `internals` attribute represents the number of internal channels of the artificial reverberator.

Spat uses a Feedback Delay Network (FDN) reverberator engine.

Basically this can be seen as an array of delay lines which are fed back into a mixing matrix. The `internals` attributes represents the size of the feedback matrix.

Choosing the size of this matrix is a trade-off between CPU consumption and the echo density.

Increasing the size of the matrix will generate a densier reverb tail at the expense of a higher CPU load.

A typical value of 8 is a good compromise between CPU load and natural sounding reverb. A value of 16 may be useful especially when dealing with a very long reverberation time or with very percussive sound (where a smaller FDN might sometimes sounds too poor).

It is recommended not to use a value below 6.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. '\n')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
```

`/snapshot/[index]/copytoclipboard` : copy the i-th snapshot to (the OS) clipboard
`/snapshot/[index]/copytoclipboard [string]` : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
`/snapshot/[index]/export [string]` : export the i-th snapshot to file
`/snapshot/[index]/export/content [string]` : export the content of the i-th snapshot to file
`/snapshot/export [string]` : export all snapshots to file
`/snapshot/import [string]` : import all snapshots from file

see also

- `spat5.oper`
- `spat5.spat~`

spat5.osc.append

Append arguments to the end of the OSC address

description

spat5.osc.append appends arguments to the end of the OSC address.

attributes

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int] [int] [number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string] [string] [number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file
```

see also

- spat5.osc.prepend
- spat5.osc.route
- spat5.osc.routeypass
- prepend
- append
- spat5.osc.split
- spat5.osc.unslashify
- spat5.osc.trim

- spat5.osc.ignore
- route
- routepass
- spat5.osc.print

spat5.osc.change

Filter out repetitions of OSC messages

description

spat5.osc.change is similar to Max **change** object; it operates on the incoming OSC messages.

attributes

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int] [int] [number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string] [string] [number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file
```

see also

- spat5.osc.route
- spat5.osc.routepass
- spat5.osc.prepend
- spat5.osc.append
- spat5.osc.flip
- spat5.osc.unslashify
- spat5.osc.trim
- route

- routepass
- spat5.osc.view
- spat5.osc.print
- spat5.osc.iter

spat5.osc.chunk

Split an OSC bundle into smaller chunks.

description

spat5.osc.chunk splits an OSC bundle into smaller chunks, with a given max size (in bytes). Can be useful for UDP transmission.

attributes

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int] [int] [number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string] [string] [number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file
```

see also

- spat5.osc.iter
- spat5.osc.size
- spat5.osc.collect
- spat5.osc.view
- spat5.osc.todict
- spat5.osc.fromdict
- spat5.osc.split
- spat5.osc.route

- spat5.osc.routepass
- spat5.osc.prepend
- spat5.osc.append
- spat5.osc.unslashify
- spat5.osc.flip
- spat5.osc.ignore
- route
- routepass
- spat5.osc.print

spat5.osc.collect

Collects OSC messages to be bundled together

description

spat5.osc.collect collects OSC messages to be bundled together.

attributes

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int] [int] [number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string] [string] [number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- spat5.osc.view
- spat5.osc.iter
- spat5.osc.todict
- spat5.osc.fromdict
- dict
- dict.view
- spat5.osc.var
- spat5.osc.split

- spat5.osc.route
- spat5.osc.routepass
- spat5.osc.prepend
- spat5.osc.append
- spat5.osc.unslashify
- spat5.osc.flip
- spat5.osc.ignore
- route
- routepass
- spat5.osc.speedlim
- spat5.osc.queue

spat5.osc.flip Flip OSC patterns

description

spat5.osc.flip flips the OSC pattern of incoming messages or bundles.

attributes

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- spat5.osc.split
- spat5.osc.route
- spat5.osc.routeypass
- spat5.osc.prepend
- spat5.osc.append
- spat5.osc.unslashify
- spat5.osc.trim
- spat5.osc.ignore

- route
- routepass
- spat5.osc.print

spat5.osc.fromdict

Convert dictionary to OSC messages or bundles

description

spat5.osc.fromdict dictionary to OSC messages or bundles.

attributes

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int] [int] [number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string] [string] [number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file
```

see also

- spat5.osc.todict
- dict
- dict.view
- spat5.osc.view
- spat5.osc.collect
- spat5.osc.var
- spat5.osc.split
- spat5.osc.route

- spat5.osc.routepass
- spat5.osc.prepend
- spat5.osc.append
- spat5.osc.unslashify
- spat5.osc.flip
- spat5.osc.ignore
- route
- routepass

spat5.osc.ignore

Route OSC messages or bundles

description

spat5.osc.ignore filters out OSC messages that match an OSC address pattern. It is somehow the opposite of `spat5.osc.routepass`.

attributes

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int] [int] [number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string] [string] [number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file
```

see also

- `spat5.osc.routepass`
- `spat5.osc.route`
- `route`
- `routepass`
- `spat5.osc.append`
- `prepend`
- `append`
- `spat5.osc.split`

- `spat5.osc.unslashify`
- `spat5.osc.trim`
- `spat5.osc.print`

spat5.osc.interpolate

Interpolate between OSC bundles/messages

description

spat5.osc.interpolate performs linear interpolation between two OSC bundles.messages.

attributes

@filterout []

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

`/post/version` : print the version in the Max Console
`/post/version [details]` : print detailed version in the Max Console
`/post/doc` : print the help documentation in the Max Console
`/post/state` : print the OSC status in the Max Console
`/preset/load [string]` : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
`/preset/load` : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format.
`/preset/export [string]` : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
`/preset/export` : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format.
`/status` : open the status window and bring it to front
`/status/open` : open the status window and bring it to front
`/status/close` : close the status window
`/status/openorclose` : open the status window if it was closed; close it if it was opened
`/status/font/size [number]` : set the font size of the status window
`/status/floating [boolean]` : make the status window 'floating' (i.e. always on top of other windows)
`/help` : open the help window and bring it to front
`/help/open` : open the help window and bring it to front
`/help/close` : close the help window
`/help/openorclose` : open the help window if it was closed; close it if it was opened
`/help/font/size [number]` : set the font size of the help window
`/help/floating [boolean]` : make the help window 'floating' (i.e. always on top of other windows)
`/snapshot` : open the snapshot window and bring it to front
`/snapshot/open` : open the snapshot window and bring it to front
`/snapshot/close` : close the snapshot window
`/snapshot/openorclose` : open the snapshot window if it was closed; close it if it was opened
`/snapshot/font/size [number]` : set the font size of the snapshot window
`/snapshot/floating [boolean]` : make the snapshot window 'floating' (i.e. always on top of other windows)
`/status/copytoclipboard` : copy the status to (the OS) clipboard
`/status/copytoclipboard [string]` : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
`/dump` : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
`/dump [string]` : dump a subset of the state of the object over the rightmost outlet. See `spat5.tuto-dump-1.maxpat` for usage examples.
`/snapshot/clear` : delete all the snapshots currently in memory
`/snapshot/add` : create a new snapshot with the current state
`/snapshot/add [string]` : create a new snapshot with the current state, and set its name
`/snapshot/[index]/store` : store the current state in the i-th snapshot (in memory)
`/snapshot/[index]/recall` : recall the current state from the i-th snapshot
`/snapshot/[index]/name [string]` : set the name of the i-th snapshot
`/snapshot/interpolate [int][int][number]` : interpolate between the i-th and j-th snapshots
`/snapshot/interpolate [string][string][number]` : interpolate between two snapshots, given their names
`/snapshot/[index]/delete` : delete the i-th snapshot
`/snapshot/[index]/copytoclipboard` : copy the i-th snapshot to (the OS) clipboard
`/snapshot/[index]/copytoclipboard [string]` : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
`/snapshot/[index]/export [string]` : export the i-th snapshot to file
`/snapshot/[index]/export/content [string]` : export the content of the i-th snapshot to file
`/snapshot/export [string]` : export all snapshots to file
`/snapshot/import [string]` : import all snapshots from file

see also

- `spat5.osc.collect`
- `spat5.osc.queue`
- `spat5.osc.route`
- `spat5.osc.routepass`
- `spat5.osc.prepend`
- `spat5.osc.append`

- spat5.osc.flip
- spat5.osc.unslashify
- spat5.osc.trim
- route
- routepass
- spat5.osc.view
- spat5.osc.print
- spat5.osc.iter

spat5.osc.iter Iterate over each each messages of an OSC bundle

description

spat5.osc.iter iterates over each each messages of an OSC bundle.

attributes

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for
human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is
inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for
human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for
human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the
destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll'
for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int] [int] [number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string] [string] [number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- spat5.osc.collect
- spat5.osc.view
- spat5.osc.todict
- spat5.osc.fromdict
- spat5.osc.split
- spat5.osc.route
- spat5.osc.routepass
- spat5.osc.prepend

- spat5.osc.append
- spat5.osc.unslashify
- spat5.osc.flip
- spat5.osc.ignore
- route
- routepass
- spat5.osc.print

spat5.osc.pak

Concatenate OSC packets together

description

spat5.osc.pak is similar to pak for OSC packets (messages or bundles).

attributes

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int] [int] [number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string] [string] [number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file
```

see also

- spat5.osc.pak
- spat5.osc.view
- spat5.osc.var
- spat5.osc.split
- spat5.osc.route
- spat5.osc.routepass
- spat5.osc.prepend
- spat5.osc.append

spat5.osc.pak Concatenate OSC packets together

description

spat5.osc.pak is similar to pak for OSC packets (messages or bundles).

attributes

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int] [int] [number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string] [string] [number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file
```

see also

- spat5.osc.pak
- spat5.osc.view
- spat5.osc.var
- spat5.osc.split
- spat5.osc.route
- spat5.osc.routepass
- spat5.osc.prepend
- spat5.osc.append

spat5.osc.play~

Playback time-stamped OSC messages

description

spat5.osc.play~ delivers time-stamped OSC messages.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

`/dsp/mute [boolean]` : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied without ramping/crossfade, so this might generate clicks

`/dsp/bypass [boolean]` : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied without ramping/crossfade, so this might generate clicks

`/dsp/automute [boolean]` : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)

`/dsp/automute/attack [number]` : set the duration (in seconds) before auto-muting

`/dsp/post` : post various information to the Max console (audio should be turned on)

`/dsp/clear` : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up

`/dump/dsp/latency` : send the processor latency (in samples) through the dump outlet

`/verbose [string]` : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed

`/post/version` : print the version in the Max Console

`/post/version [details]` : print detailed version in the Max Console

`/post/doc` : print the help documentation in the Max Console

`/post/state` : print the OSC status in the Max Console

`/preset/load [string]` : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.

`/preset/load` : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format.

`/preset/export [string]` : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)

`/preset/export` : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format.

`/status` : open the status window and bring it to front

`/status/open` : open the status window and bring it to front

`/status/close` : close the status window

`/status/openorclose` : open the status window if it was closed; close it if it was opened

`/status/font/size [number]` : set the font size of the status window

`/status/floating [boolean]` : make the status window 'floating' (i.e. always on top of other windows)

`/help` : open the help window and bring it to front

`/help/open` : open the help window and bring it to front

`/help/close` : close the help window

`/help/openorclose` : open the help window if it was closed; close it if it was opened

`/help/font/size [number]` : set the font size of the help window

`/help/floating [boolean]` : make the help window 'floating' (i.e. always on top of other windows)

`/snapshot` : open the snapshot window and bring it to front

`/snapshot/open` : open the snapshot window and bring it to front

`/snapshot/close` : close the snapshot window

`/snapshot/openorclose` : open the snapshot window if it was closed; close it if it was opened

`/snapshot/font/size [number]` : set the font size of the snapshot window

`/snapshot/floating [boolean]` : make the snapshot window 'floating' (i.e. always on top of other windows)

`/status/copytoclipboard` : copy the status to (the OS) clipboard

`/status/copytoclipboard [string]` : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')

`/dump` : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)

`/dump [string]` : dump a subset of the state of the object over the rightmost outlet. See `spat5.tuto-dump-1.maxpat` for usage examples.

`/snapshot/clear` : delete all the snapshots currently in memory

`/snapshot/add` : create a new snapshot with the current state

`/snapshot/add [string]` : create a new snapshot with the current state, and set its name

`/snapshot/[index]/store` : store the current state in the i-th snapshot (in memory)

`/snapshot/[index]/recall` : recall the current state from the i-th snapshot
`/snapshot/[index]/name [string]` : set the name of the i-th snapshot
`/snapshot/interpolate [int][int][number]` : interpolate between the i-th and j-th snapshots
`/snapshot/interpolate [string][string][number]` : interpolate between two snapshots, given their names
`/snapshot/[index]/delete` : delete the i-th snapshot
`/snapshot/[index]/copytoclipboard` : copy the i-th snapshot to (the OS) clipboard
`/snapshot/[index]/copytoclipboard [string]` : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
`/snapshot/[index]/export [string]` : export the i-th snapshot to file
`/snapshot/[index]/export/content [string]` : export the content of the i-th snapshot to file
`/snapshot/export [string]` : export all snapshots to file
`/snapshot/import [string]` : import all snapshots from file

see also

- `spat5.osc.record~`
- `spat5.osc.view`

spat5.osc.prepend

Add arguments in front of the OSC address

description

spat5.osc.prepend adds arguments in front of the OSC address.

attributes

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int] [int] [number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string] [string] [number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file
```

see also

- spat5.osc.append
- spat5.osc.route
- spat5.osc.routeypass
- prepend
- append
- spat5.osc.split
- spat5.osc.unslashify
- spat5.osc.trim

- spat5.osc.ignore
- route
- routepass
- spat5.osc.print

spat5.osc.print Print OSC messages or bundle

description

spat5.osc.print prints OSC messages or bundles in the Max console.

attributes

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

@timetag []

methods

```

/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- `print`
- `spat5.osc.collect`
- `spat5.osc.view`
- `spat5.osc.todict`
- `spat5.osc.fromdict`
- `spat5.osc.split`

- spat5.osc.route
- spat5.osc.routepass
- spat5.osc.prepend
- spat5.osc.append
- spat5.osc.unslashify
- spat5.osc.flip
- spat5.osc.ignore
- route
- routepass

spat5.osc.queue FIFO OSC queue

description

spat5.osc.queue acts as a FIFO (first-in first-out) queue of OSC messages or bundles.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- `spat5.osc.var`

- spat5.osc.collect
- spat5.osc.view
- spat5.osc.speedlim
- spat5.osc.todict
- spat5.osc.fromdict
- spat5.osc.split
- spat5.osc.route
- spat5.osc.routepass
- spat5.osc.prepend
- spat5.osc.append
- spat5.osc.unslashify
- spat5.osc.flip
- spat5.osc.ignore
- route
- routepass
- spat5.osc.print

spat5.osc.record~

Record time-stamped OSC messages

description

spat5.osc.record~ records time-stamped OSC messages.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

`/dsp/mute [boolean]` : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied without ramping/crossfade, so this might generate clicks

`/dsp/bypass [boolean]` : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied without ramping/crossfade, so this might generate clicks

`/dsp/automute [boolean]` : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)

`/dsp/automute/attack [number]` : set the duration (in seconds) before auto-muting

`/dsp/post` : post various information to the Max console (audio should be turned on)

`/dsp/clear` : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up

`/dump/dsp/latency` : send the processor latency (in samples) through the dump outlet

`/verbose [string]` : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed

`/post/version` : print the version in the Max Console

`/post/version [details]` : print detailed version in the Max Console

`/post/doc` : print the help documentation in the Max Console

`/post/state` : print the OSC status in the Max Console

`/preset/load [string]` : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.

`/preset/load` : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format.

`/preset/export [string]` : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)

`/preset/export` : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format.

`/status` : open the status window and bring it to front

`/status/open` : open the status window and bring it to front

`/status/close` : close the status window

`/status/openorclose` : open the status window if it was closed; close it if it was opened

`/status/font/size [number]` : set the font size of the status window

`/status/floating [boolean]` : make the status window 'floating' (i.e. always on top of other windows)

`/help` : open the help window and bring it to front

`/help/open` : open the help window and bring it to front

`/help/close` : close the help window

`/help/openorclose` : open the help window if it was closed; close it if it was opened

`/help/font/size [number]` : set the font size of the help window

`/help/floating [boolean]` : make the help window 'floating' (i.e. always on top of other windows)

`/snapshot` : open the snapshot window and bring it to front

`/snapshot/open` : open the snapshot window and bring it to front

`/snapshot/close` : close the snapshot window

`/snapshot/openorclose` : open the snapshot window if it was closed; close it if it was opened

`/snapshot/font/size [number]` : set the font size of the snapshot window

`/snapshot/floating [boolean]` : make the snapshot window 'floating' (i.e. always on top of other windows)

`/status/copytoclipboard` : copy the status to (the OS) clipboard

`/status/copytoclipboard [string]` : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')

`/dump` : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)

`/dump [string]` : dump a subset of the state of the object over the rightmost outlet. See `spat5.tuto-dump-1.maxpat` for usage examples.

`/snapshot/clear` : delete all the snapshots currently in memory

`/snapshot/add` : create a new snapshot with the current state

`/snapshot/add [string]` : create a new snapshot with the current state, and set its name

`/snapshot/[index]/store` : store the current state in the i-th snapshot (in memory)

`/snapshot/[index]/recall` : recall the current state from the i-th snapshot
`/snapshot/[index]/name [string]` : set the name of the i-th snapshot
`/snapshot/interpolate [int][int][number]` : interpolate between the i-th and j-th snapshots
`/snapshot/interpolate [string][string][number]` : interpolate between two snapshots, given their names
`/snapshot/[index]/delete` : delete the i-th snapshot
`/snapshot/[index]/copytoclipboard` : copy the i-th snapshot to (the OS) clipboard
`/snapshot/[index]/copytoclipboard [string]` : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
`/snapshot/[index]/export [string]` : export the i-th snapshot to file
`/snapshot/[index]/export/content [string]` : export the content of the i-th snapshot to file
`/snapshot/export [string]` : export all snapshots to file
`/snapshot/import [string]` : import all snapshots from file

see also

- `spat5.osc.play~`
- `spat5.osc.view`

spat5.osc.replace

Replace OSC address

description

spat5.osc.replace is similar to **spat5.osc.route** followed by **spat5.osc.prepend**.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

@tautological []

methods

```

/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for
human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is
inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for
human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for
human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the
destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll'
for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- `spat5.osc.route`
- `spat5.osc.routepass`
- `spat5.osc.prepend`
- `spat5.osc.append`
- `spat5.osc.flip`
- `spat5.osc.unslashify`
- `spat5.osc.trim`
- `route`
- `routepass`
- `spat5.osc.view`
- `spat5.osc.print`
- `spat5.osc.iter`

spat5.osc.route Route OSC messages or bundles

description

spat5.osc.route tries to match an OSC address pattern, and accordingly dispatches to the proper outlet. It is quite similar to CNMAT OSC-Route object.

attributes

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file
```

see also

- spat5.osc.routepass
- route
- routepass
- spat5.osc.ignore
- spat5.osc.append
- prepend
- append
- spat5.osc.split

- `spat5.osc.unslashify`
- `spat5.osc.trim`
- `spat5.osc.print`

spat5.osc.routepass

Route OSC messages or bundles

description

spat5.osc.routepass tries to match an OSC address pattern, and accordingly dispatches to the proper outlet. It is quite similar to CNMAT OSC-Route object.

attributes

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file
```

see also

- spat5.osc.route
- route
- routepass
- spat5.osc.ignore
- spat5.osc.append
- prepend
- append
- spat5.osc.split

- `spat5.osc.unslashify`
- `spat5.osc.trim`
- `spat5.osc.print`

spat5.osc.size Report the size of an OSC message or bundle

description

spat5.osc.size reports the size of an OSC message or bundle.

attributes

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- spat5.osc.collect
- spat5.osc.iter
- spat5.osc.view
- spat5.osc.todict
- spat5.osc.fromdict
- spat5.osc.split
- spat5.osc.route
- spat5.osc.routepass

- spat5.osc.prepend
- spat5.osc.append
- spat5.osc.unslashify
- spat5.osc.flip
- spat5.osc.ignore
- route
- routepass
- spat5.osc.print

spat5.osc.slashify

Convert Max messages to OSC

description

spat5.osc.slashify tries to convert standard Max message into OSC message.

attributes

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- spat5.osc.unslashify
- print
- spat5.osc.collect
- spat5.osc.view
- spat5.osc.todict
- spat5.osc.fromdict
- spat5.osc.split
- spat5.osc.route

- spat5.osc.routePASS
- spat5.osc.prepend
- spat5.osc.append
- spat5.osc.flip
- spat5.osc.ignore
- route
- routePASS

spat5.osc.speedlim

Limit the speed of OSC messages throughput

description

spat5.osc.speedlim is similar to **Max speedlim**; it limits the speed OSC messages throughput.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

@rate []

methods

```

/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- `spat5.osc.collect`
- `spat5.osc.queue`
- `spat5.osc.route`
- `spat5.osc.routepass`
- `spat5.osc.prepend`
- `spat5.osc.append`
- `spat5.osc.flip`
- `spat5.osc.unslashify`
- `spat5.osc.trim`
- `route`
- `routepass`
- `spat5.osc.view`
- `spat5.osc.print`
- `spat5.osc.iter`

spat5.osc.split

Split OSC messages

description

spat5.osc.split splits OSC messages into lists.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- [spat5.osc.iter](#)

- spat5.osc.view
- spat5.osc.route
- spat5.osc.routepass
- spat5.osc.prepend
- spat5.osc.append
- spat5.osc.flip
- spat5.osc.unslashify
- spat5.osc.trim
- route
- routepass
- spat5.osc.print

spat5.osc.todict

Convert OSC messages or bundles to dictionary

description

spat5.osc.todict converts OSC messages or bundles to dictionary.

attributes

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int] [int] [number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string] [string] [number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file
```

see also

- spat5.osc.fromdict
- dict
- dict.view
- spat5.osc.collect
- spat5.osc.var
- spat5.osc.split
- spat5.osc.route
- spat5.osc.routepass

- spat5.osc.prepend
- spat5.osc.append
- spat5.osc.unslashify
- spat5.osc.flip
- spat5.osc.ignore
- route
- routepass

spat5.osc.trim Trim OSC patterns

description

spat5.osc.trim trims the first (or last) patterns of the OSC address of incoming messages or bundles.

attributes

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- spat5.osc.split
- spat5.osc.route
- spat5.osc.routepass
- spat5.osc.prepend
- spat5.osc.append
- spat5.osc.unslashify
- spat5.osc.flip
- spat5.osc.ignore

- route
- routepass
- spat5.osc.print

spat5.osc.udpreceive

Receive OSC messages or bundles from UDP

description

spat5.osc.udpreceive receives OSC messages or bundles over UDP. **spat5.osc.udpreceive** is quite similar to the **udpreceive** object; however it only receives OSC messages or bundles (FullPacket). NB: you should not use multiple instances of the object with the same port number.

attributes

@parameter_enable [boolean]

The **parameter_enable** attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

@port [int]

Port number.

@quiet []

methods

```
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file
```

see also

- [udpsend](#)

- udpreceive
- spat5.osc.udpsend
- spat5.osc.fromdict
- dict
- dict.view
- spat5.osc.collect
- spat5.osc.var
- spat5.osc.split
- spat5.osc.route
- spat5.osc.routePASS
- spat5.osc.prepend
- spat5.osc.append
- spat5.osc.unslashify
- spat5.osc.flip
- spat5.osc.ignore
- route
- routePASS

spat5.osc.udpsend

Transmit OSC messages or bundles over UDP

description

spat5.osc.udpsend transmits OSC messages or bundles over UDP. **spat5.osc.udpsend** is quite similar to the **udpsend** object; however it only transmits OSC messages or bundles (FullPacket).

attributes

@ip [string]

IP address.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

@port [int]

Port number.

methods

```

/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for
human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is
inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for
human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for
human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the
destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll'
for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- `udpsend`
- `udpreceive`
- `spat5.osc.udpreceive`
- `spat5.osc.fromdict`
- `dict`
- `dict.view`
- `spat5.osc.collect`
- `spat5.osc.var`
- `spat5.osc.split`
- `spat5.osc.route`
- `spat5.osc.routepass`
- `spat5.osc.prepend`
- `spat5.osc.append`
- `spat5.osc.unslashify`
- `spat5.osc.flip`
- `spat5.osc.ignore`
- `route`
- `routepass`

spat5.osc.unique Remove duplicated address pattern in OSC bundle

description

spat5.osc.unique makes sure address pattern are uniquely represented inside an OSC bundle.

attributes

@mode [string]

The `mode` attribute is used to specify the "input type" of each source. `spat5.spat~` supports mono and stereo input sources.

Note that the `mode` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

Possible syntax:

@mode "mono" : all sources are mono (default)

@mode "stereo" : all sources are stereo

@mode "mono mono stereo" : a list of modes for each of the 3 sources

You can also use the shorthand notation : @mode "m m s"

@mode "mono 2 stereo 1" : 2 mono sources, followed by 1 stereo source

You can also use the shorthand notation : @mode "m 2 s 1"

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

/post/version : print the version in the Max Console

/post/version [details] : print detailed version in the Max Console

/post/doc : print the help documentation in the Max Console

/post/state : print the OSC status in the Max Console

/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.

/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.

/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)

/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.

/status : open the status window and bring it to front

/status/open : open the status window and bring it to front

/status/close : close the status window

/status/openorclose : open the status window if it was closed; close it if it was opened

/status/font/size [number] : set the font size of the status window

/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)

/help : open the help window and bring it to front

/help/open : open the help window and bring it to front

/help/close : close the help window

/help/openorclose : open the help window if it was closed; close it if it was opened

/help/font/size [number] : set the font size of the help window

/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)

/snapshot : open the snapshot window and bring it to front

/snapshot/open : open the snapshot window and bring it to front

/snapshot/close : close the snapshot window

/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened

/snapshot/font/size [number] : set the font size of the snapshot window

/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)

/status/copytoclipboard : copy the status to (the OS) clipboard

/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')

/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)

/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.

/snapshot/clear : delete all the snapshots currently in memory

/snapshot/add : create a new snapshot with the current state

/snapshot/add [string] : create a new snapshot with the current state, and set its name

/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)

/snapshot/[index]/recall : recall the current state from the i-th snapshot

/snapshot/[index]/name [string] : set the name of the i-th snapshot

/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots

/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names

/snapshot/[index]/delete : delete the i-th snapshot

/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard

/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')

/snapshot/[index]/export [string] : export the i-th snapshot to file

/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file

/snapshot/export [string] : export all snapshots to file

`/snapshot/import [string]` : import all snapshots from file

see also

- `spat5.osc.collect`
- `spat5.pak`
- `spat5.pack`
- `spat5.osc.split`
- `spat5.osc.route`
- `spat5.osc.routepass`
- `spat5.osc.prepend`
- `spat5.osc.append`
- `spat5.osc.unslashify`
- `spat5.osc.flip`
- `spat5.osc.ignore`
- `route`
- `routepass`
- `spat5.osc.print`

spat5.osc.unslashify

Split OSC address pattern

description

spat5.osc.unslashify converts OSC messages or bundles into traditional Max messages.

attributes

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int] [int] [number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string] [string] [number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- spat5.osc.slashify
- print
- spat5.osc.collect
- spat5.osc.view
- spat5.osc.todict
- spat5.osc.fromdict
- spat5.osc.split
- spat5.osc.route

- spat5.osc.route
- spat5.osc.routeappend
- spat5.osc.routeprepend
- spat5.osc.routeflip
- spat5.osc.routeignore
- route
- routeappend

spat5.osc.var Store OSC messages or bundles

description

spat5.osc.var copies an OSC packet and stores it for later use. The content can further be stored in the patcher, with the `embed` attribute.

attributes

@embed [boolean]

The `embed` attribute allows to store the state of the object within the patcher. The complete state of the object is stored whenever the patcher is saved to disk. Upon loading the patcher or copying the object box, the state is restored.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- [spat5.osc.view](#)
- [spat5.osc.todict](#)
- [spat5.osc.fromdict](#)

- dict
- dict.view
- spat5.osc.collect
- spat5.osc.split
- spat5.osc.route
- spat5.osc.routepass
- spat5.osc.prepend
- spat5.osc.append
- spat5.osc.unslashify
- spat5.osc.flip
- spat5.osc.ignore
- route
- routepass

spat5.pan Control-rate amplitude panning

description

spat5.pan computes and outputs a list of loudspeaker gains (linear gains) based on a given source position. It only works for amplitude panning laws (as opposed to time-difference methods such as AB stereo, binaural, etc.).

Reference(s) :

V. Pulkki. Virtual Sound Source Positioning Using Vector Base Amplitude Panning. Journal of the Audio Engineering Society, 45(6):456 – 466, June 1997.

T. Lossius, P. Balthazar, and T. de la Hogue. DBAP - Distance-Based Amplitude Panning. In Proc. of the International Computer Music Conference (ICMC), Montreal, Canada, 2009.

R. Sadek and C. Kyriakakis. A novel multichannel panning method for standard and arbitrary loudspeaker configurations. In Proc. of the 117th Convention of the Audio Engineering Society (AES), San Francisco, CA, USA, 2004.

J.-M. Pernaux, P. Boussard, and J.-M. Jot. Virtual Sound Source Positioning and Mixing in 5.1 Implementation on the Real-Time System Genesis. In Proc. of the Int Conference on Digital Audio Effects (DAFx), Barcelona, Spain, Nov 19-21, 1998.

J. Daniel. Representation de champs acoustiques, application à la transmission et à la reproduction de scènes sonores complexes dans un contexte multimedia. PhD thesis, Université de Paris VI, 2001.

J. Daniel. Spatial Sound Encoding Including Near Field Effect: Introducing Distance Coding Filters and a Viable, New Ambisonic Format. In Proc of the AES 23rd International Conference, Copenhagen, Denmark, May 2003.

M. Neukom and J. C. Schacher. Ambisonics Equivalent Panning. In Proc. of the International Computer Music Conference (ICMC), Belfast, Ireland, 2008.

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J.-M. Jot, V. Larcher, and J.-M. Pernaux. A comparative study of 3-d audio encoding and rendering techniques. In Proc. of the 16th Audio Engineering Society International Conference on Spatial Sound Reproduction, Rovaniemi, Finland, 1999.

I. I. Bukvic. 3D time-based aural data representation using D4 library's layer based amplitude panning algorithm. Proc. of the 22nd International Conference on Auditory Display (ICAD), Canberra, Australia, July 2016.

M. A. Gerzon. General metatheory of auditory localization. In Proc. of the 92nd Convention of Audio Engineering Society (AES), Vienna, Austria, March 1992.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@inputs [int]

The `inputs` attribute represents the number of input channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or `attrui` or `inspector`), since the number of signal inlets or outlets can not be changed dynamically.

@outputs [int]

The `outputs` attribute represents the number of output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or `attrui` or `inspector`), since the number of signal inlets or outlets can not be changed dynamically.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max `inspector`).

methods

`/panning/type [string]` : set panning type i.e. the type of algorithm used for rendering. A wide variety of panning methods are available, but there may be constraints depending on the number of inputs and/or outputs channels.

- "binaural" : binaural synthesis using HRTF (Head-Related Transfer Functions) filtering, for headphones only.
- "xy" : simulates the recording of the sound scene by a coincident XY couple of microphones (intensity panning), for stereo only.
- "ms" : simulates the recording of the sound scene by a mid-side microphone; this generates the M-S signals, and further requires decoding for L-R compatibility.- "ab" : simulates the recording of the sound scene by an AB couple of microphones (ORTF) i.e. it simulates a pair of spaced cardioid microphones, pointing laterally at azimuths +/- 55 degrees (elevation 0), with a distance of 17 cm between the two capsules; for stereo only.
- "stereopan" : stereo panpot (intensity panning) with various panning laws, for stereo only.
- "angular" : angular panning (intensity panning) for 2-D (horizontal only) loudspeaker setups. "angular" panning is essentially the same as "vbap2d", the main difference is how the panning gains evolve when moving the source from one speaker to another.
- "abap2d" : angle-based amplitude panning : pairwise amplitude panning for 2-D (horizontal only) loudspeaker setups. Provides linear panning vs target azimuth angle.
- "abip2d" : angle-based intensity panning : pairwise intensity panning for 2-D (horizontal only) loudspeaker setups. "abip2d" panning is essentially the same as "vbip2d", the main difference is how the panning gains evolve when moving the source from one speaker to another.
- "vbap2d" : vector base amplitude panning : pairwise amplitude panning for 2-D (horizontal only) loudspeaker setups, with power normalization of the gains.

- "vbap3d" : vector base amplitude panning : amplitude panning for 3-D loudspeaker setups. The underlying algorithm creates a triangulation of the loudspeaker array, and depending on the position of the virtual source, it selects the appropriate loudspeaker triplet.
- "vbip2d" : vector base intensity panning : pairwise intensity panning for 2-D (horizontal only) loudspeaker setups. The geometrical algorithm is similar to "vbap2d", however the speaker signals are normalized with constant intensity (rather than with constant power).
- "vbip3d" : vector base intensity panning : pairwise intensity panning for 3-D loudspeaker setups. The geometrical algorithm is similar to "vbap3d", however the speaker signals are normalized with constant intensity (rather than with constant power).
- "vbap" : vector base amplitude panning : will switch automatically between "vbap3d" or "vbap2d", depending on the loudspeaker setup.
- "vbip" : vector base intensity panning : will switch automatically between "vbip3d" or "vbip2d", depending on the loudspeaker setup.
- "dualbandvbp" : vector base panning : uses vbap for low frequencies and vbip for high frequencies. (either 2-D or 3-D speaker setup)
- "lbap" : layer based amplitude panning : this creates several vertical layers of loudspeakers, and operates each layer as a "vbap2d" setup. If the loudspeaker layout is planar, "lbap" is just the same as "vbap2d".
- "sphericalheadmodel" : binaural synthesis using an approximate spherical head model (Rayleigh) for both ILD and ITD. Elevation is not taken into account.
- "snowmanmodel" : binaural synthesis using an approximate snow-man model for head-and-torso (two spherical models).
- "nearfieldbinaural" : binaural synthesis using HRTF (Head-Related Transfer Functions) filtering, and with compensation (ITD and ILD) of nearfield effects.
- "hoa2d" : 2-D (horizontal only) higher order ambisonic (HOA) encoder.
- "hoa3d" : 3-D higher order ambisonic (HOA) encoder.
- "aep2d" : ambisonic equivalent panning in 2-D (horizontal only) .
- "aep3d" : ambisonic equivalent panning in 3-D.
- "spcap" : speaker-placement correction amplitude panning.
- "nfchoa2d" : 2-D (horizontal only) higher order ambisonic (HOA) encoder with Nearfield Compensation Filters (NFC).
- "nfchoa3d" : 3-D higher order ambisonic (HOA) encoder with Nearfield Compensation Filters (NFC).
- "knn" : K-nearest neighbors panning : applies amplitude panning on the K-nearest loudspeakers to the source. The (maximum) number K of contributing speakers can be specified with the "/source/[index]/neighbors [int]" message. This kind of panning is compatible with arbitrary loudspeaker setup (either 2D or 3D).
- "surround" : LRS or LCRS encoder. Deprecated, don't use it.
- "panr" : legacy panning law from spat v3.x. Deprecated, don't use it. Pair-wise panning over a regular arrangement of loudspeakers on a plane (2-D only).
- "dbap2d" : distance-based amplitude panning on a 2-D (horizontal only) speaker setup (after Trond lossius).
- "dbap3d" : .
- "subwoofers" : combines a lowpass filter and a "vbap2d" panner.
- "wfs" : wavefield synthesis for linear array of loudspeakers.
- "bformat" : legacy Ambisonic B-format amplitude panning. Deprecated, don't use it anymore; use "hoa2d" or "hoa3d" instead.
- "laap" : amplitude/intensity panning on a linear array of loudspeakers. Experimental prototype, don't use it.

