AFR -- Fixes

Saturday, December 13, 2008
6:10 PM

[Part 2] Shelf not loading correctly

here's a minor typo in the Animator Friendly Rigging Shelf that causes it to not
Load when starting Maya.

To fix it, open the file: **shelf_AnimationFriendlyRigging.mel**

and change line 1 from:
Code:
```
global proc shelf_AnimationFriendlyRigging2 () {
```
to

Code:
```
global proc shelf_AnimationFriendlyRigging () {
```
The difference is simply removing the **2** from the name of the procedure.

Or, you can download the attached zip file that contains the shelf and the icons for both PC and OSX.

If you are on XP an use the "shelf_AnimationFriendlyRigging.mel" file, that came with the Autodesk download, you might also have to do a search & replace in the file, replacing "*.iff" with "*.bmp", to get the shelf icons to show.

[MEL] js_setUpMultiConstraint.mel

The script now works when trying to create two constraints.. one for trans and one for rot.

[Part 2] Creating the second multi constraint on the head errors out

There was an error occurring on page 266 when you would try and create the second multi-constraint for the head.

This error was due to a bug in the js_createMultiConstraint.mel script.

[MEL] js_createIkStretch.mel Update

There is an update to js_createIkStretch that allows for the script to work when there is a negative value in the translate axis of the joint. This can occur when you mirror a joint (like for left and right).

Please download the latest version here (along with the latest version of js_getStretchAxis.mel).

[MEL] js_getStretchAxis.mel Update

There's an update for js_getStretchAxis.mel available that allows for returning the correct stretch axis when a joint has a negative length. This is used in the js_createStretchyIk mel script and interface.

[MEL] js_attrDraggerSingle.mel - Unknown Node issue

There was a problem with version 1 of js_attrDraggerSingle.mel where it wouldn't allow you to save your scene as a maya ascii file because of an unknown node.

This is fixed in version 1.01. Please download the latest version.

[Part 1] Bouncing Ball Squash Not Working Correctly

Some people are running into problems with the bouncy ball rig where the squash just doesn't look quite right when moving squash_anim to the *base* of the sphere.

To fix it, all you need to do is scale the **squash_nonlinear** node to a value of **2** or more. You can find the squash non-linear node underneath the squash_anim control.

Once you scale it, everything should work perfectly!

AFR -- General

Saturday, December 13, 2008
6:19 PM

AFR Shelf in Maya

In the tutorial video there are more icons on the AFR shelf than there are in the tutorial support files themselves. In particular, the documentation makes mention of an "sdk_length" button which I cannot find. Am I missing something?

it sounds like part 3 only included the shelf files from part 2.. if you ask Autodesk, they should be able to give you the correct part 3 shelf & scripts!

I just loaded the files from Autodesk for part three. The shelf still seems to be missing the icons for 'Add Halfway Joint', 'Connect Blend UI', 'Quick Add Attribute', and possibly 'Select Hierarchy', and 'Parent shape' assuming they don't use default icons, which they might.

CharacterUI on referenced file

I have just finished setting up a AFR rig and it all works beautifully. When I run the CharacterUI_example.mel within that file it works. But, when I reference my rig file into a new scene I can't get the UI to work "Can't find the object we're looking for under the character you selected". Probably because of using namespaces for the reference? I've tried adding the namespaces in the script, but that can`t be it...

hmmm.. I'll have to dig out the files to take a look at this.. unfortunately my computer that everything is on is buried beneath a bunch of stuff. it might take a little bit to get back to you.. are you still having troubles?

rename_geo.bmp missing

I can't seem to find that icon in any of the folders. The others are there, and the shelf loads fine. Any way of reposting that bmp?

Copy animation

I used most of the techniques used from the series to rig a character for a project at uni. For those of you who are familiar with it, I also bought the Art of Rigging series and was hoping to use the jcAnimCS.mel script to copy the animation from the animation rig, onto a deformation rig (which is just the appropriate joints and skinned mesh) in another scene. The problem is, the animation does not copy properly. When I apply the animation to the joints, they flip out into space and just generally pop around the place.

I did think that maybe the script was just not generalized enough to handle different types of rigs, so I wrote my own script, taking the world translation and rotation values of each joint and applying them to the new skeleton (which I thought would work ><). What actually happened, was the mesh would then stagger as the joints had local translation values in the channel box which should not be there.

So my question is, how should I be doing this?

Should the skinned version of the mesh be in the same scene, or is copying animation onto a separate joint system, in another scene, the 'norm'?

Rigging Page 3

I just wanted to update this thread to let anyone who ever happens to find themselves in a similar situation (unlikely I know but hey!)

