mGear: Maya Rigging Framework Documentation

Release 4.0.3

Jeremie Passerin, Miquel Campos

Jul 22, 2022

Contents

1 Overview **3**

2 Quick Start **5**
- 2.1 Installation . . . 5
- 2.2 Rigging a Biped . . . 5
- 2.3 Animating the Biped . . . 11

3 mGear Rigging Workflow **17**
- 3.1 Quick Reference . . . 17
- 3.2 FIRST THINGS TO KNOW About mGear . . . 17
- 3.3 HELP! How do I fix this??? . . . 21
- 3.4 Q. I renamed all my controls and my custom icons are gone! . . . 22
- 3.5 Q. I made some gimmick joints and skinned them, but the next time I build, they are lost! . . . 22
- 3.6 Q. Is it possible to rig... X, Y or Z in mGear? . . . 22

4 Framework **23**
- 4.1 Animbits . . . 23
- 4.2 Base Modules . . . 30
- 4.3 Rigbits . . . 158
- 4.4 Shifter Rig Builder . . . 159
- 4.5 Simple Rig . . . 159
- 4.6 Synoptic . . . 160
- 4.7 Modules flat List . . . 160

5 Custom Solvers/Deformers **161**
- 5.1 mgear_add10Scalar . . . 162
- 5.2 mgear_curveCns . . . 163
- 5.3 mgear_ikfk2Bone . . . 164
- 5.4 mgear_intMatrix . . . 167
- 5.5 mgear_inverseRotOrder . . . 169
- 5.6 mgear_linearInterpolate3Dvector . . . 170
- 5.7 mgear_mulMatrix . . . 171
- 5.8 mgear_percentageToU . . . 172
- 5.9 mgear_rayCastPosition . . . 173
- 5.10 mgear_rollSplineKine . . . 174
- 5.11 mgear_slideCurve . . . 176
- 5.12 mgear_spinePointAt . . . 178

5.13 mgear_springNode . . . 179
5.14 mgear_squashStretch_attr . . . 180
5.15 mgear_trigonometyAngle . . . 181
5.16 mgear_vertexPosition . . . 182

6 Animbits User Documentation **185**
6.1 Channel Master . . . 185
6.2 Soft Tweaks . . . 191
6.3 Smart reset Attribute/SRT . . . 194

7 Rigbits User Documentation **197**
7.1 Add NPO . . . 198
7.2 Gimmick Joints . . . 198
7.3 Replace Shape . . . 199
7.4 Match All Transform . . . 199
7.5 Match Pos with BBox . . . 199
7.6 Align Ref Axis . . . 199
7.7 CTL as Parent . . . 200
7.8 Ctl as Child . . . 200
7.9 Duplicate Symmetrical . . . 200
7.10 RBF Manager . . . 200
7.11 Space Jumper . . . 201
7.12 Interpolate Transform . . . 201
7.13 Connect Local SRT . . . 201
7.14 Spring . . . 201
7.15 Rope . . . 201
7.16 Channel Wrangler . . . 201
7.17 Eye Rigger . . . 201
7.18 Lips Rigger . . . 201
7.19 Proxy Slicer . . . 201
7.20 Proxy Slicer Parenting . . . 201

8 Crank User Documentation **203**

9 Shifter User Documentation **207**
9.1 Plebes - Instant Rigged Characters Using mGear . . . 207

10 Shifter Component Reference **211**
10.1 Guide Settings . . . 211
10.2 Main Settings . . . 211
10.3 Shifter Components . . . 212

11 Synoptic User Documentation **217**

12 Video Tutorials **219**

13 FAQ **221**
13.1 What is mGear? . . . 221
13.2 Is mGear a modular rigging system? . . . 221
13.3 Is mGear providing animation tools? . . . 221
13.4 Will be always free and open source? . . . 221
13.5 Who can use mGear? . . . 221
13.6 Why mGear's Shifter use custom solvers instead of Maya standard solvers? . . . 222
13.7 Does mGear have the same functions/tools of Gear Softimage? . . . 222
13.8 What I get out of the box? . . . 222

13.9 Why should I add mGear to my pipeline? . . . 222
13.10 Who is currently developing mGear? . . . 222

14 Release Log **223**
14.1 4.0.9 . . . 223
14.2 4.0.7 . . . 223
14.3 4.0.3 . . . 224
14.4 3.7.11 . . . 224
14.5 3.7.8 . . . 225
14.6 3.6.0 . . . 227
14.7 3.5.1 . . . 227
14.8 3.5.0 . . . 227
14.9 3.4.0 . . . 228
14.10 3.3.1 . . . 228
14.11 3.3.0 . . . 228
14.12 3.2.1 . . . 228
14.13 3.2.0 . . . 229
14.14 3.1.1 . . . 229
14.15 3.0.5 . . . 230
14.16 3.0.4 . . . 230
14.17 3.0.3 . . . 231
14.18 2.6.1 . . . 232
14.19 2.5.24 . . . 232
14.20 2.4.2 . . . 233
14.21 2.4.1 . . . 233
14.22 2.4.0 . . . 234
14.23 2.3.0 . . . 234
14.24 2.2.4 . . . 235
14.25 2.2.3 . . . 235
14.26 2.2.2 . . . 236
14.27 2.2.1 . . . 236
14.28 2.2.0 . . . 236
14.29 2.1.1 . . . 237
14.30 2.0 . . . 238

15 License **239**

16 Indices and tables **241**

Python Module Index **243**

Index **245**

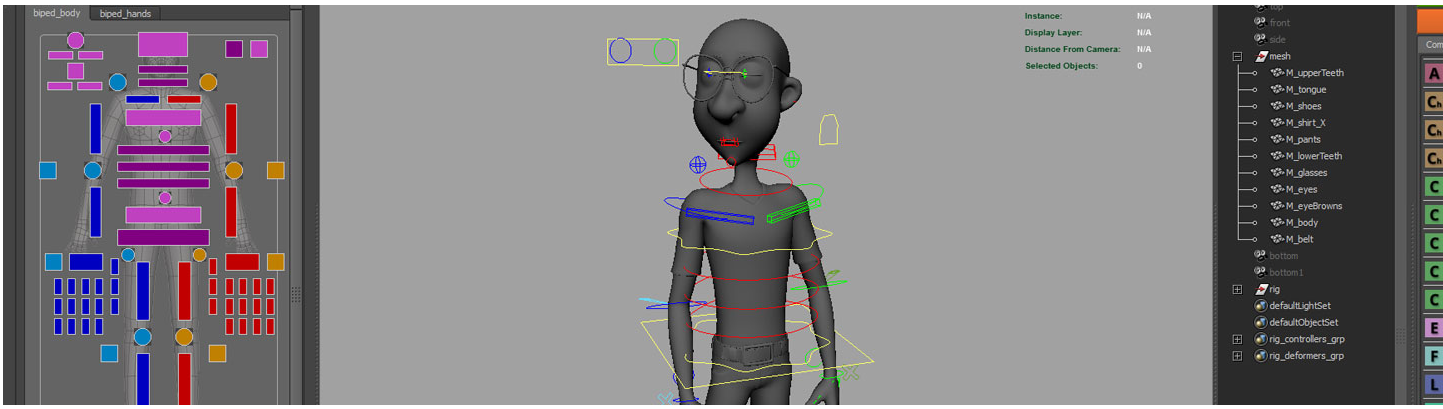


Fig. 1: mGear

mGear website Join mGear Community Forum

Contents:

CHAPTER 1

Overview

mGear is a rigging and animation framework for Autodesk Maya. mGear provides a set of convenient modules, tools and c++ solvers to streamline the development of rigging and animation tools.

Originally mGear was design and develope by Jeremie Passerin , since 2013 Miquel Campos continued the project and evolved to the current design. From 2018 mGear is developed by the mGear Dev team

Join mGear Community Forum

Big Thanks! to all contributors

Note:

from Miquel: Big thanks to Jeremie Passerin , he is the real master behind mGear design. I am just following his steps and continuing what he started.

Also special big thanks to Ingo Clemens for the OSX solver compilation and Gaetan Guidet for the Linux solver compilation and guidance in my C++ desert of knowledge.

Thanks to Chad Vernon , for his fantastic tutorials and open-source tools. Some of mGear's parts wouldn't be possible without it.

And thanks!! to all the people who help me and support this project :)

Warning: I can't promise any kind of support and this tool is provided "AS IS". Please read the LICENSE for more information.

However, I am committed to continue developing mGear. So please, do not hesitate contact us if you found any bug or possible improvement.

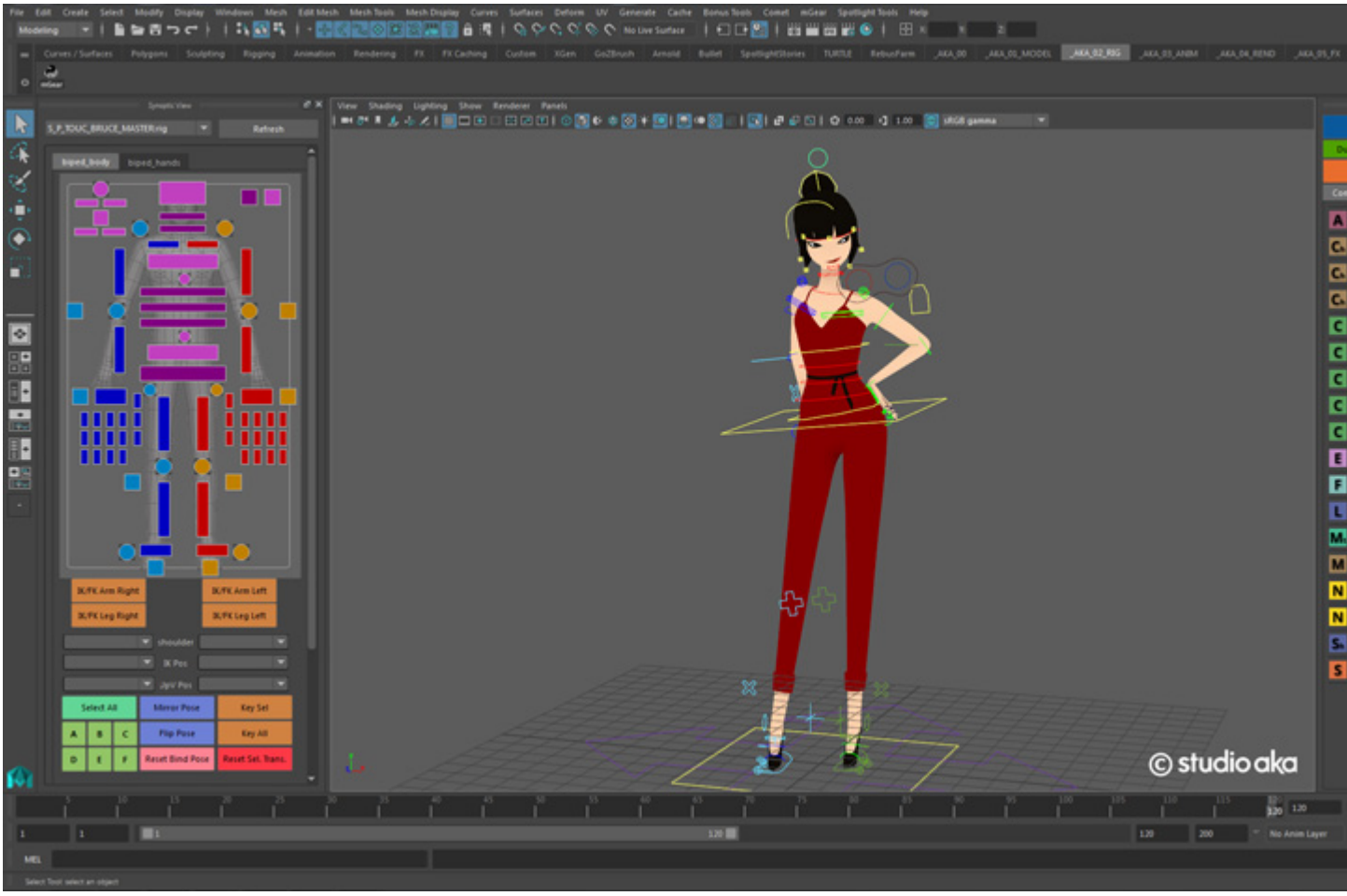


Fig. 1: mGear have been used at Studio AKA for San Pellegrino 'Dining By Starlight'. Rigged by Adam Avery

CHAPTER 2

Quick Start

This is a quick guide to get you up and running with mGear's Shifter. Shifter is the character rigging part of mGear, with which you can combine various components (arms, legs, spines, chains etc.) to rig most kinds of characters, creatures and mechanical contraptions. Shifter currently ships with over 40 different components, and more are constantly being added. Here we'll only focus on building a basic human biped.

2.1 Installation

To install mGear on your computer:

1) Download the latest mGear release from here.
2) Unzip it
3) Copy the content of the mGear **release** folder to your maya/modules folder:

a) Windows: Users<username>DocumentsMayamodules

b) Linux: ~/maya/modules

c) Mac OS X: ~/maya/modules

4) Start Maya

You should now have an mGear menu in Maya.

2.2 Rigging a Biped

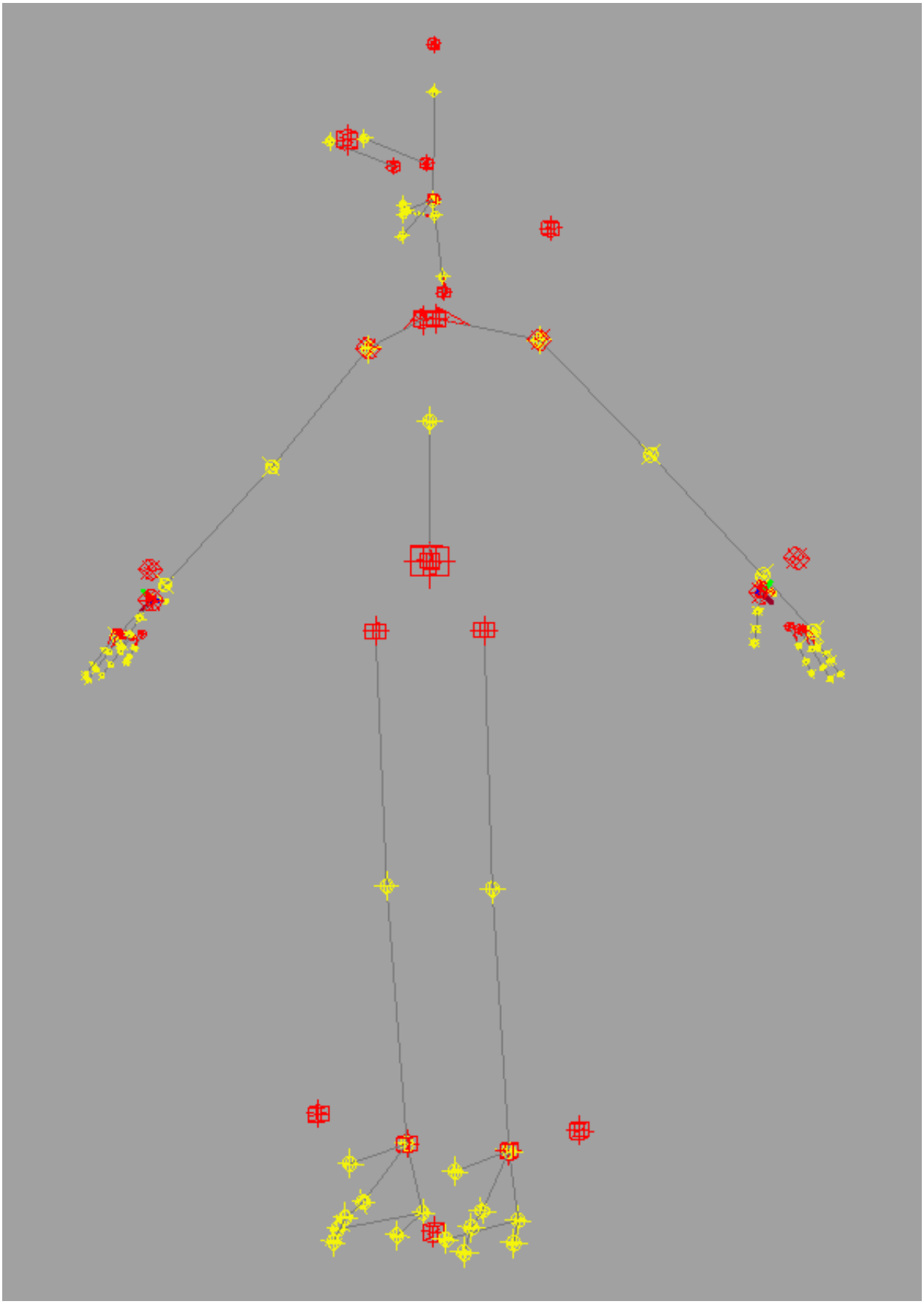
Rigging a biped character is very quick and easy with mGear's Shifter, as it comes with ready made guide templates for both a standard biped and a quadruped. The steps involved in building a rig are:

1) Load the guide template
2) Position the guides to match your characters anatomy

3) Build the animation rig
4) Adjust the control curves if needed
5) Skin the character to the deformer joints
6) Animate!

2.2.1 Build Guides from a Template

Start by selecting mGear>Shifter>Guide Template Samples>Biped Template from the menu.



This builds all the guides we need to build a biped rig. The biped guides consist of multiple components that we will position to match the proportions of our character. Each guide component consists of a:

- **root:** (red cubes) These are the top level node of each component.
- **position:** (yellow spheres) These are the positions of each joint (e.g. elbow, wrist etc).
- **blade:** (red triangular wedges) These controls the up axis of some components.
- **curve:** (gray lines) These are only for reference, to show how evrything connects together.

Note: All components have a **root**, but not all have **position**, **blade** or **curve**.

You can position, rotate and scale the **root** and **position** guides to fit your character, and use the Blade Roll Offset attribute to adjust the **blade** guides.

Since we don't want to do double work, we can start by deleting the right side **root** guides; the **eye_R0_root**, **shouler_R0_root** and **leg_R0_root**. Once we're happy with the placement of the guides on the left side, we can simply use mGear>Shifter>Duplicate Sym to mirror them over to the right side.

Note: You can test your rig at any point, by simply selecting the **guide** node from the Outliner and running mGear>Shifter>Build from Selection. The will bulid the complete animation rig. Once finished testing, you simply delete the **rig** node from the Outliner, and continue adjusting your guides.

2.2.2 Positioning the Guides

Start by selecting the top **guide** node in the oulinter and scale it so the hip is in the correct place. Then work your way down the hierarchy, from the spine and out to the different bodyparts, positioning each one in turn. If you need to re-position a parent guide, after positioning it's children, you can temporarily de-parent the children, while moving the parent.

Note: We'll only be covering what you need to get your character rigged here. For details on each component, see the *Shifter Component Reference*. (TODO! Broken link)

Settings

Each **guide** has settings you can adjust to change the behaviour of that component. To access the settings of **guide**, simply got the mGear>Shifter>Settings menu. For this quick start, we won't be touching the settings, but it's good to know they are there.

Host Guides

You'll notice that next to the hand and feet, and above the head and one of the shouder there are **root** nodes that are seemingly not connected to anything. These are used to position Host controllers from which you can control things like IK/FK blending, arm/leg stretching and more.

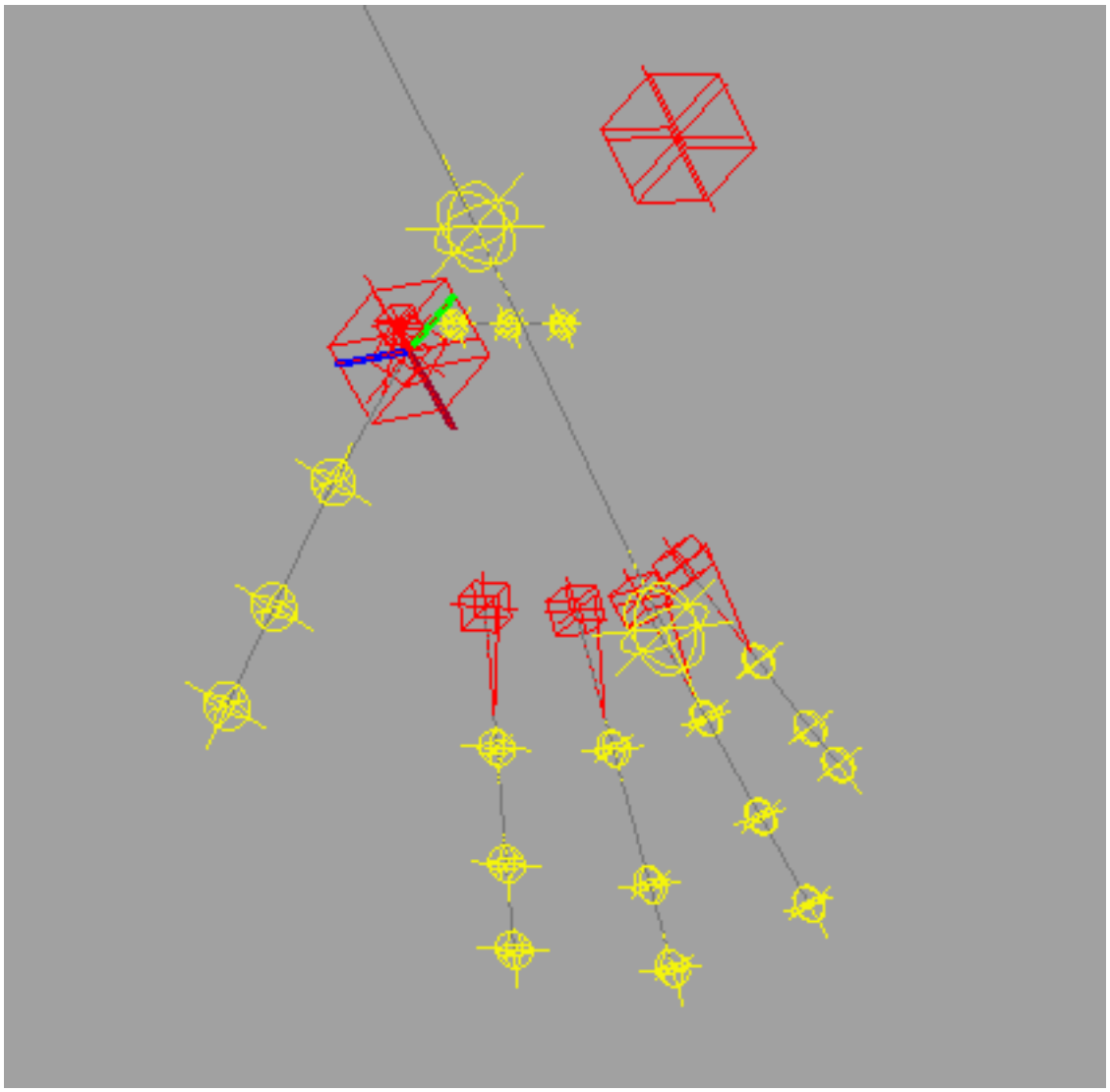
Hip and Spine

There are two **root** nodes at the hip. The bigger one controls the position of the hips and where the controler that moves the entire upper body will be, while the smaller one sets the position of the controller that only moves the hips, keeping the torso in place. The yellow **position** guide controls the length of the flexible part of the spine.

Neck

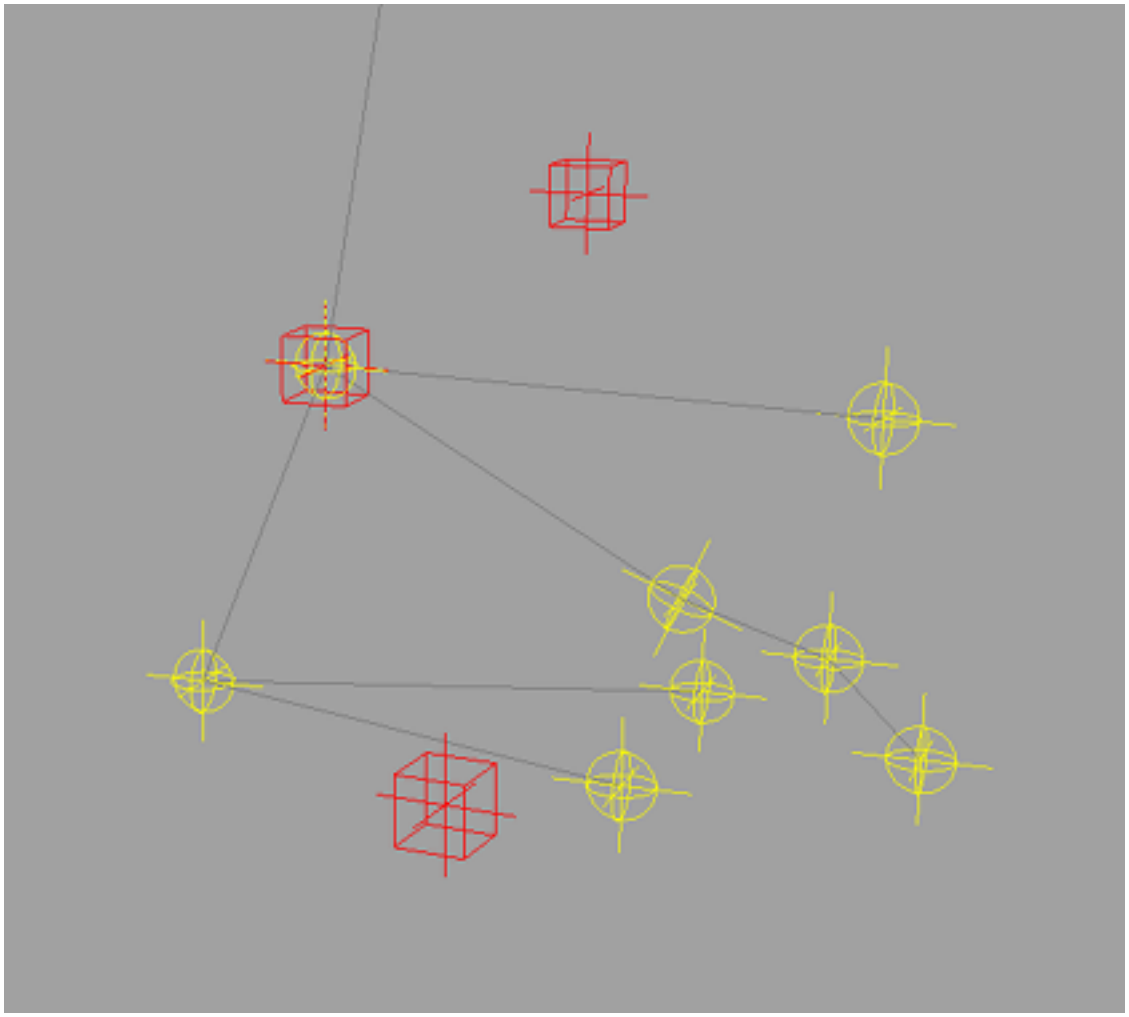
The neck has two yellow **position** tangent guides, that control the neck curve. These are more usefull for rigs with longer necks with more neck joints.

Thumb Rotation



You'll notice that the thumbRoll **root** guide has an RGB axis. This controls the orientation of the thumbRoll controller. In addition the thumbs and each of the fingers have a **blade** guides to control the plane fingers should rotate on.

Feet



The foot has a lot of guides, but most of them are quite straight forward. The bottom three, the **heel** and **in/outpivot** set the pivot points when you rotate the foot. The one in front of the ankle called **eff** controls the direction of the FK foot control. The remaining ones are simply to position the characters joints and toes.

Note: You'll notice there are no guides for the pole vectors for the knees and elbows. These are positioned automatically based on the direction the knee or elbow is pointing in when you build the rig.

2.2.3 Building the Animation Rig

Once you are ready to build the rig, you can simply select the **guide** node from the Outliner and run mGear>Shifter>Build from Selection from the menu. This will bulid the complete animation rig, with all controls ready to use. You can now hide the **guide** node in the Outliner, and test out the rig. If you need to adjust something, simply delete the **rig** group from the outliner, adjust your **guides** and rebuild it.

Adjusting Controls

Some times the shape or size of the default control curves doesn't fit well with the proportions of your character. You can easily fix this by selecting the vertcies of the control curves, and positining and scaling them as needed.

Once you're happy with your new control curves, select the ones you've modified and store them by choosing mGear>Shifter>Extract Controls from the menu. This will store them under **guide**|**controllers_org**, so that if

you delete the rig and rebuild it, it will get your modified control curves instead of the default ones.

Skinning

When you built the rig a selection set was added under **rig_sets_grp** called **rig_deformers_grp** that contains all the joints in the rig you can skin to. Simply skin your mesh to these joints, and the rig is ready for animation.

Note: You may be thinking, what do you do if you need to adjust the position of a joint after skinning and adding blend shapes? You can't simply delete the rig, and rebuild, as that will break the skinning. Shifter is built around the idea of Data Centric Rigging. In short this means that rather storing all the skinning data, blend shapes, model and rig in one file, we store each in separate files, and bring it all together when we build the rig. This is a bit beyond the scope of this quick start, so hop on over to the mGear YouTube channel and check out the Data Centric Rigging workshop.

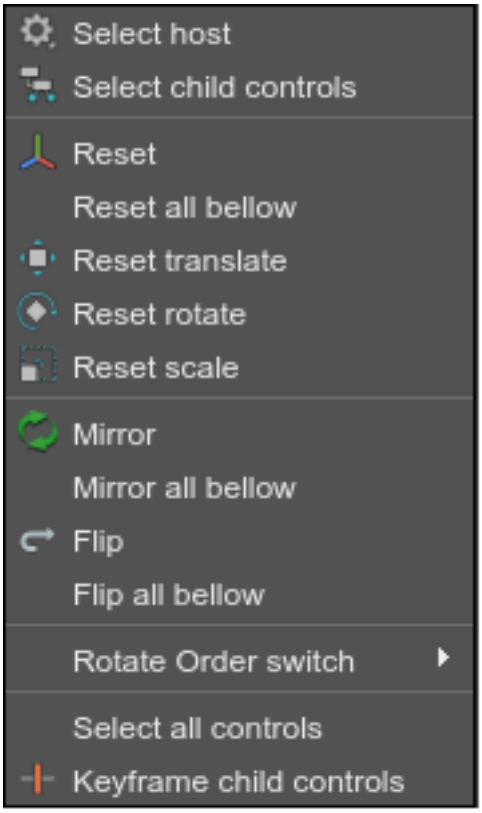
2.3 Animating the Biped

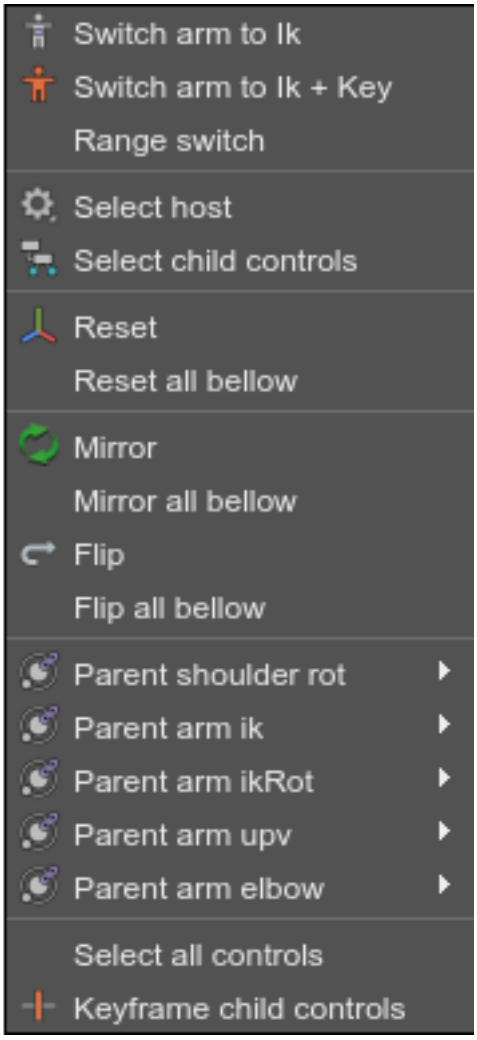
The Shifter biped rig comes with a lot of functionality straight out of the box, including IK/FK blending, stretchy arms, legs and spines, space shifting and even rubber hosing, should you need it. It also performs quite well, so should be able to run in real-time on most modern hardware. Before starting animation, let's cover some of the interfaces to make your work easier.

2.3.1 mGear Viewport Menu

At the top of the mGear menu, there is a checkbox for the mGear Viewport Menu. If you have this enabled it will replace Maya's default right click menu if you have Shifter animation controls selected. Note that the normal right click menu still work as normal, if you have something else selected.

This menu is dynamic, and changes based on what kind of controller you have selected. For most controllers and host controllers it will look like this:





Controller Viewport Menu

- **Select host**: Select the host controller for this bodypart, from which you can do IK/FK blending and more.
- **Select child controls**: Selects the child controls underneath the current one.
- **Reset**: Resets the selected control to it's default position (similar to bind pose)
- **Reset all below**: First does Select Child Controls, and then Reset like above.
- **Reset translate/rotate/scale**: Same as the normal Reset above, but for translate, rotate and scale specifically.
- **Mirror**: Mirrors the selected controllers pose over to the opposite side.
- **Mirror all below**: Same as Mirror, but for all the child controls
- **Flip**: Flip the selected controllers pose to the other side
- **Flip all below**: Same as fliip, but for all the child controls
- **Rotate Order switch**: Change the rotate order, while attempting to keep animation intact

Host Viewport Menu

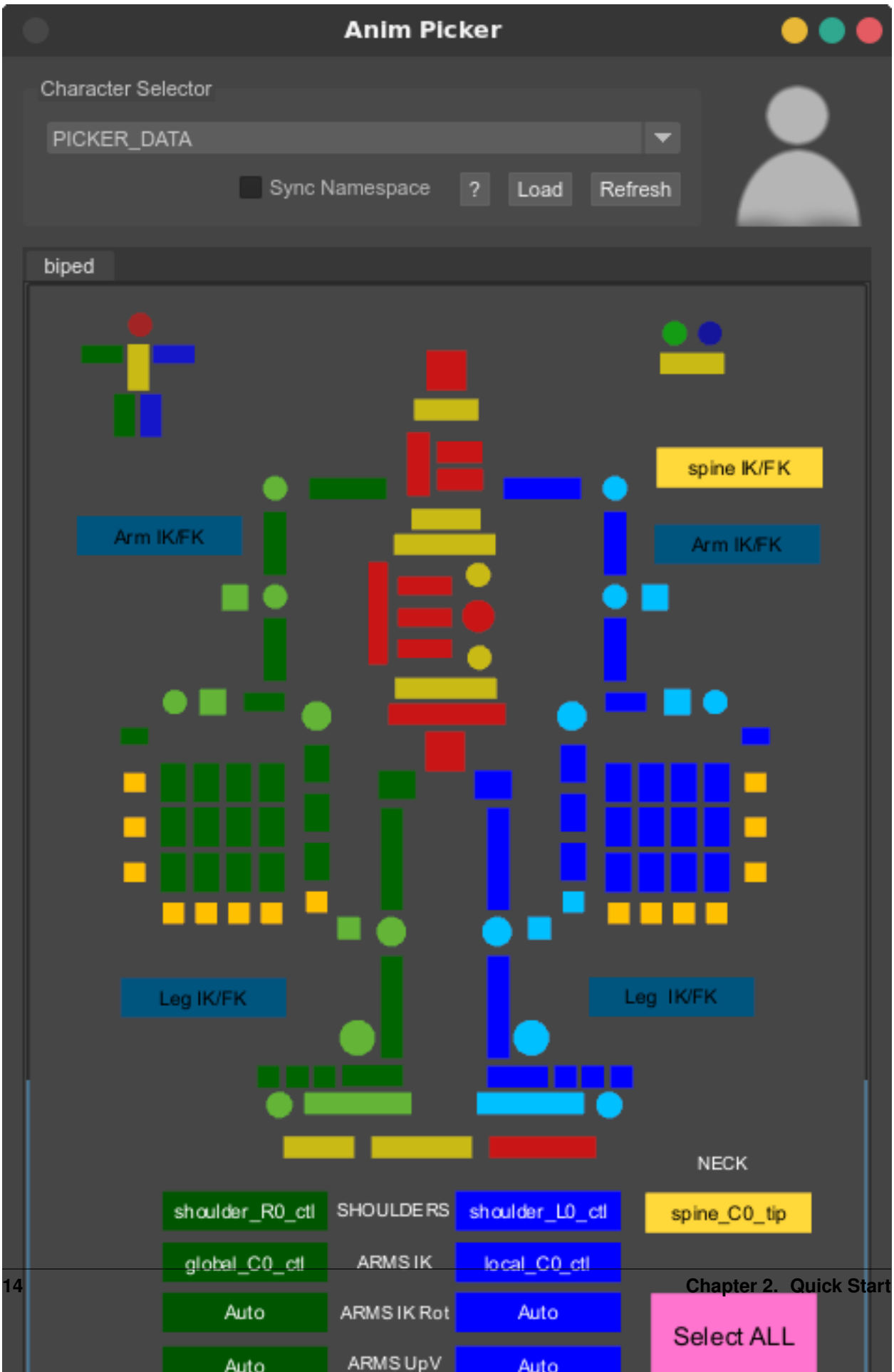
- **Switch arm/leg to Ik/Fk**: Toggle between IK and FK, while keeping the pose intact

- **Switch arm/leg to Ik/Fk + Key**: Toggle between IK and FK, while keeping the pose intact. Adds keyframes before and after the switch.
- **Range switch**: WIP
- **Parent [various]**: Drop down menus for various controllers, such as the IK controller, that set what space that controller follows. You can, for instance switch between the arm's IK controller following the shoulder, body or global controller. If you have keyframes on the component already, this will add keyframes before and after the switch.
- **Select all controls**: Selects all the controllers of the rig
- **Keyframe child controls**: Keyframes all the child controls of the current selection

2.3.2 Anim Picker

mGear comes with a customizable Anim Picker interface to give you easy access to all controls. Choose mGear>Anim Picker>Anim Picker. When you first open it up, it will be empty. Hit the **Load** button and the **Selecte File** and navigate to the biped.pkr file (it comes with mGear and can be found in anim_picker/picker_templates/biped.pkr).

Once you've selected the biped.pkr file, hit the **Load Picker** button. A dialog will pop up askin you to enter a node name for the character. This will create a node in Maya that stores the Anim Picker layout in your scene. You should now see a dialog that looks like this:


Anim Picker
Character Selector
PICKER_DATA
Sync Namespace
?
Load
Refresh
biped
spine IK/FK
Arm IK/FK
Arm IK/FK
Leg IK/FK
Leg IK/FK
NECK
shoulder_R0_ctl
SHOULDERS
shoulder_L0_ctl
spine_C0_tip
global_C0_ctl
ARMS IK
local_C0_ctl
Auto
ARMS IK Rot
Auto
Select ALL
Auto
ARMS UpV
Auto

From this interface you can select any of the controls by simply clicking the different colored boxes. You can also box select or shift-select multiple controls at a time. The little guy at the top left of the interface gives you access to the **host** controllers, while the two dots and a square on the right are eye controllers. In addition, there are a number of buttons you can use to switch between different spaces or toggle between IK and FK.

Finally if you right-click outside the boxes, you can choose Frame Selection, to zoom in on parts of the interface, or Reset View, to reset the zoom.

Adding Multiple Characters to the Anim Picker

If you have multiple rigs in your scene, you can switch between the characters using the Character Selector menu in the Anim Picker. Note that you can have multiple Anim Pickers windows open at the same time, if you have the screen space for it.

2.3.3 Animate

That's it. You should now be ready to animate with mGear and Shifter. For more in-depth tutorials, please check out the mGear Youtube channel

CHAPTER 3

mGear Rigging Workflow

Note: This was the unofficial mGear Workflow document create by Chris Lesage on his website. But now is official ;)

This official-unofficial document is a quick overview of how the mGear Shifter workflow works. It is meant to describe all the parts, so as you go through the tutorials and documentation, you have a full sense of everything.

This document is still a messy work in progress! I started writing it in mGear 2.6.1 just before mGear 3.0.3 was released. I'll update this page, as I continue to learn. I'll improve the illustrations too.

If you have any questions about my workflow, you can find me on the mGear Forums . The entire community there is great for answering questions.

3.1 Quick Reference

mGear official Youtube video tutorials

Python Documentation

How to install mGear: tl;dw: use Maya.env and add this line to point to where you put the mGear folder. Don't copy/paste the scripts into your Maya prefs. Here are my example paths, as I develop my pipeline using Dropbox. The final configuration will be on our studio's network.

HELP! See below for some answers to things that can go wrong.

3.2 FIRST THINGS TO KNOW About mGear

1) **mGear** is an auto-rigging and animation framework. **Shifter** is the name of the rigging framework inside mGear. Shifter has individual rigging components you can build, and full rig templates you can start from.

2) It also has animation tools like IK/FK switching, space-switch baking, synoptic pickers, a basic shot sculpting tool, pose flipping and mirroring, etc. Some of these tools rely on the structure of the rig, so it is good to learn about them before you spend too much effort designing your own custom rig modules or editing the existing ones. If you change the rig, you'll have to also change the synoptic picker, for example.

3) There are a lot of Python modules and functions that you can use to script rigging tasks.

4) For example, `mgear.rigbits` there are functions for Vectors, creating transforms, building curve constraints, control icons, fcurves, skinning, logging and much more. A full list is in the documentation.

5) However, the docs just list the functions without much context or examples. All the tutorials on how to use mGear are found in the Youtube videos and they are in reverse chronological order.

6) As you learn how to use mGear, **you are going to need to design your own file structure** to organize all the data. **I recommend watching ALL of the Youtube videos first**, as you build your first test rigs, because Miguel offers most of the information you need, but it is contained within all the videos. This unfortunately takes a long time, but it will save you a lot of reorganizing later. For example, you'll want to organize a directory structure where you store all of your skinning, blendshape, and build scripts. And you will probably want to consider using version control like git. In this document, I will show you my example of how I organize my structure on a film which includes 33 characters.

7) Rigging is done by creating guide modules or using the existing template. When you first create a guide, it will give you some options, like the number of joints to use in a chain. When you click `Continue` it will build the guide. You then place and orient the guide. Additional settings are stored on the guide, like space switching, orientation, naming, etc.

8) When you build an mGear rig, you can define **PRE** and **POST** scripts which run before and after the main rig builds. If you open the settings of your main guide, you can access this interface. You can run your own files here. But if you click "New" in the interface, it will include some helpful boilerplate code, which will give you access to a special dictionary called stepDict from mgear.maya.shifter.customStep. This dictionary has information about the rig, so you don't just have to call the names of objects blindly from your scene.

9) The basic rigging workflow goes a bit like this:

    1) **QUICK OVERVIEW: Build Guide → Place Guide → Build Rig → Test rig → Save Control Icons, skinning, blendshapes, etc. → Delete rig → Tweak the guides → Write POST scripts -> Repeat**

    2) Open `mGear → Shifter → Guides UI` to access the UI for building modules.

    3) You use the Guide Templates, or build your own by assembling different modules.

    4) If you select a part of the guide and click "Settings" in the mGear UI, a window opens up with settings for that module. For example, you can set Chain_01 to be FK, IK, or FK/IK blend. You can also set the name, symmetry and more.

    5) All of your settings and guide placements are saved in the Guide. The root of the guide also has settings for the entire rig.

    6) There is no auto-symmetry (you could build it, in theory). Instead you delete the right side, and then **Duplicate Symmetry** on the left side in order to get symmetrical parts. (Or right to left.) In order for your guides to understand how to duplicate properly, you have to set your guides to be "Left", "Right" or "Center" in the guide settings. Center guides cannot be duplicated symmetrically.

    7) As you are building the rig, you can select certain components, or the entire guide and click "Build from Selection". This builds the rig you so you can test it. Do not be afraid to test early and test often.

    8) As you test your rig, you delete the rig, tweak the guides and your build scripts, and delete the rig and rebuild.

9) When you build, you can add **PRE** and **POST** Python scripts, so you can customize the result to your own pipeline. Watch "Data-Centric Rigging" on mGear Youtube for more details. For example PRE: You could create a symmetry constraint, and then delete it in the PRE step.

10) When creating **PRE** and **POST** steps, if you click "new" in the Custom Steps UI, then mGear will automatically populate your new script file with a bit of boilerplate. There are some functions for passing dictionaries of objects between steps. However, you can also just run plain vanilla Python in these files too.

11) Try making some PRE and POST scripts early on as you are rigging so you can see how it works. But before you get too far, I recommend designing how you are going to organize the scripts for multiple characters or projects. For example, I have a folder called "common" where I store scripts that will be run on every single character. Then each character will have their own custom scripts stored in a separate folder, if needed. ALL of my scripts will live under one directory where I can track it using git.

12) You can set up hotkeys to do some of the frequent mGear actions. mGear → Utilities → Create mGear hotkeys. This adds a bunch of actions in the Hotkey Editor. Then it is up to you to map them. I map "Build From Selection" to F7. And "Settings" to F6. Hitting F6 opens the module settings of the rig component I have selected.

13) **Control Icons:** When the rig is built, you can tweak or replace your control icons, and click "Extr. Ctl". This stands for "Extract Control" and it saves the icons inside the guide. The next time you build the script, it will use your custom icons. To reset to the default, you can simply delete the icons from inside the guide|controllers_org group. You can also import icons from another character or another file. They are based on name. If names don't match, they won't be used.

14) Saving your Skinning

    When you build your rig, you can skin it, and then save the skinning to external .jSkin or .gSkin file. You can also save all your skinning in a bunch using a .jSkinPack file which basically just collects a list of all your separate .jSkin files. Even after saving a .jSkinPack file, you can still save the weights of an individual piece of geometry to its own .jSkin file. The Pack file will not change, unless you need to add or remove geometry. I recommend using the Ascii .jSkin files, instead of the binary .gSkin files. You can edit the Ascii files in a text editor, which lets you fix problems like mis-named joints. In the past, the binary files were a bit smaller on your hard drive, but since mGear 3.2, all skinning data files are about 90% smaller. **IMPORTANT:** This can be confusing to new users. When you export skinning, it will not automatically add it to your skinPack file. If you export a skinPack file, it will overwrite any existing skinPack file. So if you want to add a single skin to a skinPack file, the best way is to export a single skin file, add then add it manually to the skinPack file using a text editor. If you accidentally lose or overwrite your skinPack file, you might think you lost all your skinning. But the skin files are separate, and the skinPack file is just a text list of all those skin files. So you can often find and fix those kinds of problems. If you change the skinning on your character, and you already have a skinPack file, you just need to export the skin file. NOT the entire skinPack file again. I'll say it again: The skinPack file is just a text list of skinning data files, used for loading multiple skins all at once.

15) Loading your Skinning

During the rig build you can define a POST step to import your .jSkinPack files from a saved location.

```
from mgear.core import skin
skinPath = '/YOUR/PATH/HERE'
skin.importSkinPack(skinpath)
```

16) Saving your Blendshapes

I just keep my blendshapes stored on my character's geometry. When I delete the rig, and rebuild, I run a Post Python script that connects my blendshapes to the controllers I want. This is completely dependent on your own personal rig design. So I don't have specific tips. But in general, this is how I structure my blendshapes using a hook node

10) **Rigging the eyes and face and getting that data back when you rebuild**

There is an autorigging utility to build the eyes and lips based on selecting edge loops and points. Then the autorigger computes skinning for you. Here is how that works:

1) Build your character from the guide. If you don't already have the biped template's face controls, I recommend making your own simple Control_01 modules for the upper lips, lower lips, and each eye. Configure them to have a joint. These controls will just be there so you can use that joint as a root for the face rig.

2) When the rig is built, open the lips rigging utility from the mGear menu.

3) From the lips rigging UI, you can just experiment with settings, until you get it right. If you get it wrong, delete your rig, rebuild, and try again. You can leave the lips rigging window open and not lose your configuration.

4) When you are happy with the result, you can edit your skinning a bit if needed. **This part is tricky. I personally generate my eyes skinning, and then export it to an ngSkinTools file. Then I generate my lips, and export it as well. Later, after I've skinned the rest of my character, I import these layers on top of all the other skinning.**

5) In the guide, turn OFF "Compute Topological Autoskin". Because if you have that checked, it will add the skinning before the lips exist, and mess up your weights.

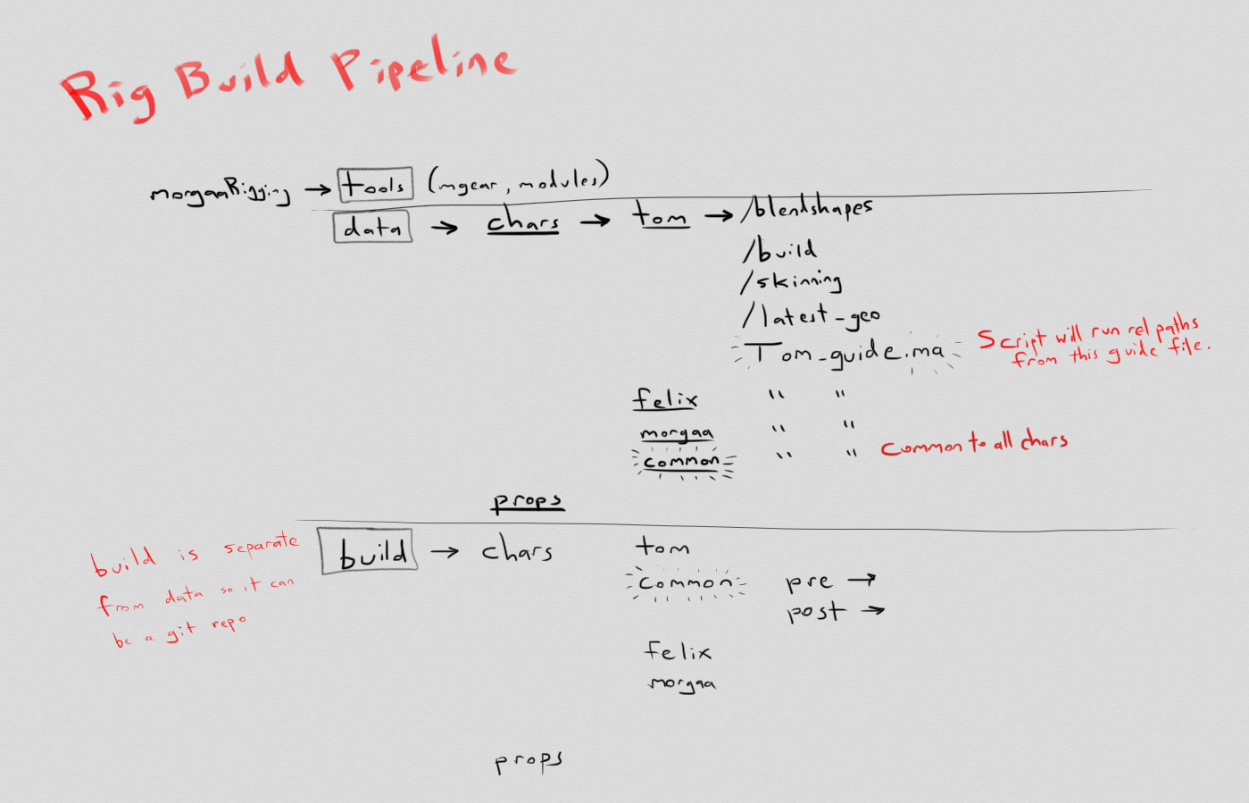
6) Save your lips config to a json file.

7) Now that the json file is saved, you can add a POST step to your rig build, and use this code. Please be careful to note which version of the eyes and lips tool you are using. The legacy tools still exist. The new facial_rigger module is the one where the lips and eyes are in tabs of the same window. They use different functions, and save a different data format. I highly recommend using the new facial_rigger version.

```
from mgear import rigbits
import os
lipsConfigPath = os.path.abspath(os.path.join('YOUR PATH HERE'))
eyesConfigPath = os.path.abspath(os.path.join('YOUR PATH HERE'))

# OLD LEGACY eye_rigger and lips_rigger tool
rigbits.eye_rigger.eyesFromfile(eyesConfigPath)
rigbits.lips_rigger.lipsFromfile(lipsConfigPath)

# NEW "facial_rigger" module
rigbits.facial_rigger.eye_rigger.rig_from_file(eyesConfigPath)
rigbits.facial_rigger.lips_rigger.rig_from_file(lipsConfigPath)
```

8) That is going to load your lip rigging. AFTER you load the lip rigging, you want to load your skin weights. Make sure to run the lips rig first, and then import the skinning, otherwise the joints won't exist yet! In this pipeline, you need to think about the order that things happen.

3.2.1 PIPELINE



A sketch for how I'll organize pipeline data. Inside each character will be blendshapes, skinning, the latest_geo, and any other stuff. By putting the data inside a character, it is easier to clone for a new character. There will also be a "common" character folder, where build scripts will live that will run on every character. Shifter build scripts will be kept under a separate "build" directory, and tracked as a separate git repo.

- [ ] FIRST: Design the pipeline. The rigs will be built from guides. Figure out how to save this as a template asset that can easily be reused and iterated on.
- [ ] Maybe write this as a Google Doc or a Wiki doc.

The best way to install mGear is by putting it in a directory that can be accessed by your artists, and then pointed to by using the Maya environment variable MAYA_MODULE_PATH = /your/directory/here/foo

If you are creating custom modules, you should store them in a separate directory of your choosing, and then point to it in your Maya.env by using MGEAR_SHIFTER_COMPONENT_PATH = /your/directory/here/foo

Consider that in your studio, in the long-term, you will like be using mGear on multiple projects, supporting different versions of mGear, or customizing modules that are specific to a project.

Import the face template and place it (script this or improve the hooks?)

Do whatever custom clothes and hair needs rigging

3.3 HELP! How do I fix this???

In this section, I'll try to answer some questions that I got hung up on at first. When you are doing "Data-Centric rigging" like with mGear and Shifter, there is a level of complexity, and there are bound to be things that go wrong.

3.4 Q. I renamed all my controls and my custom icons are gone!

A. No problem. Custom icons are stored by name. "[NAME]_controlBuffer". If you look under your guide, there is a group called controllers_org. Your icons are probably still under that group, but named with the old control names. You can simply rename the objects under the controllers_org group to match your new controls. The next time you build it will be fixed. You can also import or manually add shapes into that group.

3.5 Q. I made some gimmick joints and skinned them, but the next time I build, they are lost!

A. Gimmick joints are not stored in the guide. You have to add them during the POST build stage. You can add them manually when you are first testing and skinning them. But once you are happy with them, add a POST step and use mgear.rigbits.addBlendedJoint(). There are 2 videos where Miguel shows how to create Gimmick Joints, but he doesn't explain how to rebuild them using Python until Data Centric Rigging 014: Gimmick joints custom step and first rebuild

Make sure to build your Gimmick Joints before importing your skinning, otherwise the joints won't exist yet!

3.6 Q. Is it possible to rig... X, Y or Z in mGear?

A. mGear Shifter is an open source rigging framework, and you can run any Python you like during your build process. So YES it is possible, but you will likely have to do some scripting or create your own custom modules. The existing Shifter modules do not cover every possibility you might want. As of January 2019, there are also very limited facial features, so you will have to design and rig a lot of your own face components. mGear is not a magic bullet for every rig you can imagine, but it is open enough that you can easily customize it to suit any needs.

CHAPTER 4

Framework

4.1 Animbits

Content:

- *Introduction*
- *Modules*

4.1.1 Introduction

Animbits is a animation commont library with tools and functions for the animators.

4.1.2 Modules

mgear.animbits
mgear.animbits.menu
mgear.animbits.softTweaks

mgear.animbits package

Subpackages

mgear.animbits.cache_manager package

Submodules

mgear.animbits.cache_manager.collapse_widget module

class mgear.animbits.cache_manager.collapse_widget.**QCollapse**(*parent=None*, *title='QCollapse'*)

Bases: sphinx.ext.autodoc.importer._MockObject

QCollapse is a collapsible widget with transition

Parameters

- **parent** (*QWidget*) – parent widget for the QCollapseWidget
- **title** (*str*) – Title name for the widget

SPEED = 150

set_layout(*layout*)

Applies the given layout to the scroll area widget

Parameters **layout** (*QLayout*) – layout widget to add into the QCollapse

mgear.animbits.cache_manager.dialog module

mgear.animbits.cache_manager.mayautils module

mgear.animbits.cache_manager.model module

class mgear.animbits.cache_manager.model.**CacheManagerStringListModel**(*items=[]*, *parent=None*)

Bases: sphinx.ext.autodoc.importer._MockObject

Custom list model for the cache manager

Parameters

- **items** (*list*) – string list of rigs inside scene
- **parent** (*QtWidget*) – Parent widget

data(*index*, *role*)

Override QAbstractListModel method

data returns the item name and icon at the given index

rowCount(*parent*)

Override QAbstractListModel method

rowCount returns the number of items in the list model

mgear.animbits.cache_manager.query module

mgear.animbits.cache_manager.query.**find_model_group_inside_rig**(*geo_node*, *rig_node*)

Finds the given group name inside the hierarchy of a rig

Parameters

- **geo_node** (*str*) – geometry group transform node containing the shapes to cache
- **rig_node** (*str*) – Rig root node containing the geo_node

Returns Full path to the geo_node if found else None

Return type str or None

mgear.animbits.cache_manager.query.**get_cache_destination_path**()
Returns the cache destination path

This methods returns a path pointing to where the cache manager will store the GPU caches.

If the **MGEAR_CACHE_MANAGER_CACHE_DESTINATION** environment variable has been set it will return whatever path has been set if valid. If none has been set or fails to use that path this method tries then to return whatever settings has been set on the **cache manager preferences file**.

Finally if no environment variable or preference file is been set then we use the **OS TEMP** folder as destination path.

Returns cache destination path

Return type str

mgear.animbits.cache_manager.query.**get_model_group**(*ignore_selection=False*)
Returns the model group name to cache

This methods returns a string with the name of the transform node to use when caching the geometry/model

If the **MGEAR_CACHE_MANAGER_MODEL_GROUP** environment variable has been set it will return the name stored in it. If none has been set or fails to use that name this method tries then to return whatever settings has been set on the **cache manager preferences file**.

Finally if no environment variable or preference file is been set then we fall back to selection.

This doesn't check if the returner values is a valid value like if the transform node exists. This is because we do not know at this stage if the asset it inside a namespace or something scene specific. As this is generic only checks for that generic part are been made.

Parameters **ignore_selection** (*bool*) – whether it falls back to the selected group

Returns group name if anything or None

Return type str or None

mgear.animbits.cache_manager.query.**get_preference_file**()
Returns the preference file path and name

Returns preference file path and name

Return type str

mgear.animbits.cache_manager.query.**get_preference_file_cache_destination_path**()
Returns the folder path set on the preference file

Returns The path stored in the preference file or None if invalid

Return type str or None

mgear.animbits.cache_manager.query.**get_preference_file_model_group**()
Returns the model group name set on the preference file

Returns

Model group name stored in the preference file or None if invalid

Return type str or None

mgear.animbits.cache_manager.query.**get_scene_rigs**()
The rigs from current Maya session

This method search for rigs in your current Maya scene. If the MGEAR_CACHE_MANAGER_RIG_ATTRIBUTE has been set it will try to find rigs based on the attribute set on the environment variable. Otherwise it will use the attribute **gear_version** in order to find rigs in scene.