. Possible values: binaural, xy, ms, ab, stereopan, surround, panr, angular, abap2d, abip2d, dbap3d, dbap2d, vbap, vbip, vbap3d, vbip3d, vbap2d, vbap2damp, vbip2d, dualbandvbp, bformat, hoa2d, hoa3d, nfchoa3d, nfchoa2d, spcap, csp, knn, aep2d, aep3d, subwoofers, wfs, lbap, laap, sphericalheadmodel, snowmanmodel, nearfieldbinaural

```

/panning/subtype [string] : set panning subtype
/source/[index]/mute [boolean] : mute/unmute the i-th source
/source/[index]/xyz [number][number][number] : set the position of the i-th source using cartesian coordinates
/source/[index]/aed [number][number][number] : set the position of the i-th source using navigation coordinates (azimuth/elevation/distance)
/source/[index]/xy [number][number] : set the xy-coordinate of the i-th source, and use default z (=0)
/source/[index]/az [number] : set the azimuth of the i-th source, using default distance (=1) and elevation (=0)
/source/[index]/x [number][number] : set the x-coordinate of the i-th source, and keep y and z unchanged
/source/[index]/y [number][number] : set the y-coordinate of the i-th source, and keep x and z unchanged
/source/[index]/z [number][number] : set the z-coordinate of the i-th source, and keep x and y unchanged
/source/[index]/ade [number][number][number] : set the position of the i-th source using navigation coordinates (azimuth/distance/elevation)
/source/[index]/ae [number][number] : set the azimuth/elevation of the i-th source, using default distance (=1)
/source/[index]/ad [number][number] : set the azimuth/distance of the i-th source, using default elevation (=0)
/source/[index]/azim [number] : set the azimuth of the i-th source. Elevation and distance remain unchanged
/source/[index]/elev [number] : set the elevation of the i-th source. Azimuth and distance remain unchanged
/source/[index]/dist [number] : set the distance of the i-th source. Azimuth and elevation remain unchanged
/source/[index]/azimelev [number][number] : set the azimuth and elevation of the i-th source. Distance remains unchanged
/source/[index]/azimdist [number][number] : set the azimuth and distance of the i-th source. Elevation remains unchanged
/sources/aed [nnnn...] : set the list of source coordinates (with aed format)
/sources/xyz [nnnn...] : set the list of source coordinates (with xyz format)
/sources/ade [nnnn...] : set the list of source coordinates (with ade format)
/sources/xy [nnnn...] : set the list of source coordinates (with xy format)
/sources/ae [nnnn...] : set the list of source coordinates (with ae format)
/source/[index]/spread/omni [number] : set omni spread (in /source/[index]/spread/law [string] : set spread law for the i-th source
/source/[index]/spread/mode [number] : set spread mode for the i-th source
/source/[index]/divergence [boolean] : enable/disable divergence for the i-th source
/source/[index]/divergence/radius [number] : set minimum radius (in meters) for divergence for the i-th source
/ramp/time [number] : set ramp time (in msec) for gain smoothing
/format [string] : set coordinate format used in the status window
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front

```



```
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file
```

see also

- spat5.pan~
- spat5.pansig~
- spat5.spat~
- matrix~
- spat5.viewer
- spat5.trajectories
- spat5.panner.metrics

spat5.panoramix 3D mixing and post-production workstation

description

spat5.panoramix is a control interface for **spat5.panoramix~**. Designed as a virtual console, it provides a comprehensive environment for combining channel-, scene-, and object-based audio. The incoming streams are mixed in a flexible bus architecture which tightly couples sound spatialization with reverberation effects. The application supports a broad range of rendering techniques (VBAP, HOA, binaural, etc.) and it is remotely controllable via the Open Sound Control (OSC) protocol.

Reference(s) :

T. Carpentier and C. Cornuau. panoramix: station de mixage et post-production 3D. In Proc. of Journées d'Informatique Musicale (JIM), pages 162 – 169, Albi, France, April 2016.

T. Carpentier. Panoramix: 3D mixing and post-production workstation. In Proc. of the 42nd International Computer Music Conference (ICMC), pages 122 – 127, Utrecht, Netherlands, Sept 2016.

T. Carpentier. A versatile workstation for the diffusion, mixing, and post-production of spatial audio. In Proc. of the Linux Audio Conference (LAC), Saint-Etienne, France, May 2017.

attributes

@embed [boolean]

The `embed` attribute allows to store the state of the object within the patcher. The complete state of the object is stored whenever the patcher is saved to disk. Upon loading the patcher or copying the object box, the state is restored.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@inlets [int]

The `inlets` attribute represents the number of input channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or `attrui` or `inspector`), since the number of signal inlets or outlets can not be changed dynamically.

@internals [int]

The `internals` attribute represents the number of internal channels of the artificial reverberator.

Spat uses a Feedback Delay Network (FDN) reverberator engine.

Basically this can be seen as an array of delay lines which are fed back into a mixing matrix. The `internals` attributes represents the size of the feedback matrix.

Choosing the size of this matrix is a trade-off between CPU consumption and the echo density.

Increasing the size of the matrix will generate a denser reverb tail at the expense of a higher CPU load.

A typical value of 8 is a good compromise between CPU load and natural sounding reverb. A value of 16 may be useful especially when dealing with a very long reverberation time or with very percussive sound (where a smaller FDN might sometimes sounds too poor).

It is recommended not to use a value below 6.

@outlets [int]

The `outlets` attribute represents the number of output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or `attrui` or `inspector`), since the number of signal inlets or outlets can not be changed dynamically.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max `inspector`).

methods

`/post/version` : print the version in the Max Console

`/post/version [details]` : print detailed version in the Max Console

`/post/doc` : print the help documentation in the Max Console

`/post/state` : print the OSC status in the Max Console

`/preset/load [string]` : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.

`/preset/load` : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format.

`/preset/export [string]` : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)

`/preset/export` : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format.

`/status` : open the status window and bring it to front

`/status/open` : open the status window and bring it to front

`/status/close` : close the status window

```

/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file
/master/name [string] : set the name of the strip
/master/color [color] : set the color of the strip
/master/numinputs [int] : set the number of input channels of the strip
/master/numoutputs [int] : set the number of output channels of the strip
/master/visible [boolean] : set the visibility of the strip
/master/lock [boolean] : lock/unlock the strip
/master/trim [number] : set the input trim of the strip (in dB)
/master/gain [number] : set the output gain of the strip (in dB)
/master/gain/ramptime [number] : set the ramp time (in msec) for output gain
/master/levels/input/visible [boolean] : show/hide the input vu-meters
/master/levels/input/post [boolean] : set input vu-meters pre/post fader
/master/levels/output/visible [boolean] : show/hide the output vu-meters
/master/levels/input/post [boolean] : set output vu-meters pre/post fader
/master/mute [boolean] : mute/unmute the strip
/master/annotation [string] : set annotation of the strip
/master/output/mode [string] : set output mode
/master/dim [boolean] : dim the master strip (-20 dB)
/master/dynamics/attack [number] : set attack time (in msec) for compressor/expander
/master/dynamics/release [number] : set release time (in msec) for compressor/expander
/master/dynamics/lookahead [number] : set lookahead time (in msec) for compressor/expander
/master/dynamics/compressor/threshold [number] : set threshold (in dB) for compressor
/master/dynamics/compressor/ratio [number] : set ratio for compressor
/master/dynamics/expander/threshold [number] : set threshold (in dB) for expander
/master/dynamics/expander/ratio [number] : set ratio for expander
/master/dynamics/makeup [number] : set makeup gain (in dB) for compressor/expander
/master/dynamics/link [boolean] : link all channels for compressor/expander
/master/dynamics/bypass [boolean] : bypass compressor/expander
/master/equalizer/bypass [boolean] : bypass the equalizer
/master/equalizer/gain [number] : set the global gain (in dB) of the equalizer
/master/equalizer/filter/[index]/freq [number] : set the frequency (in Hz) of the i-th section
/master/equalizer/filter/[index]/q [number] : set the resonance of the i-th section
/master/equalizer/filter/[index]/gain [number] : set the gain (in dB) of the i-th section
/master/equalizer/filter/[index]/order [int] : set the filter's order of the i-th section
/master/equalizer/filter/[index]/active [boolean] : enable/disable the i-th section
/monitoring/name [string] : set the name of the strip
/monitoring/color [color] : set the color of the strip
/monitoring/numinputs [int] : set the number of input channels of the strip
/monitoring/numoutputs [int] : set the number of output channels of the strip
/monitoring/visible [boolean] : set the visibility of the strip
/monitoring/lock [boolean] : lock/unlock the strip
/monitoring/trim [number] : set the input trim of the strip (in dB)
/monitoring/gain [number] : set the output gain of the strip (in dB)
/monitoring/gain/ramptime [number] : set the ramp time (in msec) for output gain
/monitoring/levels/input/visible [boolean] : show/hide the input vu-meters
/monitoring/levels/input/post [boolean] : set input vu-meters pre/post fader
/monitoring/levels/output/visible [boolean] : show/hide the output vu-meters
/monitoring/levels/input/post [boolean] : set output vu-meters pre/post fader
/monitoring/mute [boolean] : mute/unmute the strip
/monitoring/annotation [string] : set annotation of the strip
/monitoring/dim [boolean] : dim the master strip (-20 dB)

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/monitoring/dynamics/attack [number] : set attack time (in msec) for compressor/expander
/monitoring/dynamics/release [number] : set release time (in msec) for compressor/expander
/monitoring/dynamics/lookahead [number] : set lookahead time (in msec) for compressor/expander
/monitoring/dynamics/compressor/threshold [number] : set threshold (in dB) for compressor
/monitoring/dynamics/compressor/ratio [number] : set ratio for compressor
/monitoring/dynamics/expander/threshold [number] : set threshold (in dB) for expander
/monitoring/dynamics/expander/ratio [number] : set ratio for expander
/monitoring/dynamics/makeup [number] : set makeup gain (in dB) for compressor/expander
/monitoring/dynamics/link [boolean] : link all channels for compressor/expander
/monitoring/dynamics/bypass [boolean] : bypass compressor/expander
/monitoring/equalizer/bypass [boolean] : bypass the equalizer
/monitoring/equalizer/gain [number] : set the global gain (in dB) of the equalizer
/monitoring/equalizer/filter/[index]/freq [number] : set the frequency (in Hz) of the i-th section
/monitoring/equalizer/filter/[index]/q [number] : set the resonance of the i-th section
/monitoring/equalizer/filter/[index]/gain [number] : set the gain (in dB) of the i-th section
/monitoring/equalizer/filter/[index]/order [int] : set the filter's order of the i-th section
/monitoring/equalizer/filter/[index]/active [boolean] : enable/disable the i-th section
/monitoring/hrtf [string] : load hrtf from file or url (sofa format)
/monitoring/itd/scaling [number] : set ITD scaling factor (in /monitoring/listener/orientation [number][number][number][number] : set listener orientation
from quaternion (xyzw)
/monitoring/listener/yaw [number] : set listener yaw angle (in deg), using Euler zyx convention
/monitoring/listener/pitch [number] : set listener pitch angle (in deg), using Euler zyx convention
/monitoring/listener/roll [number] : set listener roll angle (in deg), using Euler zyx convention
/monitoring/listener/ypr [number][number][number] : set listener orientation (yaw, pitch, roll in deg), using Euler zyx convention
/bus/number [number] : set the total number of busses
/bus/[index]/format [string] : set the format of the i-th bus ('Binaural', 'HOA', 'HOA2D', 'KNN', 'VBAP', 'VBAP2D', 'VBIP', 'VBIP2D', 'Angular2D', 'WFS',
'LBAP', etc.)
/bus/[index]/name [string] : set the name of the i-th bus
/bus/[index]/color [color] : set the color of the i-th bus
/bus/[index]/numinputs [int] : set the number of input channels of the i-th bus
/bus/[index]/numoutputs [int] : set the number of output channels of the i-th bus
/bus/[index]/visible [boolean] : set the visibility of the strip
/bus/[index]/annotation [string] : set the annotation for the i-th bus
/bus/[index]/lock [boolean] : lock/unlock the strip
/bus/[index]/trim [number] : set the input trim of the strip (in dB)
/bus/[index]/gain [number] : set the output gain of the strip (in dB)
/bus/[index]/gain/ramptime [number] : set the ramp time (in msec) for output gain
/bus/[index]/mute [boolean] : mute/unmute the strip
/bus/[index]/levels/input/visible [boolean] : show/hide the input vu-meters
/bus/[index]/levels/input/post [boolean] : set input vu-meters pre/post fader
/bus/[index]/levels/output/visible [boolean] : show/hide the output vu-meters
/bus/[index]/levels/input/post [boolean] : set output vu-meters pre/post fader
/bus/[index]/delay [number] : set the delay (in msec) of the i-th bus (not applicable to all busses)
/bus/[index]/routing/output/[outputindex]/master [number] : route the j-th output of the i-th bus a given master channel
/bus/[index]/speakers/aed [number][number][number]... : set the list of speaker coordinates (aed) for the i-th bus (not applicable to all busses)
/bus/[index]/speakers/xyz [number][number][number]... : set the list of speaker coordinates (xyz) for the i-th bus (not applicable to all busses)
/bus/[index]/speaker/[index]/aed [number][number][number] : set the position of the j-th loudspeaker for the i-th bus (not applicable to all busses)
/bus/[index]/speaker/[index]/xyz [number][number][number] : set the position of the j-th loudspeaker for the i-th bus (not applicable to all busses)
/bus/[index]/speakers/correction/delay [string] : set delay correction ('on', 'off', 'auto') for the i-th bus (not applicable to all busses)
/bus/[index]/speakers/correction/gain [string] : set delay correction ('on', 'off', 'auto') for the i-th bus (not applicable to all busses)
/bus/[index]/speaker/[index]/delay [number] : set delay for the j-th speaker for the i-th bus (not applicable to all busses)
/bus/[index]/speaker/[index]/gain/db [number] : set gain (in dB) for the j-th speaker for the i-th bus (not applicable to all busses)
/bus/[index]/speakers/visible [boolean] : show/hide speakers of the i-th bus (not applicable to all busses)
/bus/[index]/speakers/editor/window/open : open the speakers editor for the i-th bus (not applicable to all busses)
/bus/[index]/speakers/editor/window/title [string] : set window title for the speakers editor for the i-th bus (not applicable to all busses)
/bus/[index]/monitor [boolean] : enable binaural monitoring for the i-th bus (not applicable to all busses)
/bus/[index]/spread [number] : set spread factor (in /bus/[index]/phantom/zenith [boolean] : insert a phantom speaker at the zenith (for vector-base panning)
/bus/[index]/phantom/nadir [boolean] : insert a phantom speaker at the nadir (for vector-base panning)
/track/indices [iii...] : set the indices of Mono tracks
/stereo/indices [iii...] : set the indices of Stereo tracks
/multi/indices [iii...] : set the indices of Multi tracks
/hoastream/indices [iii...] : set the indices of Hoastream tracks
/eigenmike/indices [iii...] : set the indices of EigenMike tracks
/tree/indices [iii...] : set the indices of Tree tracks
/zylia/indices [iii...] : set the indices of Zylia tracks
/bformat/indices [iii...] : set the indices of B-format tracks
/aformat/indices [iii...] : set the indices of A-format tracks
/d2m/indices [iii...] : set the indices of DirectToMaster tracks
/d2b/indices [iii...] : set the indices of DirectToBus tracks
/track/[index]/name [string] : set the name of the i-th track
/track/[index]/color [color] : set the color of the i-th track
/track/[index]/numinputs [int] : set the number of input channels of the i-th track
/track/[index]/visible [boolean] : set the visibility of the track
/track/[index]/gain [number] : set the output gain of the track (in dB)
/track/[index]/gain/ramptime [number] : set the ramp time (in msec) for output gain of the track
/track/[index]/mute [boolean] : mute/unmute the track
/track/[index]/annotation [string] : set the annotation for the track
/track/[index]/lock [boolean] : lock/unlock the track
/track/[index]/trim [number] : set the input trim of the track (in dB)
/track/[index]/delay [number] : set the delay of the i-th track (not applicable to all tracks)
/track/[index]/levels/input/visible [boolean] : show/hide the input vu-meters
/track/[index]/levels/input/post [boolean] : set input vu-meters pre/post fader
/track/[index]/levels/output/visible [boolean] : show/hide the output vu-meters
/track/[index]/levels/input/post [boolean] : set output vu-meters pre/post fader

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/track/[index]/solo [boolean] : solo the track
/track/[index]/tofront : bring the i-th track to the front of its siblings
/track/[index]/toback : bring the i-th track to the back of its siblings
/track/[index]/tofront [boolean] : bring the i-th track to the front or back of its siblings
/track/[index]/xyz [number][number][number] : set the position of the i-th track using cartesian coordinates
/track/[index]/aed [number][number][number] : set the position of the i-th track using navigation coordinates (azimuth/elevation/distance)
/track/[index]/xy [number][number] : set the xy-coordinate of the i-th track, and use default z (=0)
/track/[index]/az [number] : set the azimuth of the i-th track, using default distance (=1) and elevation (=0)
/track/[index]/x [number][number] : set the x-coordinate of the i-th track, and keep y and z unchanged
/track/[index]/y [number][number] : set the y-coordinate of the i-th track, and keep x and z unchanged
/track/[index]/z [number][number] : set the z-coordinate of the i-th track, and keep x and y unchanged
/track/[index]/ade [number][number][number] : set the position of the i-th track using navigation coordinates (azimuth/distance/elevation)
/track/[index]/ae [number][number] : set the azimuth/elevation of the i-th track, using default distance (=1)
/track/[index]/ad [number][number] : set the azimuth/distance of the i-th track, using default elevation (=0)
/track/[index]/azim [number] : set the azimuth of the i-th track. Elevation and distance remain unchanged
/track/[index]/elev [number] : set the elevation of the i-th track. Azimuth and distance remain unchanged
/track/[index]/dist [number] : set the distance of the i-th track. Azimuth and elevation remain unchanged
/track/[index]/azimelev [number][number] : set the azimuth and elevation of the i-th track. Distance remains unchanged
/track/[index]/azindist [number][number] : set the azimuth and distance of the i-th track. Elevation remains unchanged
/track/[index]/bus/A/destination [string] : set destination for bus send A
/track/[index]/bus/A/mute [boolean] : mute bus send A
/track/[index]/bus/A/gain [number] : set gain (in dB) for bus send A
/track/[index]/bus/B/destination [string] : set destination for bus send B
/track/[index]/bus/B/mute [boolean] : mute bus send B
/track/[index]/bus/B/gain [number] : set gain (in dB) for bus send B
/track/[index]/bus/C/destination [string] : set destination for bus send C
/track/[index]/bus/C/mute [boolean] : mute bus send C
/track/[index]/bus/C/gain [number] : set gain (in dB) for bus send C
/track/[index]/bus/D/destination [string] : set destination for bus send D
/track/[index]/bus/D/mute [boolean] : mute bus send D
/track/[index]/bus/D/gain [number] : set gain (in dB) for bus send D
/track/[index]/bus/E/destination [string] : set destination for bus send E
/track/[index]/bus/E/mute [boolean] : mute bus send E
/track/[index]/bus/E/gain [number] : set gain (in dB) for bus send E
/track/[index]/bus/F/destination [string] : set destination for bus send F
/track/[index]/bus/F/mute [boolean] : mute bus send F
/track/[index]/bus/F/gain [number] : set gain (in dB) for bus send F
/track/[index]/bus/display [string] : set which bus is displayed in the vu-meters
/track/[index]/lfe/send [string] : set LFE send gain (in dB)
/track/[index]/lfe/mute [boolean] : mute LFE send
/group/number [number] : set the number of groups
/group/[index]/name [number] : set name of the i-th group
/group/[index]/affects/mute [boolean] : enable mute in the i-th group
/group/[index]/affects/solo [boolean] : enable solo in the i-th group
/group/[index]/affects/send [boolean] : enable send in the i-th group
/group/[index]/active [boolean] : enable the i-th group
/group/add : add a new group
/group/add [string] : add a new group with the given name
/group/delete/bytitle [string] : delete the group with the given name
/group/delete/bypattern [string] : delete the group with the given OSC address
/session/delete/bytitle [string] : delete a track or bus, given its title
/session/delete/byaddress [string] : delete a track or bus, given its OSC address
/session/add/track [string][int][string][int] : create new track(s): [format][number of channels][title][number of tracks]
/session/add/track [string][int][string] : create one new track: [format][number of channels][title]
/session/add/track [string][int] : create one new track: [format][number of channels]
/session/add/bus [string][int][int] : create one new bus: [format][number of inputs][number of outputs]
/session/add/bus [string][int][int][int] : create new bus(es): [format][number of inputs][number of outputs][number of busses]
/options/lock [boolean] : lock/unlock the options strip
/options/color [color] : set the color of the options strip
/options/annotation [string] : set the annotation for the options strip
/options/vumeters/rate [number] : set the vu-meters refresh rate (msec)
/options/vumeters/input/visible [boolean] : set visibility for the input vumeters
/options/vumeters/output/visible [boolean] : set visibility for the output vumeters
/options/vumeters/visible [boolean] : set visibility for all vumeters
/options/clearsolo : clear all solo
/options/dock : dock or undock the spat viewer window
/options/dock/viewer : dock or undock the spat viewer window
/options/dock/equalizer : dock or undock the equalizer/compressor window
/options/dock/viewer/window/title [string] : set window title for spat viewer window
/options/dock/equalizer/window/title [string] : set window title for equalizer/compressor window
/options/parallel/bus [boolean] : enable multi-threading for bus
/options/parallel/tracks [boolean] : enable multi-threading for tracks
/grid/visible [boolean] : set the visibility of the grid
/grid/mode [string] : set the grid mode. Possible values: none, circular, cartesian
/grid/spacing [number] : set the spacing between grid lines (in meters)
/grid/line/number [number] : set the number of grid lines
/grid/angulardivisions/number [number] : set the number of angular divisions
/grid/angulardivisions/visible [boolean] : set the visibility of angular divisions
/grid/dashed [boolean] : set the line style
/grid/color [color] : set the line color
/layout [string] : set the window layout. Possible values: single, leftright, topbottom
/display/zoom [number] : set the display zoom factor
/display/offsetx [number] : set the display x translation offset (in pixels)
/display/offsety [number] : set the display y translation offset (in pixels)

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/display/offsetz [number] : set the display z translation offset (in pixels)
/display/zoom/lock [boolean] : enable/disable zooming with the mouse wheel
/axis/visible [boolean] : set the visibility of the axis
/axis/color [color] : set the axis color
/axis/label/visible [boolean] : set the visibility of the axis label
/axis/origin/visible [boolean] : set the visibility of the axis origin
/background/color [color] : set the window background color
/legend/visible [boolean] : set the visibility of the legend
/legend/color [color] : set the legend color
/emphasis/source [boolean] : emphasize sources when mouse in proximity
/emphasis/speaker [boolean] : emphasize speakers when mouse in proximity
/emphasis/microphone [boolean] : emphasize microphones when mouse in proximity
/area/number [int] : set the number of areas
/area/[index]/vertex/number [int] : set the number of vertex for the i-th area
/area/[index]/vertex/[index]/xy [number][number] : set position of the j-th vertex of the i-th area
/area/[index]/vertex/[index]/xyz [number][number][number] : set position of the j-th vertex of the i-th area
/area/[index]/vertex/[index]/aed [number][number][number] : set position of the j-th vertex of the i-th area
/area/[index]/visible [boolean] : set visibility for the i-th area
/area/[index]/color [color] : set color for the i-th area
/area/[index]/name [string] : set name for the i-th area
/window/title [string] : set the window title (in the window titlebar)
/window/visible [boolean] : set the window visibility
/window/moveable [boolean] : set the window movability
/window/resizable [boolean] : set the window resizability
/window/enable [boolean] : enable/disable the window
/window/background/color [color] : set the window background color
/window/opaque [boolean] : set the window opaque flag (optimize repaint efficiency)
/window/fullscreen [boolean] : enable/disable fullscreen mode
/window/minimise [boolean] : minimize the window
/window/open : open the window (and bring it to front)
/window/close : close the window
/window/openorclose : open the window if it was closed; close it if it was opened
/window/size [number][number] : set the window size (width, height) (in pixels)
/window/width [number] : set the window width (in pixels)
/window/height [number] : set the window height (in pixels)
/window/bounds [number][number][number][number] : set the window bounds (top left position, width, height) (in pixels)
/window/topleft [number][number] : set the window top left position (in pixels)
/window/centre : open the window, centering it on the screen
/window/rendering/engine [string] : set the graphical rendering engine of the window
/window/fps/visible [boolean] : display the FPS performances of the window
/window/scale [number] : set the global scale factor of the window (in /window/floating [boolean] : make the window 'floating' (always on top)
/window/hidesondeactivate [boolean] : make the window 'hides on deactivate' (when always on top)
/window/buttons/close [boolean] : enable/disable the close button (in the window titlebar)
/window/buttons/minimise [boolean] : enable/disable the minimise button (in the window titlebar)
/window/buttons/maximise [boolean] : enable/disable the maximise button (in the window titlebar)
/window/export/image [string] : export the window as an image file (png or jpeg)

```

see also

- spat5.panoramix~
- spat5.spat~
- spat5.early~
- spat5.cluter~
- spat5.reverb~
- spat5.ircamverb~
- spat5.delgen
- spat5.shuffle~
- spat5.pan~
- spat5.decoder~
- spat5.osc.route
- spat5.osc.routepass

spat5.panoramix~

3D mixing and post-production workstation

description

spat5.panoramix~ is a versatile workstation for the diffusion, mixing, and post-production of spatial sound. Designed as a virtual console, it provides a comprehensive environment for combining channel-, scene-, and object-based audio. The incoming streams are mixed in a flexible bus architecture which tightly couples sound spatialization with reverberation effects. The application supports a broad range of rendering techniques (VBAP, HOA, binaural, etc.) and it is remotely controllable via the Open Sound Control protocol. **spat5.panoramix~** is controlled by the **spat5.panoramix** user interface.

Reference(s) :

T. Carpentier and C. Cornuau. panoramix: station de mixage et post-production 3D. In Proc. of Journées d'Informatique Musicale (JIM), pages 162 – 169, Albi, France, April 2016.

T. Carpentier. Panoramix: 3D mixing and post-production workstation. In Proc. of the 42nd International Computer Music Conference (ICMC), pages 122 – 127, Utrecht, Netherlands, Sept 2016.

T. Carpentier. A versatile workstation for the diffusion, mixing, and post-production of spatial audio. In Proc. of the Linux Audio Conference (LAC), Saint-Etienne, France, May 2017.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@inlets [int]

The `inlets` attribute represents the number of input channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or `attrui` or `inspector`), since the number of signal inlets or outlets can not be changed dynamically.

@internals [int]

The `internals` attribute represents the number of internal channels of the artificial reverberator.

Spat uses a Feedback Delay Network (FDN) reverberator engine.

Basically this can be seen as an array of delay lines which are fed back into a mixing matrix. The `internals` attributes represents the size of the feedback matrix.

Choosing the size of this matrix is a trade-off between CPU consumption and the echo density.

Increasing the size of the matrix will generate a denser reverb tail at the expense of a higher CPU load.

A typical value of 8 is a good compromise between CPU load and natural sounding reverb. A value of 16 may be useful especially when dealing with a very long reverberation time or with very percussive sound (where a smaller FDN might sometimes sounds too poor).

It is recommended not to use a value below 6.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@outlets [int]

The `outlets` attribute represents the number of output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or `attrui` or `inspector`), since the number of signal inlets or outlets can not be changed dynamically.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max `inspector`).

methods

```
/master/numinputs [int] : set the number of input channels
/master/numoutputs [int] : set the number of output channels
/master/gain [number] : set the output gain [dB] of the strip
/master/mute [boolean] : mute the strip
/master/gain/ramptime [number] : set the ramp time [msec] for output gain of the strip
/master/levels/input/post [boolean] : set input vu-meter pre/post fader
/master/levels/output/post [boolean] : set output vu-meter pre/post fader
/master/levels/input/mode [string] : set input vu-meter mode. Possible values: peak rms
/master/levels/output/mode [string] : set output vu-meter mode. Possible values: peak rms
/master/trim [number] : set the input trim (in dB) of the strip
/master/equalizer/samplerate [number] : set the sampling rate (in Hz)
/master/equalizer/bypass [boolean] : bypass the equalizer
/master/equalizer/gain [number] : set the global gain (in dB) of the equalizer
/master/equalizer/filter/[index]/freq [number] : set the frequency (in Hz) of the i-th section
/master/equalizer/filter/[index]/q [number] : set the resonance of the i-th section
/master/equalizer/filter/[index]/gain [number] : set the gain (in dB) of the i-th section
```

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All rights reserved. This manual can not be copied, in whole or part, without the written consent of Ircam.

/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

see also

- spat5.panoramix
- spat5.spat~
- spat5.early~
- spat5.cluter~
- spat5.reverb~
- spat5.room~
- spat5.ircamverb~
- spat5.delgen
- spat5.shuffle~
- spat5.pan~
- spat5.decoder~
- spat5.osc.route
- spat5.osc.routepass
- spat5.virtualspeakers~
- spat5.multi.connect

spat5.pansig~

Signal-rate amplitude panning

description

spat5.pansig~ produces signal-rate amplitude panning. Similar to **spat5.pan**, it can pan sound source in space using amplitude panning (gain only); however the source position is controlled at signal-rate (i.e. with audio signals).

attributes

@initwith [string]

The **initwith** attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via **loadbang** or **loadmess**.

Have a look at the **spat5.tuto-osc-3.maxpat** example for further details.

Note that the **initwith** attribute cannot be set via message, **attrui** or **inspector**; it must be typed directly within the object box.

@mc [int]

The **mc** attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the **mc** attribute cannot be set via message, **attrui** or **inspector**; it must be typed directly within the object box.

@outputs [int]

The **outputs** attribute represents the number of output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or **attrui** or **inspector**), since the number of signal inlets or outlets can not be changed dynamically.

@parameter_enable [boolean]

The **parameter_enable** attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/format [string] : set input coordinate format. Possible values: aed, xyz
/type [string] : set panning type. Possible values: xy, ms, stereopan, surround, panr, angular, abap2d, abip2d, dbap3d, dbap2d, vbap, vbip, vbap3d, vbip3d, vbap2d,
vbap2damp, vbip2d, bformat, hoa2d, hoa3d, spcap, csp, knn, aep2d, aep3d, lbap, laap
/speakers/aed [nnnn...] : set the list of speaker coordinates (with aed format)
/speakers/xyz [nnnn...] : set the list of speaker coordinates (with xyz format)
/speakers/ade [nnnn...] : set the list of speaker coordinates (with ade format)
/speakers/xy [nnnn...] : set the list of speaker coordinates (with xy format)
/speakers/ae [nnnn...] : set the list of speaker coordinates (with ae format)
/speaker/[index]/aed [number] [number] [number] : set the position of the i-th loudspeaker using navigation coordinates (azimuth/elevation/distance)
/speaker/[index]/ade [number] [number] [number] : set the position of the i-th loudspeaker using navigation coordinates (azimuth/distance/elevation)
/speaker/[index]/xyz [number] [number] [number] : set the position of the i-th loudspeaker using cartesian coordinates
/speaker/[index]/xy [number] [number] : set the xy-coordinate of the i-th loudspeaker, and use default z (=0)
/speaker/[index]/ae [number] [number] : set the azimuth/elevation of the i-th loudspeaker, using default distance (=1)
/speaker/[index]/az [number] : set the azimuth of the i-th loudspeaker, using default distance (=1) and elevation (=0)
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied whitout ramping/crossfade, so this might
generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied whitout ramping/crossfade, so this
might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio
settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for
human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is
inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for
human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for
human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the
destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll'
for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
```

```

/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- spat5.pan
- spat5.pan~
- spat5.viewer
- spat5.trajectories
- spat5.virtualspeakers~
- spat5.converter~
- spat5.multi.connect

spat5.pan~

Generic panner module

description

spat5.pan~ is a generic panner with a wide variety of panning methods. Depending on the selected panning type, there may be constraints to the number of inputs and/or outputs channels (for instance, binaural panning requires 2 output channels).

For a detailed description of supported panning methods, see the `/panning/type` message in the reference page.

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M. A. Gerzon. General metatheory of auditory localization. In *Proc. of the 92nd Convention of Audio Engineering Society (AES)*, Vienna, Austria, March 1992.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character `"`). This is similar to sending the list of commands via `loadbang` or `loadmess`. Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or inspector; it must be typed directly within the object box.

@inputs [int]

The `inputs` attribute represents the number of input channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or `attrui` or inspector), since the number of signal inlets or outlets can not be changed dynamically.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, `attrui` or inspector; it must be typed directly within the object box.

@outputs [int]

The `outputs` attribute represents the number of output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or `attrui` or inspector), since the number of signal inlets or outlets can not be changed dynamically.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

/panning/type [string] : set panning type i.e. the type of algorithm used for rendering. A wide variety of panning methods are available, but there may be constraints depending on the number of inputs and/or outputs channels.

