Python Tips

How to do some common actions in Python. Also see Help -> Python Examples in the TouchDesigner UI.

Contents

General to all OPs

Commands

	Python
Creating an OP (Sphere SOP)	`op('/project1').create(sphereSOP)`
Creating a named OP	`op('/project1').create(sphereSOP, 'mysphere')`
Copying OPs (Nodes)	`op('/project1').copy(op('out1'), name='out2')`
Deleting an OP	`op('mysphere').destroy()`
Renaming an OP	`op('mysphere').name = 'thesphere'`
Changing an OP's type	`op('mysphere').changeType(boxSOP)`
Changing multiple OPs' types	`list = ops('*sphere*')` `[s.changeType(boxSOP) for s in list]`
Setting an OP's comment	`op('mysphere').comment = 'this is a sphere'`
Changing an OP's parameter	`op('mysphere').par.frequency = 10`

Changing an OP's parameter with more than 1 value	`s = op('mysphere')`
	`s.par.tx = 1`
	`s.par.ty = 2`
	`s.par.tz = 3`

Pulsing a parameter value	`op('moviein1').par.cue.pulse()`
Cooking an OP	`op('mysphere').cook()`
Saving an OP's data to a file	`op('mysphere').save('sphere.tog')`

Changing an OP's Render and Display Flags on	`s = op('mysphere')`
	`s.render = True`
	`s.display = True`

Loading a .tox file into a COMP	`op('/project1').loadTox('geo1.tox')`
Wiring operators together	`Refer to the Connector Class`
Clicking gadgets (panel components)	`op('slider1').click(.6, .7)`
Timeline Play/Pause	`me.time.play = True/False`

Expressions

	Python
Querying another OP's parameter	`op('sphere1').par.tx`
Querying a parameter in the same OP	`me.par.tx`
Getting Info CHOP channels from an OP without cooking it	`passive(op('moviein1')).width`
Getting an OP's parent	`parent()`
Getting an OP's grand-parent	`parent(2)`
Getting an OP's name	`me.name`
Getting an OP's parent's name	`parent().name`
Getting digits of an OP's name in its parameters	`me.digits`
Getting digits of an OP's parent's name in its parameters	`parent().digits`
Getting digits of another OP's name	`op("moviein1").digits`
Getting an OP's type	`# returns an op object, not a string` `type(op('moviein1'))`
getting a unique random number each frame	`tdu.rand(absTime.frame+.1)`
getting a unique random number per numbered operator	`tdu.rand(me.digits+.17)`

Checking for an OP's existence	`if op('moviein1'):`
	or
	`bool(op('moviein1'))`

Getting the number of children of a COMP	`len(op('geo1').children)`
Getting the number of inputs of a multi-input OP	`len(op('switch1').inputs)`
Getting Info CHOP channels from an OP, width is a member	`op('moviein1').width`
Conditional "if" in one line of a parameter	`22 if me.time.frame<100 else 33`
Conditional "if" alternative	`[33,22][me.time.frame<100]`
Convert space separated string to a list	`tdu.split('Space separated string with "two word item"')`
List comprehension	`[c.name for c in root.children]`
Conditional list comprehension	`[c.name for c in root.children if c.name != 'perform']`
Test operator type	`type(root) == baseCOMP`
Test operator family	`isinstance(root, TOP)`

Time

"Absolute Time" is the time since you started your TouchDesigner process, not counting when your power button was off (top bar).

	Python
Retrieving a node's local frame number	`me.time.frame`
Retrieving a node's local time in seconds	`me.time.seconds`
Retrieving absolute time in frames	`absTime.frame`
Retrieving absolute time in seconds	`absTime.seconds`

Storage in Python

Storage is the preferred way to work with persistent global data in Python, since it can store anything data type.

	Python
Setting a value in storage of a component `n`	`n.store('keyname', 0.0)`
Getting a value from storage	`n.fetch('keyname')`
Directly access the storage dictionary	`n.storage`
Directly access a key in the storage dictionary	`n.storage['keyname']`
Test if a key exists in the storage dictionary	`'keyname' in n.storage`

Variables

Variables are always text strings.

	Python
Setting a value	`me.var('DESKTOP')`
Setting a Root Variable	`root.setVar('MEDIA', 'c:/MEDIA')`
Setting a Component Variable at the current component	`parent().setVar('MEDIA', 'c:/MEDIA')`
Setting a Component Variable at another component	`op('/project1/geo1').setVar('MEDIA', 'c:/MEDIA')`
Setting a Path Variable	Set the Path Variable parameter of any parent component and use `me.var('name')` in the same way.

CHOPs

Expressions

Evaluate channel `chan1` at the current frame	`op('wave1')['chan1'].eval()`
or if in parameter, simply:	`op('wave1')['chan1']`
Get sample 8 of channel `chan1`	`op('wave1')['chan1'].eval(8)`
Get the number of CHOP Channels	`op('wave1').numChans`
Get the CHOP length	`op('wave1').numSamples`
Get the third sample from the first channel	`op('wave1')[0][2]`
Get the name of the 2nd channel	`op('wave1')[1].name`
Get the channel index of channel `chan1`	`op('wave1')['chan1'].index`

DATs

Expressions

Get a cell value by index	`op('table1')[2,3]`
Get a cell value by label	`op('table1')['r1', 'c1']`
Get a cell value by row index, col label	`op('table1')[2, 'product']`
Cast cell to integer and float	`int(op('table1')['month', 3])` `float(op('table1')['speed', 4])`
Get the number of table rows	`op('table1').numRows`
Get the number of table columns	`op('table1').numCols`

Set a cell value by indeces or labels	`op('table1')[3,4] = 'hello'`
	`op('table1')[2, 'answer'] = 'hello'`
	`op('table1')['month', 3] = 'july'`

Set a cell value by label	`op('table1')['r1', 'c1'] = 'abc'`
Copy a table to another table	`op('table1').copy(op('fromTable'))`
Append a row to a table	`op('table1').appendRow(['s1','s2', num])`
Append a column to a table	`op('table1').appendCol(['s1','s2', num])`
Access current cell in an Evaluate DAT	`me.inputCell`
Access neighboring cells in an Evaluate DAT	`me.inputCell.offset(1,2)`