Returns mGear rig top node or None

Return type list or None

mgear.animbits.cache_manager.query.**get_time_stamp**()
Returns the date and time in a file name friendly way

This is used to create the cache file name a unique name in order to avoid clashing files overwriting other cache files been used on other specific file scenes

Returns time stamp (19-05-12_14-10-55) year-month-day_hour-minutes-seconds

Return type str

mgear.animbits.cache_manager.query.**get_timeline_values**()
Returns the min and max keyframe values from the current playback range

In order to give more freedom to the artist we always evaluate the playback range and not the animation range so that artists can choose what range to use when creating the GPU cache

Returns min and max value

Return type float, float

mgear.animbits.cache_manager.query.**is_rig**(*rig_node*)
Returns whether the given rig node is in srig state or caching state

Parameters **rig_node** (*str*) – rig node name

mgear.animbits.cache_manager.query.**read_preference_key**(*search_key*)
Returns the preference stored on the pref file for the given key

Returns The path stored in the preference file or None if invalid

Return type str or None

Module contents

ANIMATION CACHE MANAGER

mGear's animation cache manager is a tool that allows generating a Alembic GPU cache representation of references rigs inside Autodesk Maya.

module mgear.animbits.cache_manager.__init__

Submodules

mgear.animbits.channel_master module

mgear.animbits.channel_master_node module

mgear.animbits.channel_master_node.**create_channel_master_node**(*name*)
Create a new channel master node

Parameters **name** (*str*) – name of the nodes

Returns name of the channel master node

Return type str

mgear.animbits.channel_master_node.**export_data**(*node*, *tab=None*, *filePath=None*)
Export the node data

Parameters

- **node** (*str*) – node to export
- **tab** (*str, optional*) – if a tab name is set, only that taba will be exported
- **filePath** (*str, optional*) – the path to save the configuration file

Returns Description

Return type TYPE

mgear.animbits.channel_master_node.**get_external_data**(*node*)

mgear.animbits.channel_master_node.**get_node_data**(*node*)
Get the configuration data from a node Can get the data from the external data or from local data

Parameters

- **node** (*str*) – nme of the node
- **use_local_data** (*bool, optional*) – If true will force to use the node local data

Returns configuration data

Return type dict

mgear.animbits.channel_master_node.**import_data**(*filePath=None*, *node=None*, *add_data=False*)
Import and create channel master configuration nodes

Parameters

- **filePath** (*str, optional*) – Path to the channel master config file
- **node** (*None, str*) – Node to add the data. If None, will create a new node
- **add_data** (*bool, optional*) – If true, will add the data to existing node

Returns Description

Return type TYPE

mgear.animbits.channel_master_node.**list_channel_master_nodes**()
return a list of channel master nodes in the scene

Returns List of channel master nodes

Return type list

mgear.animbits.channel_master_node.**remove_external_config_path**(*node*)

mgear.animbits.channel_master_node.**set_external_config_path**(*node*, *filePath=None*)
Set the path to the external file configuration

Parameters

- **node** (*PyNode*) – Channel Master node
- **filePath** (*str, optional*) – Path to the file confituration

Returns Description

Return type TYPE

mgear.animbits.channel_master_node.**set_node_data**(*node*, *data*)
Set the node data attribute

Parameters

- **node** (*str*) – node name
- **data** (*dict*) – configuration dict

mgear.animbits.channel_master_utils module

mgear.animbits.channel_master_utils.**channel_has_animation**(*attr*)
Check if the current channel has animaton

Parameters **attr** (*str*) – Attribute fullName

Returns Return true if the attribute has animation

Return type bool

mgear.animbits.channel_master_utils.**current_frame_has_key**(*attr*)
Check if the attribute has keyframe in the current frame

Parameters **attr** (*str*) – Attribute fullName

Returns Return true if the attribute has keyframe in the current frame

Return type bool

mgear.animbits.channel_master_utils.**get_anim_value_at_current_frame**(*attr*)
Get the animation value in the current framwe from a given attribute

Parameters **attr** (*str*) – Attribute fullName

Returns animation current value

Return type bol, int or float

mgear.animbits.channel_master_utils.**get_attributes_config**(*node*)
Get the configuration to all the keyable attributes

Parameters **node** (*str*) – name of the node that have the attribute

Returns All keyable attributes configuration

Return type dict

mgear.animbits.channel_master_utils.**get_keyable_attribute**(*node*)
Get keyable attributes from node

Parameters **node** (*str*) – name of the node that have the attribute

Returns list of keyable attributes

Return type list

mgear.animbits.channel_master_utils.**get_single_attribute_config**(*node*, *attr*)
Summary

Parameters

- **node** (*str*) – name of the node that have the attribute
- **attr** (*str*) – attribute name

Returns attribute configuration

Return type dict

mgear.animbits.channel_master_utils.**get_table_config_from_selection**()

mgear.animbits.channel_master_utils.**init_channel_master_config_data**()
Initialize the dictionary to store channel master tabs configuration

mgear.animbits.channel_master_utils.**init_table_config_data**()
Initialize the dictionary to store the channel master table data

Items are the channels or attributes fullname in a list items_data is a dictionary with each channel configuration, the keys is the fullName

Returns configuration dictionary

Return type dict

mgear.animbits.channel_master_utils.**next_keyframe**(*attr*)

mgear.animbits.channel_master_utils.**previous_keyframe**(*attr*)

mgear.animbits.channel_master_utils.**remove_animation**(*attr*)
Remove the animation of an attribute

Parameters **attr** (*str*) – Attribute fullName

mgear.animbits.channel_master_utils.**remove_key**(*attr*)
Remove the keyframe of an attribute at current frame

Parameters **attr** (*str*) – Attribute fullName

mgear.animbits.channel_master_utils.**reset_attribute**(*attr_config*, *namespace=None*)
Reset the value of a given attribute for the attribute configuration

Parameters **attr_config** (*dict*) – Attribute configuration

mgear.animbits.channel_master_utils.**set_key**(*attr*)
Keyframes the attribute at current frame

Parameters **attr** (*str*) – Attribute fullName

mgear.animbits.channel_master_utils.**sync_graph_editor**(*attr_configs*, *namespace=None*)
sync the channels in the graph editor

Parameters **attr_configs** (*list*) – list of attribute configuration

mgear.animbits.channel_master_utils.**value_equal_keyvalue**(*attr*, *current_time=False*)
Compare the animation value and the current value of a given attribute

Parameters **attr** (*str*) – the attribute fullName

Returns Return true is current value and animation value are the same

Return type bool

mgear.animbits.channel_master_widgets module

mgear.animbits.menu module

mgear.animbits.menu.**install**()
Install Skinning submenu

mgear.animbits.softTweakWindowUI module

mgear.animbits.softTweaks module

mgear.animbits.space_recorder module

mgear.animbits.version module

Module contents

4.2 Base Modules

mgear
mgear.core
mgear.core.applyop
mgear.core.attribute
mgear.core.curve
mgear.core.dag
mgear.core.fcurve
mgear.core.icon
mgear.core.log
mgear.core.menu
mgear.core.meshNavigation
mgear.core.node
mgear/core.pickWalk
mgear.core.primitive
mgear.core.pyqt
mgear.core.skin
mgear.core.string
mgear.core.transform
mgear.core.utils
mgear.core.vector
mgear.core.widgets

4.2.1 mgear

mGear init module

Functions

getInfos(level)	Get information from where the method has been fired.
getVersion()	Get mGear version
install()	
log(message[, severity, infos])	Log a message using severity and additional info from the file itself.
logInfos()	Log version of Gear

Continued on next page

Table 3 – continued from previous page

reloadModule([name])	Reload a module and its sub-modules from a given module name.
setDebug(b)	Set the debug mode to given value.
toggleDebug()	Toggle the debug mode value.

Exceptions

FakeException

4.2.2 mgear package

Subpackages

mgear.anim_picker package

Subpackages

mgear.anim_picker.handlers package

Submodules

mgear.anim_picker.handlers.action_handlers module

mgear.anim_picker.handlers.file_handlers module

mgear.anim_picker.handlers.maya_handlers module

mgear.anim_picker.handlers.mode_handlers module

mgear.anim_picker.handlers.python_handlers module

Module contents

mgear.anim_picker.widgets package

Submodules

mgear.anim_picker.widgets.basic module

mgear.anim_picker.widgets.overlay_widgets module

mgear.anim_picker.widgets.picker_widgets module

Module contents

Submodules

mgear.anim_picker.gui module

mgear.anim_picker.menu module

mgear.anim_picker.picker_node module

mgear.anim_picker.version module

Module contents

mgear.cfxbits package

Subpackages

mgear.cfxbits.xgenboost package

Submodules

mgear.cfxbits.xgenboost.guide module

mgear.cfxbits.xgenboost.ui module

mgear.cfxbits.xgenboost.ui_form module

mgear.cfxbits.xgenboost.xgen_handler module

mgear.cfxbits.xgenboost.xgen_handler.**connect_curve_to_xgen_guide**(*crv*, *xgen_description*)

mgear.cfxbits.xgenboost.xgen_handler.**create_curve_guide_setup**(*xgen_description*)

mgear.cfxbits.xgenboost.xgen_handler.**disconnect_curve_from_xgen_guide**(*crv*)

mgear.cfxbits.xgenboost.xgen_handler.**filter_curve_guides**(*crvs*, *xgen_description*)

mgear.cfxbits.xgenboost.xgen_handler.**get_connected_curve_guides**(*xgen_description*)
return the connectected curve guides from descriptions

Parameters **xgen_description** (*TYPE*) – Description

Returns curve guides list or empty list if none

Return type list

mgear.cfxbits.xgenboost.xgen_handler.**get_curve_to_spline_node**(*xgen_description*)
get the curve to spline node of the guide modifier from xgen description

Parameters **xgen_description** (*PyNode*) – xgen Description

Returns xgen guide curve to spline node

Return type PyNode

mgear.cfxbits.xgenboost.xgen_handler.**get_description**(*name*)
Get description from string name

Parameters **name** (*str*) – name of the desctription

Returns xgen Description

Return type PyNode

mgear.cfxbits.xgenboost.xgen_handler.**get_description_from_selection**()

mgear.cfxbits.xgenboost.xgen_handler.**get_scalp**(*xgen_description*)
get the scalp object of the xgen description

Parameters **xgen_description** (*PyNode*) – xgen Description

Returns scalp object

Return type PyNode

mgear.cfxbits.xgenboost.xgen_handler.**refresh_curve_connections**(*guide_modifier*)

Module contents

Submodules

mgear.cfxbits.menu module

mgear.cfxbits.menu.**install**()
Install CFXbits submenu

mgear.cfxbits.version module

Module contents

mgear.core package

Submodules

mgear.core.anim_utils module

mgear.core.applyop module

Apply operator module

Operators are any node that connected to other nodes creates a rig behaviour:

```
I.E: IK solvers and  constraints are operators
```

mgear.core.applyop.**aimCns**(*obj, master, axis='xy', wupType='objectrotation', wupVector=[0, 1, 0], wupObject=None, maintainOffset=False*)
Apply a direction constraint

Parameters

- **obj** (*dagNode*) – Constrained object.

- **master** (*dagNode*) – Constraining Object.
- **axis** (*str*) – Define pointing axis and upvector axis (combination of xyz and -x-y-z).
- **wupType** (*str*) – scene, object, objectrotation, vector, or none.
- **wupVector** (*list of 3 float*) – world up vector. Exp: [0.0,1.0,0.0].
- **wupObject** (*pyNode*) – world up object.
- **maintainOffset** (*bool*) – Maintain offset.

Returns Newly created constraint.

Return type pyNode

mgear.core.applyop.**curvecns_op**(*crv*, *inputs=[]*)

mgear.core.applyop.**gear_curvecns_op**(*crv*, *inputs=[]*)

create mGear curvecns node.

Parameters

- **crv** (*nurbsCurve*) – Nurbs curve.
- **inputs** (*List of dagNodes*) – Input object to drive the curve. Should be same number as crv points. Also the order should be the same as the points

Returns The curvecns node.

Return type pyNode

mgear.core.applyop.**gear_curveslide2_op**(*outcrv*, *incrv*, *position=0*, *maxstretch=1*, *maxsquash=1*, *softness=0*)

Apply a sn_curveslide2_op operator

Parameters

- **outcrv** (*NurbsCurve*) – Out Curve.
- **incrv** (*NurbsCurve*) – In Curve.
- **position** (*float*) – Default position value (from 0 to 1).
- **maxstretch** (*float*) – Default maxstretch value (from 1 to infinite).
- **maxsquash** (*float*) – Default maxsquash value (from 0 to 1).
- **softness** (*float*) – Default softness value (from 0 to 1).

Returns The newly created operator.

Return type pyNode

mgear.core.applyop.**gear_ikfk2bone_op**(*out=[]*, *root=None*, *eff=None*, *upv=None*, *fk0=None*, *fk1=None*, *fk2=None*, *lengthA=5*, *lengthB=3*, *negate=False*, *blend=0*)

Apply a sn_ikfk2bone_op operator

Parameters

- **out** (*list of dagNodes*) – The constrained outputs order must be respected (BoneA, BoneB, Center, CenterN, Eff), set it to None if you don't want one of the output.
- **root** (*dagNode*) – Object that will act as the root of the chain.
- **eff** (*dagNode*) – Object that will act as the eff controler of the chain.
- **upv** (*dagNode*) – Object that will act as the up vector of the chain.

- **fk0** (*dagNode*) – Object that will act as the first fk controler of the chain.
- **fk1** (*dagNode*) – Object that will act as the second fk controler of the chain.
- **fk2** (*dagNode*) – Object that will act as the fk effector controler of the chain.
- **lengthA** (*float*) – Length of first bone.
- **lengthB** (*float*) – Length of second bone.
- **negate** (*bool*) – Use with negative Scale.
- **blend** (*float*) – Default blend value (0 for full ik, 1 for full fk).

Returns The newly created operator.

Return type pyNode

mgear.core.applyop.**gear_intmatrix_op**(*mA*, *mB*, *blend=0*)

create mGear interpolate Matrix node.

Parameters

- **mA** (*matrix*) – Input matrix A.
- **mB** (*matrix*) – Input matrix A.
- **blend** (*float or connection*) – Blending value.

Returns Newly created mGear_intMatrix node

Return type pyNode

mgear.core.applyop.**gear_inverseRotorder_op**(*out_obj*, *in_obj*)

Apply a sn_inverseRotorder_op operator

Parameters

- **out_obj** (*dagNode*) – Output object.
- **in_obj** (*dagNode*) – Input object.

Returns The newly created operator.

Return type pyNode

mgear.core.applyop.**gear_matrix_cns**(*in_obj, out_obj=None, connect_srt='srt', rot_off=[0, 0, 0], rot_mult=[1, 1, 1], scl_mult=[1, 1, 1]*)

Create and connect matrix constraint node

Parameters

- **in_obj** (*transform*) – the driver object or matrix
- **out_obj** (*transform, optional*) – the driven object
- **connect_srt** (*str, optional*) – scale rotation traanslation flag
- **rot_off** (*list, optional*) – rotation offset for XYZ
- **rot_mult** (*list, optional*) – rotation multiplier for XYZ
- **scl_mult** (*list, optional*) – scale multiplier for XYZ

Returns The matrix constraint node

Return type PyNode

mgear.core.applyop.**gear_mulmatrix_op**(*mA*, *mB*, *target=False*, *transform='srt'*)
Create mGear multiply Matrix node.

Note: This node have same functionality as the default Maya matrix multiplication.

Parameters

- **mA** (*matrix*) – input matrix A.
- **mB** (*matrix*) – input matrix B.
- **target** (*dagNode*) – object target to apply the transformation
- **transform** (*str*) – if target is True. out transform to SRT valid value s r t

Returns Newly created mGear_multMatrix node

Return type pyNode

mgear.core.applyop.**gear_raycast**(*in_mesh*, *ray_source*, *ray_direction*, *out_obj=None*, *connect_srt='t'*)
Create and connect mraycast node

Parameters

- **in_mesh** (*shape*) – Mesh shape
- **ray_source** (*transform*) – ray source
- **ray_direction** (*transform*) – ray direction
- **out_obj** (*transform, optional*) – Object to apply the raycast contact
- **connect_srt** (*str, optional*) – scale rotation traanslation flag

Returns The raycast node

Return type PyNode

mgear.core.applyop.**gear_rollsplinekine_op**(*out*, *controlers=[]*, *u=0.5*, *subdiv=10*)
Apply a sn_rollsplinekine_op operator

Parameters

- **out** (*dagNode*) – onstrained Object.
- **controlers** (*list of dagNodes*) – Objects that will act as controler of the bezier curve. Objects must have a parent that will be used as an input for the operator.
- **u** (*float*) – Position of the object on the bezier curve (from 0 to 1).
- **subdiv** (*int*) – spline subdivision precision.

Returns The newly created operator.

Return type pyNode

mgear.core.applyop.**gear_spinePointAtOp**(*cns*, *startobj*, *endobj*, *blend=0.5*, *axis='-Z'*)
Apply a SpinePointAt operator

Parameters

- **cns** (*Constraint*) – The constraint to apply the operator on (must be a curve, path or direction constraint).
- **startobj** (*dagNode*) – Start Reference.

- **endobj** (*dagNode*) – End Reference.
- **blend** (*float*) – Blend influence value from 0 to 1.
- **axis** (*string*) – Axis direction.

Returns The newly created operator.

Return type pyNode

mgear.core.applyop.**gear_spinePointAtOpWM**(*cns*, *startobj*, *endobj*, *blend=0.5*, *axis='-Z'*)
Apply a SpinePointAt operator using world matrix

Parameters

- **Constraint** (*cns*) – The constraint to apply the operator on (must be a curve, path or direction constraint).
- **startobj** (*dagNode*) – Start Reference.
- **endobj** (*dagNode*) – End Reference.
- **blend** (*float*) – Blend influence value from 0 to 1.
- **axis** (*str*) – Axis direction.

Returns The newly created operator.

Return type pyNode

mgear.core.applyop.**gear_spring_op**(*in_obj*, *goal=False*)
Apply mGear spring node.

Parameters

- **in_obj** (*dagNode*) – Constrained object.
- **goal** (*dagNode*) – By default is False.

Returns Newly created node

Return type pyNode

mgear.core.applyop.**gear_squashstretch2_op**(*out*, *sclref=None*, *length=5*, *axis='x'*, *scaleComp=None*)
Apply a sn_squashstretch2_op operator

Parameters

- **out** (*dagNode*) – Constrained object.
- **sclref** (*dagNode*) – Global scaling reference object.
- **length** (*float*) – Rest Length of the S&S.
- **axis** (*str*) – 'x' for scale all except x axis...
- **scaleComp** (*list of float*) – extra scale compensation to avoid double scale in some situations.

Returns The newly created operator.

Return type pyNode

mgear.core.applyop.**oriCns**(*driver*, *driven*, *maintainOffset=False*)
Apply orientation constraint

Apply orientation constraint changing XYZ default connexions by rotate compound connexions

Note: We have found an evaluation difference in the values if the connexion is compound or by axis

Parameters

- **driver** (*dagNode or dagNode list*) – Driver object.
- **driven** (*dagNode*) – Driven object.
- **maintainOffset** (*bool*) – Keep the offset.

Returns Orientation constraintn node.

Return type pyNode

Example

```
import mgear.core.applyop as aop
import pymel.core as pm
sphere = pm.polySphere(n='sphereDriver')
cube = pm.polyCube(n='cubeDriven')
ori_cns = aop.oriCns(sphere[0], cube[0], True)
```

mgear.core.applyop.**pathCns**(*obj*, *curve*, *cnsType=False*, *u=0*, *tangent=False*)

Apply a path constraint or curve constraint.

Parameters

- **obj** (*dagNode*) – Constrained object.
- **curve** (*Nurbscurve*) – Constraining Curve.
- **cnsType** (*int*) – 0 for Path Constraint, 1 for Curve Constraint (Parametric).
- **u** (*float*) – Position of the object on the curve (from 0 to 100 for path constraint, from 0 to 1 for Curve cns).
- **tangent** (*bool*) – Keep tangent orientation option.

Returns The newly created constraint.

Return type pyNode

mgear.core.applyop.**splineIK**(*name*, *chn*, *parent=None*, *cParent=None*, *curve=None*)

Apply a splineIK solver to a chain.

Parameters

- **name** (*str*) – Name of the operator node.
- **chn** (*list of joints*) – List of joints. At less 2 joints should be in the list.
- **parent** (*dagNode*) – Parent for the ikHandle.
- **cParent** (*dagNode*) – Parent for the curve.
- **curve** (*dagNode*) – Specifies the curve to be used by the ikSplineHandle. This param is optional.

Returns ikHandle node and splinecrv in a list

Return type list

Example

```
>>> aop.splineIK(self.getName("rollRef"),
                 self.rollRef,
                 parent=self.root,
                 cParent=self.bone0 )
```

mgear.core.attribute module

Attribute creation functions

class mgear.core.attribute.**FCurveParamDef**(*scriptName*, *keys=None*, *interpolation=0*, *extrapolation=0*)

Bases: *mgear.core.attribute.ParamDef*

Create an Fcurve parameter definition.

Parameters

- **scriptName** (*str*) – Attribute fullName.
- **keys** (*list*) – The keyframes to define the function curve.
- **interpolation** (*int*) – the curve interpolation.
- **extrapolation** (*int*) – the curve extrapolation.

create(*node*)

Add a parameter to property using the parameter definition.

Parameters **node** (*dagNode*) – The node to add the attribute

get_as_dict()

set_from_dict(*param_dict*)

class mgear.core.attribute.**ParamDef**(*read as Parameter Definition*)

Bases: object

Encapsulate the attribute creation arguments in a handy object. Also include a creation method.

Example

This can be use later to create attr or export the description to xml or json file

Arguments: scriptName (str): Attribute fullName paranDef (dic): The stored param definition

create(*node*)

Add a parameter to property using the parameter definition.

Parameters **node** (*dagNode*) – The node to add the attribute

get_as_dict()

set_from_dict(*param_dict*)

class mgear.core.attribute.**ParamDef2**(*scriptName*, *valueType*, *value*, *niceName=None*, *shortName=None*, *minimum=None*, *maximum=None*, *keyable=True*, *readable=True*, *storable=True*, *writable=True*)

Bases: *mgear.core.attribute.ParamDef*

ParamDef2 inherit from ParamDef

Parameters

- **scriptName** (*str*) – Parameter scriptname.
- **valueType** (*str*) – The Attribute Type. Exp: 'string', 'bool', 'long', etc..
- **value** (*float or int*) – Default parameter value.
- **niceName** (*str*) – Parameter niceName.
- **shortName** (*str*) – Parameter shortName.
- **minimum** (*float or int*) – mininum value.
- **maximum** (*float or int*) – maximum value.
- **keyable** (*boo*) – If true is keyable
- **readable** (*boo*) – If true is readable
- **storable** (*boo*) – If true is storable
- **writable** (*boo*) – If true is writable

Returns The stored parameter definition.

Return type *ParamDef*

mgear.core.attribute.**addAttribute**(*node*, *longName*, *attributeType*, *value=None*, *niceName=None*, *shortName=None*, *minValue=None*, *maxValue=None*, *keyable=True*, *readable=True*, *storable=True*, *writable=True*, *channelBox=False*)

Add attribute to a node

Parameters

- **node** (*dagNode*) – The object to add the new attribute.
- **longName** (*str*) – The attribute name.
- **attributeType** (*str*) – The Attribute Type. Exp: 'string', 'bool', 'long', etc..
- **value** (*float or int*) – The default value.
- **niceName** (*str*) – The attribute nice name. (optional)
- **shortName** (*str*) – The attribute short name. (optional)
- **minValue** (*float or int*) – minimum value. (optional)
- **maxValue** (*float or int*) – maximum value. (optional)
- **keyable** (*bool*) – Set if the attribute is keyable or not. (optional)
- **readable** (*bool*) – Set if the attribute is readable or not. (optional)
- **storable** (*bool*) – Set if the attribute is storable or not. (optional)
- **writable** (*bool*) – Set if the attribute is writable or not. (optional)
- **channelBox** (*bool*) – Set if the attribute is in the channelBox or not, when the attribute is not keyable. (optional)

Returns The long name of the new attribute

Return type str

mgear.core.attribute.**addColorAttribute**(*node*, *longName*, *value=False*, *keyable=True*, *readable=True*, *storable=True*, *writable=True*, *niceName=None*, *shortName=None*)

Add a color attribute to a node

Parameters

- **node** (*dagNode*) – The object to add the new attribute.
- **longName** (*str*) – The attribute name.
- **value** (*list of flotat*) – The default value in a list for RGB. exp [1.0, 0.99, 0.13].
- **keyable** (*bool*) – Set if the attribute is keyable or not. (optional)
- **readable** (*bool*) – Set if the attribute is readable or not. (optional)
- **storable** (*bool*) – Set if the attribute is storable or not. (optional)
- **writable** (*bool*) – Set if the attribute is writable or not. (optional)
- **niceName** (*str*) – The attribute nice name. (optional)
- **shortName** (*str*) – The attribute short name. (optional)

Returns The long name of the new attribute

Return type str

mgear.core.attribute.**addEnumAttribute**(*node*, *longName*, *value*, *enum*, *niceName=None*, *shortName=None*, *keyable=True*, *readable=True*, *storable=True*, *writable=True*)

Add an enumerate attribute to a node

Parameters

- **node** (*dagNode*) – The object to add the new attribute.
- **longName** (*str*) – The attribute name.
- **value** (*int*) – The default value.
- **enum** (*list of str*) – The list of elements in the enumerate control
- **niceName** (*str*) – The attribute nice name. (optional)
- **shortName** (*str*) – The attribute short name. (optional)
- **keyable** (*bool*) – Set if the attribute is keyable or not. (optional)
- **readable** (*bool*) – Set if the attribute is readable or not. (optional)
- **storable** (*bool*) – Set if the attribute is storable or not. (optional)
- **writable** (*bool*) – Set if the attribute is writable or not. (optional)

Returns The long name of the new attribute

Return type str

mgear.core.attribute.**addFCurve**(*node*, *name='fcurve'*, *keys=[]*)

FCurve attribute

Just a animCurveUU node connected to an attribute

Warning: This Method is deprecated.

Parameters

- **node** (*dagNode*) – The object to add the new fcurve attribute
- **name** (*str*) – The attribute name
- **key** (*list*) – list of keyframes and values

Returns Fcurve and attribute name

mgear.core.attribute.**addProxyAttribute**(*sourceAttrs*, *targets*, *duplicatedPolicy=None*)

Add proxy paramenter to a list of target dagNode Duplicated channel policy, stablish the rule in case the channel already exist on the target.

Duplicate policy options

index	This policy will add an index to avoid clashing channel names
fullName	This policy will add the name of the source object to the channel
merge	This policy will merge the channels

Parameters

- **sourceAttrs** (*attr or list of attr*) – The parameters to be connected as proxy
- **targets** (*dagNode or list of dagNode*) – The list of dagNode to add the proxy paramenter
- **duplicatedPolicy** (*string, optional*) – Set the duplicated channel policy

mgear.core.attribute.**add_mirror_config_channels**(*ctl, conf=[0, 0, 0, 0, 0, 0, 0, 0, 0, 0]*)

Add channels to configure the mirror posing

Parameters **ctl** (*dagNode*) – Control Object

mgear.core.attribute.**collect_attrs**(*node*, *attrs*, *attrs_list*, *shapes=False*)

Collect the channel full path in a list.

Checks that the channel is not repeated.

Parameters

- **node** (*PyNode*) – Node that owns the channels
- **attrs** (*str*) – the list to add the channels full path
- **attrs_list** (*list*) – the list of channels names
- **shapes** (*bool, optional*) – If True will search the attr only in shapes

class mgear.core.attribute.**colorParamDef**(*scriptName*, *value=False*)

Bases: *mgear.core.attribute.ParamDef*

Create a Color parameter definition.

Parameters

- **scriptName** (*str*) – Attribute fullName
- **value** (*list of float*) – The default value in a list for RGB. exp [1.0, 0.99, 0.13].

create(*node*)

Add a parameter to property using the parameter definition.

Parameters **node** (*dagNode*) – The node to add the attribute

get_as_dict()

set_from_dict(*param_dict*)

mgear.core.attribute.**connectSet**(*source*, *target*, *testInstance*)
Connect or set attributes

Connects or set attributes depending if is instance of a instance check

Parameters

- **source** (*str or Attr*) – Striname of the attribute or PyNode attribute
- **target** (*str or Attr*) – Striname of the attribute or PyNode attribute
- **testInstance** (*tuple*) – Tuple of types to check

mgear.core.attribute.**connect_add_dynamic_pivot**(*pivots*, *driven*)
connect dynamic pivot with option to add offset channels on XYZ

Parameters

- **pivot** (*dagNode list*) – pivot translation
- **driven** (*dagNode*) – Driven object
- **offset** (*list*) – Description

mgear.core.attribute.**connect_dynamic_pivot**(*pivot*, *driven*)
connects translation of pivot dagNode to rotatePivot and scalePivot of the driven transform

Parameters

- **pivot** (*dagNode*) – pivot translation
- **driven** (*dagNode*) – Driven object

class mgear.core.attribute.**enumParamDef**(*scriptName*, *enum*, *value=False*)
Bases: *mgear.core.attribute.ParamDef*

Create an enumarator parameter definition.

Parameters

- **scriptName** (*str*) – Attribute fullName
- **enum** (*list of str*) – The list of elements in the enumerate control.
- **value** (*int*) – The default value.

create(*node*)
Add a parameter to property using the parameter definition.

Parameters **node** (*dagNode*) – The node to add the attribute

get_as_dict()

set_from_dict(*param_dict*)

mgear.core.attribute.**getSelectedChannels**(*userDefine=False*)
Get the selected channels on the channel box

Parameters **userDefine** (*bool, optional*) – If True, will return only the user defined channels. Other channels will be skipped.

Returns The list of selected channels names

Return type list

mgear.core.attribute.**getSelectedObjectChannels**(*oSel=None*, *userDefine=False*, *animatable=False*)

Get the selected object channels.

Parameters

- **oSel** (*None, optional*) – The pynode with channels to get
- **userDefine** (*bool, optional*) – If True, will return only the user defined channels. Other channels will be skipped.
- **animatable** (*bool, optional*) – If True, only animatable parameters will be return

Returns The list of the selected object channels names

Return type list

mgear.core.attribute.**get_channelBox**()

Get the channel box

Returns channel box path

Return type str

mgear.core.attribute.**get_default_value**(*node*, *attribute*)

Get the default attribute value

Parameters

- **node** (*str, PyNode*) – The object with the attribute
- **attribute** (*str*) – The attribute to get the value

Returns The attribute value

Return type variant

mgear.core.attribute.**get_next_available_index**(*attr*)

get the next available index from a multi attr This function is a workaround because the connect attr flag next available is not working.

The connectAttr to the children attribute is giving error

i.e: pm.connectAttr(ctt.attr("parent"), tpTagNode.attr("children"), na=True)

if using the next available option flag I was expecting to use ctt.setParent(tagParent) but doest't work as expected. After reading the documentation this method looks prety useless. Looks like is boolean and works based on selection :(

Parameters **attr** (*attr*) – Attr multi

Returns index

Return type int

mgear.core.attribute.**get_selected_channels_full_path**()

Get the selected channels full path from channel box This function will collect channels from any area of the channel box. This include, Main, shape, input and output

Returns list of channels full path

Return type list

mgear.core.attribute.**lockAttribute**(*node, attributes=['tx', 'ty', 'tz', 'rx', 'ry', 'rz', 'sx', 'sy', 'sz', 'v']*)

Lock attributes of a node.

By defaul will lock the rotation, scale and translation.

Parameters

- **node** (*dagNode*) – The node with the attributes to lock.
- **attributes** (*list of str*) – The list of the attributes to lock.

Example

```
>>> att.lockAttribute(self.root_ctl, ["sx", "sy", "sz", "v"])
```

mgear.core.attribute.**moveChannel**(*attr*, *sourceNode*, *targetNode*, *duplicatedPolicy=None*)

Move channels keeping the output connections. Duplicated channel policy, stablish the rule in case the channel already exist on the target.

NOTE: For the moment move channel only supports type double and enum

Duplicate policy options

index	This policy will add an index to avoid clashing channel names
fullName	This policy will add the name of the source object to the channel
merge	This policy will merge the channels

Parameters

- **attr** (*str*) – Name of the channel to move
- **sourceNode** (*PyNoe or str*) – The source node with the channel
- **targetNode** (*PyNoe or str*) – The target node for the channel
- **duplicatedPolicy** (*None, str*) – Set the duplicated channel policy

mgear.core.attribute.**reset_SRT**(*objects=None, attributes=['tx', 'ty', 'tz', 'rx', 'ry', 'rz', 'sx', 'sy', 'sz', 'v']*)

Reset Scale Rotation and translation attributes to default value

Parameters

- **objects** (*None, optional*) – The objects to reset the channels
- **attribute** (*list*) – The attribute to reset

mgear.core.attribute.**reset_selected_channels_value**(*objects=None*, *attributes=None*)

Reset the the selected channels if not attribute is provided

Parameters

- **objects** (*None, optional*) – The objects to reset the channels
- **attribute** (*list, optional*) – The attribute to reset

mgear.core.attribute.**setInvertMirror**(*node*, *invList=None*)

Set invert mirror pose values

Parameters **node** (*dagNode*) – The object to set invert mirror Values

mgear.core.attribute.**setKeyableAttributes**(*nodes, params=['tx', 'ty', 'tz', 'ro', 'rx', 'ry', 'rz', 'sx', 'sy', 'sz']*)

Set keyable attributes of a node.

By defaul will set keyable the rotation, scale and translation.

Parameters

- **node** (*dagNode*) – The node with the attributes to set keyable.
- **attributes** (*list of str*) – The list of the attributes to set keyable. Attrs not in the list will be locked if None, ["tx", "ty", "tz", "rorder", "rx", "ry", "rz", "sx", "sy", "sz"] is used

mgear.core.attribute.**setNotKeyableAttributes**(*nodes, attributes=['tx', 'ty', 'tz', 'ro', 'rx', 'ry', 'rz', 'sx', 'sy', 'sz', 'v']*)

Set not keyable attributes of a node.

By defaul will set not keyable the rotation, scale and translation.

Parameters

- **node** (*dagNode*) – The node with the attributes to set keyable.
- **attributes** (*list of str*) – The list of the attributes to set not keyable

mgear.core.attribute.**setRotOrder**(*node*, *s='XYZ'*)

Set the rotorder of the object.

Parameters

- **node** (*dagNode*) – The object to set the rot order on.
- **s** (*str*) – Value of the rotorder. Possible values : ("XYZ", "XZY", "YXZ", "YZX", "ZXY", "ZYX")

mgear.core.attribute.**set_default_value**(*node*, *attribute*)

Set the default value to the attribute

Parameters

- **node** (*str, PyNode*) – The object with the attribute to reset
- **attribute** (*str*) – The attribute to reset

mgear.core.attribute.**smart_reset**(**args*)

Reset the SRT or the selected channels

Checks first if we have channels selected. If not, will try to reset SRT

Parameters ***args** – Dummy

mgear.core.attribute.**toggle_bool_attr**(*attr*)

mgear.core.attribute.**unlockAttribute**(*node, attributes=['tx', 'ty', 'tz', 'rx', 'ry', 'rz', 'sx', 'sy', 'sz', 'v']*)

Unlock attributes of a node.

By defaul will unlock the rotation, scale and translation.

Parameters

- **node** (*dagNode*) – The node with the attributes to unlock.
- **attributes** (*list of str*) – The list of the attributes to unlock.

Example

```
>>> att.unlockAttribute(self.root_ctl, ["sx", "sy", "sz", "v"])
```

mgear.core.callbackManager module

API for creating, deleting, debuging callbacks

examples ———————————————————— # module cb.selectionChangedCB("testingSesssssslection", cb.testFunc) cb.RECORDED_CALLBACKS cb.removeAllSessionCB()

manager A e = cb.CallbackManager() e.namespace e.debug = False e.selectionChangedCB("synopticUI1", cb.testFunc) e.newSceneCB("synopticNewScene", cb.testFunc) e.removeManagedCB("synopticUI1") e.removeManagedCB("synopticNewScene")

e.attributeChangedCB("attrChanged", cb.testFunc, "pSphere1", ["tx"]) e.removeManagedCB("attrChanged")

e.MANAGER_CALLBACKS e.removeAllManagedCB()

manager b r = cb.CallbackManager() r.selectionChangedCB("synopticUI1", cb.testFunc) r.MANAGER_CALLBACKS r.removeAllManagedCB()

__author__ = "Rafael Villar" __email__ = "rav@ravrigs.com"

class mgear.core.callbackManager.**AttributeChangedManager**(*m_node*, *attributes*, *func*)
Bases: object

mini class that will be called upon when attrChanged callback is run this will check the plugs passed in to see if it is an attr of desired name

attributes
[tx, ty] of SHORT NAMED attrs to monitor

Type list

func
to call when criteria met

Type function

m_node
mobject

Type om.MOBJECT

attributeChanged(*id*, *plug1*, *plug2*, *payload*)
actual function that will be called when attrChanged callback is created

Parameters

- **id** (*int*) – 2056 is the desired, attr changed id
- **plug1** (*om.MPlug*) – MPlug attr to query

Returns n/a

Return type n/a

class mgear.core.callbackManager.**CallbackManager**
Bases: object

Convenience to manage callbacks

debug
should callbacks created by manager produce print outs

Type bool

MANAGER_CALLBACKS
record of all created callbacks

Type dict

namespace
namespace to put callbacks under

Type str

addNamespace(*callback_name*)
used in the decorator, add namespace to any name provided

Parameters **callback_name** (*str*) – name of callback

Returns provided name with namespace

Return type str

attributeChangedCB(*callback_name*, *func*, *node*, *attributes*)

checkDebug(*debugInfo*, **args*)
safely check if manager is in debug mode

Parameters

- **debugInfo** (*list*) – callback name, function being called with args
- ***args** – args to pass to the function associated with callback

newSceneCB(*callback_name*, *func*)

registerManagerCB()
decorator, adds debug and namespace to every callback created

Parameters **func** (*function*) – function to wrap

Returns wrapped function

Return type function

removeAllManagedCB()
remove all the callbacks created my this manager

removeManagedCB(*callback_name*)
remove specific callback under this manager

Parameters **callback_name** (*str*) – name

selectionChangedCB(*callback_name*, *func*)

setNamespace(*namespace*)
set the namespace to put callbacks under

Parameters **namespace** (*str*) – desired namespace

timeChangedCB(*callback_name*, *func*)

userTimeChangedCB(*callback_name*, *func*)

wrapWithDebug(*debugInfo*, *func*)
so every function that is associated with a callback is swapped out for this one, so it will check for debugging

Parameters

- **debugInfo** (*list*) – callback name, mayacallback id, functions to call
- **func** (*function*) – to wrap with this debug checker

Returns partial function that will check for debug

Return type function

class mgear.core.callbackManager.**UserTimeChangedManager**(*func*)
Bases: object

mini class that will be called upon when timeChanged callback is run this will check to see if playback is active, if so BREAK

attributes
[tx, ty] of SHORT NAMED attrs to monitor

Type list

func
to call when criteria met

Type function

m_node
mobject

Type om.MOBJECT

userTimeChanged(**args*)
Check if playback is active, if so return without calling func

mgear.core.callbackManager.**attributeChangedCB**(*callback_name*, *func*, *node*, *attributes*)
call the provided function any of the provided attributes are changed

Parameters

- **callback_name** (*str*) – name of the callback
- **func** (*function*) – to be called upon
- **node** (*str*) – name of node to montior for attr changes
- **attributes** (*list*) – of SHORTNAMED attributes to monitor

Returns maya id to created callback

Return type long

mgear.core.callbackManager.**checkAndRecordCB**(*callback_name*, *callback_id*, *callback_info={}*)
will remove any callbacks of the same name prior to creating a new one

Parameters

- **callback_name** (*str*) – desired name of the callback, readable
- **callback_id** (*long*) – api method of identifying callbacks

mgear.core.callbackManager.**getMObject**(*node*)
get the mobject of any name provided, so it can have cb's assined to it

Parameters **node** (*str*) – of node

Returns MOBJECT

Return type om.MObject

mgear.core.callbackManager.**newSceneCB**(*callback_name*, *func*)
When a new scene is opened, call the provided function

Parameters

- **callback_name** (*str*) – name you want to assign cb

- **func** (*function*) – will be called upon

Returns maya id to created callback

Return type long

mgear.core.callbackManager.**registerSessionCB**(*func*)
decorator to ensure that every callback created is recorded

Parameters **func** (*function*) – function that will create the callback

Returns function

Return type function

mgear.core.callbackManager.**removeAllCBFromNode**(*node*)
remove all callbacks from the provided node

Parameters **node** (*str*) – name of node to remove callbacks from

mgear.core.callbackManager.**removeAllSessionCB**()
Remove all the callbacks created in this session, provided they are in the RECORDED_CALLBACKS dict

mgear.core.callbackManager.**removeCB**(*callback_identifier*, *callback_info={}*)
Remove callback from scene and RECORDED_CALLBACKS(or provided dict)

Parameters

- **callback_identifier** (*str*) – name of callback
- **callback_info** (*dict, optional*) – dict to remove callback from

mgear.core.callbackManager.**removeCBviaMayaID**(*mayaID*, *callback_info={}*)
This if have the maya pointer only, this will remove it from the recorded_callbacks as well

Parameters

- **mayaID** (*long*) – maya point to a callback
- **callback_info** (*dict, optional*) – remove it from desired cb recorder

mgear.core.callbackManager.**removeNamespaceCB**(*namespace*)
Remove all callbacks under the provided namespace

Parameters **namespace** (*str*) – uuid or other type of namespace

mgear.core.callbackManager.**sampleCallback**(*callback_name*, *func*)
argument order is important. Callback_name and func must always be first must always return the mayaID to the callback :param callback_name: name you want to assign cb :type callback_name: str :param func: will be called upon :type func: function

Returns maya id to created callback

Return type long

mgear.core.callbackManager.**selectionChangedCB**(*callback_name*, *func*)
When the selection is changed call the provided function

Parameters

- **callback_name** (*str*) – name you want to assign cb
- **func** (*function*) – will be called upon

Returns maya id to created callback

Return type long

mgear.core.callbackManager.**testFunc**(**args*)
test function used for debugging/dev

Parameters ***args** – things that will printed

mgear.core.callbackManager.**timeChangedCB**(*callback_name*, *func*)
ANYTIME the time is changed, call the provided function

Parameters

- **callback_name** (*str*) – name you want to assign cb
- **func** (*function*) – will be called upon

Returns maya id to created callback

Return type long

mgear.core.callbackManager.**userTimeChangedCB**(*callback_name*, *func*)
Callback triggers during user timeChange, skips PLAYBACK

Parameters

- **callback_name** (*str*) – name you want to assign cb
- **func** (*function*) – will be called upon

Returns maya id to created callback

Return type long

mgear.core.curve module

NurbsCurve creation functions

mgear.core.curve.**addCnsCurve**(*parent*, *name*, *centers*, *degree=1*)
Create a curve attached to given centers. One point per center

Parameters

- **parent** (*dagNode*) – Parent object.
- **name** (*str*) – Name
- **centers** (*list of dagNode*) – Object that will drive the curve.
- **degree** (*int*) – 1 for linear curve, 3 for Cubic.

Returns The newly created curve.

Return type dagNode

mgear.core.curve.**addCurve**(*parent*, *name*, *points*, *close=False*, *degree=3*, *m=<sphinx.ext.autodoc.importer._MockObject object>*)
Create a NurbsCurve with a single subcurve.

Parameters

- **parent** (*dagNode*) – Parent object.
- **name** (*str*) – Name
- **positions** (*list of float*) – points of the curve in a one dimension array [point0X, point0Y, point0Z, 1, point1X, point1Y, point1Z, 1, . . .].
- **close** (*bool*) – True to close the curve.

- **degree** (*bool*) – 1 for linear curve, 3 for Cubic.
- **m** (*matrix*) – Global transform.

Returns The newly created curve.

Return type dagNode

mgear.core.curve.**average_curve**(*crv*, *shapes*, *average=2*, *avg_shape=False*, *avg_scl=False*, *avg_rot=False*)

Average the shape, rotation and scale of the curve bettwen n number of curves

Parameters

- **crv** (*dagNode*) – curve to average shape
- **shapes** (*[dagNode]]*) – imput curves to average the shapes
- **average** (*int, optional*) – Number of curves to use on the average
- **avg_shape** (*bool, optional*) – if True will interpolate curve shape
- **avg_scl** (*bool, optional*) – if True will interpolate curve scale
- **avg_rot** (*bool, optional*) – if True will interpolate curve rotation

mgear.core.curve.**collect_curve_data**(*objs, rplStr=[", "]*)

Generate a dictionary descriving the curve data

Suport multiple objects

Parameters

- **objs** (*dagNode*) – Curve object to store
- **collect_trans** (*bool, optional*) – if false will skip the transformation matrix
- **rplStr** (*list, optional*) – String to replace in names. This allow to change the curve names before store it. [old Name to replace, new name to set]

Returns Curves data

Return type dict

mgear.core.curve.**collect_curve_shapes**(*crv, rplStr=[", "]*)

Collect curve shapes data

Parameters

- **crv** (*dagNode*) – Curve object to collect the curve shapes data
- **rplStr** (*list, optional*) – String to replace in names. This allow to change the curve names before store it. [old Name to replace, new name to set]

Returns Curve shapes dictionary and curve shapes names

Return type dict, list

mgear.core.curve.**collect_selected_curve_data**(*objs=None, rplStr=[", "]*)

Generate a dictionary descriving the curve data from selected objs

Parameters **objs** (*None, optional*) – Optionally a list of object can be provided

mgear.core.curve.**createCurveFromCurve**(*srcCrv*, *name*, *nbPoints*, *parent=None*)

Create a curve from a curve

Parameters

- **srcCrv** (*curve*) – The source curve.

- **name** (*str*) – The new curve name.
- **nbPoints** (*int*) – Number of control points for the new curve.
- **parent** (*dagNode*) – Parent of the new curve.

Returns The newly created curve.

Return type dagNode

mgear.core.curve.**createCurveFromOrderedEdges**(*edgeLoop*, *startVertex*, *name*, *parent=None*, *degree=3*)

Create a curve for a edgeloop ordering the list from starting vertex

Parameters

- **edgeLoop** (*list*) – List of edges
- **startVertex** (*vertex*) – Starting vertex
- **name** (*str*) – Name of the new curve.
- **parent** (*dagNode*) – Parent of the new curve.
- **degree** (*int*) – Degree of the new curve.

Returns The newly created curve.

Return type dagNode

mgear.core.curve.**createCuveFromEdges**(*edgeList*, *name*, *parent=None*, *degree=3*, *sortingAxis='x'*)

Create curve from a edge list.

Parameters

- **edgeList** (*list*) – List of edges.
- **name** (*str*) – Name of the new curve.
- **parent** (*dagNode*) – Parent of the new curve.
- **degree** (*int*) – Degree of the new curve.
- **sortingAxis** (*str*) – Sorting axis x, y or z

Returns The newly created curve.

Return type dagNode

mgear.core.curve.**create_curve_from_data**(*data*, *replaceShape=False*, *rebuildHierarchy=False*, *rplStr=['', '']*, *model=None*)

Build the curves from a given curve data dict

Hierarchy rebuild after all curves are build to avoid lost parents

Parameters

- **data** (*dict*) – serialized curve data
- **replaceShape** (*bool, optional*) – If True, will replace the shape on existing objects
- **rebuildHierarchy** (*bool, optional*) – If True, will regenerate the hierarchy

mgear.core.curve.**create_curve_from_data_by_name**(*crv*, *data*, *replaceShape=False*, *rebuildHierarchy=False*, *rplStr=['', '']*, *model=None*)

Build one curve from a given curve data dict

Parameters

- **crv** (*str*) – name of the crv to create
- **data** (*dict*) – serialized curve data
- **replaceShape** (*bool, optional*) – If True, will replace the shape on existing objects
- **rebuildHierarchy** (*bool, optional*) – If True, will regenerate the hierarchy
- **rplStr** (*list, optional*) – String to replace in names. This allow to change the curve names before store it. [old Name to replace, new name to set]
- **model** (*dagNode, optional*) – Model top node to help find the correct parent, if several objects with the same name

mgear.core.curve.**crv_parenting**(*data, crv, rplStr=[", "], model=None*)

Parent the new created curves

Parameters

- **data** (*dict*) – serialized curve data
- **crv** (*str*) – name of the curve to parent
- **rplStr** (*list, optional*) – String to replace in names. This allow to change the curve names before store it. [old Name to replace, new name to set]
- **model** (*dagNode, optional*) – Model top node to help find the correct parent, if several objects with the same name

mgear.core.curve.**curl_curve**(*crvs*, *amount=0.3*, *frequency=10*)

mgear.core.curve.**export_curve**(*filePath=None, objs=None, rplStr=[", "]*)

Export the curve data to a json file

Parameters

- **filePath** (*None, optional*) – Description
- **objs** (*None, optional*) – Description

Returns Description

Return type TYPE

mgear.core.curve.**findLenghtFromParam**(*crv*, *param*)

Find lengtht from a curve parameter

Parameters

- **param** (*float*) – The parameter to get the legth
- **crv** (*curve*) – The source curve.

Returns Curve uLength

Return type float

Example

```
oParam, oLength = cur.getCurveParamAtPosition(upRope, cv)
uLength = cur.findLenghtFromParam(upRope, oParam)
u = uLength / oLength
```

mgear.core.curve.**getCurveParamAtPosition**(*crv*, *position*)
Get curve parameter from a position

Parameters

- **position** (*list of float*) – Represents the position in worldSpace exp: [1.4, 3.55, 42.6]
- **crv** (*curve*) – The source curve to get the parameter.

Returns paramenter and curve length

Return type list

mgear.core.curve.**get_color**(*node*)
Get the color from shape node

Parameters **node** (*TYPE*) – shape

Returns Description

Return type TYPE

mgear.core.curve.**import_curve**(*filePath=None, replaceShape=False, rebuildHierarchy=False, rplStr=[", "]*)

mgear.core.curve.**keep_lock_length_state**(*func*)

mgear.core.curve.**keep_point_0_cnx_state**(*func*)

mgear.core.curve.**lock_first_point**(*crv*)

mgear.core.curve.**lock_length**(*crv*, *lock=True*)

mgear.core.curve.**rebuild_curve**(*crvs*, *spans*)

mgear.core.curve.**set_color**(*node*, *color*)
Set the color in the Icons.

Parameters

- **node** (*dagNode*) – The object
- **color** (*int or list of float*) – The color in index base or RGB.

mgear.core.curve.**set_thickness**(*crv*, *thickness=-1*)

mgear.core.curve.**smooth_curve**(*crvs*, *smooth_factor=1*)

mgear.core.curve.**straighten_curve**(*crvs*, *straighteness=0.1*, *keep_lenght=1*)

mgear.core.curve.**update_curve_from_data**(*data, rplStr=[", "]*)
update the curves from a given curve data dict

Parameters **data** (*dict*) – serialized curve data

mgear.core.curve.**update_curve_from_file**(*filePath=None, rplStr=[", "]*)

mgear.core.dag module

Nvigate the DAG hierarchy

mgear.core.dag.**findChild**(*node*, *name*)
Returns the first child of input node, with a matching name.

Parameters

- **node** (*dagNode*) – The input node to search
- **name** (*str*) – The name to search

Returns The first child

Return type dagNode

```
>>>  parent = dag.findChild(self.model,
                            mgear.string.convertRLName(
                                comp_guide.root.name()))
```

mgear.core.dag.**findChildren**(*node*, *name*)

Returns all the children of input node, with a matching name.

Parameters

- **node** (*dagNode*) – The input node to search
- **name** (*str*) – The name to search

Returns The children dagNodes

Return type dagNode list

mgear.core.dag.**findChildrenPartial**(*node*, *name*)

Returns the children of input node, with a partial matching name.

Parameters

- **node** (*dagNode*) – The input node to search
- **name** (*str*) – The name to search

Returns The children dagNodes

Return type dagNode list

mgear.core.dag.**findComponentChildren**(*node*, *name*, *sideIndex*)

Returns the component children of input component root.

Note: This method is specific to work with shifter guides naming conventions

---

Parameters

- **node** (*dagNode*) – The input node to search
- **name** (*str*) – The name to search
- **sideIndex** (*str*) – the side

Returns The children dagNodes

Return type dagNode list

```
>>> objList =  dag.findComponentChildren(self.parent,
                                          oldName,
                                          oldSideIndex)
```

mgear.core.dag.**findComponentChildren2**(*node*, *name*, *sideIndex*)

Returns the component children of input component root.

This function is using Maya cmds instead of PyMel

Note: This method is specific to work with shifter guides naming conventions

Parameters

- **node** (*dagNode*) – The input node to search
- **name** (*str*) – The name to search
- **sideIndex** (*str*) – the side

Returns The children dagNodes

Return type dagNode list

```
>>> objList =  dag.findComponentChildren(self.parent,
                                         oldName,
                                         oldSideIndex)
```

mgear.core.dag.**findComponentChildren3**(*node*, *name*, *sideIndex*)

Returns the component children of input component root.

This function is using Maya cmds instead of PyMel

Note: This method is specific to work with shifter guides naming conventions

Parameters

- **node** (*dagNode*) – The input node to search
- **name** (*str*) – The name to search
- **sideIndex** (*str*) – the side

Returns The children dagNodes

Return type dagNode list

```
>>> objList =  dag.findComponentChildren(self.parent,
                                         oldName,
                                         oldSideIndex)
```

mgear.core.dag.**getShapes**(*node*)

Returns the shape of the dagNode

Parameters **node** (*dagNode*) – The input node to search the shape

Returns The shapes of the node

Return type list

mgear.core.dag.**getTopParent**(*node*)

Returns the first parent of the hierarchy.

usually the 'Model' in Softimage terminology

Parameters **node** (*dagNode*) – The input node to search.

Returns The top parent of the input node

Return type dagNode

mgear.core.dagmenu module

mgear.core.dragdrop module

mgear.core.fcurve module

mgear.core.fcurve.**getFCurveValues**(*fcv_node*, *division*, *factor=1*)

Get X values evenly spaced on the FCurve.

Parameters

- **fcv_node** (*pyNode or str*) – The FCurve to evaluate.
- **division** (*int*) – The number of division you want to evaluate on the FCurve.
- **factor** (*float*) – Multiplication factor. Default = 1. (optional)

Returns The values in a list float.

Return type list of float

```
>>> self.st_value = fcu.getFCurveValues(self.settings["st_profile"],
                                        self.divisions)
```

mgear.core.icon module

Predefined nurbsCurve shapes to be use as a rigging control Icons

mgear.core.icon.**arrow**(*parent=None, name='arrow', width=1, color=[0, 0, 0], m=<sphinx.ext.autodoc.importer._MockObject object>, pos_offset=None, rot_offset=None*)

Create a curve with a ARROW shape.

Parameters

- **parent** (*dagNode*) – The parent object of the newly created curve.
- **name** (*str*) – Name of the curve.
- **width** (*float*) – Width of the shape.
- **color** (*int or list of float*) – The color in index base or RGB.
- **m** (*matrix*) – The global transformation of the curve.
- **pos_offset** (*vector*) – The xyz position offset of the curve from its center.
- **rot_offset** (*vector*) – The xyz rotation offset of the curve from its center. xyz in radians

Returns The newly created icon.

Return type dagNode

mgear.core.icon.**axis**(*parent=None, name='axis', width=1, color=[0, 0, 0], m=<sphinx.ext.autodoc.importer._MockObject object>, pos_offset=None, rot_offset=None*)

Create a curve with a AXIS shape.

Parameters

- **parent** (*dagNode*) – The parent object of the newly created curve.

- **name** (*str*) – Name of the curve.
- **width** (*float*) – Width of the shape.
- **color** (*int or list of float*) – The color in index base or RGB.
- **m** (*matrix*) – The global transformation of the curve.
- **pos_offset** (*vector*) – The xyz position offset of the curve from its center.
- **rot_offset** (*vector*) – The xyz rotation offset of the curve from its center. xyz in radians

Returns The newly created icon.

Return type dagNode

mgear.core.icon.**circle**(*parent=None, name='circle', width=1, color=[0, 0, 0], m=<sphinx.ext.autodoc.importer._MockObject object>, pos_offset=None, rot_offset=None, degree=3*)

Create a curve with a CIRCLE shape.

Parameters

- **parent** (*dagNode*) – The parent object of the newly created curve.
- **name** (*str*) – Name of the curve.
- **width** (*float*) – Width of the shape.
- **color** (*int or list of float*) – The color in index base or RGB.
- **m** (*matrix*) – The global transformation of the curve.
- **pos_offset** (*vector*) – The xyz position offset of the curve from its center.
- **rot_offset** (*vector*) – The xyz rotation offset of the curve from its center. xyz in radians

Returns The newly created icon.

Return type dagNode

mgear.core.icon.**compas**(*parent=None, name='compas', width=1, color=[0, 0, 0], m=<sphinx.ext.autodoc.importer._MockObject object>, pos_offset=None, rot_offset=None, degree=3*)

Create a curve with a COMPAS shape.

Parameters

- **parent** (*dagNode*) – The parent object of the newly created curve.
- **name** (*str*) – Name of the curve.
- **width** (*float*) – Width of the shape.
- **color** (*int or list of float*) – The color in index base or RGB.
- **m** (*matrix*) – The global transformation of the curve.
- **pos_offset** (*vector*) – The xyz position offset of the curve from its center.
- **rot_offset** (*vector*) – The xyz rotation offset of the curve from its center. xyz in radians

Returns The newly created icon.

Return type dagNode

mgear.core.icon.**connection_display_curve**(*name*, *centers=[]*, *degree=1*)

Visual reference curves connectiong points.

Display curve object is a simple curve to show the connection between different guide element..

Parameters

- **name** (*str*) – Local name of the element.
- **centers** (*list of dagNode*) – List of object to define the curve.
- **degree** (*int*) – Curve degree. Default 1 = lineal.

Returns The newly creted curve.

Return type dagNode

mgear.core.icon.**create**(*parent=None, name='icon', m=<sphinx.ext.autodoc.importer._MockObject object>, color=[0, 0, 0], icon='cube', **kwargs*)

Icon master function

Create icon master function. This function centralize all the icons creation

Parameters

- **parent** (*dagNode*) – The parent for the new icon
- **name** (*str*) – Name of the Icon.
- **m** (*matrix*) – Transformation matrix of the icon
- **color** (*int or list of float*) – The color in index base or RGB.
- **icon** (*str*) – Icon type. Options: "cube", "pyramid", "square", "flower", "circle", "cylinder", "compas", "diamond",

  "cubewithpeak", "sphere", "arrow", "crossarrow", "cross", "null"
- **kwargs** – The keyword arguments can vary depending of the icon type. Please refear to the specific icon method for more info.

Returns The newly created icon.

Return type dagNode

mgear.core.icon.**cross**(*parent=None, name='cross', width=1, color=[0, 0, 0], m=<sphinx.ext.autodoc.importer._MockObject object>, pos_offset=None, rot_offset=None*)

Create a curve with a CROSS shape.

Parameters

- **parent** (*dagNode*) – The parent object of the newly created curve.
- **name** (*str*) – Name of the curve.
- **width** (*float*) – Width of the shape.
- **color** (*int or list of float*) – The color in index base or RGB.
- **m** (*matrix*) – The global transformation of the curve.
- **pos_offset** (*vector*) – The xyz position offset of the curve from its center.
- **rot_offset** (*vector*) – The xyz rotation offset of the curve from its center. xyz in radians

Returns The newly created icon.

Return type dagNode

mgear.core.icon.**crossarrow**(*parent=None, name='crossArrow', width=1, color=[0, 0, 0], m=<sphinx.ext.autodoc.importer._MockObject object>, pos_offset=None, rot_offset=None*)

Create a curve with a CROSS ARROW shape.

Parameters

- **parent** (*dagNode*) – The parent object of the newly created curve.
- **name** (*str*) – Name of the curve.
- **width** (*float*) – Width of the shape.
- **color** (*int or list of float*) – The color in index base or RGB.
- **m** (*matrix*) – The global transformation of the curve.
- **pos_offset** (*vector*) – The xyz position offset of the curve from its center.
- **rot_offset** (*vector*) – The xyz rotation offset of the curve from its center. xyz in radians

Returns The newly created icon.

Return type dagNode

mgear.core.icon.**cube**(*parent=None, name='cube', width=1, height=1, depth=1, color=[0, 0, 0], m=<sphinx.ext.autodoc.importer._MockObject object>, pos_offset=None, rot_offset=None*)

Create a curve with a CUBE shape.

Parameters

- **parent** (*dagNode*) – The parent object of the newly created curve.
- **name** (*str*) – Name of the curve.
- **width** (*float*) – Width of the shape.
- **height** (*float*) – Height of the shape.
- **depth** (*float*) – Depth of the shape.
- **color** (*int or list of float*) – The color in index base or RGB.
- **m** (*matrix*) – The global transformation of the curve.
- **pos_offset** (*vector*) – The xyz position offset of the curve from its center.
- **rot_offset** (*vector*) – The xyz rotation offset of the curve from its center. xyz in radians

Returns The newly created icon.

Return type dagNode

mgear.core.icon.**cubewithpeak**(*parent=None, name='cubewithpeak', width=1, color=[0, 0, 0], m=<sphinx.ext.autodoc.importer._MockObject object>, pos_offset=None, rot_offset=None*)

Create a curve with a CUBE WITH PEAK shape.

Parameters

- **parent** (*dagNode*) – The parent object of the newly created curve.
- **name** (*str*) – Name of the curve.

- **width** (*float*) – Width of the shape.
- **color** (*int or list of float*) – The color in index base or RGB.
- **m** (*matrix*) – The global transformation of the curve.
- **pos_offset** (*vector*) – The xyz position offset of the curve from its center.
- **rot_offset** (*vector*) – The xyz rotation offset of the curve from its center. xyz in radians

Returns The newly created icon.

Return type dagNode

mgear.core.icon.**cylinder**(*parent=None, name='cylinder', width=1, heigth=1, color=[0, 0, 0], m=<sphinx.ext.autodoc.importer._MockObject object>, pos_offset=None, rot_offset=None, degree=3*)

Create a curve with a CYLINDER shape.

Parameters

- **parent** (*dagNode*) – The parent object of the newly created curve.
- **name** (*str*) – Name of the curve.
- **width** (*float*) – Width of the shape.
- **height** (*float*) – Height of the shape.
- **color** (*int or list of float*) – The color in index base or RGB.
- **m** (*matrix*) – The global transformation of the curve.
- **pos_offset** (*vector*) – The xyz position offset of the curve from its center.
- **rot_offset** (*vector*) – The xyz rotation offset of the curve from its center. xyz in radians

Returns The newly created icon.

Return type dagNode

mgear.core.icon.**diamond**(*parent=None, name='diamond', width=1, color=[0, 0, 0], m=<sphinx.ext.autodoc.importer._MockObject object>, pos_offset=None, rot_offset=None*)

Create a curve with a DIAMOND shape.

Parameters

- **parent** (*dagNode*) – The parent object of the newly created curve.
- **name** (*str*) – Name of the curve.
- **width** (*float*) – Width of the shape.
- **height** (*float*) – Height of the shape.
- **depth** (*float*) – Depth of the shape.
- **color** (*int or list of float*) – The color in index base or RGB.
- **m** (*matrix*) – The global transformation of the curve.
- **pos_offset** (*vector*) – The xyz position offset of the curve from its center.
- **rot_offset** (*vector*) – The xyz rotation offset of the curve from its center. xyz in radians

Returns The newly created icon.

Return type dagNode

mgear.core.icon.**flower**(*parent=None, name='flower', width=1, color=[0, 0, 0], m=<sphinx.ext.autodoc.importer._MockObject object>, pos_offset=None, rot_offset=None, degree=3*)

Create a curve with a FLOWER shape.

Parameters

- **parent** (*dagNode*) – The parent object of the newly created curve.
- **name** (*str*) – Name of the curve.
- **width** (*float*) – Width of the shape.
- **color** (*int or list of float*) – The color in index base or RGB.
- **m** (*matrix*) – The global transformation of the curve.
- **pos_offset** (*vector*) – The xyz position offset of the curve from its center.
- **rot_offset** (*vector*) – The xyz rotation offset of the curve from its center. xyz in radians

Returns The newly created icon.

