TilBuci

Scripting Actions

All user interaction on TilBuci is managed by JSON-formatted texts with instructions about how to handle both input and playback flow. This document describes this format with all available instructions.

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1. Scripting actions on TilBuci

You may create beautiful scenes and animations on TilBuci but they won't be really useful if you don't provide user interaction to them. A good interaction design is fundamental for your content to get life!

To enable these interactions, TilBuci uses a JSON-formatted text describing the actions. If you are not familiar with the JSON concept, is it a data format based on JavaScript. You don't really need to go too deep on JSON to use it on TilBuci, but if you are interested on it, please check out json.org for further information.

The TilBuci actions are always provided as an *object* with at least two fields: *ac*, a simple string, and *param*, an array of strings (all parameters must be provided as strings, even numeric ones like "3.1416"). If an action does not require parameters, the *param* value must still be given as an empty array.

```
{
    "ac": "actionhere",
    "param": [ "param1", "param2", "param3" ]
}
```

Actions may also be provided as an array of objects. You can use these arrays on every place that accepts a single action.

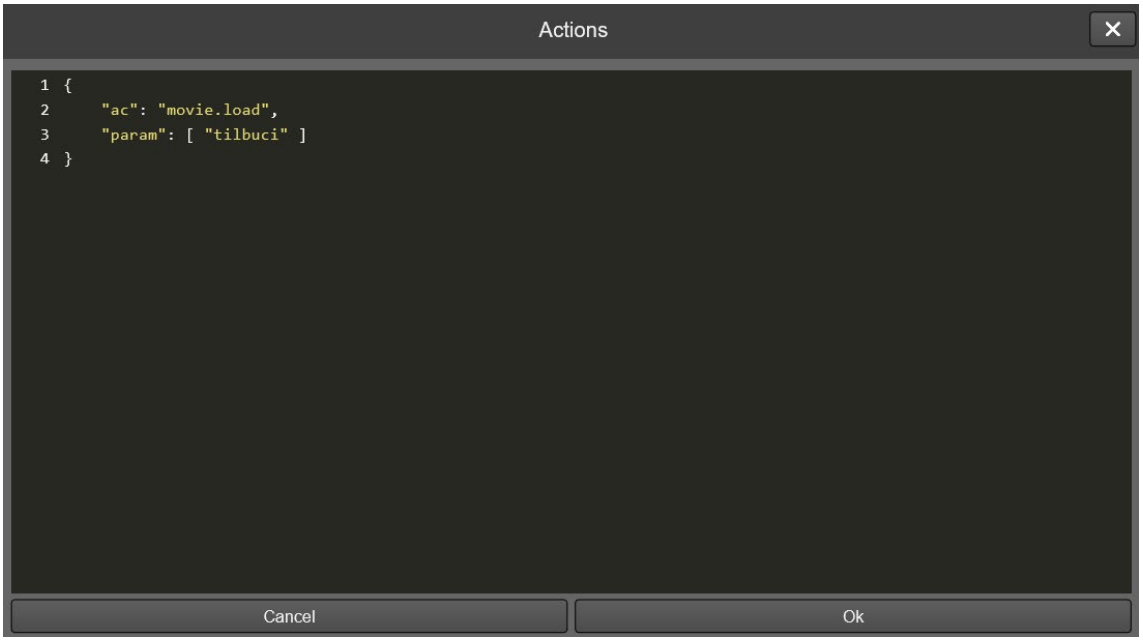
```
[
    { "ac": "firstaction", "param": [ "param1" ] },
    { "ac": "secondaction", "param": [ ]
]
```

There are some actions, like conditionals, timers and inputs, that may accept additional fields. Check out the following example:

```
{
    "ac": "if.stringsequal",
    "param": [ "$okemail", "name@email.com" ],
    "then": {
        "ac": "timer.set",
        "param": [ "displaytimer", "1000", "1" ],
        "tick": [ ],
        "end": { "ac": "scene.load", "param": [ "userscene" ] }
    },
    "else": [
        { "ac": "timer.clearall", "param": [ ] },
        {
            "ac": "input.login",
            "param": [ ],
            "ok": {
                "ac": "string.set",
                "param": [ "okemail", "$_USERNAME" ]
```

```
            },
            “cancel”: {
                “ac”: “string.clear”,
                “param”: [ “okemail” ]
            }
        }
    ]
}
```

You can input your action script on its window at the editor. By clicking on *ok* your JSON text will be evaluated for errors (notice that this will only look for text inconsistencies, not your script logic.



1.1. Where do I use these interaction scripts?

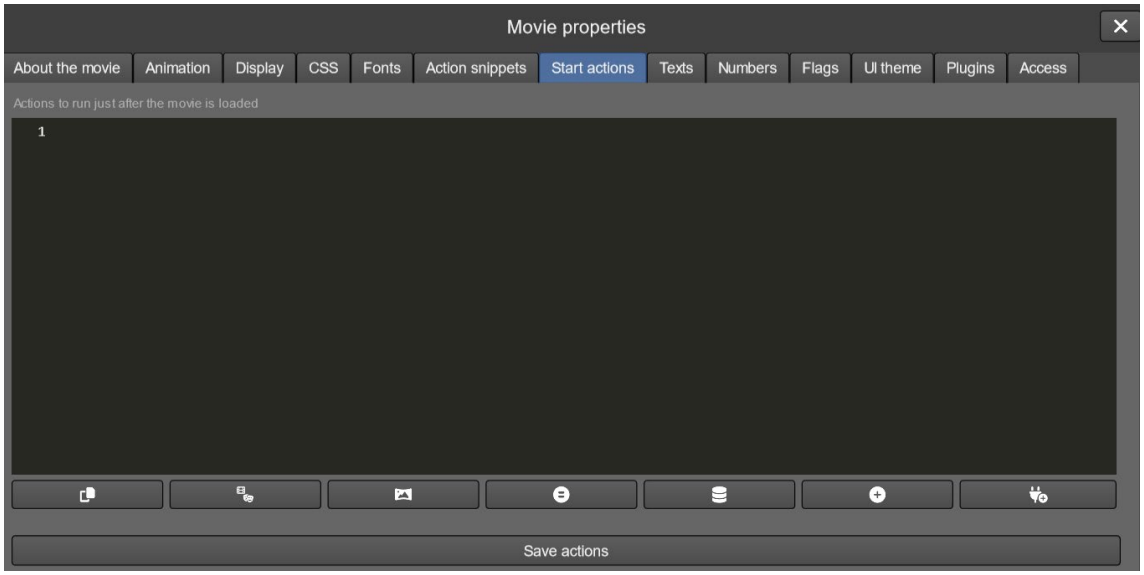
You can provide action scripts on many places. The usual one is on an user click/touch of an instance, but there are many more.

1.1.1. User click/touch

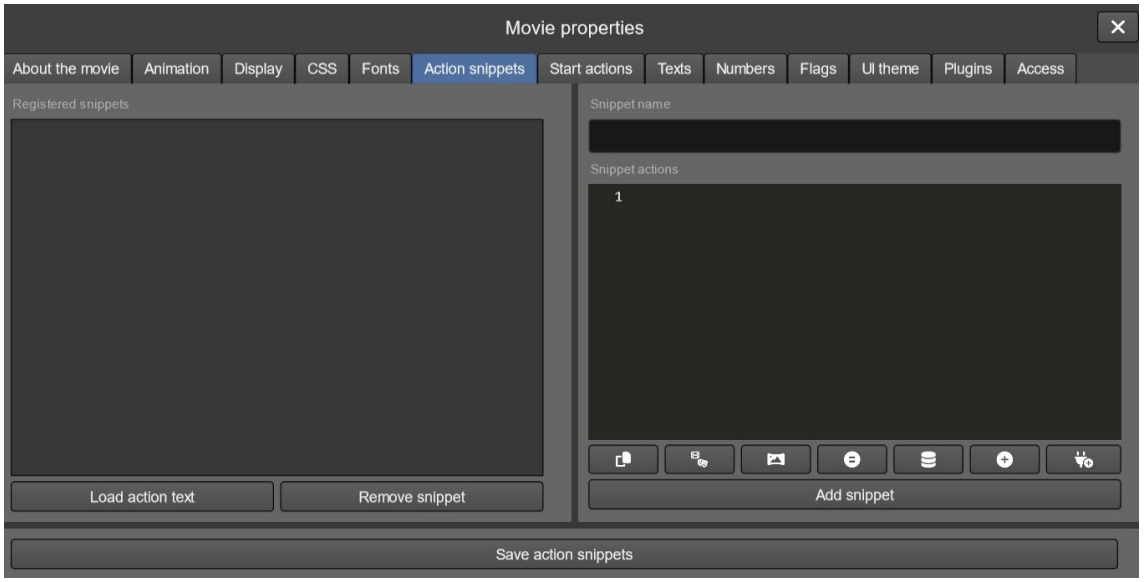
This is the usual place to set an action script. Just select an instance on the stage and click the *Actions* > *Trigger actions* button at the right menu to show the scripting window.

1.1.2. Movie load

You can provide actions to run just after your movie is loaded. Look for the *Movie* > *Properties* right menu and access the *Start actions* tab.

