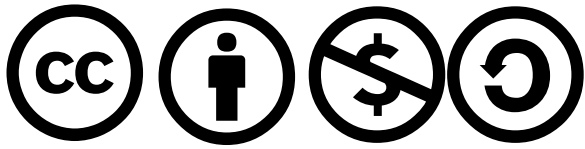


Duik 15 Developer's guide

the complete manual of libDuik 15





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Introduction

libDuik is a complete library of objects, attributes and methods from Duik – Duduf IK & Animation Tools for After Effects. It allows you to easily include Duik functions into other scripts.

License

Duik and libDuik are licensed under the GNU-General Public License version 3. This means they are free software, which offers four freedoms:

- the freedom to use the software for any purpose,
- the freedom to change the software to suit your needs,
- the freedom to share the software with your friends and neighbors, and
- the freedom to share the changes you make.



The complete source code along with a copy of the license of Duik and libDuik is available at:

<https://github.com/Duduf-dev/Duik/>

This license does not allow you to use libDuik in a non-free or commercial software. Any software using libDuik should be licensed under a free software license. See <http://www.fsf.org> for more information

Including libDuik in your scripts

There are three ways to use libDuik in your scripts:

- **#include «libDuik.jsxinc»**

Adding this line at the beginning of the script automatically loads libDuik at first run of the script. *libDuik.jsxinc* must be in the same folder as your script.

This is the recommended way of including libDuik.

- **Copying all content of libDuik.jsxinc in the beginning of your script**

Copying the whole library inside your script allows you to deploy only one file.

- **Renaming libDuik.jsxinc to libDuik.jsx and move it to Scripts/Startup/**

libDuik will be loaded during After Effects startup, and will then be available to all scripts.

This is a good way to use Duik functions in several scripts without having to include libDuik in all scripts.

Installing libDuik

- **Using pseudo effects**

This is the default behaviour, and you should prefer to use libDuik this way.

At first launch, libDuik will automatically check if the pseudo effects it needs are already installed, and, if not, it will attempt to install them, by writing them in the file called *presetEffects.xml* inside the installation folder of After effects.

To achieve this, **libDuik needs to be allowed to write files** by After Effects. The only way to do this is for the user to check the box called « Allow scripts to write files... » in the general preferences of After Effects.

Note: You can open the preferences dialog in your scripts with:

```
app.executeCommand(2359);
```

but the user will have to check the box itself.

After the very first run of libDuik, if the pseudo effects were not already available, the user will have to restart After Effects for the pseudo effects to be loaded by After Effects.

If you want to use libDuik without allowing the scripts to write files, you can manually add the pseudo effects to *presetEffects.xml*: Copy/paste the content of the file *Duik_presetEffects.xml* distributed with libDuik, in *presetEffects.xml*, just before the last line « </effects> ».

Note that on Mac OS you will have to change the file permissions to be able to modify it.

- **Using presets**

If you cannot modify *presetEffects.xml*, or for any other reason, you can use *.ffx* presets. You just have to set *Duik.usePresets* to *true*.

Note: if libDuik was not able to update *presetEffects.xml*, it will default *Duik.usePresets* to *true*. If *presetEffects.xml* is up-to-date, *Duik.usePresets* will be *false* by default.

By default, libDuik will look for *.ffx* files inside its own folder. You can specify another folder by setting the path to *Duik.presetPath* with an ending « / ».

The *.ffx* files must be named by the corresponding pseudo effects matchNames plus the extension (*.ffx*). A complete list of those matchNames is available in this document.

Note: if *presetEffects.xml* is not updated with libDuik pseudo effects, when using presets After Effects may warn for missing effects. libDuik will work well anyway.

Note: the presets distributed with libDuik are CC2014 versions (for this beta version of libDuik. Later versions may be distributed with CS6, or even CS4 versions of presets). Sadly, After Effects presets cannot be used with older versions of After Effects than the one used to create them. If you need to use presets with older versions, you will have to create your own.

Using libDuik

Once libDuik has been loaded, all its classes, attributes and methods are available in the javascript object *Duik*, for all scripts run by After Effects.

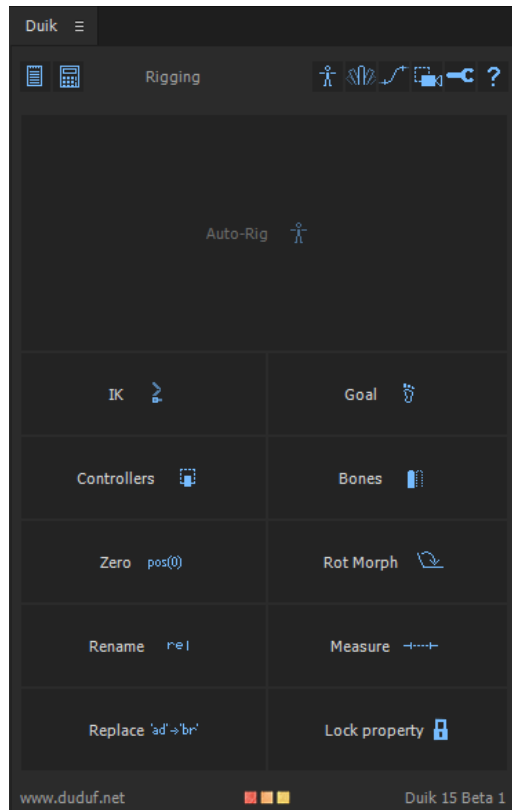
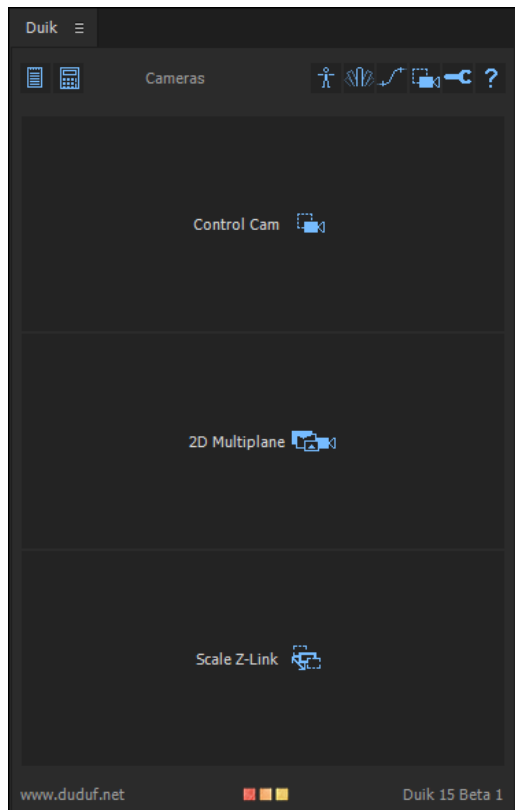
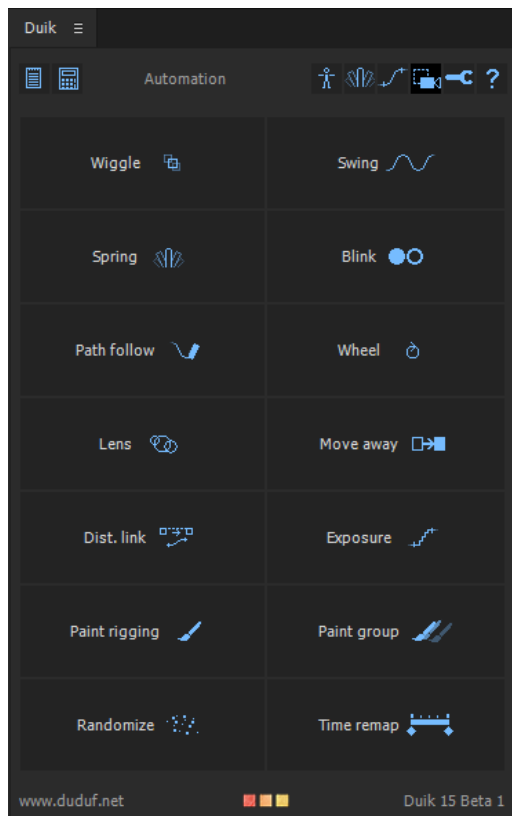
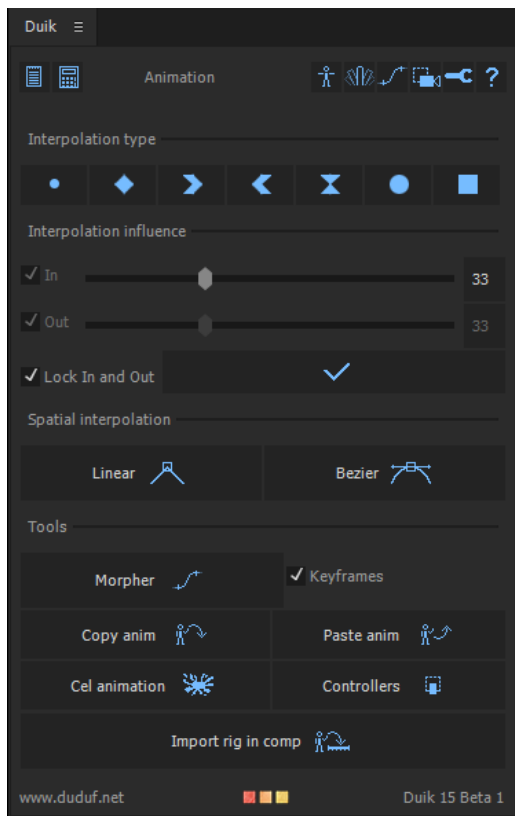
libDuik is loaded only once; this allows a faster launch of your scripts.

Modifying libDuik

If you're modifying libDuik and need to test it without having to reboot After Effects to reload it, you can un-comment the first line:

```
if (typeof Duik === 'object') delete Duik;
```

inside libDuik itself, or you can include this line in your own script **before** *#include libDuik*;



Pseudo Effects List

libDuik uses pseudo effects instead of expression controls. Those effects must be added to *presetEffects.xml* (see *Introduction*, *Installing libDuik* for more details).

The XML code used to create those effects is *Duik_presetEffects.xml*

Here is a list of the effects available.