Return type dagNode

mgear.core.icon.**getPointArrayWithOffset**(*point_pos*, *pos_offset=None*, *rot_offset=None*)

Get Point array with offset

Convert a list of vector to a List of float and add the position and rotation offset.

Parameters

- **point_pos** (*list of vector*) – Point positions.
- **pos_offset** (*vector*) – The position offset of the curve from its center.
- **rot_offset** (*vector*) – The rotation offset of the curve from its center. In radians.

Returns the new point positions

Return type list of vector

mgear.core.icon.**guideBladeIcon**(*parent=None, name='blade', lenX=1.0, color=[0, 0, 0], m=<sphinx.ext.autodoc.importer._MockObject object>, pos_offset=None, rot_offset=None*)

Create a curve with a BLADE GUIDE shape.

Note: This icon is specially design for **Shifter** blade guides

---

Parameters

- **parent** (*dagNode*) – The parent object of the newly created curve.
- **name** (*str*) – Name of the curve.
- **lenX** (*float*) – Width of the shape.
- **color** (*int or list of float*) – The color in index base or RGB.
- **m** (*matrix*) – The global transformation of the curve.

- **pos_offset** (*vector*) – The xyz position offset of the curve from its center.
- **rot_offset** (*vector*) – The xyz rotation offset of the curve from its center. xyz in radians

Returns The newly created icon.

Return type dagNode

mgear.core.icon.**guideLocatorIcon**(*parent=None, name='locator', width=0.5, color=[0, 0, 0], m=<sphinx.ext.autodoc.importer._MockObject object>, pos_offset=None, rot_offset=None*)

Create a curve with a LOCATOR GUIDE shape.

Note: This icon is specially design for **Shifter** locator guides

---

Parameters

- **parent** (*dagNode*) – The parent object of the newly created curve.
- **name** (*str*) – Name of the curve.
- **width** (*float*) – Width of the shape.
- **color** (*int or list of float*) – The color in index base or RGB.
- **m** (*matrix*) – The global transformation of the curve.
- **pos_offset** (*vector*) – The xyz position offset of the curve from its center.
- **rot_offset** (*vector*) – The xyz rotation offset of the curve from its center. xyz in radians

Returns The newly created icon.

Return type dagNode

mgear.core.icon.**guideRootIcon**(*parent=None, name='root', width=0.5, color=[0, 0, 0], m=<sphinx.ext.autodoc.importer._MockObject object>, pos_offset=None, rot_offset=None*)

Create a curve with a ROOT GUIDE shape.

Note: This icon is specially design for **Shifter** root guides

---

Parameters

- **parent** (*dagNode*) – The parent object of the newly created curve.
- **name** (*str*) – Name of the curve.
- **width** (*float*) – Width of the shape.
- **color** (*int or list of float*) – The color in index base or RGB.
- **m** (*matrix*) – The global transformation of the curve.
- **pos_offset** (*vector*) – The xyz position offset of the curve from its center.
- **rot_offset** (*vector*) – The xyz rotation offset of the curve from its center. xyz in radians

Returns The newly created icon.

Return type dagNode

mgear.core.icon.**guideRootIcon2D**(*parent=None, name='root', width=0.5, color=[0, 0, 0], m=<sphinx.ext.autodoc.importer._MockObject object>, pos_offset=None, rot_offset=None*)

Create a curve with a 2D ROOT GUIDE shape.

Note: This icon is specially design for **Shifter** root guides

---

Parameters

- **parent** (*dagNode*) – The parent object of the newly created curve.
- **name** (*str*) – Name of the curve.
- **width** (*float*) – Width of the shape.
- **color** (*int or list of float*) – The color in index base or RGB.
- **m** (*matrix*) – The global transformation of the curve.
- **pos_offset** (*vector*) – The xyz position offset of the curve from its center.
- **rot_offset** (*vector*) – The xyz rotation offset of the curve from its center. xyz in radians

Returns The newly created icon.

Return type dagNode

mgear.core.icon.**null**(*parent=None, name='null', width=1, color=[0, 0, 0], m=<sphinx.ext.autodoc.importer._MockObject object>, pos_offset=None, rot_offset=None*)

Create a curve with a NULL shape.

Parameters

- **parent** (*dagNode*) – The parent object of the newly created curve.
- **name** (*str*) – Name of the curve.
- **width** (*float*) – Width of the shape.
- **color** (*int or list of float*) – The color in index base or RGB.
- **m** (*matrix*) – The global transformation of the curve.
- **pos_offset** (*vector*) – The xyz position offset of the curve from its center.
- **rot_offset** (*vector*) – The xyz rotation offset of the curve from its center. xyz in radians

Returns The newly created icon.

Return type dagNode

mgear.core.icon.**pyramid**(*parent=None, name='pyramid', width=1, height=1, depth=1, color=[0, 0, 0], m=<sphinx.ext.autodoc.importer._MockObject object>, pos_offset=None, rot_offset=None*)

Create a curve with a PYRAMIDE shape.

Parameters

- **parent** (*dagNode*) – The parent object of the newly created curve.
- **name** (*str*) – Name of the curve.
- **width** (*float*) – Width of the shape.
- **height** (*float*) – Height of the shape.
- **depth** (*float*) – Depth of the shape.
- **color** (*int or list of float*) – The color in index base or RGB.
- **m** (*matrix*) – The global transformation of the curve.
- **pos_offset** (*vector*) – The xyz position offset of the curve from its center.
- **rot_offset** (*vector*) – The xyz rotation offset of the curve from its center. xyz in radians

Returns The newly created icon.

Return type dagNode

mgear.core.icon.**setcolor**(*node*, *color*)

Set the color in the Icons.

Parameters

- **node** (*dagNode*) – The object
- **color** (*int or list of float*) – The color in index base or RGB.

mgear.core.icon.**sphere**(*parent=None, name='sphere', width=1, color=[0, 0, 0], m=<sphinx.ext.autodoc.importer._MockObject object>, pos_offset=None, rot_offset=None, degree=3*)

Create a curve with a SPHERE shape.

Parameters

- **parent** (*dagNode*) – The parent object of the newly created curve.
- **name** (*str*) – Name of the curve.
- **width** (*float*) – Width of the shape.
- **color** (*int or list of float*) – The color in index base or RGB.
- **m** (*matrix*) – The global transformation of the curve.
- **pos_offset** (*vector*) – The xyz position offset of the curve from its center.
- **rot_offset** (*vector*) – The xyz rotation offset of the curve from its center. xyz in radians

Returns The newly created icon.

Return type dagNode

mgear.core.icon.**square**(*parent=None, name='square', width=1, depth=1, color=[0, 0, 0], m=<sphinx.ext.autodoc.importer._MockObject object>, pos_offset=None, rot_offset=None*)

Create a curve with a SQUARE shape.

Parameters

- **parent** (*dagNode*) – The parent object of the newly created curve.
- **name** (*str*) – Name of the curve.

- **width** (*float*) – Width of the shape.
- **depth** (*float*) – Depth of the shape.
- **color** (*int or list of float*) – The color in index base or RGB.
- **m** (*matrix*) – The global transformation of the curve.
- **pos_offset** (*vector*) – The xyz position offset of the curve from its center.
- **rot_offset** (*vector*) – The xyz rotation offset of the curve from its center. xyz in radians

Returns The newly created icon.

Return type dagNode

mgear.core.log module

Logging Maya data

mgear.core.log.**matrix4**(*m*, *msg='matrix4'*)

Print matrix 4x4 data.

Parameters

- **m** (*matrix*) – 4x4 Matrix
- **msg** (*str*) – Message in front of the data print.

mgear.core.menu module

mgear.core.meshNavigation module

Functions to help navigate the mesh topology

mgear.core.meshNavigation.**bBoxData**(*obj=None*, *yZero=False*, **args*)

Get bounding box data of a mesh object

Parameters

- **obj** (*dagNode*) – Mesh object
- **yZero** (*bool*) – If True, sets the Y axis value to 0 in world space
- **args** –

Returns center, radio, bounding box full data

Return type list

mgear.core.meshNavigation.**bboxCenter**(*obj*, *radius=False*)

Get bounding box center of mesh object

Parameters

- **obj** (*dagNode*) – mesh object
- **radius** (*bool*) – If True return a list the center + the radius

Returns the bounding box center in world space

Return type list of float

```
>>> center = mnav.bboxCenter(source, radius=False)
```

mgear.core.meshNavigation.**edgeLoopBetweenVertices**(*startPos*, *endPos*)
Computes edge loop between two vertices.

Parameters

- **startPos** (*vertex*) – Start of edge loop
- **endPos** (*vertex*) – End of edge loop

Returns Edge loop, if one exists. Otherwise None.

mgear.core.meshNavigation.**edgeRangeInLoopFromMid**(*edgeList*, *midPos*, *endA*, *endB*)
Return a range of edges in the same loop from a mid position

Parameters

- **edgeList** (*list*) – selection edge loop
- **midPos** (*vertex*) – mid vertex
- **endA** (*vertex*) – endA vertex
- **endB** (*vertex*) – endB vertex

Returns loop range

Return type list

mgear.core.meshNavigation.**find_mirror_edge**(*obj*, *edgeIndx*)
Return the mirror edge of an edge

Parameters

- **obj** (*PyNode or str*) – Mesh object to get the mirror edge
- **edge** (*int*) – Index of the edge to find the mirror

Returns Mirror edge as a pynode

Return type PyNode

mgear.core.meshNavigation.**getClosestPolygonFromTransform**(*geo*, *loc*)
Get closest polygon from transform

Parameters

- **geo** (*dagNode*) – Mesh object
- **loc** (*matrix*) – location transform

Returns Closest Polygon

mgear.core.meshNavigation.**getClosestVertexFromTransform**(*geo*, *loc*)
Get closest vertex from transform

Parameters

- **geo** (*dagNode or str*) – Mesh object
- **loc** (*matrix*) – location transform

Returns Closest Vertex

```
>>> v = mn.getClosestVertexFromTransform(geometry, joint)
```

mgear.core.meshNavigation.**getConcentricVertexLoop**(*loop*, *nbLoops*)
Get concentric vertex loops

Parameters

- **loop** (*list*) – Vertex loop list
- **nbLoops** (*int*) – Number of loops to search

Returns the loop list

Return type list

mgear.core.meshNavigation.**getExtremeVertexFromLoop**(*edgeList=None*, *sideRange=False*, *z_up=False*)
Get extreme vertex X and Y

min and max positions from edge loop

Parameters

- **edgeList** (*list*) – Edge list
- **sideRange** (*bool*) – If True will calculate the extreme position of Z instead of X

Returns upPos, lowPos, inPos, outPos, edgeList, vertexList

Return type list

mgear.core.meshNavigation.**getVertexRowsFromLoops**(*loopList*)
Get vertex rows from edge loops

Parameters **loopList** (*list*) – Edge loop list

Returns vertex rows

Return type list

mgear.core.meshNavigation.**get_closes_edge_index**(*sourceGeo*, *targetGeo*, *edgeIndx*)
Get the closes edge index from 2 diferent object.

In some situation even with same topology and vertez index order. The edge index may change.

Parameters

- **sourceGeo** (*str*) – Name of the source object
- **targetGeo** (*str*) – Name of the target object
- **edgeIndx** (*int*) – Edge Index

Returns Description

Return type PyNode

mgear.core.node module

Functions to create and connect nodes.

mgear.core.node.**add_controller_tag**(*ctl*, *tagParent=None*)
Add a controller tag

Parameters

- **ctl** (*dagNode*) – Controller to add the tar
- **tagParent** (*dagNode*) – tag parent for the connection

mgear.core.node.**controller_tag_connect**(*ctt*, *tagParent*)

Summary

Parameters

- **ctt** (*TYPE*) – Teh control tag
- **tagParent** (*TYPE*) – The object with the parent control tag

mgear.core.node.**createAddNode**(*inputA*, *inputB*)

Create and connect a addition node.

Parameters

- **inputA** (*attr or float*) – The attribute input A
- **inputB** (*attr or float*) – The attribute input B

Returns the newly created node.

Return type pyNode

```
>>> add_node = nod.createAddNode(self.roundness_att, .001)
```

mgear.core.node.**createAddNodeMulti**(*inputs=[]*)

Create and connect multiple add nodes

Parameters **inputs** (*list of attr*) – The list of attributes to add

Returns The output attributes list.

Return type list

```
>>> angle_outputs = nod.createAddNodeMulti(self.angles_att)
```

mgear.core.node.**createBlendNode**(*inputA*, *inputB*, *blender=0.5*)

Create and connect a createBlendNode node.

Parameters

- **inputA** (*attr or list of 3 attr*) – The attribute input A
- **inputB** (*attr or list of 3 attr*) – The attribute input B
- **blender** (*float or attr*) – Float in 0 to 1 range or attribute string name.

Returns the newly created node.

Return type pyNode

```
>>> blend_node = nod.createBlendNode(
        [dm_node+".outputRotate%s"%s for s in "XYZ"],
        [cns+".rotate%s"%s for s in "XYZ"],
        self.lock_ori_att)
```

mgear.core.node.**createClampNode**(*input*, *in_min*, *in_max*)

Create and connect a clamp node

Parameters

- **input** (*attr, float or list*) – The input value to clamp
- **in_min** (*float*) – The minimun value to clamp
- **in_max** (*float*) – The maximun value to clamp

Returns the newly created node.

Return type pyNode

```
>>> clamp_node = nod.createClampNode(
    [self.roll_att, self.bank_att, self.bank_att],
    [0, -180, 0],
    [180,0,180])
```

mgear.core.node.**createClampNodeMulti**(*name*, *inputs=[]*, *in_min=[]*, *in_max=[]*)

Create and connect multiple clamp nodes

Parameters

- **name** (*str*) – The name for the new node.
- **inputs** (*list of attr*) – The list of attributes
- **in_min** (*list of attr*) – The list of attributes
- **in_max** (*list of attr*) – The list of attributes

Returns The output attributes list.

Return type list

mgear.core.node.**createConditionNode**(*firstTerm=False*, *secondTerm=False*, *operator=0*, *ifTrue=False*, *ifFalse=False*)

Create and connect a condition node.

operator	index
==	0
!=	1
>	2
>=	3
<	4
<=	5

Parameters

- **firstTerm** (*attr*) – The attribute string name for the first conditions.
- **secondTerm** (*attr*) – The attribute string for the second conditions.
- **operator** (*int*) – The operator to make the condition.
- **ifTrue** (*bool or attr*) – If an attribute is provided will connect ifTrue output.
- **ifFalse** (*bool or attr*) – If an attribute is provided will connect ifFalse output.

Returns the newly created node.

Return type pyNode

```
>>> cond1_node = nod.createConditionNode(self.soft_attr,
                                         0,
                                         2,
                                         subtract3_node+".output1D",
                                         plusTotalLength_node+".output1D")
```

mgear.core.node.**createCurveInfoNode**(*crv*)

Create and connect a curveInfo node.

Parameters **crv** (*dagNode*) – The curve.

Returns the newly created node.

Return type pyNode

```
>>> crv_node = nod.createCurveInfoNode(self.slv_crv)
```

mgear.core.node.**createDecomposeMatrixNode**(*m*)

Create and connect a decomposeMatrix node.

Parameters **m** (*str or attr*) – The matrix attribute name.

Returns the newly created node.

Return type pyNode

```
>>> dm_node = nod.createDecomposeMatrixNode(mulmat_node+".output")
```

mgear.core.node.**createDistNode**(*objA*, *objB*, *output=None*)

Create and connect a distance node.

Parameters

- **objA** (*dagNode*) – The dagNode A.
- **objB** (*dagNode*) – The dagNode B.
- **output** (*attr*) – Output attribute.

Returns the newly created node.

Return type pyNode

```
>>> distA_node = nod.createDistNode(self.tws0_loc, self.tws1_loc)
```

mgear.core.node.**createDivNode**(*inputA*, *inputB*, *output=None*)

Create and connect a Divide node.

Parameters

- **inputA** (*attr, float or list of float*) – The attribute input A
- **inputB** (*attr, float or list of float*) – The attribute input B
- **output** (*attr or list of attr*) – The attribute to connect the output.

Returns the newly created node.

Return type pyNode

Example

```
# Classic Maya style creation and connection = 4 lines
div1_node = pm.createNode("multiplyDivide")
div1_node.setAttr("operation", 2)
div1_node.setAttr("input1X", 1)
pm.connectAttr(self.rig.global_ctl+".sx",
               div1_node+".input2X")

# mGear style = 1 line
div1_node = nod.createDivNode(1.0,
                              self.rig.global_ctl+".sx")
```

mgear.core.node.**createDivNodeMulti**(*name*, *inputs1=[]*, *inputs2=[]*)
Create and connect multiple divide nodes

Parameters

- **name** (*str*) – The name for the new node.
- **inputs1** (*list of attr*) – The list of attributes
- **inputs2** (*list of attr*) – The list of attributes

Returns The output attributes list.

Return type list

mgear.core.node.**createMulDivNode**(*inputA*, *inputB*, *operation=1*, *output=None*)
Create and connect a Multiply or Divide node.

Parameters

- **inputA** (*attr, float or list of float*) – The attribute input A
- **inputB** (*attr, float or list of float*) – The attribute input B
- **output** (*attr or list of attr*) – The attribute to connect the output.

Returns the newly created node.

Return type pyNode

mgear.core.node.**createMulNode**(*inputA*, *inputB*, *output=None*)
Create and connect a Multiply node.

Parameters

- **inputA** (*attr, float or list of float*) – The attribute input A
- **inputB** (*attr, float or list of float*) – The attribute input B
- **output** (*attr or list of attr*) – The attribute to connect the output.

Returns the newly created node.

Return type pyNode

mgear.core.node.**createMulNodeMulti**(*name*, *inputs=[]*)
Create and connect multiple multiply nodes

Parameters

- **name** (*str*) – The name for the new node.
- **inputs** (*list of attr*) – The list of attributes to multiply

Returns The output attributes list.

Return type list

mgear.core.node.**createMultMatrixNode**(*mA*, *mB*, *target=False*, *transform='srt'*)
Create Maya multiply Matrix node.

Note: This node have same functionality as the default Maya matrix multiplication.

Parameters

- **mA** (*matrix*) – input matrix A.

- **mB** (*matrix*) – input matrix B.
- **target** (*dagNode*) – object target to apply the transformation
- **transform** (*str*) – if target is True. out transform to SRT valid value s r t

Returns Newly created mGear_multMatrix node

Return type pyNode

mgear.core.node.**createNegateNodeMulti**(*name*, *inputs=[]*)

Create and connect multiple negate nodes

Parameters

- **name** (*str*) – The name for the new node.
- **inputs** (*list of attr*) – The list of attributes to negate

Returns The output attributes list.

Return type list

mgear.core.node.**createPairBlend**(*inputA=None*, *inputB=None*, *blender=0.5*, *rotInterpolation=0*, *output=None*, *trans=True*, *rot=True*)

Create and connect a PairBlend node.

Parameters

- **inputA** (*dagNode*) – The transfomr input 1
- **inputB** (*dagNode*) – The transfomr input 2
- **blender** (*float or attr*) – Float in 0 to 1 range or attribute string name.
- **rotInterpolation** (*int*) – Rotation interpolation option. 0=Euler. 1=Quaternion.
- **output** (*dagNode*) – The output node with the blend transfomr applied.
- **trans** (*bool*) – If true connects translation.
- **rot** (*bool*) – If true connects rotation.

Returns the newly created node.

Return type pyNode

Example

```
blend_node = nod.createPairBlend(self.legBonesFK[i],
                                 self.legBonesIK[i],
                                 self.blend_att,
                                 1)
pm.connectAttr(blend_node + ".outRotate", x+".rotate")
pm.connectAttr(blend_node + ".outTranslate", x+".translate")
```

mgear.core.node.**createPlusMinusAverage1D**(*input*, *operation=1*, *output=None*)

Create a multiple average node 1D. :param input: The input values. :type input: attr, float or list :param operation: Node operation. 0=None, 1=sum, 2=subtract,

3=average

Parameters **output** (*attr*) – The attribute to connect the result.

Returns the newly created node.

Return type pyNode

mgear.core.node.**createPowNode**(*inputA*, *inputB*, *output=None*)
Create and connect a power node.

Parameters

- **inputA** (*attr, float or list of float*) – The attribute input A
- **inputB** (*attr, float or list of float*) – The attribute input B
- **output** (*attr or list of attr*) – The attribute to connect the output.

Returns the newly created node.

Return type pyNode

mgear.core.node.**createReverseNode**(*input*, *output=None*)
Create and connect a reverse node.

Parameters

- **input** (*attr or list of 3 attr*) – The attribute input.
- **output** (*attr or list of 3 attr*) – The attribute to connect the output.

Returns the newly created node.

Return type pyNode

```
>>> fkvis_node = nod.createReverseNode(self.blend_att)
```

mgear.core.node.**createSetRangeNode**(*input*, *oldMin*, *oldMax*, *newMin=0*, *newMax=1*, *output=None*, *name='setRange'*)
Create Set Range Node

mgear.core.node.**createSubNode**(*inputA*, *inputB*)
Create and connect a subtraction node.

Parameters

- **inputA** (*attr or float*) – The attribute input A
- **inputB** (*attr or float*) – The attribute input B

Returns the newly created node.

Return type pyNode

```
>>> sub_nod = nod.createSubNode(self.roll_att, angle_outputs[i-1])
```

mgear.core.node.**createVertexPositionNode**(*inShape*, *vId=0*, *output=None*, *name='mgear_vertexPosition'*)
Creates a mgear_vertexPosition node

mgear.core.pickWalk module

Custom Pick walk

mgear.core.pickWalk.**cleanOrphaneControllerTags**(*tag*)
Security check, delete tags without controlObject plug

Parameters **tag** (*controllers tag list*) – The tags to check

Returns The valid tags with controller object plugged

Return type list

mgear.core.pickWalk.**controllerWalkDown**(*node*, *add=False*, *multi=False*)
Walk down in the hierachy using the controller tag

Parameters

- **node** (*dagNode or list of dagNode*) – Node with controller tag
- **add** (*bool, optional*) – If true add to selection

mgear.core.pickWalk.**controllerWalkLeft**(*node*, *add=False*, *multi=False*)
Pick walks the next sibling to the left using controller tag

Parameters

- **node** (*TYPE*) – Description
- **add** (*bool, optional*) – If true add to selection
- **multi** (*bool, optional*) – If true, selects all the siblings

mgear.core.pickWalk.**controllerWalkRight**(*node*, *add=False*, *multi=False*)
Pick walks the next sibling to the right using controller tag

Parameters

- **node** (*TYPE*) – Description
- **add** (*bool, optional*) – If true add to selection
- **multi** (*bool, optional*) – If true, selects all the siblings

mgear.core.pickWalk.**controllerWalkUp**(*node*, *add=False*)
Walk up in the hierachy using the controller tag

Parameters

- **node** (*dagNode or list of dagNode*) – Node with controller tag
- **add** (*bool, optional*) – If true add to selection

mgear.core.pickWalk.**getMirror**(*node*)
Get the mirrored node usin _L and _R replacement

Parameters **node** (*dagNode or list of dagNodes*) – The dagNode to look for a mirror

Returns

The dagNode contrapart on the other side _L or _R

Return type dagNode or list of dagNodes

mgear.core.pickWalk.**getWalkTag**(*node*)
Get Controller tag

Parameters **node** (*dagNode*) – Controller object with tag

Returns Controller tag

Return type tag

mgear.core.pickWalk.**get_all_tag_children**(*node*)
Gets all child tag controls from the given tag node

Parameters **node** (*str*) – Name of controller object with tag

Returns List of child controls (Maya transform nodes)

Return type list

mgear.core.pickWalk.**reorderControllerChildrenTags**(*tag*)
Clean the order on the children connection.

This is important for the Left and right pick walk. Becasue is using the index of the connection.

Parameters **tag** (*controller tag*) – The tag to clean the children order

mgear.core.pickWalk.**transformWalkDown**(*node*, *add=False*, *multi=False*)
Walks to the child transform dagNode on the hierarcy

Parameters

- **node** (*dagNode or list of dagNode*) – dagNode to walk
- **add** (*bool, optional*) – if True, will add to the selection
- **multi** (*bool, optional*) – if True will select all the childrens

mgear.core.pickWalk.**transformWalkLeft**(*node*, *add=False*, *multi=False*)
Pick walks to the left the next sibling transform on the hierarchy

Parameters

- **node** (*dagNode or list of dagNode*) – dagNode transform to navegate the hierarchy
- **add** (*bool, optional*) – If true add to selection
- **multi** (*bool, optional*) – If true, selects all the siblings

mgear.core.pickWalk.**transformWalkRight**(*node*, *add=False*, *multi=False*)
Pick walks to the right the next sibling transform on the hierarchy

Parameters

- **node** (*dagNode or list of dagNode*) – dagNode transform to navegate the hierarchy
- **add** (*bool, optional*) – If true add to selection
- **multi** (*bool, optional*) – If true, selects all the siblings

mgear.core.pickWalk.**transformWalkUp**(*node*, *add=False*)
Walks to the parent transform dagNode on the hierarcy

Parameters

- **node** (*dagNode or list of dagNode*) – dagNode to walk
- **add** (*bool, optional*) – if True, will add to the selection

mgear.core.pickWalk.**walkDown**(*node*, *add=False*, *multi=False*)
Walk Down

Parameters

- **node** (*dagNode or list of dagNode*) – the starting object for the pickwalk
- **add** (*bool, optional*) – If True add to selection
- **multi** (*bool, optional*) – If true, selects all the siblings

mgear.core.pickWalk.**walkLeft**(*node*, *add=False*, *multi=False*)
Walk left

Parameters

- **node** (*dagNode or list of dagNode*) – the starting object for the pickwalk
- **add** (*bool, optional*) – If True add to selection
- **multi** (*bool, optional*) – If true, selects all the siblings

mgear.core.pickWalk.**walkMirror**(*node*, *add=False*)
Select the mirror dagNode

Parameters

- **node** (*dagNode or list of dagNode*) – The dagNode to look for a mirror
- **add** (*bool, optional*) – If true add to selection

mgear.core.pickWalk.**walkRight**(*node*, *add=False*, *multi=False*)
Walk right

Parameters

- **node** (*dagNode or list of dagNode*) – the starting object for the pickwalk
- **add** (*bool, optional*) – If True add to selection
- **multi** (*bool, optional*) – If true, selects all the siblings

mgear.core.pickWalk.**walkUp**(*node*, *add=False*, *multi=False*)
Walk up

Parameters

- **node** (*dagNode or list of dagNode*) – the starting object for the pickwalk
- **add** (*bool, optional*) – If True add to selection
- **multi** (*bool, optional*) – If true, selects all the siblings

mgear.core.primitive module

Functions to create primitives (Non geometry)

mgear.core.primitive.**add2DChain**(*parent*, *name*, *positions*, *normal*, *negate=False*, *vis=True*)
Create a 2D joint chain. Like Softimage 2D chain.

> **Warning:** This function will create un expected results if all the positions are not in the same 2D plane.

Parameters

- **parent** (*dagNode*) – The parent for the chain.
- **name** (*str*) – The node name.
- **positions** (*list of vectors*) – the positons to define the chain.
- **normal** (*vector*) – The normal vector to define the direction of the chain.
- **negate** (*bool*) – If True will negate the direction of the chain

Returns; list of dagNodes: The list containg all the joints of the chain

```
>>> self.rollRef = pri.add2DChain(
    self.root,
    self.getName("rollChain"),
    self.guide.apos[:2],
    self.normal,
    self.negate)
```

mgear.core.primitive.**add2DChain2**(*parent*, *name*, *positions*, *normal*, *negate=False*, *vis=True*)

Experimental 2D Chain creation function.

Create a 2D joint chain. Like Softimage 2D chain.

Warning: This function is WIP and not ready for production.

Warning: This function will create un expected results if all the positions are not in the same 2D plane.

Parameters

- **parent** (*dagNode*) – The parent for the chain.
- **name** (*str*) – The node name.
- **positions** (*list of vectors*) – the positons to define the chain.
- **normal** (*vector*) – The normal vector to define the direction of the chain.
- **negate** (*bool*) – If True will negate the direction of the chain

Returns; list of dagNodes: The list containg all the joints of the chain

```
>>> self.chain3bones = pri.add2DChain2(
    self.setup,
    self.getName("chain3bones%s_jnt"),
    self.guide.apos[0:4],
    self.normal,
    False)
```

mgear.core.primitive.**addIkHandle**(*parent*, *name*, *chn*, *solver='ikRPsolver'*, *poleV=None*)

Creates and connect an IKhandle to a joints chain.

Parameters

- **parent** (*dagNode*) – The parent for the IKhandle.
- **name** (*str*) – The node name.
- **chn** (*list*) – List of joints.
- **solver** (*str*) – the solver to be use for the ikHandel. Default value is "ikRPsolver"
- **poleV** (*dagNode*) – Pole vector for the IKHandle

Returns The IKHandle

Return type dagNode

```
>>> self.ikHandleUpvRef = pri.addIkHandle(
    self.root,
    self.getName("ikHandleLegChainUpvRef"),
    self.legChainUpvRef,
    "ikSCsolver")
```

mgear.core.primitive.**addJoint**(*parent*, *name*, *m=<sphinx.ext.autodoc.importer._MockObject object>*, *vis=True*)

Create a joint dagNode.

Note: I'm not using the joint() comand because this is parenting the newly created joint to current selection which might not be desired

---

Parameters

- **parent** (*dagNode*) – The parent for the node.
- **name** (*str*) – The node name.
- **m** (*matrix*) – The matrix for the node transformation (optional).
- **vis** (*bool*) – Set the visibility of the new joint.

Returns The newly created node.

Return type dagNode

mgear.core.primitive.**addJointFromPos**(*parent*, *name*, *pos=<sphinx.ext.autodoc.importer._MockObject object>*)

Create a joint dagNode.

Note: I'm not using the joint() comand because this is parenting the newly created joint to current selection which might not be desired

---

Parameters

- **parent** (*dagNode*) – The parent for the node.
- **name** (*str*) – The node name.
- **pos** (*vector*) – The vector for the node position (optional).
- **vis** (*bool*) – Set the visibility of the new joint.

Returns The newly created node.

Return type dagNode

mgear.core.primitive.**addLocator**(*parent*, *name*, *m=<sphinx.ext.autodoc.importer._MockObject object>*, *size=1*)

Create a space locator dagNode.

Parameters

- **parent** (*dagNode*) – The parent for the node.
- **name** (*str*) – The Node name.
- **m** (*matrix*) – The matrix for the node transformation (optional).

- **size** (*float*) – The space locator shape size (optional).

Returns The newly created node.

Return type dagNode

mgear.core.primitive.**addLocatorFromPos**(*parent*, *name*, *pos=<sphinx.ext.autodoc.importer._MockObject object>*, *size=1*)

Create a space locator dagNode.

Parameters

- **parent** (*dagNode*) – The parent for the node.
- **name** (*str*) – The Node name.
- **pos** (*vector*) – The vector for the node position (optional).
- **size** (*float*) – The space locator shape size (optional).

Returns The newly created node.

Return type dagNode

mgear.core.primitive.**addTransform**(*parent*, *name*, *m=<sphinx.ext.autodoc.importer._MockObject object>*)

Create a transform dagNode.

Parameters

- **parent** (*dagNode*) – The parent for the node.
- **name** (*str*) – The Node name.
- **m** (*matrix*) – The matrix for the node transformation (optional).

Returns The newly created node.

Return type dagNode

mgear.core.primitive.**addTransformFromPos**(*parent*, *name*, *pos=<sphinx.ext.autodoc.importer._MockObject object>*)

Create a transform dagNode.

Parameters

- **parent** (*dagNode*) – The parent for the node.
- **name** (*str*) – The Node name.
- **pos** (*vector*) – The vector for the node position (optional).

Returns The newly created node.

Return type dagNode

mgear.core.pyFBX module

mgear.core.pyFBX.**FBXClose**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXExport**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXExportAnimationOnly**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXExportApplyConstantKeyReducer**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXExportAudio**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXExportAxisConversionMethod**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXExportBakeComplexAnimation**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXExportBakeComplexEnd**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXExportBakeComplexStart**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXExportBakeComplexStep**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXExportBakeResampleAnimation**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXExportCacheFile**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXExportCameras**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXExportColladaFrameRate**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXExportColladaSingleMatrix**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXExportColladaTriangulate**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXExportConstraints**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXExportConvert2Tif**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXExportConvertUnitString**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXExportDeleteOriginalTakeOnSplitAnimation**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXExportEmbeddedTextures**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXExportFileVersion**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXExportFinestSubdivLevel**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXExportGenerateLog**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXExportHardEdges**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXExportInAscii**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXExportIncludeChildren**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXExportInputConnections**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXExportInstances**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXExportLights**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXExportQuaternion**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXExportQuickSelectSetAsCache**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXExportReferencedAssetsContent**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXExportReferencedContainersContent**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXExportScaleFactor**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXExportShapeAttributeValues**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXExportShapeAttributes**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXExportShapes**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXExportShowUI**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXExportSkeletonDefinitions**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXExportSkins**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXExportSmoothMesh**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXExportSmoothingGroups**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXExportSplitAnimationIntoTakes**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXExportTangents**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXExportTriangulate**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXExportUpAxis**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXExportUseSceneName**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXExportUseTmpFilePeripheral**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXGetTakeComment**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXGetTakeCount**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXGetTakeIndex**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXGetTakeLocalTimeSpan**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXGetTakeName**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXGetTakeReferenceTimeSpan**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXImport**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXImportAudio**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXImportAutoAxisEnable**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXImportAxisConversionEnable**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXImportCacheFile**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXImportCameras**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXImportConstraints**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXImportConvertDeformingNullsToJoint**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXImportConvertUnitString**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXImportFillTimeline**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXImportForcedFileAxis**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXImportGenerateLog**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXImportHardEdges**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXImportLights**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXImportMergeAnimationLayers**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXImportMergeBackNullPivots**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXImportMode**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXImportOCMerge**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXImportProtectDrivenKeys**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXImportQuaternion**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXImportResamplingRateSource**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXImportScaleFactor**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXImportSetLockedAttribute**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXImportSetMayaFrameRate**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXImportSetTake**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXImportShapes**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXImportShowUI**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXImportSkeletonDefinitionsAs**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXImportSkins**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXImportUnlockNormals**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXImportUpAxis**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXLoadExportPresetFile**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXLoadImportPresetFile**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXLoadMBExportPresetFile**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXLoadMBImportPresetFile**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXPopSettings**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXProperties**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXProperty**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXPushSettings**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXRead**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXResamplingRate**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXResetExport**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXResetImport**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXUICallBack**(**args*, ***kwargs*)

mgear.core.pyFBX.**FBXUIShowOptions**(**args*, ***kwargs*)

class mgear.core.pyFBX.**FBX_Class**(*filename*)

Bases: object

FBX Scene Object

close()

You need to run this to close the FBX scene safely

get_class_nodes(*class_id*)

Get nodes in the scene with the given classid

geometry_nodes = fbx_file.get_class_nodes(fbx.FbxGeometry.ClassId)

get_node_by_name(*name*)

Get the fbx node by name

get_property(*node*, *property_string*)

Gets a property from an Fbx node

export_property = fbx_file.get_property(node, 'no_export')

get_property_value(*node*, *property_string*)
Gets the property value from an Fbx node

property_value = fbx_file.get_property_value(node, 'no_export')

get_scene_nodes()
Get all nodes in the fbx scene

get_type_nodes(*type*)
Get nodes from the scene with the given type

display_layer_nodes = fbx_file.get_type_nodes(u'DisplayLayer')

remove_namespace()
Remove all namespaces from all nodes

This is not an ideal method but

remove_node_property(*node*, *property_string*)
Remove a property from an Fbx node

remove_property = fbx_file.remove_property(node, 'UDP3DSMAX')

remove_nodes_by_names(*names*)
Remove nodes from the fbx file from a list of names

names = ['object1','shape2','joint3'] remove_nodes = fbx_file.remove_nodes_by_names(names)

save(*filename=None*)
Save the current fbx scene as the incoming filename .fbx

mgear.core.pyFBX.**get_fbx_versions**()
Get available FBX version list

Returns String names of the available fbx versions

Return type list

mgear.core.pyflow_widgets module

mgear.core.pyqt module

mgear.core.six module

Utilities for writing code that runs on Python 2 and 3

class mgear.core.six.**Module_six_moves_urllib**
Bases: module

Create a six.moves.urllib namespace that resembles the Python 3 namespace

error = <module 'mgear.core.six.moves.urllib.error'>

parse = <module 'mgear.core.six.moves.urllib_parse'>

request = <module 'mgear.core.six.moves.urllib.request'>

response = <module 'mgear.core.six.moves.urllib.response'>

robotparser = <module 'mgear.core.six.moves.urllib.robotparser'>

class mgear.core.six.**Module_six_moves_urllib_error**(*name*)
Bases: mgear.core.six._LazyModule

Lazy loading of moved objects in six.moves.urllib_error

ContentTooShortError

HTTPError

URLError

class mgear.core.six.**Module_six_moves_urllib_parse**(*name*)
Bases: mgear.core.six._LazyModule

Lazy loading of moved objects in six.moves.urllib_parse

ParseResult

SplitResult

parse_qs

parse_qsl

quote

quote_plus

splitquery

splittag

splituser

splitvalue

unquote

unquote_plus

unquote_to_bytes

urldefrag

urlencode

urljoin

urlparse

urlsplit

urlunparse

urlunsplit

uses_fragment

uses_netloc

uses_params

uses_query

uses_relative

class mgear.core.six.**Module_six_moves_urllib_request**(*name*)
Bases: mgear.core.six._LazyModule

Lazy loading of moved objects in six.moves.urllib_request

AbstractBasicAuthHandler

AbstractDigestAuthHandler

BaseHandler

CacheFTPHandler

FTPHandler

FancyURLopener

FileHandler

HTTPBasicAuthHandler

HTTPCookieProcessor

HTTPDefaultErrorHandler

HTTPDigestAuthHandler

HTTPErrorProcessor

HTTPHandler

HTTPPasswordMgr

HTTPPasswordMgrWithDefaultRealm

HTTPRedirectHandler

HTTPSHandler

OpenerDirector

ProxyBasicAuthHandler

ProxyDigestAuthHandler

ProxyHandler

Request

URLopener

UnknownHandler

build_opener

getproxies

install_opener

parse_http_list

parse_keqv_list

pathname2url

proxy_bypass

url2pathname

urlcleanup

urlopen

urlretrieve

class mgear.core.six.**Module_six_moves_urllib_response**(*name*)
Bases: mgear.core.six._LazyModule

Lazy loading of moved objects in six.moves.urllib_response

addbase

addclosehook

addinfo

addinfourl

class mgear.core.six.**Module_six_moves_urllib_robotparser**(*name*)
Bases: mgear.core.six._LazyModule

Lazy loading of moved objects in six.moves.urllib_robotparser

RobotFileParser

class mgear.core.six.**MovedAttribute**(*name*, *old_mod*, *new_mod*, *old_attr=None*, *new_attr=None*)
Bases: mgear.core.six._LazyDescr

class mgear.core.six.**MovedModule**(*name*, *old*, *new=None*)
Bases: mgear.core.six._LazyDescr

mgear.core.six.**add_metaclass**(*metaclass*)
Class decorator for creating a class with a metaclass.

mgear.core.six.**add_move**(*move*)
Add an item to six.moves.

mgear.core.six.**assertCountEqual**(*self*, **args*, ***kwargs*)

mgear.core.six.**assertNotRegex**(*self*, **args*, ***kwargs*)

mgear.core.six.**assertRaisesRegex**(*self*, **args*, ***kwargs*)

mgear.core.six.**assertRegex**(*self*, **args*, ***kwargs*)

mgear.core.six.**b**(*s*)
Byte literal

mgear.core.six.**create_unbound_method**(*func*, *cls*)

mgear.core.six.**ensure_binary**(*s*, *encoding='utf-8'*, *errors='strict'*)
Coerce **s** to six.binary_type.

For Python 2:

- *unicode* -> encoded to *str*
- *str* -> *str*

For Python 3:

- *str* -> encoded to *bytes*
- *bytes* -> *bytes*

mgear.core.six.**ensure_str**(*s*, *encoding='utf-8'*, *errors='strict'*)
Coerce *s* to *str*.

For Python 2:

- *unicode* -> encoded to *str*
- *str* -> *str*

For Python 3:

- *str* -> *str*
- *bytes* -> decoded to *str*

mgear.core.six.**ensure_text**(*s*, *encoding='utf-8'*, *errors='strict'*)
Coerce *s* to six.text_type.

For Python 2:

- *unicode* -> *unicode*
- *str* -> *unicode*

For Python 3:

- *str* -> *str*
- *bytes* -> decoded to *str*

mgear.core.six.**get_unbound_function**(*unbound*)
Get the function out of a possibly unbound function

mgear.core.six.**int2byte**()
S.pack(v1, v2, ...) -> bytes

Return a bytes object containing values v1, v2, ... packed according to the format string S.format. See help(struct) for more on format strings.

mgear.core.six.**iteritems**(*d*, ***kw*)
Return an iterator over the (key, value) pairs of a dictionary.

mgear.core.six.**iterkeys**(*d*, ***kw*)
Return an iterator over the keys of a dictionary.

mgear.core.six.**iterlists**(*d*, ***kw*)
Return an iterator over the (key, [values]) pairs of a dictionary.

mgear.core.six.**itervalues**(*d*, ***kw*)
Return an iterator over the values of a dictionary.

mgear.core.six.**python_2_unicode_compatible**(*klass*)
A class decorator that defines __unicode__ and __str__ methods under Python 2. Under Python 3 it does nothing.

To support Python 2 and 3 with a single code base, define a __str__ method returning text and apply this decorator to the class.

mgear.core.six.**raise_from**(*value*, *from_value*)

mgear.core.six.**remove_move**(*name*)
Remove item from six.moves.

mgear.core.six.**reraise**(*tp*, *value*, *tb=None*)
Reraise an exception.

mgear.core.six.**u**(*s*)
Text literal

mgear.core.six.**with_metaclass**(*meta*, **bases*)
Create a base class with a metaclass.

mgear.core.skin module

Functions to work with skinCluster data.

This module is derivated from Chad Vernon's Skin IO.

'Chad Vernon's github

<https://github.com/chadmv/cmt/tree/master/scripts/cmt/deform>'_

mgear.core.skin.**collectBlendWeights**(*skinCls*, *dagPath*, *components*, *dataDic*)

mgear.core.skin.**collectData**(*skinCls*, *dataDic*)

mgear.core.skin.**collectInfluenceWeights**(*skinCls*, *dagPath*, *components*, *dataDic*)

mgear.core.skin.**exportJsonSkinPack**(*packPath=None*, *objs=None*, **args*)

mgear.core.skin.**exportSkin**(*filePath=None*, *objs=None*, **args*)

mgear.core.skin.**exportSkinPack**(*packPath=None*, *objs=None*, *use_json=False*, **args*)

mgear.core.skin.**getCurrentWeights**(*skinCls*, *dagPath*, *components*)
Get the skincluster weights

Parameters

- **skinCls** (*PyNode*) – The skincluster node
- **dagPath** (*MDagPath*) – The skincluster dagpath
- **components** (*MObject*) – The skincluster components

Returns The skincluster weights

Return type MDoubleArray

mgear.core.skin.**getGeometryComponents**(*skinCls*)
Get the geometry components from skincluster

Parameters **skinCls** (*PyNode*) – The skincluster node

Returns The dagpath for the components componets: The skincluster componets

Return type dagPath

mgear.core.skin.**getObjsFromSkinFile**(*filePath=None*, **args*)

mgear.core.skin.**getSkinCluster**(*obj*)
Get the skincluster of a given object

Parameters **obj** (*dagNode*) – The object to get skincluster

Returns The skin cluster pynode object

Return type pyNode

mgear.core.skin.**get_mesh_components_from_tag_expression**(*skinCls*, *tag='*'*)
Get the mesh components from the component tag expression

Thanks to Roy Nieterau a.k.a BigRoyNL from colorBleed for the snippet

Parameters

- **skinCls** (*PyNode*) – Skin cluster node
- **tag** (*str, optional*) – Component tag expression

Returns The dagpath tho the shpe and the MObject components

Return type dagPath, MObject

mgear.core.skin.**importSkin**(*filePath=None*, **args*)

mgear.core.skin.**importSkinPack**(*filePath=None*, **args*)

mgear.core.skin.**selectDeformers**(**args*)

mgear.core.skin.**setBlendWeights**(*skinCls*, *dagPath*, *components*, *dataDic*, *compressed*)

mgear.core.skin.**setData**(*skinCls*, *dataDic*, *compressed*)

mgear.core.skin.**setInfluenceWeights**(*skinCls*, *dagPath*, *components*, *dataDic*, *compressed*)

mgear.core.skin.**skinCopy**(*sourceMesh=None*, *targetMesh=None*, **args*)

mgear.core.string module

string management methods

mgear.core.string.**convertRLName**(*name*)
Convert a string with underscore

i.e: "_L", "_L0_", "L_", "_L" to "R". And vice and versa.

Parameters **name** (*string*) – string to convert

Returns Tuple of Integer

mgear.core.string.**normalize**(*string*)
Replace all invalid characters with "_"

Parameters **string** (*string*) – A string to normalize.

Return string Normalized string

mgear.core.string.**normalize2**(*string*)
Replace all invalid characters with "_". including "-" This ensure that the name is compatible with Maya naming rules

Parameters **string** (*string*) – A string to normalize.

Return string Normalized string

mgear.core.string.**normalize_path**(*string*)
Ensure that string path use always forward slash

Parameters **string** (*TYPE*) – Description

Returns Description

Return type TYPE

mgear.core.string.**normalize_with_padding**(*string*)
Replace all invalid characters with "_". including "-" This ensure that the name is compatible with Maya naming rules

Also list of # symbol with properly padded index.

ie. count_### > count_001

Parameters **string** (*string*) – A string to normalize.

Return string Normalized string

mgear.core.string.**removeInvalidCharacter**(*string*)
Remove all invalid character.

Parameters **string** (*string*) – A string to normalize.

Return string Normalized string.

mgear.core.string.**removeInvalidCharacter2**(*string*)
Remove all invalid character. Incluede "_" and "."as valid character.

Parameters **string** (*string*) – A string to normalize.

Return string Normalized string.

mgear.core.string.**replaceSharpWithPadding**(*string*, *index*)
Replace a list of # symbol with properly padded index.

ie. count_### > count_001

Parameters

- **string** (*string*) – A string to set. Should include '#'
- **index** (*integer*) – Index to replace.

Return string Normalized string.

mgear.core.transform module

Functions to work with matrix and transformations

mgear.core.transform.**convert2TransformMatrix**(*tm*)
Convert a transformation Matrix

Convert a transformation Matrix or a matrix to a transformation matrix in world space.

Parameters **tm** (*matrix*) – The input matrix.

Returns The transformation matrix in worldSpace

Return type matrix

mgear.core.transform.**getChainTransform**(*positions*, *normal*, *negate=False*)
Get a tranformation list from a positions list and normal.

Parameters

- **positions** (*list of vector*) – List with the chain positions.
- **normal** (*vector*) – Normal direction.
- **negate** (*bool*) – If true invert the chain orientation.

Returns

The list containing the transformation matrix for the chain.

Return type list of matrix

```
>>> tra.getChainTransform(self.guide.apos, self.normal, self.negate)
```

mgear.core.transform.**getChainTransform2**(*positions*, *normal*, *negate=False*)
Get a tranformation list from a positions list and normal.

Note: getChainTransform2 is using the latest position on the chain

Parameters

- **positions** (*list of vector*) – List with the chain positions.
- **normal** (*vector*) – Normal direction.
- **negate** (*bool*) – If true invert the chain orientation.

Returns

The list containing the transformation matrix for the chain.

Return type list of matrix

```
>>> tra.getChainTransform2(self.guide.apos,
                           self.normal,
                           self.negate)
```

mgear.core.transform.**getClosestPolygonFromTransform**(*geo*, *loc*)
Get closest polygon from transform

Parameters

- **geo** (*dagNode*) – Mesh object
- **loc** (*matrix*) – location transform

Returns Closest Polygon

mgear.core.transform.**getDistance2**(*obj0*, *obj1*)
Get the distance between 2 objects.

Parameters

- **obj0** (*dagNode*) – Object A
- **obj1** (*dagNode*) – Object B

Returns Distance length

Return type float

mgear.core.transform.**getFilteredTransform**(*m*, *translation=True*, *rotation=True*, *scaling=True*)
Retrieve a transformation filtered.

Parameters

- **m** (*matrix*) – the reference matrix
- **translation** (*bool*) – If true the return matrix will match the translation.
- **rotation** (*bool*) – If true the return matrix will match the rotation.
- **scaling** (*bool*) – If true the return matrix will match the scaling.

Returns The filtered matrix

Return type matrix

mgear.core.transform.**getInterpolateTransformMatrix**(*t1*, *t2*, *blend=0.5*)
Interpolate 2 matrix.

Parameters

- **t1** (*matrix*) – Input matrix 1.
- **t2** (*matrix*) – Input matrix 2.
- **blend** (*float*) – The blending value. Default 0.5

Returns The newly interpolated transformation matrix.

Return type matrix

```
>>> t = tra.getInterpolateTransformMatrix(self.fk_ctl[0],
                                          self.tws1A_npo,
                                          .3333)
```

mgear.core.transform.**getOffsetPosition**(*node, offset=[0, 0, 0]*)

Get an offset position from dagNode

Parameters

- **node** (*dagNode*) – The dagNode with the original position.
- **offset** (*list of float*) – Ofsset values for xyz. exp : [1.2, 4.6, 32.78]

Returns the new offset position.

Return type list of float

Example

```
self.root = self.addRoot()
vTemp = tra.getOffsetPosition( self.root, [0,-3,0.1])
self.knee = self.addLoc("knee", self.root, vTemp)
```

mgear.core.transform.**getPositionFromMatrix**(*in_m*)

Get the position values from matrix

Parameters **in_m** (*matrix*) – The input Matrix.

Returns The position values for xyz.

Return type list of float

mgear.core.transform.**getRotationFromAxis**(*in_a*, *in_b*, *axis='xy'*, *negate=False*)

Get the matrix rotation from a given axis.

Parameters

- **in_a** (*vector*) – Axis A
- **in_b** (*vector*) – Axis B
- **axis** (*str*) – The axis to use for the orientation. Default: "xy"
- **negate** (*bool*) – negates the axis orientation.

Returns The newly created matrix.

Return type matrix

Example

```
x = datatypes.Vector(0,-1,0)
x = x * tra.getTransform(self.eff_loc)
z = datatypes.Vector(self.normal.x,
                     self.normal.y,
                     self.normal.z)
z = z * tra.getTransform(self.eff_loc)
m = tra.getRotationFromAxis(x, z, "xz", self.negate)
```

mgear.core.transform.**getSymmetricalTransform**(*t*, *axis='yz'*, *fNegScale=False*)
Get the symmetrical tranformation

Get the symmetrical tranformation matrix from a define 2 axis mirror plane. exp:"yz".

Parameters

- **t** (*matrix*) – The transformation matrix to mirror.
- **axis** (*str*) – The mirror plane.
- **fNegScale** (*bool*) – This function is not yet implemented.

Returns The symmetrical tranformation matrix.

Return type matrix

mgear.core.transform.**getTransform**(*node*)
Return the transformation matrix of the dagNode in worldSpace.

Parameters **node** (*dagNode*) – The dagNode to get the translation

Returns The transformation matrix

Return type matrix

mgear.core.transform.**getTransformFromPos**(*pos*)
Create a transformation Matrix from a given position.

Parameters **pos** (*vector*) – Position for the transformation matrix

Returns The newly created transformation matrix

Return type matrix

```
>>>  t = tra.getTransformFromPos(self.guide.pos["root"])
```

mgear.core.transform.**getTransformLookingAt**(*pos*, *lookat*, *normal*, *axis='xy'*, *negate=False*)
Return a transformation mstrix using vector positions.

Return the transformation matrix of the dagNode oriented looking to an specific point.

Parameters

- **pos** (*vector*) – The position for the transformation
- **lookat** (*vector*) – The aiming position to stablish the orientation
- **normal** (*vector*) – The normal control the transformation roll.
- **axis** (*str*) – The 2 axis used for lookat and normal. Default "xy"
- **negate** (*bool*) – If true, invert the aiming direction.

Returns The transformation matrix

Return type matrix

```
>>>  t = tra.getTransformLookingAt(self.guide.pos["heel"],
                                    self.guide.apos[-4],
                                    self.normal,
                                    "xz",
                                    self.negate)
```

mgear.core.transform.**getTranslation**(*node*)
Return the position of the dagNode in worldSpace.

Parameters **node** (*dagNode*) – The dagNode to get the translation

Returns The transformation matrix

Return type matrix

mgear.core.transform.**get_closes_transform**(*target_transform*, *source_transforms*)
Summary

Parameters

- **target_transform** (*dagNode*) – target transform
- **source_transforms** (*[dagNode]*) – objects to check distance

Returns ordered transform list

Return type list

mgear.core.transform.**get_orientation_from_polygon**(*face*)
Summary

Parameters

- **face** (*TYPE*) – Description
- **loc** (*TYPE*) – Description

Returns Description

Return type TYPE

mgear.core.transform.**get_raycast_translation_from_mouse_click**(*mesh*, *mpx*, *mpy*)
get the raycasted translation of the mouse position

Parameters

- **mesh** (*str*) – mesh name
- **mpx** (*int*) – mouse position x
- **mpy** (*int*) – mouse position x

Returns XYZ position

Return type list

mgear.core.transform.**interpolate_rotation**(*obj*, *targets*, *blends*)

mgear.core.transform.**interpolate_scale**(*obj*, *targets*, *blends*)

mgear.core.transform.**matchWorldTransform**(*source*, *target*)
Match 2 dagNode transformations in world space.

Parameters

- **source** (*dagNode*) – The source dagNode

- **target** (*dagNode*) – The target dagNode

Returns None

mgear.core.transform.**quaternionDotProd**(*q1*, *q2*)
Get the dot product of 2 quaternion.

Parameters

- **q1** (*quaternion*) – Input quaternion 1.
- **q2** (*quaternion*) – Input quaternion 2.

Returns The dot proct quaternion.

Return type quaternion

mgear.core.transform.**quaternionSlerp**(*q1*, *q2*, *blend*)
Get an interpolate quaternion based in slerp function.

Parameters

- **q1** (*quaternion*) – Input quaternion 1.
- **q2** (*quaternion*) – Input quaternion 2.
- **blend** (*float*) – Blending value.

Returns The interpolated quaternion.

Return type quaternion

Example

```
q = quaternionSlerp(datatypes.Quaternion(
                    t1.getRotationQuaternion()),
                    datatypes.Quaternion(
                        t2.getRotationQuaternion()), blend)
```

mgear.core.transform.**resetTransform**(*node*, *t=True*, *r=True*, *s=True*)
Reset the scale, rotation and translation for a given dagNode.

Parameters

- **node** (*dagNode*) – The object to reset the transforms.
- **t** (*bool*) – If true translation will be reseted.
- **r** (*bool*) – If true rotation will be reseted.
- **s** (*bool*) – If true scale will be reseted.

Returns None

mgear.core.transform.**setMatrixPosition**(*in_m*, *pos*)
Set the position for a given matrix

Parameters

- **in_m** (*matrix*) – The input Matrix.
- **pos** (*list of float*) – The position values for xyz

Returns The matrix with the new position

Return type matrix

```
>>> tnpo = tra.setMatrixPosition(tOld, tra.getPositionFromMatrix(t))
```

```
>>> t = tra.setMatrixPosition(t, self.guide.apos[-1])
```

mgear.core.transform.**setMatrixRotation**(*m*, *rot*)
Set the rotation for a given matrix

Parameters

- **in_m** (*matrix*) – The input Matrix.
- **rot** (*list of float*) – The rotation values for xyz

Returns The matrix with the new rotation

Return type matrix

mgear.core.transform.**setMatrixScale**(*m, scl=[1, 1, 1]*)
Set the scale for a given matrix

Parameters

- **in_m** (*matrix*) – The input Matrix.
- **scl** (*list of float*) – The scale values for xyz

Returns The matrix with the new scale

Return type matrix

mgear.core.utils module

Utilitie functions

mgear.core.utils.**as_pynode**(*obj*)
Check and convert a given string to Pynode

If the object is not str or unicode or PyNode will raise type error

Parameters **obj** (*str, unicode, PyNode*) – Object to check and/or convert to PyNode

Returns the pynode object

Return type PyNode

mgear.core.utils.**filter_nurbs_curve_selection**(*func*)

mgear.core.utils.**gatherCustomModuleDirectories**(*envvarkey*, *defaultModulePath*, *component=False*)
returns component directory

Parameters

- **envvarkey** – The environment variable key name, that is searched
- **defaultModulePath** – The default module path for search in.

Returns []string}

Return type Dict{string

mgear.core.utils.**getModuleBasePath**(*directories*, *moduleName*)
search component path

mgear.core.utils.**importFromStandardOrCustomDirectories**(*directories*, *defaultFormatter*, *customFormatter*, *moduleName*)

Return imported module

Parameters

- **directories** – the directories for search in. this is got by gatherCustomModuleDirectories
- **defaultFormatter** – this represents module structure for default module. for example "mgear.core.shifter.component.{}"
- **customFormatter** – this represents module structure for custom module. for example "{0}.{1}"

Returns imported module

Return type module

mgear.core.utils.**is_odd**(*num*)

Check if the number is odd.

Arguments: num (int): the number

Returns True or False

Return type bool

mgear.core.utils.**one_undo**(*func*)

Decorator - guarantee close chunk.

type: (function) -> function

mgear.core.utils.**timeFunc**(*func*)

Use as a property to time any desired function

mgear.core.utils.**viewport_off**(*func*)

Decorator - Turn off Maya display while func is running.

if func will fail, the error will be raised after.

type: (function) -> function

mgear.core.vector module

Functions to work with vectors

class mgear.core.vector.**Blade**(*t=<sphinx.ext.autodoc.importer._MockObject object>*)

Bases: object

The Blade object for shifter guides

mgear.core.vector.**calculatePoleVector**(*p1*, *p2*, *p3*, *poleDistance=1*, *time=1*)

This function takes 3 PyMEL PyNodes as inputs. Creates a pole vector position at a "nice" distance away from a triangle of positions. Normalizes the bone lengths relative to the knee to calculate straight ahead without shifting up and down if the bone lengths are different. Returns a pymel.core.datatypes.Vector

Parameters

- **p1** (*dagNode*) – Object A
- **p2** (*dagNode*) – Object B
- **p3** (*dagNode*) – Object C

- **poleDistance** (*float*) – distance of the pole vector from the mid point

Returns The transposed vector.

Return type vector

mgear.core.vector.**getDistance**(*v0*, *v1*)
Get the distance between 2 vectors

Parameters

- **v0** (*vector*) – vector A.
- **v1** (*vector*) – vector B.

Returns Distance length.

Return type float

mgear.core.vector.**getDistance2**(*obj0*, *obj1*)
Get the distance between 2 objects.

Parameters

- **obj0** (*dagNode*) – Object A
- **obj1** (*dagNode*) – Object B

Returns Distance length

Return type float

mgear.core.vector.**getPlaneBiNormal**(*v0*, *v1*, *v2*)
Get the binormal vector of a plane (Defined by 3 positions).

Parameters

- **v0** (*vector*) – First position on the plane.
- **v1** (*vector*) – Second position on the plane.
- **v2** (*vector*) – Third position on the plane.

Returns The binormal.

Return type vector

mgear.core.vector.**getPlaneNormal**(*v0*, *v1*, *v2*)
Get the normal vector of a plane (Defined by 3 positions).

Parameters

- **v0** (*vector*) – First position on the plane.
- **v1** (*vector*) – Second position on the plane.
- **v2** (*vector*) – Third position on the plane.

Returns The normal.

Return type vector

mgear.core.vector.**getTransposedVector**(*v*, *position0*, *position1*, *inverse=False*)
Get the transposed vector.

Parameters

- **v** (*vector*) – Input Vector.
- **position0** (*vector*) – Position A.

- **position1** (*vector*) – Position B.
- **inverse** (*bool*) – Invert the rotation.

Returns The transposed vector.

Return type vector

```
>>> normal = vec.getTransposedVector(self.normal,
                                     [self.guide.apos[0],
                                      self.guide.apos[1]],
                                     [self.guide.apos[-2],
                                      self.guide.apos[-1]])
```

mgear.core.vector.**linearlyInterpolate**(*v0*, *v1*, *blend=0.5*)
Get the vector interpolated between 2 vectors.

Parameters

- **v0** (*vector*) – vector A.
- **v1** (*vector*) – vector B.
- **blend** (*float*) – Blending value.

Returns The interpolated vector.

Return type vector

mgear.core.vector.**rotateAlongAxis**(*v*, *axis*, *a*)
Rotate a vector around a given axis defined by other vector.