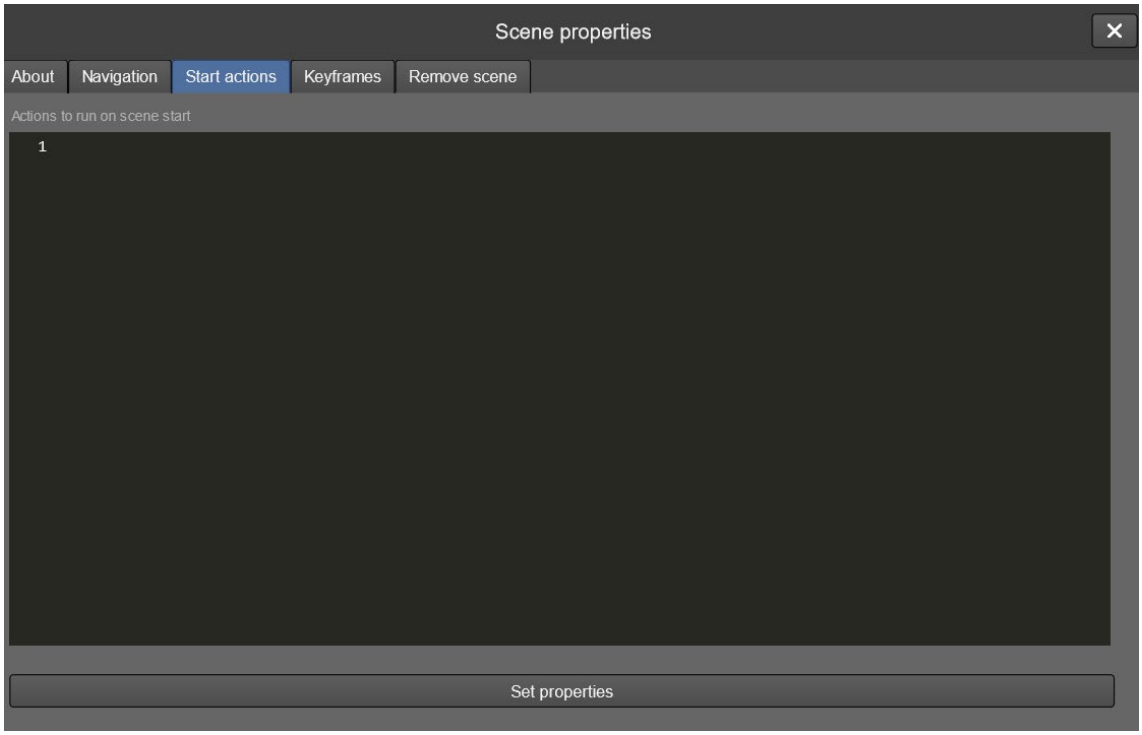


The movie properties window also gives you access to the action snippets. These are groups of actions that can be easily reused on your entire movie by calling the *run* command.



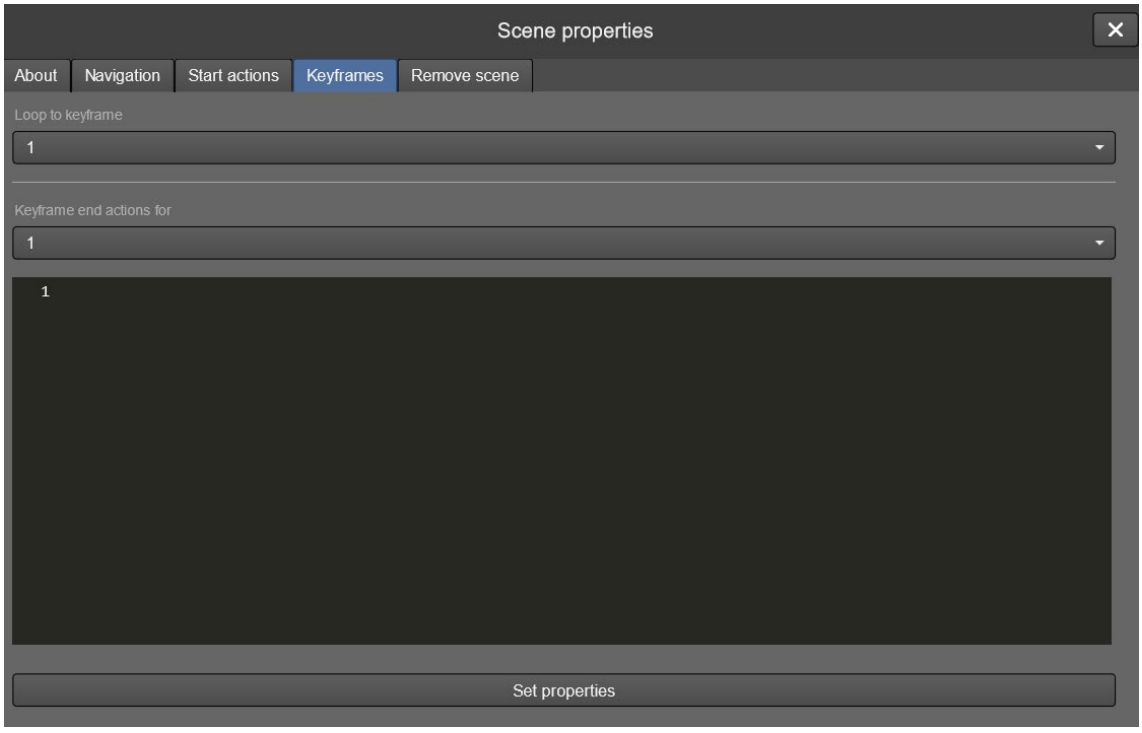
1.1.3. Scene start

You can set actions to run when a scene starts playing. Check out the *Start actions* tab from the *Scene* > *Properties* menu.



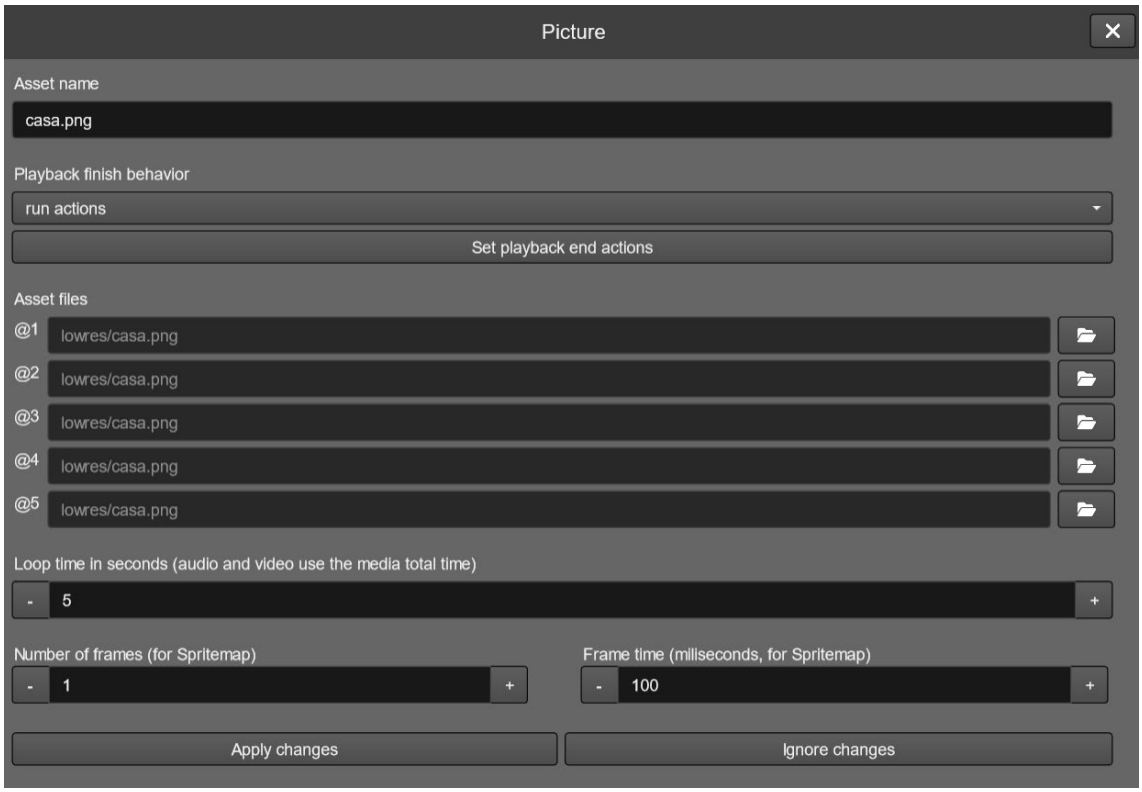
1.1.4. Keyframe end

Scenes can contain multiple keyframes. You may set actions to run at the end of each of them. You can set these actions either from the *Keyframes* tab of the *Scene* > *Properties* menu or the *Keyframes* > *Manage* one.



1.1.5 Media playback end

Actions triggered when a media, like a movie, finishes playing.