Those effects can be added without libDuik on any layer with:

```
layer.effect.addProperty("PSEUDO/" + matchName);
```

Example:

```
app.project.activeItem.layer(1).effect.addProperty('PSEUDO/DUIK_One_Layer_IK');
```

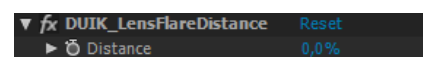
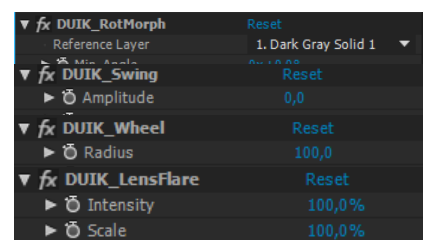
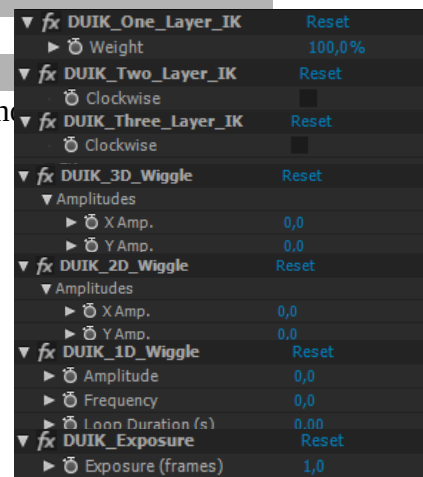
But, using libDuik, you should instead use

```
Duik.utils.addEffect(layer,effectMatchName);
```

Example:

```
Duik.utils.addEffect(layer,'DUIK_One_Layer_IK');
```

This way, libDuik checks if the pseudo effect has been installed, and if not, it adds the corresponding preset (.ffx file)



<i>DUIK_DistanceLink</i>	Used by Distance Link	<div> <div>fx DUIK_DistanceLink</div> <div>Reset</div> <div> <div>▼ Range</div> <div>▶ Minimum Distance 0,0</div> <div>▶ Maximum Distance 500,0</div> <div> Reverse <input type="checkbox"/></div> </div> </div>
<i>DUIK_Spring</i>	Used by Spring on 2D and 3D properties	<div> <div>fx DUIK_Spring</div> <div>Reset</div> <div> <div>▶ Elasticity 10,0</div> <div>▶ Damping 5,0</div> </div> </div>
<i>DUIK_Spring_Bounce</i>	Used by spring on 1D properties, includes a checkbox called 'bounce'.	<div> <div>fx DUIK_Spring_Bounce</div> <div>Reset</div> <div> <div>▶ Elasticity 10,0</div> <div>▶ Damping 5,0</div> <div> Bounce <input type="checkbox"/></div> </div> </div>
<i>DUIK_Paint_Rig</i>	Used by the paint rig tool to control the end, begin and diameter properties of the paint brushes	<div> <div>fx DUIK_Paint_Rig</div> <div>Reset</div> <div> <div>▶ Start 0,00%</div> <div>▶ End 100,00%</div> <div>▶ Diameter 0</div> </div> </div>
<i>DUIK_Blink_1D</i>	Used by blink on 1D properties	<div> <div>fx DUIK_Blink_2D</div> <div>Reset</div> <div> <div>▶ Frequency 1,00</div> <div>▶ Time on 50%</div> <div>▶ Offset 0,00</div> <div>▶ X Off value 0,00</div> <div>▶ Y Off value 0,00</div> </div> </div>
<i>DUIK_Blink_2D</i>	Used by blink on 2D properties	<div> <div>fx DUIK_Blink_2D</div> <div>Reset</div> <div> <div>▶ Frequency 1,00</div> <div>▶ Time on 50%</div> <div>▶ Offset 0,00</div> <div>▶ X Off value 0,00</div> <div>▶ Y Off value 0,00</div> </div> </div>
<i>DUIK_Blink_3D</i>	Used by blink on 3D properties	<div> <div>fx DUIK_Blink_3D</div> <div>Reset</div> <div> <div>▶ Frequency 1,00</div> <div>▶ Time on 50%</div> <div>▶ Offset 0,00</div> <div>▶ X Off value 0,00</div> <div>▶ Y Off value 0,00</div> <div>▶ Z Off value 0,00</div> </div> </div>
<i>DUIK_Multiplane</i>	Used by 2D Multiplane cam	<div> <div>fx DUIK_Multiplane</div> <div>Reset</div> <div> <div> Pan 640,0,360,0</div> <div>▶ Zoom 0,00%</div> <div>▶ Truck In Out 0,00%</div> <div> <div>▼ Tilt 0x+0,0°</div> <div></div> </div> </div> </div>
<i>DUIK_Paint_Group</i>	Used by Paint groups	<div> <div>fx DUIK_Paint_Group</div> <div>Reset</div> <div> <div>▼ Stroke Options</div> <div>▶ Start 0,0%</div> <div>▶ End 100,0%</div> <div> Color </div> <div>▶ Diameter 0,0</div> <div>▼ Transform</div> <div> Anchor Point 640,0,360,0</div> <div> Position 640,0,360,0</div> <div>▶ Scale 100,0%</div> <div>▶ Rotation 0x+0,0°</div> </div> </div>

Objects

libDuik creates new javascript instantiable javascript objects, which can be very helpful when working with After Effects, and are needed by Duik.

Name	Description
<i>KeySpatialProperties</i>	Describes all spatial properties of a KeyFrame.
<i>KeyFrame</i>	Represents an animation keyframe of After Effects
<i>PropertyAnim</i>	Describes the keyframe animation of a given property
<i>MaskAnim</i>	Describes all the keyframe animations of the properties of a given Mask
<i>EffectAnim</i>	Describes all the keyframe animations of the properties of a given Effect
<i>LayerAnim</i>	Describes all the keyframe animations of the transformation, masks, and effects of a layer
<i>IKRig</i>	Describes an IK created by Duik (layers needed, type, goal, controller...)
<i>PropertyDescription</i>	Describes any property (useful to retrieve a property if the selection changes in the effects)
<i>Controller</i>	A controller created by Duik
<i>TVPCamera</i>	A camera imported from TVPaint
<i>TVPCameraPoint</i>	A spatial keyframe of a camera from TVPaint
<i>TVPProfileprof</i>	Temporal interpolation from TVPaint
<i>TVPProfileprofPoint</i>	A temporal keyframe from TVPaint
<i>OnionSkin</i>	Describes the onion skin used by Duik in the <i>cel animation</i> tool

KeySpatialProperties object attributes

Describes all spatial properties of a KeyFrame.

KeySpatialProperties.inTangent
KeySpatialProperties.outTangent
KeySpatialProperties.continuous
KeySpatialProperties.autoBezier
KeySpatialProperties.roving

Name	Type	Description
<i>inTangent</i>	float or Array of float	In spatial tangent of the keyframe
<i>outTangent</i>	float or Array of float	Out spatial tangent of the keyframe
<i>continuous</i>	boolean	Spatial interpolation set to continuous

<i>autoBezier</i>	boolean	Spatial interpolation set to auto Bezier
<i>roving</i>	boolean	Keyframe set to roving

KeyFrame object attributes

Represents an animation keyframe of After Effects
See [*Duik.utils.getKey\(\)*](#) and [*Duik.utils.addKey\(\)*](#)

KeyFrame.time

KeyFrame.value

KeyFrame.inInterpolationType

KeyFrame.outInterpolationType

KeyFrame.spatial

KeyFrame.spatialProperties

KeyFrame.inEase

KeyFrame.outEase

KeyFrame.continuous

KeyFrame.autoBezier

Name	Type	Description
<i>time</i>	float	Time of the keyframe in the comp
<i>value</i>	Any AFX <i>propertyValueType</i>	Value of the keyframe
<i>inInterpolationType</i>	Enumerated value; one of: <i>KeyframeInterpolationType.LINEAR</i> <i>KeyframeInterpolationType.BEZIER</i> <i>KeyframeInterpolationType.HOLD</i>	In interpolation type of the keyframe
<i>outInterpolationType</i>	Enumerated value; one of: <i>KeyframeInterpolationType.LINEAR</i> <i>KeyframeInterpolationType.BEZIER</i> <i>KeyframeInterpolationType.HOLD</i>	Out interpolation type of the keyframe
<i>spatial</i>	boolean	True if the keyframe is on a spatial property, one of: <i>PropertyValueType.ThreeD_SPATIAL</i> <i>PropertyValueType.TwoD_SPATIAL</i>
<i>spatialProperties</i>	<i>KeySpatialProperties</i>	All spatial properties of the keyframe. See <i>KeySpatialProperties object attributes</i>
<i>inEase</i>	Array of AFX <i>KeyframeEase</i> objects	Incoming temporal ease of the keyframe
<i>outEase</i>	Array of AFX <i>KeyframeEase</i> objects	Outgoing temporal ease of the keyframe
<i>continuous</i>	boolean	Temporal interpolation set to

		continuous
--	--	------------

PropertyAnim object attributes

Describes the keyframe animation of a given property

See [Duik.utils.getPropertyAnim\(\)](#) and [See Duik.utils.setPropertyAnim\(\)](#)

PropertyAnim.name

PropertyAnim.keys

PropertyAnim.startValue

Name	Type	Description
<i>name</i>	string	Name of the animated Property
<i>keys</i>	Array of KeyFrames	Keyframes of the animation, see KeyFrame object attributes
<i>startValue</i>	Any AFX propertyValueType	First value of the animation. If there's no keyframe <code>PropertyAnim.keys.length == 0</code> , the value of the property.

MaskAnim object attributes

Describes all the keyframe animations of the properties of a given Mask

See [Duik.utils.getPropertyAnims\(\)](#)

MaskAnim.name

MaskAnim.anims

Name	Type	Description
<i>name</i>	string	Name of the animated Mask
<i>anims</i>	Array of PropertyAnim	Animations of the properties of the mask, see PropertyAnim object attributes

EffectAnim object attributes

Describes all the keyframe animations of the properties of a given Effect

See [Duik.utils.getPropertyAnims\(\)](#)

EffectAnim.name

EffectAnim.matchName

EffectAnim.anims

Name	Type	Description
<i>name</i>	string	Name of the animated Effect
<i>matchName</i>	string	matchName of the animated Effect

<i>anim</i>	Array of PropertyAnim	Animations of the properties of the effect, see <i>PropertyAnim object attributes</i>
--------------------	-----------------------	---

LayerAnim object attributes

Describes all the keyframe animations of the transformation, masks, and effects of a layer
See [*Duik.copyAnim\(\)*](#) and [*Duik.pasteAnim\(\)*](#)

LayerAnim.name

LayerAnim.index

LayerAnim.transformAnims

LayerAnim.effectsAnims

LayerAnim.masksAnims

Name	Type	Description
<i>name</i>	string	Name of the animated layer
<i>index</i>	string	Index of the animated layer
<i>transformAnims</i>	Array of PropertyAnim	Animations of the transformations, see <i>PropertyAnim object attributes</i>
<i>effectsAnims</i>	Array of EffectAnim	Animations of the effects, see <i>EffectAnim object attributes</i>
<i>masksAnims</i>	Array of MaskAnim	Animations of the masks, see <i>MaskAnim object attributes</i>

IKRig object attributes

Describe an IK created by Duik.