- "binaural" : binaural synthesis using HRTF (Head-Related Transfer Functions) filtering, for headphones only.
- "xy" : simulates the recording of the sound scene by a coincident XY couple of microphones (intensity panning), for stereo only.
- "ms" : simulates the recording of the sound scene by a mid-side microphone; this generates the M-S signals, and further requires decoding for L-R compatibility.- "ab" : simulates the recording of the sound scene by an AB couple of microphones (ORTF) i.e. it simulates a pair of spaced cardioid microphones, pointing laterally at azimuths +/- 55 degrees (elevation 0), with a distance of 17 cm between the two capsules; for stereo only.
- "stereopan" : stereo panpot (intensity panning) with various panning laws, for stereo only.
- "angular" : angular panning (intensity panning) for 2-D (horizontal only) loudspeaker setups. "angular" panning is essentially the same as "vbap2d", the main difference is how the panning gains evolve when moving the source from one speaker to another.
- "abap2d" : angle-based amplitude panning : pairwise amplitude panning for 2-D (horizontal only) loudspeaker setups. Provides linear panning vs target azimuth angle.
- "abip2d" : angle-based intensity panning : pairwise intensity panning for 2-D (horizontal only) loudspeaker setups. "abip2d" panning is essentially the same as "vbip2d", the main difference is how the panning gains evolve when moving the source from one speaker to another.
- "vbap2d" : vector base amplitude panning : pairwise amplitude panning for 2-D (horizontal only) loudspeaker setups, with power normalization of the gains.
- "vbap3d" : vector base amplitude panning : amplitude panning for 3-D loudspeaker setups. The underlying algorithm creates a triangulation of the loudspeaker array, and depending on the position of the virtual source, it selects the appropriate loudspeaker triplet.
- "vbip2d" : vector base intensity panning : pairwise intensity panning for 2-D (horizontal only) loudspeaker setups. The geometrical algorithm is similar to "vbap2d", however the speaker signals are normalized with constant intensity (rather than with constant power).
- "vbip3d" : vector base intensity panning : pairwise intensity panning for 3-D loudspeaker setups. The geometrical algorithm is similar to "vbap3d", however the speaker signals are normalized with constant intensity (rather than with constant power).
- "vbap" : vector base amplitude panning : will switch automatically between "vbap3d" or "vbap2d", depending on the loudspeaker setup.
- "vbip" : vector base intensity panning : will switch automatically between "vbip3d" or "vbip2d", depending on the loudspeaker setup.
- "dualbandvbp" : vector base panning : uses vbap for low frequencies and vbip for high frequencies. (either 2-D or 3-D speaker setup)
- "lbap" : layer based amplitude panning : this creates several vertical layers of loudspeakers, and operates each layer as a "vbap2d" setup. If the loudspeaker layout is planar, "lbap" is just the same as "vbap2d".
- "sphericalheadmodel" : binaural synthesis using an approximate spherical head model (Rayleigh) for both ILD and ITD. Elevation is not taken into account.
- "snowmanmodel" : binaural synthesis using an approximate snow-man model for head-and-torso (two spherical models).
- "nearfieldbinaural" : binaural synthesis using HRTF (Head-Related Transfer Functions) filtering, and with compensation (ITD and ILD) of nearfield effects.
- "hoa2d" : 2-D (horizontal only) higher order ambisonic (HOA) encoder.
- "hoa3d" : 3-D higher order ambisonic (HOA) encoder.
- "aep2d" : ambisonic equivalent panning in 2-D (horizontal only) .
- "aep3d" : ambisonic equivalent panning in 3-D.
- "spcap" : speaker-placement correction amplitude panning.
- "nfchoa2d" : 2-D (horizontal only) higher order ambisonic (HOA) encoder with Nearfield Compensation Filters (NFC).
- "nfchoa3d" : 3-D higher order ambisonic (HOA) encoder with Nearfield Compensation Filters (NFC).
- "knn" : K-nearest neighbors panning : applies amplitude panning on the K-nearest loudspeakers to the source. The (maximum) number K of contributing speakers can be specified with the "/source/[index]/neighbors [int]" message. This kind of panning is compatible with arbitrary loudspeaker setup (either 2D or 3D).
- "surround" : LRS or LCRS encoder. Deprecated, don't use it.
- "panr" : legacy panning law from spat v3.x. Deprecated, don't use it. Pair-wise panning over a regular arrangement of loudspeakers on a plane (2-D only).
- "dbap2d" : distance-based amplitude panning on a 2-D (horizontal only) speaker setup (after Trond lossius).
- "dbap3d" : .
- "subwoofers" : combines a lowpass filter and a "vbap2d" panner.
- "wfs" : wavefield synthesis for linear array of loudspeakers.
- "bformat" : legacy Ambisonic B-format amplitude panning. Deprecated, don't use it anymore; use "hoa2d" or "hoa3d" instead.
- "laap" : amplitude/intensity panning on a linear array of loudspeakers. Experimental prototype, don't use it.

. Possible values: binaural, xy, ms, ab, stereopan, surround, panr, angular, abap2d, abip2d, dbap3d, dbap2d, vbap, vbip, vbap3d, vbip3d, vbap2d, vbap2damp, vbip2d, dualbandvbp, bformat, hoa2d, hoa3d, nfchoa3d, nfchoa2d, spcap, csp, knn, aep2d, aep3d, subwoofers, wfs, lbap, laap, sphericalheadmodel, snowmanmodel, nearfieldbinaural

/panning/subtype [string] : set panning subtype.

/source/[index]/mute [boolean] : mute/unmute the i-th source

/source/[index]/xyz [number][number][number] : set the position of the i-th source using cartesian coordinates

/source/[index]/aed [number][number][number] : set the position of the i-th source using navigation coordinates (azimuth/elevation/distance)

/source/[index]/xy [number][number] : set the xy-coordinate of the i-th source, and use default z (=0)

/source/[index]/az [number] : set the azimuth of the i-th source, using default distance (=1) and elevation (=0)

/source/[index]/x [number][number] : set the x-coordinate of the i-th source, and keep y and z unchanged

/source/[index]/y [number][number] : set the y-coordinate of the i-th source, and keep x and z unchanged

/source/[index]/z [number][number] : set the z-coordinate of the i-th source, and keep x and y unchanged

/source/[index]/ade [number][number][number] : set the position of the i-th source using navigation coordinates (azimuth/distance/elevation)

/source/[index]/ae [number][number] : set the azimuth/elevation of the i-th source, using default distance (=1)

/source/[index]/ad [number][number] : set the azimuth/distance of the i-th source, using default elevation (=0)

/source/[index]/azim [number] : set the azimuth of the i-th source. Elevation and distance remain unchanged

/source/[index]/elev [number] : set the elevation of the i-th source. Azimuth and distance remain unchanged

/source/[index]/dist [number] : set the distance of the i-th source. Azimuth and elevation remain unchanged

/source/[index]/azimelev [number][number] : set the azimuth and elevation of the i-th source. Distance remains unchanged

/source/[index]/azimdist [number][number] : set the azimuth and distance of the i-th source. Elevation remains unchanged

/sources/aed [nnnn...] : set the list of source coordinates (with aed format)

/sources/xyz [nnnn...] : set the list of source coordinates (with xyz format)

/sources/ade [nnnn...] : set the list of source coordinates (with ade format)

/sources/xy [nnnn...] : set the list of source coordinates (with xy format)

/sources/ae [nnnn...] : set the list of source coordinates (with ae format)

/source/[index]/spread/omni [number] : set omni spread (in /source/[index]/spread/law [string] : set spread law for the i-th source

/source/[index]/spread/mode [number] : set spread mode for the i-th source

/source/[index]/divergence [boolean] : enable/disable divergence for the i-th source

/source/[index]/divergence/radius [number] : set minimum radius (in meters) for divergence for the i-th source

/ramp/time [number] : set ramp time (in msec) for gain smoothing

/format [string] : set coordinate format used in the status window

/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied whitout ramping/crossfade, so this might generate clicks

/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied whitout ramping/crossfade, so this might generate clicks

/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
 /dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
 /dsp/post : post various information to the Max console (audio should be turned on)
 /dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
 /dump/dsp/latency : send the processor latency (in samples) through the dump outlet
 /verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
 /post/version : print the version in the Max Console
 /post/version [details] : print detailed version in the Max Console
 /post/doc : print the help documentation in the Max Console
 /post/state : print the OSC status in the Max Console
 /preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
 /preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
 /preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
 /preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
 /status : open the status window and bring it to front
 /status/open : open the status window and bring it to front
 /status/close : close the status window
 /status/openorclose : open the status window if it was closed; close it if it was opened
 /status/font/size [number] : set the font size of the status window
 /status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
 /help : open the help window and bring it to front
 /help/open : open the help window and bring it to front
 /help/close : close the help window
 /help/openorclose : open the help window if it was closed; close it if it was opened
 /help/font/size [number] : set the font size of the help window
 /help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
 /snapshot : open the snapshot window and bring it to front
 /snapshot/open : open the snapshot window and bring it to front
 /snapshot/close : close the snapshot window
 /snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
 /snapshot/font/size [number] : set the font size of the snapshot window
 /snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
 /status/copytoclipboard : copy the status to (the OS) clipboard
 /status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
 /dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
 /dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
 /snapshot/clear : delete all the snapshots currently in memory
 /snapshot/add : create a new snapshot with the current state
 /snapshot/add [string] : create a new snapshot with the current state, and set its name
 /snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
 /snapshot/[index]/recall : recall the current state from the i-th snapshot
 /snapshot/[index]/name [string] : set the name of the i-th snapshot
 /snapshot/interpolate [int] [int] [number] : interpolate between the i-th and j-th snapshots
 /snapshot/interpolate [string] [string] [number] : interpolate between two snapshots, given their names
 /snapshot/[index]/delete : delete the i-th snapshot
 /snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
 /snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
 /snapshot/[index]/export [string] : export the i-th snapshot to file
 /snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
 /snapshot/export [string] : export all snapshots to file
 /snapshot/import [string] : import all snapshots from file

see also

- spat5.viewer
- spat5.pan
- spat5.pansig~
- spat5.hoa.encoder~
- spat5.binaural~
- spat5.virtualspeakers~
- spat5.spat~
- spat5.align~
- spat5.panoramix~
- spat5.panoramix
- spat5.speaker.config
- spat5.speaker.layout
- spat5.decoder~
- spat5.panner.metrics
- spat5.trajectories
- spat5.multi.connect

spat5.pan Control-rate amplitude panning

description

spat5.pan computes and outputs a list of loudspeaker gains (linear gains) based on a given source position. It only works for amplitude panning laws (as opposed to time-difference methods such as AB stereo, binaural, etc.).

Reference(s) :

V. Pulkki. Virtual Sound Source Positioning Using Vector Base Amplitude Panning. Journal of the Audio Engineering Society, 45(6):456 – 466, June 1997.

T. Lossius, P. Balthazar, and T. de la Hogue. DBAP - Distance-Based Amplitude Panning. In Proc. of the International Computer Music Conference (ICMC), Montreal, Canada, 2009.

R. Sadek and C. Kyriakakis. A novel multichannel panning method for standard and arbitrary loudspeaker configurations. In Proc. of the 117th Convention of the Audio Engineering Society (AES), San Francisco, CA, USA, 2004.

J.-M. Pernaux, P. Boussard, and J.-M. Jot. Virtual Sound Source Positioning and Mixing in 5.1 Implementation on the Real-Time System Genesis. In Proc. of the Int Conference on Digital Audio Effects (DAFx), Barcelona, Spain, Nov 19-21, 1998.

J. Daniel. Representation de champs acoustiques, application a la transmission et a la reproduction de scenes sonores complexes dans un contexte multimedia. PhD thesis, Université de Paris VI, 2001.

J. Daniel. Spatial Sound Encoding Including Near Field Effect: Introducing Distance Coding Filters and a Viable, New Ambisonic Format. In Proc of the AES 23rd International Conference, Copenhagen, Denmark, May 2003.

M. Neukom and J. C. Schacher. Ambisonics Equivalent Panning. In Proc. of the International Computer Music Conference (ICMC), Belfast, Ireland, 2008.

M. Neukom. Ambisonics Panning. In Proc. of the 123rd AES Convention, New York, NY, USA, Oct 2007.

J.-M. Jot, V. Larcher, and J.-M. Pernaux. A comparative study of 3-d audio encoding and rendering techniques. In Proc. of the 16th Audio Engineering Society International Conference on Spatial Sound Reproduction, Rovaniemi, Finland, 1999.

I. I. Bukvic. 3D time-based aural data representation using D4 library's layer based amplitude panning algorithm. Proc. of the 22nd International Conference on Auditory Display (ICAD), Canberra, Australia, July 2016.

M. A. Gerzon. General metatheory of auditory localization. In Proc. of the 92nd Convention of Audio Engineering Society (AES), Vienna, Austria, March 1992.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@inputs [int]

The `inputs` attribute represents the number of input channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or `attrui` or `inspector`), since the number of signal inlets or outlets can not be changed dynamically.

@outputs [int]

The `outputs` attribute represents the number of output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or `attrui` or `inspector`), since the number of signal inlets or outlets can not be changed dynamically.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max `inspector`).

methods

`/panning/type [string]` : set panning type i.e. the type of algorithm used for rendering. A wide variety of panning methods are available, but there may be constraints depending on the number of inputs and/or outputs channels.

- "binaural" : binaural synthesis using HRTF (Head-Related Transfer Functions) filtering, for headphones only.
- "xy" : simulates the recording of the sound scene by a coincident XY couple of microphones (intensity panning), for stereo only.
- "ms" : simulates the recording of the sound scene by a mid-side microphone; this generates the M-S signals, and further requires decoding for L-R compatibility.- "ab" : simulates the recording of the sound scene by an AB couple of microphones (ORTF) i.e. it simulates a pair of spaced cardioid microphones, pointing laterally at azimuths +/- 55 degrees (elevation 0), with a distance of 17 cm between the two capsules; for stereo only.
- "stereopan" : stereo panpot (intensity panning) with various panning laws, for stereo only.
- "angular" : angular panning (intensity panning) for 2-D (horizontal only) loudspeaker setups. "angular" panning is essentially the same as "vbap2d", the main difference is how the panning gains evolve when moving the source from one speaker to another.
- "abap2d" : angle-based amplitude panning : pairwise amplitude panning for 2-D (horizontal only) loudspeaker setups. Provides linear panning vs target azimuth angle.
- "abip2d" : angle-based intensity panning : pairwise intensity panning for 2-D (horizontal only) loudspeaker setups. "abip2d" panning is essentially the same as "vbip2d", the main difference is how the panning gains evolve when moving the source from one speaker to another.
- "vbap2d" : vector base amplitude panning : pairwise amplitude panning for 2-D (horizontal only) loudspeaker setups, with power normalization of the gains.

- "vbap3d" : vector base amplitude panning : amplitude panning for 3-D loudspeaker setups. The underlying algorithm creates a triangulation of the loudspeaker array, and depending on the position of the virtual source, it selects the appropriate loudspeaker triplet.
- "vbip2d" : vector base intensity panning : pairwise intensity panning for 2-D (horizontal only) loudspeaker setups. The geometrical algorithm is similar to "vbap2d", however the speaker signals are normalized with constant intensity (rather than with constant power).
- "vbip3d" : vector base intensity panning : pairwise intensity panning for 3-D loudspeaker setups. The geometrical algorithm is similar to "vbap3d", however the speaker signals are normalized with constant intensity (rather than with constant power).
- "vbap" : vector base amplitude panning : will switch automatically between "vbap3d" or "vbap2d", depending on the loudspeaker setup.
- "vbip" : vector base intensity panning : will switch automatically between "vbip3d" or "vbip2d", depending on the loudspeaker setup.
- "dualbandvbp" : vector base panning : uses vbap for low frequencies and vbip for high frequencies. (either 2-D or 3-D speaker setup)
- "lbap" : layer based amplitude panning : this creates several vertical layers of loudspeakers, and operates each layer as a "vbap2d" setup. If the loudspeaker layout is planar, "lbap" is just the same as "vbap2d".
- "sphericalheadmodel" : binaural synthesis using an approximate spherical head model (Rayleigh) for both ILD and ITD. Elevation is not taken into account.
- "snowmanmodel" : binaural synthesis using an approximate snow-man model for head-and-torso (two spherical models).
- "nearfieldbinaural" : binaural synthesis using HRTF (Head-Related Transfer Functions) filtering, and with compensation (ITD and ILD) of nearfield effects.
- "hoa2d" : 2-D (horizontal only) higher order ambisonic (HOA) encoder.
- "hoa3d" : 3-D higher order ambisonic (HOA) encoder.
- "aep2d" : ambisonic equivalent panning in 2-D (horizontal only) .
- "aep3d" : ambisonic equivalent panning in 3-D.
- "spcap" : speaker-placement correction amplitude panning.
- "nfchoa2d" : 2-D (horizontal only) higher order ambisonic (HOA) encoder with Nearfield Compensation Filters (NFC).
- "nfchoa3d" : 3-D higher order ambisonic (HOA) encoder with Nearfield Compensation Filters (NFC).
- "knn" : K-nearest neighbors panning : applies amplitude panning on the K-nearest loudspeakers to the source. The (maximum) number K of contributing speakers can be specified with the "/source/[index]/neighbors [int]" message. This kind of panning is compatible with arbitrary loudspeaker setup (either 2D or 3D).
- "surround" : LRS or LCRS encoder. Deprecated, don't use it.
- "panr" : legacy panning law from spat v3.x. Deprecated, don't use it. Pair-wise panning over a regular arrangement of loudspeakers on a plane (2-D only).
- "dbap2d" : distance-based amplitude panning on a 2-D (horizontal only) speaker setup (after Trond lossius).
- "dbap3d" : .
- "subwoofers" : combines a lowpass filter and a "vbap2d" panner.
- "wfs" : wavefield synthesis for linear array of loudspeakers.
- "bformat" : legacy Ambisonic B-format amplitude panning. Deprecated, don't use it anymore; use "hoa2d" or "hoa3d" instead.
- "laap" : amplitude/intensity panning on a linear array of loudspeakers. Experimental prototype, don't use it.

. Possible values: binaural, xy, ms, ab, stereopan, surround, panr, angular, abap2d, abip2d, dbap3d, dbap2d, vbap, vbip, vbap3d, vbip3d, vbap2d, vbap2damp, vbip2d, dualbandvbp, bformat, hoa2d, hoa3d, nfchoa3d, nfchoa2d, spcap, csp, knn, aep2d, aep3d, subwoofers, wfs, lbap, laap, sphericalheadmodel, snowmanmodel, nearfieldbinaural

/panning/subtype [string] : set panning subtype.

/source/[index]/mute [boolean] : mute/unmute the i-th source

/source/[index]/xyz [number] [number] [number] : set the position of the i-th source using cartesian coordinates

/source/[index]/aed [number] [number] [number] : set the position of the i-th source using navigation coordinates (azimuth/elevation/distance)

/source/[index]/xy [number] [number] : set the xy-coordinate of the i-th source, and use default z (=0)

/source/[index]/az [number] : set the azimuth of the i-th source, using default distance (=1) and elevation (=0)

/source/[index]/x [number] [number] : set the x-coordinate of the i-th source, and keep y and z unchanged

/source/[index]/y [number] [number] : set the y-coordinate of the i-th source, and keep x and z unchanged

/source/[index]/z [number] [number] : set the z-coordinate of the i-th source, and keep x and y unchanged

/source/[index]/ade [number] [number] [number] : set the position of the i-th source using navigation coordinates (azimuth/distance/elevation)

/source/[index]/ae [number] [number] : set the azimuth/elevation of the i-th source, using default distance (=1)

/source/[index]/ad [number] [number] : set the azimuth/distance of the i-th source, using default elevation (=0)

/source/[index]/azim [number] : set the azimuth of the i-th source. Elevation and distance remain unchanged

/source/[index]/elev [number] : set the elevation of the i-th source. Azimuth and distance remain unchanged

/source/[index]/dist [number] : set the distance of the i-th source. Azimuth and elevation remain unchanged

/source/[index]/azimelev [number] [number] : set the azimuth and elevation of the i-th source. Distance remains unchanged

/source/[index]/azimdist [number] [number] : set the azimuth and distance of the i-th source. Elevation remains unchanged

/sources/aed [nnnn...] : set the list of source coordinates (with aed format)

/sources/xyz [nnnn...] : set the list of source coordinates (with xyz format)

/sources/ade [nnnn...] : set the list of source coordinates (with ade format)

/sources/xy [nnnn...] : set the list of source coordinates (with xy format)

/sources/ae [nnnn...] : set the list of source coordinates (with ae format)

/source/[index]/spread/omni [number] : set omni spread (in /source/[index]/spread/law [string] : set spread law for the i-th source

/source/[index]/spread/mode [number] : set spread mode for the i-th source

/source/[index]/divergence [boolean] : enable/disable divergence for the i-th source

/source/[index]/divergence/radius [number] : set minimum radius (in meters) for divergence for the i-th source

/ramp/time [number] : set ramp time (in msec) for gain smoothing

/format [string] : set coordinate format used in the status window

/post/version : print the version in the Max Console

/post/version [details] : print detailed version in the Max Console

/post/doc : print the help documentation in the Max Console

/post/state : print the OSC status in the Max Console

/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.

/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.

/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)

/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.

/status : open the status window and bring it to front

/status/open : open the status window and bring it to front

/status/close : close the status window

/status/openorclose : open the status window if it was closed; close it if it was opened

/status/font/size [number] : set the font size of the status window

/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)

/help : open the help window and bring it to front

/help/open : open the help window and bring it to front
 /help/close : close the help window
 /help/openorclose : open the help window if it was closed; close it if it was opened
 /help/font/size [number] : set the font size of the help window
 /help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
 /snapshot : open the snapshot window and bring it to front
 /snapshot/open : open the snapshot window and bring it to front
 /snapshot/close : close the snapshot window
 /snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
 /snapshot/font/size [number] : set the font size of the snapshot window
 /snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
 /status/copytoclipboard : copy the status to (the OS) clipboard
 /status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
 /dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
 /dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
 /snapshot/clear : delete all the snapshots currently in memory
 /snapshot/add : create a new snapshot with the current state
 /snapshot/add [string] : create a new snapshot with the current state, and set its name
 /snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
 /snapshot/[index]/recall : recall the current state from the i-th snapshot
 /snapshot/[index]/name [string] : set the name of the i-th snapshot
 /snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
 /snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
 /snapshot/[index]/delete : delete the i-th snapshot
 /snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
 /snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
 /snapshot/[index]/export [string] : export the i-th snapshot to file
 /snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
 /snapshot/export [string] : export all snapshots to file
 /snapshot/import [string] : import all snapshots from file

see also

- spat5.pan~
- spat5.pansig~
- spat5.spat~
- matrix~
- spat5.viewer
- spat5.trajectories
- spat5.panner.metrics

spat5.panner.metrics

Panner metrics

description

spat5.panner.metrics computes and displays several quality criteria for amplitude panners (and HOA decoders).

Reference(s) :

M. A. Gerzon. General metatheory of auditory localization. In Proc. of the 92nd Convention of Audio Engineering Society (AES), Vienna, Austria, March 1992.

J. Daniel. Representation de champs acoustiques, application a la transmission et a la reproduction de scenes sonores complexes dans un contexte multimedia. PhD thesis, Université de Paris VI, 2001.

N. Epain, C. Jin, and F. Zotter. Ambisonic decoding with constant angular spread. Acta Acustica united with Acustica, 100:928 – 936, 2014.

F. Zotter, H. Pomberger, and M. Noisternig. Energy-preserving ambisonic decoding. Acta Acustica united with Acustica, 98:37 – 47, 2012.

F. Zotter, M. Frank, and H. Pomberger. Comparison of energy-preserving and all-round Ambisonic decoders. In Proc. the Fortschritte der Akustik, AIA-DAGA, March 2013.

F. Zotter, M. Frank. Ambisonics: A Practical 3D Audio Theory for Recording, Studio Production, Sound Reinforcement, and Virtual Reality. Springer, 2019.

attributes

@embed [boolean]

The `embed` attribute allows to store the state of the object within the patcher. The complete state of the object is stored whenever the patcher is saved to disk. Upon loading the patcher or copying the object box, the state is restored.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`. Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/speakers/number [int] : set the number of loudspeakers
/speakers/aed [nnnn...] : set the list of speaker coordinates (with aed format)
/speakers/xyz [nnnn...] : set the list of speaker coordinates (with xyz format)
/speakers/ade [nnnn...] : set the list of speaker coordinates (with ade format)
/speakers/xy [nnnn...] : set the list of speaker coordinates (with xy format)
/speakers/ae [nnnn...] : set the list of speaker coordinates (with ae format)
/speaker/[index]/aed [number][number][number] : set the position of the i-th loudspeaker using navigation coordinates (azimuth/elevation/distance)
/speaker/[index]/ade [number][number][number] : set the position of the i-th loudspeaker using navigation coordinates (azimuth/distance/elevation)
/speaker/[index]/xyz [number][number][number] : set the position of the i-th loudspeaker using cartesian coordinates
/speaker/[index]/xy [number][number] : set the xy-coordinate of the i-th loudspeaker, and use default z (=0)
/speaker/[index]/ae [number][number] : set the azimuth/elevation of the i-th loudspeaker, using default distance (=1)
/speaker/[index]/az [number] : set the azimuth of the i-th loudspeaker, using default distance (=1) and elevation (=0)
/display/mode [string] : set display mode. Possible values: energy, re, rv, energy vector angular error, velocity vector angular error, angular spread, spreaddaniel, spreadfrank, re vs rv direction difference, re directions, rv directions
/display/range [number][number] : set display range
/colormap [string] : set type of colormap. Possible values: jet, hsv, gray, hot, summer, winter, spring, autumn, cool, parula, bone, copper, pink, lines, colorcube, prism, flag, magma, inferno, plasma, viridis, cividis, moreland, yellowred, turbo, twilight, blues, amber, dusk, tree, emerald, ghostlight, neutral, seasons, swamp, redshift, bubblegum, watermelon, rainforest, sepia, cosmic, toxic, freeze, gem, viola, horizon, gothic, flamingo, neon, sapphire, sunburst, torch, pepper, lilac, nuclear, prinsenvlag, lavender, guppy, jungle, savanna, wildfire, emergency, voltage, ember, chroma, apple, holly, tropical, fusion, infinity, arctic, seaweed, pride, eclipse, fall, ocean, iceburn, waterlily, amethyst
/cursor/visible [boolean] : set cursor visibility
/speakers/label/color [color] : set speaker labels color
/speakers/label/visible [boolean] : display speaker labels
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.

```

```

/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file
/window/title [string] : set the window title (in the window titlebar)
/window/visible [boolean] : set the window visibility
/window/moveable [boolean] : set the window movability
/window/resizable [boolean] : set the window resizability
/window/enable [boolean] : enable/disable the window
/window/background/color [color] : set the window background color
/window/opaque [boolean] : set the window opaque flag (optimize repaint efficiency)
/window/fullscreen [boolean] : enable/disable fullscreen mode
/window/minimise [boolean] : minimize the window
/window/open : open the window (and bring it to front)
/window/close : close the window
/window/openorclose : open the window if it was closed; close it if it was opened
/window/size [number][number] : set the window size (width, height) (in pixels)
/window/width [number] : set the window width (in pixels)
/window/height [number] : set the window height (in pixels)
/window/bounds [number][number][number][number] : set the window bounds (top left position, width, height) (in pixels)
/window/topleft [number][number] : set the window top left position (in pixels)
/window/centre : open the window, centering it on the screen
/window/rendering/engine [string] : set the graphical rendering engine of the window
/window/fps/visible [boolean] : display the FPS performances of the window
/window/scale [number] : set the global scale factor of the window (in /window/floating [boolean] : make the window 'floating' (always on top)
/window/hidesondeactivate [boolean] : make the window 'hides on deactivate' (when always on top)
/window/buttons/close [boolean] : enable/disable the close button (in the window titlebar)
/window/buttons/minimise [boolean] : enable/disable the minimise button (in the window titlebar)
/window/buttons/maximise [boolean] : enable/disable the maximise button (in the window titlebar)
/window/export/image [string] : export the window as an image file (png or jpeg)

```

see also

- spat5.hoa.decoder~
- spat5.pan
- spat5.pan~
- spat5.viewer
- spat5.grids
- spat5.speaker.layout
- spat5.multi.connect

spat5.panner.metrics.embedded

Panner metrics

description

spat5.panner.metrics computes and displays several quality criteria for amplitude panners (and HOA decoders).

Reference(s) :

M. A. Gerzon. General metatheory of auditory localization. In Proc. of the 92nd Convention of Audio Engineering Society (AES), Vienna, Austria, March 1992.

J. Daniel. Representation de champs acoustiques, application a la transmission et a la reproduction de scenes sonores complexes dans un contexte multimedia. PhD thesis, Université de Paris VI, 2001.

N. Epain, C. Jin, and F. Zotter. Ambisonic decoding with constant angular spread. Acta Acustica united with Acustica, 100:928 – 936, 2014.

F. Zotter, H. Pomberger, and M. Noisternig. Energy-preserving ambisonic decoding. Acta Acustica united with Acustica, 98:37 – 47, 2012.

F. Zotter, M. Frank, and H. Pomberger. Comparison of energy-preserving and all-round Ambisonic decoders. In Proc. the Fortschritte der Akustik, AIA-DAGA, March 2013.

F. Zotter, M. Frank. Ambisonics: A Practical 3D Audio Theory for Recording, Studio Production, Sound Reinforcement, and Virtual Reality. Springer, 2019.

attributes

@embed [boolean]

The `embed` attribute allows to store the state of the object within the patcher. The complete state of the object is stored whenever the patcher is saved to disk. Upon loading the patcher or copying the object box, the state is restored.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`. Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/speakers/number [int] : set the number of loudspeakers
/speakers/aed [nnnn...] : set the list of speaker coordinates (with aed format)
/speakers/xyz [nnnn...] : set the list of speaker coordinates (with xyz format)
/speakers/ade [nnnn...] : set the list of speaker coordinates (with ade format)
/speakers/xy [nnnn...] : set the list of speaker coordinates (with xy format)
/speakers/ae [nnnn...] : set the list of speaker coordinates (with ae format)
/speaker/[index]/aed [number][number][number] : set the position of the i-th loudspeaker using navigation coordinates (azimuth/elevation/distance)
/speaker/[index]/ade [number][number][number] : set the position of the i-th loudspeaker using navigation coordinates (azimuth/distance/elevation)
/speaker/[index]/xyz [number][number][number] : set the position of the i-th loudspeaker using cartesian coordinates
/speaker/[index]/xy [number][number] : set the xy-coordinate of the i-th loudspeaker, and use default z (=0)
/speaker/[index]/ae [number][number] : set the azimuth/elevation of the i-th loudspeaker, using default distance (=1)
/speaker/[index]/az [number] : set the azimuth of the i-th loudspeaker, using default distance (=1) and elevation (=0)
/display/mode [string] : set display mode. Possible values: energy, re, rv, energy vector angular error, velocity vector angular error, angular spread, spreaddaniel, spreadfrank, re vs rv direction difference, re directions, rv directions
/display/range [number][number] : set display range
/colormap [string] : set type of colormap. Possible values: jet, hsv, gray, hot, summer, winter, spring, autumn, cool, parula, bone, copper, pink, lines, colorcube, prism, flag, magma, inferno, plasma, viridis, cividis, moreland, yellowred, turbo, twilight, blues, amber, dusk, tree, emerald, ghostlight, neutral, seasons, swamp, redshift, bubblegum, watermelon, rainforest, sepia, cosmic, toxic, freeze, gem, viola, horizon, gothic, flamingo, neon, sapphire, sunburst, torch, pepper, lilac, nuclear, prinsenvlag, lavender, guppy, jungle, savanna, wildfire, emergency, voltage, ember, chroma, apple, holly, tropical, fusion, infinity, arctic, seaweed, pride, eclipse, fall, ocean, iceburn, waterlily, amethyst
/cursor/visible [boolean] : set cursor visibility
/speakers/label/color [color] : set speaker labels color
/speakers/label/visible [boolean] : display speaker labels
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.

```

```

/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- spat5.hoa.decoder~
- spat5.pan
- spat5.pan~
- spat5.viewer
- spat5.grids
- spat5.speaker.layout
- spat5.multi.connect

spat5.pattr Store and recall presets

description

spat5.pattr stores and recall presets for spat5 objects.

attributes

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file
```

see also

- [pattr](#)

spat5.ping

Ping utility

description

spat5.ping sends a ping message to a given destination. This can test the reachability of a host on an Internet Protocol (IP) network.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- [udpsend](#)

- `udpreceive`
- `spat5.osc.udpsend`
- `spat5.osc.udpreceive`
- `spat5.hostinfos`

spat5.pink~

Generate pink noise

description

spat5.pink~ is similar to Max/MSP **pink~** but can process several channels in parallel. All channels are independent.

attributes

@channels [int]

The **channels** attribute represents the number of input and output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or **attrui** or **inspector**), since the number of signal inlets or outlets can not be changed dynamically.

@initwith [string]

The **initwith** attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via **loadbang** or **loadmess**.

Have a look at the **spat5.tuto-osc-3.maxpat** example for further details.

Note that the **initwith** attribute cannot be set via message, **attrui** or **inspector**; it must be typed directly within the object box.

@mc [int]

The **mc** attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the **mc** attribute cannot be set via message, **attrui** or **inspector**; it must be typed directly within the object box.

@parameter_enable [boolean]

The **parameter_enable** attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied without ramping/crossfade, so this might generate clicks

/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied without ramping/crossfade, so this might generate clicks

/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)

/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting

/dsp/post : post various information to the Max console (audio should be turned on)

/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up

/dump/dsp/latency : send the processor latency (in samples) through the dump outlet

/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed

/post/version : print the version in the Max Console

/post/version [details] : print detailed version in the Max Console

/post/doc : print the help documentation in the Max Console

/post/state : print the OSC status in the Max Console

/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the **coll** object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.

/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the **coll** object). '.txt' is the default file format.

/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the **coll** object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)

/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the **coll** object). '.txt' is the default file format.