1.2. Variables

You can use variables on TilBuci actions to help design your interactions. Four variable types are available:

- Boolean
- Float
- Integer
- String

There are many actions that set the values for each of these types. The basic ones are *bool.set*, *int.set*, *float.set* and *string.set*. Every time a variable is set you can use it on any action that requires parameters of that type by using the variable name preceded by the appropriate symbol: *?* for Boolean, *#* for integer or float and *$* for string. Here are some examples:

```
[
    { "ac": "bool.set", "param": [ "boolvar1", "true" ] },
    {
        "ac": "if.bool",
        "param": [ "?boolvar1" ],
        "then": { "ac": "scene.load", "param": [ "tilbuci" ] },
        "else": [ ]
```

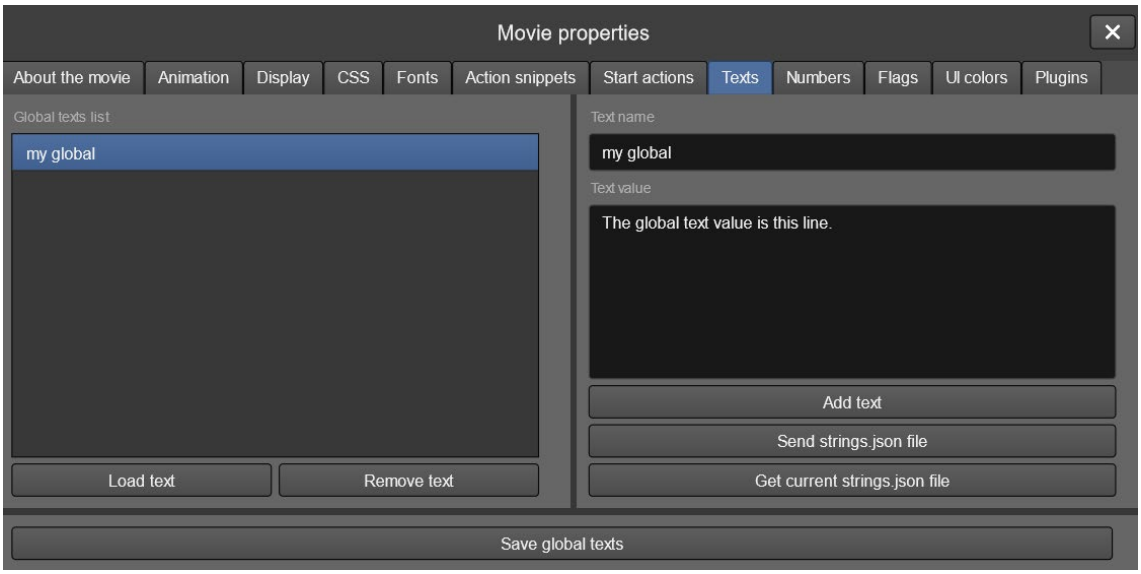
```
    },
    { "ac": "int.set", "param": [ "intvar1", "10" ] },
    {
        "ac": "int.sum",
        "param": [ "intvar2", "#intvar1", "20" ]
    },
    { "ac": "float.set", "param": [ "floatvar1", "10.7" ] },
    { "ac": "float.set", "param": [ "floatvar2", "10.5" ] },
    {
        "ac": "float.min",
        "param": [ "floatvar3", "#floatvar1", "#floatvar2" ]
    },
    { "ac": "string.set", "param": [ "stringvar1", "Til" ] },
    {
        "ac": "string.concat",
        "param": [ "stringvar2", "$stringvar1", "Buci" ]
    }
]
```

When you use the # mark TilBuci will look for a float variable first and, if not found, look for an integer one. Every time a float is used on integer operations it will be rounded.

1.3. Globals

Besides the variables you can set on your own, TilBuci comes with several global values you can use on your actions to retrieve all sorts of information from the playback. You can use them just like the variables.

Some of these globals are always available, but you can also set your own per movie. Access the left menu *Movie* > *Properties* and look for the *Texts*, *Numbers* and *Flags* tabs.



To access these globals you must use *$_TEXTS:*, *#_NUMBERS:* or *?_FLAGS:*, according to the type. *#_NUMBERS:* can be used as both integer and float values – it will be rounded for integers. Place the global name you set after the *:* on your scripts, like this example:

```
{
    “ac”: “string.set”,
    “param”: [ “stringvar1”, “$_TEXTS:my global” ]
}
```

Another group of globals that use *:* to retrieve information are the ones about instance properties. Place the instance id after the *:* to retrieve the correct value like:

```
{
    “ac”: “int.set”,
    “param”: [ “intvar1”, “#_INSTANCEWIDTH:my instance id” ]
}
```

Besides these values, plugins may also define their own globals that add to the standard ones.

1.3.1. Boolean globals

General globals

?_PLAYING	Is the movie playing right now?
?_SERVER	Online server connection active?
?_USERLOGGED	Is there an user logged?

Instance globals

?_INSTANCEPLAYING	playing content?
?_INSTANCEVISIBLE	instance visible?
?_INSTANCEFONTBOLD	text set to bold?
?_INSTANCEFONTITALIC	text set to italic?

1.3.2. Number globals

General globals

#_KEYFRAME	Current keyframe number (starts on 0).
#_AREABIG	Movie “big” dimension.
#_AREASMALL	Movie “small” dimension.

Instance globals

#_INSTANCEX	x position
#_INSTANCEY	y position
#_INSTANCEWIDTH	width
#_INSTANCEHEIGHT	height
#_INSTANCEALPHA	alpha value (0 to 1.0)
#_INSTANCEVOLUME	sound volume
#_INSTANCEORDER	order index (starts on 0)
#_INSTANCECOLORALPHA	color overlay alpha (0 to 1.0)
#_INSTANCEROTATION	rotation (0 to 359, experimental)
#_INSTANCEFONTSIZE	text font size
#_INSTANCEFONTLEADING	text leading

1.3.3. Text globals

General globals

$_MOVIETITLE	Current movie title
$_MOVIEID	Current movie id
$_SCENETITLE	Current scene title
$_SCENEID	Current scene id
$_ORIENTATION	Player orientation (horizontal or vertical)
$_RENDER	Current display render mode (webgl or dom)
$_RUNTIME	The current runtime (see below for datails)
$_URLMOVIE	Url to accesse current movie directly
$_URLSCENE	Url to access current movie+scene directly
$_USERNAME	Logged user name (e-mail)
$_VERSION	Current TilBuci player version
$_WSSERVER	URL for the current webservice requests

The Tilbuci content can be played on different runtimes. If necessary, the *$_RUNTIME* global can be used to find out the current one. The possible returns are:

website	Running from an exported website
pwa	Running as a pwa application
desktop	Running from a desktop application (Windows, Linux or macOS)
mobile	Running from a mobile app (Android or iOS/iPadOS)
publish	Running from a publish service like itch.io
embed	Running form a TilBuci player embed on an OpenFL project
tilbuci	Running from the TilBuci installation (default)

Instance globals

$_INSTANCECOLOR	Overlay color (0x###### hex format)
$_INSTANCETEXT	Current text set to instance
$_INSTANCEFONT	Text font name
$_INSTANCEFONTCOLOR	Text font color (0x###### hex format)

1.4. Strings.json file

Another way to work with strings is the usage of a *strings.json* file. You may upload this file containing pairs of string variable names and values to simplify your creation. At this file, the string variables must be grouped so you can easily change their value from an user interaction (like changing language settings) – you can use any name you want for the groups. A simple *strings.json* file content will look like this:

```
{
    “group1”: {
        “string1”: “site name: ”,
        “string2”: “site: ”
    },
```

```
    "group2": {
        "string1": "nome da página: ",
        "string2": "página: "
    },

}
```

Before using the *strings.json* content you must set the values group with the *string.setgroup* action, like this:

```
[
    { "ac": "string.setgroup", "param": [ "group1" ] },
    {
        "ac": "string.concat",
        "param": [ "stringvar1", "$string1", "TilBuci" ]
    }
]
```

The script above will set the value of *$stringvar1* to "site name: TilBuci". However, if you set another group, the results are different:

```
[
    { "ac": "string.setgroup", "param": [ "group2" ] },
    {
        "ac": "string.concat",
        "param": [ "stringvar1", "$string1", "TilBuci" ]
    }
]
```

In that case, the *$stringvar1* value will be "nome da página: TilBuci".

1.5. Instance text and replace

When you set a string variable (by using an action or with the *strings.json* file) you can also retrieve its value on instance text. When you create a paragraph image, just use the variable name (and nothing more) instead of directly input the text. It will be automatically replaced by the current value of the variable when it shows up.

1.5.1. Content replace at runtime

Besides setting a single variable to an instance, you may also set values to be automatically replaced at runtime in both instance display and action operations. There are two actions to set these replacements.

First, *replace.setstring*: using this action you will set string parts that will always replaced by something else, on paragraph and html instances and also on usual string operations.

```
[
    { "ac": "replace.setstring", "param": [ "[MAIL]", "$_USERNAME" ] },
    { "ac": "string.set", "param": [ "stringvar1", "my email is [MAIL]" ] }
```

```
]
```

If there is an user logged with the e-mail “doggo@tilbuci.com.br”, the *$stringvar1* variable will receive the value “my email is doggo@tlbuci.com.br”. Also, if you set an html instance content to a file with “<p>the e-mail address is [MAIL]<p>”, it will be shown as “the e-mail address is doggo@tlbuci.com.br” as well.

The second automatic replace you can set affects file names used by audio, html, picture and video instances. If you call *repace.setfile*, every time TilBuci attempts to load a file, it will look for the needle text on the name and replace it. This can be very useful to load different assets based on user language choices. Check out this example: if you are using a picture named “en/title.png” on your movie, after you call the following action, TilBuci will load “pt/title.png” instead.

```
{ “ac”: “replace.setfile”, “param”: [ “en/”, “pt/” ] }
```

2. Available actions

Here we present a list of currently available actions on TilBuci (*ac* field at the action object). Please note that plugins may add additional commands to this list. Some of these actions require parameters, but even if none is needed you still must add the *param* field to the object. Additional optional fields can be used on some actions, like *then*, *else*, *ok*, *cancel*, *tick*, *end*, *success* and *error*.

2.1. Boolean conditions

Conditional statements based on boolean values.

if.bool

Checks if the boolean value is true.

params
1. the boolean variable to check

additional optional object fields
- then: actions to run if the result is true
- else: actions to run if the result is false

if.boolset

Checks if a boolean variable exists.

params
1. the variable name to check

additional optional object fields
- then: actions to run if true
- else: actions to run if false

2.2. Boolean values

Management of boolean variables.

bool.clear

Removes a boolean variable.

params
1. the variable name

bool.clearall

Removes all boolean variables.

bool.set

Sets a boolean variable.

params

1. the variable name
2. the variable value

bool.setinverse

Inverts the value of a boolean variable.

params
1. the variable name

2.3. Data

These actions handle user persistent data management. This can be done both locally on the browser storage of remotely using your server. The user must be logged in to access remote data. Logged user can still access local data. TilBuci uses a dark default theme for the load state UI, but you can adjust the colors according to your content at the *UI colors* tab of the *Movie properties* window.

data.event

Registers an event on TilBuci database at the "events" table. You may use events to record visitor interactions and keep track of your movies' access. While the Google Analytics plugin offers a more sophisticated approach, the *data.event* action is easier to use and keeps the data in your own server.