IKRig.type

IKRig.layer1

IKRig.layer2

IKRig.layer3

IKRig.goal

IKRig.controller

IKRig.threeD

IKRig.frontFacing

IKRig.clockWise

IKRig.created

Name	Type	Description
<i>type</i>	int	Type of the IK, either 1, 2, or 3. 0 if the IK is not valid.
<i>layer1</i>	AVLayer	First layer of the IK (the root, the top parent)
<i>layer2</i>	AVLayer or null	The second layer of the IK, if type is 2 or 3, or

		null if type is 1.
<i>layer3</i>	AVLayer or null	The third layer of the IK, if type is 3, or null if type is 1 or 2.
<i>goal</i>	AVLayer or null	A goal layer attached to the IK, or null
<i>controller</i>	AVLayer	The controller layer of the IK
<i>threeD</i>	boolean	true if this is a 3D IK (used for type 2 only)
<i>frontFacing</i>	boolean	true if the 3D layers face the front/back views, false if they face the right/left views.
<i>clockWise</i>	boolean	true if the IK bends clockwise. Used with type 2 and 3 only.
<i>created</i>	boolean	true if the IK has already been successfully created and exists in the comp.

IKRig object methods

IKRig.create()

Name	Description	Return
<i>create()</i>	Creates the rig in the comp	AVLayer, the zero created (if any) or null

IKRig.create()

Creates the IK Rig in the comp. Sets the created attribute to true if successful.

returns

AVLayer, the zero created (if any) or null.

PropertyDescription object attributes

Describes any property (useful to retrieve a property if the selection changes in the effects)

PropertyDescription.isEffect

PropertyDescription.index

PropertyDescription.depth

PropertyDescription.parentName

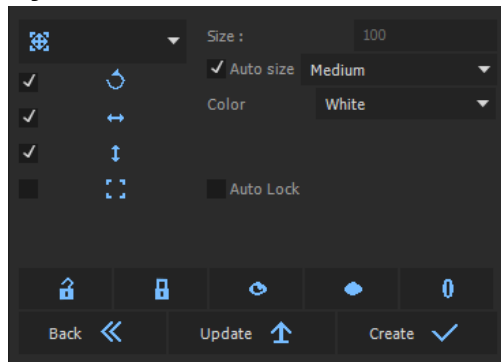
PropertyDescription.dimensions

PropertyDescription.canSetExpression

Name	Type	Description
<i>isEffect</i>	boolean	Property.parentProperty.isEffect
<i>index</i>	integer	Property.propertyIndex
<i>depth</i>	integer	Property.propertyDepth
<i>parentName</i>	string	Property.parentProperty.name

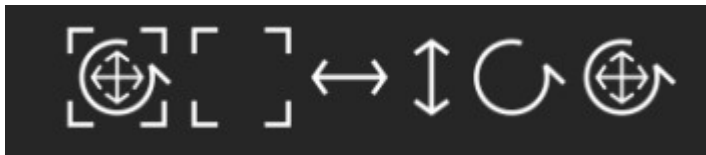
<i>dimensions</i>	integer	1, 2 or 3
<i>canSetExpression</i>	boolean	Property.canSetExpression

Controller object attributes



A controller created by Duik, which can have several shapes.







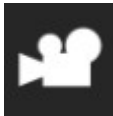
There are four transform shapes which can be combined:



And three special shapes:



Controller.locked
Controller.xPosition
Controller.yPosition
Controller.rotation
Controller.scale
Controller.arc
Controller.eye
Controller.layer
Controller.size
Controller.type
Controller.color

Name	Type	Description	Screenshot
<i>locked</i>	boolean	If true, transformation properties not controlled by the controller are locked with a simple expression, to prevent inadvertently changing them	
<i>xPosition</i>	boolean	If true, the X Position of the controller may be animated	
<i>yPosition</i>	boolean	If true, the Y Position of the controller may be animated	
<i>rotation</i>	boolean	If true, the Rotation of the controller may be animated	
<i>scale</i>	boolean	If true, the Scale of the controller may be animated	
<i>arc</i>	boolean	If true, the Rotation of the controller may be animated. The controller is displayed differently than with Controller.rotation, because its anchor point may be moved.	
<i>eye</i>	boolean	If true, the Position of the controller may be animated. The icon is an eye.	
<i>camera</i>	boolean	If true, the Position and rotation of the controller may be animated. The icon is a camera.	
<i>layer</i>	ShapeLayer	The controller layer	
<i>size</i>	float	The size of the controller (in % if type is <i>VECTOR</i> , pixels if type is <i>NULL</i>) Set to 0 to use Duik.settings.controllerSize	
<i>type</i>	integer	Enumerated value, one of: Duik.layerTypes.NULL Duik.layerTypes.VECTOR	
<i>color</i>	Array of floats [R,V,B,A]	The color of the controller	

Controller object methods

Controller.lock()
Controller.unlock()
Controller.update()

Name	Description	Return
<i>lock()</i>	Locks the transformation properties not controlled by the controller, to prevent inadvertently changing them	void
<i>unlock()</i>	Unlocks the previously locked transformation properties. Note that before parenting a controller, it should be unlocked.	void
<i>update()</i>	Updates the shape of the controller, if its properties have changed	void

TVPCamera object attributes

Describes a Camera imported from TVPaint

TVPCamera.points
TVPCamera.pointCount
TVPCamera.profileprof

Name	Type	Description
<i>points</i>	Array of <u><i>TVPCameraPoint</i></u>	The spatial keyframes of the camera animation
<i>pointCount</i>	integer	The number of spatial points of the camera
<i>profileprof</i>	<u><i>TVPPProfileprof</i></u>	The temporal interpolation of the camera

TVPCamera object methods

TVPCamera.createNull(comp, links)
TVPCamera.precompose(comp)
TVPCamera.applyToLayer(camLayer, links)

Name	Description	Return
<i>createNull(comp, links, useAnchorPoint)</i>	Creates a Null object representing the TVPaint Camera in the comp	void
<i>precompose(comp, useAnchorPoint)</i>	Precomposes all layers of the comp, and animates the resulting layer with the animation of the camera	void
<i>applyToLayer(camLayer, links, useAnchorPoint)</i>	Applies the animation of the camera to the given layer	void

TVPCameraPoint object attributes

A spatial keyframe of a camera from TVPaint

TVPCameraPoint.x

TVPCameraPoint.y

TVPCameraPoint.zoom

TVPCameraPoint.rotation

Name	Type	Description
<i>x</i>	float	X position
<i>y</i>	float	Y position
<i>zoom</i>	float	Zoom value (from 0.0 to 1.0 or more)
<i>rotation</i>	float	Rotation (degrees)

TVPProfileprof object attributes

A temporal interpolation from TVPaint

TVPProfileprof.points

TVPProfileprof.linear

TVPProfileprof.pointCount

Name	Type	Description
<i>points</i>	Array of <u><i>TVPProfileprofPoint</i></u>	Temporal keyframes
<i>linear</i>	boolean	Whether interpolation is linear or bezier
<i>pointCount</i>	integer	Number of temporal keyframes

TVPProfileprofPoint object attributes

A temporal keyframe from TVPaint

TVPProfileprofPoint.u

TVPProfileprofPoint.v

Name	Type	Description
<i>u</i>	float	Time coordinate of the key (from 0.0 to 1.0, 1.0 representing the end of the animation)
<i>v</i>	float	Value coordinate of the key (from 0.0 to 1.0, 1.0 representing the value of the last spatial point.

OnionSkin object attributes

Describes the onion skin used by Duik in the *cel animation* tool

OnionSkin.activated
OnionSkin.duration
OnionSkin.inOpacity
OnionSkin.outOpacity
OnionSkin.exposure

Name	Type	Description
<i>activated</i>	boolean	Whether the onion skin is displayed or not
<i>duration</i>	integer	The duration of the onion skin, in frames
<i>inOpacity</i>	float	The maximum opacity of the incoming onion skin
<i>outOpacity</i>	float	The maximum opacity of the outgoing onion skin
<i>exposure</i>	integer	The animation exposure, in frames

Duik

Duik Enumerated Values

Duik uses some predefined values to be simpler to use. Here are those values you can use with Duik settings, methods and attributes:

Name	Type	Value
Duik.sizes.SMALL	integer	0
Duik.sizes.MEDIUM	integer	1
Duik.sizes.BIG	integer	2
Duik.layerTypes.VECTOR	integer	2
Duik.layerTypes.NULL	integer	1
Duik.layerTypes.SOLID	integer	0
Duik.getLayers.INDEX	integer	0
Duik.getLayers.NAME	integer	1
Duik.getLayers.SELECTION_INDEX	integer	2
Duik.placement.TOP	integer	0
Duik.placement.BOTTOM	integer	1
Duik.placement.OVER_LAYER	integer	2
Duik.placement.UNDER_LAYER	integer	3
Duik.colors.WHITE	Array of floats	[1,1,1,1]
Duik.colors.RED	Array of floats	[1,0,0,1]
Duik.colors.GREEN	Array of floats	[0,1,0,1]
Duik.colors.BLUE	Array of floats	[0,0,1,1]
Duik.colors.CYAN	Array of floats	[0,1,1,1]
Duik.colors.MAGENTA	Array of floats	[1,0,1,1]
Duik.colors.YELLOW	Array of floats	[1,1,0,1]
Duik.colors.BLACK	Array of floats	[0,0,0,1]
Duik.colors.LIGHT_GRAY	Array of floats	[0.75,0.75,0.75,1]
Duik.colors.DARK_GRAY	Array of floats	[0.25,0.25,0.25,1]

Duik Attributes

string *Duik.version*

float *Duik.versionNumber*

boolean *Duik.forceReload*

boolean *Duik.usePresets*

string *Duik.presetPath*

float *Duik.presetEffectsInstalledVersion*

Name	Type	Description
<i>version</i>	string, read-only	Version string of libDuik
<i>versionNumber</i>	float, read-only	Version number of libDuik
<i>usePresets</i>	<i>boolean</i>	true to use presets instead of pseudo effects.
<i>presetPath</i>	<i>string</i>	Path where presets are located; By default, the path of <i>libDuik.jsxinc</i> itself.
<i>presetEffectsInstalledVersion</i>	float, read-only	Version number of installed pseudo effects. Should be the same of <i>Duik.versionNumber</i>
<i>copiedAnim</i>	Array of LayerAnim	The layer animations copied with <i>Duik.copyAnim()</i> method.