Parameters

- **v** (*vector*) – The vector to rotate.
- **axis** (*vector*) – The axis to rotate around.
- **a** (*float*) – The rotation angle in radians.

mgear.core.version module

mgear.core.widgets module

mgear.core.wmap module

mgear.core.wmap.**export_weights**(*deformer*, *filePath*)
Export the wmap to a json file

Parameters

- **deformer** (*PyNode or str*) – Name or pynode of a deformer with weight map
- **filePath** (*str*) – Path to save the file

mgear.core.wmap.**export_weights_selected**(*filePath=None*, **args*)
Export the wmap to a json file from selected objet

Parameters **filePath** (*str*) – Path to save the file. If None wil pop up file browser

mgear.core.wmap.**file_browser**(*mode=1*)
open file browser

Parameters **mode** (*int, optional*) – 0 save mode, 1 load mode

Returns file path

Return type str

mgear.core.wmap.**get_weights**(*deformer*)
Get the weight map from a given deformers

It supports multiple objects/weight maps for one sigle deformer

Parameters **deformer** (*PyNode or str*) – Name or pynode of a deformer with weight map

Returns The weights dictionary

Return type dict

mgear.core.wmap.**import_weights**(*deformer*, *filePath*)
Import the wmap from a json file

Parameters

- **deformer** (*PyNode or str*) – Name or pynode of a deformer to assign the wmap
- **filePath** (*str*) – Path to load the file

mgear.core.wmap.**import_weights_selected**(*filePath=None*, **args*)
Import the wmap to from json file from selected objet

Parameters **filePath** (*str*) – Path to load the file. If None wil pop up file browser

mgear.core.wmap.**set_weights**(*deformer*, *dataWeights*)
Set the weight map from a given deformers

It supports multiple objects/weight maps for one sigle deformer

Parameters **deformer** (*PyNode or str*) – Name or pynode of a deformer with weight map

Module contents

mgear.core.**aboutMgear**(**args*)
About mgear

mgear.core.**getMayaVer**()
Get Maya version

Returns Maya version

mgear.crank package

Submodules

mgear.crank.crank_tool module

mgear.crank.crank_ui module

class mgear.crank.crank_ui.**Ui_Form**
Bases: object

retranslateUi(*Form*)

setupUi(*Form*)

mgear.crank.menu module

mgear.crank.menu.**install**()
Install Crank submenu

mgear.crank.version module

Module contents

mgear.flex package

Submodules

mgear.flex.analyze module

flex.analyze

flex.analyze module contains functions which allows you analyze the shapes you want to update with Flex

module flex.analyze

mgear.flex.analyze_widget module

flex.analyze_widget

Contains the Flex Analyze interface

module flex.analyze_widget

class mgear.flex.analyze_widget.**FlexAnalyzeDialog**(*parent=None*)
Bases: sphinx.ext.autodoc.importer._MockObject

The Flex analyze widgets

Flex analyze is a side by side list widget style that will allow you to check which shapes matches.

Creates all the user interface widgets

Parameters **parent** (*PySide2.QtWidgets*) – the parent widget for the Flex dialog widget

add_item(*source*, *target*, *match*, *count*, *bbox*)
Handles adding items to the table widget

Parameters

- **source** (*string*) – the source shape element
- **target** (*string*) – the target corresponding shape element matching source
- **match** (*bool*) – whether the type matches

mgear.flex.attributes module

flex.attributes

A simple module listing all attributes classifications inside Maya or a simplified verison of long attributes in maya

module flex.attributes

mgear.flex.colors module

flex.colors

Simple collection of QtColors

module flex.colors

mgear.flex.decorators module

flex.decorators

flex.decorators module contains utility functions that you can use as functions decorators.

module flex.decorators

mgear.flex.decorators.**finished_running**(*function*)
Displays a end of process viewport message

Parameters **function** (*function*) – your decorated function

Returns your decorated function

Return type function

mgear.flex.decorators.**hold_selection**(*function*)
Holds the current Maya selection after running the function

Parameters **function** (*function*) – your decorated function

Returns your decorated function

Return type function

mgear.flex.decorators.**isolate_view**(*function*)
Isolates the view panels while function is running

Parameters **function** (*function*) – your decorated function

Returns your decorated function

Return type function

mgear.flex.decorators.**set_focus**(*function*)
Set focus on Flex window

Sets focus on Flex UI.

Parameters **function** (*function*) – your decorated function

Returns your decorated function

Return type function

mgear.flex.decorators.**show_view**(*function*)
Shows the isolated views panels after function runs

Parameters **function** (*function*) – your decorated function

Returns your decorated function

Return type function

mgear.flex.decorators.**timer**(*function*)
Function timer

Simple timer function decorator that you can use on Flex to time your code execution

Parameters **function** (*function*) – your decorated function

Returns your decorated function

Return type function

mgear.flex.flex module

mgear.flex.flex_widget module

flex.ui

Contains the Flex user interface

module flex.ui

class mgear.flex.flex_widget.**FlexDialog**(*parent=None*)
Bases: sphinx.ext.autodoc.importer._MockObject

The Flex UI widgets

Flex UI contains several options you can tweak to customise your rig update

Creates all the user interface widgets

Parameters **parent** (*PySide2.QtWidgets*) – the parent widget for the Flex dialog widget

deformed_widgets()
Creates the deformed options widgets

layout_widgets()
Creates the general UI layouts

models_groups_widgets()
Creates the source and target widgets area

options_widgets()
Create the options widget area

run_widgets()
Creates the run widgets area

transformed_widgets()
Creates the transformed options widgets

mgear.flex.menu module

flex.menu

Flex menu handles adding the Flex menu item inside the Maya mGear menu.

module flex.menu

mgear.flex.menu.**install**()
Installs Flex sub-menu

mgear.flex.query module

flex.query

flex.query module contains a collection of functions useful for the analyze and update functions of Flex

module flex.query

mgear.flex.query.**get_clean_matching_shapes**(*source*, *target*)
Returns the prefix-less found shapes under the given groups

Parameters

- **source** (*string*) – source group containing shapes in Maya
- **target** (*string*) – target group containing shapes in Maya

Returns The matching target shapes names without prefix

Return type dict, dict

mgear.flex.query.**get_deformers**(*shape*)
Returns a dict with each deformer found on the given shape

Parameters **shape** (*str*) – the shape node name

Returns the deformers found on shape sorted by type

Return type dict

mgear.flex.query.**get_dependency_node**(*element*)
Returns a Maya MFnDependencyNode from the given element

Parameters **element** (*string*) – Maya node to return a dependency node class object

Returns the element in a Maya MFnDependencyNode object

Return type MFnDependencyNode

mgear.flex.query.**get_matching_shapes**(*source_shapes*, *target_shapes*)
Returns the matching shapes

This Function will return a dict that contains the target matching shape name from the source.

Parameters

- **source_shapes** (*dict*) – sources dictionary containing prefix-less shapes
- **target** (*dict*) – targets dictionary containing prefix-less shapes

Returns The matching target shapes names

Return type dict

Note: This function is the core idea of how Flex finds matching shapes from a source group to the target. Because Flex is not part of a specific studio pipeline this matching is **shapes name based**. Because some studios might bring the source scene into the rig scene as a reference or as an import we cover those two cases.

Using this dict is the fastest way (so far found) to deal with a huge amount of names. Finding the matching names on a scene with more than 2000 shapes takes 0.0009... seconds.

---

mgear.flex.query.**get_matching_shapes_from_group**(*source*, *target*)
Returns the matching shapes on the given groups

Parameters

- **source** (*string*) – source group containing shapes in Maya
- **target** (*string*) – target group containing shapes in Maya

Returns The matching target shapes names

Return type dict

mgear.flex.query.**get_missing_shapes**(*source_shapes*, *target_shapes*)
Returns the missing shapes

This Function will return a dict that contains the missing shape found on the target.

Parameters

- **source_shapes** (*dict*) – sources dictionary containing prefix-less shapes
- **target** (*dict*) – targets dictionary containing prefix-less shapes

Returns The missing target shapes names

Return type dict

mgear.flex.query.**get_missing_shapes_from_group**(*source*, *target*)
Returns the missing shapes from the given source and target group

Parameters

- **source** (*string*) – source group containing shapes in Maya
- **target** (*string*) – source group containing shapes in Maya

Returns The missing target shapes names

Return type dict

mgear.flex.query.**get_parent**(*element*)
Returns the first parent found for the given element

Parameters **element** (*string*) – A Maya dag node

mgear.flex.query.**get_prefix_less_dict**(*elements*)
Returns a dict containing each element with a stripped prefix

This Function will return a dict that contains each element resulting on the element without the found prefix

Parameters **elements** (*list*) – List of all your shapes

Returns The matching prefix-less elements

Return type dict

Note: Because Flex is not part of a specific studio pipeline we cover two different ways to bring the source shapes inside your rig. You can either import the source group with the meshes or use a Maya reference. This function will strip the prefix whether your object is part of a namespace or a double name getting a full path naming.

---

mgear.flex.query.**get_prefix_less_name**(*element*)
Returns a prefix-less name

Parameters **elements** (*str*) – element top use on the search

Returns The prefix-less name

Return type str

mgear.flex.query.**get_resources_path**()
Gets the directory path to the resources files

mgear.flex.query.**get_shape_orig**(*shape*)
Finds the orig (intermediate shape) on the given shape

Parameters **shape** (*str*) – maya shape node

Returns the found orig shape

Return type str

Note: There are several ways of searching for the orig shape in Maya. Here we query it by first getting the given shape history on the component type attribute (inMesh, create..) then filtering on the result the same shape type. There might be more optimised and stable ways of doing this.

---

mgear.flex.query.**get_shape_type_attributes**(*shape*)
Returns a dict with the attributes names depending on the shape type

This function returns the points, output, input and axes attributes for the corresponding shape type. Mesh type of nodes will be set as default but nurbs surfaces and nurbs curves are supported too.

on mesh nodes: points = pnts output = outMesh input = inMesh p_axes = (pntx, pnty, pntz)

on nurbs nodes: points = controlPoints output = local input = create p_axes = (xValue, yValue, zValue)

Parameters **shape** (*str*) – maya shape node

Returns corresponding attributes names

Return type dict

mgear.flex.query.**get_shapes_from_group**(*group*)
Gets all object shapes existing inside the given group

Parameters **group** (*str*) – maya transform node

Returns list of shapes objects

Return type list str

mgear.flex.query.**get_temp_folder**()
Returns the user temporary folder in a Maya friendly matter

Returns temp folder path

Return type str

mgear.flex.query.**get_transform_selection**()
Gets the current dag object selection

Returns the first selected dag object on a current selection that is a transform node

Returns the first element of the current maya selection

Return type str

mgear.flex.query.**get_vertice_count**(*shape*)
Returns the number of vertices for the given shape

Parameters **shape** (*string*) – The maya shape node

Returns The number of vertices found on shape

Return type int

mgear.flex.query.**is_lock_attribute**(*element*, *attribute*)
Returns if the given attribute on the element is locked

Parameters

- **element** (*string*) – Maya node name
- **attribute** (*string*) – Maya attribute name. Must exist

Returns if attribute is locked

Return type bool

mgear.flex.query.**is_matching_bouding_box**(*source*, *target*, *tolerance=0.05*)
Checks if the source and target shape have the same bounding box

Parameters

- **source** (*string*) – source shape node
- **target** (*string*) – target shape node
- **tolerance** (*float*) – difference tolerance allowed. Default 0.001

Returns If source and target matches their bounding box

Return type bool

mgear.flex.query.**is_matching_count**(*source*, *target*)
Checks if the source and target shape have the same amount of vertices

Parameters

- **source** (*string*) – source shape node
- **target** (*string*) – target shape node

Returns If source and target matches vertices count or not

Return type bool

mgear.flex.query.**is_matching_type**(*source*, *target*)
Checks if the source and target shape type matches

Parameters

- **source** (*string*) – source shape node
- **target** (*string*) – target shape node

Returns If source and target matches or not

Return type bool

mgear.flex.query.**is_maya_batch**()
Returns if the current session is a Maya batch session or not

Returns if Maya is on batch mode or not

Return type bool

mgear.flex.query.**is_valid_group**(*group*)
Checks if group is valid

Simply checks if the given group exists in the current Maya session and if it is a valid transform group.

Parameters **group** (*str*) – a maya transform node

Returns If the group is valid

Return type bool

mgear.flex.query.**lock_unlock_attribute**(*element*, *attribute*, *state*)
Unlocks the given attribute on the given element

Parameters

- **element** (*string*) – Maya node name
- **attribute** (*string*) – Maya attribute name. Must exist
- **state** (*bool*) – If we should lock or unlock

Returns If the setting was successful or not

Return type bool

mgear.flex.update module

flex.update

flex.update module handles the updating rig process

module flex.update

mgear.flex.update.**update_attribute**(*source*, *target*, *attribute_name*)
Updates the given attribute value

..note:: This in a generic method to setAttr all type of attributes inside Maya. Using the getSetAttrCmds from the MPLug class allows avoiding to create one method for each type of attribute inside Maya as the setAttr command will differ depending on the attribute type and data.

This method is faster than using PyMel attribute set property.

Parameters

- **source** (*str*) – the maya source node
- **target** (*str*) – the maya target node
- **attribute_name** (*str*) – the attribute name to set in the given target

mgear.flex.update.**update_blendshapes_nodes**(*source_nodes*, *target_nodes*)
Update all target shapes with the given source shapes

Parameters

- **source_nodes** (*list(str)*) – source blendshape nodes
- **target_nodes** (*list(str)*) – target blendshape nodes

mgear.flex.update.**update_clusters_nodes**(*shape*, *weight_files*)
Updates the given shape cluster weights using the given files

Parameters

- **shape** (*str*) – the shape node name containing the cluster deformers

- **weight_files** (*list(str)*) – weight files names for each cluster deformer

mgear.flex.update.**update_deformed_shape**(*source*, *target*, *mismatching_topology=True*)
Updates the target shape with the given source shape content

Parameters

- **source** (*str*) – maya shape node
- **target** (*str*) – maya shape node
- **mismatching_topology** (*bool*) – ignore or not mismatching topologies

mgear.flex.update.**update_maya_attributes**(*source*, *target*, *attributes*)
Updates all maya attributes from the given source to the target

Parameters

- **source** (*str*) – maya shape node
- **target** (*str*) – maya shape node
- **attributes** (*list*) – list of Maya attributes to be updated

mgear.flex.update.**update_plugin_attributes**(*source*, *target*)
Updates all maya plugin defined attributes

Parameters

- **source** (*str*) – maya shape node
- **target** (*str*) – maya shape node

mgear.flex.update.**update_skincluster_node**(*source_skin*, *target_skin*)
Updates the skin weights on the given target skin from the source skin

Parameters

- **source_skin** (*str*) – the source skin cluster node name
- **target_skin** (*str*) – the target skin cluster node name

mgear.flex.update.**update_transform**(*source*, *target*)
Updates the transform node on target

This method creates a duplicate of the transform node on source and uses is as the new parent transform for the target shape

Parameters

- **source** (*str*) – maya shape node
- **target** (*str*) – maya shape node

mgear.flex.update.**update_transformed_shape**(*source*, *target*, *hold_transform*)
Updates the target shape with the given source shape content

Parameters

- **source** (*str*) – maya shape node
- **target** (*str*) – maya shape node
- **hold_transform** (*bool*) – keeps the transform node position values

mgear.flex.update.**update_user_attributes**(*source*, *target*)
Updates the target shape attributes with the given source shape content

Parameters

- **source** (*str*) – maya shape node
- **target** (*str*) – maya shape node

Note: This method loops twice on the use attributes. One time to add the missing attributes and the second to set their value. This allows avoiding issues when dealing with child attributes.

mgear.flex.update.**update_uvs_sets**(*shape*)
Forces a given mesh shape uvs to update

mgear.flex.update_utils module

flex.update_utils

flex.update_utils module contains some simple methods that work as utilities for the flex update process

module flex.update_utils

mgear.flex.update_utils.**add_attribute**(*source*, *target*, *attribute_name*)
Adds the given attribute to the given object

Note: This is a generic method to **addAttr** all type of attributes inside Maya. Using the getAddAttrCmd from the MFnAttribute class allows avoiding to create one method for each type of attribute inside Maya as the addAttr command will differ depending on the attribute type and data.

Parameters

- **source** (*str*) – the maya source node
- **target** (*str*) – the maya target node
- **attribute_name** (*str*) – the attribute name to add in the given element

mgear.flex.update_utils.**clean_uvs_sets**(*shape*)
Deletes all uv sets besides map1

This is used to be able to update target shapes with whatever the source shape has. This is only relevant for mesh shape types.

Parameters **shape** (*string*) – The Maya shape node

mgear.flex.update_utils.**copy_blendshape_node**(*node*, *target*)
Copies the given blendshape node into the given target shape

Parameters

- **node** (*str*) – blendshape node
- **target** (*str*) – target shape node

Returns copied blenshape node

Return type str

mgear.flex.update_utils.**copy_map1_name**(*source*, *target*)
Copies the name of the uvSet at index zero (map1) to match it

Parameters

- **source** (*str*) – maya shape node
- **target** (*str*) – maya shape node

mgear.flex.update_utils.**create_clusters_backup**(*shape*, *nodes*)
Generates weight files for the given cluster nodes in the given shape

Parameters

- **shape** (*str*) – the shape node name containing the cluster deformers nodes
- **nodes** (*list*) – the cluster nodes

Returns cluster weight files names

Return type dict

mgear.flex.update_utils.**create_deformers_backups**(*source*, *target*, *shape_orig*, *deformers*)
Handles creating the correct backup shapes for the given deformers

Parameters

- **source** (*str*) – the shape containing the new shape
- **target** (*str*) – the shape containing the deformers
- **shape_orig** (*str*) – the intermediate shape from the target shape
- **deformers** (*dict*) – deformers used on target

Returns deformers backups nodes created

Return type list, list

mgear.flex.update_utils.**create_duplicate**(*shape*, *duplicate_name*)
Creates a shape node duplicate

Parameters

- **shape** (*str*) – the shape node to duplicate
- **name** (*str*) – the name for the duplicate

Returns the duplicated shape node

Return type str

mgear.flex.update_utils.**create_wrap**(*source*, *target*, *intermediate=None*)
Creates a wrap deformer on the target by using source as driver

Parameters

- **source** (*str*) – the maya source node
- **target** (*str*) – the maya target node
- **intermediate** (*str*) – the intermediate shape to use on the warp node

Returns wrap node

Return type str

mgear.flex.update_utils.**delete_transform_from_nodes**(*nodes*)
Deletes the dag object transform node found from the given nodes

Parameters **shape** (*list*) – nodes names

mgear.flex.update_utils.**filter_shape_orig**(*shape*, *intermediate*)
Filters whether the intermediate shape provided should be used or not

if an intermediate isn't provided then

Parameters

- **shape** (*str*) – the shape node name
- **intermediate** (*str*) – the intermediate shape name

Returns the valid intermediate shape

Return type str

mgear.flex.update_utils.**set_deformer_off**(*deformer*)
Set envelope attribute to **0** on the given deformer

Parameters **deformer** (*str*) – deformer node

mgear.flex.update_utils.**set_deformer_on**(*deformer*)
Set envelope attribute to **1** on the given deformer

Parameters **deformer** (*str*) – deformer node

mgear.flex.update_utils.**set_deformer_state**(*deformers*, *enable*)
Set envelope attribute to one on the given deformers dictionary

Parameters

- **deformers** (*type*) – dict containing the deformers set by type
- **enable** (*bool*) – on or off state for the given deformers

mgear.flex.update_utils.**update_shape**(*source*, *target*)
Connect the shape output from source to the input shape on target

Parameters

- **source** (*str*) – maya shape node
- **target** (*str*) – maya shape node

mgear.flex.version module

Module contents

FLEX

Flex is the mGear models (geometry) update tool inside rigs.

module flex.__init__

mgear.rigbits package

Subpackages

mgear.rigbits.facial_rigger package

Submodules

mgear.rigbits.facial_rigger.brow_rigger module

mgear.rigbits.facial_rigger.constraints module

mgear.rigbits.facial_rigger.eye_rigger module

mgear.rigbits.facial_rigger.helpers module

mgear.rigbits.facial_rigger.lib module

mgear.rigbits.facial_rigger.lips_rigger module

Module contents

mgear.rigbits.facial_rigger2 package

Submodules

mgear.rigbits.facial_rigger2.eye_rigger module

mgear.rigbits.facial_rigger2.eye_riggerUI module

mgear.rigbits.facial_rigger2.helpers module

mgear.rigbits.facial_rigger2.lib module

Module contents

mgear.rigbits.sdk_manager package

Submodules

mgear.rigbits.sdk_manager.SDK_manager_ui module

mgear.rigbits.sdk_manager.SDK_transfer_ui module

mgear.rigbits.sdk_manager.core module

mgear.rigbits.sdk_manager.core.**ctl_from_list**(*in_list*, *SDK=False*, *animTweak=False*)

Returns either the SDK's or animTweaks from the in_list. If given a SDK, it will find the animTweak pair and vise versa. To qualify as SDK ctl must have "is_SDK" attr, or "is_tweak" attr for animTweak

Parameters

- **in_list** (*list[PyNode]*) – List of PyNodes to sort through
- **SDK** (*bool*) – If you want SDK ctls
- **animTweak** (*bool*) – If you want animTweak ctls

Returns list [List of either SDK ctls or animTweaks]

mgear.rigbits.sdk_manager.core.**delete_current_value_keys**(*current_driver_val*, *node*, *sourceDriverFilter*)

Parameters

- **()** (*sourceDriverFilter*) –
- **()** –

Returns n/a

mgear.rigbits.sdk_manager.core.**driver_ctl_from_joint**(*joint*)

Will try find the Driver control given the joint by searching through the mGear nodes.

Parameters **joint** (*PyNode*) – joint to search connections on

Returns Control

Return type PyNode

mgear.rigbits.sdk_manager.core.**get_current_SDKs**()

If SDK ctls are selected, will return only the SDK nodes Attatched to those in the selection. If nothing is selected, will get all the SDK nodes in the scene and return them.

Returns SDKs_to_set (list) - list of SDKs as Pynodes

mgear.rigbits.sdk_manager.core.**get_driven_from_attr**(*driverAttr*, *is_SDK=False*)

Returns a list of driven controls given the driver attr

Parameters

- **driverAttr** (*PyNode*) – the driver attr to search
- **is_SDK** (*bool*) – if True, will check if the is_SDK attr is present before
- **to driven_ctls list.** (*adding*) –

Returns list [List of unicode names]

mgear.rigbits.sdk_manager.core.**get_driver_from_driven**(*drivenCtl*)

Finds the Driver controls for a given driven ctl

Parameters **drivenCtl** (*PyNode*) – A Driven Node to query.

Returns list [All found Driver Nodes]

mgear.rigbits.sdk_manager.core.**get_driver_keys**(*driverAttr*, *firstKey=None*, *prevKey=None*, *nextKey=None*, *lastKey=None*)

Returns a list of Driver key values for the given driverAttr.

If all optional arguments are None, will return list of all values

Parameters

- **driverAttr** (*PyNode.Attribute*) – Driver Ctl.attr
- **firstKey** (*bool*) –
- **prevKey** (*bool*) –
- **nextKey** (*bool*) –
- **lastKey** (*bool*) –

Returns List (If all optional None) - List of driver key values float (If one specified) - The float value for the driver on that key.

mgear.rigbits.sdk_manager.core.**get_info**(*node*)
Given either the SDK box, or Anim ctl, will find other and return it

Parameters **node** (*PyNode*) – either the SDK box or Anim ctl

Returns list [PyNode(SDK box), PyNode(anim ctl)]

mgear.rigbits.sdk_manager.core.**joint_from_driver_ctl**(*node*)
Will try find the joint given the Driver control by searching through the mGear nodes.

TO DO: Expand this to be more robust. Check all channels / not rely on translate connections only.

Parameters **node** (*PyNode*) – node to search connections on

Returns joint

Return type PyNode

mgear.rigbits.sdk_manager.core.**key_at_current_values**(*drivenCtls*, *keyChannels*, *driver*, *driverAtt*, *inTanType='linear'*, *outTanType='linear'*, *zeroKey=False*)
Helper function to set SDK's at Driven nodes current values :param drivenCtls: List of String names of the Driven Ctls. :type drivenCtls: list :param keyChannels: List of Channels to Key :type keyChannels: list :param driver: Driver Node :type driver: PyNode :param driverAtt: Driver Attr given as a string :type driverAtt: str :param inTanType: Tangent type, by default is linear. :type inTanType: str / optional :param outTanType: Tangent type, by default is linear. :type outTanType: str / optional :param zeroKey: if True, will set a zero key before

setting the key at current value.

Returns n/a

mgear.rigbits.sdk_manager.core.**mirror_SDK**(*driverCtl*)
Takes in a driver control and extrapolates out all the other information needed to mirror it's connected SDK's.

Parameters **driverCtl** (*PyNode*) –

Returns None

mgear.rigbits.sdk_manager.core.**next_biggest**(*target*, *in_list*)
Returns the next highest number in the in_list. If target is greater the the last number in in_list, will return the last item in the list.

mgear.rigbits.sdk_manager.core.**next_smallest**(*target*, *in_list*)
Returns the next Lowest number in the in_list. If target is smaller the the last number in in_list, will return the first item in the list.

mgear.rigbits.sdk_manager.core.**prune_DK_nodes**(*white_list=[]*)
Finds all the driven key nodes that have no input or output connected and removes them. Nodes with the word profile in are excluded so that no guide components are broken.

Parameters **white_list** (*list / optional*) – List of nodes to ignore

Returns list (All the names of the deleted nodes)

mgear.rigbits.sdk_manager.core.**reset_to_default**(*mode*, *clear_sel=False*)
Reset All the Rig Driver Ctls or Anim Ctls to Default

Parameters **mode** (*str*) – All Ctl Curves - drv : Driver Ctls - anim : Anim Ctls

Returns None

mgear.rigbits.sdk_manager.core.**select_all**(*mode*)

Select all the Driver Ctls, Anim Ctls Joints or SDK Nodes in the scene.

Parameters **mode** (*str*) – Driver Ctls - anim : Anim Ctls - jnts : Joints - nodes : SDK Nodes

Returns None

mgear.rigbits.sdk_manager.core.**set_driven_key**(*driverAttr*, *drivenAttr*, *driverVal*, *drivenVal*, *preInfinity=0*, *postInfinity=0*, *inTanType='linear'*, *outTanType='linear'*)

Convinience function to aid in setting driven keys.

Parameters

- **driverAttr** (*PyNode.attribute*) – Driver.attr to drive the SDK
- **drivenAttr** (*PyNode.attribute*) – Driven.attr to be driven by the SDK
- **driverVal** (*float*) – Value to use for driver
- **drivenVal** (*float*) – Value to use for driven
- **preInfinity** (*int*) – IndexKey - constant[0], linear[1], cycle[2], cycleOffset[3], Oscillate[4]
- **postInfinity** (*int*) – IndexKey - constant[0], linear[1], cycle[2], cycleOffset[3], Oscillate[4]
- **inTanType** (*str*) – spline, linear, fast, slow, flat, stepped, step next, fixed, clampedand plateau
- **outTanType** (*str*) – spline, linear, fast, slow, flat, stepped, step next, fixed, clampedand plateau

Returns new Anim UU node or the Edited one.

TO DO: fix the return.

mgear.rigbits.sdk_manager.core.**set_limits_from_current**(*axis*, *controls=None*, *upperLimit=False*, *lowwerLimit=False*)

Sets either the upper or lowwer limits on the provided control and axis

> get current limits > update either the lower or the upper > set limits to Enabled.

There is a lot of duplicate code but its a bit unavoidable with how transformLimits flags are set up.

Aruments: axis (str): x,y,z axis to use. controls (list): List of PyNodes to iterate over upperLimit (bool): If True will set the upper Limit lowwerLimit (bool): If True will set the lowwer Limit

mgear.rigbits.sdk_manager.core.**set_zero_key**(*drivenCtls*, *keyChannels*, *driver*, *driverAtt*, *inTanType='linear'*, *outTanType='linear'*)

Takes a Current "state", Sets a ZERO SDK then resets to the "state".

Parameters

- **drivenCtls** (*list*) – List of String names of the Driven Ctls.
- **keyChannels** (*list*) – List of Channels to Key
- **driver** (*PyNode*) – Driver Node
- **driverAtt** (*str*) – Driver Attr given as a string
- **inTanType** (*str / optional*) – Tangent type, by default is linear.

- **outTanType** (*str / optional*) – Tangent type, by default is linear.

Returns n/a

mgear.rigbits.sdk_manager.core.**toggle_limits**(*axis*, *controls=None*)
Toggles the controller translate Limits On or Off from their current values, both upper and lower.

Aruments: axis (str): x,y,z axis to use. controls (list / optional): List of PyNodes to iterate over

If None, use Selection

Module contents

Submodules

mgear.rigbits.blendShapes module

Rigbits blendshapes utilities and tools

mgear.rigbits.blendShapes.**blendshape_foc**(*deformed_obj*)
Move existing blendshape node to the front of chain

Parameters **deformed_obj** (*PyNode*) – object with deformation history including a blendshape node

mgear.rigbits.blendShapes.**connectWithBlendshape**(*mesh*, *bst*, *wgt=1.0*, *ffoc=False*)
Connect 2 geometries using blendshape node

Parameters

- **mesh** (*PyNode*) – The Object to apply the blendshape target
- **bst** (*PyNode*) – The Blendshape target
- **wgt** (*float, optional*) – Description
- **ffoc** (*bool, optional*) – Force Front of Chain. will move the blendshape node after creation

Returns The blenshape node

Return type PyNode

mgear.rigbits.blendShapes.**getBlendShape**(*obj*)
Get the blendshape node of an object.

Parameters **obj** (*PyNode*) – The object with the blendshape node

Returns The blendshape node

Return type PyNode

mgear.rigbits.channelWrangler module

mgear.rigbits.channelWranglerUI module

mgear.rigbits.cycleTweaks module

Cycle Tweaks module

This module content the tools and procedures to rig tweaks with a benigne cycle

mgear.rigbits.cycleTweaks.**cycleTweak**(*name*, *edgePair*, *mirrorAxis*, *baseMesh*, *rotMesh*, *transMesh*, *setupParent*, *ctlParent*, *jntOrg=None*, *grp=None*, *iconType='square'*, *size=0.025*, *color=13*, *ro=<sphinx.ext.autodoc.importer._MockObject object>*)

The command to create a cycle tweak.

A cycle tweak is a tweak that cycles to the parent position but doesn't create a cycle of dependency. This type of tweaks are very useful to create facial tweakers.

Parameters

- **name** (*string*) – Name for the cycle tweak
- **edgePair** (*list*) – List of edge pair to attach the cycle tweak
- **mirrorAxis** (*bool*) – If true, will mirror the x axis behaviour.
- **baseMesh** (*Mesh*) – The base mesh for the cycle tweak.
- **rotMesh** (*Mesh*) – The mesh that will support the rotation transformations for the cycle tweak
- **transMesh** (*Mesh*) – The mesh that will support the translation and scale transformations for the cycle tweak
- **setupParent** (*dagNode*) – The parent for the setup objects
- **ctlParent** (*dagNode*) – The parent for the control objects
- **jntOrg** (*None or dagNode, optional*) – The parent for the joints
- **grp** (*None or set, optional*) – The set to add the controls
- **iconType** (*str, optional*) – The controls shape
- **size** (*float, optional*) – The control size
- **color** (*int, optional*) – The control color
- **ro** (*TYPE, optional*) – The control shape rotation offset

Returns the tweak control and the list of related joints.

Return type multi

mgear.rigbits.cycleTweaks.**initCycleTweakBase**(*outMesh*, *baseMesh*, *rotMesh*, *transMesh*, *staticJnt=None*)

Initialice the cycle tweak setup structure

Parameters

- **outMesh** (*Mesh*) – The output mesh after the tweak deformation
- **baseMesh** (*Mesh*) – The base mesh for the cycle tweak.
- **rotMesh** (*Mesh*) – The mesh that will support the rotation transformations for the cycle tweak
- **transMesh** (*Mesh*) – The mesh that will support the translation and scale transformations for the cycle tweak
- **staticJnt** (*None or joint, optional*) – The static joint for the static vertex.

mgear.rigbits.cycleTweaks.**inverseTranslateParent**(*obj*)

Invert the parent transformation

Parameters **obj** (*dagNode*) – The source dagNode to inver parent transformation.

mgear.rigbits.ghost module

Rigbits Ghost module

Helper tools to create layered controls rigs

mgear.rigbits.ghost.**createDoritoGhostCtl**(*ctl*, *parent=None*)
Create a duplicated Ghost control for doritos Create a duplicate of the dorito/tweak and rename the original with _ghost. Later connect the local transforms and the Channels. This is useful to connect local rig controls with the final rig control.

Parameters

- **ctl** (*dagNode*) – Original Control to duplicate
- **parent** (*dagNode*) – Parent for the new created control

mgear.rigbits.ghost.**createGhostCtl**(*ctl*, *parent=None*, *connect=True*)
Create a duplicated Ghost control

Create a duplicate of the control and rename the original with _ghost. Later connect the local transforms and the Channels. This is useful to connect local rig controls with the final rig control.

Parameters

- **ctl** (*dagNode*) – Original Control to duplicate
- **parent** (*dagNode*) – Parent for the new created control

Returns The new created control

Return type pyNode

mgear.rigbits.ghost.**ghostSlider**(*ghostControls*, *surface*, *sliderParent*)
Modify the ghost control behaviour to slide on top of a surface

Parameters

- **ghostControls** (*dagNode*) – The ghost control
- **surface** (*Surface*) – The NURBS surface
- **sliderParent** (*dagNode*) – The parent for the slider.

mgear.rigbits.menu module

mgear.rigbits.menu.**cCtl_sub**(*parent_menu_id*)
Create control as child of selected elements

Parameters **parent_menu_id** (*stro*) – Parent menu. i.e: “MayaWindow|mGear|menuItem355”

mgear.rigbits.menu.**connect_submenu**(*parent_menu_id*)
Create the connect local Scale, rotation and translation submenu

Parameters **parent_menu_id** (*str*) – Parent menu. i.e: “MayaWindow|mGear|menuItem355”

mgear.rigbits.menu.**gimmick_submenu**(*parent_menu_id*)
Create the gimmick joint submenu

Parameters **parent_menu_id** (*str*) – Parent menu. i.e: “MayaWindow|mGear|menuItem355”

mgear.rigbits.menu.**install**()
Install Rigbits submenu

mgear.rigbits.menu.**install_utils_menu**(*m*)
Install rigbit utils submenu

mgear.rigbits.menu.**pCtl_sub**(*parent_menu_id*)
Create control as parent of selected elements

Parameters **parent_menu_id** (*stro*) – Parent menu. i.e: "MayaWindow|mGear|menuItem355"

mgear.rigbits.mirror_controls module

mgear.rigbits.postSpring module

Post Spring tool

creates a spring dynamic rig on top of a pre-existing FK chain rig.

mgear.rigbits.postSpring.**bake_spring**(**args*)
Shortcut fro the Maya's Bake Simulation Options

mgear.rigbits.postSpring.**build_spring**(**args*)

mgear.rigbits.postSpring.**postSpring**(*dist=5*, *hostUI=False*, *hostUI2=False*, *invertX=False*)
Create the dynamic spring rig.

This spring system use the mgear_spring node And transfer the position spring to rotation spring using an aim constraint.

Note: The selected chain of object should be align with the X axis.

Parameters

- **dist** (*float*) – The distance of the position spring.
- **hostUI** (*dagNode*) – The spring active and intensity channel host.
- **hostUI2** (*dagNode*) – The daping and stiffness channel host for each object in the chain.
- **invertX** (*bool*) – reverse the direction of the x axis.

mgear.rigbits.postSpring.**spring_UI**(**args*)
Creates the post tool UI

mgear.rigbits.proxySlicer module

Rigbits proxy mesh slicer

mgear.rigbits.proxySlicer.**slice**(*parent=False*, *oSel=False*, **args*)
Create a proxy geometry from a skinned object

mgear.rigbits.rbf_io module

mgear.rigbits.rbf_manager_ui module

mgear.rigbits.rbf_node module

mgear.rigbits.rivet module

Rigbits rivet creator

class mgear.rigbits.rivet.**rivet**
Bases: object

Create a rivet

Thanks to http://jinglezzz.tumblr.com for the tutorial :)

create(*mesh*, *edge1*, *edge2*, *parent*, *name=None*)

createConnections(**args*)

createNodes(**args*)

setAttributes()

mgear.rigbits.rope module

Rigbits Rope rig creator

mgear.rigbits.rope.**build_rope**(**args*)

mgear.rigbits.rope.**rope**(*DEF_nb=10*, *ropeName='rope'*, *keepRatio=False*, *lvlType='transform'*, *oSel=None*)
Create rope rig based in 2 parallel curves.

Parameters

- **DEF_nb** (*int*) – Number of deformer joints.
- **ropeName** (*str*) – Name for the rope rig.
- **keepRatio** (*bool*) – If True, the deformers will keep the length position when the curve is stretched.

mgear.rigbits.rope.**rope_UI**(**args*)
Rope tool UI

mgear.rigbits.sdk_io module

Rigbits, SDK i/o

exportSDKs([“drivenNodeA”, “drivenNodeB”], “path/to/desired/output.json”) importSDKs(path/to/desired/output.json)

MIRRORING ——- # copy from source, say left, to target, right copySDKsToNode(“jacketFlap_L1_fk0_sdk”, “neck_C0_0_jnt”, “jacketFlap_R1_fk0_sdk”)

invert/mirror the attributes necessary for the other side, # in this case it is the following attributes mirrorSDKkeys(“jacketFlap_R1_fk0_sdk”,

attributes=["rotateZ"], invertDriver=True, invertDriven=False)

mirrorSDKkeys("jacketFlap_R1_fk0_sdk", attributes=["translateX", "translateY"], invertDriver=True, invertDriven=True)

in this other instance, it was the same copySDKsToNode("jacketFlap_L0_fk0_sdk",

"neck_C0_0_jnt", "jacketFlap_R0_fk0_sdk")

mgear.rigbits.sdk_io.**SDK_ANIMCURVES_TYPE**
sdk anim curves to support

Type list

mgear.rigbits.sdk_io.**copySDKsToNode**(*sourceDriven*, *targetDriver*, *targetDriven*, *sourceAttributes=[]*, *sourceDriverFilter=None*)
Duplicates sdk nodes from the source drive, to any designated target driver/driven

Parameters

- **sourceDriven** (*pynode*) – source to copy from
- **targetDriver** (*pynode*) – to drive the new sdk node
- **targetDriven** (*pynode*) – node to be driven
- **sourceAttributes** (*list, optional*) – of attrs to copy, if none provided
- **all** (*assume*) –
- **sourceDriverFilter** (*list, pynode*) – Driver transforms to filter by,
- **the connected SDK is not driven by this node it will not be returned.** (*if*) –

Returns n/a

Return type TYPE

mgear.rigbits.sdk_io.**createSDKFromDict**(*sdkInfo_dict*)
Create a sdk node from the provided info dict

Parameters **sdkInfo_dict** (*dict*) – dict of node information to create

Returns created sdk node

Return type PyNode

mgear.rigbits.sdk_io.**exportSDKs**(*nodes*, *filePath*)
exports the sdk information based on the provided nodes to a json file

Parameters

- **nodes** (*list*) – of nodes to export
- **filePath** (*string*) – full filepath to export jsons to

mgear.rigbits.sdk_io.**getAllSDKInfoFromNode**(*node*)
returns a dict for all of the connected sdk/animCurve on the provided node

Parameters **node** (*pynode*) – name of node to the be searched

Returns of all of the sdk nodes

Return type dict

mgear.rigbits.sdk_io.**getBlendNodes**(*attrPlug*)
Check the attrPlug (node.attr) provided for any existing connections if blendWeighted exists, return the appropriate input[#], if sdk, create a blendweighted and connect sdk, return input[#]

Parameters **attrPlug** (*string*) – node.attr

Returns node.attr of the blendweighted node that was just created or existing

Return type string

mgear.rigbits.sdk_io.**getConnectedSDKs**(*driven*, *curvesOfType=[]*, *sourceDriverFilter=None*)
get all the sdk, animcurve, nodes/plugs connected to the provided node.

Parameters

- **node** (*str, pynode*) – name of node, or pynode
- **curvesOfType** (*list, optional*) – animCurve nodes of type if none provided
- **fall back on module defined supported set.** (*will*) –
- **sourceDriverFilter** (*list, pynode*) – Driver transforms to filter by,
- **the connected SDK is not driven by this node it will not be returned.** (*if*) –

Returns of sdk nodes, paired with the node/attr they effect

Return type list

mgear.rigbits.sdk_io.**getMultiDriverSDKs**(*driven*, *sourceDriverFilter=None*)
get the sdk nodes that are added through a blendweighted node

Parameters

- **driven** (*string*) – name of the driven node
- **sourceDriverFilter** (*list, pynode*) – Driver transforms to filter by,
- **the connected SDK is not driven by this node it will not be returned.** (*if*) –

Returns of sdk nodes

Return type list

mgear.rigbits.sdk_io.**getPynodes**(*nodes*)
Conevenience function to allow uses to pass in strings, but convert to pynodes if not already.

Parameters **nodes** (*list*) – string names

Returns of pynodes

Return type list

mgear.rigbits.sdk_io.**getSDKDestination**(*animNodeOutputPlug*)
Get the final destination of the sdk node, skips blendweighted and conversion node to get the transform node.
TODO: Open this up to provided type destination

Parameters **animNodeOutputPlug** (*string*) – animationNode.output

Returns name of the node, and attr

Return type list

mgear.rigbits.sdk_io.**getSDKInfo**(*animNode*)
get all the information from an sdk/animCurve in a dictioanry for exporting.

Parameters **animNode** (*pynode*) – name of node, pynode

Returns dictionary of all the attrs to be exported

Return type dict

mgear.rigbits.sdk_io.**importSDKs**(*filePath*)
create sdk nodes from json file, connected to drivers and driven

Parameters **filePath** (*string*) – path to json file

mgear.rigbits.sdk_io.**invertKeyValues**(*newKeyNode*, *invertDriver=True*, *invertDriven=True*)
Mirror keyframe node procedure, in case you need to flip your SDK's.

Parameters

- **newKeyNode** (*PyNode*) – sdk node to invert values on
- **invertDriver** (*bool, optional*) – should the drivers values be inverted
- **invertDriven** (*bool, optional*) – should the drivens values be inverted

mgear.rigbits.sdk_io.**mirrorSDKkeys**(*node*, *attributes=[]*, *invertDriver=True*, *invertDriven=True*)
mirror/invert the values on the specified node and attrs, get the sdks and invert those values

Parameters

- **node** (*pynode*) – node being driven to have its sdk values inverted
- **attributes** (*list, optional*) – attrs to be inverted
- **invertDriver** (*bool, optional*) – should the driver, "time" values
- **inverted** (*be*) –
- **invertDriven** (*bool, optional*) – should the driven, "value" values
- **inverted** –

mgear.rigbits.sdk_io.**removeSDKs**(*node*, *attributes=[]*, *sourceDriverFilter=None*)
Convenience function to remove, delete, all sdk nodes associated with the provided node

Parameters

- **node** (*pynode*) – name of the node
- **attributes** (*list, optional*) – list of attributes to remove sdks from
- **none provided, assume all** (*if*) –
- **sourceDriverFilter** (*list, pynode*) – Driver transforms to filter by,
- **the connected SDK is not driven by this node it will not be returned.** (*if*) –

mgear.rigbits.sdk_io.**stripKeys**(*animNode*)
remove animation keys from the provided sdk node

Parameters **animNode** (*pynode*) – sdk/anim node

mgear.rigbits.six module

Utilities for writing code that runs on Python 2 and 3

class mgear.rigbits.six.**Module_six_moves_urllib**
Bases: module

Create a six.moves.urllib namespace that resembles the Python 3 namespace

error = <module 'mgear.rigbits.six.moves.urllib.error'>

parse = <module 'mgear.rigbits.six.moves.urllib_parse'>

request = <module 'mgear.rigbits.six.moves.urllib.request'>

response = <module 'mgear.rigbits.six.moves.urllib.response'>

robotparser = <module 'mgear.rigbits.six.moves.urllib.robotparser'>

class mgear.rigbits.six.**Module_six_moves_urllib_error**(*name*)
Bases: mgear.rigbits.six._LazyModule

Lazy loading of moved objects in six.moves.urllib_error

ContentTooShortError

HTTPError

URLError

class mgear.rigbits.six.**Module_six_moves_urllib_parse**(*name*)
Bases: mgear.rigbits.six._LazyModule

Lazy loading of moved objects in six.moves.urllib_parse

ParseResult

SplitResult

parse_qs

parse_qsl

quote

quote_plus

splitquery

splittag

splituser

splitvalue

unquote

unquote_plus

unquote_to_bytes

urldefrag

urlencode

urljoin

urlparse

urlsplit

urlunparse

urlunsplit

uses_fragment

uses_netloc

uses_params

uses_query

uses_relative

class mgear.rigbits.six.**Module_six_moves_urllib_request**(*name*)

Bases: mgear.rigbits.six._LazyModule

Lazy loading of moved objects in six.moves.urllib_request

AbstractBasicAuthHandler

AbstractDigestAuthHandler

BaseHandler

CacheFTPHandler

FTPHandler

FancyURLopener

FileHandler

HTTPBasicAuthHandler

HTTPCookieProcessor

HTTPDefaultErrorHandler

HTTPDigestAuthHandler

HTTPErrorProcessor

HTTPHandler

HTTPPasswordMgr

HTTPPasswordMgrWithDefaultRealm

HTTPRedirectHandler

HTTPSHandler

OpenerDirector

ProxyBasicAuthHandler

ProxyDigestAuthHandler

ProxyHandler

Request

URLopener

UnknownHandler

build_opener

getproxies

install_opener

parse_http_list

parse_keqv_list

pathname2url

proxy_bypass

url2pathname

urlcleanup

urlopen

urlretrieve

class mgear.rigbits.six.**Module_six_moves_urllib_response**(*name*)
Bases: mgear.rigbits.six._LazyModule

Lazy loading of moved objects in six.moves.urllib_response

addbase

addclosehook

addinfo

addinfourl

class mgear.rigbits.six.**Module_six_moves_urllib_robotparser**(*name*)
Bases: mgear.rigbits.six._LazyModule

Lazy loading of moved objects in six.moves.urllib_robotparser

RobotFileParser

class mgear.rigbits.six.**MovedAttribute**(*name*, *old_mod*, *new_mod*, *old_attr=None*, *new_attr=None*)
Bases: mgear.rigbits.six._LazyDescr

class mgear.rigbits.six.**MovedModule**(*name*, *old*, *new=None*)
Bases: mgear.rigbits.six._LazyDescr

mgear.rigbits.six.**add_metaclass**(*metaclass*)
Class decorator for creating a class with a metaclass.

mgear.rigbits.six.**add_move**(*move*)
Add an item to six.moves.

mgear.rigbits.six.**assertCountEqual**(*self*, **args*, ***kwargs*)

mgear.rigbits.six.**assertNotRegex**(*self*, **args*, ***kwargs*)

mgear.rigbits.six.**assertRaisesRegex**(*self*, **args*, ***kwargs*)

mgear.rigbits.six.**assertRegex**(*self*, **args*, ***kwargs*)

mgear.rigbits.six.**b**(*s*)
Byte literal

mgear.rigbits.six.**create_unbound_method**(*func*, *cls*)

mgear.rigbits.six.**ensure_binary**(*s*, *encoding='utf-8'*, *errors='strict'*)
Coerce **s** to six.binary_type.

For Python 2:

- *unicode* -> encoded to *str*
- *str* -> *str*

For Python 3:

- *str* -> encoded to *bytes*
- *bytes* -> *bytes*

mgear.rigbits.six.**ensure_str**(*s*, *encoding='utf-8'*, *errors='strict'*)
Coerce *s* to *str*.

For Python 2:

- *unicode* -> encoded to *str*
- *str* -> *str*

For Python 3:

- *str* -> *str*
- *bytes* -> decoded to *str*

mgear.rigbits.six.**ensure_text**(*s*, *encoding='utf-8'*, *errors='strict'*)
Coerce *s* to six.text_type.

For Python 2:

- *unicode* -> *unicode*
- *str* -> *unicode*

For Python 3:

- *str* -> *str*
- *bytes* -> decoded to *str*

mgear.rigbits.six.**get_unbound_function**(*unbound*)
Get the function out of a possibly unbound function

mgear.rigbits.six.**int2byte**()
S.pack(v1, v2, ...) -> bytes

Return a bytes object containing values v1, v2, ... packed according to the format string S.format. See help(struct) for more on format strings.

mgear.rigbits.six.**iteritems**(*d*, ***kw*)
Return an iterator over the (key, value) pairs of a dictionary.

mgear.rigbits.six.**iterkeys**(*d*, ***kw*)
Return an iterator over the keys of a dictionary.

mgear.rigbits.six.**iterlists**(*d*, ***kw*)
Return an iterator over the (key, [values]) pairs of a dictionary.

mgear.rigbits.six.**itervalues**(*d*, ***kw*)
Return an iterator over the values of a dictionary.

mgear.rigbits.six.**python_2_unicode_compatible**(*klass*)
A class decorator that defines __unicode__ and __str__ methods under Python 2. Under Python 3 it does nothing.

To support Python 2 and 3 with a single code base, define a __str__ method returning text and apply this decorator to the class.

mgear.rigbits.six.**raise_from**(*value*, *from_value*)

mgear.rigbits.six.**remove_move**(*name*)
Remove item from six.moves.

mgear.rigbits.six.**reraise**(*tp*, *value*, *tb=None*)
Reraise an exception.

mgear.rigbits.six.**u**(*s*)
Text literal

mgear.rigbits.six.**with_metaclass**(*meta*, **bases*)
Create a base class with a metaclass.

mgear.rigbits.tweaks module

Rigbits tweaks rig module

mgear.rigbits.tweaks.**createJntTweak**(*mesh*, *jntParent*, *ctlParent*)

Create a joint tweak

Parameters

- **mesh** (*mesh*) – The object to deform with the tweak
- **jntParent** (*dagNode*) – The parent for the new joint
- **ctlParent** (*dagNode*) – The parent for the control.

mgear.rigbits.tweaks.**createMirrorRivetTweak**(*mesh, edgePair, name, parent=None, ctlParent=None, jntParent=None, color=[0, 0, 0], size=0.04, defSet=None, ctlSet=None, side=None, gearMulMatrix=True, attach_rot=False, inputMesh=None, ctlShape='sphere'*)

Create a tweak joint attached to the mesh using a rivet. The edge pair will be used to find the mirror position on the mesh

Parameters

- **mesh** (*mesh*) – The object to add the tweak
- **edgePair** (*pair list*) – The edge pair to create the rivet
- **name** (*str*) – The name for the tweak
- **parent** (*None or dagNode, optional*) – The parent for the tweak
- **ctlParent** (*None or dagNode, optional*) – The parent for the tweak control
- **jntParent** (*None or dagNode, optional*) – The parent for the joints
- **color** (*list, optional*) – The color for the control
- **size** (*float, optional*) – Size of the control
- **defSet** (*None or set, optional*) – Deformer set to add the joints
- **ctlSet** (*None or set, optional*) – the set to add the controls
- **side** (*None, str*) – String to set the side. Valid values are L, R or C. If the side is not set or the value is not valid, the side will be set automatically based on the world position
- **gearMulMatrix** (*bool, optional*) – If False will use Maya default multiply matrix node

Returns The tweak control

Return type PyNode

mgear.rigbits.tweaks.**createRivetTweak**(*mesh, edgePair, name, parent=None, ctlParent=None, jntParent=None, color=[0, 0, 0], size=0.04, defSet=None, ctlSet=None, side=None, gearMulMatrix=True, attach_rot=False, inputMesh=None, ctlShape='sphere'*)

Create a tweak joint attached to the mesh using a rivet

Parameters

- **mesh** (*mesh*) – The object to add the tweak

- **edgePair** (*pair list*) – The edge pair to create the rivet
- **name** (*str*) – The name for the tweak
- **parent** (*None or dagNode, optional*) – The parent for the tweak
- **jntParent** (*None or dagNode, optional*) – The parent for the joints
- **ctlParent** (*None or dagNode, optional*) – The parent for the tweak control
- **color** (*list, optional*) – The color for the control
- **size** (*float, optional*) – Size of the control
- **defSet** (*None or set, optional*) – Deformer set to add the joints
- **ctlSet** (*None or set, optional*) – the set to add the controls
- **side** (*None, str*) – String to set the side. Valid values are L, R or C. If the side is not set or the value is not valid, the side will be set automatically based on the world position
- **gearMulMatrix** (*bool, optional*) – If False will use Maya default multiply matrix node

Returns The tweak control

Return type PyNode

mgear.rigbits.tweaks.**createRivetTweakFromList**(*mesh, edgePairList, name, parent=None, ctlParent=None, jntParent=None, color=[0, 0, 0], size=0.04, defSet=None, ctlSet=None, side=None, mirror=False, mParent=None, mCtlParent=None, mjntParent=None, mColor=None, gearMulMatrix=True, attach_rot=False, inputMesh=None, ctlShape='sphere'*)

Create multiple rivet tweaks from a list of edge pairs

Parameters

- **mesh** (*mesh*) – The object to add the tweak
- **edgePairList** (*list of list*) – The edge pair list of list
- **name** (*str*) – The name for the tweak
- **parent** (*None or dagNode, optional*) – The parent for the tweak
- **ctlParent** (*None or dagNode, optional*) – The parent for the tweak control
- **jntParent** (*None or dagNode, optional*) – The parent for the joints
- **color** (*list, optional*) – The color for the control
- **size** (*float, optional*) – Size of the control
- **defSet** (*None or set, optional*) – Deformer set to add the joints
- **ctlSet** (*None or set, optional*) – the set to add the controls
- **side** (*None, str*) – String to set the side. Valid values are L, R or C. If the side is not set or the value is not valid, the side will be set automatically based on the world position
- **mirror** (*bool, optional*) – Create the mirror tweak on X axis symmetry
- **mParent** (*None, optional*) – Mirror tweak parent, if None will use parent arg
- **mjntParent** (*None, optional*) – Mirror parent joint, if None will use jntParent arg

- **mCtlParent** (*None, optional*) – Mirror ctl parent, if None will use ctlParent arg
- **mColor** (*None, optional*) – Mirror controls color, if None will color arg
- **gearMulMatrix** (*bool, optional*) – If False will use Maya default multiply matrix node

Returns Description

Return type TYPE

mgear.rigbits.tweaks.**createRivetTweakLayer**(*layerMesh, bst, edgePairList, name, parent=None, ctlParent=None, jntParent=None, color=[0, 0, 0], size=0.04, defSet=None, ctlSet=None, side=None, mirror=False, mParent=None, mCtlParent=None, mjntParent=None, mColor=None, gearMulMatrix=True, static_jnt=None, attach_rot=False, inputMesh=None, ctlShape='sphere'*)

Create a rivet tweak layer setup

Parameters

- **layerMesh** (*mesh*) – The tweak layer mesh
- **bst** (*mesh*) – The mesh blendshape target
- **edgePairList** (*list of list*) – The edge pair list of list
- **name** (*str*) – The name for the tweak
- **parent** (*None or dagNode, optional*) – The parent for the tweak
- **jntParent** (*None or dagNode, optional*) – The parent for the joints
- **ctlParent** (*None or dagNode, optional*) – The parent for the tweak control
- **color** (*list, optional*) – The color for the control
- **size** (*float, optional*) – Size of the control
- **defSet** (*None or set, optional*) – Deformer set to add the joints
- **ctlSet** (*None or set, optional*) – the set to add the controls
- **side** (*None, str*) – String to set the side. Valid values are L, R or C. If the side is not set or the value is not valid, the side will be set automatically based on the world position
- **mirror** (*bool, optional*) – Create the mirror tweak on X axis symmetry
- **mParent** (*None, optional*) – Mirror tweak parent, if None will use parent arg
- **mjntParent** (*None, optional*) – Mirror parent joint, if None will use jntParent arg
- **mCtlParent** (*None, optional*) – Mirror ctl parent, if None will use ctlParent arg
- **mColor** (*None, optional*) – Mirror controls color, if None will color arg
- **gearMulMatrix** (*bool, optional*) – If False will use Maya default multiply matrix node
- **static_jnt** (*dagNode, optional*) – Static joint for the setup

mgear.rigbits.tweaks.**edgePairList**(*log=True*)

Print and return a list of edge pairs to be use with createRivetTweakLayer and createRivetTweakFromList

Returns list of edge pairs

Return type list

mgear.rigbits.tweaks.**negateTransformConnection**(*in_rot, out_rot, neg_axis=[-1, -1, 1]*)

mgear.rigbits.tweaks.**pre_bind_matrix_connect**(*mesh*, *joint*, *jointBase*)
Connect the pre bind matrix of the skin cluseter to the joint parent. This create the offset in the deformation to avoid double transformation

Parameters

- **mesh** (*PyNode*) – Mesh object with the tweak skin cluster
- **joint** (*PyNode*) – Tweak joint
- **jointBase** (*PyNode*) – Tweak joint parent

mgear.rigbits.tweaks.**resetJntLocalSRT**(*jnt*)
Reset the local SRT and jointOrient of a joint

Parameters **jnt** (*joint*) – The joint to reset the local SRT

mgear.rigbits.utils module

Rigbits utilitie tools

mgear.rigbits.utils.**createHotkeys**(**args*)
Create mGear custom hotkey functions ready to be use.

This command doesn't set the hotkey binding. Only create the functions.

Parameters ***args** – Maya's dummy

mgear.rigbits.utils.**createRunTimeCommand**(*name*, *rCmd*, *ann=''*)
Create run time commands from raw string.

This function is used to create the mGear hotkeys.

mgear.rigbits.version module

mgear.rigbits.weightNode_io module

mgear.rigbits.widgets module

Module contents

mgear.rigbits.**addBlendedJoint**(*oSel=None*, *compScale=True*, *blend=0.5*, *name=None*, *select=True*, **args*)
Create and gimmick blended joint

Create a joint that rotate 50% of the selected joint. This operation is done using a pairBlend node.

Parameters

- **oSel** (*None or joint, optional*) – If None will use the selected joints.
- **compScale** (*bool, optional*) – Set the compScale option of the blended joint. Default is True.
- **blend** (*float, optional*) – blend rotation value
- **name** (*None, optional*) – Name for the blended o_node

- ***args** – Maya's dummy

Returns blended joints list

Return type list

mgear.rigbits.**addJnt**(*obj=False*, *parent=False*, *noReplace=False*, *grp=None*, *jntName=None*, **args*)

Create one joint for each selected object.

Parameters

- **obj** (*bool or dagNode, optional*) – The object to drive the new joint. If False will use the current selection.
- **parent** (*bool or dagNode, optional*) – The parent for the joint. If False will try to parent to jnt_org. If jnt_org doesn't exist will parent the joint under the obj
- **noReplace** (*bool, optional*) – If True will add the extension "_jnt" to the new joint name
- **grp** (*pyNode or None, optional*) – The set to add the new joint. If none will use "rig_deformers_grp"
- ***args** – Maya's dummy

Returns The New created joint.

Return type pyNode

mgear.rigbits.**addNPO**(*objs=None*, **args*)

Add a transform node as a neutral pose

Add a transform node as a parent and in the same pose of each of the selected objects. This way neutralize the local transfromation values. NPO stands for "neutral position" terminology from the all mighty Softimage ;)

mgear.rigbits.**addSupportJoint**(*oSel=None*, *select=True*, **args*)

Add an extra joint to the blended joint.

This is meant to be use with SDK for game style deformation.

Parameters

- **oSel** (*None or blended joint, optional*) – If None will use the current selection.
- ***args** – Mays's dummy

Returns blended joints list

Return type list

mgear.rigbits.**alignToPointsLoop**(*points=None*, *loc=None*, *name=None*, **args*)

Create space locator align to the plain define by at less 3 vertex

Parameters

- **points** (*None or vertex list, optional*) – The reference vertex to align the ref locator
- **loc** (*None or dagNode, optional*) – If none will create a new locator
- **name** (*None or string, optional*) – Name of the new locator
- ***args** – Description

Returns Description

Return type TYPE

mgear.rigbits.**connectInvertSRT**(*source*, *target*, *srt='srt'*, *axis='xyz'*)
Connect the locat transformations with inverted values.

Parameters

- **source** (*dagNode*) – The source driver dagNode
- **target** (*dagNode*) – The target driven dagNode
- **srt** (*string, optional*) – String value for the scale(s), rotate(r), translation(t). Default value is "srt". Posible values "s", "r", "t" or any combination
- **axis** (*string, optional*) – String value for the axis. Default value is "xyz". Posible values "x", "y", "z" or any combination

mgear.rigbits.**connectLocalTransform**(*objects=None*, *s=True*, *r=True*, *t=True*, **args*)
Connect scale, rotatio and translation.

Parameters

- **objects** (*None or list of dagNode, optional*) – If None will use the current selection.
- **s** (*bool, optional*) – If True will connect the local scale
- **r** (*bool, optional*) – If True will connect the local rotation
- **t** (*bool, optional*) – If True will connect the local translation
- ***args** – Maya's dummy

mgear.rigbits.**connectUserDefinedChannels**(*source*, *targets*)
Connects the user defined channels

Connects the user defined channels between 2 objects with the same channels. Usually a copy of the same object.

Parameters

- **source** (*dagNode*) – The dagNode with the source user defined channels
- **targets** (*list of dagNode*) – The list of dagNodes with the same user defined channels to be connected.

mgear.rigbits.**connectWorldTransform**(*source*, *target*)
Connect the source world transform of one object to another object.

Parameters

- **source** (*dagNode*) – Source dagNode.
- **target** (*dagNode*) – target dagNode.

mgear.rigbits.**createCTL**(*type='square'*, *child=False*, **args*)
Create a control for each selected object.

The newly create control can be parent or child of the object.

Parameters

- **type** (*str*) – The shape of the control.
- **child** (*bool*) – if True, the control will be created as a child of the object.

mgear.rigbits.**createInterpolateTransform**(*objects=None*, *blend=0.5*, **args*)
Create space locator and apply gear_intmatrix_op, to interpolate the his pose between 2 selected objects.

Parameters

- **objects** (*None or list of 2 dagNode, optional*) – The 2 dagNode to interpolate the transform.
- **blend** (*float, optional*) – The interpolation blend factor.
- ***args** – Maya's dummy

Returns The new transformation witht the interpolate matrix o_node applied.

Return type pyNode

mgear.rigbits.**duplicateSym**(**args*)
Duplicate one dag hierarchy to/from X/-X renaming "L" to "R"

mgear.rigbits.**matchPosfromBBox**(**args*)
Match the position usin bounding box of another object another.

Match the position of one object, using the boundig box center of another object.

mgear.rigbits.**matchWorldXform**(**args*)
Align 2 selected objects in world space

mgear.rigbits.**replaceShape**(*source=None*, *targets=None*, **args*)
Replace the shape of one object by another.