All events must receive a name, and you can add as many information you want providing additional string parameters to the action call. All events are recorded with the current movie, scene and visitor information. Access the Visitor button on the left menu and go to the Event tab to download the recorded information for analysis.

params
1. the event name

data.liststates

Shows the load state window so the user can choose the one to load from the last 3 saved states on server. When loaded, the current variable values are replaced by the saved ones and the scene playing while the state was saved is loaded. All interface text must be set as text globals at the *Text* tab of the *Movie properties* window – if not set, default English strings are used. The text names you must set to avoid using default values are shown on table below. Global texts can be changed at runtime by using the *string.setglobal* action.

Global	Description	Default value
titlestates	Window title	Select a state to load
waistates	States load wait message	Please wait while a list of available saves states is loaded.

selectstate	Selects state message	Select a state to load.
nostates	No save states found message	Sorry, no saved states found to load.
dateformat	Date/time format string	Y-m-d h:i a (use the PHP format described here: https://www.php.net/manual/en/datetime.format.php)

additional optional object fields
- success: actions to run after successful data load
- error: actions to run after error on data load

data.load

Loads custom data saved at the server. The loaded values replaces the variables used on *data.save* action.

params
1. data save name

additional optional object fields
- success: actions to run after successful data load
- error: actions to run after error on data load

data.loadlocal

Loads custom data saved at the browser storage. The loaded values replaces the variables used on *data.savelocal* action.

params
1. data save name

additional optional object fields
- success: actions to run after successful data load
- error: actions to run after error on data load

data.loadquickstate

Loads the quick state saved on the server. When loaded, the current variable values are replaced by the saved ones and the scene playing while the state was saved is loaded.

additional optional object fields
- success: actions to run after successful data load
- error: actions to run after error on data load

data.loadstatelocal

Loads the state saved on browser storage. When loaded, the current variable values are replaced by the saved ones and the scene playing while the state was saved is loaded.

additional optional object fields
- success: actions to run after successful data load
- error: actions to run after error on data load

data.save

Saves custom data at the server. At least two parameters are required, but you can add as many as you want to be saved under the same name. Each saved value must be the name of an already set variable, preceded by its type, like in the following table.

Variable type	Prefix	Example
boolean	B:	B:boolvar1
float	F:	F:floatvar1
integer	I:	I:intvar1
string	S:	S:stringvar1

params
1. data save name
2. first variable to save

additional optional object fields
- success: actions to run after successful data save
- error: actions to run after error on data save

data.savelocal

Saves custom data at the browser storage. At least two parameters are required, but you can add as many as you want to be saved under the same name. Each saved value must be the name of an already set variable, preceded by its type, like in the following table.

Variable type	Prefix	Example
boolean	B:	B:boolvar1
float	F:	F:floatvar1
integer	I:	I:intvar1
string	S:	S:stringvar1

params
1. data save name
2. first variable to save

additional optional object fields
- success: actions to run after successful data save
- error: actions to run after error on data save

data.savequickstate

Quickly saves all current variable values as well the current scene playing on the server. Saving a quick save overrides the previously saved one for current user/movie.

additional optional object fields
- success: actions to run after successful data save
- error: actions to run after error on data save

data.savestate

Saves all current variable values as well the current scene playing on the server. The server holds up to 3 save states for each user on each movie, besides the *quick save*.

params
1. state title (for reference while loading)

additional optional object fields
- success: actions to run after successful data save
- error: actions to run after error on data save

data.savestatelocal

Saves all current variable values as well the current scene playing on the browser storage. The browser can hold only one state per movie.

additional optional object fields
- success: actions to run after successful data save
- error: actions to run after error on data save

2.4. Float conditions

Conditional statements based on float values.

if.floatsdifferent

Checks if the two float values are different.

params
1. first value
2. second value

additional optional object fields
- then: actions to run if the result is true
- else: actions to run if the result is false

if.floatsequal

Checks if the two float values are equal.

params
1. first value
2. second value

additional optional object fields
- then: actions to run if the result is true
- else: actions to run if the result is false

if.floatset

Checks if a float variable exists.

params
1. the variable name to check

additional optional object fields
- then: actions to run if true
- else: actions to run if false

if.floatgreater

Checks if the first value is greater than the second one.

params

1. first value
2. second value

additional optional object fields

- then: actions to run if the result is true
- else: actions to run if the result is false

if.floatgreaterequal

Checks if the first value is greater or equal than the second one.

params

1. first value
2. second value

additional optional object fields

- then: actions to run if the result is true
- else: actions to run if the result is false

if.floatlower

Checks if the first value is lower than the second one.

params

1. first value
2. second value

additional optional object fields

- then: actions to run if the result is true
- else: actions to run if the result is false

if.floatlowerequal

Checks if the first value is lower or equal than the second one.

params

1. first value
2. second value

additional optional object fields

- then: actions to run if the result is true
- else: actions to run if the result is false

2.5. Float values

Management of float variables.

float.abs

Returns the absolue value of a float.

params

1. the variable name to receive the result
2. the value

float.clear

Removes a float variable.

params
1. the variable name

float.clearall

Removes all float variables.

float.divide

Divides two or more float values. At least 3 parameters are required but you can provide as many as you want and their values are sequentially divided.

params
1. the variable name to receive the result
2. the first value
3. the second value

float.max

Returns the maximum between two float values.

params
1. the variable name to receive the result
2. the first value
3. the second value

float.min

Returns the minimum between two float values.

params
1. the variable name to receive the result
2. the first value
3. the second value

float.multiply

Multiplies two or more float values. At least 3 parameters are required but you can provide as many as you want and their values are values are sequentially multiplied.

params

1. the variable name to receive the result
2. the first value
3. the second value

float.random

Generates a random float value.

params
1. the variable name to receive the rando value
2. minimum value
3. maximum value

float.set

Sets a float variable.

params
1. the variable name
2. the variable value

float.subtract

Subtracts two or more float values. At least 3 parameters are required but you can provide as many as you want and their values are subtracted from the result.

params
1. the variable name to receive the result
2. the first value
3. the second value

float.sum

Sums two or more float values. At least 3 parameters are required but you can provide as many as you want and their values are add to the result.

params
1. the variable name to receive the result
2. the first value
3. the second value

float.toint

Converts a float value to an int one (rounds).

params
1. the int variable name to receive the result
2. the float value

float.tostring

Converts a float value to a string.

params
1. the string variable name to receive the result
2. the float value

2.6. Input

These actions asks for user input to use on the movie. TilBuci uses a dark default theme for input UI, but you can adjust the colors according to your content at the *UI colors* tab of the *Movie properties* window.

input.email

Shows a text input window the ckecks for a valid e-mail address on confirmation. You may also add buttons to include common e-mail service domains like "@gmail.com" – just add additional string parameters.

params
1. string variable name to get the resulting e-mail address
2. text to display on input window
3. common email service domain, like "@hotmail.com" (optional)

additional optional object fields
- ok: actions to run after user clicks on ok
- cancel: actions to run after user click on cancel

input.float

Shows a dialog window asking for a float input.

params
1. float variable name to get the resulting input
2. text to display on input window
3. numeric stepper step value
4. minimum input value
5. maximum input value

additional optional object fields
- ok: actions to run after user clicks on ok
- cancel: actions to run after user click on cancel

input.int

Shows a dialog window asking for an int input.

params
1. int variable name to get the resulting input
2. text to display on input window
3. numeric stepper step value
4. minimum input value
5. maximum input value

additional optional object fields
- ok: actions to run after user clicks on ok
- cancel: actions to run after user click on cancel

input.list

Presents a list to the user asking for a selection. You must provide at least 4 parameters, but you may add as many as you want – they will be add as additional item options. The returned value is the text of the option selected.

params
4. string variable name to get the resulting input
5. text to display on input window
6. first list option
7. second list option

additional optional object fields
- ok: actions to run after user clicks on ok
- cancel: actions to run after user click on cancel

input.login

Starts the user login procedure. Login is done by sending a confirmation code to the provided e-mail address. All interface text must be set as text globals at the *Text* tab of the *Movie properties* window – if not set default English strings are used. The text names you must set to avoid using default values are shown on table below. Global texts can be changed at runtime by using the *string.setglobal* action.