Duik Objects

Duik.uiString
Duik.settings
Duik.utils
Duik.setup
Duik.js
Duik.bridge

Name	Description
<i>uiStrings</i>	Contains all string names used by effects created by Duik. You can set these strings to translate libDuik at runtime. Default values are English names.
<i>settings</i>	Access to settings used by Duik.
<i>utils</i>	Some useful tools
<i>setup</i>	Methods and attributes to correctly install libDuik & pseudo effects.
<i>bridge</i>	Import / Export tools
<i>js</i>	General javascript tools

Duik Methods


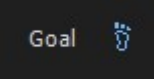
//TODO tri par ordre alphabétique

Low-level methods are listed below (greyed) but they are not documented.

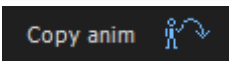
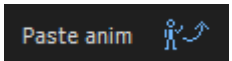
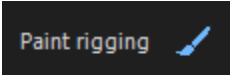
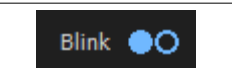
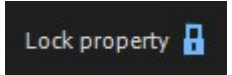
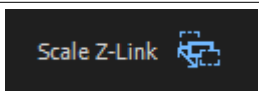
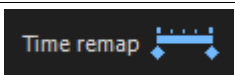
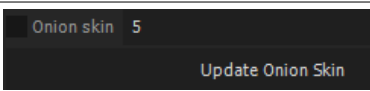
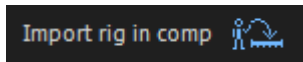
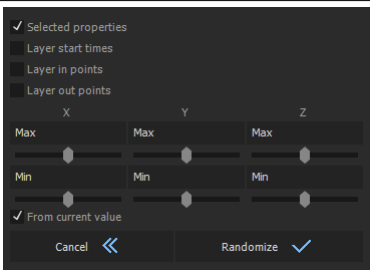
If you do not understand what low-level methods do by reading them in *libDuik.jsxinc*, you shouldn't need them.

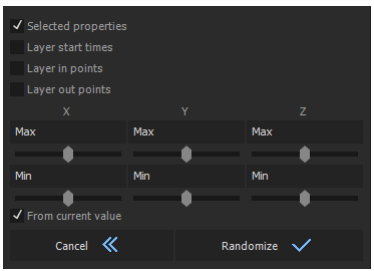
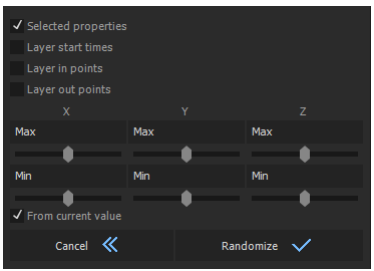
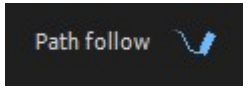
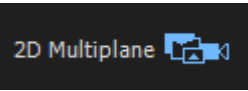
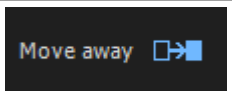
Duik.autoIK(layers, clockWise, frontFacing)
Duik.bezierIK(layers, numControllers)
Duik.goal(layer, controller)
Duik.addController(layer,color,rotation,xPosition,yPosition,scale,arc)
Duik.addControllers(layers,color,rotation,xPosition,yPosition,scale,arc)
Duik.oneLayerIK(controller,layer)

Duik.twoLayerIK(controller,root,end,clockWise,frontFacing)
 Duik.threeLayerIK(controller,root,middle,end,clockWise)
 Duik.wiggle(layer,property,separateDimensions)
 Duik.threeDWiggle(layer,property,)
 Duik.twoDWiggle(layer,property)
 Duik.oneDWiggle(layer,property)
 Duik.adaptativeExposure(layer,property,precision,minExp,maxExp)
 Duik.fixedExposure(layer,property)
 Duik.addBones(layers)
 Duik.addZero(layer)
 Duik.addZeros(layers)
 Duik.rotationMorph(layer,prop)
 Duik.swing(layer,prop)
 Duik.wheel(layer,radius,curved)
 Duik.morpher(layers)
 Duik.lensFlare(layers)
 Duik.distanceLink(layer, property, parentLayer)
 Duik.spring(property, simulated)
 Duik.copyAnim(layers, selectedKeysOnly, startTime, endTime)
 Duik.pasteAnim(layers, layerAnims, startTime, getLayerMethod)
 Duik.rigPaint(layers)
 Duik.blink(layer,prop)
 Duik.lockProperty(layer, prop)
 Duik.scaleZLink(layers)
 Duik.timeRemap(layers)
 Duik.onionSkin(layer,onionSkin)
 Duik.getOnionSkin(layer)
 Duik.importRigInComp(comp,rigComp,rigName)
 Duik.randomizeProperties(props,fromCurrentVal,xMin,xMax,yMin,yMax,zMin,zMax)
 Duik.randomizeStartTimes(layers,fromCurrentVal,min,max)
 Duik.randomizeInPoints(layers,fromCurrentVal,min,max)
 Duik.randomizeOutPoints(layers,fromCurrentVal,min,max)
 Duik.pathFollow(layer)
 Duik.multiplane(numLayers)
 Duik.moveAway(layer)
 Duik.groupPaint(props)

Name	Description	Return	Screenshot from Duik
autoIK(layers, clockWise, frontFacing)	Adds IK on the layers	IKRig object	
Duik.bezierIK(layers, numControllers)	Adds Bezier IK on the layers	Array of Controller objects	
goal(layer, controller)	Adds a goal effect to the layer, which may be controlled by a controller	true if successful, false if anything went wrong	
addController(layer,	Creates a null object	Controller object	

<i>autoLock, rotation, xPosition, yPosition, scale)</i>	(controller) at layer position and named by layer.name		
<i>addControllers(layers, autoLock, rotation, xPosition, yPosition, scale)</i>	For each layer, Creates a null object (controller) at layer position and named by layer.name	Array of Controller objects	
<i>wiggle(layer, property, separateDimensions)</i>	Adds a wiggle effect to given property	true if successful, false if anything went wrong	
<i>adaptativeExposure(layers, precision, minExp, maxExp, sync, layerSync)</i>	Adds exposure controls to the animation of the property.	true if successful, false if anything went wrong	
<i>fixedExposure(layer, prop)</i>	Adds exposure controls to the animation of the property.	true if successful, false if anything went wrong	
<i>addBones(layers)</i>	Adds bones to the layers	Array of AVLayer; bones	
<i>addZero(layer)</i>	Adds zero to the layer	AVLayer; zero	
<i>addZeros(layers)</i>	Adds zeros to the layers	Array of AVLayer; zeros	
<i>rotationMorph(layer, prop)</i>	Creates a rotation morph on the given property	true if successful, false if anything went wrong	
<i>swing(layer,prop)</i>	Creates a swing on the given property	true if successful, false if anything went wrong	
<i>wheel(layer, radius, curved)</i>	Automates the rotation of the given layer using its position	true if successful, false if anything went wrong	
<i>morpher(layers)</i>	Adds a slider to easily control interpolations of selected properties of the given layers.	true if successful, false if anything went wrong	
<i>lensFlare(layers)</i>	Rigs the layers to move like a lens flare.	true if successful, false if anything went wrong	
<i>distanceLink(layer, property, parentLayer)</i>	Links the property to the distance of parentLayer	true if successful, false if anything went wrong	
<i>spring(property, simulated)</i>	Adds a spring effect on the properties	true if successful, false if anything went wrong	

<i>copyAnim(layers, selectedKeysOnly, startTime, endTime)</i>	Copies the animation of the layers	Array of LayerAnim	
<i>pasteAnim(layers, layerAnims, startTime, getLayerMethod)</i>	Pastes the animations on the layers	int, the number of the layers on which an animation was pasted	
<i>rigPaint(layers)</i>	Rigs the paint effects to be able to animate all strokes as if there was only one.	Void	
<i>blink(layer, prop)</i>	Adds a blink effect to the property.	true if successful, false if anything went wrong	
<i>lockProperty(layer, prop)</i>	Locks the property with a simple expression.	void	
<i>scaleZLink(layers)</i>	Links the distance of the layer from the camera to its scale so its apparent size won't change.	void	
<i>timeRemap(layers)</i>	Activates the time remapping of the layers, extending them to the length of the comp and adjusting the last keyframe.	Void	
<i>onionSkin(layer, onionSkin)</i>	Activates or deactivates an onion skin on the paint effects of the layer.	void	
<i>Duik.getOnionSkin(layer)</i>	Gets current onion skin parameters from the layer. See <i>OnionSkin Object</i>	OnionSkin Object	
<i>importRigInComp(comp, rigComp, rigName)</i>	Imports a rig in the current comp (taking care of duplicates, expressions, controllers and adding a Master Controller to move, scale & flip the rig.	Void	
<i>randomizeProperties(props, fromCurrentVal, xMin, xMax, yMin, yMax, zMin, zMax)</i>	Randomizes the values of the properties.	void	

<i>randomizeStartTimes(layers, fromCurrentVal, min, max)</i>	Randomizes start times of the given layers.	void	
<i>randomizeInPoints(layers, fromCurrentVal, min, max)</i>	Randomizes in points of the given layers.	void	
<i>randomizeOutPoints(layers, fromCurrentVal, min, max)</i>	Randomizes out points of the given layers.	Void	
<i>pathFollow(layer)</i>	Rigs the rotation of a layer so it follows its path	Void	
<i>multiplane(numLayers)</i>	Creates null objects rigged to easily animate a 2D multiplane camera.	void	
<i>moveAway(layer)</i>	Rigs the layer to be able to move it away from its parent with a simple slider	void	
<i>groupPaint(props)</i>	Rigs the paint effects to be able to animate all brushes as if there was only one.	void	
<i>Duik.list(prop)</i>	Creates a list on the property	void	
<i>Duik.setExposure(layers, exposure)</i>	Sets the animation exposure on the selected props on the layers.	void	

Duik.autoIK(layers, clockWise, frontFacing)

Adds IK on the layers. Duik will attempt to autodetect each layer role, using

Duik.utils.prepIK(). If it can't (wrong parenting, wrong placement...) it will use the order of the layers in the Array or LayerCollection: first the layers, from end to root (from child to parent), last the controller.

parameters:

layers | Array of AVLayers or LayerCollection
clockWise | boolean, used only with two-layer and three-layer IK, default: false
frontFacing | boolean, default: false

returns

IKRig object created

Duik.bezierIK(layers, numControllers)

Adds Bezier IK on the layers. The layers in the Array must be in this order:
[end,middle1,...,middleN,root,endController,rootController]
numControllers defines the number of controllers to control the curvature (must be 1 or 2)

parameters:

layers | Array of AVLayers
numControllers | integer, default: 1

returns

Controller objects used to control the curvature

Duik.goal(layer, controller)

Adds a goal effect to the layer, which may be controlled by a controller

parameters:

layer | AVLayer
controller | AVLayer or undefined

returns

true if successful, false if anything went wrong

Duik.addController(layer, autoLock, rotation, xPosition, yPosition, scale)

Creates a null object (controller) at layer position and named by layer.name
If *Duik.settings.controllerType* is *Duik.layerTypes.VECTOR*, the parameters are used to draw a nice icon instead of using a null object.