/status : open the status window and bring it to front

/status/open : open the status window and bring it to front

/status/close : close the status window

/status/openorclose : open the status window if it was closed; close it if it was opened

/status/font/size [number] : set the font size of the status window

/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)

/help : open the help window and bring it to front

/help/open : open the help window and bring it to front

/help/close : close the help window

/help/openorclose : open the help window if it was closed; close it if it was opened

/help/font/size [number] : set the font size of the help window

/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)

/snapshot : open the snapshot window and bring it to front

/snapshot/open : open the snapshot window and bring it to front

/snapshot/close : close the snapshot window

/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened

/snapshot/font/size [number] : set the font size of the snapshot window

/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)

/status/copytoclipboard : copy the status to (the OS) clipboard

/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. '\')

/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)

`/dump [string]` : dump a subset of the state of the object over the rightmost outlet. See `spat5.tuto-dump-1.maxpat` for usage examples.
`/snapshot/clear` : delete all the snapshots currently in memory
`/snapshot/add` : create a new snapshot with the current state
`/snapshot/add [string]` : create a new snapshot with the current state, and set its name
`/snapshot/[index]/store` : store the current state in the i-th snapshot (in memory)
`/snapshot/[index]/recall` : recall the current state from the i-th snapshot
`/snapshot/[index]/name [string]` : set the name of the i-th snapshot
`/snapshot/interpolate [int][int][number]` : interpolate between the i-th and j-th snapshots
`/snapshot/interpolate [string][string][number]` : interpolate between two snapshots, given their names
`/snapshot/[index]/delete` : delete the i-th snapshot
`/snapshot/[index]/copytoclipboard` : copy the i-th snapshot to (the OS) clipboard
`/snapshot/[index]/copytoclipboard [string]` : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
`/snapshot/[index]/export [string]` : export the i-th snapshot to file
`/snapshot/[index]/export/content [string]` : export the content of the i-th snapshot to file
`/snapshot/export [string]` : export all snapshots to file
`/snapshot/import [string]` : import all snapshots from file

see also

- `noise~`
- `pink~`
- `spat5.noise~`
- `mc.pink~`
- `spat5.multi.connect`

spat5.plot Generic plot component

description

spat5.plot visualizes two-dimensional data. It is vaguely similar to Matlab plot function.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/title [string] : set title
/title/visible [boolean] : set visibility for title
/title/color [color] : set color for the title
/title/justification [string] : set justification for the title
/title/font/size [number] : set font size for the title
/grid/visible [boolean] : set visibility for the grid
/grid/color [color] : set color for the grid
/curve/number [int] : set the number of curves
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
```

/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

see also

- [plot~](#)

spat5.plus~ Multichannel plus~

description

spat5.plus~ is similar to Max/MSP **plus~** (aka +~) but it can process several channels in parallel. All the input signals are offsetted by the rightmost value (float or signal).

attributes

@channels [int]

The `channels` attribute represents the number of input and output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or attrui or inspector), since the number of signal inlets or outlets can not be changed dynamically.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
```

/snapshot/import [string] : import all snapshots from file

see also

- times~
- *~
- spat5.times~
- gain~
- spat5.meter~
- spat5.diagmatrix~
- matrix~
- mc.+~

spat5.printbytes Print FullPacket

description

spat5.printbytes prints raw packets to the Max window, as a sequence of bytes.

attributes

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file
```

see also

- spat5.osc.view
- spat5.osc.display
- spat5.osc.print
- udpsend
- udpreceive

spat5.quat.fromeuler

Euler angles to quaternion

description

spat5.quat.fromeuler converts Euler angles to quaternion.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file
```

see also

- [spat5.quat.toeuler](#)

- spat5.quat.transform
- spat5.quat.normalize
- spat5.quat.inverse
- spat5.quat.tomatrix
- spat5.quat.fromvectors
- spat5.viewer
- spat5.binaural~
- jit.euler2quat

spat5.quat.frommatrix

Converts 3x3 rotation matrix to quaternions

description

spat5.quat.frommatrix converts 3x3 rotation matrix to quaternions.

attributes

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file
```

see also

- spat5.quat.tomatrix
- spat5.quat.toeuler
- spat5.quat.fromeuler
- spat5.quat.transform
- spat5.quat.inverse
- spat5.quat.normalize
- spat5.quat.fromvectors
- spat5.transform

- spat5.viewer
- spat5.binaural~
- jit.euler2quat

spat5.quat.fromvectors

Quaternions from two vectors in 3D

description

spat5.quat.fromvectors creates a quaternion representing the rotation between two 3D vectors.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- [spat5.quat.toeuler](#)

- spat5.quat.fromeuler
- spat5.quat.transform
- spat5.quat.normalize
- spat5.transform
- spat5.viewer
- spat5.quat.frommatrix
- spat5.binaural~
- jit.euler2quat

spat5.quat.interpolate

Interpolation between two quaternions

description

spat5.quat.interpolate performs linear interpolation between two quaternions.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- [spat5.quat.toeuler](#)

- spat5.quat.transform
- spat5.quat.normalize
- spat5.quat.inverse
- spat5.quat.tomatrix
- spat5.quat.fromvectors
- spat5.viewer
- spat5.binaural~
- jit.euler2quat

spat5.quat.inverse Inverse quaternion

description

spat5.quat.inverse computes the inverse of the input quaternion.

attributes

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- spat5.quat.toeuler
- spat5.quat.fromeuler
- spat5.quat.transform
- spat5.quat.normalize
- spat5.quat.fromvectors
- spat5.quat.frommatrix
- spat5.transform
- spat5.viewer

- `spat5.binaural~`
- `jit.euler2quat`

spat5.quat.normalize Normalize quaternion

description

spat5.quat.normalize normalizes of the input quaternion.

attributes

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file
```

see also

- spat5.quat.toeuler
- spat5.quat.fromeuler
- spat5.quat.transform
- spat5.quat.inverse
- spat5.quat.fromvectors
- spat5.transform
- spat5.viewer
- spat5.binaural~

- `jit.euler2quat`

spat5.quat.toeuler

Quaternion to Euler angles

description

spat5.quat.toeuler converts quaternion to Euler angles.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file
```

see also

- [spat5.quat.fromeuler](#)

- spat5.quat.transform
- spat5.quat.normalize
- spat5.quat.inverse
- spat5.quat.tomatrix
- spat5.quat.fromvectors
- spat5.viewer
- spat5.binaural~
- jit.euler2quat

spat5.quat.tomatrix

Converts quarternion to 3x3 rotation matrix

description

spat5.quat.tomatrix converts quarternion to 3x3 rotation matrix.

attributes

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file
```

see also

- spat5.quat.frommatrix
- spat5.quat.toeuler
- spat5.quat.fromeuler
- spat5.quat.transform
- spat5.quat.inverse
- spat5.quat.normalize
- spat5.quat.fromvectors
- spat5.transform

- spat5.viewer
- spat5.binaural~
- jit.euler2quat

spat5.quat.transform

Apply quaternion rotation

description

spat5.quat.transform transforms sources position by the current quaternion.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- [spat5.quat.fromeuler](#)

- spat5.quat.toeuler
- spat5.quat.normalize
- spat5.quat.inverse
- spat5.quat.fromvectors
- spat5.transform
- spat5.viewer
- spat5.binaural~
- jit.euler2quat

spat5.rake~ FFT bins mapping

description

spat5.rake~ perform a FFT of the incoming audio stream, and then makes it possible to map the FFT bins to any number of individual outputs. **rake~** was originally implemented by Andrew Gerzso.

attributes

@initwith [string]

The **initwith** attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via **loadbang** or **loadmess**.

Have a look at the **spat5.tuto-osc-3.maxpat** example for further details.

Note that the **initwith** attribute cannot be set via message, **attrui** or **inspector**; it must be typed directly within the object box.

@mc [int]

The **mc** attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the **mc** attribute cannot be set via message, **attrui** or **inspector**; it must be typed directly within the object box.

@outputs [int]

The **outputs** attribute represents the number of output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or **attrui** or **inspector**), since the number of signal inlets or outlets can not be changed dynamically.

@parameter_enable [boolean]

The **parameter_enable** attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/fftsize [int] : set fft size; must be a power of 2
/overlap [int] : set the overlap factor
/windowing/type [string] : set the window type for overlap-add
/output/[index]/bin/range [int][int] : set bin range for the i-th output
/output/[index]/freq/range [number][number] : set frequency range (in Hz) for the i-th output
/output/[index]/centerfreq [number][number] : set center frequency (in Hz) and bandwidth (in Hz) for the i-th output
/output/[index]/centernote [number][number] : set center frequency (in Hz) and bandwidth (in half steps) for the i-th output
/output/[index]/centermidi [number][number] : set center frequency (in MIDI note) and bandwidth (in half steps) for the i-th output
/output/[index]/erb [number][number] : set center frequency (in ERB index) and bandwidth (in ERB bandwidth) for the i-th output
/output/[index]/bark [number][number] : set center frequency (in Bark index) and bandwidth (in Bark bandwidth) for the i-th output
/output/[index]/bin/list [number][number][number]... : set the discrete list of frequency bins for the i-th output
/output/[index]/bin/freq [number][number][number]... : set the discrete list of frequencies (in Hz) for the i-th output
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied without ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied without ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
```

```

/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- [fftin~](#)
- [fftout~](#)
- [pfft~](#)
- [ifft~](#)
- [spat5.fton](#)
- [spat5.ntof](#)
- [spat5.multi.connect](#)

spat5.reverb.timeview

Impulse response visualization

description

spat5.reverb.timeview displays a schematic temporal view of the impulse response.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- [spat5.reverb~](#)

- spat5.ircamverb~
- spat5.ircamverb
- spat5.oper
- spat5.delgen
- spat5.early~
- spat5.cluster~
- spat5.roomsize

spat5.reverb~ Late reverberation

description

spat5.reverb~ generates late reverberation from an echo bus using a feedback delay network.

When using **spat5.reverb~** inside a reverberator engine, the number of delayed channels (**channels** attribute) corresponds to the number of "internal channels" (**internals** attribute of **spat5.spat~** object).

Reference(s) :

J.-M. Jot and A. Chaigne. Digital delay networks for designing artificial reverberators. In Proc. of the 90th Convention of the Audio Engineering Society (AES), Paris, France, Feb 1991.

T. I. Laakso, V. Välimäki, M. Karjalainen, and U. K. Laine. Splitting the unit delay. IEEE Signal Processing Magazine, 13(1):30 – 60, January 1996.

attributes

@channels [int]

The **channels** attribute represents the number of input and output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or attrui or inspector), since the number of signal inlets or outlets can not be changed dynamically.

@initwith [string]

The **initwith** attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via **loadbang** or **loadmess**.

Have a look at the **spat5.tuto-osc-3.maxpat** example for further details.

Note that the **initwith** attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@mc [int]

The **mc** attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the **mc** attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The **parameter_enable** attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/channel/number [int] : set the number of feedback channels
/tr0 [number] : set global reverberation time (in seconds)
/tr1 [number] : set relative decay time in low frequencies
/trm [number] : set relative decay time in mid frequencies
/trh [number] : set relative decay time in high frequencies
/fl [number] : set reverb low/mid crossover frequency (in Hz)
/fh [number] : set reverb mid/high crossover frequency (in Hz)
/infinite [boolean] : enable/disable infinite reverb
/air [boolean] : enable/disable air absorption in the FDN
/air/freq [number] : set air absorption rolloff frequency (in Hz) in the FDN
/delays [number][number][number]... : set the list of delays (in msec)
/delays/samples [number][number][number]... : set the list of delays (in samples)
/interpolation/mode [string] : set the interpolation mode. Possible values: nearest, linear, lagrange3, allpass, hermite3, watte3, bspline3, parabolic, allpass2, allpass3, nearestxfade
/interpolation/time [number] : set the interpolation time (in msec)
/channel/[index]/delay [number] : set the delay (in msec) for the i-th channel
/channel/[index]/delay/samples [number] : set the delay (in samples) for the i-th channel
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for
```

human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)

/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.

/status : open the status window and bring it to front

/status/open : open the status window and bring it to front

/status/close : close the status window

/status/openorclose : open the status window if it was closed; close it if it was opened

/status/font/size [number] : set the font size of the status window

/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)

/help : open the help window and bring it to front

/help/open : open the help window and bring it to front

/help/close : close the help window

/help/openorclose : open the help window if it was closed; close it if it was opened

/help/font/size [number] : set the font size of the help window

/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)

/snapshot : open the snapshot window and bring it to front

/snapshot/open : open the snapshot window and bring it to front

/snapshot/close : close the snapshot window

/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened

/snapshot/font/size [number] : set the font size of the snapshot window

/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)

/status/copytoclipboard : copy the status to (the OS) clipboard

/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')

/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)

/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.

/snapshot/clear : delete all the snapshots currently in memory

/snapshot/add : create a new snapshot with the current state

/snapshot/add [string] : create a new snapshot with the current state, and set its name

/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)

/snapshot/[index]/recall : recall the current state from the i-th snapshot

/snapshot/[index]/name [string] : set the name of the i-th snapshot

/snapshot/interpolate [int] [int] [number] : interpolate between the i-th and j-th snapshots

/snapshot/interpolate [string] [string] [number] : interpolate between two snapshots, given their names

/snapshot/[index]/delete : delete the i-th snapshot

/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard

/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')

/snapshot/[index]/export [string] : export the i-th snapshot to file

/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file

/snapshot/export [string] : export all snapshots to file

/snapshot/import [string] : import all snapshots from file

see also

- spat5.early~
- spat5.cluster~
- spat5.spat~
- spat5.room~
- spat5.ircamverb~
- spat5.delgen
- spat5.multiverb~
- spat5.roomsize
- spat5.shuffle~
- spat5.multiverb~
- spat5.conv~
- spat5.converb~
- spat5.tapout~
- delay~
- tapout~
- spat5.comb~
- spat5.allpass~
- spat5.reverb.timeview
- spat5.multi.connect

spat5.rms~ Multichannel RMS metering

description

spat5.rms~ performs multichannel RMS metering.

attributes

@channels [int]

The `channels` attribute represents the number of input and output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or `attrui` or `inspector`), since the number of signal inlets or outlets can not be changed dynamically.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max `inspector`).

methods

```
/mode [string] : set processing mode
/rate [number] : set report rate (in msec)
/rounding [int] : number of decimal places for rounding dB values (-1 means no rounding)
/clear : clear history
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
```



```

/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- average~
- spat5.meter~
- live.gain~
- spat5.ebur128~
- spat5.snapshot~
- snapshot~
- gain~
- spat5.minmax~
- spat5.multi.connect

spat5.roomsize Delay distribution generator

description

spat5.roomsize generates a distribution of delays based on a room-size meta parameter.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/delay/number [int] : set number of delays
/tr0 [number] : set reverberation time (in sec)
/roomsize [number] : set room size (in cubic meters)
/roomoffset [number] : set room offset (in msec)
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- `delay~`
- `spat5.delay~`
- `spat5.delgen`
- `spat5.reverb.timeview`
- `spat5.early~`
- `spat5.cluster~`
- `spat5.reverb~`
- `spat5.room~`
- `tapin~`
- `tapout~`

spat5.room~

Reverberation module

description

spat5.room~ is the reverberation module of the Spat framework. It combines **spat5.source~** pre-processing, **spat5.early~**, **spat5.cluster~**, and **spat5.reverb~**, to generate early reflections, late reflections and reverb tail. Each stage is associated with a 3-band filtering (**spat5.hlsshelf~**).

attributes

@initwith [string]

The **initwith** attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via **loadbang** or **loadmess**.

Have a look at the **spat5.tuto-osc-3.maxpat** example for further details.

Note that the **initwith** attribute cannot be set via message, **attrui** or **inspector**; it must be typed directly within the object box.

@internals [int]

The **internals** attribute represents the number of internal channels of the artificial reverberator.

Spat uses a Feedback Delay Network (FDN) reverberator engine.

Basically this can be seen as an array of delay lines which are fed back into a mixing matrix. The **internals** attributes represents the size of the feedback matrix.

Choosing the size of this matrix is a trade-off between CPU consumption and the echo density.

Increasing the size of the matrix will generate a denser reverb tail at the expense of a higher CPU load.

A typical value of 8 is a good compromise between CPU load and natural sounding reverb. A value of 16 may be useful especially when dealing with a very long reverberation time or with very percussive sound (where a smaller FDN might sometimes sounds too poor).

It is recommended not to use a value below 6.

@mc [int]

The **mc** attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the **mc** attribute cannot be set via message, **attrui** or **inspector**; it must be typed directly within the object box.

@parameter_enable [boolean]

The **parameter_enable** attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

@sources [int]

The **sources** attribute represents the number of input channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or **attrui** or **inspector**), since the number of signal inlets or outlets can not be changed dynamically.

methods

```
/source/[index]//air [boolean] : enable/disable air absorption (for direct sound)
/source/[index]//air/freq [number] : set air absorption rolloff frequency (in Hz)
/source/[index]//doppler [boolean] : enable/disable doppler effect
/source/[index]//doppler/delay [number] : set delay (in msec) for doppler effect
/source/[index]//direct/params [number][number]... : set direct filter parameters
/source/[index]//room/params [number][number]... : set room filter parameters
/source/[index]//early/params [number][number]... : set early filter parameters
/source/[index]//cluster/params [number][number]... : set cluster filter parameters
/source/[index]//early/delays [number][number]... : set early delays (in msec)
/source/[index]//cluster/delays [number][number]... : set cluster delays (in msec)
/source/[index]//reverb/delays [number][number]... : set reverb delays (in msec)
/source/[index]//reverb/tr0 [number] : set global reverberation time (in seconds)
/source/[index]//reverb/trl [number] : set relative decay time in low frequencies
/source/[index]//reverb/trm [number] : set relative decay time in mid frequencies
/source/[index]//reverb/trh [number] : set relative decay time in high frequencies
/source/[index]//reverb/fl [number] : set reverb low/mid crossover frequency (in Hz)
/source/[index]//reverb/fh [number] : set reverb mid/high crossover frequency (in Hz)
/source/[index]//reverb/gain [number] : set reverb gain (in dB)
/source/[index]//reverb/infinite [boolean] : enable/disable infinite reverb
/source/[index]//reverb/air [boolean] : enable/disable air absorption in the FDN
/source/[index]//reverb/air/freq [number] : set air absorption rolloff frequency (in Hz) in the FDN
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
```

```

/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for
human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is
inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for
human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for
human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the
destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll'
for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int] [int] [number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string] [string] [number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- spat5.source~
- spat5.early~
- spat5.cluster~
- spat5.reverb~
- spat5.spat~
- spat5.ircamverb~
- spat5.delgen
- spat5.shuffle~
- spat5.doppler~
- spat5.air~
- spat5.delgen
- spat5.reverb.timeview
- spat5.multi.connect

spat5.rotate Rotate coordinate messages

description

spat5.rotate applies rotation to source, speaker or listener coordinate messages.

spat5.scale, **spat5.rotate** and **spat5.translate** are stateless objects i.e. they only react when incoming position messages are received.

On the other hand, **spat5.transform** is statefull: it keeps track of the state of the spatial scene, and will deliver the transformed scene whenever the parameter (yaw, pitch, roll, offset, etc.) is changed.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/yaw [number] : set yaw rotation angle
/pitch [number] : set pitch rotation angle
/roll [number] : set roll rotation angle
/ypz [number] [number] [number] : set yaw, pitch and roll rotation angles
/orientation [number] [number] [number] [number] : set rotation angles from quaternion
```

see also

- `spat5.transform`
- `spat5.scale`
- `spat5.translate`
- `spat5.normalize`
- `spat5.viewer`
- `spat5.converter`
- `spat5.abs2rel`
- `spat5.jitter`
- `spat5.trajectories`

spat5.routing Routing matrix

description

spat5.routing is a control interface for `spat5.routing~`.

attributes

@embed [boolean]

The `embed` attribute allows to store the state of the object within the patcher. The complete state of the object is stored whenever the patcher is saved to disk. Upon loading the patcher or copying the object box, the state is restored.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@inputs [int]

The `inputs` attribute represents the number of input channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or `attrui` or `inspector`), since the number of signal inlets or outlets can not be changed dynamically.

@outputs [int]

The `outputs` attribute represents the number of output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or `attrui` or `inspector`), since the number of signal inlets or outlets can not be changed dynamically.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max `inspector`).

methods

```
/row/number [int] : set number of rows
/col/number [int] : set number of columns
/row/[index]/col/[index] [boolean] : set value for the i-th row and j-th column
/clear : clear the whole matrix
/diag : fill the diagonal of the matrix
/window/title [string] : set the window title (in the window titlebar)
/window/visible [boolean] : set the window visibility
/window/moveable [boolean] : set the window movability
/window/resizable [boolean] : set the window resizability
/window/enable [boolean] : enable/disable the window
/window/background/color [color] : set the window background color
/window/opaque [boolean] : set the window opaque flag (optimize repaint efficiency)
/window/fullscreen [boolean] : enable/disable fullscreen mode
/window/minimise [boolean] : minimize the window
/window/open : open the window (and bring it to front)
/window/close : close the window
/window/openorclose : open the window if it was closed; close it if it was opened
/window/size [number] [number] : set the window size (width, height) (in pixels)
/window/width [number] : set the window width (in pixels)
/window/height [number] : set the window height (in pixels)
/window/bounds [number] [number] [number] [number] : set the window bounds (top left position, width, height) (in pixels)
/window/topleft [number] [number] : set the window top left position (in pixels)
/window/centre : open the window, centering it on the screen
/window/rendering/engine [string] : set the graphical rendering engine of the window
/window/fps/visible [boolean] : display the FPS performances of the window
/window/scale [number] : set the global scale factor of the window (in /window/floating [boolean] : make the window 'floating' (always on top)
/window/hidesondeactivate [boolean] : make the window 'hides on deactivate' (when always on top)
/window/buttons/close [boolean] : enable/disable the close button (in the window titlebar)
/window/buttons/minimise [boolean] : enable/disable the minimise button (in the window titlebar)
/window/buttons/maximise [boolean] : enable/disable the maximise button (in the window titlebar)
/window/export/image [string] : export the window as an image file (png or jpeg)
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
```

/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)

/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.

/status : open the status window and bring it to front

/status/open : open the status window and bring it to front

/status/close : close the status window

/status/openorclose : open the status window if it was closed; close it if it was opened

/status/font/size [number] : set the font size of the status window

/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)

/help : open the help window and bring it to front

/help/open : open the help window and bring it to front

/help/close : close the help window

/help/openorclose : open the help window if it was closed; close it if it was opened

/help/font/size [number] : set the font size of the help window

/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)

/snapshot : open the snapshot window and bring it to front

/snapshot/open : open the snapshot window and bring it to front

/snapshot/close : close the snapshot window

/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened

/snapshot/font/size [number] : set the font size of the snapshot window

/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)

/status/copytoclipboard : copy the status to (the OS) clipboard

/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')

/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)

/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.

/snapshot/clear : delete all the snapshots currently in memory

/snapshot/add : create a new snapshot with the current state

/snapshot/add [string] : create a new snapshot with the current state, and set its name

/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)

/snapshot/[index]/recall : recall the current state from the i-th snapshot

/snapshot/[index]/name [string] : set the name of the i-th snapshot

/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots

/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names

/snapshot/[index]/delete : delete the i-th snapshot

/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard

/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')

/snapshot/[index]/export [string] : export the i-th snapshot to file

/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file

/snapshot/export [string] : export all snapshots to file

/snapshot/import [string] : import all snapshots from file

see also

- spat5.routing~
- matrixctrl
- gate~
- selector~
- matrix~
- spat5.gate~
- spat5.diagmatrix~
- spat5.matrix

spat5.routing.embedded

Routing matrix

description

spat5.routing is a control interface for spat5.routing~.

attributes

@embed [boolean]

The `embed` attribute allows to store the state of the object within the patcher. The complete state of the object is stored whenever the patcher is saved to disk. Upon loading the patcher or copying the object box, the state is restored.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@inputs [int]

The `inputs` attribute represents the number of input channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or `attrui` or `inspector`), since the number of signal inlets or outlets can not be changed dynamically.

@outputs [int]

The `outputs` attribute represents the number of output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or `attrui` or `inspector`), since the number of signal inlets or outlets can not be changed dynamically.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max `inspector`).

methods

```
/row/number [int] : set number of rows
/col/number [int] : set number of columns
/row/[index]/col/[index] [boolean] : set value for the i-th row and j-th column
/clear : clear the whole matrix
/diag : fill the diagonal of the matrix
```

see also

- spat5.routing~
- matrixctrl
- gate~
- selector~
- matrix~
- spat5.gate~
- spat5.diagmatrix~
- spat5.matrix

spat5.routing~ Routing matrix

description

spat5.routing~ is a routing matrix. It can be controlled with **spat5.routing**.

attributes

@initwith [string]

The **initwith** attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via **loadbang** or **loadmess**.

Have a look at the **spat5.tuto-osc-3.maxpat** example for further details.

Note that the **initwith** attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@inputs [int]

The **inputs** attribute represents the number of input channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or attrui or inspector), since the number of signal inlets or outlets can not be changed dynamically.

@mc [int]

The **mc** attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the **mc** attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@outputs [int]

The **outputs** attribute represents the number of output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or attrui or inspector), since the number of signal inlets or outlets can not be changed dynamically.

@parameter_enable [boolean]

The **parameter_enable** attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/row/number [int] : set number of rows
/col/number [int] : set number of columns
/row/[index]/col/[index] [boolean] : set value for the i-th row and j-th column
/clear : clear the whole matrix
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window

```

```

/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- spat5.routing
- gate~
- selector~
- matrix~
- spat5.gate~
- spat5.diagmatrix~
- spat5.matrix
- spat5.multi.connect

spat5.scale Scale coordinate messages

description

spat5.scale applies geometrical scaling to the incoming source, speaker or listener coordinate messages.

spat5.scale, **spat5.rotate** and **spat5.translate** are stateless objects i.e. they only react when incoming position messages are received.

On the other hand, **spat5.transform** is statefull: it keeps track of the state of the spatial scene, and will deliver the transformed scene whenever the parameter (yaw, pitch, roll, offset, etc.) is changed.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/scaling/x [number] : set scaling factor along the x-axis  
/scaling/y [number] : set scaling factor along the y-axis  
/scaling/z [number] : set scaling factor along the z-axis  
/scaling/dist [number] : set radial scaling factor  
/scaling/xy [number][number] : set scaling factor along the x and y axis  
/scaling/xyz [number][number][number] : set scaling factor along the x, y, and z axis
```

see also

- `spat5.transform`
- `spat5.rotate`
- `spat5.translate`
- `spat5.normalize`
- `spat5.mirror`
- `spat5.jitter`
- `spat5.viewer`
- `spat5.converter`
- `spat5.converter~`
- `spat5.abs2rel`
- `spat5.distance`
- `spat5.trajectories`
- `spat5.boids`

spat5.screencapture Capture screenshots

description

spat5.screencapture allows to capture screenshots of windows/screens.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/application/name [string] : set name of the application you want to capture (only when in 'window' mode)
/window/title [string] : set title of the window you want to capture (only when in 'window' mode)
/mode [string] : set mode. Possible values: screen, window, current window
/destination [string] : set destination filename
/overwrite [boolean] : set overwrite flag
/clipboard [boolean] : force screen capture to go to the clipboard
/cursor [boolean] : capture the cursor as well as the screen
/shadow [boolean] : capture the shadow of the window
/timer [number] : set delay (in seconds) before taking the picture
/capture : perform the screen capture
/display/index [int] : set index of display to capture (only when in 'screen' mode)
/defaultsettings [boolean] : screen capture will use the default (OS) settings for capture. The /destination argument will be ignored.
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot

```

`/snapshot/[index]/copytoclipboard` : copy the i-th snapshot to (the OS) clipboard
`/snapshot/[index]/copytoclipboard [string]` : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
`/snapshot/[index]/export [string]` : export the i-th snapshot to file
`/snapshot/[index]/export/content [string]` : export the content of the i-th snapshot to file
`/snapshot/export [string]` : export all snapshots to file
`/snapshot/import [string]` : import all snapshots from file

see also

- `spat5.hostinfos`

spat5.selector~

Assign one of several inputs to an outlet

description

spat5.selector~ is similar to Max/MSP **selector~**.

attributes

@initwith [string]

The **initwith** attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via **loadbang** or **loadmess**.

Have a look at the **spat5.tuto-osc-3.maxpat** example for further details.

Note that the **initwith** attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@inputs [int]

The **inputs** attribute represents the number of input channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or attrui or inspector), since the number of signal inlets or outlets can not be changed dynamically.

@mc [int]

The **mc** attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the **mc** attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The **parameter_enable** attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```



```

`/dump` : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
`/dump [string]` : dump a subset of the state of the object over the rightmost outlet. See `spat5.tuto-dump-1.maxpat` for usage examples.
`/snapshot/clear` : delete all the snapshots currently in memory
`/snapshot/add` : create a new snapshot with the current state
`/snapshot/add [string]` : create a new snapshot with the current state, and set its name
`/snapshot/[index]/store` : store the current state in the i-th snapshot (in memory)
`/snapshot/[index]/recall` : recall the current state from the i-th snapshot
`/snapshot/[index]/name [string]` : set the name of the i-th snapshot
`/snapshot/interpolate [int][int][number]` : interpolate between the i-th and j-th snapshots
`/snapshot/interpolate [string][string][number]` : interpolate between two snapshots, given their names
`/snapshot/[index]/delete` : delete the i-th snapshot
`/snapshot/[index]/copytoclipboard` : copy the i-th snapshot to (the OS) clipboard
`/snapshot/[index]/copytoclipboard [string]` : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
`/snapshot/[index]/export [string]` : export the i-th snapshot to file
`/snapshot/[index]/export/content [string]` : export the content of the i-th snapshot to file
`/snapshot/export [string]` : export all snapshots to file
`/snapshot/import [string]` : import all snapshots from file

see also

- `gate~`
- `selector~`
- `matrix~`
- `spat5.gate~`
- `spat5.routing~`
- `spat5.routing`
- `spat5.diagmatrix~`
- `spat5.multi.connect`

spat5.sfplay~ Play audio file from disk

description

spat5.sfplay~ plays audio files from disk.

Supported formats include AIFF, WAV, MP3, M4A (mac only), AAC (mac only), CAF (mac only), AIFC (mac only), etc.

spat5.sfplay~ is quite similar to **Max/MSP sfplay~**, yet highly optimized for playback of (massively) multichannel files.

Note that, unlike **sfplay~**, **spat5.sfplay~** does not support preload, nor time-stretch.

spat5.sfplay~ can read WAV files exceeding the traditional 4 GB limit: it supports RF64 and Sony Wave64 flavors.

attributes

@buffersize []

@channels [int]

The `channels` attribute represents the number of input and output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or `attrui` or `inspector`), since the number of signal inlets or outlets can not be changed dynamically.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character `"`). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max `inspector`).

methods

`/open` : open a dialog for choosing audio file

`/open [string]` : open an audio file

`/start` : start playback

`/stop` : stop playback

`/pause` : pause playback

`/resume` : resume from where paused

`/switch` : pause or resume playback

`/loop [boolean]` : enable loop mode

`/seek [number]` : play from this time (in msec) to the end of the file

`/seek [number][number]` : play a given segment of the current file (in msec)

`/info` : post info about the current file to the Max window

`/dump/metadata` : send all metadata (including the list of markers) through the dump outlet

`/dump/axml` : send the aXML chunk (if there is one) through the dump outlet

`/dsp/mute [boolean]` : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied without ramping/crossfade, so this might generate clicks

`/dsp/bypass [boolean]` : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied without ramping/crossfade, so this might generate clicks

`/dsp/automute [boolean]` : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)

`/dsp/automute/attack [number]` : set the duration (in seconds) before auto-muting

`/dsp/post` : post various information to the Max console (audio should be turned on)

`/dsp/clear` : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up

`/dump/dsp/latency` : send the processor latency (in samples) through the dump outlet

`/verbose [string]` : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed

`/post/version` : print the version in the Max Console

`/post/version [details]` : print detailed version in the Max Console

`/post/doc` : print the help documentation in the Max Console

`/post/state` : print the OSC status in the Max Console

`/preset/load [string]` : load a preset from file. Supported file extensions : `'.txt'` for human-readable OSC text file, `'.osc'` for binary encoded OSC file, `'.coll'` for human-readable Max coll file (compatible with the `coll` object). `'.txt'` is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.

`/preset/load` : open a user dialog to load a preset file. Supported file extensions : `'.txt'` for human-readable OSC text file, `'.osc'` for binary encoded OSC file, `'.coll'` for human-readable Max coll file (compatible with the `coll` object). `'.txt'` is the default file format.

`/preset/export [string]` : export a preset to file. Supported file extensions : `'.txt'` for human-readable OSC text file, `'.osc'` for binary encoded OSC file, `'.coll'` for human-readable Max coll file (compatible with the `coll` object). `'.txt'` is the default file format. If the file extension is not provided, `'.txt'` will be used by default. If the destination folder is not provided, the file will be saved in your home folder (`/Users/yourlogin`)

`/preset/export` : open a user dialog to export a preset to file. Supported file extensions : `'.txt'` for human-readable OSC text file, `'.osc'` for binary encoded OSC file, `'.coll'` for human-readable Max coll file (compatible with the `coll` object). `'.txt'` is the default file format.

```

/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- sfplay~
- spat5.sfrecored~
- sfrecord~
- spat5.adm.play~
- spat5.multi.connect

spat5.sfrecored~ Record to audio file on disk

description

spat5.sfrecored~ saves an audio file containing 'real world' sound and/or sound created in MSP.

Supported formats include AIFF and WAVE.

spat5.sfrecored~ is quite similar to Max/MSP **sfrecored~**, yet highly optimized for the recording of (massively) multichannel files

When the file exceeds the traditional 4 GB limit, **spat5.sfrecored~** automatically forces the RF64 extension (WAVE format only).

attributes

@buffersize []

@channels [int]

The **channels** attribute represents the number of input and output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or attrui or inspector), since the number of signal inlets or outlets can not be changed dynamically.

@initwith [string]

The **initwith** attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via **loadbang** or **loadmess**.

Have a look at the **spat5.tuto-osc-3.maxpat** example for further details.