Parameters

- **source** (*None, PyNode*) – Source object with the original shape.
- **targets** (*None, list of pyNode*) – Targets object to apply the source shape.
- ***args** – Maya's dummy

Returns Return non if nothing is selected or the source and targets are none

Return type None

mgear.rigbits.**selectDeformers**(**args*)
Select the deformers from the object skinCluster

mgear.rigbits.**spaceJump**(*ref=None*, *space=None*, **args*)
Space Jump gimmick

This function create a local reference space from another space in the hierarchy

Parameters

- **ref** (*None, optional*) – Transform reference
- **space** (*None, optional*) – Space reference
- ***args** – Maya dummy

Returns Transform

Return type pyNode

mgear.shifter package

Subpackages

mgear.shifter.component package

Submodules

mgear.shifter.component.chain_guide_initializer module

mgear.shifter.component.chain_guide_initializer_ui module

mgear.shifter.component.guide module

mgear.shifter.component.joint_names_ui module

mgear.shifter.component.main_settings_ui module

Module contents

Submodules

mgear.shifter.afg_tools module

mgear.shifter.afg_tools_ui module

mgear.shifter.custom_step module

mgear.shifter.custom_step_ui module

mgear.shifter.game_tools_disconnect module

mgear.shifter.game_tools_disconnect_ui module

mgear.shifter.game_tools_fbx module

mgear.shifter.game_tools_fbx_utils module

mgear.shifter.game_tools_fbx_widgets module

mgear.shifter.guide module

mgear.shifter.guide_diff_ui module

mgear.shifter.guide_manager module

mgear.shifter.guide_manager_component module

mgear.shifter.guide_manager_component_ui module

mgear.shifter.guide_manager_gui module

mgear.shifter.guide_template module

mgear.shifter.guide_template_explorer module

mgear.shifter.guide_template_explorer_ui module

mgear.shifter.guide_ui module

mgear.shifter.io module

mgear.shifter.menu module

mgear.shifter.mocap_tools module

mgear.shifter.naming module

mgear.shifter.naming_rules_ui module

mgear.shifter.plebes module

mgear.shifter.relative_guide_placement module

mgear.shifter.version module

Module contents

mgear.shifter_classic_components package

Subpackages

mgear.shifter_classic_components.arm_2jnt_01 package

Submodules

mgear.shifter_classic_components.arm_2jnt_01.guide module

mgear.shifter_classic_components.arm_2jnt_01.settingsUI module

Module contents

mgear.shifter_classic_components.arm_2jnt_02 package

Submodules

mgear.shifter_classic_components.arm_2jnt_02.guide module

mgear.shifter_classic_components.arm_2jnt_02.settingsUI module

Module contents

mgear.shifter_classic_components.arm_2jnt_03 package

Submodules

mgear.shifter_classic_components.arm_2jnt_03.guide module

mgear.shifter_classic_components.arm_2jnt_03.settingsUI module

Module contents

mgear.shifter_classic_components.arm_2jnt_04 package

Submodules

mgear.shifter_classic_components.arm_2jnt_04.guide module

mgear.shifter_classic_components.arm_2jnt_04.settingsUI module

Module contents

mgear.shifter_classic_components.arm_2jnt_freeTangents_01 package

Submodules

mgear.shifter_classic_components.arm_2jnt_freeTangents_01.guide module

mgear.shifter_classic_components.arm_2jnt_freeTangents_01.settingsUI module

Module contents

mgear.shifter_classic_components.arm_ms_2jnt_01 package

Submodules

mgear.shifter_classic_components.arm_ms_2jnt_01.guide module

mgear.shifter_classic_components.arm_ms_2jnt_01.settingsUI module

Module contents

mgear.shifter_classic_components.cable_01 package

Submodules

mgear.shifter_classic_components.cable_01.guide module

mgear.shifter_classic_components.cable_01.settingsUI module

Module contents

mgear.shifter_classic_components.chain_01 package

Submodules

mgear.shifter_classic_components.chain_01.guide module

mgear.shifter_classic_components.chain_01.settingsUI module

Module contents

mgear.shifter_classic_components.chain_FK_spline_01 package

Submodules

mgear.shifter_classic_components.chain_FK_spline_01.guide module

mgear.shifter_classic_components.chain_FK_spline_01.settingsUI module

Module contents

mgear.shifter_classic_components.chain_FK_spline_02 package

Submodules

mgear.shifter_classic_components.chain_FK_spline_02.guide module

mgear.shifter_classic_components.chain_FK_spline_02.settingsUI module

Module contents

mgear.shifter_classic_components.chain_FK_spline_variable_IK_01 package

Submodules

mgear.shifter_classic_components.chain_FK_spline_variable_IK_01.guide module

mgear.shifter_classic_components.chain_FK_spline_variable_IK_01.settingsUI module

Module contents

mgear.shifter_classic_components.chain_IK_spline_variable_FK_01 package

Submodules

mgear.shifter_classic_components.chain_IK_spline_variable_FK_01.guide module

mgear.shifter_classic_components.chain_IK_spline_variable_FK_01.settingsUI module

Module contents

mgear.shifter_classic_components.chain_IK_spline_variable_FK_stack_01 package

Submodules

mgear.shifter_classic_components.chain_IK_spline_variable_FK_stack_01.guide module

mgear.shifter_classic_components.chain_IK_spline_variable_FK_stack_01.settingsUI module

Module contents

mgear.shifter_classic_components.chain_loc_ori_01 package

Submodules

mgear.shifter_classic_components.chain_loc_ori_01.guide module

mgear.shifter_classic_components.chain_loc_ori_01.settingsUI module

Module contents

mgear.shifter_classic_components.chain_net_01 package

Submodules

mgear.shifter_classic_components.chain_net_01.guide module

mgear.shifter_classic_components.chain_net_01.settingsUI module

Module contents

mgear.shifter_classic_components.chain_spring_01 package

Submodules

mgear.shifter_classic_components.chain_spring_01.guide module

Module contents

mgear.shifter_classic_components.chain_spring_lite_stack_master_01 package

Submodules

mgear.shifter_classic_components.chain_spring_lite_stack_master_01.guide module

Module contents

mgear.shifter_classic_components.chain_stack_01 package

Submodules

mgear.shifter_classic_components.chain_stack_01.guide module

mgear.shifter_classic_components.chain_stack_01.settingsUI module

Module contents

mgear.shifter_classic_components.chain_whip_01 package

Submodules

mgear.shifter_classic_components.chain_whip_01.guide module

mgear.shifter_classic_components.chain_whip_01.settingsUI module

Module contents

mgear.shifter_classic_components.control_01 package

Submodules

mgear.shifter_classic_components.control_01.guide module

mgear.shifter_classic_components.control_01.settingsUI module

Module contents

mgear.shifter_classic_components.eye_01 package

Submodules

mgear.shifter_classic_components.eye_01.guide module

mgear.shifter_classic_components.eye_01.settingsUI module

Module contents

mgear.shifter_classic_components.foot_bk_01 package

Submodules

mgear.shifter_classic_components.foot_bk_01.guide module

mgear.shifter_classic_components.foot_bk_01.settingsUI module

Module contents

mgear.shifter_classic_components.hydraulic_01 package

Submodules

mgear.shifter_classic_components.hydraulic_01.guide module

mgear.shifter_classic_components.hydraulic_01.settingsUI module

Module contents

mgear.shifter_classic_components.leg_2jnt_01 package

Submodules

mgear.shifter_classic_components.leg_2jnt_01.guide module

mgear.shifter_classic_components.leg_2jnt_01.settingsUI module

Module contents

mgear.shifter_classic_components.leg_2jnt_02 package

Submodules

mgear.shifter_classic_components.leg_2jnt_02.guide module

mgear.shifter_classic_components.leg_2jnt_02.settingsUI module

Module contents

mgear.shifter_classic_components.leg_2jnt_freeTangents_01 package

Submodules

mgear.shifter_classic_components.leg_2jnt_freeTangents_01.guide module

mgear.shifter_classic_components.leg_2jnt_freeTangents_01.settingsUI module

Module contents

mgear.shifter_classic_components.leg_3jnt_01 package

Submodules

mgear.shifter_classic_components.leg_3jnt_01.guide module

mgear.shifter_classic_components.leg_3jnt_01.settingsUI module

Module contents

mgear.shifter_classic_components.leg_ms_2jnt_01 package

Submodules

mgear.shifter_classic_components.leg_ms_2jnt_01.guide module

mgear.shifter_classic_components.leg_ms_2jnt_01.settingsUI module

Module contents

mgear.shifter_classic_components.lite_chain_01 package

Submodules

mgear.shifter_classic_components.lite_chain_01.guide module

mgear.shifter_classic_components.lite_chain_01.settingsUI module

Module contents

mgear.shifter_classic_components.lite_chain_stack_01 package

Submodules

mgear.shifter_classic_components.lite_chain_stack_01.guide module

mgear.shifter_classic_components.lite_chain_stack_01.settingsUI module

Module contents

mgear.shifter_classic_components.lite_chain_stack_02 package

Submodules

mgear.shifter_classic_components.lite_chain_stack_02.guide module

mgear.shifter_classic_components.lite_chain_stack_02.settingsUI module

Module contents

mgear.shifter_classic_components.meta_01 package

Submodules

mgear.shifter_classic_components.meta_01.guide module

mgear.shifter_classic_components.meta_01.settingsUI module

Module contents

mgear.shifter_classic_components.mouth_01 package

Submodules

mgear.shifter_classic_components.mouth_01.guide module

Module contents

mgear.shifter_classic_components.mouth_02 package

Submodules

mgear.shifter_classic_components.mouth_02.guide module

Module contents

mgear.shifter_classic_components.neck_ik_01 package

Submodules

mgear.shifter_classic_components.neck_ik_01.guide module

mgear.shifter_classic_components.neck_ik_01.settingsUI module

Module contents

mgear.shifter_classic_components.sdk_control_01 package

Submodules

mgear.shifter_classic_components.sdk_control_01.guide module

mgear.shifter_classic_components.sdk_control_01.settingsUI module

Module contents

mgear.shifter_classic_components.shoulder_01 package

Submodules

mgear.shifter_classic_components.shoulder_01.guide module

mgear.shifter_classic_components.shoulder_01.settingsUI module

Module contents

mgear.shifter_classic_components.shoulder_02 package

Submodules

mgear.shifter_classic_components.shoulder_02.guide module

mgear.shifter_classic_components.shoulder_02.settingsUI module

Module contents

mgear.shifter_classic_components.shoulder_ms_01 package

Submodules

mgear.shifter_classic_components.shoulder_ms_01.guide module

Module contents

mgear.shifter_classic_components.spine_FK_01 package

Submodules

mgear.shifter_classic_components.spine_FK_01.guide module

mgear.shifter_classic_components.spine_FK_01.settingsUI module

Module contents

mgear.shifter_classic_components.spine_S_shape_01 package

Submodules

mgear.shifter_classic_components.spine_S_shape_01.guide module

mgear.shifter_classic_components.spine_S_shape_01.settingsUI module

Module contents

mgear.shifter_classic_components.spine_ik_01 package

Submodules

mgear.shifter_classic_components.spine_ik_01.guide module

mgear.shifter_classic_components.spine_ik_01.settingsUI module

Module contents

mgear.shifter_classic_components.spine_ik_02 package

Submodules

mgear.shifter_classic_components.spine_ik_02.guide module

mgear.shifter_classic_components.spine_ik_02.settingsUI module

Module contents

mgear.shifter_classic_components.squash4Sides_01 package

Submodules

mgear.shifter_classic_components.squash4Sides_01.guide module

mgear.shifter_classic_components.squash4Sides_01.settingsUI module

Module contents

mgear.shifter_classic_components.squash_01 package

Submodules

mgear.shifter_classic_components.squash_01.guide module

mgear.shifter_classic_components.squash_01.settingsUI module

Module contents

mgear.shifter_classic_components.tangent_spline_01 package

Submodules

mgear.shifter_classic_components.tangent_spline_01.guide module

mgear.shifter_classic_components.tangent_spline_01.settingsUI module

Module contents

mgear.shifter_classic_components.ui_container_01 package

Submodules

mgear.shifter_classic_components.ui_container_01.guide module

mgear.shifter_classic_components.ui_container_01.settingsUI module

Module contents

mgear.shifter_classic_components.ui_slider_01 package

Submodules

mgear.shifter_classic_components.ui_slider_01.guide module

mgear.shifter_classic_components.ui_slider_01.settingsUI module

Module contents

Module contents

mgear.shifter_epic_components package

Subpackages

mgear.shifter_epic_components.EPIC_arm_01 package

Submodules

mgear.shifter_epic_components.EPIC_arm_01.guide module

mgear.shifter_epic_components.EPIC_arm_01.settingsUI module

Module contents

mgear.shifter_epic_components.EPIC_chain_01 package

Submodules

mgear.shifter_epic_components.EPIC_chain_01.guide module

mgear.shifter_epic_components.EPIC_chain_01.settingsUI module

Module contents

mgear.shifter_epic_components.EPIC_control_01 package

Submodules

mgear.shifter_epic_components.EPIC_control_01.guide module

mgear.shifter_epic_components.EPIC_control_01.settingsUI module

Module contents

mgear.shifter_epic_components.EPIC_foot_01 package

Submodules

mgear.shifter_epic_components.EPIC_foot_01.guide module

mgear.shifter_epic_components.EPIC_foot_01.settingsUI module

Module contents

mgear.shifter_epic_components.EPIC_hydraulic_01 package

Submodules

mgear.shifter_epic_components.EPIC_hydraulic_01.guide module

mgear.shifter_epic_components.EPIC_hydraulic_01.settingsUI module

Module contents

mgear.shifter_epic_components.EPIC_leg_01 package

Submodules

mgear.shifter_epic_components.EPIC_leg_01.guide module

mgear.shifter_epic_components.EPIC_leg_01.settingsUI module

Module contents

mgear.shifter_epic_components.EPIC_mannequin_arm_01 package

Submodules

mgear.shifter_epic_components.EPIC_mannequin_arm_01.guide module

mgear.shifter_epic_components.EPIC_mannequin_arm_01.settingsUI module

Module contents

mgear.shifter_epic_components.EPIC_mannequin_leg_01 package

Submodules

mgear.shifter_epic_components.EPIC_mannequin_leg_01.guide module

mgear.shifter_epic_components.EPIC_mannequin_leg_01.settingsUI module

Module contents

mgear.shifter_epic_components.EPIC_neck_01 package

Submodules

mgear.shifter_epic_components.EPIC_neck_01.guide module

mgear.shifter_epic_components.EPIC_neck_01.settingsUI module

Module contents

mgear.shifter_epic_components.EPIC_shoulder_01 package

Submodules

mgear.shifter_epic_components.EPIC_shoulder_01.guide module

mgear.shifter_epic_components.EPIC_shoulder_01.settingsUI module

Module contents

mgear.shifter_epic_components.EPIC_spine_01 package

Submodules

mgear.shifter_epic_components.EPIC_spine_01.guide module

mgear.shifter_epic_components.EPIC_spine_01.settingsUI module

Module contents

mgear.shifter_epic_components.EPIC_spine_cartoon_01 package

Submodules

mgear.shifter_epic_components.EPIC_spine_cartoon_01.guide module

mgear.shifter_epic_components.EPIC_spine_cartoon_01.settingsUI module

Module contents

Module contents

mgear.simpleRig package

Submodules

mgear.simpleRig.menu module

mgear.simpleRig.menu.**install**()
Install Simple Rig submenu

mgear.simpleRig.simpleRigTool module

mgear.simpleRig.simpleRigUI module

mgear.simpleRig.version module

Module contents

mgear.synoptic package

Subpackages

mgear.synoptic.tabs package

Subpackages

mgear.synoptic.tabs.baker package

Submodules

mgear.synoptic.tabs.baker.widget module

Module contents

mgear.synoptic.tabs.biped package

Submodules

mgear.synoptic.tabs.biped.widget module

Module contents

mgear.synoptic.tabs.control_list package

Submodules

mgear.synoptic.tabs.control_list.searchControlsWidget module

mgear.synoptic.tabs.control_list.widget module

Module contents

mgear.synoptic.tabs.quadruped package

Submodules

mgear.synoptic.tabs.quadruped.widget module

Module contents

mgear.synoptic.tabs.visibility package

Submodules

mgear.synoptic.tabs.visibility.toggleGeoVisibilityWidget module

mgear.synoptic.tabs.visibility.widget module

Module contents

Module contents

Submodules

mgear.synoptic.menu module

mgear.synoptic.utils module

mgear.synoptic.version module

mgear.synoptic.widgets module

Module contents

mgear.vendor package

Submodules

mgear.vendor.Qt module

Minimal Python 2 & 3 shim around all Qt bindings

DOCUMENTATION Qt.py was born in the film and visual effects industry to address the growing need for the development of software capable of running with more than one flavour of the Qt bindings for Python - PySide, PySide2, PyQt4 and PyQt5.

1. Build for one, run with all
2. Explicit is better than implicit
3. Support co-existence

Default resolution order:

- PySide2
- PyQt5
- PySide
- PyQt4

Usage: >> import sys >> from Qt import QtWidgets >> app = QtWidgets.QApplication(sys.argv) >> button = QtWidgets.QPushButton("Hello World") >> button.show() >> app.exec_()

All members of PySide2 are mapped from other bindings, should they exist. If no equivalent member exist, it is excluded from Qt.py and inaccessible. The idea is to highlight members that exist across all supported binding, and guarantee that code that runs on one binding runs on all others.

For more details, visit https://github.com/mottosso/Qt.py

LICENSE

See end of file for license (MIT, BSD) information.

mgear.vendor.qjsonmodel module

Python adaptation of https://github.com/dridk/QJsonModel

Supports Python 2 and 3 with PySide, PySide2, PyQt4 or PyQt5. Requires https://github.com/mottosso/Qt.py

Usage: Use it like you would the C++ version.

```
>>> import qjsonmodel
>>> model = qjsonmodel.QJsonModel()
>>> model.load({"key": "value"})
```

Test: Run the provided example to sanity check your Python, dependencies and Qt binding.

$ python qjsonmodel.py

Changes: This module differs from the C++ version in the following ways.

1. Setters and getters are replaced by Python properties
2. Objects are sorted by default, disabled via load(sort=False)
3. load() takes a Python dictionary as opposed to a string or file handle.
   - **To load from a string, use built-in *json.loads()***

     ```
     >>> import json
     >>> document = json.loads("{'key': 'value'}")
     >>> model.load(document)
     ```

   - **To load from a file, use *with open(fname)***

     ```
     >>> import json
     >>> with open("file.json") as f:
     ...     document = json.load(f)
     ...     model.load(document)
     ```

class mgear.vendor.qjsonmodel.**QJsonModel**(*parent=None*)

Bases: sphinx.ext.autodoc.importer._MockObject

clear()

columnCount(*parent=<sphinx.ext.autodoc.importer._MockObject object>*)

data(*index*, *role*)

flags(*index*)

genJson(*item*)

headerData(*section*, *orientation*, *role*)

index(*row*, *column*, *parent=<sphinx.ext.autodoc.importer._MockObject object>*)

json(*root=None*)
Serialise model as JSON-compliant dictionary

Parameters **root** (*QJsonTreeItem, optional*) – Serialise from here defaults to the the top-level item

Returns model as dict

load(*document*)
Load from dictionary

Parameters **document** (*dict*) – JSON-compatible dictionary

parent(*index*)

rowCount(*parent=<sphinx.ext.autodoc.importer._MockObject object>*)

setData(*index*, *value*, *role*)

class mgear.vendor.qjsonmodel.**QJsonTreeItem**(*parent=None*)
Bases: object

appendChild(*item*)

child(*row*)

childCount()

key

classmethod load(*value*, *parent=None*, *sort=True*)

parent()

row()

type

value

Module contents

Submodules

mgear.menu module

mgear.menu.**create**(*menuId='mGear'*)
Create mGear main menu

Parameters **menuId** (*str, optional*) – Main menu name

Returns main manu name

Return type str

mgear.menu.**install**(*label*, *commands*, *parent='mGear'*, *image=''*)
Installer Function for sub menus

Parameters

- **label** (*str*) – Name of the sub menu
- **commands** (*list*) – List of commands to install
- **parent** (*str, optional*) – Parent menu for the submenu

mgear.menu.**install_help_menu**(*menuId='mGear'*)
Install help menu section

Parameters **menuId** (*str, optional*) – Main menu name

mgear.menu.**install_main_menu**()
Create top level mGear menu

mgear.menu.**install_utils_menu**()
Install Utilities submenu

mgear.version module

Module contents

mGear init module

exception mgear.**FakeException**
Bases: Exception

mgear.**getInfos**(*level*)
Get information from where the method has been fired. Such as module name, method, line number...

Parameters **level** (*int*) – Level

Returns The info

Return type str

mgear.**getVersion**()
Get mGear version

Returns mgear version

mgear.**install**()

mgear.**log**(*message*, *severity=32*, *infos=False*)
Log a message using severity and additional info from the file itself.

Severity has been taken from Softimage one:

1. Fatal
2. Error
4. Warning
8. Info
16. Verbose
32. Comment

Parameters

- **messages** (*str*) – The message
- **severity** (*int*) – Severity level.
- **infos** (*bool*) – Add extra infos from the module, class, method and line number.

mgear.**logInfos**()
Log version of Gear

mgear.**reloadModule**(*name='mgear', *args*)
Reload a module and its sub-modules from a given module name.

Parameters **name** (*str*) – Module Name. Default value is "mgear".

mgear.**setDebug**(*b*)
Set the debug mode to given value.

Parameters **b** (*bool*) – boolean

Returns The previous value of the debug mode

Return type bool

mgear.**toggleDebug**()
Toggle the debug mode value.

Returns; bool: The new debug mode value.

mgear.**toggleLog**()
Toggle the log value.

Returns; bool: The new debug mode value.

4.3 Rigbits

Content:

- *Introduction*
- *Modules*

4.3.1 Introduction

Rigbits is a rigging commont library with tools and functions to help the rigging workflow. This library is meant to be use with custom steps or other rigging tools.

4.3.2 Modules

mgear.rigbits	
mgear.rigbits.blendShapes	
mgear.rigbits.channelWrangler	
mgear.rigbits.cycleTweaks	
mgear.rigbits.eye_rigger	
mgear.rigbits.ghost	
mgear.rigbits.lips_rigger	
mgear.rigbits.menu	
mgear.rigbits.postSpring	
mgear.rigbits.proxySlicer	
mgear.rigbits.rbf_io	Handles the import and exporting of all supported RBF node types
mgear.rigbits.rbf_manager_ui	
mgear.rigbits.rbf_node	
mgear.rigbits.rivet	

Continued on next page

Table 5 – continued from previous page

mgear.rigbits.rope
mgear.rigbits.sdk_io
mgear.rigbits.tweaks
mgear.rigbits.utils
mgear.rigbits.weightNode_io
mgear.rigbits.widgets

4.4 Shifter Rig Builder

Content:

- *Introduction*
- *Modules*

4.4.1 Introduction

Shifter is the default autorigging modular system included with mGear. This system is provided with the hope to solve the majority of your rigging necesities. From a freelancer or small boutique to a big studio.

Shifter can be use in a wide variety of projects. Animated feature films, video games, VR, VFX, TV series, etc... and can build rigs for any kind of asset. i.e: cartoon characters, creatures, robots, props, vehicles, etc...

Shifter have been build on top of mGear framework and can co-exist with other rigging systems inside mGear framework. In other words, if Shifter's paradigm doesn't fit your rigging needs, you can create another rigging system using the same mGear base modules.

4.4.2 Modules

mgear.shifter

4.5 Simple Rig

- *Introduction*
- *Modules*

4.5.1 Introduction

Simple rigging system with option to conver to Shifter rigging system.

Simple Rig 2.0 Intro

4.5.2 Modules

mgear.simpleRig
mgear.simpleRig.menu
mgear.simpleRig.simpleRigTool

4.6 Synoptic

Content:

- *Introduction*
- Creating a new synoptic tab
- Adding Synoptic to a Shifter rig
- Adding Synoptic to any rig
- *Modules*

4.6.1 Introduction

Synoptic view is a user interface to help the animators to interact better and faster with the rigs. Synoptic view can be use to select rig parts, save keyframes, mirror poses, switch spaces and many other functions that an animator would need.

4.6.2 Modules

```
mgear.synoptic
```

4.7 Modules flat List

Just a complete list of all modules.

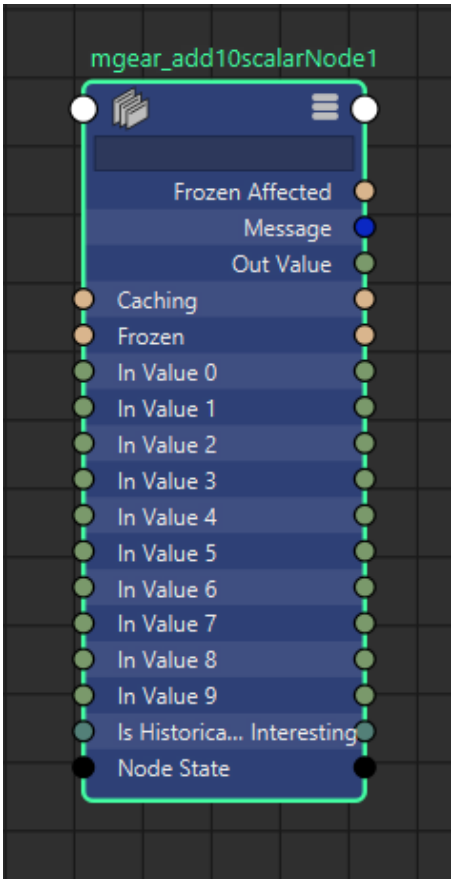
4.7.1 mgear

CHAPTER 5

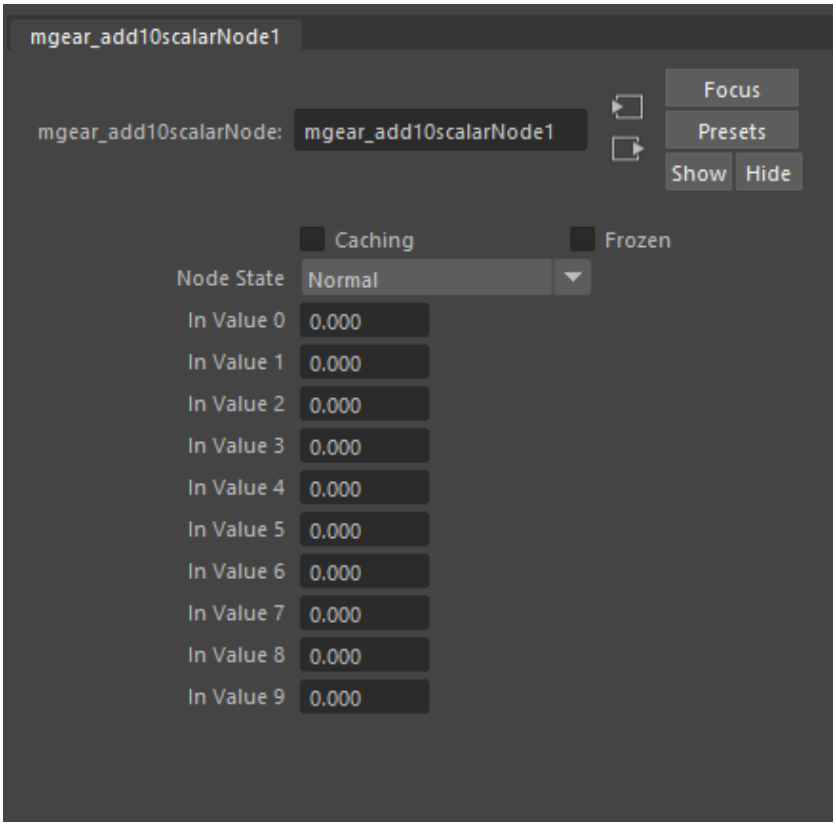
Custom Solvers/Deformers

mGear custom C++ Solvers/Deformers Documentation

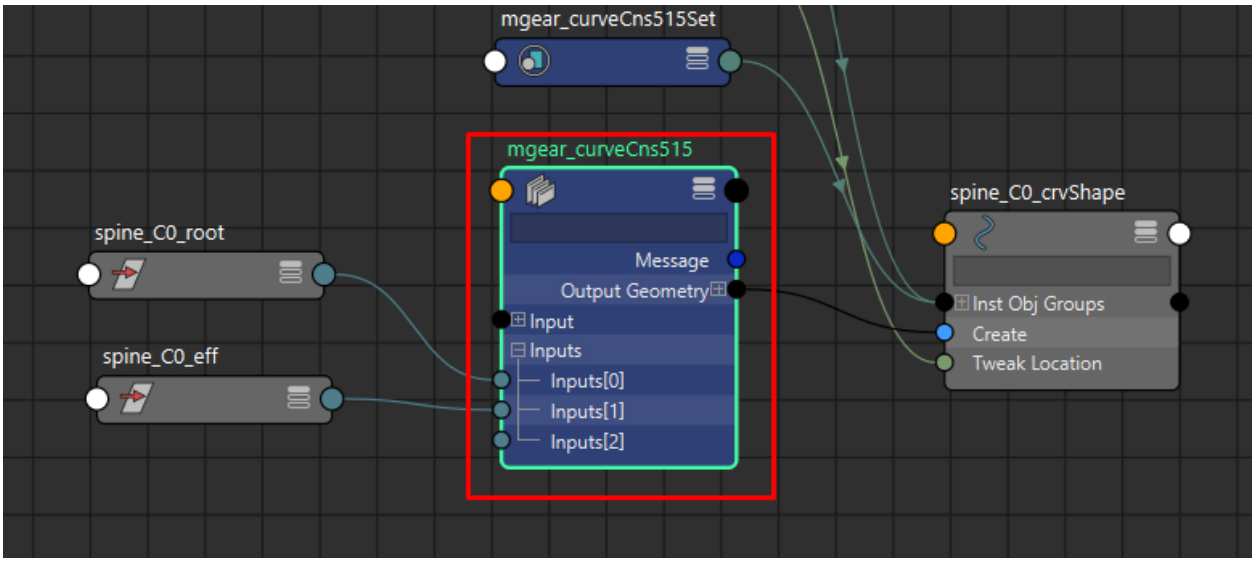
5.1 mgear_add10Scalar



Add 10 scalar values. This node is deprecated. Only kept for backwards compatibility reasons.

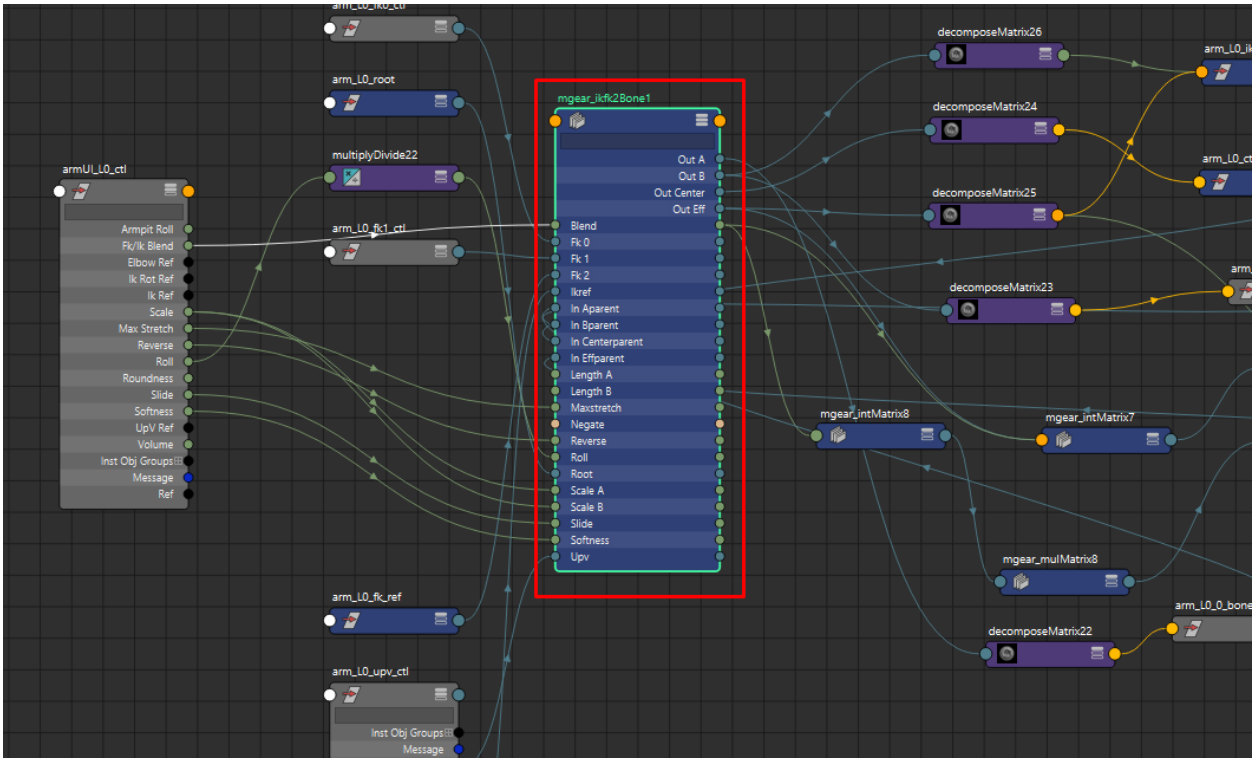


5.2 mgear_curveCns



Generate a curve based on the input positions. This is used in the Shifter guides to create the visual connections with the guide locations.

5.3 mgear_ikfk2Bone

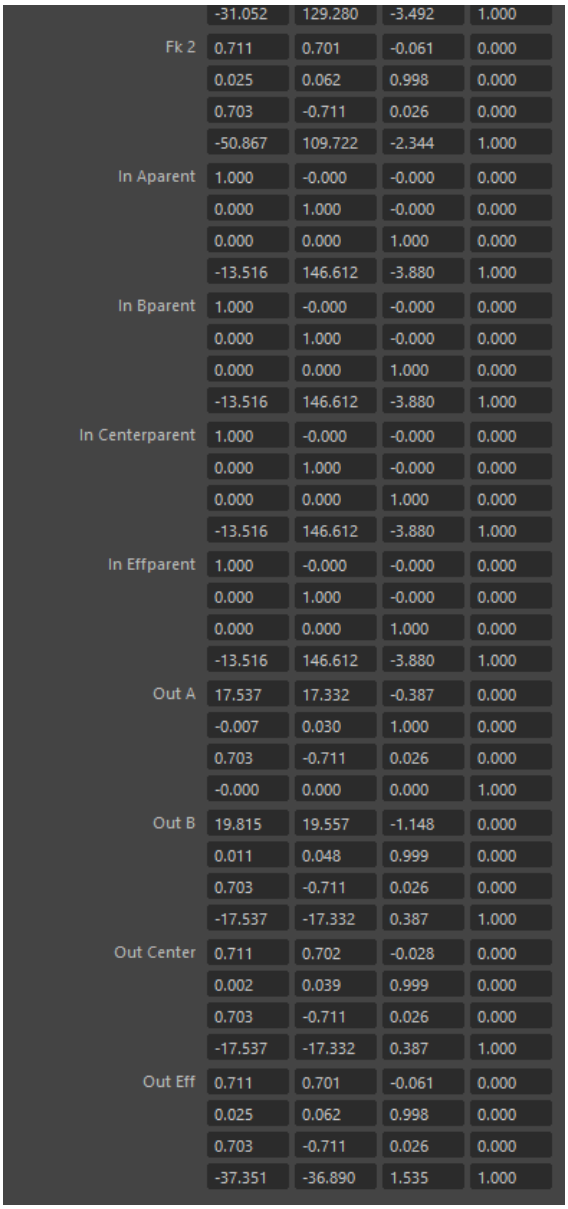


IK FK 2 bones chain solver.

Mainly used for legs and arms. The solver encapsulate many functions that will be very complex and expensive to evaluate using vanilla Maya nodes and other techniques like expressions.

Some of the features are, soft IK, reverse IK, squash, stretch, independent bone length, slide and roll.

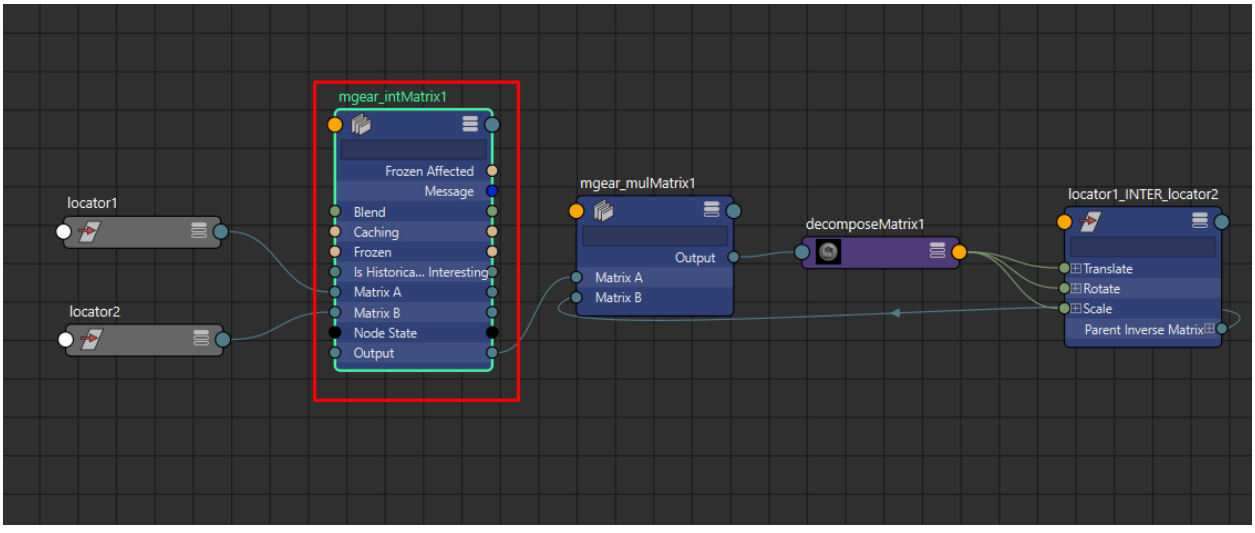

mgear_ikfk2Bone1
multiplyDivide22
decomposeMatrix22
decompo
mgear_ikfk2Bone:
mgear_ikfk2Bone1
Focus
Presets
Show
Hide
Caching
Frozen
Node State
Normal
Blend
0.000
Length A
2.696
Length B
2.799
Negate
Scale A
1.000
Scale B
1.000
Roll
0.000
Maxstretch
1.500
Slide
0.500
Softness
0.000
Reverse
0.000
Root
1.000 0.000 0.000 0.000
0.000 1.000 -0.000 0.000
-0.000 -0.000 1.000 0.000
1.563 14.470 -0.676 1.000
Ikref
0.701 -0.705 0.108 0.000
0.058 -0.095 -0.994 0.000
0.711 0.703 -0.026 0.000
5.422 10.572 -0.623 1.000
Upv
1.000 0.000 0.000 0.000
0.000 1.000 -0.000 0.000
-0.000 -0.000 1.000 0.000
3.416 12.469 -4.180 1.000
Fk 0
0.702 -0.711 -0.050 0.000
-0.054 0.018 -0.998 0.000
0.711 0.703 -0.026 0.000
1.563 14.470 -0.676 1.000
Fk 1
0.703 -0.708 0.068 0.000
0.029 -0.066 -0.997 0.000
0.711 0.703 -0.026 0.000
3.455 12.553 -0.812 1.000
Fk 2
0.701 -0.705 0.108 0.000
0.058 -0.095 -0.994 0.000
0.711 0.703 -0.026 0.000



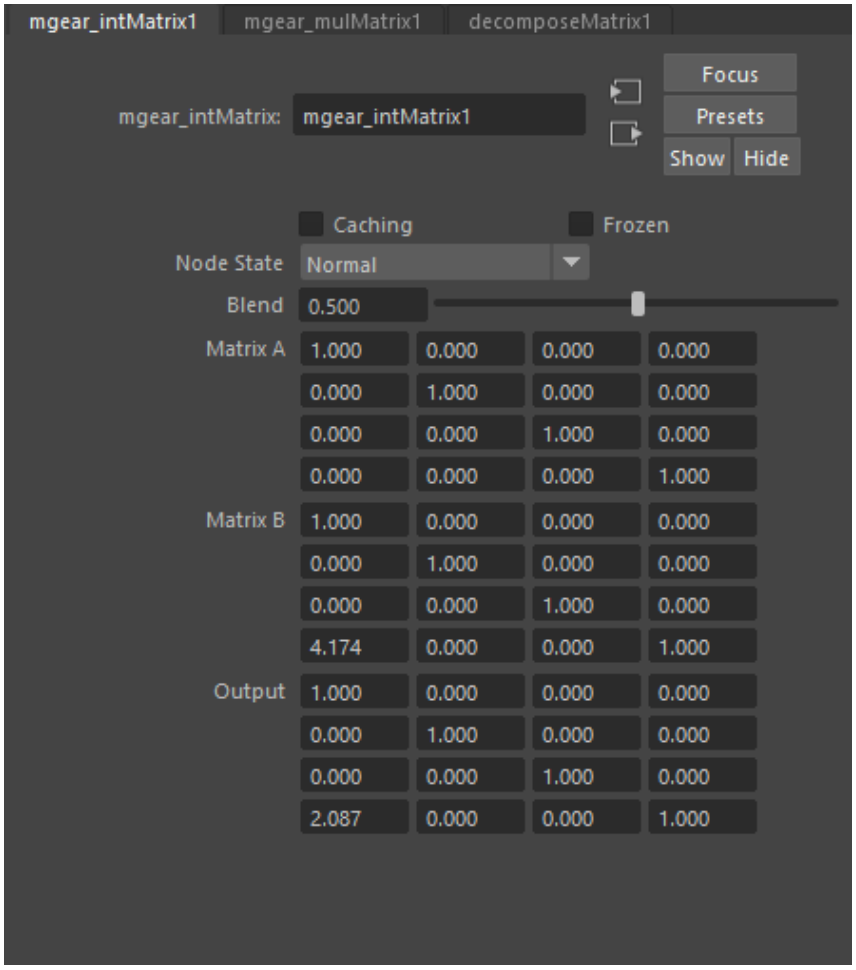
- **Blend:** IK fk blend
- **Length A:** Rest length of the bone A (Arm)
- **Length B:** Rest length of the bone B (Forearm)
- **Negate:** Negate the solver direction (i.e: the right side arm negates the direction)
- **Scale A:** Length multiplier for the arm.
- **Scale B:** Length multiplier for the forearm.
- **Roll:** Roll value. This value is complementarity to the Up Vector control.
- **Max stretch:** Maximum stretching value for the IK behavior. Value 1 will represent the original size and not scale.
- **Slide:** Slide the elbow position between the lengths of the arm and forearm. Value of .5 represents the middle point, whatever the proportions ratio is between the arm and forearm.

- **Reverse:** Reverse the IK solver direction. (i.e: human leg vs Chicken leg)
- **root:** Matrix. Root of the component world matrix
- **ikref:** Matrix. IK control world matrix
- **upv:** Matrix. Up vector control world matrix
- **FK0:** Matrix. FK arm control world matrix
- **FK1:** Matrix. FK forearm control world matrix
- **FK2:** Matrix. FK hand control world matrix
- **in A parent:** Matrix. Output bone A parent matrix (arm)
- **in B parent:** Matrix. Output bone A parent matrix (forearm)
- **in Center parent:** Matrix. Output elbow parent matrix
- **in Eff parent:** Matrix. Output effector parent matrix (hand)
- **out A:** Matrix. Output world matrix for bone A (arm)
- **out B:** Matrix. Output world matrix for bone B (forearm)
- **out Center:** Matrix. Output world matrix for elbow
- **out Eff:** Matrix. Output world matrix for effector (hand)

5.4 mgear_intMatrix

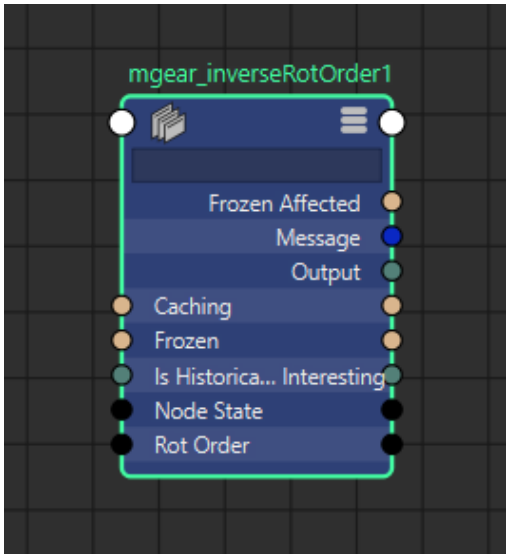


Interpolate between 2 input matrix using a blend value. The rotation is calculated in quaternion.

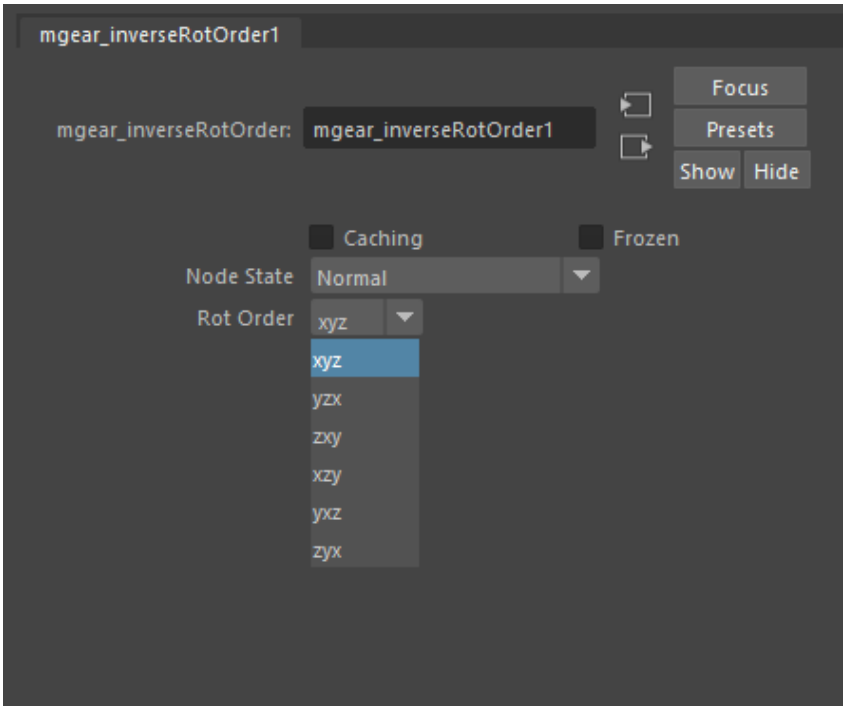


- **Blend:** Blend between the 2 input matrix
- **Matrix A:** Input Matrix
- **Matrix B:** Input Matrix
- **Output:** Output Matrix

5.5 mgear_inverseRotOrder

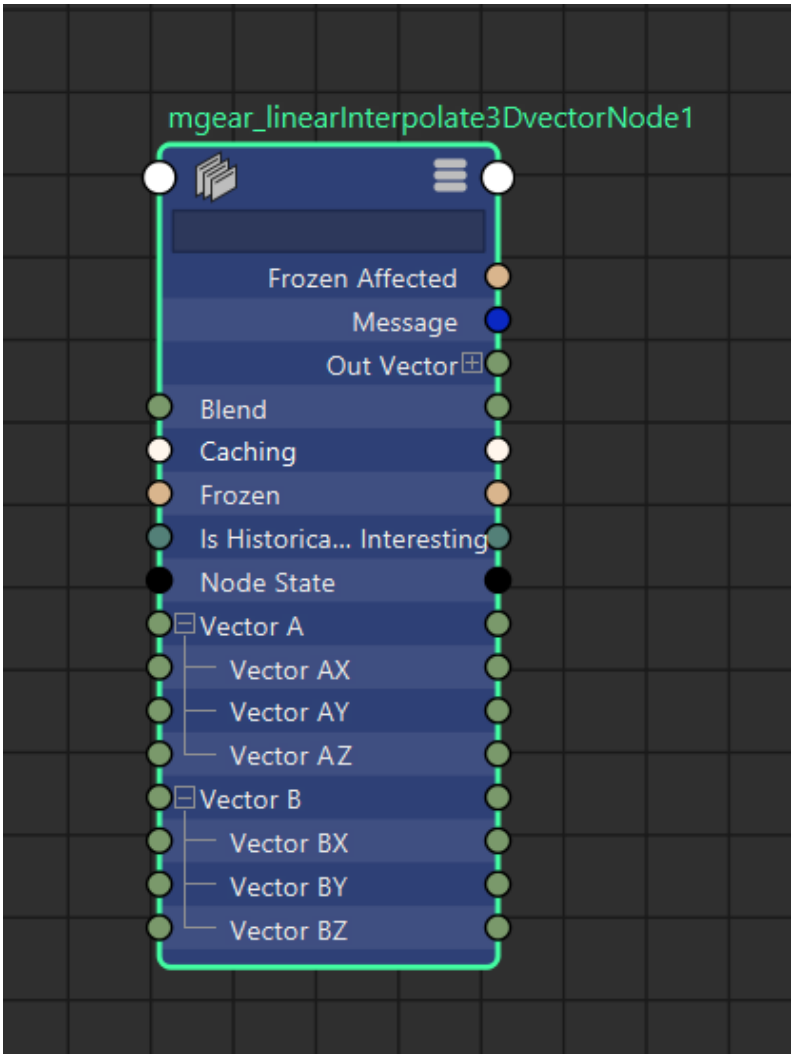


Invert the rotation order. For example and input of "XYZ" will output ZYX. This is very useful when you need to negate an animated rotation order to avoid gimbal.

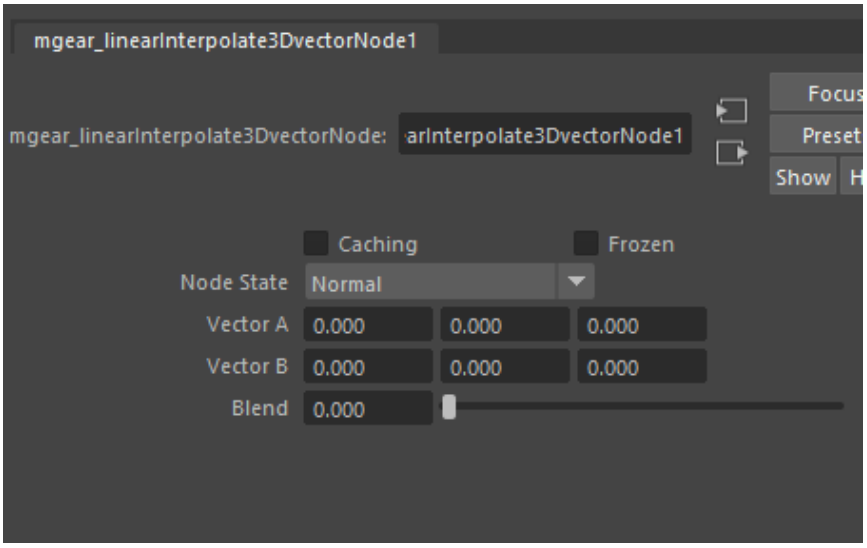


- **Rot Order:** Rotation order to invert

5.6 mgear_linearInterpolate3Dvector

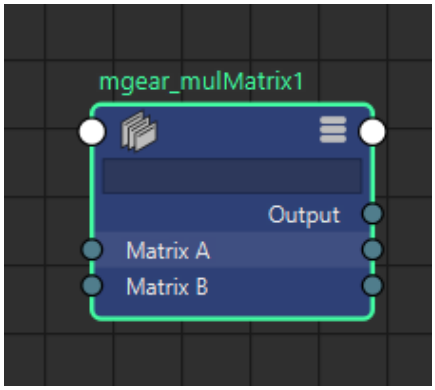


Interpolate between 2 input vector using a blend value. i.e: the XYZ position of 2 transforms.

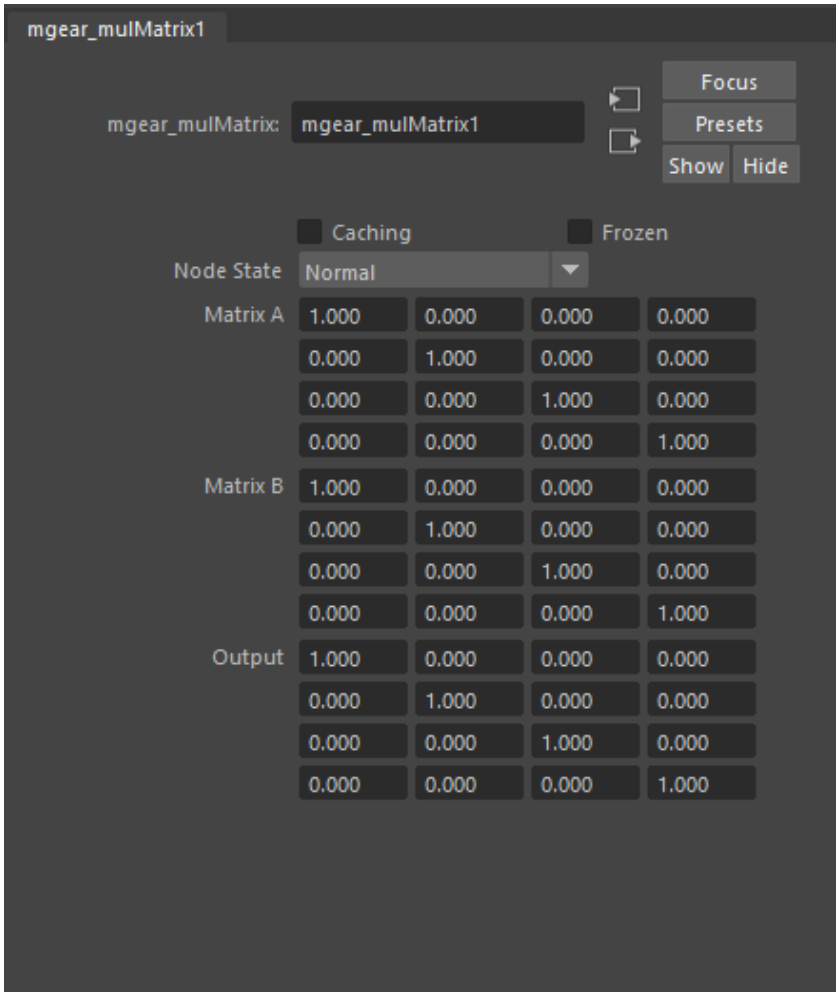


- **Blend:** Blend between the 2 input matrix
- **Vector A:** Input Vector
- **Vector B:** Input Vector
- **Out Vector:** Output Vector

5.7 mgear_mulMatrix

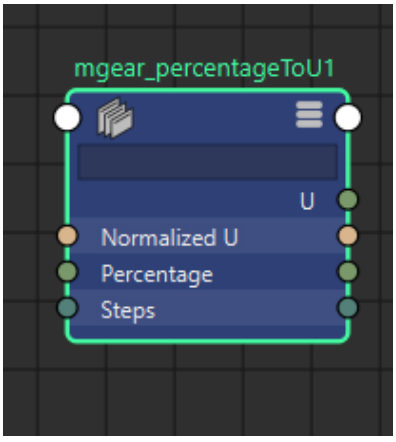


Multiply 2 input matrix. The only advantage between this node and the default one, is that with this you can visualize the values in the attribute editor. With the default Maya's multMatrix node the values are not visible, this make very difficult debugging rigs in some situations. For the rest are exactly the same and interchangeable. In terms of performance there is not noticeable difference.

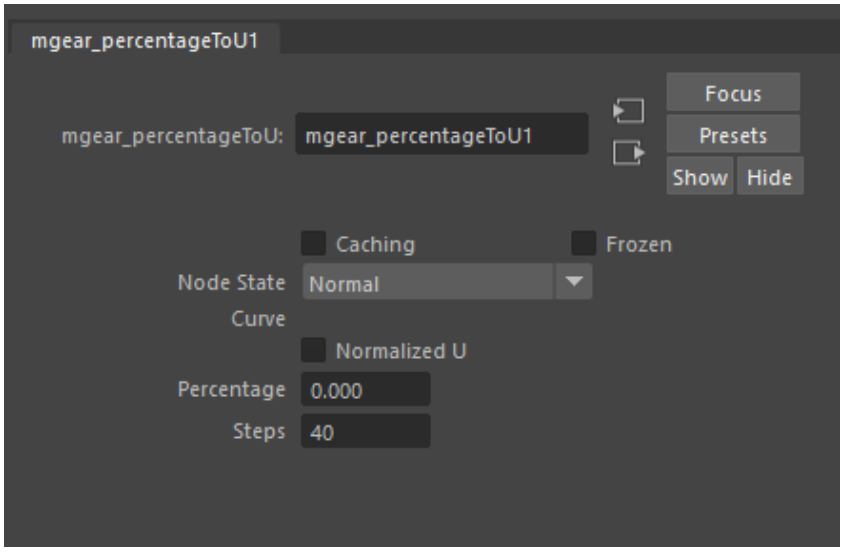


- **Matrix A:** Input Matrix
- **Matrix B:** Input Matrix
- **Output:** Output Matrix

5.8 mgear_percentageToU

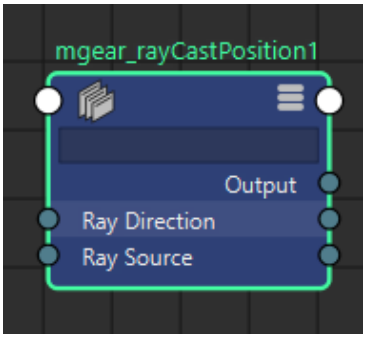


Converts a percentage values to a curve U value.

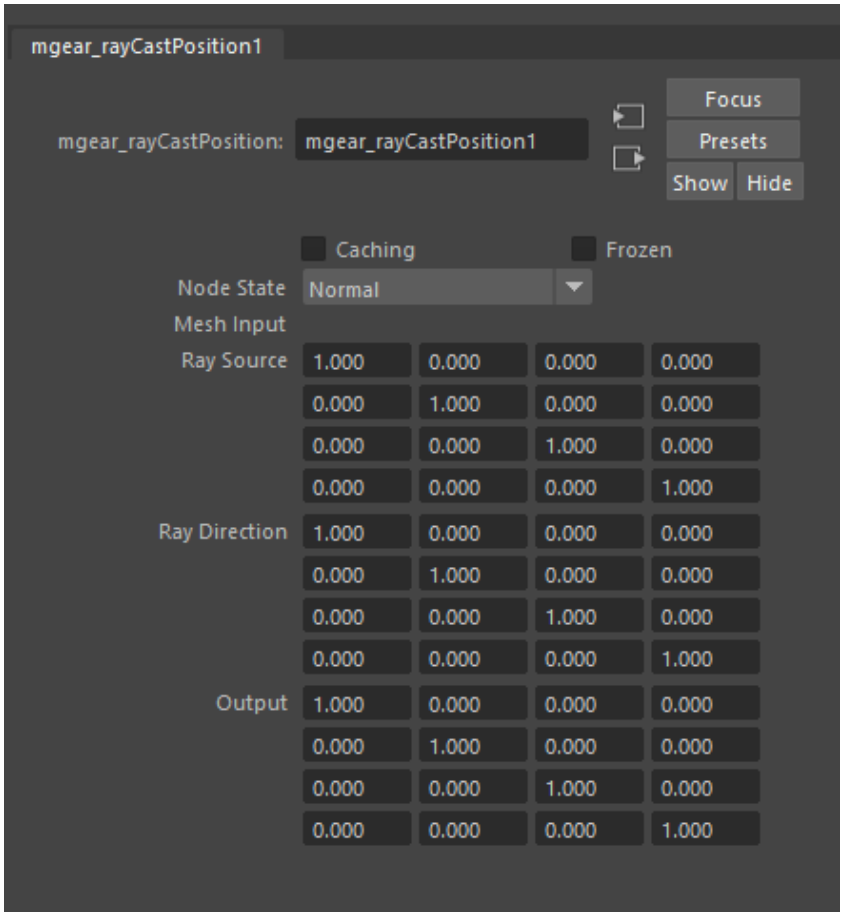


- **Curve:** Input curve.
- **Normalized U:** If active will normalize U value between 0 and 1.
- **Percentage:** Percentage value.
- **Steps:** Interpolation steps.

5.9 mgear_rayCastPosition

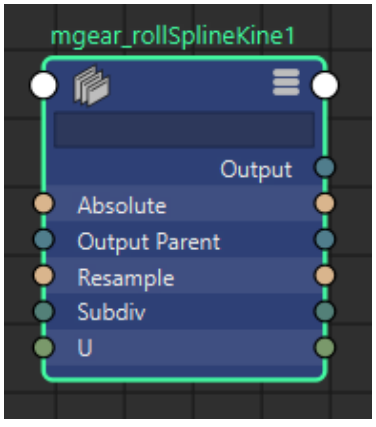


Raycast the contact position using a vector from 2 position inputs The operation is set using Matrix, but usually we will use it only to get the position.