If autoLock is true, the transformations which should not be changed are locked with a simple expression.

See *Controller object*.

parameters

layer | AVLayer
autoLock | boolean, default false
rotation | boolean, default true
xPosition | boolean, default true
yPosition | boolean, default true
scale | boolean, default false

returns

Controller object

Duik.addControllers(layers, autoLock, rotation, xPosition, yPosition, scale)

This is a convenience method, which runs Duik.addController() on each layer of the given array of layers.

parameters

layers | Array of AVLayer or LayerCollection
color | Array of 4 floats : [R,V,B,A], default [1,1,1,1]
autoLock | boolean, default false
rotation | boolean, default true
xPosition | boolean, default true
yPosition | boolean, default true
scale | boolean, default false
arc | boolean, default false

returns

Array of Controller objects

Duik.wiggle(layer, property, separateDimensions)

Adds a wiggle effect to given property.

parameters

layer | AVLayer of the property
property | Property
separateDimensions | boolean, false to apply the same wiggle to all dimensions,
default: false

returns

true if successful, false if anything went wrong

Duik.fixedExposure(layer,prop)

Adds exposure controls to the animation of the property.

parameters

layer | AVLayer
prop | Property

returns

true if successful, false if anything went wrong

Duik.adaptativeExposure(layers,precision,minExp,maxExp,sync,layerSync)

Adds exposure controls to the animation of the property. The exposure adapts automatically to the speed, according to the given precision, of the properties between a minimum and a maximum exposure (in frames).

parameters

layers | Array of AVLayer or LayerCollection
precision | integer, default: 100
minExp | integer, default: 1
maxExp | integer, default: 4
sync | boolean, wether to sync all properties, default: true
layerSync | boolean, wether to sync all layers, if sync == true, default: false

returns

true if successful, false if anything went wrong

Duik.addBones(layers)

Adds bones to the layers, only on selected pins if any, or else on all puppet pins found on those layers.

parameters

layers | Array of AVLayers

returns

Array of AVLayers, the bones created

Duik.addZero(layer)

Adds a null object for the layer, at the same place and orientation, and then parents the layer to it, parenting the null object (the zero) to the former parent of the layer.

parameters

layers | Array of AVLayers

returns

Array of AVLayers, the zeros created

Duik.addZeros(layers)

This is a convenience method, which runs Duik.addZero() on each layer of the given array of layers.

parameters

layers | Array of AVLayers or LayerCollection

returns

Array of AVLayers, the zeros created

Duik.rotationMorph(layer,prop)

Creates a rotation morph on the given property.

Parameters

layer | AVLayer

prop | Property

returns

true if successful, false if anything went wrong

Duik.swing(layer,prop)

Creates a swing on the given property

parameters

layer | AVLayer

prop | Property

returns

true if successful, false if anything went wrong

Duik.wheel(layer, radius, curved)

Automates the rotation of the given layer using its position.

If curved, works even if the trajectory is not horizontal, but is heavier to compute.

parameters

layer | AVLayer

radius | float, default 100.0

curved | boolean, default false

returns

true if successful, false if anything went wrong

Duik.morpher(layers)

Adds a "morpher", a slider to easily control interpolations of selected properties of the given layers.

parameters

layers | Array of AVLayer

returns

true if successful, false if anything went wrong

Duik.lensFlare(layers);

Rigs the layers to move like a lens flare. The first layer in the selection is the controller, with sliders for intensity and size; the other layers have a distance property to adjust their position along the lens flare.

parameters

layers | Array of AVLayer

returns

true if successful, false if anything went wrong

Duik.distanceLink(layer,property,parentLayer);

Links the property to the distance of parentLayer

parameters

layer | AVLayer containing the property

property | Property to rig

parentLayer | AVLayer which distance from layer is used to rig

returns

true if successful, false if anything went wrong

Duik.spring(property, simulated);

Adds a spring effect on the property

parameters

property | Property
layer | AVLayer containing the property
simulated | if true, applies the simulated version of the spring, default: false

returns

true if successful, false if anything went wrong

Duik.copyAnim(layers, selectedKeysOnly, startTime, endTime)

Copies all the animations as LayerAnim objects (except expressions) on selected layers, and store them in the Array Duik.copiedAnim.

If selectedKeysOnly is true, copies only the selected keyframes, otherwise all the masks, effects, and transformation properties will be copied, even if they are not animated (in this case, the value will be stored in the PropertyAnim.startValue). If you do not want to keep the properties without animation, you will have to loop through the arrays of PropertyAnim and check if `PropertyAnim.keys.length > 0` to remove empty animations from the Arrays.

See LayerAnim object

parameters

layers | Array or Collection of AVLayers
selectedKeysOnly | boolean, true to copy only selected keys, default: false
startTime | float, default: start of the comp
endTime | float, default: end of the comp

returns

Array of LayerAnim

Duik.pasteAnim(layers, layerAnims, startTime, getLayerMethod)

Pastes all the animations in the Array of LayerAnim on layers, using layer names or layer indexes, beginning at startTime

See LayerAnim object

parameters

layers | Layers where to paste the animation
layerAnims | Array of LayerAnim, default: Duik.copiedAnim
startTime | float, default: comp.time
getLayerMethod | one of Duik.getLayers.NAME, Duik.getLayers.INDEX, Duik.getLayers.SELECTION_INDEX, default: Duik.settings.getLayerMethod

returns

integer, number of layers on which animations were pasted

Duik.rigPaint(layers)

Rigs the paint effects to be able to animate all strokes as if there was only one.

parameters

layers | Array of AVLayers or LayerCollection

returns

void

Duik.blink(layer, prop)

Adds a blink effect to the property.

parameters

layer | AVLayer

prop | Property

returns

true if successful, false if anything went wrong

Duik.lockProperty(layer, prop)

Locks the property with a simple expression.

parameters

layer | AVLayer

prop | Property

returns

void

Duik.scaleZLink (layers)

Links the distance of the layer from the camera to its scale so its apparent size won't change. If multiple cameras, include the camera used in the array.

parameters

layers | Array of Layer or LayerCollection

returns

void

Duik.timeRemap(layers)

Activates the time remapping of the layers, extending them to the length of the comp and adjusting the last keyframe.

parameters

layers | Array of Layer or LayerCollection
loopType | String, "in" or "out" or "none", default: "none"

returns

void

Duik.onionSkin(layer, onionSkin)

Activates or deactivates an onion skin on paint effects on the layer.

Example:

```
var os = new OnionSkin();  
os.duration = 10;  
os.activated = true;  
Duik.onionSkin(layer,os);
```

See [OnionSkin Object](#)

parameters

layer | AVLayer
onionSkin | OnionSkin object

returns

void

Duik.getOnionSkin(layer)

Gets current onion skin parameters from the layer.

See [OnionSkin Object](#)

parameters

layer | AVLayer

returns

OnionSkin object

Duik.importRigInComp(comp, rigComp, rigName, progressBar, progressText, containingWindow)

Imports a rig in the comp, transferring and linking the controllers in the new comp, while keeping the rig precomposed.

The rig comp is duplicated, including precomps, renamed, and expressions are updated, so that one can import the same rig several times.

A Master Controller is created to move, scale and flip the imported rig.

All controllers created by Duik, and any layer which name begins with “C_” is considered a controller. The controllers should not be parented to any of the other layers, but they can be

parented to other controllers and have zeros.

Any controller without zero will have one automatically added, this is needed to link them from the composition with the rig to the one where it's imported.

parameters

comp | CompItem, the comp where to import the rig

rigComp | CompItem, the comp containing the rig

rigName | the name of this instance of the rig, must be unique in the project

returns

void

Duik.randomizeProperties(props, fromCurrentVal, xMin, xMax, yMin, yMax, zMin, zMax)

Randomizes the values of the properties.

Min and max values for each axis can be undefined: in this case, the axis won't be randomized.

parameters

props | Array of PropertyBase

fromCurrentVal | boolean, if true, min and max values are added to current property

value

returns

void

Duik.randomizeStartTimes(layers, fromCurrentVal, min, max)

Randomizes start times of the given layers.

Min and Max in seconds (comp time).

parameters

layers | Array of Layers or LayerCollection

fromCurrentVal | boolean, if true, min and max values are added to current start time

value

returns

void

Duik.randomizeInPoints(layers, fromCurrentVal, min, max)

Randomizes in points of the given layers.

Min and Max in seconds (comp time).

parameters

layers | Array of Layers or LayerCollection

fromCurrentVal | boolean, if true, min and max values are added to current in point

value

returns

void

Duik.randomizeOutPoints(layers, fromCurrentVal, min, max)

Randomizes out points of the given layers.
Min and Max in seconds (comp time).

parameters

layers | Array of Layers or LayerCollection

fromCurrentVal | boolean, if true, min and max values are added to current out point

value

returns

void

Duik.pathFollow(layer)

Automates the rotation of the layer so it follows its path.

parameters

layer | AVLayer

returns

void

Duik.multipane(numLayers)

Creates null objects rigged to easily animate a 2D multipane camera.

parameters

numLayers | integer, number of layers to create, default: 3

returns

void

Duik.moveAway(numLayer)

Rigs the position of the layer to be able to move it away from its parent with a simple slider.

parameters

layer | AVLayer

returns

void

Duik.groupPaint(props)

Rigs the paint effects to be able to animate all brushes as if there was only one.

parameters

props | Array of Properties (the brushes to rig)

returns

void

Duik.list(prop)

Creates a list on the prop.

parameters

prop | Property

returns

void

Duik.setExposure(layers,exposure)

Sets the animation exposure on the selected props on the layers.

If the exposure is not provided, the function will use `Duik.detectedExposure`, the exposure detected using `Duik.utils.getFootageExposure`

parameters

layers | Array of AVLayer or LayerCollection

exposure | Array of float, the times where a keyframe must be added, default:

`Duik.detectedExposure`

returns

void

Duik.setup

Methods and attributes to correctly install libDuik & pseudo effects.