Note that the **initwith** attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@mc [int]

The **mc** attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the **mc** attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The **parameter_enable** attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/open [string] : set file name for recording
/start : start recording
/stop : stop recording
/record [number] : start recording for a fixed amount of time (in msec)
/record/samples [int] : start recording for a fixed amount of time (in samples)
/bitdepth [int] : specify bit depth
/overwrite [boolean] : set overwrite flag
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
```

```

/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- sfplay~
- spat5.sfplay~
- sfrecord~
- spat5.adm.record~
- spat5.multi.connect

spat5.sf.list

List of audio files

description

spat5.sf.list displays a list of audio files.

attributes

@embed [boolean]

The `embed` attribute allows to store the state of the object within the patcher. The complete state of the object is stored whenever the patcher is saved to disk. Upon loading the patcher or copying the object box, the state is restored.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int] [int] [number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string] [string] [number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

```

/window/title [string] : set the window title (in the window titlebar)
/window/visible [boolean] : set the window visibility
/window/moveable [boolean] : set the window movability
/window/resizable [boolean] : set the window resizability
/window/enable [boolean] : enable/disable the window
/window/background/color [color] : set the window background color
/window/opaque [boolean] : set the window opaque flag (optimize repaint efficiency)
/window/fullscreen [boolean] : enable/disable fullscreen mode
/window/minimise [boolean] : minimize the window
/window/open : open the window (and bring it to front)
/window/close : close the window
/window/openorclose : open the window if it was closed; close it if it was opened
/window/size [number] [number] : set the window size (width, height) (in pixels)
/window/width [number] : set the window width (in pixels)
/window/height [number] : set the window height (in pixels)
/window/bounds [number] [number] [number] [number] : set the window bounds (top left position, width, height) (in pixels)
/window/topleft [number] [number] : set the window top left position (in pixels)
/window/centre : open the window, centering it on the screen
/window/rendering/engine [string] : set the graphical rendering engine of the window
/window/fps/visible [boolean] : display the FPS performances of the window
/window/scale [number] : set the global scale factor of the window (in /window/floating [boolean] : make the window 'floating' (always on top)
/window/hidesondeactivate [boolean] : make the window 'hides on deactivate' (when always on top)
/window/buttons/close [boolean] : enable/disable the close button (in the window titlebar)
/window/buttons/minimise [boolean] : enable/disable the minimise button (in the window titlebar)
/window/buttons/maximise [boolean] : enable/disable the maximise button (in the window titlebar)
/window/export/image [string] : export the window as an image file (png or jpeg)

```

see also

- polybuffer~
- spat5.file.infos

spat5.sf.list.embedded

List of audio files

description

spat5.sf.list displays a list of audio files.

attributes

@embed [boolean]

The `embed` attribute allows to store the state of the object within the patcher. The complete state of the object is stored whenever the patcher is saved to disk. Upon loading the patcher or copying the object box, the state is restored.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int] [int] [number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string] [string] [number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
```

/snapshot/import [string] : import all snapshots from file

see also

- [polybuffer~](#)
- [spat5.file.infos](#)

spat5.sf.merge

Audio file merger

description

spat5.sf.merge combine multiple audio files into one multichannel file.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file
```

see also

- [spat5.sf.split](#)

- `spat5.sf.list`
- `spat5.sf.list.embedded`
- `spat5.sf.resample`
- `spat5.sf.trim`

spat5.sf.resample Audio file Resampler

description

spat5.sf.resample resamples audio files.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file
```

see also

- [spat5.sf.split](#)

- `spat5.sf.list`
- `spat5.sf.list.embedded`
- `spat5.sf.merge`
- `spat5.sf.trim`

spat5.sf.trim Audio file trim

description

spat5.sf.trim trims samples at the beginning and/or audio files.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- [spat5.sf.list](#)

- `spat5.sf.list.embedded`
- `spat5.sf.resample`
- `spat5.sf.split`
- `spat5.sf.merge`

spat5.sf.split Audio file splitter

description

spat5.sf.splitter splits a multichannel audio file into multiple mono files.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file
```

see also

- [spat5.sf.list](#)

- `spat5.sf.list.embedded`
- `spat5.sf.resample`
- `spat5.sf.merge`
- `spat5.sf.trim`

spat5.shell Execute shell commands

description

spat5.shell allows to execute shell commands or scripts.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file
```

see also

spat5.shuffle~ Random recombination of channels

description

spat5.shuffle~ performs a random recombination of input signals in order to reduce correlation.

attributes

@channels [int]

The `channels` attribute represents the number of input and output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or `attrui` or `inspector`), since the number of signal inlets or outlets can not be changed dynamically.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/mode [string] : set shuffling mode
/permutation [boolean] : enable permutation of the channels
/hadamard [string] : set flavor of Hadamard processing
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)

```

`/status/copytoclipboard` : copy the status to (the OS) clipboard
`/status/copytoclipboard [string]` : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
`/dump` : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
`/dump [string]` : dump a subset of the state of the object over the rightmost outlet. See `spat5.tuto-dump-1.maxpat` for usage examples.
`/snapshot/clear` : delete all the snapshots currently in memory
`/snapshot/add` : create a new snapshot with the current state
`/snapshot/add [string]` : create a new snapshot with the current state, and set its name
`/snapshot/[index]/store` : store the current state in the i-th snapshot (in memory)
`/snapshot/[index]/recall` : recall the current state from the i-th snapshot
`/snapshot/[index]/name [string]` : set the name of the i-th snapshot
`/snapshot/interpolate [int] [int] [number]` : interpolate between the i-th and j-th snapshots
`/snapshot/interpolate [string] [string] [number]` : interpolate between two snapshots, given their names
`/snapshot/[index]/delete` : delete the i-th snapshot
`/snapshot/[index]/copytoclipboard` : copy the i-th snapshot to (the OS) clipboard
`/snapshot/[index]/copytoclipboard [string]` : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
`/snapshot/[index]/export [string]` : export the i-th snapshot to file
`/snapshot/[index]/export/content [string]` : export the content of the i-th snapshot to file
`/snapshot/export [string]` : export all snapshots to file
`/snapshot/import [string]` : import all snapshots from file

see also

- `spat5.early~`
- `spat5.cluster~`
- `spat5.reverb~`
- `spat5.room~`
- `spat5.spat~`
- `spat5.reverb.timeview`
- `spat5.roomsize`
- `spat5.multi.connect`

spat5.sig~

Convert numbers into audio signals

description

spat5.sig~ converts numbers (or list of numbers) into audio signals.

attributes

@channels [int]

The `channels` attribute represents the number of input and output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or `attrui` or `inspector`), since the number of signal inlets or outlets can not be changed dynamically.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max `inspector`).

methods

```
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied without ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied without ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. '\n')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
```

`/dump [string]` : dump a subset of the state of the object over the rightmost outlet. See `spat5.tuto-dump-1.maxpat` for usage examples.
`/snapshot/clear` : delete all the snapshots currently in memory
`/snapshot/add` : create a new snapshot with the current state
`/snapshot/add [string]` : create a new snapshot with the current state, and set its name
`/snapshot/[index]/store` : store the current state in the i-th snapshot (in memory)
`/snapshot/[index]/recall` : recall the current state from the i-th snapshot
`/snapshot/[index]/name [string]` : set the name of the i-th snapshot
`/snapshot/interpolate [int][int][number]` : interpolate between the i-th and j-th snapshots
`/snapshot/interpolate [string][string][number]` : interpolate between two snapshots, given their names
`/snapshot/[index]/delete` : delete the i-th snapshot
`/snapshot/[index]/copytoclipboard` : copy the i-th snapshot to (the OS) clipboard
`/snapshot/[index]/copytoclipboard [string]` : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
`/snapshot/[index]/export [string]` : export the i-th snapshot to file
`/snapshot/[index]/export/content [string]` : export the content of the i-th snapshot to file
`/snapshot/export [string]` : export all snapshots to file
`/snapshot/import [string]` : import all snapshots from file

see also

- `sig~`
- `snapshot~`
- `spat5.snapshot~`
- `number~`
- `mc.sig~`
- `spat5.multi.connect`

spat5.simone

Simulation of MOtion

description

spat5.simone simulates the movement of points/particles within a vector field. It is based on the 'xvf' object originally developed by Andrew Gerzso.

Reference(s) :

T. Carpentier and A. Gerzso. Steering Behaviors for Spatial Sound Authoring. Proc. of the 45th International Computer Music Conference (ICMC), New York, NY, USA, June 2019.

attributes

@cols [int]

The `cols` attribute represents the number of columns. It can not be changed dynamically (via message or attrui or inspector).

@embed [boolean]

The `embed` attribute allows to store the state of the object within the patcher. The complete state of the object is stored whenever the patcher is saved to disk. Upon loading the patcher or copying the object box, the state is restored.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

@rows [int]

The `rows` attribute represents the number of rows. It can not be changed dynamically (via message or attrui or inspector).

methods

```

/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state

```

```

/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file
/row/number [int] : set the number of rows
/col/number [int] : set the number of columns
/point/number [int] : set the number of points
/window/title [string] : set the window title (in the window titlebar)
/window/visible [boolean] : set the window visibility
/window/moveable [boolean] : set the window movability
/window/resizable [boolean] : set the window resizability
/window/enable [boolean] : enable/disable the window
/window/background/color [color] : set the window background color
/window/opaque [boolean] : set the window opaque flag (optimize repaint efficiency)
/window/fullscreen [boolean] : enable/disable fullscreen mode
/window/minimise [boolean] : minimize the window
/window/open : open the window (and bring it to front)
/window/close : close the window
/window/openorclose : open the window if it was closed; close it if it was opened
/window/size [number][number] : set the window size (width, height) (in pixels)
/window/width [number] : set the window width (in pixels)
/window/height [number] : set the window height (in pixels)
/window/bounds [number][number][number][number] : set the window bounds (top left position, width, height) (in pixels)
/window/topleft [number][number] : set the window top left position (in pixels)
/window/centre : open the window, centering it on the screen
/window/rendering/engine [string] : set the graphical rendering engine of the window
/window/fps/visible [boolean] : display the FPS performances of the window
/window/scale [number] : set the global scale factor of the window (in /window/floating [boolean] : make the window 'floating' (always on top)
/window/hidesondeactivate [boolean] : make the window 'hides on deactivate' (when always on top)
/window/buttons/close [boolean] : enable/disable the close button (in the window titlebar)
/window/buttons/minimise [boolean] : enable/disable the minimise button (in the window titlebar)
/window/buttons/maximise [boolean] : enable/disable the maximise button (in the window titlebar)
/window/export/image [string] : export the window as an image file (png or jpeg)

```

see also

- spat5.viewer
- spat5.simone.generator
- spat5.trajectories
- spat5.oper
- spat5.boids
- spat5.transform

spat5.simone.embedded

Simulation of MOTion

description

spat5.simone simulates the movement of points/particles within a vector field. It is based on the 'xvf' object originally developed by Andrew Gerzso.

Reference(s) :

T. Carpentier and A. Gerzso. Steering Behaviors for Spatial Sound Authoring. Proc. of the 45th International Computer Music Conference (ICMC), New York, NY, USA, June 2019.

attributes

@cols [int]

The `cols` attribute represents the number of columns. It can not be changed dynamically (via message or attrui or inspector).

@embed [boolean]

The `embed` attribute allows to store the state of the object within the patcher. The complete state of the object is stored whenever the patcher is saved to disk. Upon loading the patcher or copying the object box, the state is restored.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

@rows [int]

The `rows` attribute represents the number of rows. It can not be changed dynamically (via message or attrui or inspector).

methods

```

/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state

```



```

/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file
/row/number [int] : set the number of rows
/col/number [int] : set the number of columns
/point/number [int] : set the number of points

```

see also

- spat5.viewer
- spat5.simone.generator
- spat5.trajectories
- spat5.oper
- spat5.boids
- spat5.transform

spat5.simone.generator

Vector field generator

description

spat5.simone.generator generates vector fields for use with **spat5.simone**.

attributes

@cols [int]

The `cols` attribute represents the number of columns. It can not be changed dynamically (via message or attrui or inspector).

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

@rows [int]

The `rows` attribute represents the number of rows. It can not be changed dynamically (via message or attrui or inspector).

methods

`/row/number [int]` : set the number of rows
`/col/number [int]` : set the number of columns
`/type [string]` : set the type of field

see also

- `spat5.simone`
- `spat5.simone.embedded`
- `spat5.trajectories`
- `spat5.viewer`
- `spat5.oper`
- `spat5.boids`

spat5.simulate.em32~

Simulate Eigenmike recording

description

spat5.simulate.em32~ simulates the recording of signals with an Eigenmike microphone (MH acoustics).

Reference(s) :

J. Daniel and S. Moreau. Further Study of Sound Field Coding with Higher Order Ambisonics. In Proc. of the 116th Convention of the Audio Engineering Society (AES), Berlin, Germany, May 2004.

J. Daniel. Spherical arrays for capturing 3D sound fields: Prototype measurements versus analytical models. In Proc. of the 19th International Congress on Acoustics (ICA), Madrid, 2007.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

@sources [int]

The `sources` attribute represents the number of input channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or attrui or inspector), since the number of signal inlets or outlets can not be changed dynamically.

methods

```
/norm [string] : set HOA normalization. Possible values: sn3d, sn2d, n3d, n2d, fuma, maxn, unnormalized
/order [int] : set HOA order
/source/[index]/filter/length [int] : set filter length for the i-th source
/source/[index]/type [string] : set wave type for the i-th source
/source/[index]/order [int] : set filter order for the i-th source
/source/number [int] : set the number of sources
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied without ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied without ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
```

```

/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- spat5.hoa.em32~
- spat5.hoa.encoder~
- spat5.hoa.decoder~
- spat5.hoa.aformat~
- spat5.hoa.sorting~
- spat5.hoa.converter~
- spat5.hoa.binaural~
- spat5.multi.connect

spat5.singleroomdrir

Read SOFA files with the SingleRoomDRIR convention

description

spat5.singleroomdrir reads SOFA files with the SingleRoomDRIR convention.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`. Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

`/load [string]` : load SOFA file

see also

- `spat5.sofa.infos`
- `spat5.sofa.loader`
- `spat5.multispeakerbrir~`
- `spat5.hrtf.infos`

spat5.slide~ Filter a signal logarithmically

description

spat5.slide~ is similar to Max/MSP **slide~** but it can process several channels in parallel.

attributes

@channels [int]

The **channels** attribute represents the number of input and output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or **attrui** or **inspector**), since the number of signal inlets or outlets can not be changed dynamically.

@initwith [string]

The **initwith** attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via **loadbang** or **loadmess**.

Have a look at the **spat5.tuto-osc-3.maxpat** example for further details.

Note that the **initwith** attribute cannot be set via message, **attrui** or **inspector**; it must be typed directly within the object box.

@mc [int]

The **mc** attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the **mc** attribute cannot be set via message, **attrui** or **inspector**; it must be typed directly within the object box.

@parameter_enable [boolean]

The **parameter_enable** attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max **inspector**).

methods

```

/channel/number [int] : set the number of channels
/up [number] : set slide up value for all channels
/down [number] : set slide down value for all channels
/channel/[index]/up [number] : set slide up value for the i-th channel
/channel/[index]/down [number] : set slide down value for the i-th channel
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened

```

`/snapshot/font/size [number]` : set the font size of the snapshot window
`/snapshot/floating [boolean]` : make the snapshot window 'floating' (i.e. always on top of other windows)
`/status/copytoclipboard` : copy the status to (the OS) clipboard
`/status/copytoclipboard [string]` : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
`/dump` : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
`/dump [string]` : dump a subset of the state of the object over the rightmost outlet. See `spat5.tuto-dump-1.maxpat` for usage examples.
`/snapshot/clear` : delete all the snapshots currently in memory
`/snapshot/add` : create a new snapshot with the current state
`/snapshot/add [string]` : create a new snapshot with the current state, and set its name
`/snapshot/[index]/store` : store the current state in the i-th snapshot (in memory)
`/snapshot/[index]/recall` : recall the current state from the i-th snapshot
`/snapshot/[index]/name [string]` : set the name of the i-th snapshot
`/snapshot/interpolate [int] [int] [number]` : interpolate between the i-th and j-th snapshots
`/snapshot/interpolate [string] [string] [number]` : interpolate between two snapshots, given their names
`/snapshot/[index]/delete` : delete the i-th snapshot
`/snapshot/[index]/copytoclipboard` : copy the i-th snapshot to (the OS) clipboard
`/snapshot/[index]/copytoclipboard [string]` : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
`/snapshot/[index]/export [string]` : export the i-th snapshot to file
`/snapshot/[index]/export/content [string]` : export the content of the i-th snapshot to file
`/snapshot/export [string]` : export all snapshots to file
`/snapshot/import [string]` : import all snapshots from file

see also

- `slide~`
- `rampsmooth~`
- `spat5.multi.connect`

spat5.smk~ Sweep Measurement Kit

description

spat5.smk~ can be used to measure the impulse response of a LTI system with the so-called swept-sine method. **spat5.smk~** handles all the steps from the generation of the sweep, the recording of the incoming signals, and the impulse response deconvolution. It furthermore saves the responses as audio files.

Reference(s) :

A. Farina. Simultaneous measurement of impulse response and distortion with a swept-sine technique. In Proc. of the 108th Convention of the Audio Engineering Society (AES), Paris, France, 2000.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@inlets [int]

The `inlets` attribute represents the number of input channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or `attrui` or `inspector`), since the number of signal inlets or outlets can not be changed dynamically.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/channel/number [int] : set the number of channel actually used. this must be less (or equal) than the numinlets
/sweep/order [int] : set sweep order
/sweep/f0 [number] : set the sweep frequency (in Hz) at time t=0
/sweep/f1 [number] : set the sweep frequency (in Hz) at time t=t1
/sweep/t1 [number] : set the t1 time (in samples)
/sweep/fadein [int] : set fade in duration (in samples)
/sweep/fadeout [int] : set fade out duration (in samples)
/sweep/gain [number] : set sweep linear gain
/sweep/cycles [int] : set the number of (averaged) sweep cycles
/sweep/pause [int] : set the duration of the pause in between repetitions (in samples)
/sweep/phi [number] : set the initial phase (in degrees) of the sweep
/sweep/type [string] : set the type of sweep
/sweep/waveform [string] : set the type of waveform for the sweep
/options/folder [string] : set destination folder
/options/basename [string] : set basename for saving files
/options/naming [string] : set file naming scheme. Possible values: overwrite, timetag, increment
/options/bitdepth [int] : set bit depth for exported audio files
/options/deconvolution [boolean] : enable deconvolution (immediately after the measurement)
/options/matlabexport [boolean] : export matlab files for the deconvolved IR
/options/thdanalysis [boolean] : perform THD analysis of the IR (immediately after the deconvolution)
/options/saveirtxt [boolean] : save txt file accompanying the IR audio file
/options/saveraw [boolean] : save raw measurements (prior to deconvolution)
/options/saverawtxt [boolean] : save txt file accompanying the raw measurements (prior to deconvolution)
/options/savesweep [boolean] : save sweep signal to audio file
/options/savesweepinverse [boolean] : save inverse sweep signal to audio file
/options/saveaxml [boolean] : save axml file(s) accompanying the IR audio file
/options/savelog [boolean] : save a log file (txt) for the session
/options/repeat [int] : set the number of successive repetitions for the measurement
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
```



```

/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for
human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is
inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for
human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for
human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the
destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll'
for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- spat5.conv~
- spat5.calibrate.gain~
- spat5.calibrate.delay~
- spat5.ir.infos
- spat5.ir.analysis
- spat5.edc
- spat5.multi.connect

spat5.snapshot~

Multichannel conversion of signal values to numbers

description

Use the **spat5.snapshot~** object to convert a signal value into a float message when a bang is received or according to a specified interval. It is similar to **Max/MSP snapshot~**, but can process several channels in parallel.

attributes

@channels [int]

The **channels** attribute represents the number of input and output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or attrui or inspector), since the number of signal inlets or outlets can not be changed dynamically.

@initwith [string]

The **initwith** attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via **loadbang** or **loadmess**.

Have a look at the **spat5.tuto-osc-3.maxpat** example for further details.

Note that the **initwith** attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@mc [int]

The **mc** attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the **mc** attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The **parameter_enable** attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/rate [number] : set report rate (in msec)
/offset [int] : change offset in the vector to report
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied without ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied without ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
```

```

/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int] [int] [number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string] [string] [number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- snapshot~
- number~
- sig~
- spat5.sig~
- spat5.rms~
- spat5.meter~
- spat5.minmax~
- mc.snapshot~
- spat5.multi.connect

spat5.sofa.infos

Report information about SOFA files

description

spat5.sofa.infos reports information about SOFA files.

Reference(s) :

P. Majdak, Y. Iwaya, T. Carpentier, R. Nicol, M. Parmentier, A. Roginska, Y. Suzuki, K. Watanabe, H. Wierstorf, H. Ziegelwanger, and M. Noisternig. Spatially Oriented Format for Acoustics: A Data Exchange Format Representing Head-Related Transfer Functions. In Proc. of the 134th Convention of the Audio Engineering Society (AES), Roma, Italy, May 4-7 2013.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file
```

see also

- [spat5.sofa.loader](#)
- [spat5.binaural~](#)
- [spat5.spat~](#)
- [spat5.ctc~](#)
- [spat5.hrtf.infos](#)

spat5.sofa.loader SOFA files manager

description

spat5.sofa.loader can be used to manage and load your collection of SOFA files.

The **spat5.sofa.loader** object scans various folders on your hard drive, to search for SOFA files. It is recommended to place your SOFA files in: `/Users/username/Documents/Ircam/sofa` (create the folder if it does not exist yet).

Reference(s) :

P. Majdak, Y. Iwaya, T. Carpentier, R. Nicol, M. Parmentier, A. Roginska, Y. Suzuki, K. Watanabe, H. Wierstorf, H. Ziegelwanger, and M. Noisternig. Spatially Oriented Format for Acoustics: A Data Exchange Format Representing Head-Related Transfer Functions. In Proc. of the 134th Convention of the Audio Engineering Society (AES), Roma, Italy, May 4-7 2013.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character `"`). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
```

```

/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file
/window/title [string] : set the window title (in the window titlebar)
/window/visible [boolean] : set the window visibility
/window/moveable [boolean] : set the window movability
/window/resizable [boolean] : set the window resizability
/window/enable [boolean] : enable/disable the window
/window/background/color [color] : set the window background color
/window/opaque [boolean] : set the window opaque flag (optimize repaint efficiency)
/window/fullscreen [boolean] : enable/disable fullscreen mode
/window/minimise [boolean] : minimize the window
/window/open : open the window (and bring it to front)
/window/close : close the window
/window/openorclose : open the window if it was closed; close it if it was opened
/window/size [number][number] : set the window size (width, height) (in pixels)
/window/width [number] : set the window width (in pixels)
/window/height [number] : set the window height (in pixels)
/window/bounds [number][number][number][number] : set the window bounds (top left position, width, height) (in pixels)
/window/topleft [number][number] : set the window top left position (in pixels)
/window/centre : open the window, centering it on the screen
/window/rendering/engine [string] : set the graphical rendering engine of the window
/window/fps/visible [boolean] : display the FPS performances of the window
/window/scale [number] : set the global scale factor of the window (in /window/floating [boolean] : make the window 'floating' (always on top)
/window/hidesondeactivate [boolean] : make the window 'hides on deactivate' (when always on top)
/window/buttons/close [boolean] : enable/disable the close button (in the window titlebar)
/window/buttons/minimise [boolean] : enable/disable the minimise button (in the window titlebar)
/window/buttons/maximise [boolean] : enable/disable the maximise button (in the window titlebar)
/window/export/image [string] : export the window as an image file (png or jpeg)

```

see also

- [spat5.sofa.infos](#)
- [spat5.binaural~](#)
- [spat5.spat~](#)
- [spat5.ctc~](#)
- [spat5.hrtf.infos](#)

spat5.sofa.loader.embedded

SOFA files manager

description

spat5.sofa.loader can be used to manage and load your collection of SOFA files.

The spat5.sofa.loader object scans various folders on your hard drive, to search for SOFA files. It is recommended to place your SOFA files in: /Users/username/Documents/Ircam/sofa (create the folder if it does not exist yet).

Reference(s) :

P. Majdak, Y. Iwaya, T. Carpentier, R. Nicol, M. Parmentier, A. Roginska, Y. Suzuki, K. Watanabe, H. Wierstorf, H. Ziegelwanger, and M. Noisternig. Spatially Oriented Format for Acoustics: A Data Exchange Format Representing Head-Related Transfer Functions. In Proc. of the 134th Convention of the Audio Engineering Society (AES), Roma, Italy, May 4-7 2013.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
```


/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

see also

- [spat5.sofa.infos](#)
- [spat5.binaural~](#)
- [spat5.spat~](#)
- [spat5.ctc~](#)
- [spat5.hrtf.infos](#)

spat5.softclipping~

Soft clipping

description

spat5.softclipping~ is a multichannel soft clipping processor.

Reference(s) :

Sean Enderby and Zlatko Baracskai. Harmonic instability of digital soft clipping algorithms. In Proc. of the 15th Int Conference on Digital Audio Effects (DAFx-12), York, UK, September 17-21, 2012.

attributes

@channels [int]

The `channels` attribute represents the number of input and output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or `attrui` or `inspector`), since the number of signal inlets or outlets can not be changed dynamically.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character `"`). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max `inspector`).

methods

```

/type [string] : set the processing type. Possible values: tanh, tanh5, sin, exp2, exp5, tsq, cubic, reciprocal
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened

```

`/snapshot/font/size` [number] : set the font size of the snapshot window
`/snapshot/floating` [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
`/status/copytoclipboard` : copy the status to (the OS) clipboard
`/status/copytoclipboard` [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
`/dump` : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
`/dump` [string] : dump a subset of the state of the object over the rightmost outlet. See `spat5.tuto-dump-1.maxpat` for usage examples.
`/snapshot/clear` : delete all the snapshots currently in memory
`/snapshot/add` : create a new snapshot with the current state
`/snapshot/add` [string] : create a new snapshot with the current state, and set its name
`/snapshot/[index]/store` : store the current state in the i-th snapshot (in memory)
`/snapshot/[index]/recall` : recall the current state from the i-th snapshot
`/snapshot/[index]/name` [string] : set the name of the i-th snapshot
`/snapshot/interpolate` [int] [int] [number] : interpolate between the i-th and j-th snapshots
`/snapshot/interpolate` [string] [string] [number] : interpolate between two snapshots, given their names
`/snapshot/[index]/delete` : delete the i-th snapshot
`/snapshot/[index]/copytoclipboard` : copy the i-th snapshot to (the OS) clipboard
`/snapshot/[index]/copytoclipboard` [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
`/snapshot/[index]/export` [string] : export the i-th snapshot to file
`/snapshot/[index]/export/content` [string] : export the content of the i-th snapshot to file
`/snapshot/export` [string] : export all snapshots to file
`/snapshot/import` [string] : import all snapshots from file

see also

- `spat5.compressor~`
- `spat5.noisegate~`
- `spat5.clip~`
- `spat5.delta~`
- `spat5.deltaclick~`
- `spat5.tanh~`
- `spat5.fixnan~`
- `spat5.rms~`
- `spat5.ebur128~`
- `spat5.tanh~`
- `spat5.multi.connect`

spat5.source~ Source pre-processing

description

Air absorption, Doppler filtering and input equalization.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or inspector; it must be typed directly within the object box.

@inputs [int]

The `inputs` attribute represents the number of input channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or `attrui` or inspector), since the number of signal inlets or outlets can not be changed dynamically.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, `attrui` or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/air [boolean] : enable/disable air absorption (for direct sound)
/air/freq [number] : set air absorption rolloff frequency (in Hz)
/doppler [boolean] : enable/disable doppler effect
/doppler/delay [number] : set delay (in msec) for doppler effect
/distance [number] : set distance (in meters) for doppler effect
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
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/help : open the help window and bring it to front
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/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened

```

`/snapshot/font/size [number]` : set the font size of the snapshot window
`/snapshot/floating [boolean]` : make the snapshot window 'floating' (i.e. always on top of other windows)
`/status/copytoclipboard` : copy the status to (the OS) clipboard
`/status/copytoclipboard [string]` : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
`/dump` : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
`/dump [string]` : dump a subset of the state of the object over the rightmost outlet. See `spat5.tuto-dump-1.maxpat` for usage examples.
`/snapshot/clear` : delete all the snapshots currently in memory
`/snapshot/add` : create a new snapshot with the current state
`/snapshot/add [string]` : create a new snapshot with the current state, and set its name
`/snapshot/[index]/store` : store the current state in the i-th snapshot (in memory)
`/snapshot/[index]/recall` : recall the current state from the i-th snapshot
`/snapshot/[index]/name [string]` : set the name of the i-th snapshot
`/snapshot/interpolate [int][int][number]` : interpolate between the i-th and j-th snapshots
`/snapshot/interpolate [string][string][number]` : interpolate between two snapshots, given their names
`/snapshot/[index]/delete` : delete the i-th snapshot
`/snapshot/[index]/copytoclipboard` : copy the i-th snapshot to (the OS) clipboard
`/snapshot/[index]/copytoclipboard [string]` : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
`/snapshot/[index]/export [string]` : export the i-th snapshot to file
`/snapshot/[index]/export/content [string]` : export the content of the i-th snapshot to file
`/snapshot/export [string]` : export all snapshots to file
`/snapshot/import [string]` : import all snapshots from file

see also

- `spat5.early~`
- `spat5.cluster~`
- `spat5.reverb~`
- `spat5.air~`
- `spat5.doppler~`
- `spat5.room~`
- `spat5.hlsshelf~`
- `spat5.spat~`
- `spat5.panoramix~`
- `spat5.viewer`
- `spat5.multi.connect`

spat5.spat~ LE Spatialisateur

description

spat5.spat~ is a configurable real-time spatial processor integrating the localization of sound events with room acoustic quality. The **spat5.spat~** combines several DSP modules in a flexible framework. This includes a reverberator engine (based on **spat5.early~**, **spat5.cluster~**, **spat5.reverb~**, **spat5.room~**); the reverberated signals are then panned in space (this panning stage is based on the **spat5.pan~** object). Direct sound signal (so-called 'axis') and reverberated signals (so-called 'omni') can be filtered with 3-band shelving filters (based on **spat5.hlshef~**). Additionally, Doppler effect and air absorption filtering can be simulated (they're based on **spat5.source~**, **spat5.air~**, **spat5.doppler~**, etc). Spatial, temporal, and spectral parameters can be controlled by the **spat5.oper** graphical user interface.

Reference(s) :

J.-M. Jot. Real-time spatial processing of sounds for music, multimedia and interactive human-computer interfaces. *ACM Multimedia Systems Journal* (Special issue on Audio and Multimedia), 7(1):55 – 69, 1999.

J.-M. Jot and O. Warusfel. A real-time spatial sound processor for music and virtual reality applications. In *Proc. of the International Computer Music Conference (ICMC)*, pages 294 – 295, Banff, 1995.

T. Carpentier, M. Noisternig, and O. Warusfel. Twenty Years of Ircam Spat: Looking Back, Looking Forward. In *Proc. of the 41st International Computer Music Conference (ICMC)*, pages 270 – 277, Denton, TX, USA, Sept. 2015.

T. Carpentier. A new implementation of Spat in Max. In *Proc. of the 15th Sound and Music Computing Conference (SMC)*, pages 184 – 191, Limassol, Cyprus, July 2018.

T. Carpentier. Spat: a comprehensive toolbox for sound spatialization in Max. In *Ideas Sonicas*, Vol 13(24), pages 12 – 23, June 2021.

attributes

@initwith [string]

The **initwith** attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via **loadbang** or **loadmess**.

Have a look at the **spat5.tuto-osc-3.maxpat** example for further details.

Note that the **initwith** attribute cannot be set via message, **attrui** or **inspector**; it must be typed directly within the object box.

@inputs [int]

The **inputs** attribute represents the number of input channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or **attrui** or **inspector**), since the number of signal inlets or outlets can not be changed dynamically.

@internals [int]

The **internals** attribute represents the number of internal channels of the artificial reverberator.

Spat uses a Feedback Delay Network (FDN) reverberator engine.

Basically this can be seen as an array of delay lines which are fed back into a mixing matrix. The **internals** attributes represents the size of the feedback matrix.

Choosing the size of this matrix is a trade-off between CPU consumption and the echo density.

Increasing the size of the matrix will generate a denser reverb tail at the expense of a higher CPU load.

A typical value of 8 is a good compromise between CPU load and natural sounding reverb. A value of 16 may be useful especially when dealing with a very long reverberation time or with very percussive sound (where a smaller FDN might sometimes sounds too poor).

It is recommended not to use a value below 6.

@mc [int]

The **mc** attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the **mc** attribute cannot be set via message, **attrui** or **inspector**; it must be typed directly within the object box.

@mode [string]

The **mode** attribute is used to specify the "input type" of each source. **spat5.spat~** supports mono and stereo input sources.

Note that the **mode** attribute cannot be set via message, **attrui** or **inspector**; it must be typed directly within the object box.

Possible syntax:

@mode "mono" : all sources are mono (default)

@mode "stereo" : all sources are stereo

@mode "mono mono stereo" : a list of modes for each of the 3 sources

You can also use the shorthand notation : @mode "m m s"

@mode "mono 2 stereo 1" : 2 mono sources, followed by 1 stereo source

You can also use the shorthand notation : @mode "m 2 s 1"

@outputs [int]

The **outputs** attribute represents the number of output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or **attrui** or **inspector**), since the number of signal inlets or outlets can not be changed dynamically.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

@rooms [int]

The `rooms` attribute represents the number of shared late reverbs. It can not be changed dynamically (via message or attrui or inspector).

methods

/panning/type [string] : set panning type i.e. the type of algorithm used for rendering. A wide variety of panning methods are available, but there may be constraints depending on the number of inputs and/or outputs channels.

- "binaural" : binaural synthesis using HRTF (Head-Related Transfer Functions) filtering, for headphones only.
- "xy" : simulates the recording of the sound scene by a coincident XY couple of microphones (intensity panning), for stereo only.
- "ms" : simulates the recording of the sound scene by a mid-side microphone; this generates the M-S signals, and further requires decoding for L-R compatibility.- "ab" : simulates the recording of the sound scene by an AB couple of microphones (ORTF) i.e. it simulates a pair of spaced cardioid microphones, pointing laterally at azimuths +/- 55 degrees (elevation 0), with a distance of 17 cm between the two capsules; for stereo only.
- "stereopan" : stereo panpot (intensity panning) with various panning laws, for stereo only.
- "angular" : angular panning (intensity panning) for 2-D (horizontal only) loudspeaker setups. "angular" panning is essentially the same as "vbap2d", the main difference is how the panning gains evolve when moving the source from one speaker to another.
- "abap2d" : angle-based amplitude panning : pairwise amplitude panning for 2-D (horizontal only) loudspeaker setups. Provides linear panning vs target azimuth angle.
- "abip2d" : angle-based intensity panning : pairwise intensity panning for 2-D (horizontal only) loudspeaker setups. "abip2d" panning is essentially the same as "vbip2d", the main difference is how the panning gains evolve when moving the source from one speaker to another.
- "vbap2d" : vector base amplitude panning : pairwise amplitude panning for 2-D (horizontal only) loudspeaker setups, with power normalization of the gains.
- "vbap3d" : vector base amplitude panning : amplitude panning for 3-D loudspeaker setups. The underlying algorithm creates a triangulation of the loudspeaker array, and depending on the position of the virtual source, it selects the appropriate loudspeaker triplet.
- "vbip2d" : vector base intensity panning : pairwise intensity panning for 2-D (horizontal only) loudspeaker setups. The geometrical algorithm is similar to "vbap2d", however the speaker signals are normalized with constant intensity (rather than with constant power).
- "vbip3d" : vector base intensity panning : pairwise intensity panning for 3-D loudspeaker setups. The geometrical algorithm is similar to "vbap3d", however the speaker signals are normalized with constant intensity (rather than with constant power).
- "vbap" : vector base amplitude panning : will switch automatically between "vbap3d" or "vbap2d", depending on the loudspeaker setup.
- "vbip" : vector base intensity panning : will switch automatically between "vbip3d" or "vbip2d", depending on the loudspeaker setup.
- "dualbandvbp" : vector base panning : uses vbap for low frequencies and vbip for high frequencies. (either 2-D or 3-D speaker setup)
- "lbap" : layer based amplitude panning : this creates several vertical layers of loudspeakers, and operates each layer as a "vbap2d" setup. If the loudspeaker layout is planar, "lbap" is just the same as "vbap2d".
- "sphericalheadmodel" : binaural synthesis using an approximate spherical head model (Rayleigh) for both ILD and ITD. Elevation is not taken into account.
- "snowmanmodel" : binaural synthesis using an approximate snow-man model for head-and-torso (two spherical models).
- "nearfieldbinaural" : binaural synthesis using HRTF (Head-Related Transfer Functions) filtering, and with compensation (ITD and ILD) of nearfield effects.
- "hoa2d" : 2-D (horizontal only) higher order ambisonic (HOA) encoder.
- "hoa3d" : 3-D higher order ambisonic (HOA) encoder.
- "aep2d" : ambisonic equivalent panning in 2-D (horizontal only) .
- "aep3d" : ambisonic equivalent panning in 3-D.
- "spcap" : speaker-placement correction amplitude panning.
- "nfchoa2d" : 2-D (horizontal only) higher order ambisonic (HOA) encoder with Nearfield Compensation Filters (NFC).
- "nfchoa3d" : 3-D higher order ambisonic (HOA) encoder with Nearfield Compensation Filters (NFC).
- "knn" : K-nearest neighbors panning : applies amplitude panning on the K-nearest loudspeakers to the source. The (maximum) number K of contributing speakers can be specified with the "/source/[index]/neighbors [int]" message. This kind of panning is compatible with arbitrary loudspeaker setup (either 2D or 3D).
- "surround" : LRS or LCRS encoder. Deprecated, don't use it.
- "panr" : legacy panning law from spat v3.x. Deprecated, don't use it. Pair-wise panning over a regular arrangement of loudspeakers on a plane (2-D only).
- "dbap2d" : distance-based amplitude panning on a 2-D (horizontal only) speaker setup (after Trond lossius).
- "dbap3d" : .
- "subwoofers" : combines a lowpass filter and a "vbap2d" panner.
- "wfs" : wavefield synthesis for linear array of loudspeakers.
- "bformat" : legacy Ambisonic B-format amplitude panning. Deprecated, don't use it anymore; use "hoa2d" or "hoa3d" instead.
- "laap" : amplitude/intensity panning on a linear array of loudspeakers. Experimental prototype, don't use it.

. Possible values: binaural, xy, ms, ab, stereopan, surround, panr, angular, abap2d, abip2d, dbap3d, dbap2d, vbap, vbip, vbap3d, vbip3d, vbap2d, vbap2damp, vbip2d, dualbandvbp, bformat, hoa2d, hoa3d, nfchoa3d, nfchoa2d, spcap, csp, knn, aep2d, aep3d, subwoofers, wfs, lbap, laap, sphericalheadmodel, snowmanmodel, nearfieldbinaural

/source/[index]/xyz [number] [number] [number] : set the position of the i-th source using cartesian coordinates

/source/[index]/aed [number] [number] [number] : set the position of the i-th source using navigation coordinates (azimuth/elevation/distance)

/source/[index]/xy [number] [number] : set the xy-coordinate of the i-th source, and use default z (=0)

/source/[index]/az [number] : set the azimuth of the i-th source, using default distance (=1) and elevation (=0)

/source/[index]/x [number] [number] : set the x-coordinate of the i-th source, and keep y and z unchanged

/source/[index]/y [number] [number] : set the y-coordinate of the i-th source, and keep x and z unchanged

/source/[index]/z [number] [number] : set the z-coordinate of the i-th source, and keep x and y unchanged

/source/[index]/ade [number] [number] [number] : set the position of the i-th source using navigation coordinates (azimuth/distance/elevation)

/source/[index]/ae [number] [number] : set the azimuth/elevation of the i-th source, using default distance (=1)

/source/[index]/ad [number] [number] : set the azimuth/distance of the i-th source, using default elevation (=0)

/source/[index]/azim [number] : set the azimuth of the i-th source. Elevation and distance remain unchanged

/source/[index]/elev [number] : set the elevation of the i-th source. Azimuth and distance remain unchanged

/source/[index]/dist [number] : set the distance of the i-th source. Azimuth and elevation remain unchanged

/source/[index]/azimelev [number] [number] : set the azimuth and elevation of the i-th source. Distance remains unchanged

/source/[index]/azimdist [number] [number] : set the azimuth and distance of the i-th source. Elevation remains unchanged

/sources/aed [nnnn...] : set the list of source coordinates (with aed format)

/sources/xyz [nnnn...] : set the list of source coordinates (with xyz format)

/sources/ade [nnnn...] : set the list of source coordinates (with ade format)

/sources/xy [nnnn...] : set the list of source coordinates (with xy format)

/sources/ae [nnnn...] : set the list of source coordinates (with ae format)

/source/[index]/axis/G0 [number] : set the global gain (in dB) of axis filter for the i-th source

/source/[index]/axis/Gl [number] : set the low gain (in dB) of axis filter for the i-th source
 /source/[index]/axis/Gm [number] : set the mid gain (in dB) of axis filter for the i-th source
 /source/[index]/axis/Gh [number] : set the high gain (in dB) of axis filter for the i-th source
 /source/[index]/axis/fl [number] : set the low/mid crossover frequency (in Hz) of axis filter for the i-th source
 /source/[index]/axis/fh [number] : set the mid/high crossover frequency (in Hz) of axis filter for the i-th source
 /source/[index]/axis/params [number] [number] [number] [number] [number] [number] : set the parameters of axis filter for the i-th source. Parameters are given as a list of [G0 Gl Gm Gh fl fh]
 /source/[index]/omni/G0 [number] : set the global gain (in dB) of omni filter for the i-th source
 /source/[index]/omni/Gl [number] : set the low gain (in dB) of omni filter for the i-th source
 /source/[index]/omni/Gm [number] : set the mid gain (in dB) of omni filter for the i-th source
 /source/[index]/omni/Gh [number] : set the high gain (in dB) of omni filter for the i-th source
 /source/[index]/omni/fl [number] : set the low/mid crossover frequency (in Hz) of omni filter for the i-th source
 /source/[index]/omni/fh [number] : set the mid/high crossover frequency (in Hz) of omni filter for the i-th source
 /source/[index]/omni/params [number] [number] [number] [number] [number] [number] : set the parameters of omni filter for the i-th source. Parameters are given as a list of [G0 Gl Gm Gh fl fh]
 /source/[index]/pres [number] : set the source presence of the i-th source
 /source/[index]/warmth [number] : set the source warmth of the i-th source
 /source/[index]/bril [number] : set the source brilliance of the i-th source
 /source/[index]/prer [number] : set the room presence of the i-th source
 /source/[index]/revp [number] : set the running reverberance of the i-th source
 /source/[index]/env [number] : set the envelopment of the i-th source
 /source/[index]/yaw [number] : set the yaw angle (in deg) of the i-th source
 /source/[index]/pitch [number] : set the pitch angle (in deg) of the i-th source
 /source/[index]/aperture [number] : set the aperture angle (in deg) of the i-th source
 /source/[index]/early/width [number] : set the early width angle (in deg) of the i-th source
 /source/[index]/early/shape [number] : set the early shape (in /source/[index]/panrev [number] : set the panrev factor (in /source/[index]/drop [number] : set the drop factor (in dB) for the i-th source
 /source/[index]/drop/mode [string] : set the drop mode for the i-th source. Possible values: linear, log2
 /source/[index]/radius [number] : set the radius (in meters) for the i-th source
 /source/[index]/air [boolean] : enable/disable air absorption for the i-th source
 /source/[index]/air/freq [number] : set cutoff frequency (in Hz) for air absorption of the i-th source
 /source/[index]/doppler [boolean] : enable/disable doppler filtering for the i-th source
 /source/[index]/mute [number] : mute/unmute the i-th source
 /source/[index]/solo [number] : solo/unsolo the i-th source
 /source/[index]/spread/mode [string] : set spread mode for the i-th source
 /source/[index]/spread/law [string] : set spread law for the i-th source
 /source/[index]/spread/omni [number] : set omni spread (in /room/[index]/reverberance [number] : set the reverberance of the i-th room
 /room/[index]/heaviness [number] : set the heaviness of the i-th room
 /room/[index]/liveness [number] : set the liveness of the i-th room
 /room/[index]/reverb/enable [boolean] : enable/disable the i-th room
 /room/[index]/reverb/infinite [boolean] : enable/disable infinite reverb in the i-th room
 /room/[index]/reverb/fl [number] : set the low/mid crossover frequency (in Hz) for the i-th room
 /room/[index]/reverb/fh [number] : set the mid/high crossover frequency (in Hz) for the i-th room
 /room/[index]/reverb/start [number] : set the reverb start (in msec) for the i-th room
 /room/[index]/reverb/density [number] : set the reverb modal density for the i-th room
 /room/[index]/air [boolean] : enable/disable air absorption for the i-th room
 /room/[index]/air/freq [number] : set rolloff frequency (in Hz) for air absorption in the i-th room
 /parallel [boolean] : enable multithread rendering
 /dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied whitout ramping/crossfade, so this might generate clicks
 /dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied whitout ramping/crossfade, so this might generate clicks
 /dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
 /dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
 /dsp/post : post various information to the Max console (audio should be turned on)
 /dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
 /dump/dsp/latency : send the processor latency (in samples) through the dump outlet
 /verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
 /post/version : print the version in the Max Console
 /post/version [details] : print detailed version in the Max Console
 /post/doc : print the help documentation in the Max Console
 /post/state : print the OSC status in the Max Console
 /preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
 /preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
 /preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
 /preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
 /status : open the status window and bring it to front
 /status/open : open the status window and bring it to front
 /status/close : close the status window
 /status/openorclose : open the status window if it was closed; close it if it was opened
 /status/font/size [number] : set the font size of the status window
 /status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
 /help : open the help window and bring it to front
 /help/open : open the help window and bring it to front
 /help/close : close the help window
 /help/openorclose : open the help window if it was closed; close it if it was opened
 /help/font/size [number] : set the font size of the help window