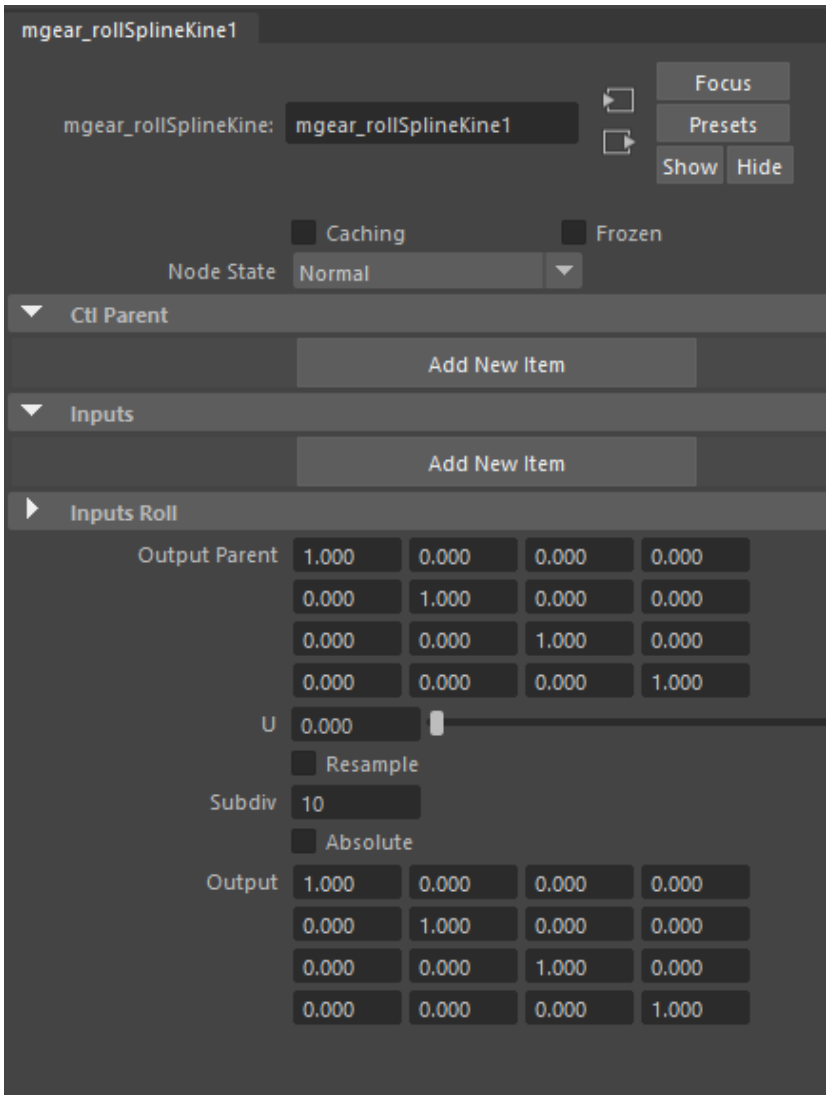
- **Mesh Input:** Contact Mesh.
- **Ray Source:** Matrix. starting position for the vector
- **Ray Direction:** Matrix. Aim position for the vector
- **Output:** Output Matrix with the position on the Contact Mesh

5.10 mgear_rollSplineKine



Roll Spline kinematic is a Bezier curve style with roll support. This solver is used in several Shifter components.

Mainly arms and legs. This will be the equivalent of or similar to a ribbon setup, with the advantage of been much more lightweight at evaluation time. Every input transform (world matrix plug) represents a point in the Bezier curve. And the scale in X axis of each transform represents the length of the Bezier tangents. The main limitation is that the 2 tangents are always of the same length for each point. In order to workaround this you can use 2 transforms in the same position. One representing each tangent, so the scale can be control independently. Each mgear_rollSplineKine node, outputs only one point in the U value of the curve.

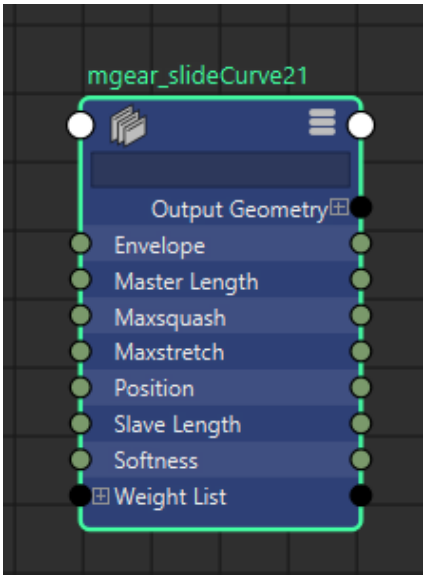


- **Ctl Input:** Array of Matrix. Input control points parent matrix.
- **inputs:** Array of Matrix. Transform controls world matrix
- **inputs Roll:** Array of Rotations. Transform controls rotation.
- **Output Parent:** Output transform parent Matrix.
- **U:** U percentage position represented from 0 to 1. NOTE: Usually the value should be always between 0.0001 and 0.999. The most extreme values are not taking in consideration the tangency for the output transform.
- **Resample:** Resample the output curve.
- **Subdiv:** Number of subdivision in the curve. Higher values will create a smoother curve but slower evaluation. Small values will create a more stepped curve, this can cause artifacts when sliding a transform on the U value.

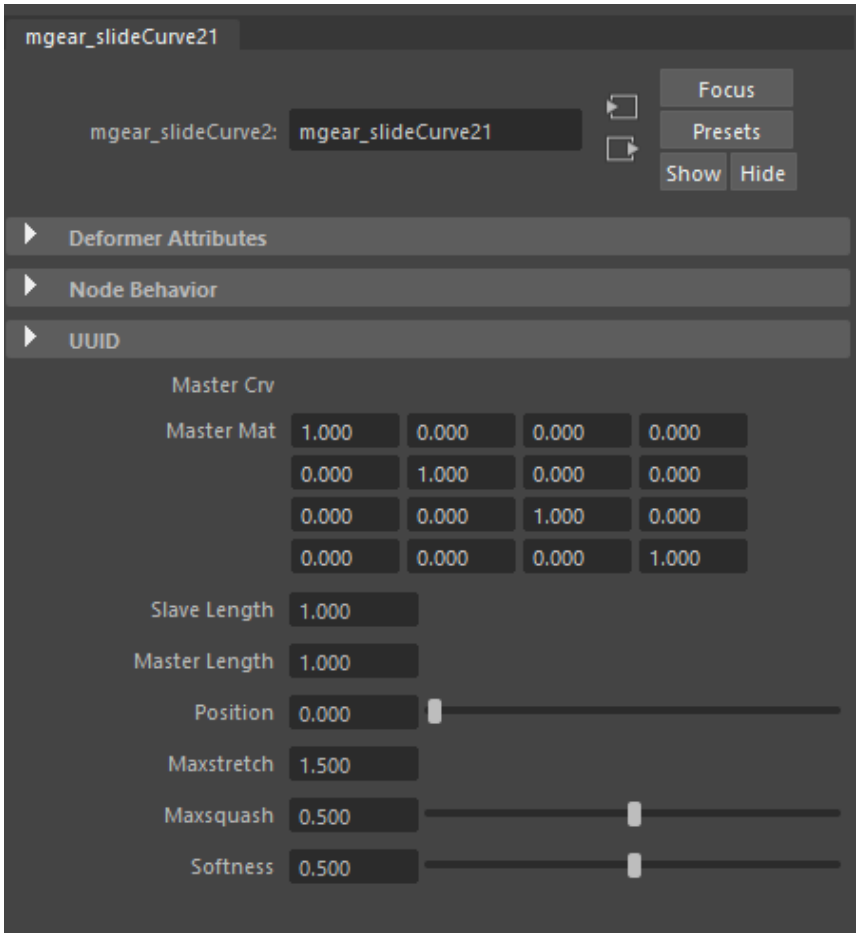
NOTE: Also, can have a little discordance between the same component in the left and right side. Due inversion of the direction. Usually the solution is simple as increase the subdivision.

- **Absolute:** Change the way that the subdivision are distributed in the curve.
- **Output:** Output transform Matrix.

5.11 mgear_slideCurve

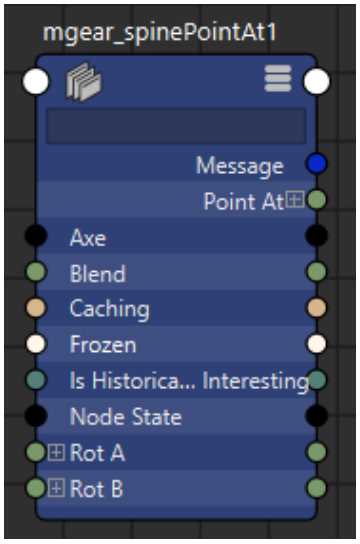


Deform a curve, sliding it on top of other. i.e: It is used in the Shifter spine component. Use this function to apply the deformer: mgear.core.applyop.gear_curveslide2_op

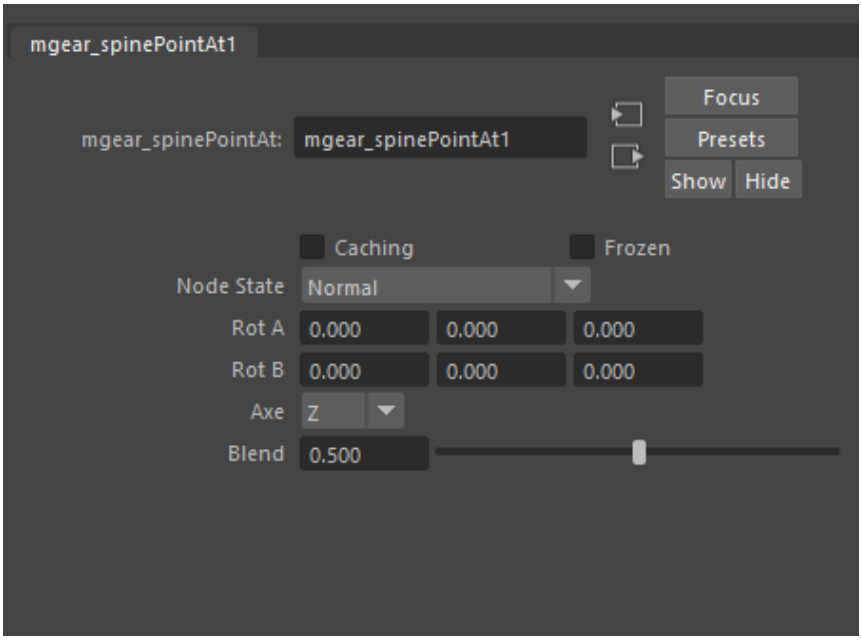


- **Master Crv:** Input Curve.
- **Master Mat:** Master curve matrix.
- **Slave Length:** Slave curve length.
- **Master Length:** Master curve length.
- **Position:** Slave curve position.
- **Max stretch:** Maximum stretch of the slave curve.
- **Max squash:** Maximum squash of the slave curve.
- **Softness:** Soft clamping for squash and stretch.

5.12 mgear_spinePointAt

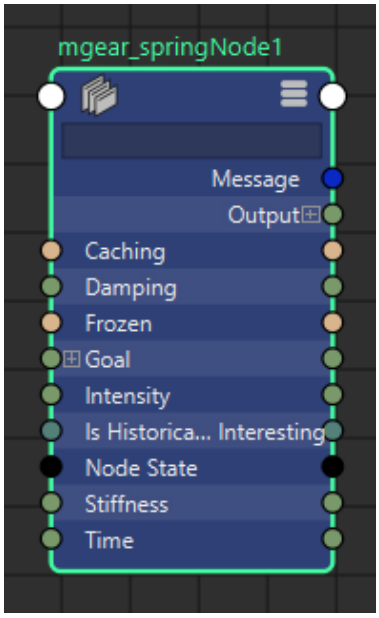


Point at an axis direction base in 2 input rotations. Note: This solver was design to handle the spine twist, but currently is not used in any component.

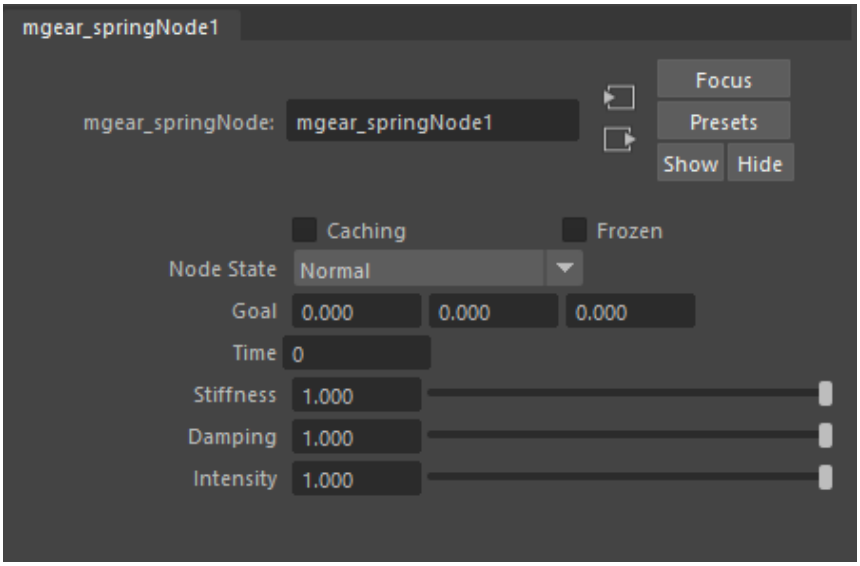


- **Rot A:** Input rotation A.
- **Rot B:** Input rotation B.
- **Axe:** Aim axis.
- **Blend:** Blend value between the 2 rotations

5.13 mgear_springNode

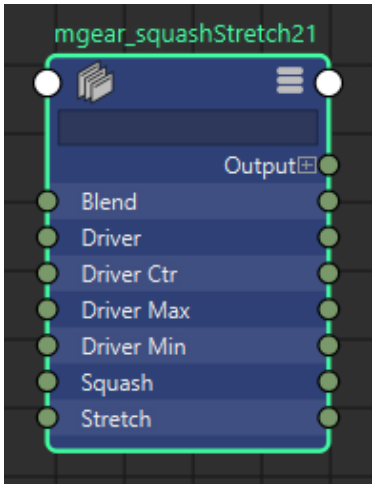


Spring dynamic solver based in goal position.

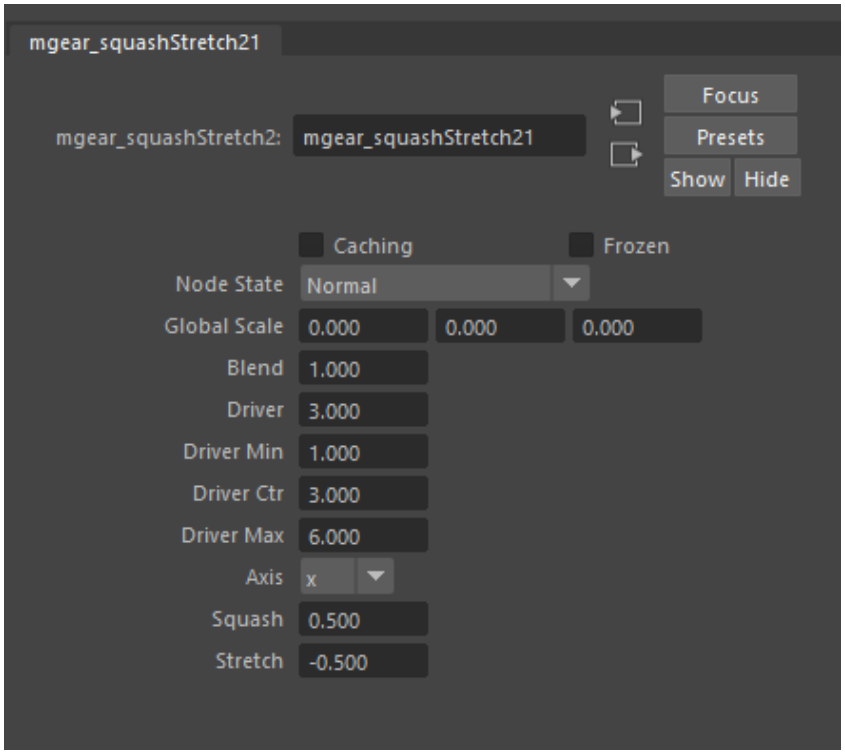


- **Goal:** Position goal.
- **Time:** Current time input.
- **Stiffness:** Stiffness value.
- **Damping:** Damping value.
- **Intensity:** Intensity value.

5.14 mgear_squashStretch_attr



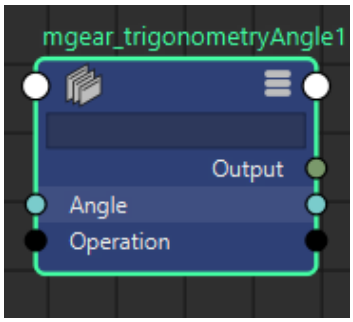
Squash and stretch solver.



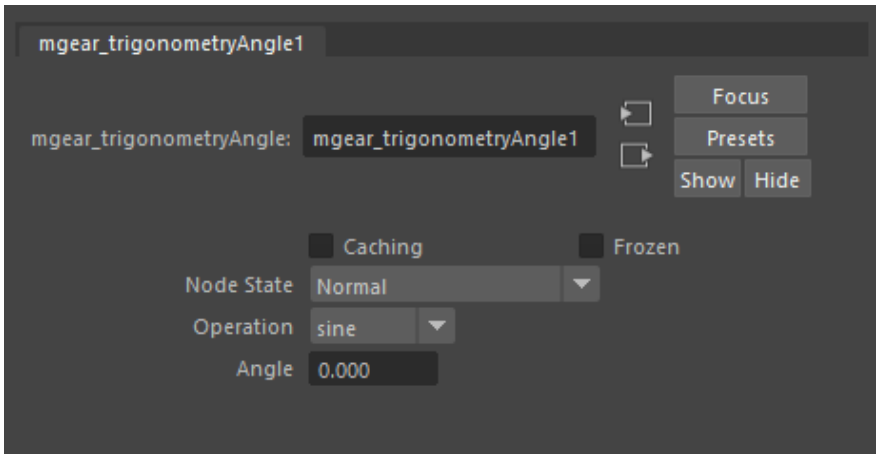
- **Global Scale:** Global scale reference.
- **Blend:** Blend to deal down the squash and stretch effect.
- **Driver:** Driver rest value.
- **Driver Min:** Driver minimum value where the squash and stretch effect will be calculated.
- **Driver ctr:** Driver control value.
- **Driver Max:** Driver maximum value where the squash and stretch effect will be calculated.
- **Axis:** Axis along the squash and stretch value will be calculated.

- **Squash:** Multiplication value for the squash direction.
- **Stretch:** Multiplication value for the stretch direction.

5.15 mgear_trigonometyAngle

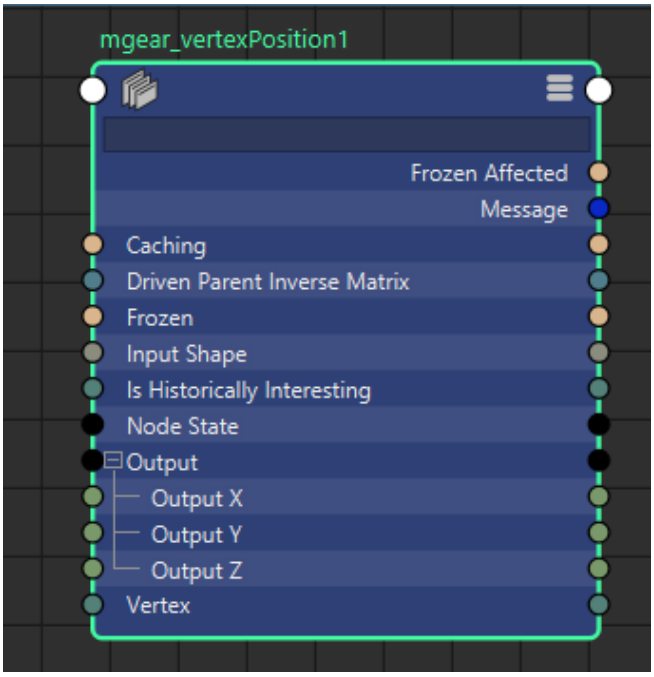


Sine and cosine trigonometry node

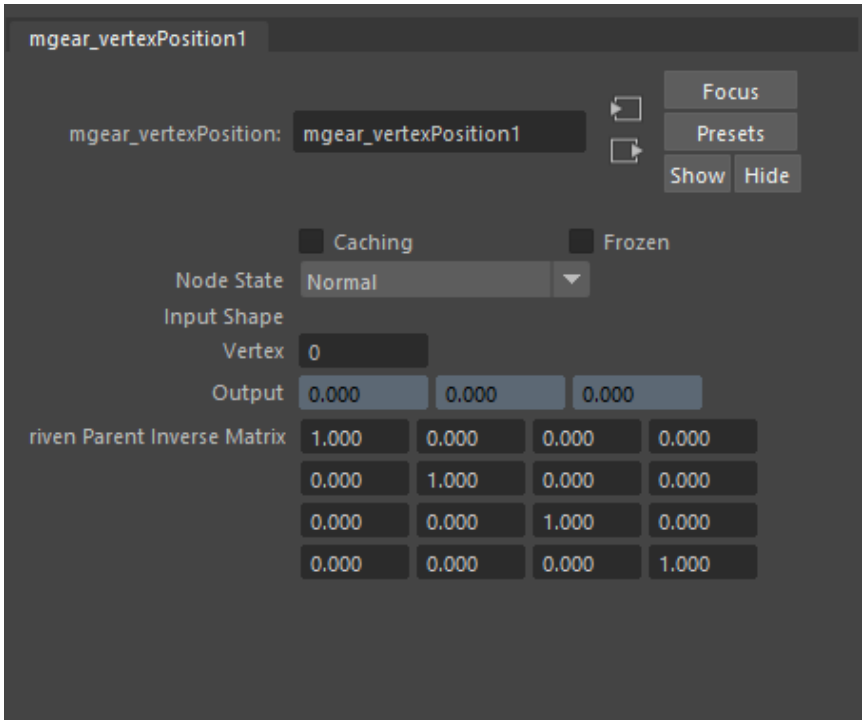


- **Operation:** Sine or Cosine.
- **Angle:** Input angle.

5.16 mgear_vertexPosition



Get the world position of a given vertex



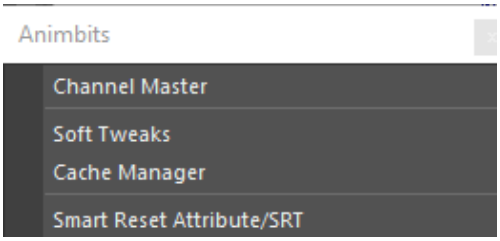
- **Input Shape:** Input mesh shape.
- **Vertex:** Vertex index number to track.
- **Output:** Output position.

- **Driven parent invert Matrix:** Driven parent invert matrix.

CHAPTER 6

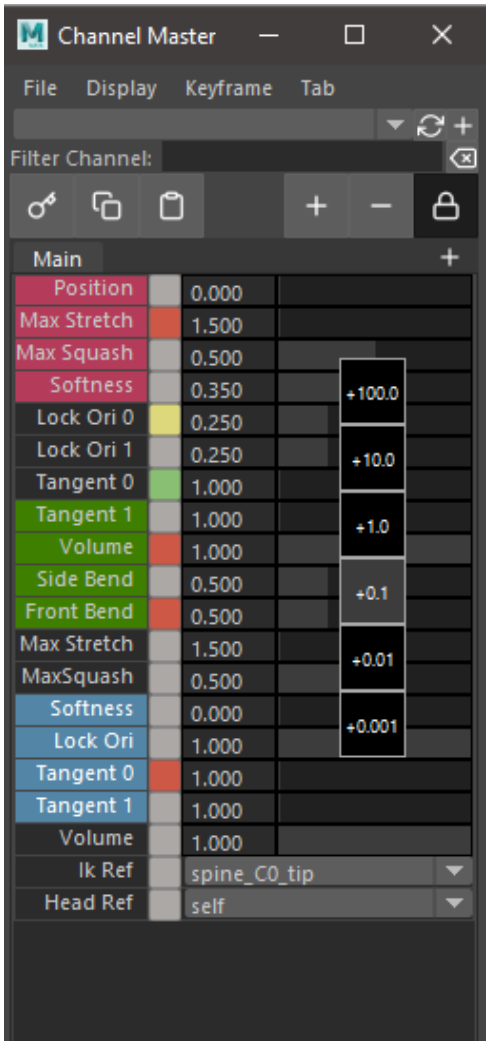
Animbits User Documentation

Tools for animators.

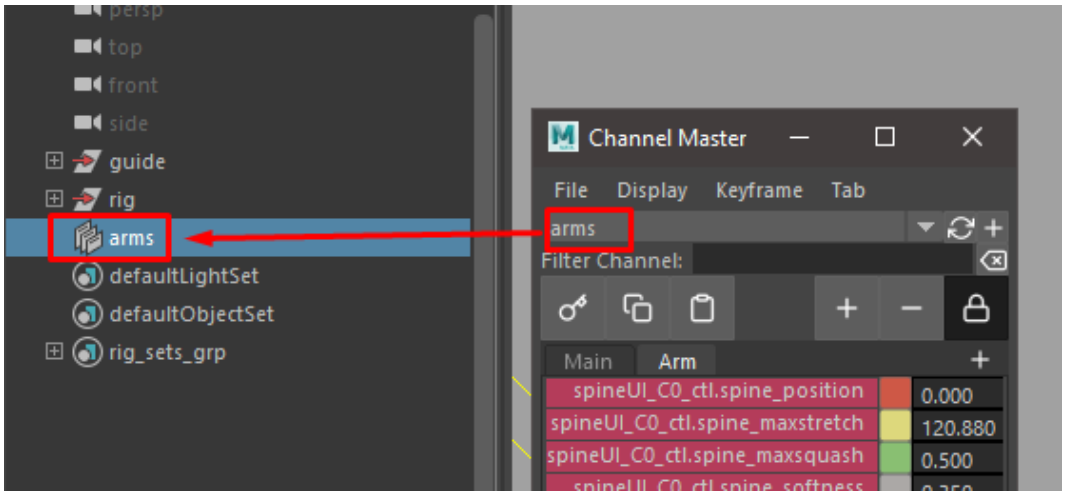


6.1 Channel Master

Channel Master is an alternative ChannelBox, but allowing the user to create custom configurations and store it.



The configuration is stored in a persistent node in the scene. The data can be exported and imported.



The channels can be a mix from different objects. The only rule is that the object that contains the channel and the channel master node should be in the same namespace.

However the internal data is not stored with name spaces, so the same configuration can be re-used in different name

spaces.

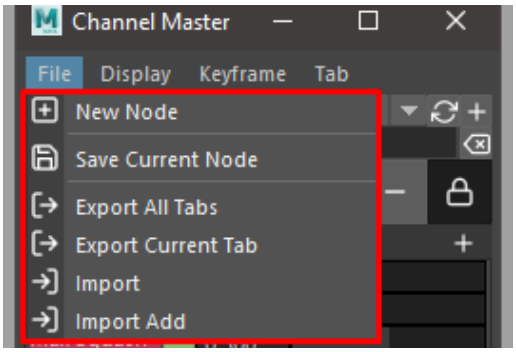
The Main tab works like the regular ChannelBox and the data is rebuild on the flight. The advantage is that is possible to lock the content using the lock icon. Also create a node is not required to use the main tab

To create custom configuration, require a custom node.

> **Warning:** Custom configurations needs to be saved. If to be stored in the node. Missing to save the new configuration will revert the channel configuration to the previous state when the node is refresh or change node in the drop-down menu

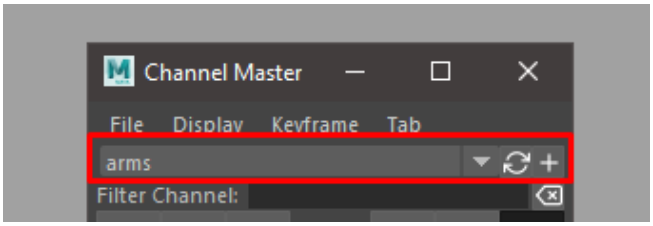
> **Warning:** The tool has been design to avoid bottleneck the evaluation while playback by turning off the refresh and updating on demand in some situations. When scrubbing the timeline still updating the channel values. This will take some FPS away (Only when Scrubbing, not in Playback).
>
> If you need to do scrubbing a lot and need the performance. You can change the Channel Master to empty Main tab, by lock the tab when nothing is selected. Or Just close Channel Master
>
> We planning to add more control over this in the future.

File Menu:



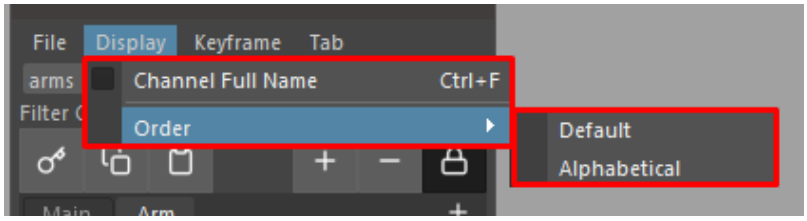
- **New Node:** Creates a new node

Also is possible to add nodes from the node bar in the UI

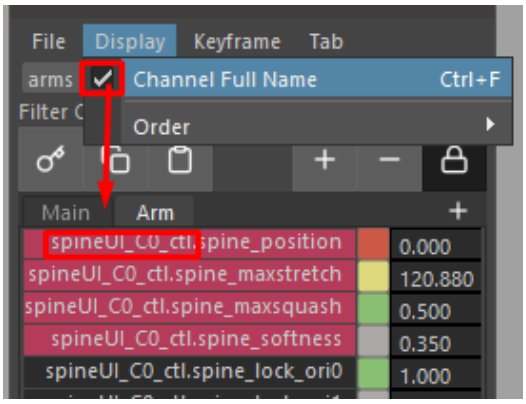


- **Save Current Node:** Save the current node configuration
- **Export All Tabs:** Export the current node configuration to a Json file
- **Export Current Tab:** Export current tab configuration to Json file
- **Import:** Import and create a new node
- **Import Add:** Import and add the configuration to an existing node

Display Menu:

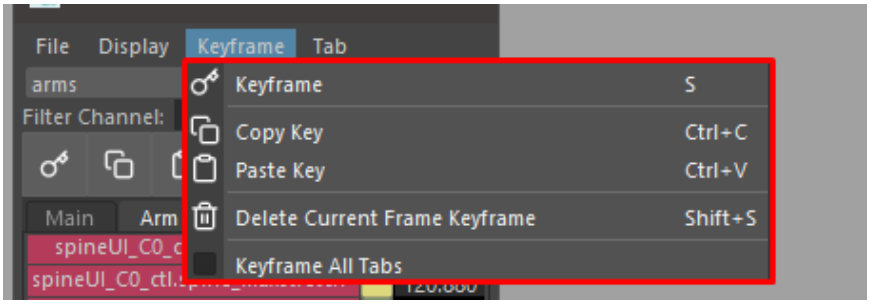


- **Channel Full Name:** Display the full name of the channel



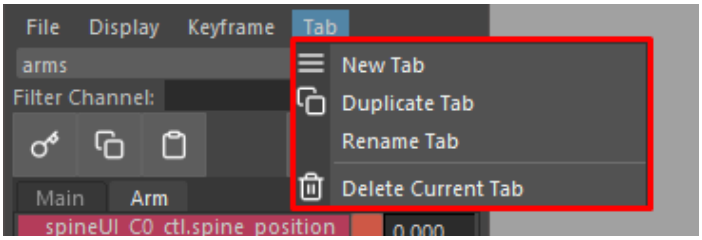
- **Order:** Arrange the channels by Alphabetic or Default order

Keyframe Menu:



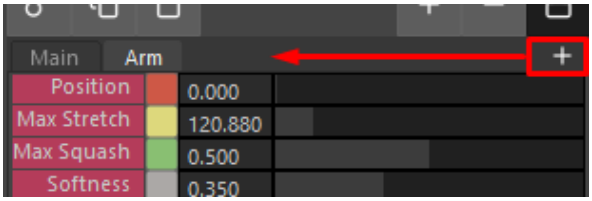
- **Keyframe:** Toggle a keyframe for all the channels in the current tab. If there is a channel that doesn't have keyframe will add keyframe. If all channels have keyframe it will remove the keyframe.
- **Copy key:** Copy current values in the buffer
- **Paste key:** Paste from buffer and set keyframe
- **Delete current keyframe:** Delete the current tab keyframe
- **Keyframe all tabs:** Keyframe command will be applied to all tabs. With this option active the toggle functionality will change to always key.

Tabs Menu:



- **New Tab:** Create new tab.
- **Duplicate Tab:** Duplicate current Tab
- **Rename Tab:** Rename current tab
- **Delete Current Tab:** Delete current Tab

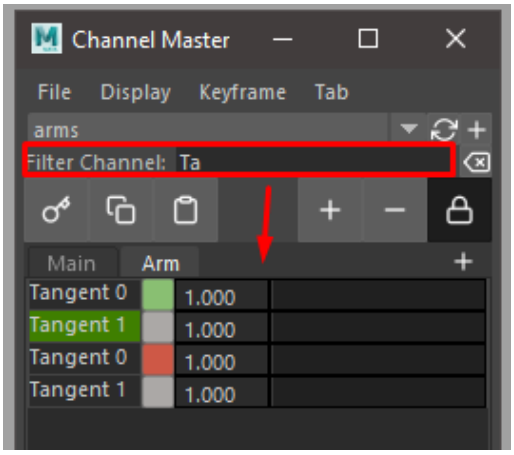
Tabs can be added using the + icon in the tabs row



6.1.1 Channels

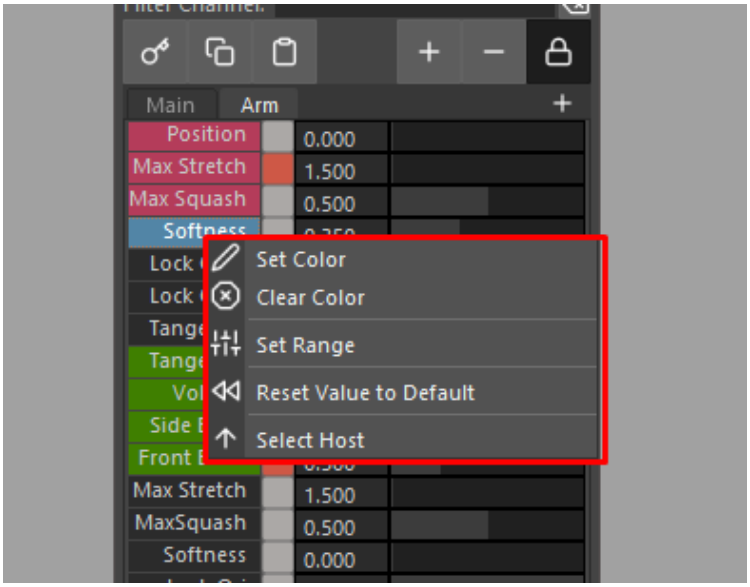
1) **Keyframe button:** Same command as keyframe menu
2) **Copy key button:** Same command as keyframe menu
3) **Copy paste button:** Same command as keyframe menu
4) **Plus Button:** Add selected channels from ChannelBox to Channel Master
5) **Minus Button:** Remove SelecteT channels
6) **Lock refresh:** in Main Tab

Search channel: will filter the channel list



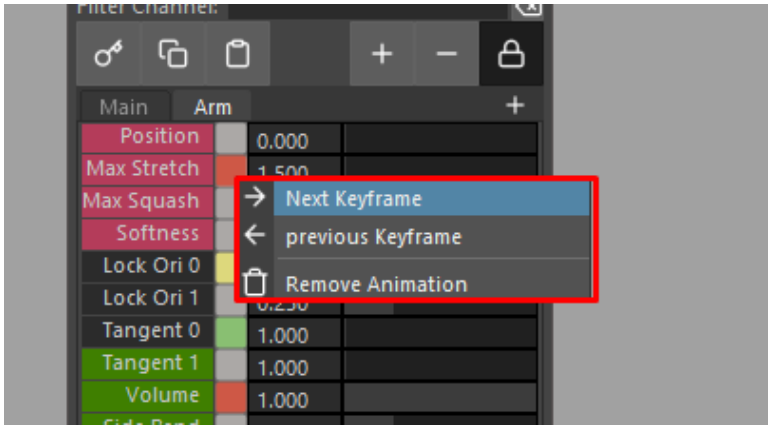
In the channels area we will find 2 context menus and a middle click slider precision widget.

Channel context menu: The actions in this menu can be apply to multiple selection



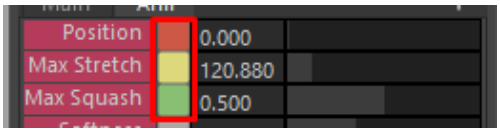
- **Set Color:** Set a custom color for easy identification.
- **Clear Color:** Clear custom color.
- **Set Range:** Set range min and max for the slider.
- **Reset Value to Default:** Reset the channel value.
- **Select Host:** Select the object that owns the channel.

Keyframe channel button context menu.:



- **Next Keyframe:** Move time to the next keyframe.
- **Previous Keyframe:** Move time to the previous keyframe.
- **Remove Animation:** Delete channel animation.

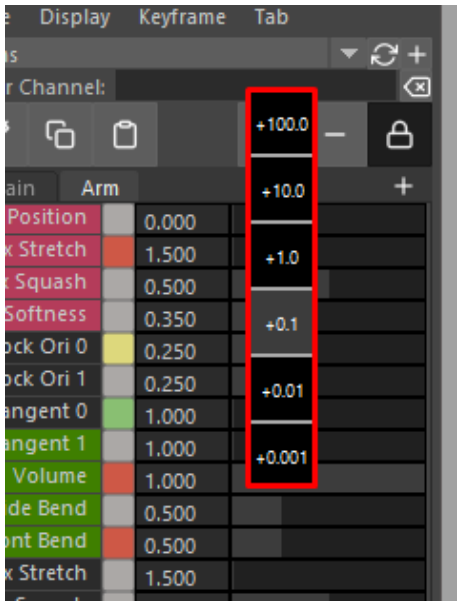
Keyframe button color coding:



- **Red:** Keyframe in the current frame.

- **Green:** Animation but not keyframe in the current frame.
- **Yellow:** Current value changed.

The slider precision widget is similar to the one from Houdini

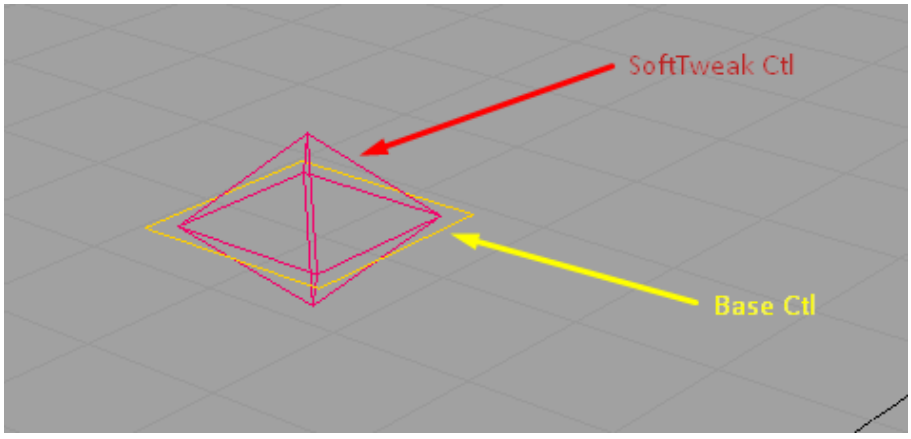


6.2 Soft Tweaks

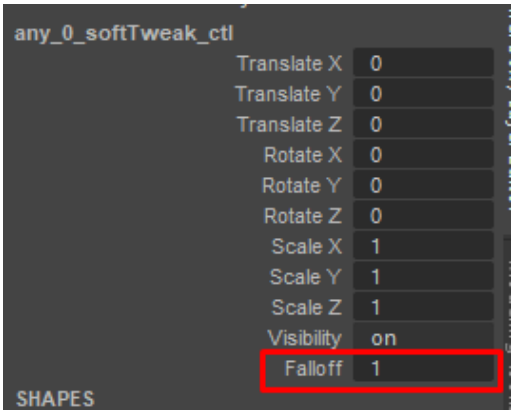
This tool create and manage SoftTweaks (ST for short) and also provide as simple API to import and export configurations, so is possible to integrate with your pipeline and animation publishing system.

SoftTweak is a dynamic position tweak using softmod deformer The credit of the idea goes to Vasil Shotarov , thanks!

The SoftTweak have 2 controls. The Base represents the bind position where the ST will not have any effect. The main control will trigger the deformation when is not in the reset position..

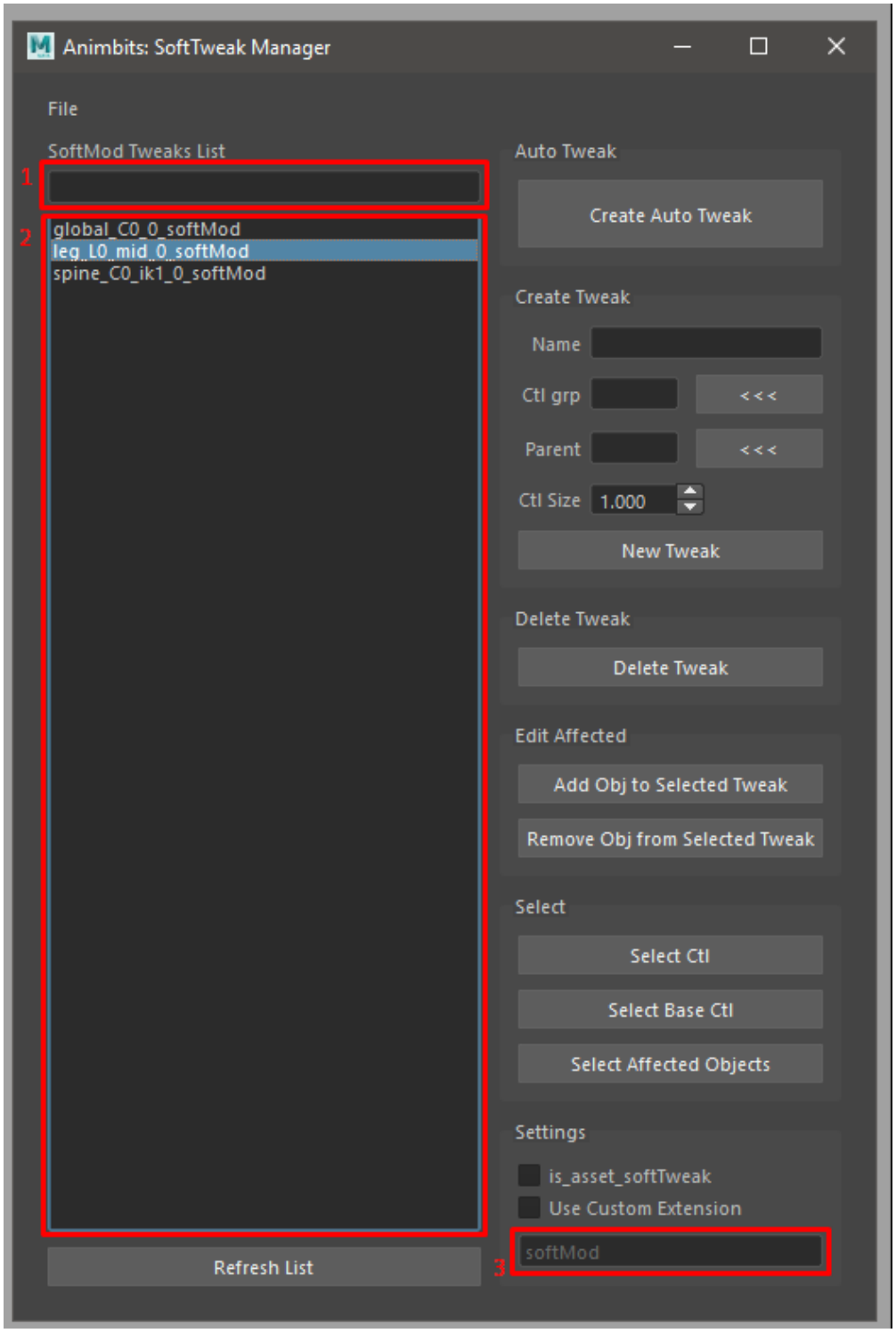


In the ST main control we can find a falloff channel to control the area of deformation



6.2.1 SoftTweak Manager GUI

By default the SoftTweak is design to be used by shot and not part of a rig. However if is needed to publish a rig with some SoftTweaks there is an option to flag (is_asset_softTweak) the SoftTweak as asset tweak. So the tool will make a distinction between the ones that need to be publish with the shot and the ones that are included in the asset.



File Menu:

- **Export Selected:** Exports selected ST from the list
- **Export All:** Exports all the ST from the list. If search filter is used, will not affect the export. But export will make a distinction between regular SoftTweak and asset SoftTweak
- **Import:** Import ST configuration from a file.

GUI:

- **Search Filter:** (1) Quick search filter of the SoftTweak list.
- **SoftTweaks List:** (2) ST selection list.
- **Create Auto Tweak:** Create a tweak based on the current selection.
  1. Select the objects to apply the ST
  2. Last element selected should be a control. This will be the parent of the ST. Also the ST will take the Name and the group(set) from the parent
  3. Click Crete Auto Tweak
- **Name:** Name of the new ST.
- **Ctl grp:** Group of controls to add the new ST controls.
- **Parent:** Parent of the new ST.
- **Ctl Size:** Parent of the new ST.
- **New Tweak:** Create a new ST.
- **Delete Tweak:** Delete the tweaks selected in the ST list.
- **Add Object to Selected Tweak:** Add selected objects to the tweaks selected in the ST list.
- **Remove Object from Selected Tweak:** Remove selected objects from the tweaks selected in the ST list.
- **Select Ctl:** Select the control from the tweaks selected in the ST list.
- **Select Base Ctl:** Select the Base control from the tweaks selected in the ST list.
- **Select Affected Objects:** Select the object affected by the the tweaks selected in the ST list.
- **is_asset_softTweak:** Tag the new created ST as an asset ST. This will also change the ST selection list to show the asset ST.
- **Use Custom Extension:** The new ST will have a custom suffix.
- **Suffix Name:** (3) Suffix name for the new ST.

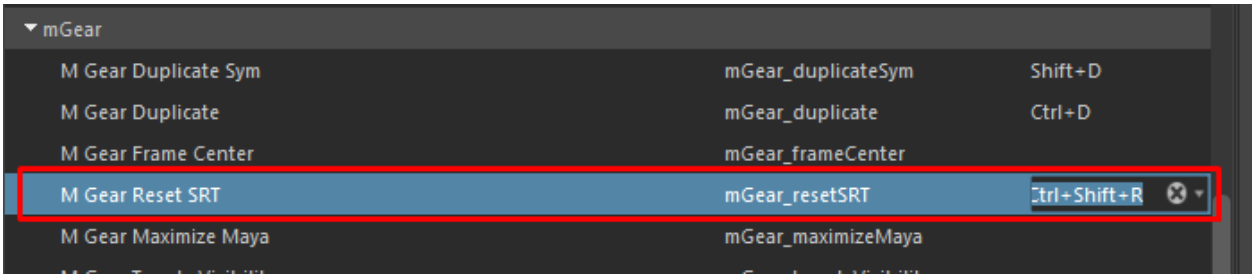
6.2.2 API

```
# To import a softTweak configuration from script editor or Shifter Custom Step:

from mgear.animbits import softTweaks as st
st.importConfigurationFromFile(filePath= path to the .smt configuration file)

# to export configuration
# list the softtweaks in the scene
softtweaks = st._listSoftModTweaks(is_asset=False)
# export
st.exportConfiguration(softtweaks)
```

6.3 Smart reset Attribute/SRT

This command will reset the SRT (Scale, rotation and Translation of any selected object). If an attribute is higlighted in the Channel Box, will reset the channel instead.

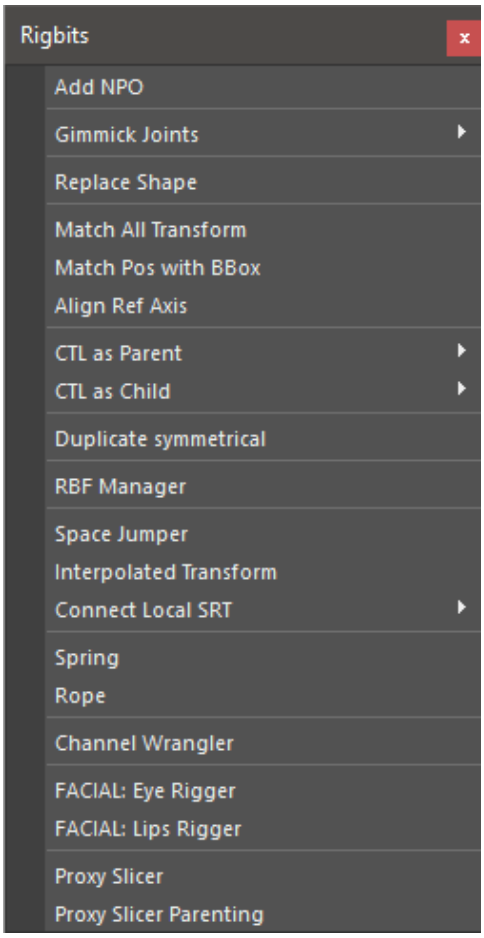
TIP: Set a hotkey for this command using mGear Hotkey creator in utilities menu.



CHAPTER 7

Rigbits User Documentation

Rigging tools



7.1 Add NPO

Add a transform as parent of each selected object in order to neutralize the local values to the reset position

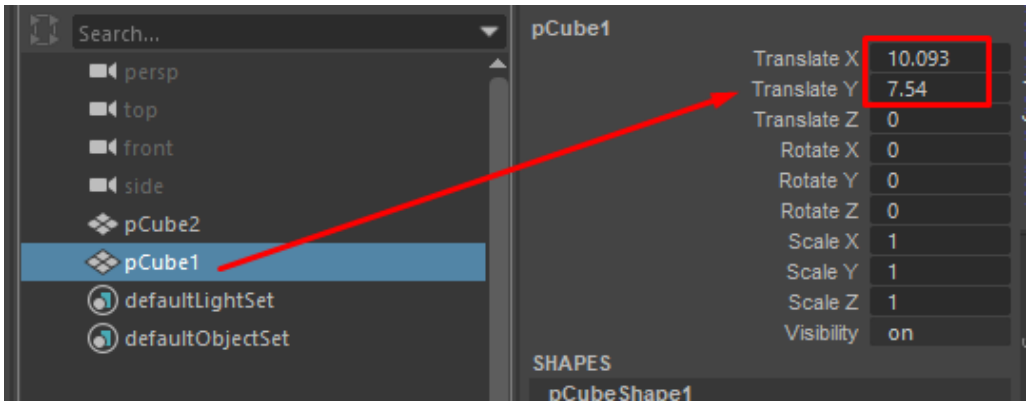


Fig. 1: The tranlate X and Y have some values

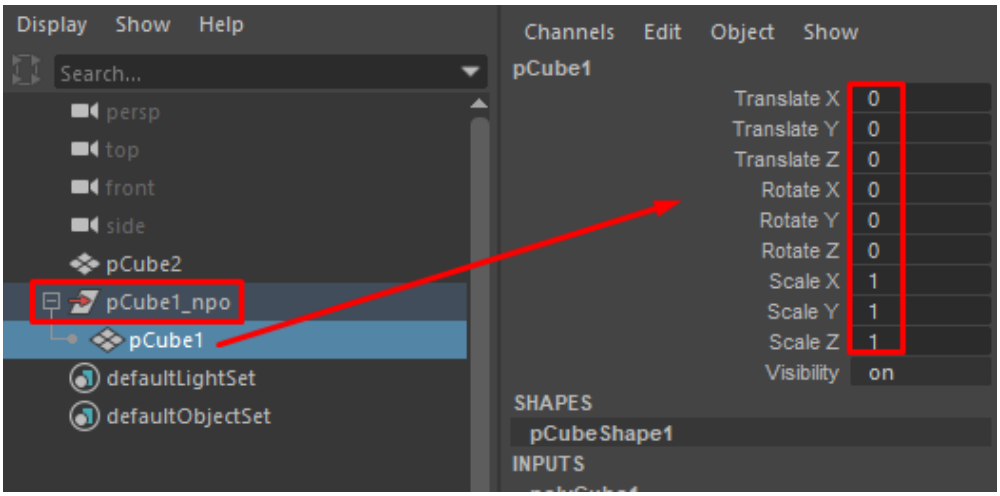


Fig. 2: All the local transform values are reset

7.2 Gimmick Joints

Joint helper tools.

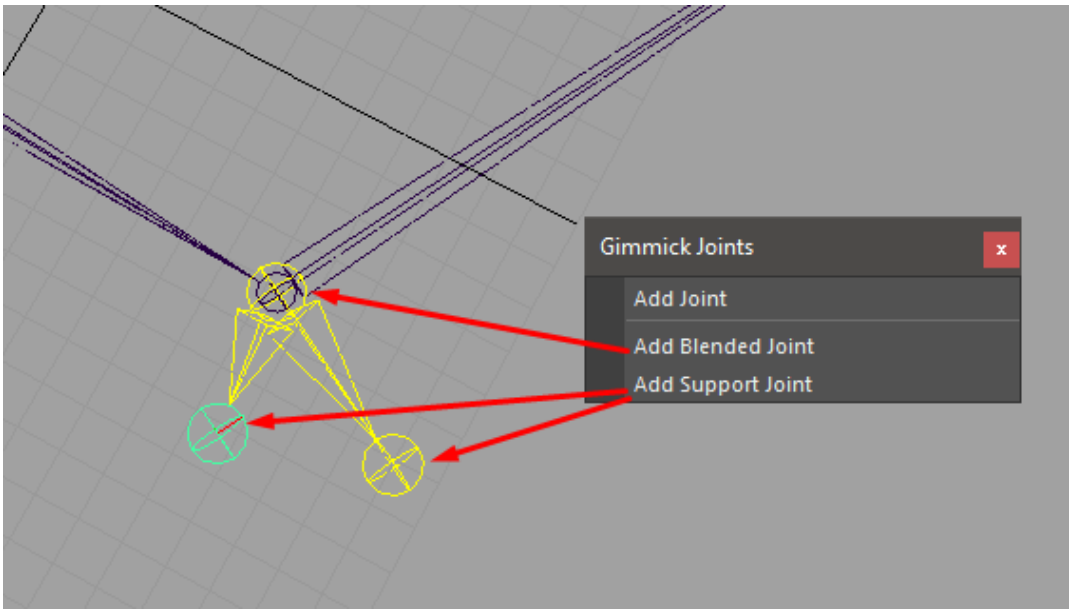
7.2.1 Add Joint

Add a deformer joint to each selected object.

This command will try to add the joint to "rig_deformers_grp" or create it if doesn't exist. Also will parent the joint under "jnt_org" if exist. If doesn't exist will parent the joint under the corresponding object.

7.2.2 Add Blended Joint

Add a blended joint under a chain of joints. This joint will rotat 50% between 2 joints.



7.2.3 Add Support Joint

Support joint are created under a blended joint and are design to help with deformation. Typically this kind of joints will also be driven by a SDK or similar.

7.3 Replace Shape

Replace the shape of one object shape with another

7.4 Match All Transform

Align one object to another object using the world Matrix reference.

7.5 Match Pos with BBox

Center the position of an object in the center of the bounding box of an object.

7.6 Align Ref Axis

Create a reference locator axis based on a point selection. This command needs at less 3 points.

Tip: Very useful to find rotation axis in mechanical rigs if the transformations of the mesh have been freeze.

7.7 CTL as Parent

Create a control of the selected shape as parent of each selected object.

7.8 Ctl as Child

Create a control of the selected shape as child of each selected object.

7.9 Duplicate Symmetrical

Duplicate and mirror the selected object and his children. This is done by negating some axis scaling and inverting some of the values. This will provide a mirror behavior. Also handle some renaming. i.e: from _L to _R

7.10 RBF Manager

A tool to manage a number of RBF type nodes under a user defined setup(name)

Steps - set Driver set Control for driver(optional, recommended) select attributes to driver RBF nodes Select Node to be driven in scene(Animation control, transform) Name newly created setup select attributes to be driven by the setup add any additional driven nodes position driver(via the control) position the driven node(s) select add pose

Add notes - Please ensure the driver node is NOT in the same position more than once. This will cause the RBFNode to fail while calculating. This can be fixed by deleting any two poses with the same input values.

Edit Notes - Edit a pose by selecting “pose #” in the table. (which recalls recorded pose) reposition any controls involved in the setup select “Edit Pose”

Delete notes - select desired “pose #” select “Delete Pose”

Mirror notes - setups/Controls will succefully mirror if they have had their inverseAttrs configured previously.

7.11 Space Jumper

7.12 Interpolate Transform

7.13 Connect Local SRT

7.14 Spring

7.15 Rope

7.16 Channel Wrangler

7.17 Eye Rigger

7.18 Lips Rigger

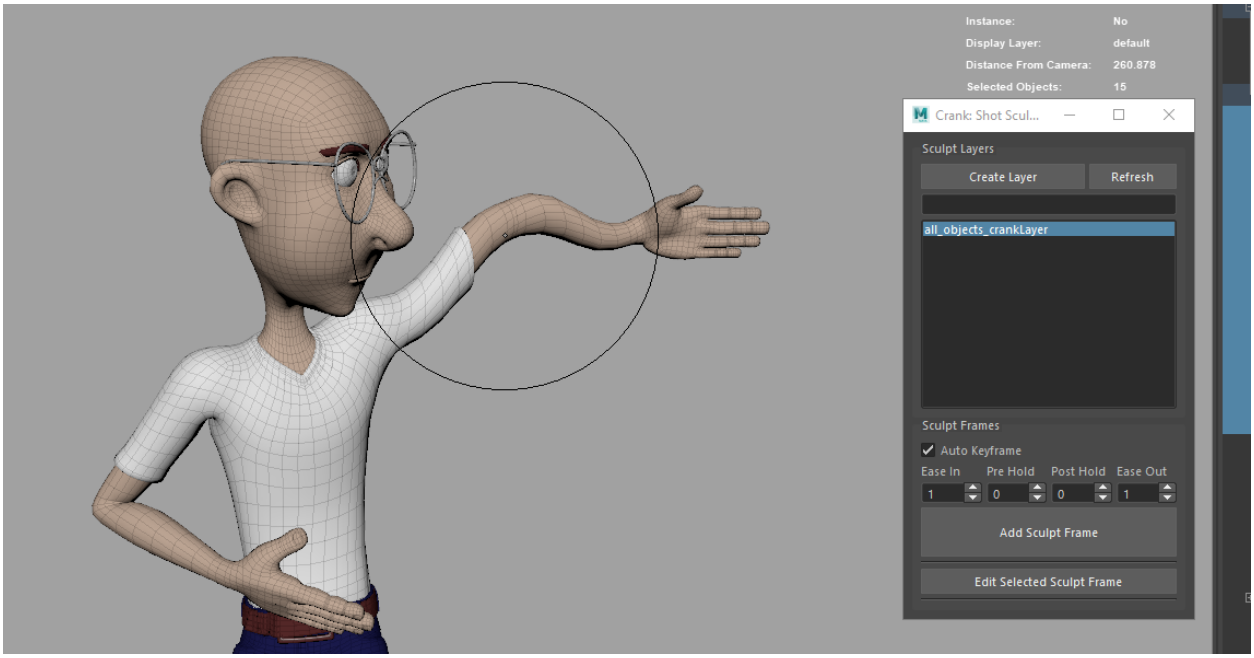
7.19 Proxy Slicer

7.20 Proxy Slicer Parenting

CHAPTER 8

Crank User Documentation

Crank is a shot sculpting tool specially designed to handle several object and the same time. This tools can be used for general deformation correction, cloth simulation correction or animation exaggeration.

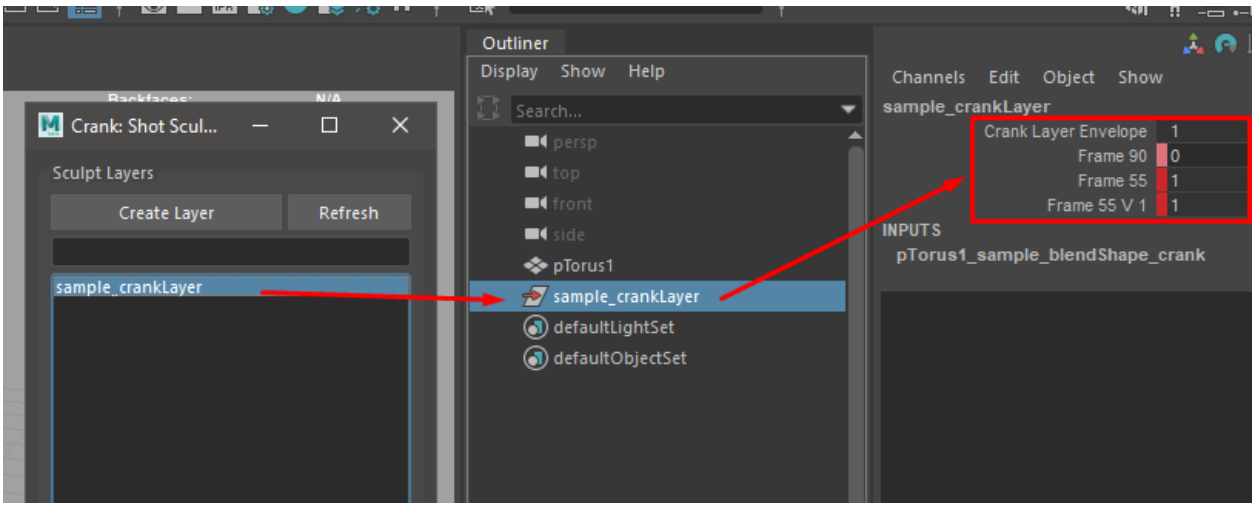


Crank uses only default Maya nodes and blendshape nodes. So not extra plugins are required to open as shot sculpted scene.

Sculpting can be apply to rigged meshes (local or referenced) or to cached animations (Alembic)

In order to deform an object. First we should create a “Crank Layer”. The layer can contain one or more objects. Also, an object can be included in more than one layer.