Duik.setup Attributes

Duik.setup.presetEffects

Name	Type	Description
<i>presetEffects</i>	string	The XML (as string object) to insert just before <code></effects></code> in After Effects <i>presetEffects.xml</i> to correctly install libDuik pseudo effects. This includes the version of libDuik as an XML comment, which can be checked by <i>Duik.setup.checkPresetEffectsVersion</i> to ensure libDuik has been correctly installed.

Duik.setup Methods

Duik.setup.installPseudoEffects()

Duik.setup.checkPresetEffectsVersion()

Name	Description	Return
<i>installPseudoEffects()</i>	Automatically install pseudo effects in After Effects <i>presetEffects.xml</i>	void
<i>checkPresetEffectsVersion()</i>	Checks the version of installed libDuik pseudo effects, stored in <i>Duik.presetEffectsInstalledVersion</i>	void

Duik.setup.installPseudoEffects()

Tries to Automatically install pseudo effects in After Effects *presetEffects.xml*.

The installation can be checked with *Duik.checkPresetEffectsVersion()*, en then comparing *Duik.presetEffectsInstalledVersion* with *Duik.versionNumber*.

Example:

```
//install
Duik.installPseudoEffects();

//check
Duik.checkPresetEffectsVersion();

if (Duik.presetEffectsInstalledVersion != Duik.versionNumber) {
    //do something
} else {
    //continue loading your script
}
```

parameters:

none

returns

void

Duik.setup.checkPresetEffectsVersion()

Checks the version of installed libDuik pseudo effects, stored in *Duik.presetEffectsInstalledVersion*.

See ***Duik.setup.installPseudoEffects()*** for an example.

parameters:

none

returns

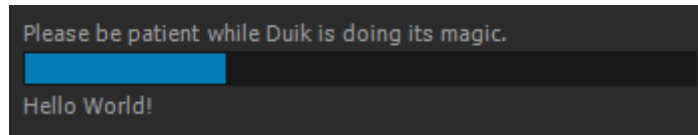
void

Duik.ui

Contains attributes and methods to manipulate some user interface objects (progress bar, alerts...) displayed by libDuik

Duik.ui ScriptUI Objects

Duik.ui.progressPanel
Duik.ui.progressGroup
Duik.ui.progressBar
Duik.ui.progressStatus



Name	Type	Description
<i>progressPanel</i>	Window	Window containing the progress bar and status of libDuik
<i>progressGroup</i>	Group	The group in the Window <i>progressPanel</i> , used for the layout of child elements of the window.
<i>progressBar</i>	ProgressBar	The ProgressBar used by libDuik
<i>progressStatus</i>	StaticText	The text displayed behind the <i>progressBar</i>

Duik.ui Methods

Duik.ui.updateProgressPanel (val,status)
Duik.ui.showProgressPanel (maxVal,status)
Duik.ui.hideProgressPanel ()

Name	Description	Return
<i>updateProgressPanel (val, status)</i>	Updates the progress panel.	Void
<i>showProgressPanel (maxVal, status)</i>	Initializes and displays the progress panel.	Void
<i>hideProgressPanel ()</i>	Hides the progress panel.	Void

Duik.ui.updateProgressPanel (val,status)

Updates the progress panel, setting the value of the progress bar and the text of the status.

parameters:

val | integer, the value of the progress bar
status | string, the text to display behind the progress bar

returns

void

Duik.ui. showProgressPanel (maxVal,status)

First, initializes the progress panel, setting the max value of the progress bar and the text to display behind it, then displays it.

parameters:

maxVal | integer, the max value of the progress bar
status | string, the text to display behind the progress bar

returns

void

Duik.ui. hideProgressPanel ()

Hides the progress panel.

returns

void

Duik.uiStrings

Contains all string names used by effects created by Duik.
You can set these strings to translate libDuik at runtime.
Default values are English names.

Duik.uiStrings Attributes

Duik.uiStrings.ik
Duik.uiStrings.ikDirection
Duik.uiStrings.ikLimit
Duik.uiStrings.wiggle
Duik.uiStrings.exposure
Duik.uiStrings.rotMorph
Duik.uiStrings.swing
Duik.uiStrings.wheel
Duik.uiStrings.lensFlare
Duik.uiStrings.distanceLink
Duik.uiStrings.spring
Duik.uiStrings.paintRig
Duik.uiStrings.flip
Duik.uiStrings.moveAway
Duik.uiStrings.multiplane
Duik.uiStrings.camInfluence

Name	Type	Default
<i>ik</i>	string	"IK"
<i>ikDirection</i>	string	"IK Direction"
<i>ikLimit</i>	string	"IK Limit"
<i>wiggle</i>	string	"Wiggle"
<i>exposure</i>	string	"Exposure"
<i>rotMorph</i>	string	"Rotation Morph"
<i>swing</i>	string	"Swing"
<i>wheel</i>	string	"Wheel"
<i>lensFlare</i>	string	"Lens Flare"
<i>distanceLink</i>	string	"Distance Link"
<i>spring</i>	string	"Spring"
<i>paintRig</i>	string	"Paint Rig"
<i>flip</i>	string	"Flip"
<i>moveAway</i>	string	"Distance from parent"
<i>multiplane</i>	string	"Multiplane"
<i>camInfluence</i>	string	"Camera Influence"

Duik.settings

Access to settings used by Duik.

Duik.settings Attributes

These attributes define some settings and preferences needed by Duik.

If you set them, they can be saved to be reloaded even if After Effects is shutdown, using *Duik.settings.save()*. If this method is not called, the settings will be set back to previous values if After Effects is shut down.

Saved settings must be loaded at runtime calling *Duik.settings.load()*.

Default values can be restored using *Duik.settings.restoreDefaults()*.

Duik.settings.controllerSize

Duik.settings.controllerType

Duik.settings.controllerSizeAuto

Duik.settings.controllerSizeHint

Duik.settings.boneType

Duik.settings.boneSize

Duik.settings.boneSizeAuto

Duik.settings.boneSizeHint

Duik.settings.boneColor

Duik.settings.morpherCreatesKeyframes

Duik.settings.getLayersMethod

Duik.settings.bonePlacement

Duik.settings.ctrlPlacement

Duik.settings.controllerColor

Name	Type	Description	Default
<i>controllerSize</i>	integer	Size of controllers in pixels	100
<i>controllerType</i>	integer	Enumerated value, one of: Duik.layerTypes.NULL Duik.layerTypes.VECTOR	Duik.layerTypes.VECTOR
<i>controllerSizeAuto</i>	boolean	If true, controller sizes will be automatically adapted to comp size, according to <i>Duik.settings.controllerSizeHint</i>	true
<i>controllerSizeHint</i>	integer	Enumerated value, one of: Duik.sizes.SMALL Duik.sizes.MEDIUM Duik.sizes.BIG	Duik.sizes.MEDIUM
<i>boneType</i>	integer	Enumerated value, one of: Duik.layerTypes.NULL Duik.layerTypes.SOLID	Duik.layerTypes.SOLID
<i>boneSize</i>	integer	Size of bones in pixels	20
<i>boneSizeAuto</i>	boolean	If true, bone sizes will be automatically adapted to comp	true

		size, according to <i>Duik.settings.boneSizeHint</i>	
<i>boneSizeHint</i>	integer	Enumerated value, one of: Duik.sizes.SMALL Duik.sizes.MEDIUM Duik.sizes.BIG	Duik.sizes.MEDIUM
<i>boneColor</i>	string	Hex value of the color of the bones, excluding the leading « # »	« FF0000 »
<i>morpherCreatesKeyframes</i>	boolean	If true, morpher will automatically create keyframes for each keyframe of the controlled properties	True
<i>getLayersMethod</i>	boolean	The method used to get layers (i.e. when pasting an animation) Enumerated value, one of: Duik.getLayers.NAME Duik.getLayers.INDEX Duik.getLayers.SELECTION_INDEX	Duik.getLayers.NAME
<i>bonePlacement</i>	integer	The placement of the bones in the comp. Enumerated value, one of: Duik.placement.TOP Duik.placement.BOTTOM Duik.placement.OVER_LAYER Duik.placement.UNDER_LAYER	Duik.placement.OVER_LAYER
<i>ctrlPlacement</i>	integer	The placement of the controllers in the comp. Enumerated value, one of: Duik.placement.TOP Duik.placement.BOTTOM Duik.placement.OVER_LAYER Duik.placement.UNDER_LAYER	Duik.placement.TOP
<i>controllerColor</i>	Array of integer	The color of the controllers, [R,G,B,A] or one of: Duik.colors.WHITE Duik.colors.RED Duik.colors.GREEN Duik.colors.BLUE Duik.colors.CYAN Duik.colors.MAGENTA Duik.colors.YELLOW Duik.colors.BLACK Duik.colors.LIGHT_GRAY Duik.colors.DARK_GRAY	Duik.colors.WHITE [1,1,1,1]

Duik.settings Methods

Duik.settings.save()

Duik.settings.load()

Duik.settings.restoreDefaults()

Name	Description	Return
<i>save()</i>	Saves Duik settings into After Effects preferences	void
<i>load()</i>	Loads Duik settings from After Effects preferences	void
<i>restoreDefaults()</i>	Restore default values to Duik settings	void

Duik.settings.save()

Saves Duik settings attributes into After Effects preferences (using `app.settings.saveSetting()`)

Those settings can be loaded when the script runs using *Duik.settings.load()*. This allows to easily restore the settings set by the user even if After Effects is shut down.

parameters:

none

returns

void

Duik.settings.load()

Loads Duik settings attributes from After Effects preferences (using `app.settings.getSetting()`)

This allows to easily restore the settings set by the user even if After Effects is shut down. If this method is not called at runtime, default values will be loaded at first run.

parameters:

none

returns

void

Duik.settings.restoreDefaults()

Restore default values to Duik settings. These values will not be saved until `Duik.settings.save()` is called.

parameters:

none

returns

void

Duik.bridge

Tools for importing/exporting to/from After Effects.

Duik.bridge.tvPaint

Tools to import and export assets from/to TvPaint

Duik.bridge.tvPaint Methods

Duik.bridge.tvPaint.parseCam(camString)

Duik.bridge.tvPaint.loadCamFile(camFile)

Name	Description	Return
<i>parseCam(camString)</i>	Parses a string representing a camera exported from TVPaint.	<u><i>TVPCamera</i></u> object
<i>loadCamFile(camFile)</i>	Loads and parses a camera exported from TVPaint	<u><i>TVPCamera</i></u> object

Duik.bridge.tvPaint.parseCam(camString)

Parses a string representing a camera exported from TVPaint, with its animation.

parameters:

camString | the string to parse

returns

TVPCamera, see *TVPCamera Object*

Duik.bridge.tvPaint.loadCamFile(camFile)

Loads and parses a file representing a camera exported from TVPaint, with its animation.

parameters:

camFile | javascript File object to load

returns

TVPCamera, see *TVPCamera Object*

Duik.js

General javascript related tools.