```
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file
```

see also

- spat5.oper
- spat5.viewer
- spat5.early~
- spat5.cluster~
- spat5.reverb~
- spat5.pan~
- spat5.decoder~
- spat5.delgen
- spat5.ircamverb~
- spat5.shuffle~
- spat5.align~
- spat5.panoramix~
- spat5.panoramix
- spat5.virtualspeakers~
- spat5.hlshef
- spat5.hlshef~
- spat5.oper_
- spat5.source~
- spat5.room~
- spat5.ctc~
- spat5.trajectories
- spat5.reverb.timeview
- spat5.multi.connect

spat5.speaker.config

Speaker layout editor

description

spat5.speaker.config is a handy tool for creating loudspeaker setups.

attributes

@embed [boolean]

The `embed` attribute allows to store the state of the object within the patcher. The complete state of the object is stored whenever the patcher is saved to disk. Upon loading the patcher or copying the object box, the state is restored.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int] [int] [number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string] [string] [number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

```

/window/title [string] : set the window title (in the window titlebar)
/window/visible [boolean] : set the window visibility
/window/moveable [boolean] : set the window movability
/window/resizable [boolean] : set the window resizability
/window/enable [boolean] : enable/disable the window
/window/background/color [color] : set the window background color
/window/opaque [boolean] : set the window opaque flag (optimize repaint efficiency)
/window/fullscreen [boolean] : enable/disable fullscreen mode
/window/minimise [boolean] : minimize the window
/window/open : open the window (and bring it to front)
/window/close : close the window
/window/openorclose : open the window if it was closed; close it if it was opened
/window/size [number] [number] : set the window size (width, height) (in pixels)
/window/width [number] : set the window width (in pixels)
/window/height [number] : set the window height (in pixels)
/window/bounds [number] [number] [number] [number] : set the window bounds (top left position, width, height) (in pixels)
/window/topleft [number] [number] : set the window top left position (in pixels)
/window/centre : open the window, centering it on the screen
/window/rendering/engine [string] : set the graphical rendering engine of the window
/window/fps/visible [boolean] : display the FPS performances of the window
/window/scale [number] : set the global scale factor of the window (in /window/floating [boolean] : make the window 'floating' (always on top)
/window/hidesondeactivate [boolean] : make the window 'hides on deactivate' (when always on top)
/window/buttons/close [boolean] : enable/disable the close button (in the window titlebar)
/window/buttons/minimise [boolean] : enable/disable the minimise button (in the window titlebar)
/window/buttons/maximise [boolean] : enable/disable the maximise button (in the window titlebar)
/window/export/image [string] : export the window as an image file (png or jpeg)

```

see also

- spat5.viewer
- spat5.oper
- spat5.speaker.layout
- spat5.grids
- spat5.align~

spat5.speaker.config.embedded

Speaker layout editor

description

spat5.speaker.config is a handy tool for creating loudspeaker setups.

attributes

@embed [boolean]

The `embed` attribute allows to store the state of the object within the patcher. The complete state of the object is stored whenever the patcher is saved to disk. Upon loading the patcher or copying the object box, the state is restored.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

`/post/version` : print the version in the Max Console
`/post/version [details]` : print detailed version in the Max Console
`/post/doc` : print the help documentation in the Max Console
`/post/state` : print the OSC status in the Max Console
`/preset/load [string]` : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
`/preset/load` : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format.
`/preset/export [string]` : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (`/Users/yourlogin`)
`/preset/export` : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the `coll` object). '.txt' is the default file format.
`/status` : open the status window and bring it to front
`/status/open` : open the status window and bring it to front
`/status/close` : close the status window
`/status/openorclose` : open the status window if it was closed; close it if it was opened
`/status/font/size [number]` : set the font size of the status window
`/status/floating [boolean]` : make the status window 'floating' (i.e. always on top of other windows)
`/help` : open the help window and bring it to front
`/help/open` : open the help window and bring it to front
`/help/close` : close the help window
`/help/openorclose` : open the help window if it was closed; close it if it was opened
`/help/font/size [number]` : set the font size of the help window
`/help/floating [boolean]` : make the help window 'floating' (i.e. always on top of other windows)
`/snapshot` : open the snapshot window and bring it to front
`/snapshot/open` : open the snapshot window and bring it to front
`/snapshot/close` : close the snapshot window
`/snapshot/openorclose` : open the snapshot window if it was closed; close it if it was opened
`/snapshot/font/size [number]` : set the font size of the snapshot window
`/snapshot/floating [boolean]` : make the snapshot window 'floating' (i.e. always on top of other windows)
`/status/copytoclipboard` : copy the status to (the OS) clipboard
`/status/copytoclipboard [string]` : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
`/dump` : dump the complete state of the object over the rightmost outlet (a.k.a. `dump outlet`)
`/dump [string]` : dump a subset of the state of the object over the rightmost outlet. See `spat5.tuto-dump-1.maxpat` for usage examples.
`/snapshot/clear` : delete all the snapshots currently in memory
`/snapshot/add` : create a new snapshot with the current state
`/snapshot/add [string]` : create a new snapshot with the current state, and set its name
`/snapshot/[index]/store` : store the current state in the i-th snapshot (in memory)
`/snapshot/[index]/recall` : recall the current state from the i-th snapshot
`/snapshot/[index]/name [string]` : set the name of the i-th snapshot
`/snapshot/interpolate [int] [int] [number]` : interpolate between the i-th and j-th snapshots
`/snapshot/interpolate [string] [string] [number]` : interpolate between two snapshots, given their names
`/snapshot/[index]/delete` : delete the i-th snapshot
`/snapshot/[index]/copytoclipboard` : copy the i-th snapshot to (the OS) clipboard
`/snapshot/[index]/copytoclipboard [string]` : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
`/snapshot/[index]/export [string]` : export the i-th snapshot to file
`/snapshot/[index]/export/content [string]` : export the content of the i-th snapshot to file
`/snapshot/export [string]` : export all snapshots to file

/snapshot/import [string] : import all snapshots from file

see also

- spat5.viewer
- spat5.oper
- spat5.speaker.layout
- spat5.grids
- spat5.align~

spat5.speaker.layout

Pre-defined loudspeaker setups

description

spat5.speaker.layout contains a set of pre-defined loudspeaker setups.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/type [string] : set speaker layout type
/normalize [boolean] : normalize speaker coordinates (to 1 meter)
/labels [boolean] : include loudspeaker labels
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int] [int] [number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string] [string] [number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- `spat5.speaker.config`
- `spat5.viewer`
- `spat5.converterspat5.abs2rel`
- `spat5.oper`
- `spat5.grids`
- `spat5.viewer.control`
- `poltocar`
- `cartopol`
- `spat5.transform`
- `spat5.scale`
- `spat5.translate`
- `spat5.rotate`
- `spat5.normalize`
- `spat5.quat.fromeuler`
- `spat5.quat.toeuler`
- `spat5.quat.transform`
- `spat5.distance`
- `spat5.trajectories`

spat5.spectroscope~

Signal spectrogram

description

spat5.spectroscope~ serves as a visual spectrogram.

attributes

@channels [int]

The `channels` attribute represents the number of input and output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or `attrui` or `inspector`), since the number of signal inlets or outlets can not be changed dynamically.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard

```


/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
 /snapshot/[index]/export [string] : export the i-th snapshot to file
 /snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
 /snapshot/export [string] : export all snapshots to file
 /snapshot/import [string] : import all snapshots from file
 /window/title [string] : set the window title (in the window titlebar)
 /window/visible [boolean] : set the window visibility
 /window/moveable [boolean] : set the window movability
 /window/resizable [boolean] : set the window resizable
 /window/enable [boolean] : enable/disable the window
 /window/background/color [color] : set the window background color
 /window/opaque [boolean] : set the window opaque flag (optimize repaint efficiency)
 /window/fullscreen [boolean] : enable/disable fullscreen mode
 /window/minimise [boolean] : minimize the window
 /window/open : open the window (and bring it to front)
 /window/close : close the window
 /window/openorclose : open the window if it was closed; close it if it was opened
 /window/size [number][number] : set the window size (width, height) (in pixels)
 /window/width [number] : set the window width (in pixels)
 /window/height [number] : set the window height (in pixels)
 /window/bounds [number][number][number][number] : set the window bounds (top left position, width, height) (in pixels)
 /window/topleft [number][number] : set the window top left position (in pixels)
 /window/centre : open the window, centering it on the screen
 /window/rendering/engine [string] : set the graphical rendering engine of the window
 /window/fps/visible [boolean] : display the FPS performances of the window
 /window/scale [number] : set the global scale factor of the window (in /window/floating [boolean] : make the window 'floating' (always on top)
 /window/hidesondeactivate [boolean] : make the window 'hides on deactivate' (when always on top)
 /window/buttons/close [boolean] : enable/disable the close button (in the window titlebar)
 /window/buttons/minimise [boolean] : enable/disable the minimise button (in the window titlebar)
 /window/buttons/maximise [boolean] : enable/disable the maximise button (in the window titlebar)
 /window/export/image [string] : export the window as an image file (png or jpeg)

see also

- spectroscope~
- scope~
- meter~
- spat5.frequencyresponse
- spat5.zplane
- spat5.multi.connect

spat5.sprintf String formatting

description

spat5.sprintf allows the easy formatting of text.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character `"`). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/ms [number] : set time (in milliseconds)
/time/format [string] : set format for time. Possible values: jour_heure_minute_seconde, day_hour_min_sec, j_h_m_s, d_h_m_s, h_min_sec, hour_min_sec,
heure_minute_seconde, h_m_s_ms, h_m_s, m_s, s, sec, seconde
/time/format/shrink [boolean] : set shrink for time values
/time/format/padding [boolean] : set padding for time values
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for
human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is
inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for
human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for
human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the
destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll'
for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- `sprintf`

spat5.sweep~ Sweep generator

description

spat5.sweep~ generates sweep signals.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max `inspector`).

methods

```

/length [int] : set the sweep length (in samples)
/f0 [number] : set the sweep frequency (in Hz) at time t=0
/f1 [number] : set the sweep frequency (in Hz) at time t=t1
/t1 [number] : set the t1 time (in samples)
/fadein [int] : set fade in duration (in samples)
/fadeout [int] : set fade out duration (in samples)
/gain [number] : set linear gain
/cycles [int] : set the number of sweep cycles (averaged)
/pause [int] : set the duration of the pause in between repetitions (in samples)
/phi [number] : set the initial phase (in degrees)
/type [string] : set the type of sweep
/waveform [string] : set the type of waveform
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied whitout ramping/crossfade, so this might
generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied whitout ramping/crossfade, so this might
generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio
settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for
human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is
inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for
human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for
human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the
destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll'
for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front

```

```

/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- spat5.calibrate.delay~
- spat5.calibrate.gain~
- spat5.smk~
- spat5.multi.connect

spat5.tanh~

Signal hyperbolic tangent function

description

spat5.tanh~ calculates an output signal that is the hyperbolic tangent function of each sample of the input signal. It is similar to **Max/MSP tanh~** but can run several channels in parallel.

attributes

@channels [int]

The **channels** attribute represents the number of input and output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or **attrui** or **inspector**), since the number of signal inlets or outlets can not be changed dynamically.

@initwith [string]

The **initwith** attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via **loadbang** or **loadmess**.

Have a look at the **spat5.tuto-osc-3.maxpat** example for further details.

Note that the **initwith** attribute cannot be set via message, **attrui** or **inspector**; it must be typed directly within the object box.

@mc [int]

The **mc** attribute enables multichannel patch-cord for this object (compatible with **Max8** or higher). Note that the **mc** attribute cannot be set via message, **attrui** or **inspector**; it must be typed directly within the object box.

@parameter_enable [boolean]

The **parameter_enable** attribute is used for compatibility with **Max** snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the **Max** **inspector**).

methods

/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied whitout ramping/crossfade, so this might generate clicks

/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied whitout ramping/crossfade, so this might generate clicks

/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)

/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting

/dsp/post : post various information to the **Max** console (audio should be turned on)

/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the **Max** audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up

/dump/dsp/latency : send the processor latency (in samples) through the dump outlet

/verbose [string] : set verbosity i.e. change the way information is posted to the **Max** console. Possible values: silent, minimal, normal, detailed

/post/version : print the version in the **Max** Console

/post/version [details] : print detailed version in the **Max** Console

/post/doc : print the help documentation in the **Max** Console

/post/state : print the OSC status in the **Max** Console

/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable **Max** coll file (compatible with the **coll** object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside **Max** search path.

/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable **Max** coll file (compatible with the **coll** object). '.txt' is the default file format.

/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable **Max** coll file (compatible with the **coll** object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)

/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable **Max** coll file (compatible with the **coll** object). '.txt' is the default file format.

/status : open the status window and bring it to front

/status/open : open the status window and bring it to front

/status/close : close the status window

/status/openorclose : open the status window if it was closed; close it if it was opened

/status/font/size [number] : set the font size of the status window

/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)

/help : open the help window and bring it to front

/help/open : open the help window and bring it to front

/help/close : close the help window

/help/openorclose : open the help window if it was closed; close it if it was opened

/help/font/size [number] : set the font size of the help window

/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)

/snapshot : open the snapshot window and bring it to front

/snapshot/open : open the snapshot window and bring it to front

/snapshot/close : close the snapshot window

/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened

/snapshot/font/size [number] : set the font size of the snapshot window

/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)

/status/copytoclipboard : copy the status to (the OS) clipboard

/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')

`/dump` : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
`/dump [string]` : dump a subset of the state of the object over the rightmost outlet. See `spat5.tuto-dump-1.maxpat` for usage examples.
`/snapshot/clear` : delete all the snapshots currently in memory
`/snapshot/add` : create a new snapshot with the current state
`/snapshot/add [string]` : create a new snapshot with the current state, and set its name
`/snapshot/[index]/store` : store the current state in the i-th snapshot (in memory)
`/snapshot/[index]/recall` : recall the current state from the i-th snapshot
`/snapshot/[index]/name [string]` : set the name of the i-th snapshot
`/snapshot/interpolate [int][int][number]` : interpolate between the i-th and j-th snapshots
`/snapshot/interpolate [string][string][number]` : interpolate between two snapshots, given their names
`/snapshot/[index]/delete` : delete the i-th snapshot
`/snapshot/[index]/copytoclipboard` : copy the i-th snapshot to (the OS) clipboard
`/snapshot/[index]/copytoclipboard [string]` : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
`/snapshot/[index]/export [string]` : export the i-th snapshot to file
`/snapshot/[index]/export/content [string]` : export the content of the i-th snapshot to file
`/snapshot/export [string]` : export all snapshots to file
`/snapshot/import [string]` : import all snapshots from file

see also

- `tanh~`
- `atan~`
- `atanh~`
- `atan2~`
- `spat5.softclipping~`
- `spat5.compressor~`
- `spat5.fixnan~`
- `spat5.isnan~`
- `spat5.noisegate~`
- `spat5.clip~`
- `spat5.delta~`
- `spat5.deltacclip~`
- `mc.tanh~`
- `spat5.multi.connect`

spat5.tapout~

Multichannel tapout from a delayline

description

spat5.tapout~ is similar to Max/MSP **tapout~**/**tapin~** but it can process several delays in parallel. **spat5.tapout~** uses an interpolated fractional delay for smooth variations. Delays are specified in milliseconds or samples.

Reference(s) :

T. I. Laakso, V. Välimäki, M. Karjalainen, and U. K. Laine. Splitting the unit delay. IEEE Signal Processing Magazine, 13(1):30 – 60, January 1996.

attributes

@channels [int]

The **channels** attribute represents the number of input and output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or attrui or inspector), since the number of signal inlets or outlets can not be changed dynamically.

@initwith [string]

The **initwith** attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via **loadbang** or **loadmess**.

Have a look at the **spat5.tuto-osc-3.maxpat** example for further details.

Note that the **initwith** attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@mc [int]

The **mc** attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the **mc** attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The **parameter_enable** attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/channel/number [int] : set the number of channels
/delays [number] [number] [number] ... : set the list of delays (in msec)
/delays/samples [number] [number] [number] ... : set the list of delays (in samples)
/length [number] : set the allocated delay length (in msec)
/channel/[index]/delay [number] : set the delay (in msec) for the i-th channel
/channel/[index]/delay/samples [number] : set the delay (in samples) for the i-th channel
/interpolation/mode [string] : set the interpolation mode. Possible values: nearest, linear, lagrange3, allpass, hermite3, watte3, bspline3, parabolic, allpass2, allpass3, nearestxfade
/interpolation/time [number] : set the interpolation time (in msec)
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
```



```
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file
```

see also

- spat5.delay~
- spat5.comb~
- comb~
- allpass~
- tapin~
- tapout~
- delay~
- spat5.allpass~
- spat5.early~
- spat5.cluster~
- spat5.reverb~
- spat5.delgen
- spat5.roomsize
- spat5.multi.connect

spat5.times~

Multichannel times~

description

spat5.times~ is similar to Max/MSP **times~** (aka ***~**) but it can process several channels in parallel. All the input signals are multiplied by the rightmost gain (float or signal).

attributes

@channels [int]

The **channels** attribute represents the number of input and output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or attrui or inspector), since the number of signal inlets or outlets can not be changed dynamically.

@initwith [string]

The **initwith** attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via **loadbang** or **loadmess**.

Have a look at the **spat5.tuto-osc-3.maxpat** example for further details.

Note that the **initwith** attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The **parameter_enable** attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
```

`/snapshot/import [string]` : import all snapshots from file

see also

- `times~`
- `*~`
- `spat5.plus~`
- `gain~`
- `spat5.meter~`
- `spat5.diagmatrix~`
- `matrix~`
- `live.gain~`
- `mc.*~`
- `mc.live.gain~`

spat5.trajectories Trajectories generator

description

spat5.trajectories generates trajectories according to various parametric curves.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/start : start delivering messages
/stop : stop delivering messages
/type [string] : set the type of trajectory
/speed [number] : set the trajectory speed
/radius [number] : set the trajectory radius (not valid for all types)
/a [number] : set the 'a' parameter for the trajectory (not valid for all types)
/b [number] : set the 'b' parameter for the trajectory (not valid for all types)
/petals [number] : set the number of petals (only for the 'rose' type)
/format [string] : set format for output messages
/rate [number] : set output rate (in msec)
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')

```

/snapshot/[index]/export [string] : export the i-th snapshot to file
 /snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
 /snapshot/export [string] : export all snapshots to file
 /snapshot/import [string] : import all snapshots from file

see also

- [spat5.viewer](#)
- [spat5.transform](#)
- [spat5.converter](#)
- [spat5.grids](#)
- [spat5.rotate](#)
- [spat5.scale](#)
- [spat5.translate](#)
- [spat5.mirror](#)
- [spat5.jitter](#)
- [spat5.oper](#)
- [spat5.constraint](#)
- [spat5.barycenter](#)
- [spat5.simone](#)
- [spat5.simone.generator](#)
- [spat5.boids](#)

spat5.transform Geometrical transformations

description

spat5.transform applies geometrical transformations (translation, rotation, scaling, etc.) to source, speaker or listener coordinate messages. The mathematical operations applied here are dependent on the order of transformations. This order can be specified with the `/sequence` message. `spat5.scale`, `spat5.rotate` and `spat5.translate` are stateless objects i.e. they only react when incoming position messages are received. On the other hand, **spat5.transform** is statefull: it keeps track of the state of the spatial scene, and will deliver the transformed scene whenever the parameter (yaw, pitch, roll, offset, etc.) is changed.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`. Have a look at the `spat5.tuto-osc-3.maxpat` example for further details. Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/sequence [string] : set the sequence of operations
/offset/x [number] : set translation offset along the x-axis (in meters)
/offset/y [number] : set translation offset along the y-axis (in meters)
/offset/z [number] : set translation offset along the z-axis (in meters)
/offset/xy [number] [number] : set translation offset along the x and y axis (in meters)
/offset/xyz [number] [number] [number] : set translation offset along the x, y, and z axis (in meters)
/scaling/x [number] : set scaling factor along the x-axis
/scaling/y [number] : set scaling factor along the y-axis
/scaling/z [number] : set scaling factor along the z-axis
/scaling/dist [number] : set radial scaling factor
/scaling/xy [number] [number] : set scaling factor along the x and y axis
/scaling/xyz [number] [number] [number] : set scaling factor along the x, y, and z axis
/yaw [number] : set yaw rotation angle (in deg), using Euler zyx convention
/pitch [number] : set pitch rotation angle (in deg), using Euler zyx convention
/roll [number] : set roll rotation angle (in deg), using Euler zyx convention
/ypr [number] [number] [number] : set yaw, pitch and roll rotation angles (in deg), using Euler zyx convention
/orientation [number] [number] [number] [number] : set rotation angles from quaternion (xyzw)
/reset : reset to default settings
/clear : clear the state of the object
```

see also

- `spat5.scale`
- `spat5.rotate`
- `spat5.translate`
- `spat5.normalize`
- `spat5.mirror`
- `spat5.jitter`
- `spat5.viewer`
- `spat5.converter`
- `spat5.converter~`
- `spat5.abs2rel`
- `spat5.distance`
- `spat5.trajectories`
- `spat5.boids`

spat5.translate Translate coordinate messages

description

spat5.translate applies translation to source, speaker or listener coordinate messages.
spat5.scale, **spat5.rotate** and **spat5.translate** are stateless objects i.e. they only react when incoming position messages are received.
 On the other hand, **spat5.transform** is statefull: it keeps track of the state of the spatial scene, and will deliver the transformed scene whenever the parameter (yaw, pitch, roll, offset, etc.) is changed.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.
 Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.
 Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

`/offset/x [number]` : set translation offset along the x-axis (in meters)
`/offset/y [number]` : set translation offset along the y-axis (in meters)
`/offset/z [number]` : set translation offset along the z-axis (in meters)
`/offset/xy [number] [number]` : set translation offset along the x and y axis (in meters)
`/offset/xyz [number] [number] [number]` : set translation offset along the x, y, and z axis (in meters)

see also

- `spat5.transform`
- `spat5.scale`
- `spat5.rotate`
- `spat5.normalize`
- `spat5.viewer`
- `spat5.converter`
- `spat5.abs2rel`
- `spat5.jitter`
- `spat5.trajectories`

spat5.transpan.downmixer~

5.1 downmix to headphones or stereo 2.0 loud-speakers

description

spat5.transpan.downmixer~ produces 2.0 downmix of a 5.1 (or 5.0) stream.

Reference(s) :

J.-M. Lyzwa and A. Baskind. Use of binaural and transaural spatialization techniques in multichannel 5.1 production: technical and aesthetic principles, from recording to post-production. In Proc. of the 7th Conference of Audio Engineering Society (AES) Brazil, Sao Paolo, Brazil, 2009.

A. Baskind, T. Carpentier, J.-M. Lyzwa, and O. Warusfel. Surround and 3D-Audio Production on Two-Channel and 2D-Multichannel Loudspeaker Setups. In Proc. of the 3rd International Conference on Spatial Audio (ICSA), Graz, Austria, Sept 2015.

A. Baskind, T. Carpentier, M. Noisternig, O. Warusfel, and J.-M. Lyzwa. Binaural and transaural spatialization techniques in multichannel 5.1 production. In Proc. of the 27th Tonmeisterstagung - VDT International Convention, Koln, Germany, November 2012.

J.-M. Jot, V. Larcher, and O. Warusfel. Digital signal processing issues in the context of binaural and transaural stereophony. In Proc. of the 98th Convention of the Audio Engineering Society (AES), Paris, France, Feb. 1995.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character `"`). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/method [string] : set method used for computing the CTC EQ filter. Possible values: single, singlesmooth, equalweighting, sidesweighting
/blur [number] : set blur factor (in /highpass [boolean] : enable high-pass filter in the CTC processor
/load [string] : load hrtf file (SOFA format)
/open [string] : load hrtf file (SOFA format). similar to /load
/mode [string] : set rendering mode
/gains [number] [number] [number] [number] : set downmix gains
/rearaz [number] : set azimuth of the Ls/Rs virtual speakers
/elev [number] : set elevation of the virtual speakers
/frontbackdelay [number] : set the delay (in msec) between front and back layers
/directtransdelay [number] : set the delay (in msec) between dry layer and transaural layer
/directtransratio [number] : set ratio (in /dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is
applied whitout ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied whitout ramping/crossfade, so this
might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio
settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for
human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is
inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for
human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for
human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the
destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll'
for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front

```



```

/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- spat5.pan~
- spat5.decoder~
- spat5.spat~
- spat5.transpan~
- spat5.transpan.enlarger~
- spat5.virtualspeakers~
- spat5.ctc~
- spat5.multi.connect

spat5.transpan.enlarger~

Stereo image enlarger

description

spat5.transpan.enlarger~ is a stereo image enlarger based on binaural/transaural processing.

Reference(s) :

J.-M. Lyzwa and A. Baskind. Use of binaural and transaural spatialization techniques in multichannel 5.1 production: technical and aesthetic principles, from recording to post-production. In Proc. of the 7th Conference of Audio Engineering Society (AES) Brazil, Sao Paolo, Brazil, 2009.

A. Baskind, T. Carpentier, J.-M. Lyzwa, and O. Warusfel. Surround and 3D-Audio Production on Two-Channel and 2D-Multichannel Loudspeaker Setups. In Proc. of the 3rd International Conference on Spatial Audio (ICSA), Graz, Austria, Sept 2015.

A. Baskind, T. Carpentier, M. Noisternig, O. Warusfel, and J.-M. Lyzwa. Binaural and transaural spatialization techniques in multichannel 5.1 production. In Proc. of the 27th Tonmeisterstagung - VDT International Convention, Koln, Germany, November 2012.

J.-M. Jot, V. Larcher, and O. Warusfel. Digital signal processing issues in the context of binaural and transaural stereophony. In Proc. of the 98th Convention of the Audio Engineering Society (AES), Paris, France, Feb. 1995.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/order [int] : set crossover filter order
/fl [number] : set low/mid crossover frequency (in Hz)
/fh [number] : set mid/high crossover frequency (in Hz)
/method [string] : set method used for computing the CTC EQ filter. Possible values: single, singlesmooth, equalweighting, sidesweighting
/blur [number] : set blur factor (in /highpass [boolean] : enable high-pass filter in the CTC processor
/load [string] : load hrtf file (SOFA format)
/open [string] : load hrtf file (SOFA format). similar to /load
/drywet [number][number][number] : set dry/wet factor (in /widening [number][number][number] : set widening factor (in /muteband [number][number][number] :
mute/unmute each of the three bands
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied whitout ramping/crossfade, so this might
generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied whitout ramping/crossfade, so this
might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio
settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for
human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is
inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for
human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for
human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the
destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll'
for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened

```

```

/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- spat5.pan~
- spat5.decoder~
- spat5.spat~
- spat5.transpan~
- spat5.transpan.downmixer~
- spat5.virtualspeakers~
- spat5.ctc~
- spat5.multi.connect

spat5.transpan~

5.1 Mixer with double transaural layer

description

One of the main challenges in the process of mixing music is to provide the listener with a soundscape of the greatest possible clarity. In this sense, the ITU 5.1 standard represents a considerable enhancement over 2-channel stereophony.

However, its main drawback is that it privileges the frontal region and blurs the side and rear regions of the sound scene.

spat5.transpan~ aims at overcoming this problem by providing an additional sound spatialization layer to the surround mix (i.e. to surround sound recording techniques using main and spot microphones).

This approach is fully compatible with the ITU-R BS 775 standard for 5.1 surround sound playback.

In the proposed approach, the spatialization of a single sound source relies on the parallel use of three techniques :

- (1) Multichannel microphone arrays, if available, create a first layer with a coherent spatial image directly at the recording;
 - (2) power-law panning utilizing spot microphones forms a second layer that plays a major role in balancing the timbral, spatial and amplitude features of the mix;
 - (3) a third layer, based on binaural/transaural processing using two loudspeaker pairs (L/R, and Ls/Rs), provides the spatial precision that lacks for the lateral images.
- Therefore, this approach combines the advantages of standardized surround panning techniques with the spatial stability of binaural/transaural processing, and compensates for their respective drawbacks. Moreover, this processor can be used to considerably widen the stereophonic space when down-mixing from 5.1 to 2.0.

Reference(s) :

J.-M. Lyzwa and A. Baskind. Use of binaural and transaural spatialization techniques in multichannel 5.1 production: technical and aesthetic principles, from recording to post-production. In Proc. of the 7th Conference of Audio Engineering Society (AES) Brazil, Sao Paolo, Brazil, 2009.

A. Baskind, T. Carpentier, J.-M. Lyzwa, and O. Warusfel. Surround and 3D-Audio Production on Two-Channel and 2D-Multichannel Loudspeaker Setups. In Proc. of the 3rd International Conference on Spatial Audio (ICSA), Graz, Austria, Sept 2015.

A. Baskind, T. Carpentier, M. Noisternig, O. Warusfel, and J.-M. Lyzwa. Binaural and transaural spatialization techniques in multichannel 5.1 production. In Proc. of the 27th Tonmeisterstagung - VDT International Convention, Koln, Germany, November 2012.

J.-M. Jot, V. Larcher, and O. Warusfel. Digital signal processing issues in the context of binaural and transaural stereophony. In Proc. of the 98th Convention of the Audio Engineering Society (AES), Paris, France, Feb. 1995.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max `inspector`).

@sources [int]

The `sources` attribute represents the number of input channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or `attrui` or `inspector`), since the number of signal inlets or outlets can not be changed dynamically.

methods

```

/method [string] : set method used for computing the CTC EQ filter. Possible values: single, singlesmooth, equalweighting, sidesweighting
/mode [string] : set the type of output signals. Possible values: transaural, transpan, panpot, stereo
/highpass [boolean] : enable high-pass filter in the CTC EQ filter
/blur/front [number] : set spatial blur (in /blur/back [number] : set spatial blur (in /source/[index]/trim [number] : set input trim (in dB) for the i-th source
/source/[index]/xyz [number] [number] [number] : set the position of the i-th source using cartesian coordinates
/source/[index]/aed [number] [number] [number] : set the position of the i-th source using navigation coordinates (azimuth/elevation/distance)
/source/[index]/xy [number] [number] : set the xy-coordinate of the i-th source, and use default z (=0)
/source/[index]/az [number] : set the azimuth of the i-th source, using default distance (=1) and elevation (=0)
/source/[index]/x [number] [number] : set the x-coordinate of the i-th source, and keep y and z unchanged
/source/[index]/y [number] [number] : set the y-coordinate of the i-th source, and keep x and z unchanged
/source/[index]/z [number] [number] : set the z-coordinate of the i-th source, and keep x and y unchanged
/source/[index]/ade [number] [number] [number] : set the position of the i-th source using navigation coordinates (azimuth/distance/elevation)
/source/[index]/ae [number] [number] : set the azimuth/elevation of the i-th source, using default distance (=1)
/source/[index]/ad [number] [number] : set the azimuth/distance of the i-th source, using default elevation (=0)
/source/[index]/azim [number] : set the azimuth of the i-th source. Elevation and distance remain unchanged
/source/[index]/elev [number] : set the elevation of the i-th source. Azimuth and distance remain unchanged
/source/[index]/dist [number] : set the distance of the i-th source. Azimuth and elevation remain unchanged
/source/[index]/azimelev [number] [number] : set the azimuth and elevation of the i-th source. Distance remains unchanged
/source/[index]/azimdist [number] [number] : set the azimuth and distance of the i-th source. Elevation remains unchanged
/sources/aed [nnnn...] : set the list of source coordinates (with aed format)
/sources/xyz [nnnn...] : set the list of source coordinates (with xyz format)
/sources/ade [nnnn...] : set the list of source coordinates (with ade format)

```

```

/sources/xy [nnnn...] : set the list of source coordinates (with xy format)
/sources/ae [nnnn...] : set the list of source coordinates (with ae format)
/source/[index]/inputdelay [number] : set input delay (in msec) for the i-th source
/source/[index]/delay [number] : set delay (in msec) between panpot layer and transaural layer for the i-th source
/source/[index]/drywet [number] : set direct sound versus transaural ratio (in /source/[index]/drywet/auto [boolean] : automatically adjust the drywet ratio according to the source position, for the i-th source
/source/[index]/frontback [number] : set ratio (in /source/[index]/frontback/auto [boolean] : automatically adjust the frontback ratio according to the source position, for the i-th source
/source/[index]/azimoffset [number] : set offset (in deg) between the azimuth of the main panpot and the azimuth of the transaural panner, for the i-th source
/source/[index]/subwoofer/cutoff [number] : set subwoofer cutoff frequency (in Hz) for the i-th source
/source/[index]/subwoofer/gain [number] : set subwoofer gain (in dB) for the i-th source
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied whitout ramping/crossfade, so this might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- spat5.pan~
- spat5.decoder~
- spat5.spat~
- spat5.transpan.downmixer~
- spat5.transpan.enlarger~
- spat5.virtualspeakers~

- spat5.ctc~
- spat5.panoramix
- spat5.ctc~
- spat5.virtualspeakers~
- spat5.multi.connect

spat5.turntable B&K TurnTable control

description

spat5.turntable offers B&K TurnTable control via Prologix GPIB-Ethernet controller.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@ip [string]

IP address.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

@port [int]

Port number.

methods

```

/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int] [int] [number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string] [string] [number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file

```

/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

see also

- spat5.smk~

spat5.viewer Sources and speakers visualization and manipulation

description

spat5.viewer is a 2D graphical representation of the spatial sound scene.
spat5.viewer allows you to manipulate the sound sources or the speakers positions.

attributes

@embed [boolean]

The `embed` attribute allows to store the state of the object within the patcher. The complete state of the object is stored whenever the patcher is saved to disk. Upon loading the patcher or copying the object box, the state is restored.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/source/number [int] : set the number of sources
/source/[index]/visible [boolean] : set the visibility of the i-th source
/source/[index]/editable [boolean] : set the editability of the i-th source
/source/[index]/select [boolean] : select the i-th source
/source/[index]/mute [boolean] : mute the i-th source
/source/[index]/color [color] : set the color of the i-th source
/source/[index]/color/alpha [number] : change alpha for the color of the i-th source
/source/[index]/color/alpha/add [number] : increase/decrease alpha for the color of the i-th source
/source/[index]/proportion [number] : set the proportion the i-th source
/source/[index]/proportion/add [number] : increase/decrease the proportion the i-th source by a certain amount
/source/[index]/constraint/circular [boolean] : set the circular constraints for the i-th source
/source/[index]/label [string] : set the label for the i-th source
/source/[index]/label/visible [boolean] : set the visibility for the label for the i-th source
/source/[index]/label/color [color] : set the color for the label for the i-th source
/source/[index]/label/justification [string] : set the text justification for the label for the i-th source
/source/[index]/vumeter/visible [boolean] : set the visibility for the vumeter for the i-th source
/source/[index]/level [number] : set the vumeter level (in dB) for the i-th source
/source/[index]/xyz [number][number][number] : set the position of the i-th source using cartesian coordinates
/source/[index]/aed [number][number][number] : set the position of the i-th source using navigation coordinates (azimuth/elevation/distance)
/source/[index]/xy [number][number] : set the xy-coordinate of the i-th source, and use default z (=0)
/source/[index]/az [number] : set the azimuth of the i-th source, using default distance (=1) and elevation (=0)
/source/[index]/x [number][number] : set the x-coordinate of the i-th source, and keep y and z unchanged
/source/[index]/y [number][number] : set the y-coordinate of the i-th source, and keep x and z unchanged
/source/[index]/z [number][number] : set the z-coordinate of the i-th source, and keep x and y unchanged
/source/[index]/ade [number][number][number] : set the position of the i-th source using navigation coordinates (azimuth/distance/elevation)
/source/[index]/ae [number][number] : set the azimuth/elevation of the i-th source, using default distance (=1)
/source/[index]/ad [number][number] : set the azimuth/distance of the i-th source, using default elevation (=0)
/source/[index]/azim [number] : set the azimuth of the i-th source. Elevation and distance remain unchanged
/source/[index]/elev [number] : set the elevation of the i-th source. Azimuth and distance remain unchanged
/source/[index]/dist [number] : set the distance of the i-th source. Azimuth and elevation remain unchanged
/source/[index]/azimelev [number][number] : set the azimuth and elevation of the i-th source. Distance remains unchanged
/source/[index]/azimdist [number][number] : set the azimuth and distance of the i-th source. Elevation remains unchanged
/sources/aed [nnnn...] : set the list of source coordinates (with aed format)
/sources/xyz [nnnn...] : set the list of source coordinates (with xyz format)
/sources/ade [nnnn...] : set the list of source coordinates (with ade format)
/sources/xy [nnnn...] : set the list of source coordinates (with xy format)
/sources/ae [nnnn...] : set the list of source coordinates (with ae format)
/source/[index]/aperture [number] : set the aperture of the i-th source
/source/[index]/aperture/visible [boolean] : set the visibility for the aperture of the i-th source
/source/[index]/aperture/color [color] : set the color for the aperture of the i-th source
/source/[index]/yaw/mode [string] : set the yaw mode of the i-th source
/source/[index]/yaw [number] : set the yaw angle (in deg) of the i-th source, using Euler zyx convention
/source/[index]/pitch [number] : set the pitch angle (in deg) of the i-th source, using Euler zyx convention
/source/[index]/roll [number] : set the roll angle (in deg) of the i-th source, using Euler zyx convention
/source/[index]/orientation [number][number][number][number] : set the orientation quaternion (xyzw) of the i-th source
/source/[index]/history/visible [boolean] : set the visibility for the history of the i-th source
/source/[index]/history/color [color] : set the color for the history of the i-th source
/source/[index]/history/thickness [number] : set the line thickness for the history of the i-th source
/source/[index]/history/size [int] : set the (past) size for the history of the i-th source
/source/[index]/history/clear : clear the history of the i-th source
```

```

/source/[index]/tofront : bring the i-th source to the front of its siblings
/source/[index]/toback : bring the i-th source to the back of its siblings
/source/[index]/tofront [boolean] : bring the i-th source to the front or back of its siblings
/source/[index]/image [string] : set the image file (svg, jpg, png, etc.) to use for the i-th source
/source/[index]/image/clear : use the default image for the i-th source
/sources/level [nnnn...] : set the vumeter levels (in dB) for all sources
/sources/visible [bbbb...] : set the visibility for all sources
/speaker/number [int] : set the number of speakers
/speaker/[index]/visible [boolean] : set the visibility of the i-th speaker
/speaker/[index]/editable [boolean] : set the editability of the i-th speaker
/speaker/[index]/select [boolean] : select the i-th speaker
/speaker/[index]/color [color] : set the color of the i-th speaker
/speaker/[index]/proportion [number] : set the proportion the i-th speaker
/speaker/[index]/constraint/circular [boolean] : set the circular constraints for the i-th speaker
/speaker/[index]/label [string] : set the label for the i-th speaker
/speaker/[index]/label/visible [boolean] : set the visibility for the label for the i-th speaker
/speaker/[index]/label/color [color] : set the color for the label for the i-th speaker
/speaker/[index]/label/justification [string] : set the text justification for the label for the i-th speaker
/speaker/[index]/vumeter/visible [boolean] : set the visibility for the vumeter for the i-th speaker
/speaker/[index]/level [number] : set the vumeter level (in dB) for the i-th speaker
/speakers/aed [nnnn...] : set the list of speaker coordinates (with aed format)
/speakers/xyz [nnnn...] : set the list of speaker coordinates (with xyz format)
/speakers/ade [nnnn...] : set the list of speaker coordinates (with ade format)
/speakers/xy [nnnn...] : set the list of speaker coordinates (with xy format)
/speakers/ae [nnnn...] : set the list of speaker coordinates (with ae format)
/speaker/[index]/aed [number][number][number] : set the position of the i-th loudspeaker using navigation coordinates (azimuth/elevation/distance)
/speaker/[index]/ade [number][number][number] : set the position of the i-th loudspeaker using navigation coordinates (azimuth/distance/elevation)
/speaker/[index]/xyz [number][number][number] : set the position of the i-th loudspeaker using cartesian coordinates
/speaker/[index]/xy [number][number] : set the xy-coordinate of the i-th loudspeaker, and use default z (=0)
/speaker/[index]/ae [number][number] : set the azimuth/elevation of the i-th loudspeaker, using default distance (=1)
/speaker/[index]/az [number] : set the azimuth of the i-th loudspeaker, using default distance (=1) and elevation (=0)
/speaker/[index]/tofront : bring the i-th speaker to the front of its siblings
/speaker/[index]/toback : bring the i-th speaker to the back of its siblings
/speaker/[index]/tofront [boolean] : bring the i-th speaker to the front or back of its siblings
/speaker/[index]/image [string] : set the image file (svg, jpg, png, etc.) to use for the i-th speaker
/speaker/[index]/image/clear : use the default image for the i-th speaker
/speakers/level [nnnn...] : set the vumeter levels (in dB) for all speakers
/speakers/visible [bbbb...] : set the visibility for all speakers
/stereo/number [int] : set the number of stereo pairs
/stereo/[index]/visible [boolean] : set the visibility of the i-th stereo pair
/stereo/[index]/editable [boolean] : set the editability of the i-th stereo pair
/stereo/[index]/select [boolean] : select the i-th stereo pair
/stereo/[index]/color [color] : set the color of the i-th stereo pair
/stereo/[index]/proportion [number] : set the proportion the i-th stereo pair
/stereo/[index]/constraint/circular [boolean] : set the circular constraints for the i-th stereo pair
/stereo/[index]/label [string] : set the label for the i-th stereo pair
/stereo/[index]/label/visible [boolean] : set the visibility for the label for the i-th stereo pair
/stereo/[index]/label/color [color] : set the color for the label for the i-th stereo pair
/stereo/[index]/label/justification [string] : set the text justification for the label for the i-th stereo pair
/stereo/[index]/vumeter/visible [boolean] : set the visibility for the vumeter for the i-th stereo pair
/stereo/[index]/level [number] : set the vumeter level (in dB) for the i-th stereo pair
/stereo/[index]/xyz [number][number][number] : set the position of the i-th stereo pair
/stereo/[index]/xy [number][number] : set the position of the i-th stereo pair
/stereo/[index]/x [number] : set the position of the i-th stereo pair
/stereo/[index]/y [number] : set the position of the i-th stereo pair
/stereo/[index]/z [number] : set the position of the i-th stereo pair
/stereo/[index]/aed [number][number][number] : set the position of the i-th stereo pair
/stereo/[index]/ade [number][number][number] : set the position of the i-th stereo pair
/stereo/[index]/ae [number][number] : set the position of the i-th stereo pair
/stereo/[index]/ad [number][number][number] : set the position of the i-th stereo pair
/stereo/[index]/az [number] : set the position of the i-th stereo pair
/stereo/[index]/azim [number] : set the position of the i-th stereo pair
/stereo/[index]/elev [number] : set the position of the i-th stereo pair
/stereo/[index]/dist [number] : set the position of the i-th stereo pair
/stereo/[index]/azim++ [number] : set the position of the i-th stereo pair
/stereo/[index]/elev++ [number] : set the position of the i-th stereo pair
/stereo/[index]/dist++ [number] : set the position of the i-th stereo pair
/stereo/[index]/dist*= [number] : set the position of the i-th stereo pair
/stereo/[index]/aperture [number] : set the aperture of the i-th stereo pair
/stereo/[index]/aperture/visible [boolean] : set the visibility for the aperture of the i-th stereo pair
/stereo/[index]/aperture/color [color] : set the color for the aperture of the i-th stereo pair
/stereo/[index]/yaw/mode [string] : set the yaw mode of the i-th stereo pair
/stereo/[index]/yaw [number] : set the yaw angle (in deg) of the i-th stereo pair, using Euler zyx convention
/stereo/[index]/pitch [number] : set the pitch angle (in deg) of the i-th stereo pair, using Euler zyx convention
/stereo/[index]/roll [number] : set the roll angle (in deg) of the i-th stereo pair, using Euler zyx convention
/stereo/[index]/orientation [number][number][number][number] : set the orientation quaternion (xyzw) of the i-th stereo pair
/stereos/level [nnnn...] : set the vumeter levels (in dB) for all stereo pairs
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for
human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is
inside Max search path.

```

/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.

/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)

/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.

/status : open the status window and bring it to front

/status/open : open the status window and bring it to front

/status/close : close the status window

/status/openorclose : open the status window if it was closed; close it if it was opened

/status/font/size [number] : set the font size of the status window

/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)

/help : open the help window and bring it to front

/help/open : open the help window and bring it to front

/help/close : close the help window

/help/openorclose : open the help window if it was closed; close it if it was opened

/help/font/size [number] : set the font size of the help window

/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)

/snapshot : open the snapshot window and bring it to front

/snapshot/open : open the snapshot window and bring it to front

/snapshot/close : close the snapshot window

/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened

/snapshot/font/size [number] : set the font size of the snapshot window

/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)

/status/copytoclipboard : copy the status to (the OS) clipboard

/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')

/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)

/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.

/snapshot/clear : delete all the snapshots currently in memory

/snapshot/add : create a new snapshot with the current state

/snapshot/add [string] : create a new snapshot with the current state, and set its name

/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)

/snapshot/[index]/recall : recall the current state from the i-th snapshot

/snapshot/[index]/name [string] : set the name of the i-th snapshot

/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots

/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names

/snapshot/[index]/delete : delete the i-th snapshot

/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard

/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')

/snapshot/[index]/export [string] : export the i-th snapshot to file

/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file

/snapshot/export [string] : export all snapshots to file

/snapshot/import [string] : import all snapshots from file

/listener/visible [boolean] : set the visibility of the listener

/listener/editable [boolean] : set the listener editable

/listener/headphones/visible [boolean] : set the visibility of the headphones

/listener/orientation [quaternion] : set the orientation of the listener

/listener/proportion [number] : set the display proportion of the listener

/listener/select [boolean] : select/unselect the listener

/listener/aed [number][number][number] : set the listener position (azimuth/elevation/distance)

/hoa/number [int] : set the number of HOA fields

/hoa/[index]/yaw [number] : set the yaw angle of the i-th HOA field

/background/color [color] : set the window background color

/backgroundimage/file [string] : set the background image (png, jpg, etc.)

/backgroundimage/visible [boolean] : set the visibility of the background image

/backgroundimage/opacity [number] : set the opacity of the background image

/backgroundimage/scale [number] : set the scale factor of the background image

/backgroundimage/angle [number] : set the rotation angle of the background image

/backgroundimage/offset/x [number] : set the x translation offset of the background image

/backgroundimage/offset/y [number] : set the y translation offset of the background image

/backgroundimage/offset/xy [number][number] : set the x/y translation offset of the background image

/backgroundimage/quality [string] : set the resampling quality of the background image (low, medium, high)

/display/zoom [number] : set the display zoom factor (/display/offset/x [number] : set the display x translation offset (in pixels)

/display/offset/y [number] : set the display y translation offset (in pixels)

/display/offset/z [number] : set the display z translation offset (in pixels)

/display/offset/xy [number][number] : set the display x/y translation offsets (in pixels)

/display/offset/xyz [number][number][number] : set the display x/y/z translation offsets (in pixels)

/display/zoom/lock [boolean] : enable/disable zooming with the mouse wheel

/axis/visible [boolean] : set the visibility of the axis

/axis/color [color] : set the axis color

/axis/label/visible [boolean] : set the visibility of the axis label

/axis/origin/visible [boolean] : set the visibility of the axis origin

/axis/thickness [number] : set line thickness

/grid/visible [boolean] : set the visibility of the grid

/grid/mode [string] : set the grid mode. Possible values: none, circular, cartesian

/grid/spacing [number] : set the spacing between grid lines (in meters)

/grid/line/number [number] : set the number of grid lines

/grid/angulardivisions/number [number] : set the number of angular divisions

/grid/angulardivisions/visible [boolean] : set the visibility of angular divisions

/grid/dashed [boolean] : set the line style

/grid/color [color] : set the line color

/grid/thickness [number] : set line thickness

/legend/visible [boolean] : set the visibility of the legend

```

/legend/color [color] : set the legend color
/legend/unit [string] : set distance unit
/emphasis/source [boolean] : emphasize sources when mouse in proximity
/emphasis/speaker [boolean] : emphasize speakers when mouse in proximity
/emphasis/microphone [boolean] : emphasize microphones when mouse in proximity
/ruler/visible [boolean] : set the visibility of the ruler
/ruler/color [color] : set the ruler color
/area/number [int] : set the number of areas
/area/[index]/vertex/number [int] : set the number of vertex for the i-th area
/area/[index]/vertex/[index]/xy [number] [number] : set position of the j-th vertex of the i-th area
/area/[index]/vertex/[index]/xyz [number] [number] [number] : set position of the j-th vertex of the i-th area
/area/[index]/vertex/[index]/aed [number] [number] [number] : set position of the j-th vertex of the i-th area
/area/[index]/visible [boolean] : set visibility for the i-th area
/area/[index]/color [color] : set color for the i-th area
/area/[index]/name [string] : set name for the i-th area
/speakerhull/color [color] : set the hull color
/speakerhull/visible [boolean] : set the visibility of the hull
/speakerhull/fill/color [color] : set the hull interior color
/speakerhull/fill [boolean] : fill the hull
/layout [string] : set the window layout. Possible values: single, leftright, topbottom, automatic
/window/title [string] : set the window title (in the window titlebar)
/window/visible [boolean] : set the window visibility
/window/moveable [boolean] : set the window movability
/window/resizable [boolean] : set the window resizability
/window/enable [boolean] : enable/disable the window
/window/background/color [color] : set the window background color
/window/opaque [boolean] : set the window opaque flag (optimize repaint efficiency)
/window/fullscreen [boolean] : enable/disable fullscreen mode
/window/minimise [boolean] : minimize the window
/window/open : open the window (and bring it to front)
/window/close : close the window
/window/openorclose : open the window if it was closed; close it if it was opened
/window/size [number] [number] : set the window size (width, height) (in pixels)
/window/width [number] : set the window width (in pixels)
/window/height [number] : set the window height (in pixels)
/window/bounds [number] [number] [number] [number] : set the window bounds (top left position, width, height) (in pixels)
/window/topleft [number] [number] : set the window top left position (in pixels)
/window/centre : open the window, centering it on the screen
/window/rendering/engine [string] : set the graphical rendering engine of the window
/window/fps/visible [boolean] : display the FPS performances of the window
/window/scale [number] : set the global scale factor of the window (in /window/floating [boolean] : make the window 'floating' (always on top)
/window/hidesondeactivate [boolean] : make the window 'hides on deactivate' (when always on top)
/window/buttons/close [boolean] : enable/disable the close button (in the window titlebar)
/window/buttons/minimise [boolean] : enable/disable the minimise button (in the window titlebar)
/window/buttons/maximise [boolean] : enable/disable the maximise button (in the window titlebar)
/window/export/image [string] : export the window as an image file (png or jpeg)

```

see also

- spat5.converter
- spat5.abs2rel
- spat5.oper
- spat5.converter~
- spat5.trajectories
- spat5.speaker.config
- spat5.speaker.layout
- spat5.grids
- spat5.viewer.control
- poltocar
- cartopol
- spat5.transform
- spat5.scale
- spat5.translate
- spat5.rotate
- spat5.quat.fromeuler
- spat5.quat.toeuler
- spat5.quat.transform
- spat5.ircamverb

spat5.viewer.embedded

Sources and speakers visualization and manipulation

description

spat5.viewer is a 2D graphical representation of the spatial sound scene.
spat5.viewer allows you to manipulate the sound sources or the speakers positions.

attributes

@embed [boolean]

The `embed` attribute allows to store the state of the object within the patcher. The complete state of the object is stored whenever the patcher is saved to disk. Upon loading the patcher or copying the object box, the state is restored.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/source/number [int] : set the number of sources
/source/[index]/visible [boolean] : set the visibility of the i-th source
/source/[index]/editable [boolean] : set the editability of the i-th source
/source/[index]/select [boolean] : select the i-th source
/source/[index]/mute [boolean] : mute the i-th source
/source/[index]/color [color] : set the color of the i-th source
/source/[index]/color/alpha [number] : change alpha for the color of the i-th source
/source/[index]/color/alpha/add [number] : increase/decrease alpha for the color of the i-th source
/source/[index]/proportion [number] : set the proportion the i-th source
/source/[index]/proportion/add [number] : increase/decrease the proportion the i-th source by a certain amount
/source/[index]/constraint/circular [boolean] : set the circular constraints for the i-th source
/source/[index]/label [string] : set the label for the i-th source
/source/[index]/label/visible [boolean] : set the visibility for the label for the i-th source
/source/[index]/label/color [color] : set the color for the label for the i-th source
/source/[index]/label/justification [string] : set the text justification for the label for the i-th source
/source/[index]/vumeter/visible [boolean] : set the visibility for the vumeter for the i-th source
/source/[index]/level [number] : set the vumeter level (in dB) for the i-th source
/source/[index]/xyz [number][number][number] : set the position of the i-th source using cartesian coordinates
/source/[index]/aed [number][number][number] : set the position of the i-th source using navigation coordinates (azimuth/elevation/distance)
/source/[index]/xy [number][number] : set the xy-coordinate of the i-th source, and use default z (=0)
/source/[index]/az [number] : set the azimuth of the i-th source, using default distance (=1) and elevation (=0)
/source/[index]/x [number][number] : set the x-coordinate of the i-th source, and keep y and z unchanged
/source/[index]/y [number][number] : set the y-coordinate of the i-th source, and keep x and z unchanged
/source/[index]/z [number][number] : set the z-coordinate of the i-th source, and keep x and y unchanged
/source/[index]/ade [number][number][number] : set the position of the i-th source using navigation coordinates (azimuth/distance/elevation)
/source/[index]/ae [number][number] : set the azimuth/elevation of the i-th source, using default distance (=1)
/source/[index]/ad [number][number] : set the azimuth/distance of the i-th source, using default elevation (=0)
/source/[index]/azim [number] : set the azimuth of the i-th source. Elevation and distance remain unchanged
/source/[index]/elev [number] : set the elevation of the i-th source. Azimuth and distance remain unchanged
/source/[index]/dist [number] : set the distance of the i-th source. Azimuth and elevation remain unchanged
/source/[index]/azimelev [number][number] : set the azimuth and elevation of the i-th source. Distance remains unchanged
/source/[index]/azimdist [number][number] : set the azimuth and distance of the i-th source. Elevation remains unchanged
/sources/aed [nnnn...] : set the list of source coordinates (with aed format)
/sources/xyz [nnnn...] : set the list of source coordinates (with xyz format)
/sources/ade [nnnn...] : set the list of source coordinates (with ade format)
/sources/xy [nnnn...] : set the list of source coordinates (with xy format)
/sources/ae [nnnn...] : set the list of source coordinates (with ae format)
/source/[index]/aperture [number] : set the aperture of the i-th source
/source/[index]/aperture/visible [boolean] : set the visibility for the aperture of the i-th source
/source/[index]/aperture/color [color] : set the color for the aperture of the i-th source
/source/[index]/yaw/mode [string] : set the yaw mode of the i-th source
/source/[index]/yaw [number] : set the yaw angle (in deg) of the i-th source, using Euler zyx convention
/source/[index]/pitch [number] : set the pitch angle (in deg) of the i-th source, using Euler zyx convention
/source/[index]/roll [number] : set the roll angle (in deg) of the i-th source, using Euler zyx convention
/source/[index]/orientation [number][number][number][number] : set the orientation quaternion (xyzw) of the i-th source
/source/[index]/history/visible [boolean] : set the visibility for the history of the i-th source
/source/[index]/history/color [color] : set the color for the history of the i-th source
/source/[index]/history/thickness [number] : set the line thickness for the history of the i-th source
/source/[index]/history/size [int] : set the (past) size for the history of the i-th source
/source/[index]/history/clear : clear the history of the i-th source
```



```

/source/[index]/tofront : bring the i-th source to the front of its siblings
/source/[index]/toback : bring the i-th source to the back of its siblings
/source/[index]/tofront [boolean] : bring the i-th source to the front or back of its siblings
/source/[index]/image [string] : set the image file (svg, jpg, png, etc.) to use for the i-th source
/source/[index]/image/clear : use the default image for the i-th source
/sources/level [nnnn...] : set the vumeter levels (in dB) for all sources
/sources/visible [bbbb...] : set the visibility for all sources
/speaker/number [int] : set the number of speakers
/speaker/[index]/visible [boolean] : set the visibility of the i-th speaker
/speaker/[index]/editable [boolean] : set the editability of the i-th speaker
/speaker/[index]/select [boolean] : select the i-th speaker
/speaker/[index]/color [color] : set the color of the i-th speaker
/speaker/[index]/proportion [number] : set the proportion the i-th speaker
/speaker/[index]/constraint/circular [boolean] : set the circular constraints for the i-th speaker
/speaker/[index]/label [string] : set the label for the i-th speaker
/speaker/[index]/label/visible [boolean] : set the visibility for the label for the i-th speaker
/speaker/[index]/label/color [color] : set the color for the label for the i-th speaker
/speaker/[index]/label/justification [string] : set the text justification for the label for the i-th speaker
/speaker/[index]/vumeter/visible [boolean] : set the visibility for the vumeter for the i-th speaker
/speaker/[index]/level [number] : set the vumeter level (in dB) for the i-th speaker
/speakers/aed [nnnn...] : set the list of speaker coordinates (with aed format)
/speakers/xyz [nnnn...] : set the list of speaker coordinates (with xyz format)
/speakers/ade [nnnn...] : set the list of speaker coordinates (with ade format)
/speakers/xy [nnnn...] : set the list of speaker coordinates (with xy format)
/speakers/ae [nnnn...] : set the list of speaker coordinates (with ae format)
/speaker/[index]/aed [number][number][number] : set the position of the i-th loudspeaker using navigation coordinates (azimuth/elevation/distance)
/speaker/[index]/ade [number][number][number] : set the position of the i-th loudspeaker using navigation coordinates (azimuth/distance/elevation)
/speaker/[index]/xyz [number][number][number] : set the position of the i-th loudspeaker using cartesian coordinates
/speaker/[index]/xy [number][number] : set the xy-coordinate of the i-th loudspeaker, and use default z (=0)
/speaker/[index]/ae [number][number] : set the azimuth/elevation of the i-th loudspeaker, using default distance (=1)
/speaker/[index]/az [number] : set the azimuth of the i-th loudspeaker, using default distance (=1) and elevation (=0)
/speaker/[index]/tofront : bring the i-th speaker to the front of its siblings
/speaker/[index]/toback : bring the i-th speaker to the back of its siblings
/speaker/[index]/tofront [boolean] : bring the i-th speaker to the front or back of its siblings
/speaker/[index]/image [string] : set the image file (svg, jpg, png, etc.) to use for the i-th speaker
/speaker/[index]/image/clear : use the default image for the i-th speaker
/speakers/level [nnnn...] : set the vumeter levels (in dB) for all speakers
/speakers/visible [bbbb...] : set the visibility for all speakers
/stereo/number [int] : set the number of stereo pairs
/stereo/[index]/visible [boolean] : set the visibility of the i-th stereo pair
/stereo/[index]/editable [boolean] : set the editability of the i-th stereo pair
/stereo/[index]/select [boolean] : select the i-th stereo pair
/stereo/[index]/color [color] : set the color of the i-th stereo pair
/stereo/[index]/proportion [number] : set the proportion the i-th stereo pair
/stereo/[index]/constraint/circular [boolean] : set the circular constraints for the i-th stereo pair
/stereo/[index]/label [string] : set the label for the i-th stereo pair
/stereo/[index]/label/visible [boolean] : set the visibility for the label for the i-th stereo pair
/stereo/[index]/label/color [color] : set the color for the label for the i-th stereo pair
/stereo/[index]/label/justification [string] : set the text justification for the label for the i-th stereo pair
/stereo/[index]/vumeter/visible [boolean] : set the visibility for the vumeter for the i-th stereo pair
/stereo/[index]/level [number] : set the vumeter level (in dB) for the i-th stereo pair
/stereo/[index]/xyz [number][number][number] : set the position of the i-th stereo pair
/stereo/[index]/xy [number][number] : set the position of the i-th stereo pair
/stereo/[index]/x [number] : set the position of the i-th stereo pair
/stereo/[index]/y [number] : set the position of the i-th stereo pair
/stereo/[index]/z [number] : set the position of the i-th stereo pair
/stereo/[index]/aed [number][number][number] : set the position of the i-th stereo pair
/stereo/[index]/ade [number][number][number] : set the position of the i-th stereo pair
/stereo/[index]/ae [number][number] : set the position of the i-th stereo pair
/stereo/[index]/ad [number][number][number] : set the position of the i-th stereo pair
/stereo/[index]/az [number] : set the position of the i-th stereo pair
/stereo/[index]/azim [number] : set the position of the i-th stereo pair
/stereo/[index]/elev [number] : set the position of the i-th stereo pair
/stereo/[index]/dist [number] : set the position of the i-th stereo pair
/stereo/[index]/azim++ [number] : set the position of the i-th stereo pair
/stereo/[index]/elev++ [number] : set the position of the i-th stereo pair
/stereo/[index]/dist++ [number] : set the position of the i-th stereo pair
/stereo/[index]/dist*= [number] : set the position of the i-th stereo pair
/stereo/[index]/aperture [number] : set the aperture of the i-th stereo pair
/stereo/[index]/aperture/visible [boolean] : set the visibility for the aperture of the i-th stereo pair
/stereo/[index]/aperture/color [color] : set the color for the aperture of the i-th stereo pair
/stereo/[index]/yaw/mode [string] : set the yaw mode of the i-th stereo pair
/stereo/[index]/yaw [number] : set the yaw angle (in deg) of the i-th stereo pair, using Euler zyx convention
/stereo/[index]/pitch [number] : set the pitch angle (in deg) of the i-th stereo pair, using Euler zyx convention
/stereo/[index]/roll [number] : set the roll angle (in deg) of the i-th stereo pair, using Euler zyx convention
/stereo/[index]/orientation [number][number][number][number] : set the orientation quaternion (xyzw) of the i-th stereo pair
/stereos/level [nnnn...] : set the vumeter levels (in dB) for all stereo pairs
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for
human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is
inside Max search path.

