L-Touch – Source Controller

The Source Controller provides control of an L-ISA sound object's parameters *Pan*, *Width*, *Distance* and *Elevation* via the OSC API. It is also set to receive OSC in order to maintain synchronization if the target object is moved from the Controller. The Python API provides additional functionality such as basic trajectories based on easing functions and a parameter presets dictionary.

Many of the parameters are bound to properties in the Python extension, so care should be taken to not override this binding with CHOP exports or reference expressions; bindings are shown in pink. The best method is to reference a CHOP using the "Parameters CHOP" under the Control page. Alternatively, one can call the parameters with the typical Python syntax:

`op("Source1").par.Pan`

or by setting the Python attribute:

`setattr(op("Source1"), "Pan", <float>)`

This latter method should be done with caution.

Parameters - Soundscape Page

Realtime: `Realtime` When toggled on, the component updates the object's soundscape parameters in L-ISA Controller whenever that parameter is changed. When toggled off, changes in parameters alone do not trigger OSC output.

Push Pars: `Pushpars` When Realtime is toggled off, pulsing this parameter will send source object parameters to L-ISA Controller.

Pan Range: These values set the minimum and maximum pan values in degrees; they should match the values found in L-ISA Controller under Settings>Soundscape>Parameters Ranges

- *Panrange1*: sets the minimum pan in degrees.
- *Panrange2*: sets the maximum pan in degrees.

Pan: `Pan` Controls an object's pan; normalized 0-1.

Width: `Width` Controls an object's width; normalized 0-1.

Distance: `Distance` Controls an object's distance; normalized 0-1.

Elevation: `Elevation` Controls an object's elevation; normalized 0-1.

Cartesian: Cartesian When toggled off, Pan and Distance parameters are enabled, the component is in polar mode, and it sends L-ISA formatted polar coordinates. When toggled on, Pan and Distance parameters are disabled, input cartesian coordinates [tx, ty, tz] are converted to L-ISA formatted polar coordinates and sent to the Controller.

Position: These three float values are the tx, ty, and tz components of an object's Cartesian-formatted position. The user must provide values that are scaled from -1 to 1 in the x-y horizontal plane and 0-1 on the z axis.

- Tx corresponds to [tx]
- Ty corresponds to [ty]
- Tz corresponds to [tz]

Parameters – Control Page

Parameters CHOP: Parameterschop The path to a CHOP with positional data. The component assumes the format (polar or cartesian) based on the status of the Cartesian toggle. Names of channels don't matter, but they must be in the order (Pan, Distance, Elevation, Width) or (Tx, Ty, Tz, Width). Note that it will always assume this order, so while it is not necessary to include all channels, it would not be possible, for example, to pass Tx, Tz and Width, as it would read Tz and Width as Ty and Tz, respectively.

ID: Id The index of the L-ISA source object to be controlled (1-96).

Locked: Locked This disables the Id parameter, locking it to its current object selection. Note that this parameter can still be changed by calling it via Python (e.g. op("Source1").par.Id = 2). Setting its value to the Python expression me.digits and ending the names of copies with increasing values is an efficient and easy way to link a series of components to a series of objects in L-ISA Controller.

Name: Name The name of the object in L-ISA Controller.

Pan: Panflag Select the control flag for the pan parameter. The selections (for pan and the other object soundscape parameters) are as follows:

- Off
- Snapshot
- Plugin
- OSC (*this setting is required for the parameter to be controlled by the LTouch Source Controller*)
- Tracker (*for pan, distance and elevation only*)

Width: Widthflag Select the control flag for the width parameter.

Distance: Distanceflag Select the control flag for the distance parameter.

Elevation: Elevationflag Select the control flag for the elevation parameter.

Aux Send: Sendflag Select the control flag for the aux send parameter.

Push Flags: Pushflags Sends an OSC bundle with all current flag selections to L-ISA Controller.

Push all Data: Pushdata Updates all parameters that can be targeted with OSC using current values.

Parameters – Network Page

IP: Ip The IP address of the machine hosting L-ISA controller

Send Port: Sendport *(read only)* The port that L-ISA Controller receives on. Note that while this never needs to be changed, if you want to reference it, it is stored as a string.