Duik.js Methods

Duik.js.escapeRegExp(string)

Duik.js.replaceAll(string, find, replace, caseSensitive)

Duik.js.random(min, max)

Duik.js.indexOfStringInArray(array, string)\$

Duik.js.arrayHasDuplicates

Name	Description	Return
<i>escapeRegExp(string)</i>	Escapes all regular expressions special characters in the given string	string
<i>replaceAll(string, find, replace, caseSensitive)</i>	Replaces all occurrences of <i>find</i> by <i>replace</i> in the given string	string
<i>random(min, max)</i>	Random number between min and max	float
<i>indexOfStringInArray(array, string)</i>	Gets the index of the given string in the array, -1 if not found	integer
<i>arrayHasDuplicates(array)</i>	Checks if the array has duplicate items	boolean

Duik.js.escapeRegExp(string)

Escapes all regular expressions special characters in the given string.

parameters:

string | string

returns

string, the modified string.

Duik.js.replaceAll(string, find, replace, caseSensitive)

Replaces all occurrences of *find* by *replace* in the given string.

parameters:

string | string to modify

find | string to search

replace | string, replacement

caseSensitive | boolean, whether to perform a caseSensitive search

returns

string, the modified string.

Duik.js.random(min, max)

Random number between min and max

parameters:

min | float or integer, the minimum value

max | float or integer, the maximum value

returns

float, the random number.

Duik.js.indexOfStringInArray(array, string)

Gets the index of the given string in the array, -1 if not found

parameters:

array | Array of string

string | string

returns

integer

Duik.js.arrayHasDuplicates(array)

Checks if the array has duplicate items

parameters:

array | Array

returns

boolean

Duik.utils

Some useful methods.

Duik.utils Methods

Duik.utils.prepareProperty(property,isFX,index,depth,parentName)
Duik.utils.getPropertyDimensions(property)
Duik.utils.getLength(value1,value2)
Duik.utils.getAverageSpeed(layer,property)
Duik.utils.addPseudoEffect(layer,pseudoEffectName)
Duik.utils.getPuppetPins(effects)
Duik.utils.getDistance(layer1,layer2)
Duik.utils.rigProperty(layer,prop,pseudoEffect)
Duik.utils.deselectLayers()
Duik.utils.checkNames(comp)
Duik.utils.getItem(items, itemIndex)
Duik.utils.getKey(prop, keyIndex)
Duik.utils.getPropertyAnims(prop, selectedKeysOnly, allKeys, startTime, endTime)
Duik.utils.getPropertyAnim(prop, selectedKeysOnly, allKeys, startTime, endTime)
Duik.utils.setPropertyAnim(prop, propAnim, startTime, ignoreName)
Duik.utils.addKey(prop,key, startTime)
Duik.utils.getFirstKeyTime(prop)
Duik.utils.hasSelectedKeys(prop)
Duik.utils.convertCollectionToArray(collection)
Duik.utils.prepIK(layers)
Duik.utils.getControllers(layers)
Duik.utils.getAverageSpeeds(layers)
Duik.utils.replaceInExpressions(prop,oldString,newString)
Duik.utils.replaceInLayersExpressions(layers, oldString, newString)
Duik.utils.renameLayer(layer, newName, updateExpressions)
Duik.utils.renameItem(item, newName, updateExpressions)
Duik.utils.layersHaveSelectedKeys(layers)
Duik.utils.renameEffect(effect,name)
Duik.utils.getFootageExposure(layer, accuracy, tolerance, r, g, b, a)
Duik.utils.addEffect(layer,effectMatchName)
Duik.utils.getLayerByName(layers, name)
Duik.utils.getLayerByNames(layers, names)
Duik.utils.getLayersByName(layers, name)
Duik.utils.getLayersByNames(layers, names)
Duik.utils.sortByDistance(layers, from)
Duik.utils.getWorldPos(layer)

Name	Description	Return
<i>prepareProperty(property, isFX, index, depth, parentName)</i>	Prepares property to be rigged	true if property can set expression, false otherwise
<i>getPropertyDimensions(property)</i>	Gets the dimensions of the property (1, 2 or 3), taking care of 2D layer positions (reported	integer, number of dimensions

	as 3D by AFX, but to be considered as 2D)	
<i>getLength(value1, value2)</i>	Gets the length between the values, whichever dimensions they are	float, length between the values
<i>getAverageSpeed(layer, property)</i>	Gets the average speed of the animated property, between its first and last keyframe only	float, average speed of the property
<i>addPseudoEffect(layer, pseudoEffectName)</i>	Adds a Duik predefined pseudo effect to the layer	Property, the effect added
<i>getDistance(layer1, layer2)</i>	Measure distance between two layers	integer, distance between layers, in pixels
<i>getPuppetPins(effects)</i>	Gets all puppet pins from a layer effects	Array of Properties, all puppet pins found
<i>rigProperty(layer, prop, pseudoEffect)</i>	Performs some checks on the property and adds a pseudo effect on the layer	Property, the effect added
<i>deselectLayers()</i>	Deselects all layers	Void
<i>checkNames(comp)</i>	Checks for duplicate names among the layers of the comp, renaming them if found.	true if any layer was renamed
<i>getItem(items, itemIndex)</i>	Gets the item as if it were in a 0-based indexed Array, even if it is in a 1-based indexed Collection	Object, the item
<i>getKey(prop, keyIndex)</i>	Gets the keyframe at keyIndex on the property	KeyFrame object
<i>getPropertyAnims(prop, selectedKeysOnly, allKeys, startTime, endTime)</i>	Gets the keyframe animations on the child properties of the prop, if it's a PropertyGroup (recursive), or the animation of the prop if it's a Property	Array of PropertyAnim objects
<i>getPropertyAnim(prop, selectedKeysOnly, allKeys, startTime, endTime)</i>	Gets the keyframe animation of the Property	PropertyAnim object
<i>setPropertyAnim(prop, propAnim, startTime, ignoreName)</i>	Sets the animation on the property	boolean, true if succeeded
<i>addKey(prop, key, startTime)</i>	Adds a keyframe on the property	void
<i>getFirstKeyTime(prop)</i>	Gets the time of the first key on the property	float, time of the keyframe
<i>hasSelectedKeys(prop)</i>	Checks if the properties has keyframes which are selected	Boolean
<i>convertCollectionToArray(collection)</i>	Converts the given Collection	Array

	to an array. If the parameter is already an Array, returns a copy of it.	
<i>prepIK(layers)</i>	Creates an <i>IKRig</i> object, automatically detecting each layer usage.	IKRig object
<i>getControllers(layers)</i>	Gets the controllers created by Duik found in the Array or Collection	Array of Controller objects
<i>getAverageSpeeds(layers)</i>	Gets the average variation speed of the selected properties in the layers	float, average speed
<i>replaceInLayersExpressions(layers, oldString, newString)</i>	Replaces all occurrences of oldString by newString in all the expressions of all the layers.	void
<i>renameLayer(layer, newName, updateExpressions)</i>	Renames the layer, updating expressions in all the compositions of the project	void
<i>renameItem(item, newName, updateExpressions)</i>	Renames the item, updating expressions in all the compositions of the project, if the item is a CompItem	void
<i>layersHaveSelectedKeys(layers)</i>	Checks if there are selected animation keyframes on the layers	boolean
<i>renameEffect(effect, name)</i>	Renames the effect, making sure there are not two effects that share the same name on the layer	void
<i>getFootageExposure(layer, accuracy, tolerance, r, g, b, a)</i>	Gets the animation exposure of the footage	Array of float
<i>Duik.utils.addEffect(layer, effectMatchName)</i>	Adds a pseudo effect from Duik on the layer	Property
<i>getLayerByName(layers, name)</i>	Gets the first layer which name contains the given name	Layer
<i>getLayerByNames(layers, names)</i>	Gets the first layer which name contains one of the given names	Layer
<i>getLayersByName(layers, name)</i>	Gets all the layer which names contain one of the given names	Array of Layer
<i>getLayersByNames(layers, names)</i>	Gets all the layers which names contain one of the given names	Array of Layer
<i>sortByDistance(layers, from)</i>	Sorts and returns the Array of	Array of Layer

	layers depending on their distance from a given layer	
<i>Duik.utils.getWorldPos(layer)</i>	Gets the world position of the layer	Array of float

Duik.utils.prepareProperty(property,isFX,index,depth,parentName)

Prepare the given property to be rigged.

isFX, index, depth, parentName will be filled by the method with the values corresponding to this property.

parameters:

property | Property
isFX | boolean
index | integer
depth | integer
parentName | string

returns

true if property can set expression, false otherwise

Duik.utils.getPropertyDimensions(property)

Gets the dimensions of the property (1, 2 or 3), taking care of 2D layer positions (reported as 3D by AFX, but to be considered as 2D)

parameters:

property | Property

returns

integer, number of dimensions

Duik.utils.getLength(value1, value2)

Gets the length between the values, whichever dimensions they are

parameters:

value1 | float or Array of float, first coordinates
value2 | float or Array of float, second coordinates

returns

float, length between the values

Duik.utils.getAverageSpeed(layer, property)

Gets the average speed of the animated property, between its first and last keyframe only.

parameters:

layer | AVLayer of the property
property | Property

returns

float, average speed of the property

Duik.utils.addPseudoEffect(layer, pseudoEffectFileName)

Adds a Duik predefined pseudo effect to the layer. The AFX preset file of the pseudo effect must be located in the same folder as libDuik.jsxinc and called « Duik_ » + pseudoEffectName + « .ffx ».

In the preset, the effect must be called pseudoEffectName.

parameters:

layer | AVLayer
pseudoEffectFileName | string, name of the file of the pseudo effect

returns

Property, the effect added

Duik.utils.getPuppetPins(effects)

Recursive method to find all puppet pins on a given layer, even if there is more than one puppet effect. You must provide the effects PropertyGroup of the layer.

Example : var pins = Duik.utils.getPuppetPins(app.project.activeItem.layer(1)(« Effects »);

parameters:

effects | PropertyGroup, the effects group of a layer

returns

Array of Property, the puppet pins

Duik.utils.getDistance(layer1, layer2)

Measures distance between two layers, in pixels.

parameters:

layer1 | AVLayer
layer2 | AVLayer

returns

integer, distance in pixels

Duik.utils.rigProperty(layer, prop, pseudoEffect)

Performs some checks on the property and adds a pseudo effect on the layer.