```

/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.

/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)

/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.

/status : open the status window and bring it to front

/status/open : open the status window and bring it to front

/status/close : close the status window

/status/openorclose : open the status window if it was closed; close it if it was opened

/status/font/size [number] : set the font size of the status window

/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)

/help : open the help window and bring it to front

/help/open : open the help window and bring it to front

/help/close : close the help window

/help/openorclose : open the help window if it was closed; close it if it was opened

/help/font/size [number] : set the font size of the help window

/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)

/snapshot : open the snapshot window and bring it to front

/snapshot/open : open the snapshot window and bring it to front

/snapshot/close : close the snapshot window

/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened

/snapshot/font/size [number] : set the font size of the snapshot window

/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)

/status/copytoclipboard : copy the status to (the OS) clipboard

/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')

/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)

/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.

/snapshot/clear : delete all the snapshots currently in memory

/snapshot/add : create a new snapshot with the current state

/snapshot/add [string] : create a new snapshot with the current state, and set its name

/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)

/snapshot/[index]/recall : recall the current state from the i-th snapshot

/snapshot/[index]/name [string] : set the name of the i-th snapshot

/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots

/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names

/snapshot/[index]/delete : delete the i-th snapshot

/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard

/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')

/snapshot/[index]/export [string] : export the i-th snapshot to file

/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file

/snapshot/export [string] : export all snapshots to file

/snapshot/import [string] : import all snapshots from file

/listener/visible [boolean] : set the visibility of the listener

/listener/editable [boolean] : set the listener editable

/listener/headphones/visible [boolean] : set the visibility of the headphones

/listener/orientation [quaternion] : set the orientation of the listener

/listener/proportion [number] : set the display proportion of the listener

/listener/select [boolean] : select/unselect the listener

/listener/aed [number][number][number] : set the listener position (azimuth/elevation/distance)

/hoa/number [int] : set the number of HOA fields

/hoa/[index]/yaw [number] : set the yaw angle of the i-th HOA field

/background/color [color] : set the window background color

/backgroundimage/file [string] : set the background image (png, jpg, etc.)

/backgroundimage/visible [boolean] : set the visibility of the background image

/backgroundimage/opacity [number] : set the opacity of the background image

/backgroundimage/scale [number] : set the scale factor of the background image

/backgroundimage/angle [number] : set the rotation angle of the background image

/backgroundimage/offset/x [number] : set the x translation offset of the background image

/backgroundimage/offset/y [number] : set the y translation offset of the background image

/backgroundimage/offset/xy [number][number] : set the x/y translation offset of the background image

/backgroundimage/quality [string] : set the resampling quality of the background image (low, medium, high)

/display/zoom [number] : set the display zoom factor (/display/offset/x [number] : set the display x translation offset (in pixels)

/display/offset/y [number] : set the display y translation offset (in pixels)

/display/offset/z [number] : set the display z translation offset (in pixels)

/display/offset/xy [number][number] : set the display x/y translation offsets (in pixels)

/display/offset/xyz [number][number][number] : set the display x/y/z translation offsets (in pixels)

/display/zoom/lock [boolean] : enable/disable zooming with the mouse wheel

/axis/visible [boolean] : set the visibility of the axis

/axis/color [color] : set the axis color

/axis/label/visible [boolean] : set the visibility of the axis label

/axis/origin/visible [boolean] : set the visibility of the axis origin

/axis/thickness [number] : set line thickness

/grid/visible [boolean] : set the visibility of the grid

/grid/mode [string] : set the grid mode. Possible values: none, circular, cartesian

/grid/spacing [number] : set the spacing between grid lines (in meters)

/grid/line/number [number] : set the number of grid lines

/grid/angulardivisions/number [number] : set the number of angular divisions

/grid/angulardivisions/visible [boolean] : set the visibility of angular divisions

/grid/dashed [boolean] : set the line style

/grid/color [color] : set the line color

/grid/thickness [number] : set line thickness

/legend/visible [boolean] : set the visibility of the legend

```

/legend/color [color] : set the legend color
/legend/unit [string] : set distance unit
/emphasis/source [boolean] : emphasize sources when mouse in proximity
/emphasis/speaker [boolean] : emphasize speakers when mouse in proximity
/emphasis/microphone [boolean] : emphasize microphones when mouse in proximity
/ruler/visible [boolean] : set the visibility of the ruler
/ruler/color [color] : set the ruler color
/area/number [int] : set the number of areas
/area/[index]/vertex/number [int] : set the number of vertex for the i-th area
/area/[index]/vertex/[index]/xy [number] [number] : set position of the j-th vertex of the i-th area
/area/[index]/vertex/[index]/xyz [number] [number] [number] : set position of the j-th vertex of the i-th area
/area/[index]/vertex/[index]/aed [number] [number] [number] : set position of the j-th vertex of the i-th area
/area/[index]/visible [boolean] : set visibility for the i-th area
/area/[index]/color [color] : set color for the i-th area
/area/[index]/name [string] : set name for the i-th area
/speakerhull/color [color] : set the hull color
/speakerhull/visible [boolean] : set the visibility of the hull
/speakerhull/fill/color [color] : set the hull interior color
/speakerhull/fill [boolean] : fill the hull
/layout [string] : set the window layout. Possible values: single, leftright, topbottom, automatic

```

see also

- spat5.converter
- spat5.abs2rel
- spat5.oper
- spat5.converter~
- spat5.trajectories
- spat5.speaker.config
- spat5.speaker.layout
- spat5.grids
- spat5.viewer.control
- poltocar
- cartopol
- spat5.transform
- spat5.scale
- spat5.translate
- spat5.rotate
- spat5.quat.fromeuler
- spat5.quat.toeuler
- spat5.quat.transform
- spat5.ircamverb

spat5.virtualspeakers~

Virtual speakers for headphones monitoring

description

spat5.virtualspeakers~ allows you to transcode a multichannel input file (or stream) into a 2-channel format. It uses the so-called virtual speakers approach to render the multichannel input as a binaural mix: the HRIRs corresponding to the position of each virtual speaker are convolved with that speaker feed and the convolution products for each of the ears are then summed giving the binaural signal for each ear.

To improve externalization you can also add artificial room effect via predefined room presets.

Please note that **spat5.virtualspeakers~** is based on binaural technology; this means that the output signals are meant to be listened over headphones, and not on a stereo speaker setup. The use of HRTF (head-related transfer function) for the binaural rendering may also slightly color the sound.

Reference(s) :

J. Blauert and P. Laws. True simulation of loudspeaker sound reproduction while using headphones. *Acta Acustica united with Acustica*, 29(5):273 – 277, 1973.

A. McKeag and D. S. McGrath. Using auralisation techniques to render 5.1 surround to binaural and transaural playback. In *Proc. of the 102nd Convention of the Audio Engineering Society (AES)*, Munich, Germany, March 1997.

H. Moller. Fundamentals of binaural technology. *Applied Acoustics*, 36:171 – 218, 1992.

F. Richter. BAP: binaural audio processor. In *Proc. of the 92nd Convention of Audio Engineering Society (AES)*, Vienna, Austria, March 1992.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@internals [int]

The `internals` attribute represents the number of internal channels of the artificial reverberator.

Spat uses a Feedback Delay Network (FDN) reverberator engine.

Basically this can be seen as an array of delay lines which are fed back into a mixing matrix. The `internals` attributes represents the size of the feedback matrix.

Choosing the size of this matrix is a trade-off between CPU consumption and the echo density.

Increasing the size of the matrix will generate a densier reverb tail at the expense of a higher CPU load.

A typical value of 8 is a good compromise between CPU load and natural sounding reverb. A value of 16 may be useful especially when dealing with a very long reverberation time or with very percussive sound (where a smaller FDN might sometimes sounds too poor).

It is recommended not to use a value below 6.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

@speakers [int]

The `speakers` attribute represents the number of output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or `attrui` or `inspector`), since the number of signal inlets or outlets can not be changed dynamically.

methods

```
/speaker/number [int] : set the number of speakers
/speakers/aed [nnnn...] : set the list of speaker coordinates (with aed format)
/speakers/xyz [nnnn...] : set the list of speaker coordinates (with xyz format)
/speakers/ade [nnnn...] : set the list of speaker coordinates (with ade format)
/speakers/xy [nnnn...] : set the list of speaker coordinates (with xy format)
/speakers/ae [nnnn...] : set the list of speaker coordinates (with ae format)
/speaker/[index]/aed [number] [number] [number] : set the position of the i-th loudspeaker using navigation coordinates (azimuth/elevation/distance)
/speaker/[index]/ade [number] [number] [number] : set the position of the i-th loudspeaker using navigation coordinates (azimuth/distance/elevation)
/speaker/[index]/xyz [number] [number] [number] : set the position of the i-th loudspeaker using cartesian coordinates
/speaker/[index]/xy [number] [number] : set the xy-coordinate of the i-th loudspeaker, and use default z (=0)
/speaker/[index]/ae [number] [number] : set the azimuth/elevation of the i-th loudspeaker, using default distance (=1)
/speaker/[index]/az [number] : set the azimuth of the i-th loudspeaker, using default distance (=1) and elevation (=0)
/width [number] : set width of the frontal stereo pair (in deg)
/rotation [number] : rotate whole sound scene (offset angle) (in deg)
/itd/scaling [number] : set scaling factor for ITD (in /distance [number] : set the radius of the virtual speakers (in meters)
/groundreflections/enable [boolean] : simulate reflections on the ground
```

```

/groundreflections/elev [number] : set elevation for simulated ground reflections (in deg)
/roompreset [string] : load a room preset (room reverb to increase externalization)
/propagation/delay [boolean] : enable simulation of the propagation delay
/propagation/gain [boolean] : enable simulation of the propagation gain
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied whitout ramping/crossfade, so this might
generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied whitout ramping/crossfade, so this
might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio
settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for
human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is
in the Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for
human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for
human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the
destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll'
for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int] [int] [number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string] [string] [number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- spat5.pan~
- spat5.binaural~
- spat5.align~
- spat5.ctc~
- spat5.sofa.loader
- spat5.sofa.infos
- spat5.hrtf.infos
- spat5.multi.connect

spat5.vrpnclient VRPN client

description

spat5.vrpnclient receives VRPN (Virtual Reality Peripheral Network) data.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
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/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- [spat5.osc.udpreceive](#)

- udpreceive

spat5.wav.extractaxml

Audio file aXML extractor

description

spat5.wav.extractaxml extracts aXML chunk from WAV file.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- `spat5.wav.insertaxml`

- `spat5.sf.split`
- `spat5.sf.list`
- `spat5.sf.list.embedded`
- `spat5.sf.resample`
- `spat5.sf.merge`
- `spat5.sf.trim`

spat5.wav.generateaxml aXML generator

description

spat5.wav.generateaxml helps creating xml file for aXML chunk (compatible with WAV files).

attributes

@embed [boolean]

The `embed` attribute allows to store the state of the object within the patcher. The complete state of the object is stored whenever the patcher is saved to disk. Upon loading the patcher or copying the object box, the state is restored.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int] [int] [number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string] [string] [number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

```

/window/title [string] : set the window title (in the window titlebar)
/window/visible [boolean] : set the window visibility
/window/moveable [boolean] : set the window movability
/window/resizable [boolean] : set the window resizability
/window/enable [boolean] : enable/disable the window
/window/background/color [color] : set the window background color
/window/opaque [boolean] : set the window opaque flag (optimize repaint efficiency)
/window/fullscreen [boolean] : enable/disable fullscreen mode
/window/minimise [boolean] : minimize the window
/window/open : open the window (and bring it to front)
/window/close : close the window
/window/openorclose : open the window if it was closed; close it if it was opened
/window/size [number] [number] : set the window size (width, height) (in pixels)
/window/width [number] : set the window width (in pixels)
/window/height [number] : set the window height (in pixels)
/window/bounds [number] [number] [number] [number] : set the window bounds (top left position, width, height) (in pixels)
/window/topleft [number] [number] : set the window top left position (in pixels)
/window/centre : open the window, centering it on the screen
/window/rendering/engine [string] : set the graphical rendering engine of the window
/window/fps/visible [boolean] : display the FPS performances of the window
/window/scale [number] : set the global scale factor of the window (in /window/floating [boolean] : make the window 'floating' (always on top)
/window/hidesondeactivate [boolean] : make the window 'hides on deactivate' (when always on top)
/window/buttons/close [boolean] : enable/disable the close button (in the window titlebar)
/window/buttons/minimise [boolean] : enable/disable the minimise button (in the window titlebar)
/window/buttons/maximise [boolean] : enable/disable the maximise button (in the window titlebar)
/window/export/image [string] : export the window as an image file (png or jpeg)

```

see also

- `spat5.wav.extractxml`
- `spat5.wav.insertxml`

spat5.wav.insertxml

Audio file aXML inserter

description

spat5.wav.insertxml inserts aXML chunk into WAV file.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
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/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
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/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- [spat5.wav.extractxml](#)

- `spat5.sf.split`
- `spat5.sf.list`
- `spat5.sf.list.embedded`
- `spat5.sf.resample`
- `spat5.sf.merge`
- `spat5.sf.trim`

spat5.weightingfilter

Loudness weighting filters

description

spat5.weightingfilter computes IIR filter for loudness weighting.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file
```

see also

- [spat5.filterdesign](#)

- spat5.cascade~
- cascade~
- biquad~

spat5.wfs Wavefield synthesis

description

spat5.wfs~ performs wavefield synthesis for a loudspeaker array. **spat5.wfs**~ uses a precomputed set of data filters (see **spat5.wfs.grid**).

attributes

@initwith [string]

The **initwith** attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via **loadbang** or **loadmess**.

Have a look at the **spat5.tuto-osc-3.maxpat** example for further details.

Note that the **initwith** attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The **parameter_enable** attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

@sources [int]

The **sources** attribute represents the number of input channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or attrui or inspector), since the number of signal inlets or outlets can not be changed dynamically.

@speakers [int]

The **speakers** attribute represents the number of output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or attrui or inspector), since the number of signal inlets or outlets can not be changed dynamically.

methods

```
/source/[index]/ramp/time [number] : set ramp time (in msec) for gain processing
/source/[index]/interpolation/time [number] : set interpolation time (in msec) for delay processing
/source/[index]/interpolation/mode [string] : set interpolation mode for delay processing. Possible values: nearest, linear, lagrange3, allpass, hermite3, watte3,
bspline3, parabolic, allpass2, allpass3, nearestxfade
/source/[index]/delay/mode [string] : set mode for delay processing
/source/[index]/delay/scaling [number] : set scaling factor (in /source/[index]/gain/scaling [number] : set scaling factor (in /source/[index]/mute [boolean]
: mute/unmute the i-th source
/source/[index]/xyz [number] [number] [number] : set the position of the i-th source using cartesian coordinates
/source/[index]/aed [number] [number] [number] : set the position of the i-th source using navigation coordinates (azimuth/elevation/distance)
/source/[index]/xy [number] [number] : set the xy-coordinate of the i-th source, and use default z (=0)
/source/[index]/az [number] : set the azimuth of the i-th source, using default distance (=1) and elevation (=0)
/source/[index]/x [number] [number] : set the x-coordinate of the i-th source, and keep y and z unchanged
/source/[index]/y [number] [number] : set the y-coordinate of the i-th source, and keep x and z unchanged
/source/[index]/z [number] [number] : set the z-coordinate of the i-th source, and keep x and y unchanged
/source/[index]/ade [number] [number] [number] : set the position of the i-th source using navigation coordinates (azimuth/distance/elevation)
/source/[index]/ae [number] [number] : set the azimuth/elevation of the i-th source, using default distance (=1)
/source/[index]/ad [number] [number] : set the azimuth/distance of the i-th source, using default elevation (=0)
/source/[index]/azim [number] : set the azimuth of the i-th source. Elevation and distance remain unchanged
/source/[index]/elev [number] : set the elevation of the i-th source. Azimuth and distance remain unchanged
/source/[index]/dist [number] : set the distance of the i-th source. Azimuth and elevation remain unchanged
/source/[index]/azimelev [number] [number] : set the azimuth and elevation of the i-th source. Distance remains unchanged
/source/[index]/azimdist [number] [number] : set the azimuth and distance of the i-th source. Elevation remains unchanged
/sources/aed [nnnn...] : set the list of source coordinates (with aed format)
/sources/xyz [nnnn...] : set the list of source coordinates (with xyz format)
/sources/ade [nnnn...] : set the list of source coordinates (with ade format)
/sources/xy [nnnn...] : set the list of source coordinates (with xy format)
/sources/ae [nnnn...] : set the list of source coordinates (with ae format)
/source/[index]/directivity/enable [boolean] : enable/disable directivity rendering for the i-th source
/source/[index]/crossfade/time [number] : set crossfade time (in msec) for directivity processing
/source/[index]/prefilter [boolean] : enable pre-equalization filter
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied whitout ramping/crossfade, so this might
generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied whitout ramping/crossfade, so this
might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio
settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up
/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
/verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for
```

human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.

/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.

/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)

/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.

/status : open the status window and bring it to front

/status/open : open the status window and bring it to front

/status/close : close the status window

/status/openorclose : open the status window if it was closed; close it if it was opened

/status/font/size [number] : set the font size of the status window

/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)

/help : open the help window and bring it to front

/help/open : open the help window and bring it to front

/help/close : close the help window

/help/openorclose : open the help window if it was closed; close it if it was opened

/help/font/size [number] : set the font size of the help window

/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)

/snapshot : open the snapshot window and bring it to front

/snapshot/open : open the snapshot window and bring it to front

/snapshot/close : close the snapshot window

/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened

/snapshot/font/size [number] : set the font size of the snapshot window

/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)

/status/copytoclipboard : copy the status to (the OS) clipboard

/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')

/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)

/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.

/snapshot/clear : delete all the snapshots currently in memory

/snapshot/add : create a new snapshot with the current state

/snapshot/add [string] : create a new snapshot with the current state, and set its name

/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)

/snapshot/[index]/recall : recall the current state from the i-th snapshot

/snapshot/[index]/name [string] : set the name of the i-th snapshot

/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots

/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names

/snapshot/[index]/delete : delete the i-th snapshot

/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard

/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')

/snapshot/[index]/export [string] : export the i-th snapshot to file

/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file

/snapshot/export [string] : export all snapshots to file

/snapshot/import [string] : import all snapshots from file

see also

- spat5.wfs
- spat5.wfs.grid
- spat5.wfs.config
- spat5.viewer
- spat5.multi.connect

spat5.wfs.config

Wavefield synthesis setup

description

spat5.wfs.config is used to configure and generate a set of data filters for use with `spat5.wfs~` or `spat5.wfs`.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character `"`). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/speaker/number [int] : set the number of loudspeakers
/export : compute and export filter (in the home folder)
/export [string] : compute and export filter (in a specified folder)
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file
```

see also

- [spat5.wfs~](#)
- [spat5.wfs](#)
- [spat5.wfs.grid](#)
- [spat5.viewer](#)
- [spat5.multi.connect](#)

spat5.wfs.grid Wavefield synthesis setup

description

spat5.wfs.grid is used to configure and generate a set of data filters for use with `spat5.wfs~` or `spat5.wfs`. **spat5.wfs.grid** supersedes and replaces `spat5.wfs.config`.

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/speaker/number [int] : set the number of loudspeakers
/speakers/xyz [number][number]... : set the loudspeaker positions
/speakers/directions/xyz [number][number]... : set the loudspeaker directions
/dist/min [number] : set minimum distance to speakers
/dist/max [number] : set maximum distance to speakers
/resolution/x [number] : set sampling grid resolution along the x-axis
/resolution/y [number] : set sampling grid resolution along the y-axis
/resolution/xy [number][number] : set sampling grid resolution along the x- and y-axis
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file

```

/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

see also

- spat5.wfs~
- spat5.wfs
- spat5.wfs.config
- spat5.viewer
- spat5.multi.connect

spat5.wfs~

Wavefield synthesis

description

spat5.wfs~ performs wavefield synthesis for a loudspeaker array. **spat5.wfs~** uses a precomputed set of data filters (see `spat5.wfs.grid`).

attributes

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character `"`). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@mc [int]

The `mc` attribute enables multichannel patch-cord for this object (compatible with Max8 or higher). Note that the `mc` attribute cannot be set via message, attrui or inspector; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

@sources [int]

The `sources` attribute represents the number of input channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or attrui or inspector), since the number of signal inlets or outlets can not be changed dynamically.

@speakers [int]

The `speakers` attribute represents the number of output channels of the object. This attribute must be set in the object box, when the object is instantiated; it can not be later set with a message (or attrui or inspector), since the number of signal inlets or outlets can not be changed dynamically.

methods

```

/source/[index]/ramp/time [number] : set ramp time (in msec) for gain processing
/source/[index]/interpolation/time [number] : set interpolation time (in msec) for delay processing
/source/[index]/interpolation/mode [string] : set interpolation mode for delay processing. Possible values: nearest, linear, lagrange3, allpass, hermite3, watter3,
bspline3, parabolic, allpass2, allpass3, nearestxfade
/source/[index]/delay/mode [string] : set mode for delay processing
/source/[index]/delay/scaling [number] : set scaling factor (in /source/[index]/gain/scaling [number] : set scaling factor (in /source/[index]/mute [boolean]
: mute/unmute the i-th source
/source/[index]/xyz [number][number][number] : set the position of the i-th source using cartesian coordinates
/source/[index]/aed [number][number][number] : set the position of the i-th source using navigation coordinates (azimuth/elevation/distance)
/source/[index]/xy [number][number] : set the xy-coordinate of the i-th source, and use default z (=0)
/source/[index]/az [number] : set the azimuth of the i-th source, using default distance (=1) and elevation (=0)
/source/[index]/x [number][number] : set the x-coordinate of the i-th source, and keep y and z unchanged
/source/[index]/y [number][number] : set the y-coordinate of the i-th source, and keep x and z unchanged
/source/[index]/z [number][number] : set the z-coordinate of the i-th source, and keep x and y unchanged
/source/[index]/ade [number][number][number] : set the position of the i-th source using navigation coordinates (azimuth/distance/elevation)
/source/[index]/ae [number][number] : set the azimuth/elevation of the i-th source, using default distance (=1)
/source/[index]/ad [number][number] : set the azimuth/distance of the i-th source, using default elevation (=0)
/source/[index]/azim [number] : set the azimuth of the i-th source. Elevation and distance remain unchanged
/source/[index]/elev [number] : set the elevation of the i-th source. Azimuth and distance remain unchanged
/source/[index]/dist [number] : set the distance of the i-th source. Azimuth and elevation remain unchanged
/source/[index]/azimelev [number][number] : set the azimuth and elevation of the i-th source. Distance remains unchanged
/source/[index]/azimdist [number][number] : set the azimuth and distance of the i-th source. Elevation remains unchanged
/sources/aed [nnnn...] : set the list of source coordinates (with aed format)
/sources/xyz [nnnn...] : set the list of source coordinates (with xyz format)
/sources/ade [nnnn...] : set the list of source coordinates (with ade format)
/sources/xy [nnnn...] : set the list of source coordinates (with xy format)
/sources/ae [nnnn...] : set the list of source coordinates (with ae format)
/source/[index]/directivity/enable [boolean] : enable/disable directivity rendering for the i-th source
/source/[index]/crossfade/time [number] : set crossfade time (in msec) for directivity processing
/source/[index]/prefilter [boolean] : enable pre-equalization filter
/parallel [boolean] : enable/disable parallel processing
/dsp/mute [boolean] : mute the DSP rendering. CPU resources are not used when the DSP is muted. Note that this is applied without ramping/crossfade, so this might
generate clicks
/dsp/bypass [boolean] : bypass the DSP rendering. CPU resources are not used when the DSP is bypassed. Note that this is applied without ramping/crossfade, so this
might generate clicks
/dsp/automute [boolean] : enable/disable the auto-mute (i.e. disable audio computation when incoming signals are 0)
/dsp/automute/attack [number] : set the duration (in seconds) before auto-muting
/dsp/post : post various information to the Max console (audio should be turned on)
/dsp/clear : clear the internal state of the audio processor. In general, you don't have to send this message directly. This is done automatically whenever the Max audio
settings change. Yet, you might want to use this message to clear the object's sample-memory in case of a blow-up

```

/dump/dsp/latency : send the processor latency (in samples) through the dump outlet
 /verbose [string] : set verbosity i.e. change the way information is posted to the Max console. Possible values: silent, minimal, normal, detailed
 /post/version : print the version in the Max Console
 /post/version [details] : print detailed version in the Max Console
 /post/doc : print the help documentation in the Max Console
 /post/state : print the OSC status in the Max Console
 /preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
 /preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
 /preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
 /preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
 /status : open the status window and bring it to front
 /status/open : open the status window and bring it to front
 /status/close : close the status window
 /status/openorclose : open the status window if it was closed; close it if it was opened
 /status/font/size [number] : set the font size of the status window
 /status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
 /help : open the help window and bring it to front
 /help/open : open the help window and bring it to front
 /help/close : close the help window
 /help/openorclose : open the help window if it was closed; close it if it was opened
 /help/font/size [number] : set the font size of the help window
 /help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
 /snapshot : open the snapshot window and bring it to front
 /snapshot/open : open the snapshot window and bring it to front
 /snapshot/close : close the snapshot window
 /snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
 /snapshot/font/size [number] : set the font size of the snapshot window
 /snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
 /status/copytoclipboard : copy the status to (the OS) clipboard
 /status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
 /dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
 /dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
 /snapshot/clear : delete all the snapshots currently in memory
 /snapshot/add : create a new snapshot with the current state
 /snapshot/add [string] : create a new snapshot with the current state, and set its name
 /snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
 /snapshot/[index]/recall : recall the current state from the i-th snapshot
 /snapshot/[index]/name [string] : set the name of the i-th snapshot
 /snapshot/interpolate [int] [int] [number] : interpolate between the i-th and j-th snapshots
 /snapshot/interpolate [string] [string] [number] : interpolate between two snapshots, given their names
 /snapshot/[index]/delete : delete the i-th snapshot
 /snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
 /snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
 /snapshot/[index]/export [string] : export the i-th snapshot to file
 /snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
 /snapshot/export [string] : export all snapshots to file
 /snapshot/import [string] : import all snapshots from file

see also

- spat5.wfs
- spat5.wfs.grid
- spat5.wfs.config
- spat5.viewer
- spat5.multi.connect

spat5.whichthread Report which thread a message is passed through

description

spat5.whichthread reports which thread a message is passed through (mainly for debug purpose).

attributes

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```

/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int] [int] [number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string] [string] [number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file

```

see also

- [defer](#)
- [deferlow](#)

spat5.zplane

Plot filter poles and zeros on the z-plane

description

The **spat5.zplane** object provides a way to graph filter poles and zeros in the z-plane for display. It is similar to **Max zplane~**.

Like the **filtergraph~** object, it does not process audio signals by itself, but it does react internally to the current MSP sampling rate.

The **spat5.zplane** object is designed to help in digital filter design and visualization for MSP, and to provide a basic pedagogical tool which may be used to help explain digital filter theory. .

attributes

@embed [boolean]

The **embed** attribute allows to store the state of the object within the patcher. The complete state of the object is stored whenever the patcher is saved to disk. Upon loading the patcher or copying the object box, the state is restored.

@initwith [string]

The **initwith** attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via **loadbang** or **loadmess**.

Have a look at the **spat5.tuto-osc-3.maxpat** example for further details.

Note that the **initwith** attribute cannot be set via message, **attrui** or **inspector**; it must be typed directly within the object box.

@parameter_enable [boolean]

The **parameter_enable** attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max inspector).

methods

```
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
```

```

/snapshot/[index]/export/content [string] : export the content of the i-th snapshot to file
/snapshot/export [string] : export all snapshots to file
/snapshot/import [string] : import all snapshots from file
/window/title [string] : set the window title (in the window titlebar)
/window/visible [boolean] : set the window visibility
/window/moveable [boolean] : set the window movability
/window/resizable [boolean] : set the window resizability
/window/enable [boolean] : enable/disable the window
/window/background/color [color] : set the window background color
/window/opaque [boolean] : set the window opaque flag (optimize repaint efficiency)
/window/fullscreen [boolean] : enable/disable fullscreen mode
/window/minimise [boolean] : minimize the window
/window/open : open the window (and bring it to front)
/window/close : close the window
/window/openorclose : open the window if it was closed; close it if it was opened
/window/size [number] [number] : set the window size (width, height) (in pixels)
/window/width [number] : set the window width (in pixels)
/window/height [number] : set the window height (in pixels)
/window/bounds [number] [number] [number] [number] : set the window bounds (top left position, width, height) (in pixels)
/window/topleft [number] [number] : set the window top left position (in pixels)
/window/centre : open the window, centering it on the screen
/window/rendering/engine [string] : set the graphical rendering engine of the window
/window/fps/visible [boolean] : display the FPS performances of the window
/window/scale [number] : set the global scale factor of the window (in /window/floating [boolean] : make the window 'floating' (always on top)
/window/hidesondeactivate [boolean] : make the window 'hides on deactivate' (when always on top)
/window/buttons/close [boolean] : enable/disable the close button (in the window titlebar)
/window/buttons/minimise [boolean] : enable/disable the minimise button (in the window titlebar)
/window/buttons/maximise [boolean] : enable/disable the maximise button (in the window titlebar)
/window/export/image [string] : export the window as an image file (png or jpeg)

```

see also

- [zplane~](#)
- [cascade~](#)
- [spat5.cascade~](#)
- [biquad~](#)
- [filtergraph~](#)
- [filterdesign](#)
- [spat5.zplane](#)
- [spat5.equalizer](#)
- [spat5.hlshelf](#)
- [spat5.hlshelf~](#)
- [spat5.frequencyresponse](#)
- [spat5.octavebank~](#)

spat5.zplane.embedded

Plot filter poles and zeros on the z-plane

description

The spat5.zplane object provides a way to graph filter poles and zeros in the z-plane for display. It is similar to Max `zplane~`.

Like the `filtergraph~` object, it does not process audio signals by itself, but it does react internally to the current MSP sampling rate.

The spat5.zplane object is designed to help in digital filter design and visualization for MSP, and to provide a basic pedagogical tool which may be used to help explain digital filter theory.

attributes

@embed [boolean]

The `embed` attribute allows to store the state of the object within the patcher. The complete state of the object is stored whenever the patcher is saved to disk. Upon loading the patcher or copying the object box, the state is restored.

@initwith [string]

The `initwith` attribute can be used to specify the initial state of the object. You should provide a list of comma-separated OSC commands. The list of messages should be quoted (with double quote character "). This is similar to sending the list of commands via `loadbang` or `loadmess`.

Have a look at the `spat5.tuto-osc-3.maxpat` example for further details.

Note that the `initwith` attribute cannot be set via message, `attrui` or `inspector`; it must be typed directly within the object box.

@parameter_enable [boolean]

The `parameter_enable` attribute is used for compatibility with Max snapshots. It can also be used to store the initial state of the object (see 'Initial Enable' in the Max `inspector`).

methods

```
/post/version : print the version in the Max Console
/post/version [details] : print detailed version in the Max Console
/post/doc : print the help documentation in the Max Console
/post/state : print the OSC status in the Max Console
/preset/load [string] : load a preset from file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. You can specify the fullpath of the file, or only its filename if the file is inside Max search path.
/preset/load : open a user dialog to load a preset file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/preset/export [string] : export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format. If the file extension is not provided, '.txt' will be used by default. If the destination folder is not provided, the file will be saved in your home folder (/Users/yourlogin)
/preset/export : open a user dialog to export a preset to file. Supported file extensions : '.txt' for human-readable OSC text file, '.osc' for binary encoded OSC file, '.coll' for human-readable Max coll file (compatible with the coll object). '.txt' is the default file format.
/status : open the status window and bring it to front
/status/open : open the status window and bring it to front
/status/close : close the status window
/status/openorclose : open the status window if it was closed; close it if it was opened
/status/font/size [number] : set the font size of the status window
/status/floating [boolean] : make the status window 'floating' (i.e. always on top of other windows)
/help : open the help window and bring it to front
/help/open : open the help window and bring it to front
/help/close : close the help window
/help/openorclose : open the help window if it was closed; close it if it was opened
/help/font/size [number] : set the font size of the help window
/help/floating [boolean] : make the help window 'floating' (i.e. always on top of other windows)
/snapshot : open the snapshot window and bring it to front
/snapshot/open : open the snapshot window and bring it to front
/snapshot/close : close the snapshot window
/snapshot/openorclose : open the snapshot window if it was closed; close it if it was opened
/snapshot/font/size [number] : set the font size of the snapshot window
/snapshot/floating [boolean] : make the snapshot window 'floating' (i.e. always on top of other windows)
/status/copytoclipboard : copy the status to (the OS) clipboard
/status/copytoclipboard [string] : copy the status to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/dump : dump the complete state of the object over the rightmost outlet (a.k.a. dump outlet)
/dump [string] : dump a subset of the state of the object over the rightmost outlet. See spat5.tuto-dump-1.maxpat for usage examples.
/snapshot/clear : delete all the snapshots currently in memory
/snapshot/add : create a new snapshot with the current state
/snapshot/add [string] : create a new snapshot with the current state, and set its name
/snapshot/[index]/store : store the current state in the i-th snapshot (in memory)
/snapshot/[index]/recall : recall the current state from the i-th snapshot
/snapshot/[index]/name [string] : set the name of the i-th snapshot
/snapshot/interpolate [int][int][number] : interpolate between the i-th and j-th snapshots
/snapshot/interpolate [string][string][number] : interpolate between two snapshots, given their names
/snapshot/[index]/delete : delete the i-th snapshot
/snapshot/[index]/copytoclipboard : copy the i-th snapshot to (the OS) clipboard
/snapshot/[index]/copytoclipboard [string] : copy the i-th snapshot to (the OS) clipboard, and specify the end-of-line character (e.g. ',')
/snapshot/[index]/export [string] : export the i-th snapshot to file
```


`/snapshot/[index]/export/content [string]` : export the content of the i-th snapshot to file
`/snapshot/export [string]` : export all snapshots to file
`/snapshot/import [string]` : import all snapshots from file

see also

- `zplane~`
- `cascade~`
- `spat5.cascade~`
- `biquad~`
- `filtergraph~`
- `filterdesign`
- `spat5.zplane`
- `spat5.equalizer`
- `spat5.hlshelf`
- `spat5.hlshelf~`
- `spat5.frequencyresponse`
- `spat5.octavebank~`