Global	Description	Default value
logintitle	Window title	Login
logintext	Window message	Please type your e-mail address. You'll receive a 6 digit code to confirm your identity.
termsagree	Terms agree message	I agree with the above terms.
invalidemail	Invalid email address input	Please provide a valid e-mail address.
emailwait	Processing message	Please wait while a confirmation code is sent to your e-mail.
noemailsent	Send email error message	Error while sending the code by e-mail. Please try again.
checkforcode	Code check instructions	Please check out your e-mail inbox. Type below the 6 digit code you received. If you do not find the message, take a look at you spam folder.
codewait	Code check processing	Please wait while the provided code is checked.
invalidcode	Invalid code message	The provided code is invalid. Please try again.
emailsubject	E-mail message subject	TilBuci login
emailbody	E-mail message body	Hi, you are receiving this message to confirm your login at TilBuci. Please provide the code below to proceed:\r\n\r\n[CODE]\r\n\r\nIf you did'nt request this code, don't worry: just ignore this message.
emailsender	E-mail sender name	TilBuci

additional optional object fields
- ok: actions to run after user clicks on ok
- cancel: actions to run after user click on cancel

input.message

Shows a message to the user asking for confirmation. If no cancel action is set, the window will only show the ok button.

params
1. window title
2. window text

additional optional object fields
- ok: actions to run after user clicks on ok
- cancel: actions to run after user click on cancel

input.string

Shows a dialog window asking for a string input.

params
1. string variable name to get the resulting input
2. text to display on input window

additional optional object fields
- ok: actions to run after user clicks on ok
- cancel: actions to run after user click on cancel

2.7. Instance

instance.clearall

Clears any previously set value (instance returns to design setting).

param
1. instance id

instance.clearalpha

Clears previously set alpha value (instance returns to design setting).

param
1. instance id

instance.clearcolor

Clears previously set color overlay value (instance returns to design setting).

param
1. instance id

instance.clearcoloralpha

Clears previously set overlay alpha value (instance returns to design setting).

param
1. instance id

instance.clearfont

Clears previously set font face name value (instance returns to design setting).

param
1. instance id

instance.clearfontalign

Clears previously set text align value (instance returns to design setting).

param
1. instance id

instance.clearfontbackground

Clears previously set font background value (instance returns to design setting).

param
1. instance id

instance.clearfontbold

Clears previously set font bold state value (instance returns to design setting).

param
1. instance id

instance.clearfontcolor

Clears previously set font color value (instance returns to design setting).

param
1. instance id

instance.clearfontitalic

Clears previously set font italic state value (instance returns to design setting).

param
1. instance id

instance.clearfontleading

Clears previously set font leading value (instance returns to design setting).

param
1. instance id

instance.clearfontsize

Clears previously set font size value (instance returns to design setting).

param
1. instance id

instance.clearheight

Clears previously set height value (instance returns to design setting).

param

1. instance id

instance.clearorder

Clears previously set order value (instance returns to design setting).

param
1. instance id

instance.clearrotation

Clears previously set rotation value (instance returns to design setting - experimental).

param
1. instance id

instance.clearvisible

Clears previously set visible state (instance returns to design setting).

param
1. instance id

instance.clearvolume

Clears previously set sound volume value (instance returns to design setting).

param
1. instance id

instance.clearwidth

Clears previously set width value (instance returns to design setting).

param
1. instance id

instance.clearx

Clears previously set x value (instance returns to design setting).

param
1. instance id

instance.cleary

Clears previously set y value (instance returns to design setting).

param
1. instance id

instance.loadasset

Loads a collection asset into the instance.

param
1. instance id

2. new asset id to load

instance.next

Load the next collection item on instance.

param
1. instance id

instance.pause

Pauses an instance content.

param
1. instance id

instance.play

Plays an instance content.

param
1. instance id

instance.playpause

Plays an instance content if it is paused, pauses it otherwise.

param
1. instance id

instance.previous

Load the previous collection item on instance.

param
1. instance id

instance.scrollbottom

Scrolls text to bottom.

param
1. instance id

instance.scrolldown

Scrolls text down.

param
1. instance id

instance.scrolltop

Scrolls text to top.

param
1. instance id

instance.scrollup

Scrolls text up.

param
1. instance id

instance.seek

Jumps an instance to a time position (integer, seconds).

param
1. instance id
2. time position

instance.setalpha

Changes the instance alpha level (0 to 1.0).

param
1. instance id
2. new value for horizontal display
3. new value for vertical display (optional)

instance.setcolor

Changes the instance overlay color (0x###### hex format).

param
1. instance id
2. new value for horizontal display
3. new value for vertical display (optional)

instance.setcoloralpha

Changes the instance color overlay alpha level (0 to 1.0).

param
1. instance id
2. new value for horizontal display
3. new value for vertical display (optional)

instance.setfont

Changes the instance font face name.

param
1. instance id
2. new value for horizontal display
3. new value for vertical display (optional)

instance.setfontalign

Changes the instance alignment (*left*, *right*, *center* or *justify*).

param
1. instance id
2. new value for horizontal display

3. new value for vertical display (optional)

instance.setfontbackground

Changes the instance font background color (0x###### hex format, empty string for none).

param
1. instance id
2. new value for horizontal display
3. new value for vertical display (optional)

instance.setfontbold

Changes the instance font to bold (boolean).

param
1. instance id
2. new value for horizontal display
3. new value for vertical display (optional)

instance.setfontcolor

Changes the instance text font color (0x###### hex format).

param
1. instance id
2. new value for horizontal display
3. new value for vertical display (optional)

instance.setfontitalic

Changes the instance font to italic (boolean).

param
1. instance id
2. new value for horizontal display
3. new value for vertical display (optional)

instance.setfontleading

Changes the instance font leading space (integer).

param
1. instance id
2. new value for horizontal display
3. new value for vertical display (optional)

instance.setfontsize

Changes the instance text font size (int value).

param
1. instance id
2. new value for horizontal display
3. new value for vertical display (optional)

instance.setheight

Changes the instance height size (numeric).

param
1. instance id
2. new value for horizontal display
3. new value for vertical display (optional)

instance.setorder

Changes the instance order on display list (int value).

param
1. instance id
2. new value for horizontal display
3. new value for vertical display (optional)

instance.setparagraph

Sets a paragraph instance content.

param
1. instance id
2. new text

instance.setrotation

Changes the instance rotation (experimental).

param
1. instance id
2. new value for horizontal display
3. new value for vertical display (optional)

instance.setvisible

Changes the instance visible state (boolean).

param
1. instance id
2. new value for horizontal display
3. new value for vertical display (optional)

instance.setvolume

Changes the instance sound volume (0 to 1.0).

param
1. instance id
2. new value for horizontal display
3. new value for vertical display (optional)

instance.setwidth

Changes the instance width size (numeric).

param

1. instance id
2. new value for horizontal display
3. new value for vertical display (optional)

instance.setx

Changes the instance x position (numeric).

param
1. instance id
2. new value for horizontal display
3. new value for vertical display (optional)

instance.sety

Changes the instance y position (numeric).

param
1. instance id
2. new value for horizontal display
3. new value for vertical display (optional)

instance.stop

Stops an instance playback.

param
1. instance id

2.8. Integer conditions

Conditional statements based on integer values.

if.intsdifferent

Checks if the two int values are different.

params
1. first value
2. second value

additional optional object fields
- then: actions to run if the result is true
- else: actions to run if the result is false

if.intsequal

Checks if the two int values are equal.

params
1. first value
2. second value

additional optional object fields
- then: actions to run if the result is true
- else: actions to run if the result is false

if.intset

Checks if an int variable exists.

params
1. the variable name to check

additional optional object fields
- then: actions to run if true
- else: actions to run if false

if.intgreater

Checks if the first value is greater than the second one.

params
1. first value
2. second value

additional optional object fields
- then: actions to run if the result is true
- else: actions to run if the result is false

if.intgreaterequal

Checks if the first value is greater or equal than the second one.

params
1. first value
2. second value

additional optional object fields
- then: actions to run if the result is true
- else: actions to run if the result is false

if.intlower

Checks if the first value is lower than the second one.

params
1. first value
2. second value

additional optional object fields
- then: actions to run if the result is true
- else: actions to run if the result is false

if.intlowerequal

Checks if the first value is lower or equal than the second one.

params
1. first value
2. second value

additional optional object fields
- then: actions to run if the result is true
- else: actions to run if the result is false

2.9. Integer values

Management of integer variables.

int.abs

Returns the absolue value of an int.

params
1. the variable name to receive the result
2. the value

int.clear

Removes an int variable.

params
1. the variable name

int.clearall

Removes all int variables.

int.divide

Divides two or more int values. At least 3 parameters are required but you can provide as many as you want and their values are sequentially divided.

params
1. the variable name to receive the result
2. the first value
3. the second value

int.max

Returns the maximum between two int values.

params
1. the variable name to receive the result
2. the first value
3. the second value

int.min

Returns the minimum between two int values.

params
1. the variable name to receive the result
2. the first value
3. the second value

int.multiply

Multiplies two or more int values. At least 3 parameters are required but you can provide as many as you want and their values are values are sequentially multiplied.

params
1. the variable name to receive the result
2. the first value
3. the second value

int.random

Generates a random int value.

params
1. the variable name to receive the rando value
2. minimum value
3. maximum value

int.set

Sets an int variable.

params
1. the variable name
2. the variable value

int.subtract

Subtracts two or more int values. At least 3 parameters are required but you can provide as many as you want and their values are subtracted from the result.

params
1. the variable name to receive the result
2. the first value
3. the second value

int.sum

Sums two or more int values. At least 3 parameters are required but you can provide as many as you want and their values are add to the result.

params
1. the variable name to receive the result
2. the first value
3. the second value

int.tofloat

Converts an int value to a float one.

params
1. the float variable name to receive the result
2. the int value

int.tostring

Converts an intvalue to a string.

params

1. the string variable name to receive the result
2. the int value

2.10. Movie

movie.load

Loads a new movie into player.

params
1. new movie id

2.11. Replace

Use these actions to set automatic replaced both in string processing an file naming.

replace.clearfile

Removes a file replacement.

params
1. the needle (text to search) to remove

replace.clearstring

Removes a string replacement.

params
1. the needle (text to search) to remove

replace.clearallfiles

Clears all file replacement needles.

replace.clearallstrings

Clears all string replacement needles.

replace.origin

Replaces the current movie images origin set while loading scenes/keyframes. Possible values are “alpha”, “center”, “top”, “topkeep”, “bottom”, “bottomkeep”, “left”, “leftkeep”, “right” and “rightkeep”.

params
1. the new origin

replace.setfile

Sets a needle that will replace of its occurrences on loaded file names.

params
1. the needle (text to search)
2. the string to replace the needle on file names

replace.setstring

Sets a needle that will replace of its occurrences by the value given in both string processing and text display.

params
1. the needle (text to search)
2. the string to replace the needle

if.replacefileset

Checks if a file replacement exists.

params
1. the replacement name to check

additional optional object fields
- then: actions to run if true
- else: actions to run if false

if.replacestringset

Checks if a string replacement exists.

params
1. the replacement name to check

additional optional object fields
- then: actions to run if true
- else: actions to run if false

2.12. Scene

scene.load

Loads a new scene.

params
1. new scene id

scene.navigate

Loads the scene set at the navigation settings of the current one.

params
1. the navigation direction: *up*, *down*, *left*, *right*, *nin* or *nout*

scene.pause

Pauses the current scene playback.

scene.play

Plays the current scene.

scene.playpause

Plays a stopped scene or pauses a playing one.