The AFX preset file of the pseudo effect must be located in the same folder as libDuik.jsxinc and called « Duik_ » + pseudoEffectName + « .ffx ».

In the preset, the effect must be called pseudoEffectName.

parameters:

layer | AVLayer
prop | Property
pseudoEffect | file name of the pseudo effect

returns

PropertyGroup, the effect added

Duik.utils.deselectLayers()

Deselects all layers

returns

void

Duik.utils.checkNames(comp)

Checks for duplicate names among the layers of the comp, renaming them if found. This method is called everytime libDuik creates an effect which involves expressions and more than one layer, to avoid any bug with expressions linking to wrong layers.

parameters:

comp | CompItem where are the layers which must be checked. Default:
app.project.activeItem

returns

true if any layer was renamed, false otherwise.

Duik.utils.getItem(items, itemIndex)

After effects sometimes uses its own Collection class, which is very similar to Arrays, but the first element of a Collection is at index 1 instead of 0 as in an Array.

This can make it difficult to write functions which will work both on Array or Collections. Example:

```
function doSomethingOnLayers(layers) {  
  for (i = 0 ; i < layers.length ; i++) {
```

```

        var layer = layers[i];
        //do something
    }
}

//will work correctly, as selectedLayers is an Array beginning at index 0
doSomethingOnLayers(app.project.activeItem.selectedLayers);

//will not work, as layers is a LayerCollection beginning at index 1
doSomethingOnLayers(app.project.activeItem.layers);

```

This method makes it possible to get an item both for an Array or a Collection, without knowing which type is given.

```

function doSomethingOnLayers(layers) {
    for (i = 0 ; i < layers.length ; i++) {
        var layer = Duik.utils.getItem(layers,i);
        //do something
    }
}

//both will work correctly
doSomethingOnLayers(app.project.activeItem.selectedLayers);
doSomethingOnLayers(app.project.activeItem.layers);

```

parameters:

items | Array or Collection
 itemIndex | int, index where the item must be found

returns

Object, the item at itemIndex in items.

Duik.utils.getKey(prop, keyIndex)

Gets the keyframe at keyIndex on the property
 see [KeyFrame object](#)

parameters:

prop | Property
 keyIndex | int

returns

KeyFrame object

Duik.utils.getPropertyAnims(prop, selectedKeysOnly, allKeys, startTime, endTime)

Gets the keyframe animations on the child properties of the prop, if it's a PropertyGroup (recursive), or the animation of the prop if it's a Property, beginning at startTime and ending at endTime.

This is a recursive method.

see [PropertyAnim object](#)

parameters:

prop | PropertyBase
selectedKeysOnly | boolean
allKeys | boolean, if true get all keyframes, ignoring startTime and endTime
startTime | float, default: 0s
endTime | float, default: 23000s

returns

Array of PropertyAnim objects

Duik.utils.getPropertyAnim(prop, selectedKeysOnly, allKeys, startTime, endTime)

Gets the keyframe animation of the Property

This is not a recursive method (it won't check child properties); see

[Duik.utils.getPropertyAnims\(\)](#) for the recursive method.

see [PropertyAnim object](#)

parameters:

prop | Property
selectedKeysOnly | boolean
allKeys | boolean, if true get all keyframes, ignoring startTime and endTime
startTime | float, default: 0s
endTime | float, default: 23000s

returns

PropertyAnim object

Duik.utils.setPropertyAnim(prop, propAnim, startTime, ignoreName)

Sets the animation on the property, beginning at startTime

see [PropertyAnim object](#)

parameters:

prop | PropertyBase
propAnim | PropertyAnim object
startTime | float, default: 0s
ignoreName | boolean, if true set anim on the property without checking its name

first. Default: false

returns

boolean, true if succeeded.

Duik.utils.addKey(prop, key, startTime)

Adds a keyframe on the property. You can offset the time by setting startTime see [KeyFrame object](#)

parameters:

prop | PropertyBase
key | KeyFrame object
startTime | float, default: 0

returns

void

Duik.utils.getFirstKeyTime(prop)

Gets the time of the first key on the property.

parameters:

prop | Property

returns

float

Duik.utils.hasSelectedKeys(prop)

Checks if the properties has keyframes which are selected.

parameters:

prop | Property

returns

boolean

Duik.utils.convertCollectionToArray(collection)

Converts the given Collection to an array. If the parameter is already an Array, returns a copy of it.

parameters:

collection | Collection or Array

returns

Array

Duik.utils.prepIK(layers)

Creates an IKRig object, automatically detecting each layer usage.

The detection checks the hierarchy of the layers to find each layer usage.

If the detection fails, the IKRig object is created using the order of the layers in the Array or LayerCollection: the first are the layers, beginning by the last child, the last one is the controller.

Goal layers are detected by measuring the distance between the last child of the chain and the controller: goal layers and controllers should be at the same place.

See IKRig object.

parameters:

layers | Array of AVLayers or LayerCollection

returns

IKRig object

Duik.utils.getControllers(layers)

Gets the controllers created by Duik found in the Array or LayerCollection. If the Array or the LayerCollection are empty, or if not provided, gets the controllers found in the active comp.

See Controller object.

parameters:

layers | Array of AVLayers or LayerCollection

returns

Array of Controller objects.

Duik.utils.getAverageSpeed(layers)

Gets the average variation speed of the selected properties in the layers.

parameters:

layers | Array of AVLayers or LayerCollection

returns

float, the average speed.

Duik.utils.replaceInLayersExpressions(layers, oldString, newString)

Replaces all occurrences of oldString by newString in all the expressions of all the layers.

parameters

layers | Array of AVLayers or LayerCollection
oldString | string
newString | string

returns

void

Duik.utils.renameLayer(layer, newName, updateExpressions)

Renames the layer, updating expressions in all the compositions of the project.

parameters

layer | Layer
newName | string
updateExpressions | boolean, default: true

returns

void

Duik.utils.renameItem(item, newName, updateExpressions)

Renames the item, updating expressions in all the compositions of the project if the item is a CompItem

parameters

item | Item
newName | string
updateExpressions | boolean, default: true

returns

void

Duik.utils.layersHaveSelectedKeys(layers)

Checks if there are selected animation keyframes on the layers.

layers | Array of Layers or LayerCollection

returns

boolean

Duik.utils.renameEffect(effect, name)

Renames the effect, making sure there are not two effects that share the same name on the layer

effect | PropertyGroup
name | String

returns

void

Duik.utils.getFootageExposure(layer, accuracy, tolerance, r, g, b, a)

Gets the animation exposure from a footage. The accuracy influences the speed of the detection.

parameters

layer | AVLayer
accuracy | float from 0.0 to 100.0, default: 50
tolerance | float from 0.0 to 100.0, default: 10
r | boolean, default: true
g | boolean, default: true
b | boolean, default: true
a | boolean, default: false

returns

Array of float, the times when the animation changes

Duik.utils.stepSelectedProperties(layers)

Changes the keyframes of the selected properties to hold.

Parameters

layers | Array of Layers or LayerCollection

returns

void

Duik.utils.addEffect(layer, effectMatchName)

Adds a pseudo effect from Duik on the layer

parameters

layer | AVLayer
effectMatchName | string

returns

Property, the effect added

Duik.utils.getLayerByName(layers, name)

Gets the first layer which name contains the given name

parameters
layers | Array of Layer or LayerCollection
name | string

returns
Layer

getLayerByNames(layers, names)

Gets the first layer which name contains one of the given names

parameters
layers | Array of Layer or LayerCollection
names | Array of string

returns
Layer

getLayersByName(layers, name)

Gets all the layer which names contain one of the given names

parameters
layers | Array of Layer or LayerCollection
name | string

returns
Array of Layer

getLayersByNames(layers, names)

Gets all the layers which names contain one of the given names

parameters
layers | Array of Layer or LayerCollection
names | Array of string

returns
Array of Layer

Duik.utils.sortByDistance(layers, from)

Sorts and returns the Array of layers depending on their distance from a given layer

parameters
layers | Array of Layer or LayerCollection
from | Layer

returns
Array of Layer

Duik.utils.getWorldPos(layer)

Gets the world position of the layer

parameters

layer | Layer

returns

Array of float, [X,Y,Z]

Duik.autorig

This is the object used to automatically rig a lot of different animals.

All methods are available in their corresponding objects, but there are aliases to make them easier to use.

Example

```
Duik.autorig.vertebrate.digitigrade
```

is equivalent to:

```
Duik.autorig.digitigrade
```

All methods are used the same way: you only have to provide the needed and optionnal layers (the anchor points must be correctly placed); the methods return the Controller objects created.

In this documentation, needed layers are shown **bold**, other layers are optionnal and can be *undefined* or *null*.

Duik.autorig.vertebrate

spine(**hips**,**spine**,*neck*,**head**)

hips OR *spine* are needed.

head is needed.

Spine and *neck* are Arrays of Layer. The order must be: from the head to the hips.

Aliases:

Duik.autorig.vertebrate.digitigrade.spine

Duik.autorig.vertebrate.plantigrade.spine

Duik.autorig.vertebrate.ungulate.spine

tail(**hips**,**tail**,*cubic*)

hips is needed

tail is needed

tail is an Array of Layer. The order must be: from the end to the hips.*

cubic is a boolean, if *true*, there will be two middle controllers instead of one. Default is *false*.

Aliases:

Duik.autorig.vertebrate.digitigrade.tail

Duik.autorig.vertebrate.plantigrade.tail

Duik.autorig.vertebrate.ungulate.tail

Duik.autorig.vertebrate.plantigrade

Alias: Duik.autorig.plantigrade

frontLeg(shoulder,humerus,radius,**carpus**,claws,tiptoe,palm)

carpus is needed

If there is *claws*, *humerus* and *radius* are needed

backLeg(femur,tibia,**tarsus**,claws,tiptoe,heel)

tarpus is needed

If there is *claws*, *femur* and *tibia* are needed

Duik.autorig.vertebrate.digitigrade

Alias: Duik.autorig.digitigrade

frontLeg(shoulder,humerus,radius,**carpus**,claws,tiptoe)

carpus is needed

If there is *claws*, *humerus* and *radius* are needed

backLeg(femur,tibia,**tarsus**,claws,tiptoe)

tarpus is needed

If there is *claws*, *femur* and *tibia* are needed

Duik.autorig.vertebrate.ungulate

Alias: Duik.autorig.ungulate

frontLeg(shoulder,humerus,radius,**carpus**,claws)

carpus is needed

If there is *claws*, *humerus* and *radius* are needed

backLeg(femur,tibia,**tarsus**,claws)

tarpus is needed

If there is *claws*, *femur* and *tibia* are needed