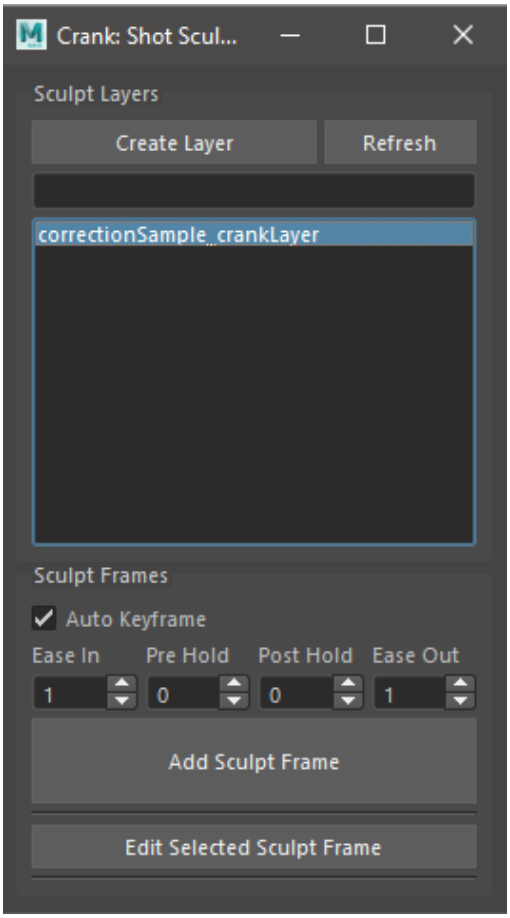
Crank Layers are represented in the scene with a regular Maya’s transform node. This node contains a series of custom attributes and connections to handle and store the shot sculpting information and animation.



Several layers can be edit at the same time. But be careful if the same object is in several of this layers.

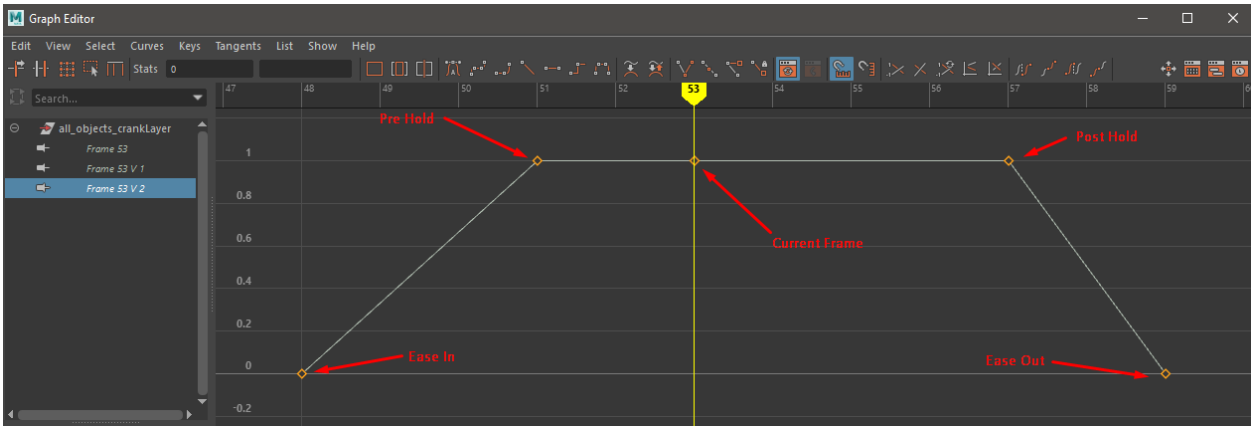
The blendshape nodes are created at the end of the chain and the deltas are set to use tangent space.

This should give the most stable result when the same sculpt is hold in several frames. However in areas where the geometry have collapse a lot (i.e: the internal part of the elbow when the arm is flexed), can result in a unstable interpolation if the sculpt is hold more than one frame. Used in combination with Deltamush can mitigate some of the possible issues



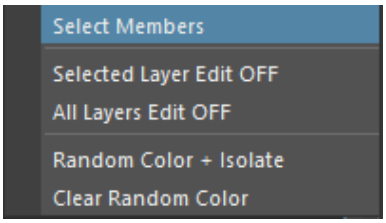
GUI:

- **Create Layer:** Create a new layer from the selected objects.
- **Refresh:** Refresh layers list.
- **Search Filter:** Quick search filter of the Crank Layer list.
- **Layers List: Crank Layers list.**
  - LMB click will select the layer.
  - RMB click show the context menu.



- **Auto Keyframe:** If checked, crank will auto keyframe a range of frames, based on the. Starting from value 0
- **Ease In:** Ease In frames.
- **Pre Hold:** Pre hold frames before current frame. This are the frames where the value of the sculpt blendshape will be 1.
- **Post Hold:** Post hold frames after the current frame. This are the frames where the value of the sculpt blendshape will be 1.
- **Ease Out:** Ease In frames.
- **Add Sculpt Frame:** Add a new sculpt frame for the selected layers. If there is more than one sculpt for each frame it will and a version index. This can be useful to tackle different areas in the same layer.
- **Add Sculpt Frame:** Edit the selected sculpt frame. In order to edit the frame should be first highlighted in the layer channel box. Only one frame can be edited at the same time.

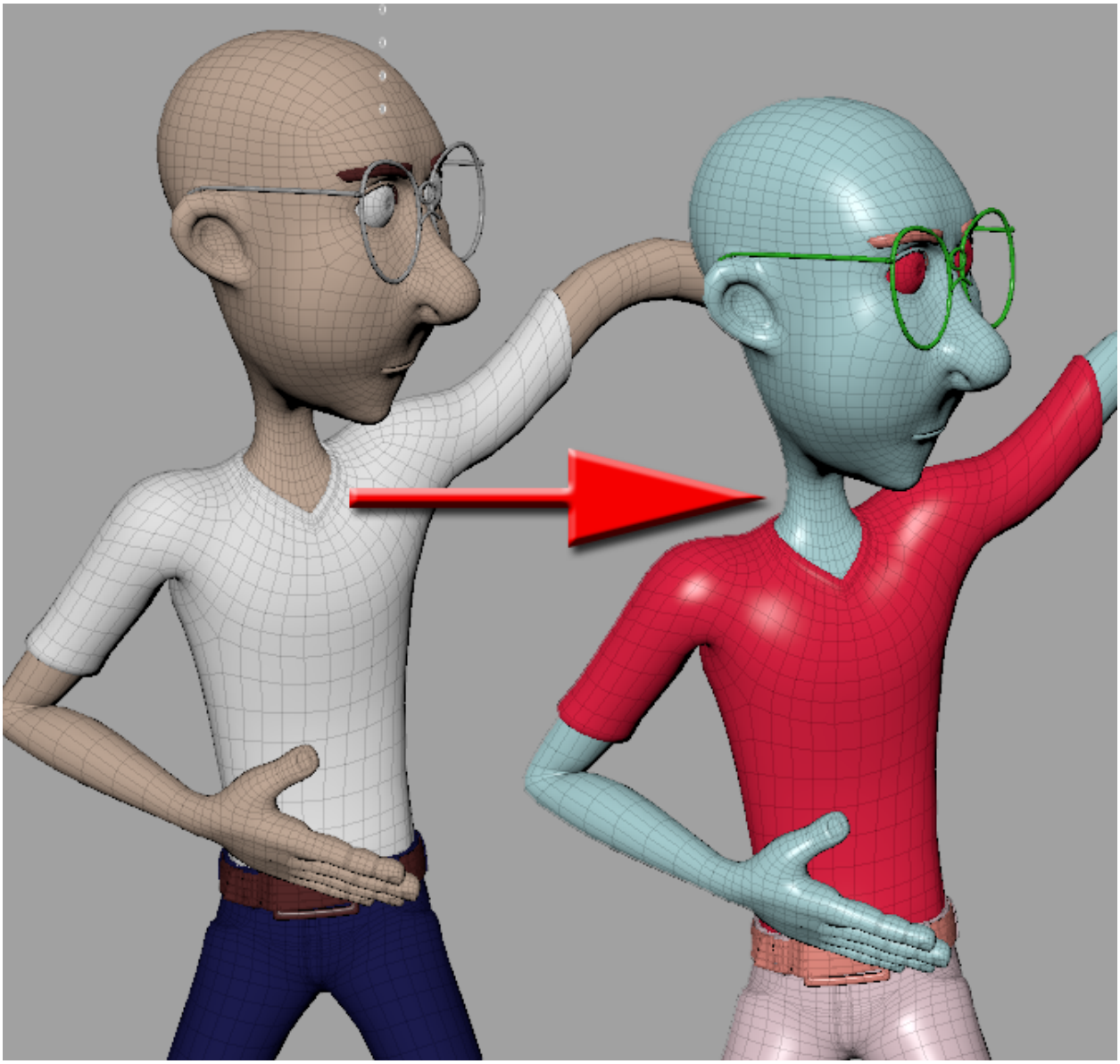
Context Menu:



- **Select Members:** Select the objects affected by the layer.
- **Selected Layer Edit OFF:** Turn off the editing status of the selected layers

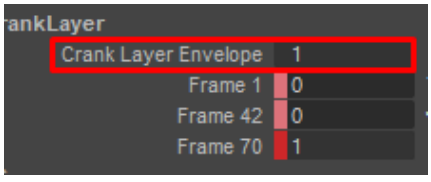
> **Note:** When we add a new sculpt or edit a sculpt frame. The blendshape target of each affected object is set to "Edit" status. To avoid any issue if we forget to set it OFF, a callback is initialized to turn off this edit status if we move the current frame in the timeline.

- **All Layers Edit OFF:** Turn off the editing status of all layers. This is can be also achieved by changing the current frame in the timeline.



- **Random Color + Isolate:** Create a render layer with random color for better visualization. This works based on shading groups, not individual objects.
- **Clear Random Color:** Delete the random color render layer.

WARNING: Currently is not possible to edit (add or remove objects) from a Crank Layer. Also any deleting option have been implemented. in order to deactivate the effect just set the Envelope value of the layer to 0.



CHAPTER 9

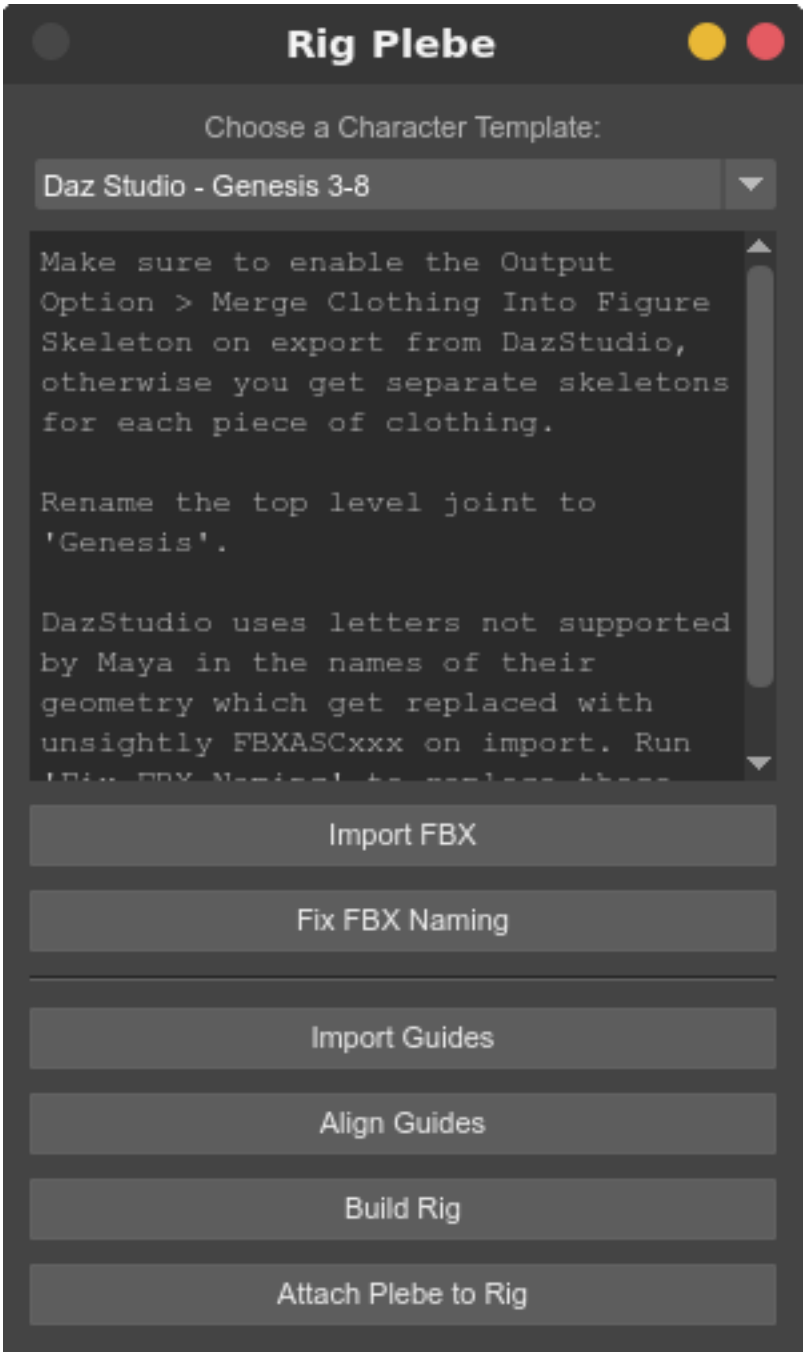
Shifter User Documentation

WIP section: Please visit: mGear Youtube channel

- components
- creating new components
- guides templates and basic rig building
- stepped rig building
- scalability and reusability
- gotchas
- tips

9.1 Plebes - Instant Rigged Characters Using mGear

Plebes is a simple template based tool to quickly rig characters from various character generators, such as DazStudio, Character Creator 3, MakeHuman or Mixamo. What it does is build an mGear rig that matches the proportions of your character, and then constrains the joints of that character to the rig with just a few clicks.



9.1.1 How to Rig Plebes

1) Open Plebes interface from the mGear>Shifter>Plebes... menu.
2) Export the character from the character generator as FBX and bring it into Maya.
3) Select the **Character Template** that matches your character generator.
4) Follow the template specific instructions in the Plebes interface.
5) Press **Import Guides** to import the mGear biped guides.

6) Press **Align Guides** to align the mGear guides to your character's joints.

7) Look over the guides, and manually adjust any that are off (e.g. typically the heel and sides of the feet).

8) Press **Build Rig** to build the rig.

9) Press **Attach Plebe to Rig** to constrain the character to the mGear rig. This also removes any locks, keys/connections and/or limits on the translate, rotate and scale attributes on the character's original joints.

You can delete the rig, adjust the guides and rebuild it, like you can normally with mGear, by simply deleting the "rig" group and running the last two steps again.

Note: Some character generators build their characters with completely straight or misaligned elbows and knees, which makes it impossible for mGear to figure out where to aim the knee or elbow, so you may need to rotate the joints slightly before aligning the guides to them, to make sure they are pointing in the right direction.

9.1.2 Known Limitations

Plebes is meant to quickly rig generic characters, typically for use in the background or for crowd agents, so has some limitations. If you need more of a hero rig, you can use the guide placement as a starting point, but it's probably a good idea to skin the character directly to your mGear joints, rather than using **Attach Plebe to Rig**. Other known limitations include:

- Stretching and scaling of limbs may not work correctly for all templates, though it should work fine for all "normal" animation.
- Some characters come with additional joints, such as face joints, that Plebes does not add any controls to.

9.1.3 Plebe Templates

What gets aligned and constrained to what is defined by simple JSON templates. Plebes ships with templates for the several commonly used character genrators, but should you want to add more or modify the existing ones, you can easily do so. You can define the location of additional templates by defining the environment variable PLEBE_TEMPLATES_DIR. You can have multiple template dirs, so you can add your custom ones from your home folder or project specific ones as needed, just make sure each tamplate has a unique name.

The templates look like this:

```
{
    "help": "This show up when you hover over the template menu.",
    "root": "CC_Base_BoneRoot",
    "guides": [
        {"guide": "CC_Base_BoneRoot"},
        {"neck_C0_tan0": [
            "CC_Base_NeckTwist01",
            "CC_Base_NeckTwist02"
        ]}
    ],
    "settings": [
        {"arm_L0_root": [
            { "div0": 1 },
            { "div1": 1 },
            { "supportJoints": 0}
        ]}
    ],
```

(continues on next page)

(continued from previous page)

```
    "joints": [
        {"local_C0_ctl": {
            "joint": "CC_Base_BoneRoot",
            "constrain": "111"}
        },
        {"spine_C0_0_jnt": {
            "joint": "CC_Base_Hip",
            "constrain": "110"}
        }
    ]
}
```

- **help** - Documentation that shows up in the interface, detaling any specific things you need to do to work with this template.
- **root** - The top level joint/node from the character generator.
- **guides - List of which guides to position at which joints.**
  - If you match it to a list of joints, like with the neck above, it will be placed between them.
- **settings** - Settings to adjust on the guides before building the rig. Typically this is number of twist joints, but can be any attribute and value combination.
- **joints - List of mGear joints and which of the character's joints to constrain to it.**
  - **joint** - Name of the character's joint to constrain to mGear.
  - **constain** - Three 0 or 1's. First is if to point constraint, second is orient and third is scale.

CHAPTER 10

Shifter Component Reference

Shifter comes with over 40 components you can build your rig from. This section covers the functionality and settings of each one in detail.

10.1 Guide Settings

10.2 Main Settings

Settings shared by all components.

- **Name**: The base name of the component, all the parts of the component get renmaed.
- **Side**: Which side the component is on; Left, Right or Center
- **Component Index**: WIP
- **Connector**: WIP

10.2.1 Joint Connection Settings

- **Use Joint Index**: WIP
- **Parent Joint Index**: WIP

10.2.2 Channel Host Settings

- **Host**: The guide that stores the extra attributes for this component, such as IK/FK blendering and more. This will generally be a control_01 component.

10.2.3 Custom Ctonrollers Group

WIP

10.3 Shifter Components

10.3.1 arm_2jnt_01

Two bone arm setup with:

- **IK/FK blending** for switching between animating with IK or FK
- **Roll** attribute that lets you adjust the elbow direction, without moving the pole vector
- **Twist joints** for better deformations around the shoulder and wrist joints
- **Armpit roll** to manually adjust the twist joints around the shoulder joint
- **Scale** of the entire arm
- **Stretching** so the arm can elongate when the IK control is too far away to reach, including a maximum stretch limit
- **Sliding** of the elbow, which elongates the upper arm while shortening the lower arm, or vice versa
- **Softness** to prevent popping when the IK arm is stretched out straight
- **Reverse** to make the arm bend in the opposite direction when using IK
- **Roundness** for rubber hose style animation
- **Volume** preservation during stretching
- **Elbow** controller for accurately positioning the elbow, for instance when a character is resting her elbows on a table
- **Space switchers** for the IK, Up Vector and Elbow controllers that controls which space they follow

This is the default arm comoponent used by the biped template rig.

Guide Positioning

WIP

Compoent Settings

TODO! Should this be tools tips in the interface itself.

- **IK/FK Blender**: Default

Source

Link to Module (how)

10.3.2 arm_2jnt_02

WIP

10.3.3 arm_2jnt_03

WIP

10.3.4 arm_2jnt_04

WIP

10.3.5 arm_2jnt_freeTangents_01

WIP

10.3.6 arm_ms_2jnt_01

WIP

10.3.7 cable_01

WIP

10.3.8 chain_01

WIP

10.3.9 chain_FK_spline_01

WIP

10.3.10 chain_FK_spline_02

WIP

10.3.11 chain_FK_spline_variable_IK_01

WIP

10.3.12 chain_IK_spline_variable_FK_01

WIP

10.3.13 chain_IK_spline_variable_FK_stack_01

WIP

10.3.14 chain_net_01

WIP

10.3.15 chain_spring_01

WIP

10.3.16 chain_stack_01

WIP

10.3.17 chain_whip_01

WIP

10.3.18 control_01

WIP

10.3.19 eye_01

WIP

10.3.20 foot_bk_01

WIP

10.3.21 hydraulic_01

WIP

10.3.22 leg_2jnt_01

WIP

10.3.23 leg_2jnt_02

WIP

10.3.24 leg_2jnt_freeTangents_01

WIP

10.3.25 leg_3jnt_01

WIP

10.3.26 leg_ms_2jnt_01

WIP

10.3.27 lite_chain_01

WIP

10.3.28 lite_chain_stack_01

WIP

10.3.29 meta_01

WIP

10.3.30 mouth_01

WIP

10.3.31 mouth_02

WIP

10.3.32 neck_ik_01

WIP

10.3.33 sdk_control_01

WIP

10.3.34 shoulder_01

WIP

10.3.35 shoulder_02

WIP

10.3.36 shoulder_ms_01

WIP

10.3.37 spine_FK_01

WIP

10.3.38 spine_S_shape_01

WIP

10.3.39 spine_ik_01

WIP

10.3.40 spine_ik_02

WIP

10.3.41 squash4Sides_01

WIP

10.3.42 squash_01

WIP

10.3.43 tangent_spline_01

WIP

10.3.44 ui_container_01

WIP

10.3.45 ui_slider_01

WIP

CHAPTER 11

Synoptic User Documentation

WIP section: Please visit: mGear Youtube channel

- Basic operations
- Space Switcher
- Animation transfer IK/FK

CHAPTER 12

Video Tutorials

WIP section: Please visit: mGear Youtube channel

CHAPTER 13

FAQ

13.1 What is mGear?

mGear is a rigging and animation framework for Autodesk Maya. mGear provides a set of convenient modules, tools and c++ solvers to streamline the development of rigging and animation tools.

13.2 Is mGear a modular rigging system?

Yes, mGear have modular rigging system called **Shifter**.

13.3 Is mGear providing animation tools?

Yes. Synoptic, Crank and softTweaks are animation tools. And we have more in the kitchen.

13.4 Will be always free and open source?

Yes!

13.5 Who can use mGear?

mGear is for everybody who needs to create a rigs or develop rigging tools. For example riggers and animators without programming knowledge can use it out of the box to generate infinite variety of rigs combinations. TDs with Python and C++ knowledge can also extend the functionality and adapt it to her/his needs/pipeline.

13.6 Why mGear's Shifter use custom solvers instead of Maya standard solvers?

The default components provides with **Shifter** are using custom solvers to simplify the rig construction encapsulating complex functionality and improve the playback performance. But you can create your own component without using the custom solvers.

13.7 Does mGear have the same functions/tools of Gear Softimage?

No, mGear doesn't have all the functions that Gear has. Some of the functions will be implemented in the future, some of them never will be implemented. It depends if the tool can be apply to Maya workflow and philosophy.

13.8 What I get out of the box?

- Shifter: Modular rigging system. (Exp: bipeds, quadrupeds, birds, creatures, robots, mechanical props, unlimited limbs, etc...)
- C++ Solvers: High performance rigs.
- Synoptic viewer: Animators interface and picker
- Rigbits: General purpose rigging tools.

13.9 Why should I add mGear to my pipeline?

- mGear is free and open source
- Don't have any license cost, so it is ideal for scalability.
- mGear is production proven tool since 2010 (Softimage Gear 1.0)
- Shifter modular rigging system is easy to learn and fun to use.
- Ready for game engine.

13.10 Who is currently developing mGear?

The mGear Development Team. Please check the website or github for more information.

CHAPTER 14

Release Log

14.1 4.0.9

Enhancements

- Maya 2023 compatible. (OSX and Linux only mgear_solvers are available. WeightDriver and other C++ 3rd party plugins are not yet available)
- Rigbits: Facial Rigger 2.0 BETA (Not yet exposed in menu)
- Shifter Component: Expose Foot roll default value in the component settings
- Shifter: addParamAnim exact name argument
- Shifter: Build log options
- Shifter: Extract controls keep color
- Shifter: Shifter: Improve IK/FK matching for legs + foot
- Shifter_EPIC_components: Joint name descriptions exposes in settings new tab

Bug Fix

- Rigbits: Facial rigger had some issues with Py3
- Shifter: component: chain_IK_spline_variable_FK_01 TypeError
- Shifter: FK/FK Match on Metahuman Leg Broken
- Shifter_EPIC_components: Epic_arm mirrored mid_ctr problem
- Shifter_EPIC_components: EPIC_leg_01 (Right) is broken

14.2 4.0.7

Enhancements

- Rigbits: Channel master external data support and various improvements
- mGear_Core: New env var "MGEAR_PROJECT_NAME" to set the project name in mGear menu
- Shifter: Pebles: Skin transfer and more templates
- Shifter: Data collector option to store data on joint custom attr
- mGear_Core: anim_utils: IK/FK match with keyframe only key the blend value on uiHost

Bug Fix

- Shifter_components: 3jnt_leg: joint flip issue fixed
- Shifter_EPIC_componentsMetahuman template twist flip problem fixed
- Logo missing from installer
- Shifter_EPIC_componentsMetahuman template toes offset IK/FK
- Shifter: custom step path fix for OSX
- mGear_core: Python3 reloadModule error fix

14.3 4.0.3

New Features

- Project is back to mono repository on Github
- Python 3 Support and Maya 2022
- Shifter: Auto-snap for metahuman biped Template
- Shifter: connect to existing joint in the scene
- Shifter: Data collector for IO with other DCCs (Experimental Feature)
- Shifter: New components. Epic mannequin components, chain_ori_loc_01
- Shifter: New/Updated biped template
- Shifter: RGB color support for controls

Enhancements # Rigbits: Removed lagacy facial tools * Anim_picker: Edit picker shape using curves * mGear menu icons * Shifter Component: Meta_01 new option to define how joints are connected * Shifter: Added optional x-ray for controls on Maya 2022 * Shifter: Control_01 leaf joint option (Creates a joint without the ctl) * Shifter: Guides blade new shape and color. Also new attribute to change the size * Shifter: Metahuman and Mannequin templates updated and new naming on controls * Shifter: Naming rule have separated side labels for controls and joints * Shifter: Naming rule support for index padding * Shifter: Updated pole vector FK/IK match

Bug Fix

- General bug fixes in all modules, Python3 compatibility and Maya 2022. More info https://github.com/orgs/mgear-dev/projects/20

14.4 3.7.11

Enhancements

- mgear_dist: New drag and drop installer [mgear_dist#62]
- Shifter: Extending the CustomShifterStep base class functionality. [shifter#109]

- mGear_core: Added meshNavigation.edgeLoopBetweenVertices [mgear_core#77]
- mGear_core: Added create raycast node function in applyop.py [mgear_core#90]

Bug Fix

- Shifter: Error when joint name start with number [shifter#111]
- mGear_core: Bad IKRot rol reference anim_utils.py [shifter#82]
- mGear_core: Remove compile PyQt ui menu command for Maya 2022 compatibility [shifter#81]
- mGear_core: Knots saved in json file and read if they exist [shifter#76]
- Rigbits: Fix missing import in menu.py [rigbits#68]
- Rigbits: rbf manager, import error catch and cleanup [rigbits#73]
- Rigbits: Fix eyebrow joint orientation [rigbits#72]
- Shifter_EPIC_components: Improve joint placement precision on arm, leg and spine. [shifter_epic_components#20]
- Shifter_EPIC_components: Fixed relation dict value of "knee" in EPIC_leg_01 which causes building failure in certain cases. [shifter_epic_components#19]

14.5 3.7.8

New Features

- CFXbits: Xgen IGS boost: New tool to create curve based grooming with xgen interactive grooming splines [cfxbits#1]
- mGear solvers: New matrixConstraint node [mgear_solvers#5]
- mGear_core: Add support for drag n drop of mGear filetypes, .sgt [mgear_core#79]
- mGear_core: Deformer weight IO module [mgear_core#75]
- mgear_dist: Drag and Drop easy installer [mgear_dist#56]
- Shifter: Configurable naming template. [shifter#83]
- Shifter: Joint orientation options. [shifter#73]
- Shifter: Plebes (a tool for rigging character generator characters with mGear). [shifter#96]
- Shifter_EPIC_components: New set of componets specially design for Unreal engine and Games in general.

Enhancements

- mGear_core: General update to add CFXbits required functions [mgear_core#63]
- mGear_core: Skinning mismatch vertex warning should include the name of the object [mgear_core#63]
- Shifter: Add support for #_blade in chain coponents. [shifter#107]
- Shifter: Attributes naming using component short name(instance Name) not component type name. [shifter#95]
- Shifter: IO return shifter rig object for NXT tools integration. [shifter#94]
- simpleRig: Improve automatic hierarchy creation [simpleRig#8]

Bug Fix

- Anim Picker: Create picker improvements [anim_picker#21]
- Anim Picker: Duplicate behavior creates instances [anim_picker#24]
- Anim Picker: Duplicating pickers, spacing issue [anim_picker#22]
- Anim Picker: Fail gracefully when space switch controls are not found [anim_picker#33]
- Anim Picker: save overlay offset when change windows size [anim_picker#19]
- Anim Picker: UI buttons hidden in OSX [anim_picker#34]
- Animbits: Channel Master: Channel Master: Sync with Graph editor. [animbits#54]
- Animbits: Channel Master: sync selected channels in graph editor. [animbits#55]
- mGear solvers: added in the clamp values for the squash and stretch node [mgear_solvers#6]
- mGear_core: anim_utils: improve IK FK match pole vector calculation [mgear_core#65]
- mGear_core: Attribute module new functions: Make it work with control custom names [mgear_core#62]
- mGear_core: Mirro/flip pose not working with custom names [mgear_core#71]
- mGear_core: Mirror/flip pose fail [mgear_core#70]
- mGear_core: QApplication instance dont have widgetAt method on Maya 2020 [mgear_core#66]
- mGear_core: shifter_classic_components repeatedly added to sys.path [mgear_core#69]
- mGear_core: Stripe pipes from skinCluster names [mgear_core#64]
- mgear_dist: Incorrect grammar in UI [mgear_dist#26]
- mgear_dist: update menus to str command [mgear_dist#53]
- Rigbits: Add attr ctrl tweaks [rigbits#60]
- Rigbits: Add control and tweaks module controls need to create “isCtrl” control tag [rigbits#50]
- Rigbits: Facial rigger is compatible with Shifter’s game tools [rigbits#37]
- Rigbits: Mirror controls required target shape to exist [rigbits#56]
- Rigbits: RBF manager mirror with custom names [rigbits#63]
- Shifter: Game tools fix connection issue with new matrix constraint node. [shifter#108]
- Shifter: Game tools is not disconnecting all the connections between rig and model. [shifter#68]
- Shifter: Guide component scale inconsistency at creation time. [shifter#97]
- Shifter: replaces backslashes with forward slashes for Mac OS. [shifter#101]
- Shifter: Set by default Force uniform scaling to ON. [shifter#79]
- Shifter_classic_components: Change on Shifter leg_2jnt_tangent component settings UI [shifter_classic_components#81]
- Shifter_classic_components: Control_01 component space switching with mgear viewport menu [shifter_classic_components#82]
- Shifter_classic_components: Fix for issue “Menu: Ctrl+Shift results in broken shelf items” [shifter_classic_components#87]

WARNING

- mgear_dist: dropping support for Maya 2017 and older [mgear_dist#60]

14.6 3.6.0

New Features

- Shifter_classic_components: chain_spring_lite_stack_master_01: New component [shifter_classic_components#79]

Enhancements

- Anim Picker: Add create picker menu items based on selection [anim_picker#18]
- Anim Picker: Make select controls display more noticeable [anim_picker#16]
- Animbits: Channel Master: Add channels from any section in ChannelBox. [animbits#50]
- Animbits: Channel Master: Auto color options. [animbits#51]
- Animbits: Channel Master: option to configure channel order. [animbits#37]
- Animbits: Channel Master: Turn off real time update on scrubbing. [animbits#51]
- Animbits: Channel Master: Use selected channels for copy/paste keyframes. [animbits#52]
- Animbits: softTweak: add surface fallof option [animbits#53]
- mGear_core: attribute module new functions: get_selected_channels_full_path + collect_attrs [mgear_core#56]
- Shifter: Add Joint Names parameter for customizing joint names in guide settings. [shifter#85]
- Shifter_classic_components: lite_chain_stack_02 component: add blend option to turn off the connection [shifter_classic_components#78]

Bug Fix

- Animbits: Channel Master: Blendshape node channels bug. [animbits#49]
- Shifter: Importing old guides with missing parameters error. [shifter#69]

14.7 3.5.1

Bug Fix

- mGear_core: When copy skin, match the skinningMethod as well [mgear_core#55]
- Rigbits: RBF Manager mirror bug with Flex Add_attribute [rigbits#54]

14.8 3.5.0

New Features

- Animbits: Channel Master [animbits#14]
- Shifter: Auto Fit Guide (Beta preview). [shifter#82]

Enhancements

- Anim Picker: Make select controls display more noticeable [anim_picker#16]

Bug Fix

- Anim Picker: CentOS and windows Maya 2019/2020 TypeErrorr [anim_picker#15]

- mGear_core: dagmenu error when parent switch with keys on and rig with namespace [mgear_core#53]
- mGear_core: Fix loop crash when quering tag childrens [mgear_core#52]
- mGear_core: Fixed path handling in exportSkinPack if it is called with arguments. [mgear_core#37]
- mGear_core: getRootNode doesn't find the root correctly [mgear_core#51]
- mGear_core: Mirror function causes tag attributes to mirror their content [mgear_core#47]
- mGear_core: Parent switch dag menu not working when root node is parented under a non referenced hearachy. [mgear_core#48]

14.9 3.4.0

New Features

- Anim Picker: New Animation Picker [anim_picker#2]
- mGear_core: mGear viewport menu [mgear_core#38]
- Rigbits: SDK Manager [rigbits#42]
- Shifter_classic_components: SDK manager special component [shifter_classic_components#75]

14.10 3.3.1

Bug Fix

- Rigbits: Facial rigger tools QT aligment argument [rigbits#44]

14.11 3.3.0

New Features

- Shifter_classic_components: Cable component [shifter_classic_components#73]
- Shifter_classic_components: UI_slider and UI_container component [shifter_classic_components#66]
- Rigbits: New eyebrow Rigger [rigbits#40]

Enhancements

- Shifter_classic_components: Control_01: Expose more space switch options [shifter_classic_components#7]

14.12 3.2.1

Enhancements

- Shifter_classic_components: arm_2jnt_04: wrist align and plane normal [shifter_classic_components#58] [shifter_classic_components#59]
- Shifter_classic_components: S_Spine change the relative connections [shifter_classic_components#67]
- mGear_core: Added 2D guide root for Shifter components [mgear_core#36]

- Shifter: Build log window clears instead of reopening. [shifter#74]

Bug Fix

- Shifter: Fixed a guide renaming issue. [shifter#71]
- Shifter: Renamed Connexion to Connection in some places.. [shifter#75]
- Shifter: Renaming components will fail if the names are not unique. [shifter#70]
- Shifter_classic_components: foot_bk_01 component roll_ctrl issue [shifter_classic_components#68]
- Shifter_classic_components: Visual axis reference for control_01 and arm_2jnt_04 is not scaling correctly [shifter_classic_components#57]
- Shifter_classic_components: Fixes building of chain_01 when set to IK only [shifter_classic_components#65]
- Shifter_classic_components: spine_S_shape rename bug [shifter_classic_components#50]
- mGear_core: dag.findComponentChildren2 fails after a rig was built. [mgear_core#32] [mgear_core#35]
- mGear_core: QDragListView ignores drop event on self [mgear_core#34][mgear_core#33]

14.13 3.2.0

New Features

- Animbits: Animation GPU cache manager [animbits#11]
- Rigbits: New Facial Rigger [rigbits#28][rigbits#27][rigbits#64][rigbits#33][rigbits#32]
- Shifter_classic_components: new arm and leg with elbow and knee thickness control [shifter_classic_components#55]
- Shifter_classic_components: New component arm_2jnt_03 with align wrist with guide option [shifter_classic_components#53]
- Shifter_classic_components: New component mouth_02 [shifter_classic_components#51]

Enhancements

- Rigbits: Mirror Controls Shape Tool [rigbits#25]
- Rigbits: RBF manager updated with support for non-control objects [rigbits#31]
- Shifter_classic_components: control_01, arm_2jnt_04 add orientation visual feedback [shifter_classic_components#54]

14.14 3.1.1

New Features

- shifter_classic_components: New Component: chain_IK_with_variable FK and stack connection [shifter_classic_components#43]
- shifter_classic_components: New Component: chain_net_01 [shifter_classic_components#42]
- shifter_classic_components: new component: Lite chain stack [shifter_classic_components#40]

Enhancements

- mgear_core:implemented filesize compression for jSkin and gSkin (pull request #28)

- Rigbits: Update tweakers modules [rigbits#18]
- Shifter: add optional uihost argument on addAnimParam and addAnimEnumParam [shifter#60]
- Shifter: avoid negative scaling in joints [shifter#59]
- Shifter: inspect settings open tap option [shifter#62]
- Shifter: Shared custom step fix color feedback and hover information [shifter#57]
- shifter_classic_components: chain_net_01: improve pickwalk [shifter_classic_components#47]
- shifter_classic_components: Chains with stack connection should have connection offset options [shifter_classic_components#46]
- shifter_classic_components: Review channel hosts for stack connection chains [shifter_classic_components#44]
- simpleRig: handle geometry selection option when convert to shifter rig [simpleRig#6]
- Synoptic: Fix refresh needed on togglButtons and on visibility/control tabs [synoptic#13]

Bug Fix

- mgear_core: attribute module log error wrong flags [mgear_core#29]
- shifter_classic_components: chain FK with variable IK the extreme controls should not be on 0 or 1.0 of the path [shifter_classic_components#45]

14.15 3.0.5

Bug Fix

- mGear_core: Attribute: moveChannel doesn't support float attr [mgear_core#27]
- mGear_core: Callback manager: UserTimeChangedManager change condition state to playingBackAuto [mgear_core#28]
- Rigbits: Eye rigger and Lips Rigger bad naming in rig curves [rigbits#21]
- Shifter: Export guide to template (.sgt) will break component parent references if name is not unique [shifter#58]

14.16 3.0.4

Bug Fix

- Synoptic: Fix refresh needed on togglButtons and on visibility/control tabs [synoptic#13]
- mGear_core: Node: controller_tag_connect fail if ctl parent doesn't have tag [mgear_core#24]
- Shifter_classic_components: Eye component update structure [shifter_classic_components#39]
- Shifter_classic_components: Spine FK: fisrt joint moving with IK chest control [shifter_classic_components#38]
- Shifter: custom step template still have old name import [shifter#56]
- Rigbits: hotkey creation command has bad imports [rigbits#19]
- Shifter: serialized guide with none parent components issue [shifter#55]
- Rigbits: Ghost control creator and Tweaks should handle ctrl Tag and custom pickwalk [rigbits#20]

14.17 3.0.3

New Features

- Flex: Flex is the mGear models (geometry) update tool inside rigs.
- Shifter: Build Rig from file [shifter#20]
- Shifter: Game Tools, for decouple deform and control rig [shifter#6]
- Shifter: Guide Relative placement [shifter#14]
- Shifter: Guide serialization to json
- Shifter: New Guide manager
- Shifter: Serialized Diff Tool
- Shifter: Serialized Guide Explorer
- Shifter_classic_components: New Component: Chain FK spline with variable IK controls [shifter_classic_components#26]
- Shifter_classic_components: New Component: Chain IK spline with variable FK controls [shifter_classic_components#30]
- Shifter_classic_components: New Component: Chain Stack [shifter_classic_components#32]
- Shifter_classic_components: New Component: shoulder_02 [shifter_classic_components#25]
- Shifter_classic_components: New Component: Spine FK [shifter_classic_components#31]
- Shifter_classic_components: New Component: Tangent_spline_01 [shifter_classic_components#28]
- Shifter_classic_components: New Component: Whip chain [shifter_classic_components#27]

Enhancements

- Animbits: softTweak: make UI dockable [animbits#8]
- Crank: Make UI dockable [crank#3]
- Crank: Shot Sculpting tool, General update initial Goals [crank#1]
- mGear_core: attribute: FCurveParamDef should store the samples from getFCurveValues [mgear_core#12]
- mGear_core: attribute: ParamDef: Dict serialisation [mgear_core#11]
- mGear_core: pyQt: showDialog option to make windows dockable [mgear_core#6]
- mGear_core: Skin module: Review it and update use Json and pickle [mgear_core#20] [mgear_core#23]
- Shifter: Custom step list. Visual cue for shared custom step [shifter#51]
- Shifter: FCurveParamDef should store the samples from getFCurveValues in value of paramDef [shifter#26]
- Shifter: update menu with new functionalities [shifter#37]
- Shifter: Update modal position menu to QT modern version [shifter#46]
- Shifter_classic_components: add new upv roll control to arm_2jnt [shifter_classic_components#36]
- Shifter_classic_components: Add UniScale option for games compatible [shifter_classic_components#9]
- Shifter_classic_components: arm_2jnt_01 and leg_2jnt_01: Make optional the extra support joint in the articulations [shifter_classic_components#3]

API Changes

- mgear_dist: Modularisation of mgear [mgear_dist#11]

Bug Fix

- mGear_core: Attribute: channelWrangler apply config from script fails due to attributeError [mgear_core#21]
- mGear_core: curve: create_curve_from_data_by_name should not take the name from the first shape [mgear_core#17]
- mGear_core: curve: importing curve while rebuild hierarchy will fail if the parent object don't have unique name [mgear_core#18]
- Rigbits: Duplicate symmetry bad import string [Rigbits#13]
- Rigbits: Replace Shape Command doesn't handle if the target object have input connections in the shape [Rigbits#12]
- Shifter: Component connector: standard fallback [shifter#27]
- Shifter: Component space references: add checker for space references names [shifter#16]
- SimpleRig: re-import configuration dont link unselectable geometry [simpleRig#1]

14.18 2.6.1

New Features

- Animbits: Crank shot sculpt [mgear#233]
- Rigbits: RBF Manager: support for non-control objects [mgear#228]

14.19 2.5.24

New Features

- mGear: IO curves [mgear#76]
- Rigbits: RBF Manager [mgear#183]
- Rigbits: set driven key module [mgear#160]
- Simple Rig: 2.0 [mgear#163]
- Synoptic: Control lister Tab [mgear#99]
- Synoptic: geometry visibility manager Tab [mgear#130]
- Synoptic: Spine IK <–> FK animation transfer [mgear#169]

Enhancements

- Animbits: SoftTweak tool update [mgear#167]
- mGear: skin: copy skin [mgear#168]
- Shifter: chain_FK_spline_01: keep length multiplayer channel [mgear#199]
- Shifter: chain_FK_spline_02: add extra Tweak option [mgear#202]
- Shifter: component ctrlGrp should be inherit from parent component [mgear#181]

- Shifter: Component Lite chain and chain FK spline mirror auto pose configuration if override negate axis direction in R [mgear#198]
- Shifter: Component Lite chain and chain FK spline mirror auto pose configuration if override negate axis direction in R [mgear#198]
- Shifter: Control_01: lock sizeRef axis [mgear#156]
- Shifter: Custom Step List: Highlight Background quicksearch [mgear#203]
- Shifter: Lock joint channels if "separated joint structure" is unchek [mgear#182]
- Shifter: Make not keyable the joints channel if jnt_org is checked [mgear#188]
- Shifter: neck_ik: add option to orient IK to world space [mgear#159]
- Shifter: Partial build skip custom steps [mgear#154]
- Shifter: spine_S_Shape: add option to orient IK to world space [mgear#164]
- Shifter: Turn on/off custom steps [mgear#189]

Bug Fix

- mGear: curve.addCnsCurve: modify the center list in some situations [mgear#172]
- Rigbits: Blended Gimmick joints bad naming with multy selection [mgear#153]
- Shifter: 3jnt leg roundness att for knee and ankle [mgear#144]
- Shifter: add_controller_tag. Fail on Maya old versions [mgear#187]
- Shifter: Component: spine_IK_02: Last FK control don't have correct attr [mgear#161]
- Shifter: Controller tag lost if export selection the rig [mgear#175]
- Shifter: Joint connection: Maya evaluation Bug [mgear#210]
- Shifter: leg_2jnt and leg _2jnt_freetangents not taking max stretch default setting [mgear#162]
- Shifter: Spine S Shape: bad build with offset on fk controls [mgear#146]
- Simple Rig: BBox computation fails with lights [mgear#212]
- Synoptic: IK/FK transfer doesn't save keyframes on blend channel [mgear#180]
- Synoptic: IK<->FK transfer strange refresh [mgear#173]

Known Issues

- Shifter: Undo Build from selection crash maya. Now flush Undo to avoid possible crash [mgear#74]

14.20 2.4.2

Bug Fix

- Animbits: SoftTweak root lost relative position to parent [mgear#143]

14.21 2.4.1

Bug Fix

- Shifter: Rotation inverted on joints with negative scale [mgear#142]

14.22 2.4.0

New Features

- Animbits: SoftTweaks tool [mgear#133]
- LINUX: Maya 2018 solvers
- Rigbits: Eye rigger tool [mgear#127]
- Rigbits: Lips Rigger tool [mgear#128]
- Shifter: New Component: Chain FK spline Component [mgear#104]
- Shifter: New Component: Lite FK chain [mgear#115]
- Shifter: New Component: Spine_S_shape [mgear#96]

Enhancements

- Shifter: Add alias names for space references [mgear#110]
- Shifter: Add visual crv connection for the upVector controls [mgear#124]
- Shifter: arm and leg 2jnt: add optional controls x Joint [mgear#114]
- Shifter: chain_FK_spline: add option to control visibility of controls [mgear#136]
- Shifter: Hide controls on Playback rig setting [mgear#131]
- Shifter: Improve parallel evaluation [mgear#123]
- Shifter: Lite_chain and Chain_FK_spline. Option to override side negation [mgear#139]
- Shifter: Neck_ik_01: add option to have only IK space reference [mgear#132]
- Shifter: Review rollspline solver precision values [mgear#138]
- Shifter: Set all controls shape to d1 curves [mgear#118]
- Shifter: Set to False the default use of uniscale in joints [mgear#117]
- Shifter: Update component with Proxy attributes [mgear#111]

Bug Fix

- Shifter: Bindpose bug with custom controllers grp [mgear#134]
- Shifter: Component addJnt error if negative scaling [mgear#141]
- Shifter: Extracted controls doesn't clean shape name [mgear#135]
- Shifter: leg_2jnt_01 maxStretch setting is lost at build time [mgear#140]
- Shifter: Maya 2018.2 flip in leg_2jnt_01 component [mgear#125]

14.23 2.3.0

Enhancements

- mGear: Attribute: addAttribute not setting default attribute value. [mgear#84]
- mGear: Attribute: update with lock and unlock attribute functions [mgear#83]
- mGear: PEP8 Style Refactor [mgear#100]
- mGear: Refactor all exception handling [mgear#88]

- mGear: Vendoring QT [mgear#89]
- Shifter: Build command review and log popup window [mgear#73]
- Shifter: Change Global_C0_ctl to World_ctl [mgear#66]
- Shifter: Control_01: Add option to have mirror behaviour [mgear#68]
- Shifter: Improve rig build speed [mgear#65]
- Shifter: Leg_2jnts_freeTangents_01:no ikFoot in upvref attribute [mgear#62]
- Shifter: Reload components in custom path [mgear#78]
- Shifter: Update guide structure in pre custom step [mgear#101]
- Simple Rig: Update functionality revision [mgear#71]
- Synoptic: spring bake util [mgear#61]

Bug Fix

- Rigbits: createCTL function issue [mgear#59]
- Rigbits: export skin pack error with crvs [mgear#56]
- Rigbits: skin: There is a case in exportSkin function breaks the existing file [mgear#58]
- Shifter: 3 joint leg: soft Ik range min in graph editor [mgear#82]
- Shifter: arm_2jnt_freeTangents_01 no attribute 'rollRef' [mgear#63]
- Shifter: Arms auto upvector and shoulder space jump [mgear#85]
- Shifter: Chain_spring_01: pop if manipulate FK ctl after Bake [mgear#75]
- Shifter: Connect Ctl_vis [mgear#103]
- Shifter: Control_01: rotation axis is missing Y lock [mgear#74]
- Shifter: Japanese Ascii [mgear#79]
- Shifter: Spring chain: lock control parent and bake spring bug [mgear#67]
- Shifter: Synoptic: IK/FK Match with arm_ms_2jnt_01 [mgear#80]

Known Issues

- Shifter: Undo Build from selection crash maya [mgear#74]

14.24 2.2.4

Enhancements

- Shifter: Global scale and size of controllers. [mgear#50]

14.25 2.2.3

Enhancements

- Shifter: Custom Steps: Added Stop Build and Try again option if step fail.[mgear#43]

Bug Fix

- Synoptic: Match IK/FK with split ctl for trans and rot [mgear#54]

14.26 2.2.2

Enhancements

- Shifter: Components: Legs: Mirror axis behavior on upv and mid ctl [mgear#47]
- Shifter: Componets: Arms: IK ctl mirror behaviour [mgear#48]
- Shifter: arm roll new reference connector [mgear#53]

Bug Fix

- Shifter: component UI min division hang. Check all components [mgear#42]
- Shifter: quadruped rig not being created in 2018 [mgear#44]
- Shifter: Close settings Exception on Maya 2018: Note: This is a workaround. The issue comes from Maya 2018 [mgear#49]

14.27 2.2.1

Bug Fix

- Shifter: Component: Hydraulic: Fix bad reference connector
- Docs: Text error fix
- Shifter: Text error fix

14.28 2.2.0

New Features

- Maya 2018 compatible
- Simple autorig This a new rigging sytem for basic props.
- Channel Wrangler: Channel manager with export import options.

Enhancements

- Synoptic: key/select all for custom widgets
- Skin IO: IO skin for curves & nurbs
- Skin IO: Now can export with Skin Packs. Every object will be in a separated file.
- Shifter: custom Sets: Now is possible to add custom sets to shifter components
- Shifter: Now all the controls are Tag as a control (> Maya 2016.5)
- Shifter: Custom Rig controls navigation
- Shifter: Custom steps IO to JSON file.
- Shifter: Componente: Chain_01: Non uniform scaling for FK controls
- Shifter: Now the controls have unchecked historical interest from ctl shapes for cleaner channel box
- Rigbits: Now replace shape support multiple shapes
- mGear: Menu updated with about info and useful links

- mGear: Added support for RGB color on icons/Controls

Bug Fix

- Shifter: component: freetangent arm and leg: Fixed joint offset in the extremes
- General: Fixed bad parenting for PySide dialogs.

14.29 2.1.1

New Features

- mGear solvers: New vertex position node. This node gets the vertex position in worldspace.
- Rigbits: New rigging commont library with toos and functions to help the rigging system. This library is meant to be use with custom steps or other rigging tools.
- Shifter: Components: New Components from Miles Cheng "arm_ms_2jnt_01", "shoulder_ms_2jnt_01" and "leg_ms_2jnt_01"
- Shifter: Components: New enviroment variable: MGEAR_SHIFTER_COMPONENT_PATH (only project components)
- Shifter: Custom Step: New enviroment variable: MGEAR_SHIFTER_CUSTOMSTEP_PATH to stablish relative paths for the custom steps data.
- Shifter: New Channel naming options

Improvements

- Improved error logging for custom steps and Synoptic.
- Shifter: Clean up jnt_org empty groups after rig build.
- Shifter: Components: Updated neck with optiona tangent controls.
- Shifter: Components: Arm have a new option to separate the IK controls in rotation and translation control
- Shifter: Components: Control extraction name buffer to avoid name clashing for ctl extraction on guides
- Shifter: Components: Pin elbow/knee
- Shifter: Components: Spine updated: Autobend optional control and optional mid tangent control
- Shifter: Components: Arms mid ctl and upv with optinal mirror behaviour.
- Shifter: Custom step using class implementation
- Shifter: Track information (rig Asset, components used version and mGear version)
- Synoptic: General visual and structure improvement. Big Thanks to Yamahigashi-san.
- Synoptic: IK/FK animation transfer
- Shifter: Updated biped guide
- Shifter: Updated Quadruped guide

Bug Fix

- Bad layout on setting windows with HDPI displays.
- Shifter: Components: General clean up and bug fixing (Please check github commint for more info).
- Issue mgear#9 leg_3jnt: Flip offset rz double connection
- Issue mgear#13 Chain_01 IK refs not being connected

14.30 2.0

New Features

- Custom enviroment variables for synoptic: MGEAR_SYNOPTIC_PATH
- cvWrap deformer included.
- Gimmick joints basic tools
- Mocap HumanIK mapping tool for standard Shifter biped
- New Component settings view.
- New Documentation
- New licensing under MIT license terms.
- Pre and Post custom Steps.
- Shifter: Modular rigging sytem rebranded.
- Shifter: Quadrupeds template and new leg component for 3 bones legs.
- Shifter: Single Hierarchy Joint connexion
- Shifter: Update Guides Command.
- Synoptic view Updated.

Inprovements

- Component guides will snap to parent position at creation time.
- Duplicate symmetry can find partial chain names. Is not needed to duplicate from the top root of the branch.
- Groups and dag pose connected to rig base node. This will avoid lost elements if we export selection.
- Guide Blades have new attr to control the roll offset
- mGear version and other useful information in guide root.
- Newly created guide components automatic update of the side and uiHost from the parent attributes.
- Shifter componets full review and functions unified.