2.13. Snippets

Action snippets can be defined at the *Action snippets* tab of the *Movie properties* window.

run

Runs a named action (set at *Movie* > *Properties* window).

params
1. action snippet name

2.14. String conditions

Conditional statements based on string values.

if.stringcontains

Checks if the first string contains the second one.

params
1. first string to compare
2. second string to compare

additional optional object fields
- then: actions to run if the string contains the other one
- else: actions to run if the string does not contain the other one

if.stringendswith

Checks if the first string ends with the second one.

params
1. first string to compare
2. second string to compare

additional optional object fields
- then: actions to run if the string ends with the other one
- else: actions to run if the string does not end with the other one

if.stringsdifferent

Checks if two strings are different.

params
1. first string to compare
2. second string to compare

additional optional object fields
- then: actions to run if the strings are different
- else: actions to run if the strings are equal

if.stringsequal

Checks if two strings are equal.

params
1. first string to compare
2. second string to compare

additional optional object fields
- then: actions to run if the strings are equal
- else: actions to run if the strings are different

if.stringset

Checks if a string variable exists.

params
1. the variable name to check

additional optional object fields
- then: actions to run if true
- else: actions to run if false

if.stringstartswith

Checks if the first string starts with the second one.

params
1. first string to compare
2. second string to compare

additional optional object fields
- then: actions to run if the string starts with the other one
- else: actions to run if the string does not start with the other one

2.15. String values

Management of string variables.

string.clear

Removes a string variable.

params
1. the variable name

string.clearall

Removes all string variables.

string.clearglobal

Clears a text global.

params
1. the global name

string.concat

Concatenates two or more strings. Three parameters are required. Each additional one will be concatenated at the string end.

params
1. the variable name to receive the concatenated one
2. the first string to concatenate
3. the second string to concatenate

string.replace

Replaces all occurrences of the needle string by the given one at the provided text.

params
1. the variable name to receive the replace result
2. the original string
3. the needle (string to look for)
4. the replacement text

string.set

Sets a string variable.

params
2. the variable name
3. the variable value

string.setglobal

Sets a text global.

params
1. the global name
2. the global value

string.setgroup

Sets a group of the *strings.json* file to look for string variable values.

params
1. the group name

string.tofloat

Converts a string value to a float one.

params
1. the float variable name to receive the result
2. the string to convert

string.toint

Converts a string value to an integer one.

params
1. the integer variable name to receive the result

2. the string to convert

2.16. System

system.copytext

Copies a string into the user clipboard.

params
1. the string to copy

system.fullscreen

Shows the content at fullscreen or brings back the display to normal state. Please note that you must trigger this action only on an user interaction. It won't work on movie/scene/keyframe actions due to browser policies. No parameters are required.

system.logout

Logs out the current user.

system.openembed

Opens an overlay with a previously embedded HTML5 content (access Media > Embed on the left menu to send the HTM5 content to embed).

params
1. the embed name used when sending the content

Embed content can exchange information with the host movie using javascript methods. Since the embed content is displayed using an iframe, all melhods must be called from "parent".

parent.tilbuci_getstring($name)	gets the current value of the $name variable (empty string if it is not set)
parent.tilbuci_setstring($name, $value)	sets the value of the string variable $name
parent.tilbuci_getfloat($name)	gets the current value of the $name variable (0 if it is not set)
parent.tilbuci_setfloat($name, #value)	sets the value of the float variable $name
parent.tilbuci_getint($name)	gets the current value of the $name variable (0 if it is not set)
parent.tilbuci_setint($name, #value)	sets the value of the integer variable $name
parent.tilbuci_getbool($name)	gets the current value of the $name variable (false if it is not set)
parent.tilbuci_setbool($name, ?value)	sets the value of the boolean variable $name
parent.tilbuci_runaction($action)	runs any json-formatted action on movie

system.openurl

Opens an URL on user browser.

params

1. the UL to open

system.quit

While running as a desktop application, this action ends the app execution, closing its window.

system.sendevent

Sends a custom event (TilBuciEvent.EVENT) to everyone listening to the player object. The event info field will be filled with any string parameters you add to this action.

2.17. Text

Text actions adjust the css styles used on html instances. You can provide a default css stylesheet at the *CSS* tab of the *Movie properties* window.

css.clear

Clears current css styles.

css.set

Sets css styles.

params
1. css styles text

2.18. Timer

Timers allow you to run actions in intervals and after some time.

timer.clear

Stops and clears a timer.

params
1. the timer name to clear

timer.clearall

Stops an clears all set timers.

timer.set

Sets a timer with a given interval in milliseconds and a number of iteractions.

params
1. timer name

2. interval among timer ticks in milliseconds (minimum of 250)
3. number of iteractions

additional optional object fields

- tick: actions to run after evey tick
- end: actions to tun on timer end

3. Plugin actions

Plugins may add actions and conditions to TilBuci. The software comes with some of them already available. Here are the actions they provide.

3.1. Debug plugin

This plugin is intended to be used during your content development. It is recommended to turn it off in movies already available to the public.

trace

This command will display a text on the browser's console. You can use it to show anything. It requires one parameter, but you may add as many as you want – all of them will displayed at the console.

params
1. content to display on browser's console

params

trace.bools

Displays all current boolean variables as their values at the browser console.

trace.ints

Displays all current integer variables as their values at the browser console.

trace.floats

Displays all current float variables as their values at the browser console.

trace.strings

Displays all current string variables as their values at the browser console.

debuginfo.hide

Hides the debug info window if it is being displayed (F8 on keyboard).

debuginfo.show

Shows the debug info window over your content with many . You may also press F8 on the keyboard to show this window.

3.2. Share

This plugin provides actions to open a browser tab ready for the user to share a content from your movies. They don't require any parameters – the movie url and title are automatically add to the share call – but you may add a boolean one set to true to force the share url to point to the movie index instead of the current scene, even if the share mode on movie properties is set to scene.

share.facebook

share.linkedin

share.pinterest

share.reddit

share.x

3.3. Google Analytics

This plugin enables measurement of user activities while checking out your content. It must be configured with the *Measurement ID* before use. Movie and scene load operations are automatically registered as events on the Analytics platform, but you may also create your custom events.

When a movie is loaded, a new campaign is automatically set on Analytics with these parameters:

- id: the movie ID
- name: the movie name
- source: your TilBuci base installation domain

Automatic movie load events set these parameters:

- movie_id: the loaded movie ID
- movie_name: the loaded movie title

Automatic scene load events hold these parameters:

- movie_id: the current movie ID
- movie_name: the current movie title
- scene_id: the loaded scene ID

- scene_name: the loaded scene title

analytics.event

Registers a custom event at the Google platform. You must provide the event name and its description.

The recorded event will set these parameters:

- movie_id: the current movie ID
- movie_name: the current movie title
- scene_id: the current scene ID
- scene_name: the current scene title
- about: the provided description

params
1. event name
2. event description

3.4. Server Call

This plugin is aimed at operations that must run at your TilBuci installation server.

call.process

Calls a server script to process and return data to TilBuci. The script can even be loaded from another domain, but it must always return a JSON text considering the format below.

This is a versatile function. It can be used to collect data from other internet sources, process data collected while viewing your content, and even create communication systems like your own user management and data storage.

The function requires at least two string parameters but you may add as many as you want. When called, it will make a POST request to the URL of the first parameter with the following values:

value	content
movieid	Current movie ID
sceneid	Current scene ID
movietitle	Current movie title
scenetitle	Current scene title
visitor	Current visitor e-mail or “system” if none is logged in
data	A JSON-encoded array with all string parameters set, in order, except the script url

Your script must process the information and return a JSON encoded object with values that will be loaded into TilBuci variables when

received. The JSON object can contain as many variables as you want to return, described as:

```
“name”: { “t”:“the variable type”, “v”:“the value” }
```

Possible types are “B” (boolean), “I” (integer”), “F” (float) and “S” (string). A return example that sets four variables:

```
{
	"mystring":{"t":"S","v":"the string value"},
	"myfloat":{"t":"F","v":100.101},
	"myint":{"t":"I","v":10},
	"mybool":{"t":"B","v":true}
}
```

You may provide the “success” and “error” optional object fields to run after a successful or failure call.

params
1. the url to call
2. string parameter to send for processing

additional optional object fields
- success: actions to run on successful call
- error: actions to run on call failure

call.sdprocess

This action is like the previous one, but the URL to call must always be hosted at the same domain as your TilBuci movie is loaded from. Everything else works just like call.process. Because of the same domain URL limitation, you can still use this action to access server data on exported websites or PWA applications, unlike the other Server Call plugin actions.

call.url

Calls any URL from the server. By transferring the request to the server, TilBuci avoids browser “CORS” limitations. You may provide a string variable name to receive the return on a successful request. You may provide the “success” and “error” optional object fields to run after a successful or failure call.

params
1. the url to call
2. optional string variable name to receive the result

additional optional object fields
- success: actions to run on successful call
- error: actions to run on call failure

3.5. Overlay

This plugin can load an external content and display it above your TilBuci movie. You can even exchange data between them.

overlay.show

Loads an external content on an overlay frame above your movie.

params
1. the url to load
2. title to display above the overlay content (may be an empty string)
3. optional bool value to send additional information as get parameters

additional optional object fields
- success: actions to run after the overlay is successfully displayed and closed
- error: actions to run on overlay error

The overlay is a powerful feature to enhance your TilBuci creation. It can be anything loaded as a web page, from a simple page to a detailed form or a complex game.