Receive Port: Recv The port on which the component is receiving feedback from L-ISA; defaults to 9000.

Device ID: Deviceid The ID that will be used when registering the device with L-ISA Controller.

Register: Register Registers the host machine with L-ISA Controller as an OSC device. This will also change the *Name* to "L-TOUCH", set the *IP Address* and *Device Rx Port*, turn on *Send To* and *Receive From*, and set the *Send Format* to L-ISA.

Parameters – Processing

Under construction

Parameters – Physics

Note: All physics functionality is experimental and less stable than the rest of the L-Touch component.

Size: Size The theoretical size of the object. It may be better to think of this as the area of the object, as it is used in drag force calculations. It may also be referenced in a Bullet Actor's internal SOP.

Mass: Mass The object's theoretical mass used in kinematic calculations; may also be referenced in a Bullet Actor for collision simulations.

Orbital Period: Orbitalperiod (*under construction*)

Friction: Friction (*under construction*)

Kinematics: `Kinematics` Enables kinematic calculations.

Acceleration: `Accel` Object's instantaneous acceleration.

Velocity: `Velocity` Object's instantaneous velocity.

Drag: `Drag` Enables the calculation of drag force.

Influence: `Dragamt` Determines how much the calculated drag force influences the object's momentum.

Fluid Density: `Rho` The density of the theoretical fluid that the object is moving through. Its default is the nominal density of air.

Shape: `Primitivecoefficient` A primitive shape to assign to the object used to determine the drag coefficient (*under construction*).

Parameters – L-Touch

Type: `Type`

Version: `Version`

Load Python: `Loadpy` Directs DATs to the correct Python files. This parameter must be pulsed after the first initialization of the tox network.

Documentation: `Opendoc` Opens this file.

Python Extension Reference

Source Class

This is the primary Python Extension, which is implemented widely within the component itself.

Members

Pan → *<float>* :

> Get or set pan attribute

Width → *<float>* :

> Get or set width attribute

Distance → *<float>* :

> Get or set distance attribute

Elevation → *<float>* :

> Get or set elevation attribute

Tx → *<float>* :

> Get or set Tx attribute

Ty → *<float>* :

> Get or set Ty attribute

Tz → *<float>* :

> Get or set Tz attribute

Panrange → *<float>* : **(Read Only)**

> Get Panrange attribute

Panmin → *<float>* :

> Get or set Panmin attribute

Panmax → *<float>* :

> Get or set Panmax attribute

Methods

SavePreset(preset_name) → None

Stores the current pan, width, distance and elevation parameters. If preset_name is not unique, you will be prompted with a warning and asked to confirm preset overwrite.

RecallPreset(preset_name) → None

Recalls pan, width, distance and elevation stored under the given preset_name.

EasyPath Class

This class manages the easing functions that can be played back as trajectories. Note that this class is not promoted. An example of how to call a method from this class:

op("Source1").ext.EasyPath.PlayPath("QuarticEaseIn", 0.1, 0.3, 10)

Methods

PlayPath(easing_function = "LinearInterpolation", start = 0, stop = 1, duration = 5) → None

Currently, this only alters pan. If start set to "r", it will start from object's current (or last known) position. In this case, stop also becomes a relative value. All still normalized 0 – 1.

Possible easing_function values:

- "LinearInterpolation"
- "QuadraticEaseIn"

- "QuadraticEaseOut"
- "QuadraticEaseInOut"
- "CubicEaseIn"
- "CubicEaseOut"
- "CubicEaseInOut"
- "QuarticEaseIn"
- "QuarticEaseOut"
- "QuarticEaseInOut"
- "QuinticEaseIn"
- "QuinticEaseOut"
- "QuinticEaseInOut"
- "SineEaseIn"
- "SineEaseOut"
- "SineEaseInOut"
- "CircularEaseIn"
- "CircularEaseOut"
- "CircularEaseInOut"
- "ExponentialEaseIn"
- "ExponentialEaseOut"
- "ExponentialEaseInOut"
- "ElasticEaseIn"
- "ElasticEaseOut"
- "ElasticEaseInOut"
- "BackEaseIn"
- "BackEaseOut"
- "BackEaseInOut"
- "BounceEaseIn"
- "BounceEaseOut"
- "BounceEaseInOut"