CHAPTER 15

License

MGEAR is under the terms of the MIT License

CHAPTER 16

Indices and tables

- genindex
- modindex
- search

Python Module Index

m

mgear, 157
mgear.animbits, 30
mgear.animbits.cache_manager, 26
mgear.animbits.cache_manager.collapse_widget, 24
mgear.animbits.cache_manager.model, 24
mgear.animbits.cache_manager.query, 24
mgear.animbits.channel_master_node, 26
mgear.animbits.channel_master_utils, 28
mgear.animbits.menu, 29
mgear.animbits.version, 30
mgear.cfxbits, 33
mgear.cfxbits.menu, 33
mgear.cfxbits.version, 33
mgear.cfxbits.xgenboost, 33
mgear.cfxbits.xgenboost.xgen_handler, 32
mgear.core, 102
mgear.core.applyop, 33
mgear.core.attribute, 39
mgear.core.callbackManager, 47
mgear.core.curve, 51
mgear.core.dag, 55
mgear.core.fcurve, 58
mgear.core.icon, 58
mgear.core.log, 67
mgear.core.meshNavigation, 67
mgear.core.node, 69
mgear.core.pickWalk, 75
mgear.core.primitive, 78
mgear.core.pyFBX, 81
mgear.core.six, 85
mgear.core.skin, 90
mgear.core.string, 91
mgear.core.transform, 92
mgear.core.utils, 98
mgear.core.vector, 99
mgear.core.version, 101
mgear.core.wmap, 101
mgear.crank, 103
mgear.crank.crank_ui, 102
mgear.crank.menu, 103
mgear.crank.version, 103
mgear.flex, 114
mgear.flex.analyze, 103
mgear.flex.analyze_widget, 103
mgear.flex.attributes, 104
mgear.flex.colors, 104
mgear.flex.decorators, 104
mgear.flex.flex_widget, 105
mgear.flex.menu, 105
mgear.flex.query, 106
mgear.flex.update, 110
mgear.flex.update_utils, 112
mgear.flex.version, 114
mgear.menu, 156
mgear.rigbits, 134
mgear.rigbits.blendShapes, 119
mgear.rigbits.cycleTweaks, 119
mgear.rigbits.ghost, 121
mgear.rigbits.menu, 121
mgear.rigbits.postSpring, 122
mgear.rigbits.proxySlicer, 122
mgear.rigbits.rivet, 123
mgear.rigbits.rope, 123
mgear.rigbits.sdk_io, 123
mgear.rigbits.sdk_manager, 119
mgear.rigbits.sdk_manager.core, 115
mgear.rigbits.six, 126
mgear.rigbits.tweaks, 131
mgear.rigbits.utils, 134
mgear.rigbits.version, 134
mgear.shifter_classic_components, 149
mgear.shifter_epic_components, 152
mgear.simpleRig, 153
mgear.simpleRig.menu, 152
mgear.simpleRig.version, 152
mgear.vendor, 156

mgear.vendor.qjsonmodel, 155
mgear.vendor.Qt, 154
mgear.version, 157

Index

A

aboutMgear() (*in module mgear.core*), 102
AbstractBasicAuthHandler (*mgear.core.six.Module_six_moves_urllib_request attribute*), 86
AbstractBasicAuthHandler (*mgear.rigbits.six.Module_six_moves_urllib_request attribute*), 128
AbstractDigestAuthHandler (*mgear.core.six.Module_six_moves_urllib_request attribute*), 87
AbstractDigestAuthHandler (*mgear.rigbits.six.Module_six_moves_urllib_request attribute*), 128
add2DChain() (*in module mgear.core.primitive*), 78
add2DChain2() (*in module mgear.core.primitive*), 79
add_attribute() (*in module mgear.flex.update_utils*), 112
add_controller_tag() (*in module mgear.core.node*), 69
add_item() (*mgear.flex.analyze_widget.FlexAnalyzeDialog method*), 103
add_metaclass() (*in module mgear.core.six*), 88
add_metaclass() (*in module mgear.rigbits.six*), 129
add_mirror_config_channels() (*in module mgear.core.attribute*), 42
add_move() (*in module mgear.core.six*), 88
add_move() (*in module mgear.rigbits.six*), 129
addAttribute() (*in module mgear.core.attribute*), 40
addbase (*mgear.core.six.Module_six_moves_urllib_response attribute*), 88
addbase (*mgear.rigbits.six.Module_six_moves_urllib_response attribute*), 129
addBlendedJoint() (*in module mgear.rigbits*), 134
addclosehook (*mgear.core.six.Module_six_moves_urllib_response attribute*), 88
addclosehook (*mgear.rigbits.six.Module_six_moves_urllib_response attribute*), 129
addCnsCurve() (*in module mgear.core.curve*), 51
addColorAttribute() (*in module mgear.core.attribute*), 40
addCurve() (*in module mgear.core.curve*), 51
addEnumAttribute() (*in module mgear.core.attribute*), 41
addFCurve() (*in module mgear.core.attribute*), 41
addIkHandle() (*in module mgear.core.primitive*), 79
addinfo (*mgear.core.six.Module_six_moves_urllib_response attribute*), 88
addinfo (*mgear.rigbits.six.Module_six_moves_urllib_response attribute*), 129
addinfourl (*mgear.core.six.Module_six_moves_urllib_response attribute*), 88
addinfourl (*mgear.rigbits.six.Module_six_moves_urllib_response attribute*), 129
addJnt() (*in module mgear.rigbits*), 135
addJoint() (*in module mgear.core.primitive*), 80
addJointFromPos() (*in module mgear.core.primitive*), 80
addLocator() (*in module mgear.core.primitive*), 80
addLocatorFromPos() (*in module mgear.core.primitive*), 81
addNamespace() (*mgear.core.callbackManager.CallbackManager method*), 48
addNPO() (*in module mgear.rigbits*), 135
addProxyAttribute() (*in module mgear.core.attribute*), 42
addSupportJoint() (*in module mgear.rigbits*), 135
addTransform() (*in module mgear.core.primitive*), 81
addTransformFromPos() (*in module mgear.core.primitive*), 81
aimCns() (*in module mgear.core.applyop*), 33
alignToPointsLoop() (*in module mgear.rigbits*), 135
appendChild() (*mgear.vendor.qjsonmodel.QJsonTreeItem method*), 156
arrow() (*in module mgear.core.icon*), 58
as_pynode() (*in module mgear.core.utils*), 98
assertCountEqual() (*in module mgear.core.six*), 88

assertCountEqual() (*in module mgear.rigbits.six*), 129
assertNotRegex() (*in module mgear.core.six*), 88
assertNotRegex() (*in module mgear.rigbits.six*), 129
assertRaisesRegex() (*in module mgear.core.six*), 88
assertRaisesRegex() (*in module mgear.rigbits.six*), 129
assertRegex() (*in module mgear.core.six*), 88
assertRegex() (*in module mgear.rigbits.six*), 129
attributeChanged() (*mgear.core.callbackManager.AttributeChangedManager method*), 47
attributeChangedCB() (*in module mgear.core.callbackManager*), 49
attributeChangedCB() (*mgear.core.callbackManager.CallbackManager method*), 48
AttributeChangedManager (*class in mgear.core.callbackManager*), 47
attributes (*mgear.core.callbackManager.AttributeChangedManager attribute*), 47
attributes (*mgear.core.callbackManager.UserTimeChangedManager attribute*), 49
average_curve() (*in module mgear.core.curve*), 52
axis() (*in module mgear.core.icon*), 58

B

b() (*in module mgear.core.six*), 88
b() (*in module mgear.rigbits.six*), 129
bake_spring() (*in module mgear.rigbits.postSpring*), 122
BaseHandler (*mgear.core.six.Module_six_moves_urllib_request attribute*), 87
BaseHandler (*mgear.rigbits.six.Module_six_moves_urllib_request attribute*), 128
bboxCenter() (*in module mgear.core.meshNavigation*), 67
bBoxData() (*in module mgear.core.meshNavigation*), 67
Blade (*class in mgear.core.vector*), 99
blendshape_foc() (*in module mgear.rigbits.blendShapes*), 119
build_opener (*mgear.core.six.Module_six_moves_urllib_request attribute*), 87
build_opener (*mgear.rigbits.six.Module_six_moves_urllib_request attribute*), 128
build_rope() (*in module mgear.rigbits.rope*), 123
build_spring() (*in module mgear.rigbits.postSpring*), 122

C

CacheFTPHandler (*mgear.core.six.Module_six_moves_urllib_request attribute*), 87
CacheFTPHandler (*mgear.rigbits.six.Module_six_moves_urllib_request attribute*), 128
CacheManagerStringListModel (*class in mgear.animbits.cache_manager.model*), 24
calculatePoleVector() (*in module mgear.core.vector*), 99
CallbackManager (*class in mgear.core.callbackManager*), 47
cCtl_sub() (*in module mgear.rigbits.menu*), 121
channel_has_animation() (*in module mgear.animbits.channel_master_utils*), 28
changeAndRecordCB() (*in module mgear.core.callbackManager*), 49
checkDebug() (*mgear.core.callbackManager.CallbackManager method*), 48
child() (*mgear.vendor.qjsonmodel.QJsonTreeItem method*), 156
childCount() (*mgear.vendor.qjsonmodel.QJsonTreeItem method*), 156
circle() (*in module mgear.core.icon*), 59
clear_sets() (*in module mgear.flex.update_utils*), 112
clearPaneControllerTags() (*in module mgear.core.pickWalk*), 75
clear() (*mgear.vendor.qjsonmodel.QJsonModel method*), 155
close() (*mgear.core.pyFBX.FBX_Class method*), 84
collect_attrs() (*in module mgear.core.attribute*), 42
collect_curve_data() (*in module mgear.core.curve*), 52
collect_curve_shapes() (*in module mgear.core.curve*), 52
collect_selected_curve_data() (*in module mgear.core.curve*), 52
collectBlendWeights() (*in module mgear.core.skin*), 90
collectData() (*in module mgear.core.skin*), 90
collectInfluenceWeights() (*in module mgear.core.skin*), 90
colorParamDef (*class in mgear.core.attribute*), 42
columnCount() (*mgear.vendor.qjsonmodel.QJsonModel method*), 155
compas() (*in module mgear.core.icon*), 59
connect_add_dynamic_pivot() (*in module mgear.core.attribute*), 43
connect_curve_to_xgen_guide() (*in module mgear.cfxbits.xgenboost.xgen_handler*), 32
connect_dynamic_pivot() (*in module mgear.core.attribute*), 43
connect_submenu() (*in module mgear.rigbits.menu*), 121
connectInvertSRT() (*in module mgear.rigbits*),

136
connection_display_curve() (*in module mgear.core.icon*), 59
connectLocalTransform() (*in module mgear.rigbits*), 136
connectSet() (*in module mgear.core.attribute*), 43
connectUserDefinedChannels() (*in module mgear.rigbits*), 136
connectWithBlendshape() (*in module mgear.rigbits.blendShapes*), 119
connectWorldTransform() (*in module mgear.rigbits*), 136
ContentTooShortError (*mgear.core.six.Module_six_moves_urllib_error attribute*), 86
ContentTooShortError (*mgear.rigbits.six.Module_six_moves_urllib_error attribute*), 127
controller_tag_connect() (*in module mgear.core.node*), 69
controllerWalkDown() (*in module mgear.core.pickWalk*), 76
controllerWalkLeft() (*in module mgear.core.pickWalk*), 76
controllerWalkRight() (*in module mgear.core.pickWalk*), 76
controllerWalkUp() (*in module mgear.core.pickWalk*), 76
convert2TransformMatrix() (*in module mgear.core.transform*), 92
convertRLName() (*in module mgear.core.string*), 91
copy_blendshape_node() (*in module mgear.flex.update_utils*), 112
copy_map1_name() (*in module mgear.flex.update_utils*), 112
copySDKsToNode() (*in module mgear.rigbits.sdk_io*), 124
create() (*in module mgear.core.icon*), 60
create() (*in module mgear.menu*), 156
create() (*mgear.core.attribute.colorParamDef method*), 42
create() (*mgear.core.attribute.enumParamDef method*), 43
create() (*mgear.core.attribute.FCurveParamDef method*), 39
create() (*mgear.core.attribute.ParamDef method*), 39
create() (*mgear.rigbits.rivet.rivet method*), 123
create_channel_master_node() (*in module mgear.animbits.channel_master_node*), 26
create_clusters_backup() (*in module mgear.flex.update_utils*), 113
create_curve_from_data() (*in module mgear.core.curve*), 53
create_curve_from_data_by_name() (*in module mgear.core.curve*), 53
create_curve_guide_setup() (*in module mgear.cfxbits.xgenboost.xgen_handler*), 32
create_deformers_backups() (*in module mgear.flex.update_utils*), 113
create_duplicate() (*in module mgear.flex.update_utils*), 113
create_unbound_method() (*in module mgear.core.six*), 88
create_unbound_method() (*in module mgear.rigbits.six*), 129
create_wrap() (*in module mgear.flex.update_utils*), 113
createAddNode() (*in module mgear.core.node*), 70
createAddNodeMulti() (*in module mgear.core.node*), 70
createBlendNode() (*in module mgear.core.node*), 70
createClampNode() (*in module mgear.core.node*), 70
createClampNodeMulti() (*in module mgear.core.node*), 71
createConditionNode() (*in module mgear.core.node*), 71
createConnections() (*mgear.rigbits.rivet.rivet method*), 123
createCTL() (*in module mgear.rigbits*), 136
createCurveFromCurve() (*in module mgear.core.curve*), 52
createCurveFromOrderedEdges() (*in module mgear.core.curve*), 53
createCurveInfoNode() (*in module mgear.core.node*), 71
createCuveFromEdges() (*in module mgear.core.curve*), 53
createDecomposeMatrixNode() (*in module mgear.core.node*), 72
createDistNode() (*in module mgear.core.node*), 72
createDivNode() (*in module mgear.core.node*), 72
createDivNodeMulti() (*in module mgear.core.node*), 72
createDoritoGhostCtl() (*in module mgear.rigbits.ghost*), 121
createGhostCtl() (*in module mgear.rigbits.ghost*), 121
createHotkeys() (*in module mgear.rigbits.utils*), 134
createInterpolateTransform() (*in module mgear.rigbits*), 136
createJntTweak() (*in module mgear.rigbits.tweaks*), 131
createMirrorRivetTweak() (*in module mgear.rigbits.tweaks*), 131
createMulDivNode() (*in module mgear.core.node*),

73
createMulNode() (*in module mgear.core.node*), 73
createMulNodeMulti() (*in module mgear.core.node*), 73
createMultMatrixNode() (*in module mgear.core.node*), 73
createNegateNodeMulti() (*in module mgear.core.node*), 74
createNodes() (*mgear.rigbits.rivet.rivet method*), 123
createPairBlend() (*in module mgear.core.node*), 74
createPlusMinusAverage1D() (*in module mgear.core.node*), 74
createPowNode() (*in module mgear.core.node*), 75
createReverseNode() (*in module mgear.core.node*), 75
createRivetTweak() (*in module mgear.rigbits.tweaks*), 131
createRivetTweakFromList() (*in module mgear.rigbits.tweaks*), 132
createRivetTweakLayer() (*in module mgear.rigbits.tweaks*), 133
createRunTimeCommand() (*in module mgear.rigbits.utils*), 134
createSDKFromDict() (*in module mgear.rigbits.sdk_io*), 124
createSetRangeNode() (*in module mgear.core.node*), 75
createSubNode() (*in module mgear.core.node*), 75
createVertexPositionNode() (*in module mgear.core.node*), 75
cross() (*in module mgear.core.icon*), 60
crossarrow() (*in module mgear.core.icon*), 61
crv_parenting() (*in module mgear.core.curve*), 54
ctl_from_list() (*in module mgear.rigbits.sdk_manager.core*), 115
cube() (*in module mgear.core.icon*), 61
cubewithpeak() (*in module mgear.core.icon*), 61
curl_curve() (*in module mgear.core.curve*), 54
current_frame_has_key() (*in module mgear.animbits.channel_master_utils*), 28
curvecns_op() (*in module mgear.core.applyop*), 34
cycleTweak() (*in module mgear.rigbits.cycleTweaks*), 120
cylinder() (*in module mgear.core.icon*), 62

D

data() (*mgear.animbits.cache_manager.model.CacheManagerStringListModel method*), 24
data() (*mgear.vendor.qjsonmodel.QJsonModel method*), 155
debug (*mgear.core.callbackManager.CallbackManager attribute*), 47
deformed_widgets() (*mgear.flex.flex_widget.FlexDialog method*), 105
delete_current_value_keys() (*in module mgear.rigbits.sdk_manager.core*), 116
delete_transform_from_nodes() (*in module mgear.flex.update_utils*), 113
diamond() (*in module mgear.core.icon*), 62
disconnect_curve_from_xgen_guide() (*in module mgear.cfxbits.xgenboost.xgen_handler*), 32
driver_ctl_from_joint() (*in module mgear.rigbits.sdk_manager.core*), 116
duplicateSym() (*in module mgear.rigbits*), 137

E

edgeLoopBetweenVertices() (*in module mgear.core.meshNavigation*), 68
edgePairList() (*in module mgear.rigbits.tweaks*), 133
edgeRangeInLoopFromMid() (*in module mgear.core.meshNavigation*), 68
ensure_binary() (*in module mgear.core.six*), 88
ensure_binary() (*in module mgear.rigbits.six*), 129
ensure_str() (*in module mgear.core.six*), 88
ensure_str() (*in module mgear.rigbits.six*), 129
ensure_text() (*in module mgear.core.six*), 89
ensure_text() (*in module mgear.rigbits.six*), 130
enumParamDef (*class in mgear.core.attribute*), 43
error (*mgear.core.six.Module_six_moves_urllib attribute*), 85
error (*mgear.rigbits.six.Module_six_moves_urllib attribute*), 126
export_curve() (*in module mgear.core.curve*), 54
export_data() (*in module mgear.animbits.channel_master_node*), 27
export_weights() (*in module mgear.core.wmap*), 101
export_weights_selected() (*in module mgear.core.wmap*), 101
exportJsonSkinPack() (*in module mgear.core.skin*), 90
exportSDKs() (*in module mgear.rigbits.sdk_io*), 124
exportSkin() (*in module mgear.core.skin*), 90
exportSkinPack() (*in module mgear.core.skin*), 90

F

FakeException, 157
FancyURLopener (*mgear.core.six.Module_six_moves_urllib_request attribute*), 87
FancyURLopener (*mgear.rigbits.six.Module_six_moves_urllib_request attribute*), 128
FBX_Class (*class in mgear.core.pyFBX*), 84
FBXClose() (*in module mgear.core.pyFBX*), 81

FBXExport() (*in module mgear.core.pyFBX*), 81
FBXExportAnimationOnly() (*in module mgear.core.pyFBX*), 81
FBXExportApplyConstantKeyReducer() (*in module mgear.core.pyFBX*), 81
FBXExportAudio() (*in module mgear.core.pyFBX*), 81
FBXExportAxisConversionMethod() (*in module mgear.core.pyFBX*), 81
FBXExportBakeComplexAnimation() (*in module mgear.core.pyFBX*), 82
FBXExportBakeComplexEnd() (*in module mgear.core.pyFBX*), 82
FBXExportBakeComplexStart() (*in module mgear.core.pyFBX*), 82
FBXExportBakeComplexStep() (*in module mgear.core.pyFBX*), 82
FBXExportBakeResampleAnimation() (*in module mgear.core.pyFBX*), 82
FBXExportCacheFile() (*in module mgear.core.pyFBX*), 82
FBXExportCameras() (*in module mgear.core.pyFBX*), 82
FBXExportColladaFrameRate() (*in module mgear.core.pyFBX*), 82
FBXExportColladaSingleMatrix() (*in module mgear.core.pyFBX*), 82
FBXExportColladaTriangulate() (*in module mgear.core.pyFBX*), 82
FBXExportConstraints() (*in module mgear.core.pyFBX*), 82
FBXExportConvert2Tif() (*in module mgear.core.pyFBX*), 82
FBXExportConvertUnitString() (*in module mgear.core.pyFBX*), 82
FBXExportDeleteOriginalTakeOnSplitAnimation() (*in module mgear.core.pyFBX*), 82
FBXExportEmbeddedTextures() (*in module mgear.core.pyFBX*), 82
FBXExportFileVersion() (*in module mgear.core.pyFBX*), 82
FBXExportFinestSubdivLevel() (*in module mgear.core.pyFBX*), 82
FBXExportGenerateLog() (*in module mgear.core.pyFBX*), 82
FBXExportHardEdges() (*in module mgear.core.pyFBX*), 82
FBXExportInAscii() (*in module mgear.core.pyFBX*), 82
FBXExportIncludeChildren() (*in module mgear.core.pyFBX*), 82
FBXExportInputConnections() (*in module mgear.core.pyFBX*), 82
FBXExportInstances() (*in module mgear.core.pyFBX*), 82
FBXExportLights() (*in module mgear.core.pyFBX*), 82
FBXExportQuaternion() (*in module mgear.core.pyFBX*), 82
FBXExportQuickSelectSetAsCache() (*in module mgear.core.pyFBX*), 82
FBXExportReferencedAssetsContent() (*in module mgear.core.pyFBX*), 82
FBXExportReferencedContainersContent() (*in module mgear.core.pyFBX*), 82
FBXExportScaleFactor() (*in module mgear.core.pyFBX*), 82
FBXExportShapeAttributes() (*in module mgear.core.pyFBX*), 82
FBXExportShapeAttributeValues() (*in module mgear.core.pyFBX*), 82
FBXExportShapes() (*in module mgear.core.pyFBX*), 82
FBXExportShowUI() (*in module mgear.core.pyFBX*), 82
FBXExportSkeletonDefinitions() (*in module mgear.core.pyFBX*), 82
FBXExportSkins() (*in module mgear.core.pyFBX*), 82
FBXExportSmoothingGroups() (*in module mgear.core.pyFBX*), 83
FBXExportSmoothMesh() (*in module mgear.core.pyFBX*), 82
FBXExportSplitAnimationIntoTakes() (*in module mgear.core.pyFBX*), 83
FBXExportTangents() (*in module mgear.core.pyFBX*), 83
FBXExportTriangulate() (*in module mgear.core.pyFBX*), 83
FBXExportUpAxis() (*in module mgear.core.pyFBX*), 83
FBXExportUseSceneName() (*in module mgear.core.pyFBX*), 83
FBXExportUseTmpFilePeripheral() (*in module mgear.core.pyFBX*), 83
FBXGetTakeComment() (*in module mgear.core.pyFBX*), 83
FBXGetTakeCount() (*in module mgear.core.pyFBX*), 83
FBXGetTakeIndex() (*in module mgear.core.pyFBX*), 83
FBXGetTakeLocalTimeSpan() (*in module mgear.core.pyFBX*), 83
FBXGetTakeName() (*in module mgear.core.pyFBX*), 83
FBXGetTakeReferenceTimeSpan() (*in module mgear.core.pyFBX*), 83
FBXImport() (*in module mgear.core.pyFBX*), 83

FBXImportAudio() (*in module mgear.core.pyFBX*), 83
FBXImportAutoAxisEnable() (*in module mgear.core.pyFBX*), 83
FBXImportAxisConversionEnable() (*in module mgear.core.pyFBX*), 83
FBXImportCacheFile() (*in module mgear.core.pyFBX*), 83
FBXImportCameras() (*in module mgear.core.pyFBX*), 83
FBXImportConstraints() (*in module mgear.core.pyFBX*), 83
FBXImportConvertDeformingNullsToJoint() (*in module mgear.core.pyFBX*), 83
FBXImportConvertUnitString() (*in module mgear.core.pyFBX*), 83
FBXImportFillTimeline() (*in module mgear.core.pyFBX*), 83
FBXImportForcedFileAxis() (*in module mgear.core.pyFBX*), 83
FBXImportGenerateLog() (*in module mgear.core.pyFBX*), 83
FBXImportHardEdges() (*in module mgear.core.pyFBX*), 83
FBXImportLights() (*in module mgear.core.pyFBX*), 83
FBXImportMergeAnimationLayers() (*in module mgear.core.pyFBX*), 83
FBXImportMergeBackNullPivots() (*in module mgear.core.pyFBX*), 83
FBXImportMode() (*in module mgear.core.pyFBX*), 83
FBXImportOCMerge() (*in module mgear.core.pyFBX*), 83
FBXImportProtectDrivenKeys() (*in module mgear.core.pyFBX*), 83
FBXImportQuaternion() (*in module mgear.core.pyFBX*), 83
FBXImportResamplingRateSource() (*in module mgear.core.pyFBX*), 83
FBXImportScaleFactor() (*in module mgear.core.pyFBX*), 83
FBXImportSetLockedAttribute() (*in module mgear.core.pyFBX*), 83
FBXImportSetMayaFrameRate() (*in module mgear.core.pyFBX*), 84
FBXImportSetTake() (*in module mgear.core.pyFBX*), 84
FBXImportShapes() (*in module mgear.core.pyFBX*), 84
FBXImportShowUI() (*in module mgear.core.pyFBX*), 84
FBXImportSkeletonDefinitionsAs() (*in module mgear.core.pyFBX*), 84
FBXImportSkins() (*in module mgear.core.pyFBX*), 84
FBXImportUnlockNormals() (*in module mgear.core.pyFBX*), 84
FBXImportUpAxis() (*in module mgear.core.pyFBX*), 84
FBXLoadExportPresetFile() (*in module mgear.core.pyFBX*), 84
FBXLoadImportPresetFile() (*in module mgear.core.pyFBX*), 84
FBXLoadMBExportPresetFile() (*in module mgear.core.pyFBX*), 84
FBXLoadMBImportPresetFile() (*in module mgear.core.pyFBX*), 84
FBXPopSettings() (*in module mgear.core.pyFBX*), 84
FBXProperties() (*in module mgear.core.pyFBX*), 84
FBXProperty() (*in module mgear.core.pyFBX*), 84
FBXPushSettings() (*in module mgear.core.pyFBX*), 84
FBXRead() (*in module mgear.core.pyFBX*), 84
FBXResamplingRate() (*in module mgear.core.pyFBX*), 84
FBXResetExport() (*in module mgear.core.pyFBX*), 84
FBXResetImport() (*in module mgear.core.pyFBX*), 84
FBXUICallBack() (*in module mgear.core.pyFBX*), 84
FBXUIShowOptions() (*in module mgear.core.pyFBX*), 84
FCurveParamDef (*class in mgear.core.attribute*), 39
file_browser() (*in module mgear.core.wmap*), 101
FileHandler (*mgear.core.six.Module_six_moves_urllib_request attribute*), 87
FileHandler (*mgear.rigbits.six.Module_six_moves_urllib_request attribute*), 128
filter_curve_guides() (*in module mgear.cfxbits.xgenboost.xgen_handler*), 32
filter_nurbs_curve_selection() (*in module mgear.core.utils*), 98
filter_shape_orig() (*in module mgear.flex.update_utils*), 113
find_mirror_edge() (*in module mgear.core.meshNavigation*), 68
find_model_group_inside_rig() (*in module mgear.animbits.cache_manager.query*), 24
findChild() (*in module mgear.core.dag*), 55
findChildren() (*in module mgear.core.dag*), 56
findChildrenPartial() (*in module mgear.core.dag*), 56
findComponentChildren() (*in module mgear.core.dag*), 56
findComponentChildren2() (*in module mgear.core.dag*), 56
findComponentChildren3() (*in module*

mgear.core.dag), 57
findLenghtFromParam() (*in module mgear.core.curve*), 54
finished_running() (*in module mgear.flex.decorators*), 104
flags() (*mgear.vendor.qjsonmodel.QJsonModel method*), 155
FlexAnalyzeDialog (*class in mgear.flex.analyze_widget*), 103
FlexDialog (*class in mgear.flex.flex_widget*), 105
flower() (*in module mgear.core.icon*), 63
FTPHandler (*mgear.core.six.Module_six_moves_urllib_request attribute*), 87
FTPHandler (*mgear.rigbits.six.Module_six_moves_urllib_request attribute*), 128
func (*mgear.core.callbackManager.AttributeChangedManager attribute*), 47
func (*mgear.core.callbackManager.UserTimeChangedManager attribute*), 49

G

gatherCustomModuleDirectories() (*in module mgear.core.utils*), 98
gear_curvecns_op() (*in module mgear.core.applyop*), 34
gear_curveslide2_op() (*in module mgear.core.applyop*), 34
gear_ikfk2bone_op() (*in module mgear.core.applyop*), 34
gear_intmatrix_op() (*in module mgear.core.applyop*), 35
gear_inverseRotorder_op() (*in module mgear.core.applyop*), 35
gear_matrix_cns() (*in module mgear.core.applyop*), 35
gear_mulmatrix_op() (*in module mgear.core.applyop*), 35
gear_raycast() (*in module mgear.core.applyop*), 36
gear_rollsplinekine_op() (*in module mgear.core.applyop*), 36
gear_spinePointAtOp() (*in module mgear.core.applyop*), 36
gear_spinePointAtOpWM() (*in module mgear.core.applyop*), 37
gear_spring_op() (*in module mgear.core.applyop*), 37
gear_squashstretch2_op() (*in module mgear.core.applyop*), 37
genJson() (*mgear.vendor.qjsonmodel.QJsonModel method*), 155
get_all_tag_children() (*in module mgear.core.pickWalk*), 76
get_anim_value_at_current_frame() (*in module mgear.animbits.channel_master_utils*), 28
get_as_dict() (*mgear.core.attribute.colorParamDef method*), 42
get_as_dict() (*mgear.core.attribute.enumParamDef method*), 43
get_as_dict() (*mgear.core.attribute.FCurveParamDef method*), 39
get_as_dict() (*mgear.core.attribute.ParamDef method*), 39
get_attributes_config() (*in module mgear.animbits.channel_master_utils*), 28
get_cache_destination_path() (*in module mgear.animbits.cache_manager.query*), 25
get_channelBox() (*in module mgear.core.attribute*), 44
get_class_nodes() (*mgear.core.pyFBX.FBX_Class method*), 84
get_clean_matching_shapes() (*in module mgear.flex.query*), 106
get_closes_edge_index() (*in module mgear.core.meshNavigation*), 69
get_closes_transform() (*in module mgear.core.transform*), 96
get_color() (*in module mgear.core.curve*), 55
get_connected_curve_guides() (*in module mgear.cfxbits.xgenboost.xgen_handler*), 32
get_current_SDKs() (*in module mgear.rigbits.sdk_manager.core*), 116
get_curve_to_spline_node() (*in module mgear.cfxbits.xgenboost.xgen_handler*), 32
get_default_value() (*in module mgear.core.attribute*), 44
get_deformers() (*in module mgear.flex.query*), 106
get_dependency_node() (*in module mgear.flex.query*), 106
get_description() (*in module mgear.cfxbits.xgenboost.xgen_handler*), 32
get_description_from_selection() (*in module mgear.cfxbits.xgenboost.xgen_handler*), 33
get_driven_from_attr() (*in module mgear.rigbits.sdk_manager.core*), 116
get_driver_from_driven() (*in module mgear.rigbits.sdk_manager.core*), 116
get_driver_keys() (*in module mgear.rigbits.sdk_manager.core*), 116
get_external_data() (*in module mgear.animbits.channel_master_node*), 27
get_fbx_versions() (*in module mgear.core.pyFBX*), 85
get_info() (*in module mgear.rigbits.sdk_manager.core*), 116
get_keyable_attribute() (*in module mgear.animbits.channel_master_utils*), 28
get_matching_shapes() (*in module*

mgear.flex.query), 106
get_matching_shapes_from_group() (*in module mgear.flex.query*), 106
get_mesh_components_from_tag_expression() (*in module mgear.core.skin*), 90
get_missing_shapes() (*in module mgear.flex.query*), 107
get_missing_shapes_from_group() (*in module mgear.flex.query*), 107
get_model_group() (*in module mgear.animbits.cache_manager.query*), 25
get_next_available_index() (*in module mgear.core.attribute*), 44
get_node_by_name() (*mgear.core.pyFBX.FBX_Class method*), 84
get_node_data() (*in module mgear.animbits.channel_master_node*), 27
get_orientation_from_polygon() (*in module mgear.core.transform*), 96
get_parent() (*in module mgear.flex.query*), 107
get_preference_file() (*in module mgear.animbits.cache_manager.query*), 25
get_preference_file_cache_destination_path() (*in module mgear.animbits.cache_manager.query*), 25
get_preference_file_model_group() (*in module mgear.animbits.cache_manager.query*), 25
get_prefix_less_dict() (*in module mgear.flex.query*), 107
get_prefix_less_name() (*in module mgear.flex.query*), 107
get_property() (*mgear.core.pyFBX.FBX_Class method*), 84
get_property_value() (*mgear.core.pyFBX.FBX_Class method*), 84
get_raycast_translation_from_mouse_click() (*in module mgear.core.transform*), 96
get_resources_path() (*in module mgear.flex.query*), 108
get_scalp() (*in module mgear.cfxbits.xgenboost.xgen_handler*), 33
get_scene_nodes() (*mgear.core.pyFBX.FBX_Class method*), 85
get_scene_rigs() (*in module mgear.animbits.cache_manager.query*), 25
get_selected_channels_full_path() (*in module mgear.core.attribute*), 44
get_shape_orig() (*in module mgear.flex.query*), 108
get_shape_type_attributes() (*in module mgear.flex.query*), 108
get_shapes_from_group() (*in module mgear.flex.query*), 108
get_single_attribute_config() (*in module mgear.animbits.channel_master_utils*), 28
get_table_config_from_selection() (*in module mgear.animbits.channel_master_utils*), 29
get_temp_folder() (*in module mgear.flex.query*), 108
get_time_stamp() (*in module mgear.animbits.cache_manager.query*), 26
get_timeline_values() (*in module mgear.animbits.cache_manager.query*), 26
get_transform_selection() (*in module mgear.flex.query*), 108
get_type_nodes() (*mgear.core.pyFBX.FBX_Class method*), 85
get_unbound_function() (*in module mgear.core.six*), 89
get_unbound_function() (*in module mgear.rigbits.six*), 130
get_vertice_count() (*in module mgear.flex.query*), 108
getAllSDKInfoFromNode() (*in module mgear.rigbits.sdk_io*), 124
getBlendNodes() (*in module mgear.rigbits.sdk_io*), 124
getBlendShape() (*in module mgear.rigbits.blendShapes*), 119
getChainTransform() (*in module mgear.core.transform*), 92
getChainTransform2() (*in module mgear.core.transform*), 92
getClosestPolygonFromTransform() (*in module mgear.core.meshNavigation*), 68
getClosestPolygonFromTransform() (*in module mgear.core.transform*), 93
getClosestVertexFromTransform() (*in module mgear.core.meshNavigation*), 68
getConcentricVertexLoop() (*in module mgear.core.meshNavigation*), 68
getConnectedSDKs() (*in module mgear.rigbits.sdk_io*), 125
getCurrentWeights() (*in module mgear.core.skin*), 90
getCurveParamAtPosition() (*in module mgear.core.curve*), 54
getDistance() (*in module mgear.core.vector*), 100
getDistance2() (*in module mgear.core.transform*), 93
getDistance2() (*in module mgear.core.vector*), 100
getExtremeVertexFromLoop() (*in module mgear.core.meshNavigation*), 69

getFCurveValues() (*in module mgear.core.fcurve*), 58
getFilteredTransform() (*in module mgear.core.transform*), 93
getGeometryComponents() (*in module mgear.core.skin*), 90
getInfos() (*in module mgear*), 157
getInterpolateTransformMatrix() (*in module mgear.core.transform*), 93
getMayaVer() (*in module mgear.core*), 102
getMirror() (*in module mgear.core.pickWalk*), 76
getMObject() (*in module mgear.core.callbackManager*), 49
getModuleBasePath() (*in module mgear.core.utils*), 98
getMultiDriverSDKs() (*in module mgear.rigbits.sdk_io*), 125
getObjsFromSkinFile() (*in module mgear.core.skin*), 90
getOffsetPosition() (*in module mgear.core.transform*), 94
getPlaneBiNormal() (*in module mgear.core.vector*), 100
getPlaneNormal() (*in module mgear.core.vector*), 100
getPointArrayWithOffset() (*in module mgear.core.icon*), 63
getPositionFromMatrix() (*in module mgear.core.transform*), 94
getproxies (*mgear.core.six.Module_six_moves_urllib_request attribute*), 87
getproxies (*mgear.rigbits.six.Module_six_moves_urllib_request attribute*), 128
getPynodes() (*in module mgear.rigbits.sdk_io*), 125
getRotationFromAxis() (*in module mgear.core.transform*), 94
getSDKDestination() (*in module mgear.rigbits.sdk_io*), 125
getSDKInfo() (*in module mgear.rigbits.sdk_io*), 125
getSelectedChannels() (*in module mgear.core.attribute*), 43
getSelectedObjectChannels() (*in module mgear.core.attribute*), 43
getShapes() (*in module mgear.core.dag*), 57
getSkinCluster() (*in module mgear.core.skin*), 90
getSymmetricalTransform() (*in module mgear.core.transform*), 95
getTopParent() (*in module mgear.core.dag*), 57
getTransform() (*in module mgear.core.transform*), 95
getTransformFromPos() (*in module mgear.core.transform*), 95
getTransformLookingAt() (*in module mgear.core.transform*), 95
getTranslation() (*in module mgear.core.transform*), 96
getTransposedVector() (*in module mgear.core.vector*), 100
getVersion() (*in module mgear*), 157
getVertexRowsFromLoops() (*in module mgear.core.meshNavigation*), 69
getWalkTag() (*in module mgear.core.pickWalk*), 76
ghostSlider() (*in module mgear.rigbits.ghost*), 121
gimmick_submenu() (*in module mgear.rigbits.menu*), 121
guideBladeIcon() (*in module mgear.core.icon*), 63
guideLocatorIcon() (*in module mgear.core.icon*), 64
guideRootIcon() (*in module mgear.core.icon*), 64
guideRootIcon2D() (*in module mgear.core.icon*), 65

H

headerData() (*mgear.vendor.qjsonmodel.QJsonModel method*), 155
hold_selection() (*in module mgear.flex.decorators*), 104
HTTPBasicAuthHandler (*mgear.core.six.Module_six_moves_urllib_request attribute*), 87
HTTPBasicAuthHandler (*mgear.rigbits.six.Module_six_moves_urllib_request attribute*), 128
HTTPCookieProcessor (*mgear.core.six.Module_six_moves_urllib_request attribute*), 87
HTTPCookieProcessor (*mgear.rigbits.six.Module_six_moves_urllib_request attribute*), 128
HTTPDefaultErrorHandler (*mgear.core.six.Module_six_moves_urllib_request attribute*), 87
HTTPDefaultErrorHandler (*mgear.rigbits.six.Module_six_moves_urllib_request attribute*), 128
HTTPDigestAuthHandler (*mgear.core.six.Module_six_moves_urllib_request attribute*), 87
HTTPDigestAuthHandler (*mgear.rigbits.six.Module_six_moves_urllib_request attribute*), 128
HTTPError (*mgear.core.six.Module_six_moves_urllib_error attribute*), 86
HTTPError (*mgear.rigbits.six.Module_six_moves_urllib_error attribute*), 127
HTTPErrorProcessor (*mgear.core.six.Module_six_moves_urllib_request attribute*), 87

HTTPErrorProcessor (*mgear.rigbits.six.Module_six_moves_urllib_request attribute*), 128
HTTPHandler (*mgear.core.six.Module_six_moves_urllib_request attribute*), 87
HTTPHandler (*mgear.rigbits.six.Module_six_moves_urllib_request attribute*), 128
HTTPPasswordMgr (*mgear.core.six.Module_six_moves_urllib_request attribute*), 87
HTTPPasswordMgr (*mgear.rigbits.six.Module_six_moves_urllib_request attribute*), 128
HTTPPasswordMgrWithDefaultRealm (*mgear.core.six.Module_six_moves_urllib_request attribute*), 87
HTTPPasswordMgrWithDefaultRealm (*mgear.rigbits.six.Module_six_moves_urllib_request attribute*), 128
HTTPRedirectHandler (*mgear.core.six.Module_six_moves_urllib_request attribute*), 87
HTTPRedirectHandler (*mgear.rigbits.six.Module_six_moves_urllib_request attribute*), 128
HTTPSHandler (*mgear.core.six.Module_six_moves_urllib_request attribute*), 87
HTTPSHandler (*mgear.rigbits.six.Module_six_moves_urllib_request attribute*), 128

I

import_curve() (*in module mgear.core.curve*), 55
import_data() (*in module mgear.animbits.channel_master_node*), 27
import_weights() (*in module mgear.core.wmap*), 102
import_weights_selected() (*in module mgear.core.wmap*), 102
importFromStandardOrCustomDirectories() (*in module mgear.core.utils*), 98
importSDKs() (*in module mgear.rigbits.sdk_io*), 125
importSkin() (*in module mgear.core.skin*), 91
importSkinPack() (*in module mgear.core.skin*), 91
index() (*mgear.vendor.qjsonmodel.QJsonModel method*), 155
init_channel_master_config_data() (*in module mgear.animbits.channel_master_utils*), 29
init_table_config_data() (*in module mgear.animbits.channel_master_utils*), 29
initCycleTweakBase() (*in module mgear.rigbits.cycleTweaks*), 120
install() (*in module mgear*), 157
install() (*in module mgear.animbits.menu*), 29
install() (*in module mgear.cfxbits.menu*), 33
install() (*in module mgear.crank.menu*), 103
install() (*in module mgear.flex.menu*), 105
install() (*in module mgear.menu*), 156
install() (*in module mgear.rigbits.menu*), 121
install() (*in module mgear.simpleRig.menu*), 152
install_help_menu() (*in module mgear.menu*), 156
install_main_menu() (*in module mgear.menu*), 157
install_opener (*mgear.core.six.Module_six_moves_urllib_request attribute*), 87
install_opener (*mgear.rigbits.six.Module_six_moves_urllib_request attribute*), 128
install_utils_menu() (*in module mgear.menu*), 157
install_utils_menu() (*in module mgear.rigbits.menu*), 122
int2byte() (*in module mgear.core.six*), 89
int2byte() (*in module mgear.rigbits.six*), 130
interpolate_rotation() (*in module mgear.core.transform*), 96
interpolate_scale() (*in module mgear.core.transform*), 96
inverseTranslateParent() (*in module mgear.rigbits.cycleTweaks*), 120
invertKeyValues() (*in module mgear.rigbits.sdk_io*), 126
is_lock_attribute() (*in module mgear.flex.query*), 109
is_matching_bouding_box() (*in module mgear.flex.query*), 109
is_matching_count() (*in module mgear.flex.query*), 109
is_matching_type() (*in module mgear.flex.query*), 109
is_maya_batch() (*in module mgear.flex.query*), 109
is_odd() (*in module mgear.core.utils*), 99
is_rig() (*in module mgear.animbits.cache_manager.query*), 26
is_valid_group() (*in module mgear.flex.query*), 109
isolate_view() (*in module mgear.flex.decorators*), 104
iteritems() (*in module mgear.core.six*), 89
iteritems() (*in module mgear.rigbits.six*), 130
iterkeys() (*in module mgear.core.six*), 89
iterkeys() (*in module mgear.rigbits.six*), 130
iterlists() (*in module mgear.core.six*), 89
iterlists() (*in module mgear.rigbits.six*), 130
itervalues() (*in module mgear.core.six*), 89
itervalues() (*in module mgear.rigbits.six*), 130

J

joint_from_driver_ctl() (*in module mgear.rigbits.sdk_manager.core*), 117

json() (*mgear.vendor.qjsonmodel.QJsonModel method*), 155

K

keep_lock_length_state() (*in module mgear.core.curve*), 55
keep_point_0_cnx_state() (*in module mgear.core.curve*), 55
key (*mgear.vendor.qjsonmodel.QJsonTreeItem attribute*), 156
key_at_current_values() (*in module mgear.rigbits.sdk_manager.core*), 117

L

layout_widgets() (*mgear.flex.flex_widget.FlexDialog method*), 105
linearlyInterpolate() (*in module mgear.core.vector*), 101
list_channel_master_nodes() (*in module mgear.animbits.channel_master_node*), 27
load() (*mgear.vendor.qjsonmodel.QJsonModel method*), 156
load() (*mgear.vendor.qjsonmodel.QJsonTreeItem class method*), 156
lock_first_point() (*in module mgear.core.curve*), 55
lock_length() (*in module mgear.core.curve*), 55
lock_unlock_attribute() (*in module mgear.flex.query*), 110
lockAttribute() (*in module mgear.core.attribute*), 44
log() (*in module mgear*), 157
logInfos() (*in module mgear*), 157

M

m_node (*mgear.core.callbackManager.AttributeChangedManager attribute*), 47
m_node (*mgear.core.callbackManager.UserTimeChangedManager attribute*), 49
MANAGER_CALLBACKS (*mgear.core.callbackManager.CallbackManager attribute*), 47
matchPosfromBBox() (*in module mgear.rigbits*), 137
matchWorldTransform() (*in module mgear.core.transform*), 96
matchWorldXform() (*in module mgear.rigbits*), 137
matrix4() (*in module mgear.core.log*), 67
mgear (*module*), 30, 157
mgear.animbits (*module*), 30
mgear.animbits.cache_manager (*module*), 26
mgear.animbits.cache_manager.collapse_widget (*module*), 24
mgear.animbits.cache_manager.model (*module*), 24
mgear.animbits.cache_manager.query (*module*), 24
mgear.animbits.channel_master_node (*module*), 26
mgear.animbits.channel_master_utils (*module*), 28
mgear.animbits.menu (*module*), 29
mgear.animbits.version (*module*), 30
mgear.cfxbits (*module*), 33
mgear.cfxbits.menu (*module*), 33
mgear.cfxbits.version (*module*), 33
mgear.cfxbits.xgenboost (*module*), 33
mgear.cfxbits.xgenboost.xgen_handler (*module*), 32
mgear.core (*module*), 102
mgear.core.applyop (*module*), 33
mgear.core.attribute (*module*), 39
mgear.core.callbackManager (*module*), 47
mgear.core.curve (*module*), 51
mgear.core.dag (*module*), 55
mgear.core.fcurve (*module*), 58
mgear.core.icon (*module*), 58
mgear.core.log (*module*), 67
mgear.core.meshNavigation (*module*), 67
mgear.core.node (*module*), 69
mgear.core.pickWalk (*module*), 75
mgear.core.primitive (*module*), 78
mgear.core.pyFBX (*module*), 81
mgear.core.six (*module*), 85
mgear.core.skin (*module*), 90
mgear.core.string (*module*), 91
mgear.core.transform (*module*), 92
mgear.core.utils (*module*), 98
mgear.core.vector (*module*), 99
mgear.core.version (*module*), 101
mgear.core.wmap (*module*), 101
mgear.crank (*module*), 103
mgear.crank.crank_ui (*module*), 102
mgear.crank.menu (*module*), 103
mgear.crank.version (*module*), 103
mgear.flex (*module*), 114
mgear.flex.analyze (*module*), 103
mgear.flex.analyze_widget (*module*), 103
mgear.flex.attributes (*module*), 104
mgear.flex.colors (*module*), 104
mgear.flex.decorators (*module*), 104
mgear.flex.flex_widget (*module*), 105
mgear.flex.menu (*module*), 105
mgear.flex.query (*module*), 106
mgear.flex.update (*module*), 110
mgear.flex.update_utils (*module*), 112
mgear.flex.version (*module*), 114

mgear.menu (*module*), 156
mgear.rigbits (*module*), 134
mgear.rigbits.blendShapes (*module*), 119
mgear.rigbits.cycleTweaks (*module*), 119
mgear.rigbits.ghost (*module*), 121
mgear.rigbits.menu (*module*), 121
mgear.rigbits.postSpring (*module*), 122
mgear.rigbits.proxySlicer (*module*), 122
mgear.rigbits.rivet (*module*), 123
mgear.rigbits.rope (*module*), 123
mgear.rigbits.sdk_io (*module*), 123
mgear.rigbits.sdk_manager (*module*), 119
mgear.rigbits.sdk_manager.core (*module*), 115
mgear.rigbits.six (*module*), 126
mgear.rigbits.tweaks (*module*), 131
mgear.rigbits.utils (*module*), 134
mgear.rigbits.version (*module*), 134
mgear.shifter_classic_components (*module*), 149
mgear.shifter_epic_components (*module*), 152
mgear.simpleRig (*module*), 153
mgear.simpleRig.menu (*module*), 152
mgear.simpleRig.version (*module*), 152
mgear.vendor (*module*), 156
mgear.vendor.qjsonmodel (*module*), 155
mgear.vendor.Qt (*module*), 154
mgear.version (*module*), 157
mirror_SDK() (*in module mgear.rigbits.sdk_manager.core*), 117
mirrorSDKkeys() (*in module mgear.rigbits.sdk_io*), 126
models_groups_widgets() (*mgear.flex.flex_widget.FlexDialog method*), 105
Module_six_moves_urllib (*class in mgear.core.six*), 85
Module_six_moves_urllib (*class in mgear.rigbits.six*), 126
Module_six_moves_urllib_error (*class in mgear.core.six*), 85
Module_six_moves_urllib_error (*class in mgear.rigbits.six*), 127
Module_six_moves_urllib_parse (*class in mgear.core.six*), 86
Module_six_moves_urllib_parse (*class in mgear.rigbits.six*), 127
Module_six_moves_urllib_request (*class in mgear.core.six*), 86
Module_six_moves_urllib_request (*class in mgear.rigbits.six*), 127
Module_six_moves_urllib_response (*class in mgear.core.six*), 87
Module_six_moves_urllib_response (*class in mgear.rigbits.six*), 129
Module_six_moves_urllib_robotparser (*class in mgear.core.six*), 88
Module_six_moves_urllib_robotparser (*class in mgear.rigbits.six*), 129
moveChannel() (*in module mgear.core.attribute*), 45
MovedAttribute (*class in mgear.core.six*), 88
MovedAttribute (*class in mgear.rigbits.six*), 129
MovedModule (*class in mgear.core.six*), 88
MovedModule (*class in mgear.rigbits.six*), 129

N

namespace (*mgear.core.callbackManager.CallbackManager attribute*), 48
negateTransformConnection() (*in module mgear.rigbits.tweaks*), 134
newSceneCB() (*in module mgear.core.callbackManager*), 49
newSceneCB() (*mgear.core.callbackManager.CallbackManager method*), 48
next_biggest() (*in module mgear.rigbits.sdk_manager.core*), 117
next_keyframe() (*in module mgear.animbits.channel_master_utils*), 29
next_smallest() (*in module mgear.rigbits.sdk_manager.core*), 117
normalize() (*in module mgear.core.string*), 91
normalize2() (*in module mgear.core.string*), 91
normalize_path() (*in module mgear.core.string*), 91
normalize_with_padding() (*in module mgear.core.string*), 91
null() (*in module mgear.core.icon*), 65

O

one_undo() (*in module mgear.core.utils*), 99
OpenerDirector (*mgear.core.six.Module_six_moves_urllib_request attribute*), 87
OpenerDirector (*mgear.rigbits.six.Module_six_moves_urllib_request attribute*), 128
options_widgets() (*mgear.flex.flex_widget.FlexDialog method*), 105
oriCns() (*in module mgear.core.applyop*), 37

P

ParamDef (*class in mgear.core.attribute*), 39
ParamDef2 (*class in mgear.core.attribute*), 39
parent() (*mgear.vendor.qjsonmodel.QJsonModel method*), 156
parent() (*mgear.vendor.qjsonmodel.QJsonTreeItem method*), 156

parse (*mgear.core.six.Module_six_moves_urllib attribute*), 85
parse (*mgear.rigbits.six.Module_six_moves_urllib attribute*), 126
parse_http_list (*mgear.core.six.Module_six_moves_urllib_request attribute*), 87
parse_http_list (*mgear.rigbits.six.Module_six_moves_urllib_request attribute*), 128
parse_keqv_list (*mgear.core.six.Module_six_moves_urllib_request attribute*), 87
parse_keqv_list (*mgear.rigbits.six.Module_six_moves_urllib_request attribute*), 128
parse_qs (*mgear.core.six.Module_six_moves_urllib_parse attribute*), 86
parse_qs (*mgear.rigbits.six.Module_six_moves_urllib_parse attribute*), 127
parse_qsl (*mgear.core.six.Module_six_moves_urllib_parse attribute*), 86
parse_qsl (*mgear.rigbits.six.Module_six_moves_urllib_parse attribute*), 127
ParseResult (*mgear.core.six.Module_six_moves_urllib_parse attribute*), 86
ParseResult (*mgear.rigbits.six.Module_six_moves_urllib_parse attribute*), 127
pathCns() (*in module mgear.core.applyop*), 38
pathname2url (*mgear.core.six.Module_six_moves_urllib_request attribute*), 87
pathname2url (*mgear.rigbits.six.Module_six_moves_urllib_request attribute*), 128
pCtl_sub() (*in module mgear.rigbits.menu*), 122
postSpring() (*in module mgear.rigbits.postSpring*), 122
pre_bind_matrix_connect() (*in module mgear.rigbits.tweaks*), 134
previous_keyframe() (*in module mgear.animbits.channel_master_utils*), 29
proxy_bypass (*mgear.core.six.Module_six_moves_urllib_request attribute*), 87
proxy_bypass (*mgear.rigbits.six.Module_six_moves_urllib_request attribute*), 128
ProxyBasicAuthHandler (*mgear.core.six.Module_six_moves_urllib_request attribute*), 87
ProxyBasicAuthHandler (*mgear.rigbits.six.Module_six_moves_urllib_request attribute*), 128
ProxyDigestAuthHandler (*mgear.core.six.Module_six_moves_urllib_request attribute*), 87
ProxyDigestAuthHandler (*mgear.rigbits.six.Module_six_moves_urllib_request attribute*), 128
ProxyHandler (*mgear.core.six.Module_six_moves_urllib_request attribute*), 87
ProxyHandler (*mgear.rigbits.six.Module_six_moves_urllib_request attribute*), 128
prune_DK_nodes() (*in module mgear.rigbits.sdk_manager.core*), 117
pyIcon() (*in module mgear.core.icon*), 65
python_2_unicode_compatible() (*in module mgear.core.six*), 89
python_2_unicode_compatible() (*in module mgear.rigbits.six*), 130

Q

QCollapse (*class in mgear.animbits.cache_manager.collapse_widget*), 24
QJsonModel (*class in mgear.vendor.qjsonmodel*), 155
QJsonTreeItem (*class in mgear.vendor.qjsonmodel*), 156
quaternionDotProd() (*in module mgear.core.transform*), 97
quaternionSlerp() (*in module mgear.core.transform*), 97
quote (*mgear.core.six.Module_six_moves_urllib_parse attribute*), 86
quote (*mgear.rigbits.six.Module_six_moves_urllib_parse attribute*), 127
quote_plus (*mgear.core.six.Module_six_moves_urllib_parse attribute*), 86
quote_plus (*mgear.rigbits.six.Module_six_moves_urllib_parse attribute*), 127

R

raise_from() (*in module mgear.core.six*), 89
raise_from() (*in module mgear.rigbits.six*), 130
read_preference_key() (*in module mgear.animbits.cache_manager.query*), 26
rebuild_curve() (*in module mgear.core.curve*), 55
refresh_curve_connections() (*in module mgear.cfxbits.xgenboost.xgen_handler*), 33
registerManagerCB() (*mgear.core.callbackManager.CallbackManager method*), 48
registerSessionCB() (*in module mgear.core.callbackManager*), 50
reloadModule() (*in module mgear*), 157
remove_animation() (*in module mgear.animbits.channel_master_utils*), 29
remove_external_config_path() (*in module mgear.animbits.channel_master_node*), 27
remove_key() (*in module mgear.animbits.channel_master_utils*), 29
remove_move() (*in module mgear.core.six*), 89
remove_move() (*in module mgear.rigbits.six*), 130
remove_namespace() (*mgear.core.pyFBX.FBX_Class method*),

85
remove_node_property() (mgear.core.pyFBX.FBX_Class method), 85
remove_nodes_by_names() (mgear.core.pyFBX.FBX_Class method), 85
removeAllCBFromNode() (in module mgear.core.callbackManager), 50
removeAllManagedCB() (mgear.core.callbackManager.CallbackManager method), 48
removeAllSessionCB() (in module mgear.core.callbackManager), 50
removeCB() (in module mgear.core.callbackManager), 50
removeCBviaMayaID() (in module mgear.core.callbackManager), 50
removeInvalidCharacter() (in module mgear.core.string), 91
removeInvalidCharacter2() (in module mgear.core.string), 92
removeManagedCB() (mgear.core.callbackManager.CallbackManager method), 48
removeNamespaceCB() (in module mgear.core.callbackManager), 50
removeSDKs() (in module mgear.rigbits.sdk_io), 126
reorderControllerChildrenTags() (in module mgear.core.pickWalk), 77
replaceShape() (in module mgear.rigbits), 137
replaceSharpWithPadding() (in module mgear.core.string), 92
request (mgear.core.six.Module_six_moves_urllib attribute), 85
Request (mgear.core.six.Module_six_moves_urllib_request attribute), 87
request (mgear.rigbits.six.Module_six_moves_urllib attribute), 126
Request (mgear.rigbits.six.Module_six_moves_urllib_request attribute), 128
reraise() (in module mgear.core.six), 89
reraise() (in module mgear.rigbits.six), 130
reset_attribute() (in module mgear.animbits.channel_master_utils), 29
reset_selected_channels_value() (in module mgear.core.attribute), 45
reset_SRT() (in module mgear.core.attribute), 45
reset_to_default() (in module mgear.rigbits.sdk_manager.core), 117
resetJntLocalSRT() (in module mgear.rigbits.tweaks), 134
resetTransform() (in module mgear.core.transform), 97
response (mgear.core.six.Module_six_moves_urllib attribute), 85
response (mgear.rigbits.six.Module_six_moves_urllib attribute), 127
retranslateUi() (mgear.crank.crank_ui.Ui_Form method), 102
rivet (class in mgear.rigbits.rivet), 123
RobotFileParser (mgear.core.six.Module_six_moves_urllib_robotpars attribute), 88
RobotFileParser (mgear.rigbits.six.Module_six_moves_urllib_robotpa attribute), 129
robotparser (mgear.core.six.Module_six_moves_urllib attribute), 85
robotparser (mgear.rigbits.six.Module_six_moves_urllib attribute), 127
rope() (in module mgear.rigbits.rope), 123
rope_UI() (in module mgear.rigbits.rope), 123
rotateAlongAxis() (in module mgear.core.vector), 101
row() (mgear.vendor.qjsonmodel.QJsonTreeItem method), 156
rowCount() (mgear.animbits.cache_manager.model.CacheManagerStrin method), 24
rowCount() (mgear.vendor.qjsonmodel.QJsonModel method), 156
run_widgets() (mgear.flex.flex_widget.FlexDialog method), 105

S

sampleCallback() (in module mgear.core.callbackManager), 50
save() (mgear.core.pyFBX.FBX_Class method), 85
SDK_ANIMCURVES_TYPE (in module mgear.rigbits.sdk_io), 124
select_all() (in module mgear.rigbits.sdk_manager.core), 117
selectDeformers() (in module mgear.core.skin), 91
selectDeformers() (in module mgear.rigbits), 137
selectionChangedCB() (in module mgear.core.callbackManager), 50
selectionChangedCB() (mgear.core.callbackManager.CallbackManager method), 48
set_color() (in module mgear.core.curve), 55
set_default_value() (in module mgear.core.attribute), 46
set_deformer_off() (in module mgear.flex.update_utils), 114
set_deformer_on() (in module mgear.flex.update_utils), 114
set_deformer_state() (in module mgear.flex.update_utils), 114
set_driven_key() (in module mgear.rigbits.sdk_manager.core), 118

set_external_config_path() (*in module mgear.animbits.channel_master_node*), 27
set_focus() (*in module mgear.flex.decorators*), 104
set_from_dict() (*mgear.core.attribute.colorParamDef method*), 43
set_from_dict() (*mgear.core.attribute.enumParamDef method*), 43
set_from_dict() (*mgear.core.attribute.FCurveParamDef method*), 39
set_from_dict() (*mgear.core.attribute.ParamDef method*), 39
set_key() (*in module mgear.animbits.channel_master_utils*), 29
set_layout() (*mgear.animbits.cache_manager.collapse_widget.QCollapse method*), 24
set_limits_from_current() (*in module mgear.rigbits.sdk_manager.core*), 118
set_node_data() (*in module mgear.animbits.channel_master_node*), 28
set_thickness() (*in module mgear.core.curve*), 55
set_weights() (*in module mgear.core.wmap*), 102
set_zero_key() (*in module mgear.rigbits.sdk_manager.core*), 118
setAttributes() (*mgear.rigbits.rivet.rivet method*), 123
setBlendWeights() (*in module mgear.core.skin*), 91
setcolor() (*in module mgear.core.icon*), 66
setData() (*in module mgear.core.skin*), 91
setData() (*mgear.vendor.qjsonmodel.QJsonModel method*), 156
setDebug() (*in module mgear*), 158
setInfluenceWeights() (*in module mgear.core.skin*), 91
setInvertMirror() (*in module mgear.core.attribute*), 45
setKeyableAttributes() (*in module mgear.core.attribute*), 45
setMatrixPosition() (*in module mgear.core.transform*), 97
setMatrixRotation() (*in module mgear.core.transform*), 98
setMatrixScale() (*in module mgear.core.transform*), 98
setNamespace() (*mgear.core.callbackManager.CallbackManager method*), 48
setNotKeyableAttributes() (*in module mgear.core.attribute*), 46
setRotOrder() (*in module mgear.core.attribute*), 46
setupUi() (*mgear.crank.crank_ui.Ui_Form method*), 102
show_view() (*in module mgear.flex.decorators*), 104
skinCopy() (*in module mgear.core.skin*), 91
slice() (*in module mgear.rigbits.proxySlicer*), 122
smart_reset() (*in module mgear.core.attribute*), 46
smooth_curve() (*in module mgear.core.curve*), 55
spaceJump() (*in module mgear.rigbits*), 137
SPEED (*mgear.animbits.cache_manager.collapse_widget.QCollapse attribute*), 24
sphere() (*in module mgear.core.icon*), 66
splineIK() (*in module mgear.core.applyop*), 38
splitquery (*mgear.core.six.Module_six_moves_urllib_parse attribute*), 86
splitquery (*mgear.rigbits.six.Module_six_moves_urllib_parse attribute*), 127
SplitResult (*mgear.core.six.Module_six_moves_urllib_parse attribute*), 86
SplitResult (*mgear.rigbits.six.Module_six_moves_urllib_parse attribute*), 127
splittag (*mgear.core.six.Module_six_moves_urllib_parse attribute*), 86
splittag (*mgear.rigbits.six.Module_six_moves_urllib_parse attribute*), 127
splituser (*mgear.core.six.Module_six_moves_urllib_parse attribute*), 86
splituser (*mgear.rigbits.six.Module_six_moves_urllib_parse attribute*), 127
splitvalue (*mgear.core.six.Module_six_moves_urllib_parse attribute*), 86
splitvalue (*mgear.rigbits.six.Module_six_moves_urllib_parse attribute*), 127
spring_UI() (*in module mgear.rigbits.postSpring*), 122
square() (*in module mgear.core.icon*), 66
straighten_curve() (*in module mgear.core.curve*), 55
stripKeys() (*in module mgear.rigbits.sdk_io*), 126
sync_graph_editor() (*in module mgear.animbits.channel_master_utils*), 29

T

testFunc() (*in module mgear.core.callbackManager*), 50
timeChangedCB() (*in module mgear.core.callbackManager*), 51
timeChangedCB() (*mgear.core.callbackManager.CallbackManager method*), 48
timeFunc() (*in module mgear.core.utils*), 99
timer() (*in module mgear.flex.decorators*), 105
toggle_bool_attr() (*in module mgear.core.attribute*), 46
toggle_limits() (*in module mgear.rigbits.sdk_manager.core*), 119
toggleDebug() (*in module mgear*), 158
toggleLog() (*in module mgear*), 158
transformed_widgets() (*mgear.flex.flex_widget.FlexDialog method*), 105

transformWalkDown() (*in module mgear.core.pickWalk*), 77
transformWalkLeft() (*in module mgear.core.pickWalk*), 77
transformWalkRight() (*in module mgear.core.pickWalk*), 77
transformWalkUp() (*in module mgear.core.pickWalk*), 77
type (*mgear.vendor.qjsonmodel.QJsonTreeItem attribute*), 156

U

u() (*in module mgear.core.six*), 89
u() (*in module mgear.rigbits.six*), 130
Ui_Form (*class in mgear.crank.crank_ui*), 102
UnknownHandler (*mgear.core.six.Module_six_moves_urllib_request attribute*), 87
UnknownHandler (*mgear.rigbits.six.Module_six_moves_urllib_request attribute*), 128
unlockAttribute() (*in module mgear.core.attribute*), 46
unquote (*mgear.core.six.Module_six_moves_urllib_parse attribute*), 86
unquote (*mgear.rigbits.six.Module_six_moves_urllib_parse attribute*), 127
unquote_plus (*mgear.core.six.Module_six_moves_urllib_parse attribute*), 86
unquote_plus (*mgear.rigbits.six.Module_six_moves_urllib_parse attribute*), 127
unquote_to_bytes (*mgear.core.six.Module_six_moves_urllib_parse attribute*), 86
unquote_to_bytes (*mgear.rigbits.six.Module_six_moves_urllib_parse attribute*), 127
update_attribute() (*in module mgear.flex.update*), 110
update_blendshapes_nodes() (*in module mgear.flex.update*), 110
update_clusters_nodes() (*in module mgear.flex.update*), 110
update_curve_from_data() (*in module mgear.core.curve*), 55
update_curve_from_file() (*in module mgear.core.curve*), 55
update_deformed_shape() (*in module mgear.flex.update*), 111
update_maya_attributes() (*in module mgear.flex.update*), 111
update_plugin_attributes() (*in module mgear.flex.update*), 111
update_shape() (*in module mgear.flex.update_utils*), 114
update_skincluster_node() (*in module mgear.flex.update*), 111
update_transform() (*in module mgear.flex.update*), 111
update_transformed_shape() (*in module mgear.flex.update*), 111
update_user_attributes() (*in module mgear.flex.update*), 111
update_uvs_sets() (*in module mgear.flex.update*), 112
url2pathname (*mgear.core.six.Module_six_moves_urllib_request attribute*), 87
url2pathname (*mgear.rigbits.six.Module_six_moves_urllib_request attribute*), 128
urlcleanup (*mgear.core.six.Module_six_moves_urllib_request attribute*), 87
urlcleanup (*mgear.rigbits.six.Module_six_moves_urllib_request attribute*), 128
urldefrag (*mgear.core.six.Module_six_moves_urllib_parse attribute*), 86
urldefrag (*mgear.rigbits.six.Module_six_moves_urllib_parse attribute*), 127
urlencode (*mgear.core.six.Module_six_moves_urllib_parse attribute*), 86
urlencode (*mgear.rigbits.six.Module_six_moves_urllib_parse attribute*), 127
URLError (*mgear.core.six.Module_six_moves_urllib_error attribute*), 86
URLError (*mgear.rigbits.six.Module_six_moves_urllib_error attribute*), 127
urljoin (*mgear.core.six.Module_six_moves_urllib_parse attribute*), 86
urljoin (*mgear.rigbits.six.Module_six_moves_urllib_parse attribute*), 127
urlopen (*mgear.core.six.Module_six_moves_urllib_request attribute*), 87
urlopen (*mgear.rigbits.six.Module_six_moves_urllib_request attribute*), 128
URLopener (*mgear.core.six.Module_six_moves_urllib_request attribute*), 87
URLopener (*mgear.rigbits.six.Module_six_moves_urllib_request attribute*), 128
urlparse (*mgear.core.six.Module_six_moves_urllib_parse attribute*), 86
urlparse (*mgear.rigbits.six.Module_six_moves_urllib_parse attribute*), 127
urlretrieve (*mgear.core.six.Module_six_moves_urllib_request attribute*), 87
urlretrieve (*mgear.rigbits.six.Module_six_moves_urllib_request attribute*), 129
urlsplit (*mgear.core.six.Module_six_moves_urllib_parse attribute*), 86
urlsplit (*mgear.rigbits.six.Module_six_moves_urllib_parse attribute*), 127
urlunparse (*mgear.core.six.Module_six_moves_urllib_parse attribute*), 86

urlunparse (*mgear.rigbits.six.Module_six_moves_urllib_parse attribute*), 127
urlunsplit (*mgear.core.six.Module_six_moves_urllib_parse attribute*), 86
urlunsplit (*mgear.rigbits.six.Module_six_moves_urllib_parse attribute*), 127
userTimeChanged() (*mgear.core.callbackManager.UserTimeChangedManager method*), 49
userTimeChangedCB() (*in module mgear.core.callbackManager*), 51
userTimeChangedCB() (*mgear.core.callbackManager.CallbackManager method*), 48
UserTimeChangedManager (*class in mgear.core.callbackManager*), 49
uses_fragment (*mgear.core.six.Module_six_moves_urllib_parse attribute*), 86
uses_fragment (*mgear.rigbits.six.Module_six_moves_urllib_parse attribute*), 127
uses_netloc (*mgear.core.six.Module_six_moves_urllib_parse attribute*), 86
uses_netloc (*mgear.rigbits.six.Module_six_moves_urllib_parse attribute*), 127
uses_params (*mgear.core.six.Module_six_moves_urllib_parse attribute*), 86
uses_params (*mgear.rigbits.six.Module_six_moves_urllib_parse attribute*), 127
uses_query (*mgear.core.six.Module_six_moves_urllib_parse attribute*), 86
uses_query (*mgear.rigbits.six.Module_six_moves_urllib_parse attribute*), 127
uses_relative (*mgear.core.six.Module_six_moves_urllib_parse attribute*), 86
uses_relative (*mgear.rigbits.six.Module_six_moves_urllib_parse attribute*), 127

V

value (*mgear.vendor.qjsonmodel.QJsonTreeItem attribute*), 156
value_equal_keyvalue() (*in module mgear.anim bits.channel_master_utils*), 29
viewport_off() (*in module mgear.core.utils*), 99

W

walkDown() (*in module mgear.core.pickWalk*), 77
walkLeft() (*in module mgear.core.pickWalk*), 77
walkMirror() (*in module mgear.core.pickWalk*), 78
walkRight() (*in module mgear.core.pickWalk*), 78
walkUp() (*in module mgear.core.pickWalk*), 78
with_metaclass() (*in module mgear.core.six*), 89
with_metaclass() (*in module mgear.rigbits.six*), 130
wrapWithDebug() (*mgear.core.callbackManager.CallbackManager method*), 48