The first parameter is the url of the overlay content. You can set it to an address on your domain (recommended) or event to other sites. TilBuci will automatically assign a unique key to every overlay call. This key will be sent as a get "key" parameter add to your url, like:

https:tilbuci.com.br/myoverlaycontent/?key=uniquekey

This key is very important: you can use it to exchange data between your movie and the overlay.

The second parameter is a title that will appear above the overlay content. If you do not want a title, just use a blank string.

The third parameter is optional. You can add as many additional parameters as you want to send to your overlay. If the third parameter is set to "true", this extra information will be included as get values on your url. Check out this example:

```
{
    "ac":"overlay.show",
    "param":[
        "https://tilbuci.com.br/myoverlaycontent/",
        "My overlay title",
        "true",
        "param4",
        "param5"
    ]
}
```

Will open an overlay calling this address:

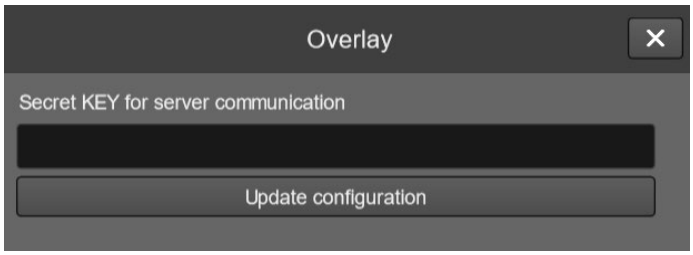
https:tilbuci.com.br/myoverlaycontent/?key=uniquekey&v1=param4&v2=param5

Since there are limitations regarding the size of get requests, use this with caution. The "key" value is always sent.

Even if you do not add the additional information as get values, your overlay can still retrieve it by calling the TilBuci webservice interface. To do so, you must call the "ws" route of your TilBuci installation with a POST request, like *https://tilbuci.com.br/ws/*, with the following values:

POST parameter	Value
a	Overlay/GetKeyData
k	The overlay key you received
s	A signature made of MD5(secret key + overlay key)

You must set a secret key at your TilBuci overlay plugin configuration. This secret key, add to the unique key of your overlay and encoded as a MD5 string must always be sent as the "s" signature parameter to validate your request.



The response you receive will always be a JSON-formatted string. To evaluate it, you must first look for the "e" (error) value. If the error is "0", your request was successful, and you may proceed parsing the "data" value. You'll receive it as a JSON-encoded object with name/value pairs with the same names you'd receive as get values.

You can also use this webservice request to send data back to the TilBuci movie. This data will be loaded into variables when the overlay is closed. Here are the required POST parameters:

POST parameter	Value
a	Overlay/SetKeyData
k	The overlay key you received
s	A signature made of MD5(secret key + overlay key)
d	The data to send as a JSON-encoded string

The "d" parameter is a JSON-encoded string describing the variables to set on your TilBuci movie. It can contain as many variables as you want to return, described as:

```
"name": { "t":"the variable type", "v":"the value" }
```

Possible types are "B" (boolean), "I" (integer"), "F" (float) and "S" (string). A return example that sets four variables:

```
{
	"mystring":{"t":"S","v":"the string value"},
```

```
        "myfloat":{"t":"F","v":100.101},
        "myint":{"t":"I","v":10},
        "mybool":{"t":"B","v":true}
}
```

If you call this webservice more than once, new values will replace the previous ones. The TilBuci movie will only receive this information when the overlay is closed. This happens when the visitor clicks at the close button that will always appear above your overlay. You may also call this javascript function from your content to force it to close but notice that if the url of the overlay request is not at the same domain of your TilBuci installation, the browser may block this call.

```
parent.overlay_close();
```

The *overlay.show* action supports the *success* and *error* additional optional object fields. Error actions are run on any problem regarding the overlay display, while the success ones will run after the overlay is closed and the return variables are set.

4. Code assist

To simplify the action coding process, TilBuci provides some assistants to help the script creation. On every scripting window there are some buttons to display these tools.

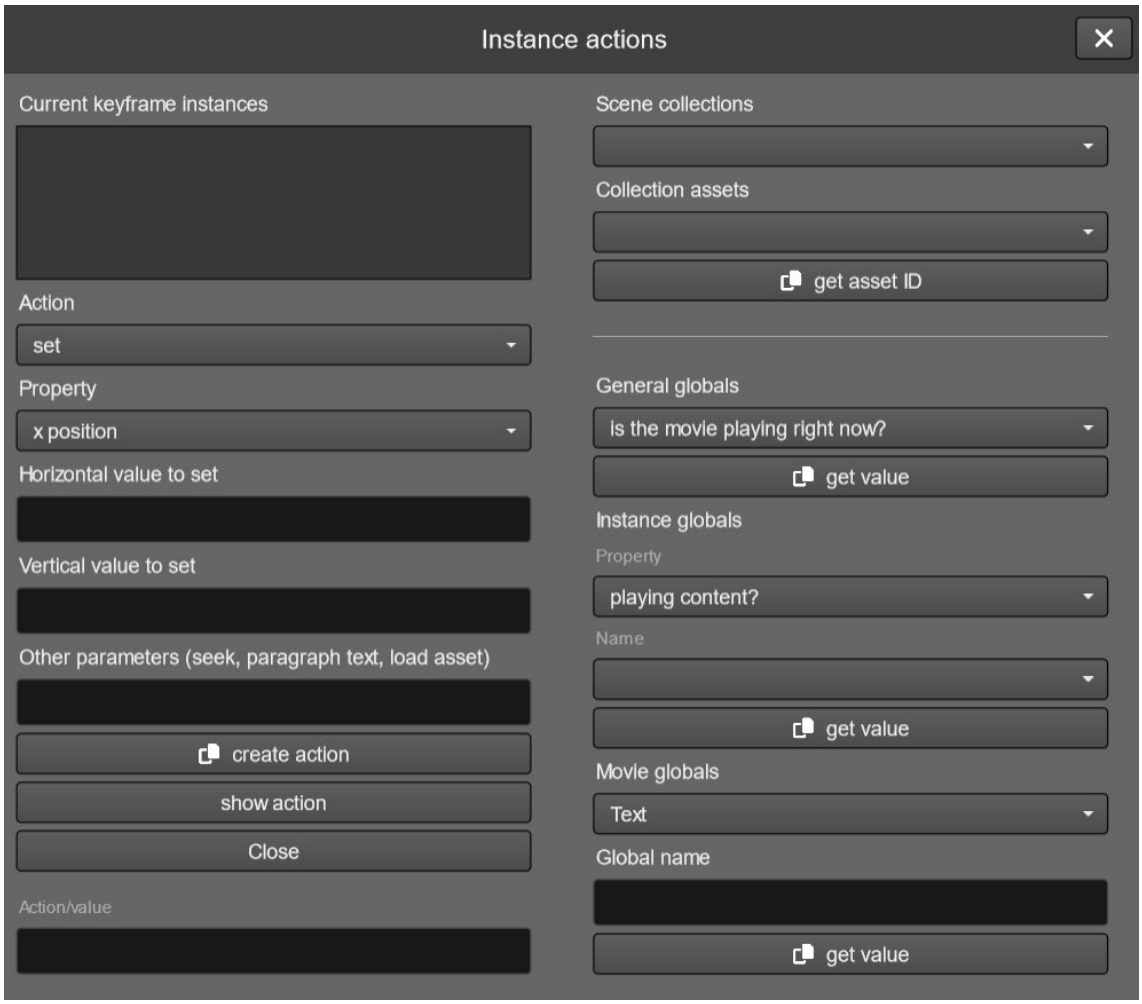
These buttons actions are, in order:

1. copy current action script
2. show movie and scene actions
3. show media/instance actions
4. show variable management actions and conditions
5. show data and input handling actions
6. show additional actions, like system and timer
7. show available plugin actions

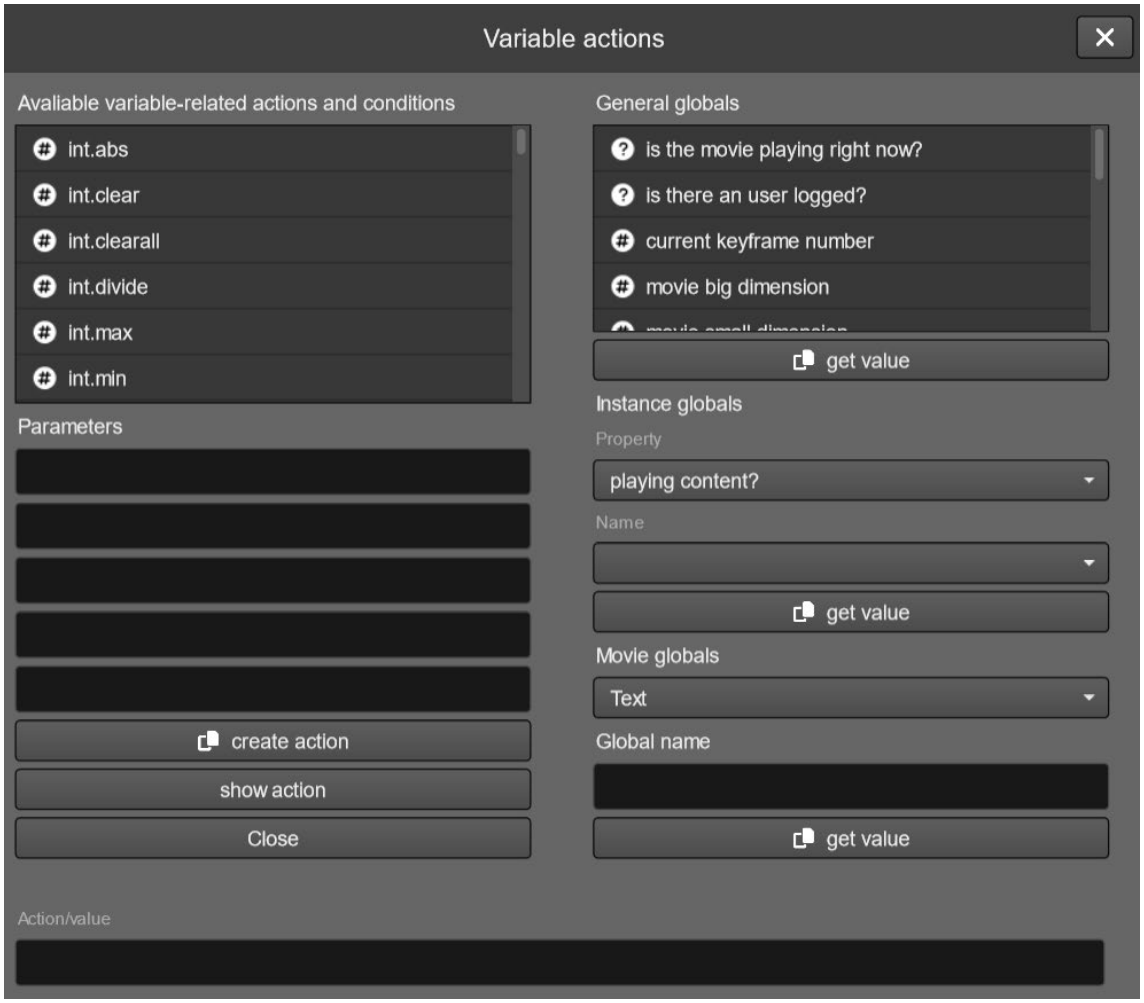
All windows shown from these buttons have tools to help code creation. Just set what you want and click the buttons with the copy icon – the code will be copied to clipboard so you can paste it on your creations. Please note that this copy functions will only work if TilBuci is running from secure “https” urls due to browser policies. You will also find the “show action” buttons that will display the action at the “Action/value” area, from which you can manually copy the result – this will work from both https and http.

4.1. Movie and scene actions

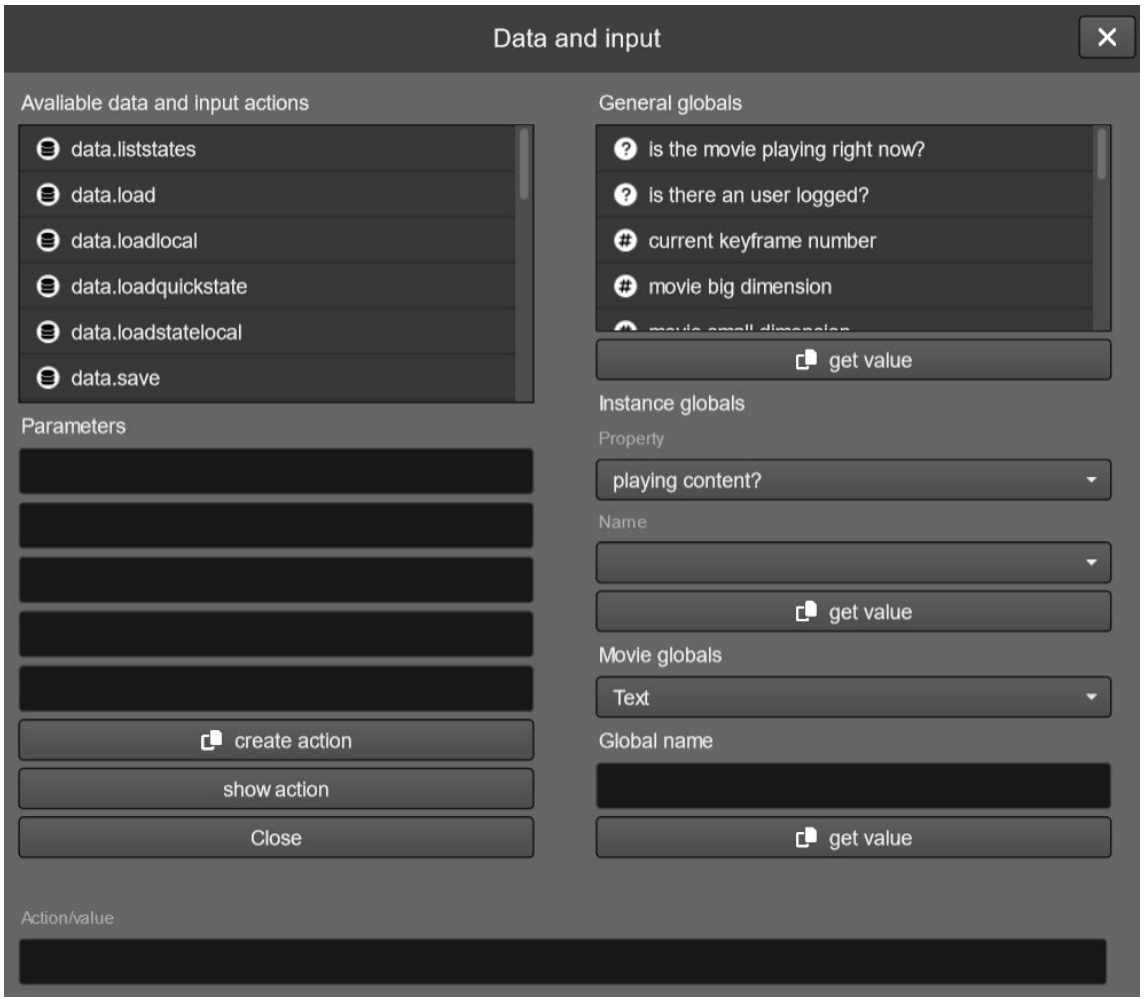
4.2. Instance and media



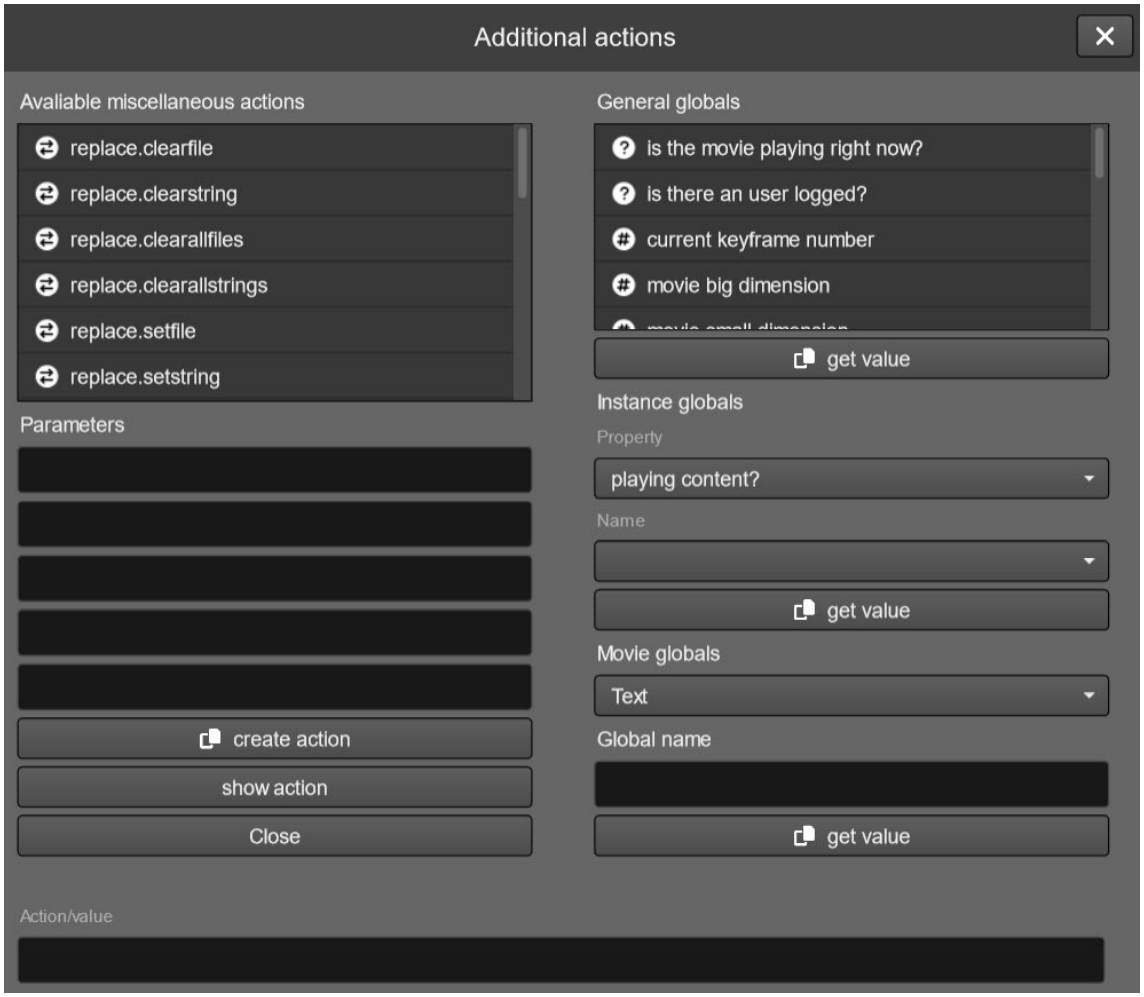
4.3. Variable actions and conditions



4.4. Data and input handling



4.5. Additional actions



4.6. Available plugins