I managed to get the script I was working on to work, it turned out that all I needed to do was add the joint orientation and rotation order into the save file so that the animation was exactly the same. Its pretty obvious now when I think about it, but its just something I did not realized. Doh! I also adopted a similar creature node feature into the script, after being inspired by Jason's integrating a creature rig DVD. That DVD also answered a few other questions I had. Thanks once again Jason!

Mirror Shape on the AFR Shelf

I'm following the part IV mirroring the arm.
I cannot find the Mirror Shape script/button mentioned in the document (page 384).

I check the shelf_AnimationFriendlyRigging.mel, "Mirror Shape" procedure is actually directly defined inside the shelf MEL, so I think as long as you have the correct shelf MEL, it will show up. the mirror shape button use an ICON that comes with Maya (I think?), so it should show up.

Transform_group_appear

In the middle of making the rig, when I parent joints hierarchy for example to: l_ik_elbow_anim a new group under parent is appearing called **transform** and inside this group is my joint hierarchy which i parent. When I try unparent joint hierarchy from transfer group directly to l_ik_elbow_anim, new transfer group is appearing and my joints are in this new group...and again and again and again!... Is completely unnecessary form my rig point of view, and also i don't see this problem on AFR. How I can solve it?

ok, I found problem, it was a scaling. I freeze transform l_ik_elbow_anim (excluding translations) and all works well....

I seem to be having this problem when mirroring joints. For example, I'll mirror the shoulder joint or the up arm joint across and I'll get a transform group. Any idea where that could be coming from?

js_getAttachedObjects?

I'm working through chapter 4 of the rigging tuts. Trying to work on setting up an IK/FK switch, but every time I try to run the js_matchObjUI script it gives me this error:

// Error: Cannot find procedure "js_getAttachedObjects".

Go one section up to the downloads section and you will find the js_getAttachedObjects.

How to create additional bends within an arm

As for the bendy arm, actually this setup would support it, as the resulting twisting geometry is being controlled with spline IK, only it's a linear spline IK. So it'd be pretty easy to modify the script to add an extra cv or two in each section to make it bendy, I was just trying to keep the rig from getting toooo crazy complicated. However, there's no need for a major re-write.. in fact, you could take the rig the way it is, re-build the curve, re-cluster it, and away you go!

I recently set up a rig with "ribbon" style arms like in the Aaron Holly DVDs. seems to work fine, but some of the bend controls Jason set up on the palm don't seem to work very well. Other then that the arcs it creates are pretty damn nice.

AFR -- Bouncy Ball

Saturday, December 13, 2008
7:11 PM

Parent Constraint or just Parent?

Can I ask you when use Parent Constraint and when we have to use only single "parenting"?

I just saw your AF1, and as you rig the bouncy ball, you make a "parent constraint" (ball_anim -> ball_geo). Later I find out that AutoRotate script catches values from "ball_geo". But, besides this use, when is better to use "Parent Constraint" and when is better to use only "Parent"?

the main reason to use a parent constraint is to keep something out of the hierarchy you want it to follow. otherwise, you can happily use parenting (unless you want to parent to MULTIPLE things.. then parent constraints are the thing you want to use).

AFR -- Torso

Saturday, December 13, 2008
7:13 PM

Going beyond 180

The twist controls work well, up to 179-odd degrees of rotation, but hitting 180 or beyond, causes the spine to flip. I'd like to be able to twist the spine as much as I'd like without worrying about about the popping. Does anyone have a direction to push me as far as WHY the spine is flipping? I'm not looking for a solution from you all, just more understanding as to why its happening.

I was able to modify a ribbon spine setup to allow for this, but that had more explicit controls, where as this seems more calculated by Maya. You can see the effect I'm going for here: http://animandmel.blogspot.com/2007/11/so-heres-ribbon-spine-i-rigged-up.html

Its popping almost as if the calculation is using a dotProduct from some matrices or something...could this possibly be the reason? If so, is it beyond my control? Any possible workarounds?

Can I turn on/off the stretchy feature?

You can probably modify the rig by having a condition that check if a stretchy attribute is set to on or not and output 1.0 or the actual stretched scale factor.

Advanced twist control with MEL

I am writing a biped mel rig-script and I want to set up the spline IK torso rig... but I can´t find a way to declare the world up objects in advanced twist controls with mel...

FYI i got the answer from Autodesk.

to connect locator1 to ikHandle1:

connectAttr -f locator1.worldMatrix ikHandle1.dWorldUpMatrix;

Advanced twist with curved spine

I was working through AFR part 2 concepts using my spine model and could not get the advanced twist to behave. I think it has to do with my spine being slightly s-curved (it's a human spine model). I also think it has to relate to the fact that my start and end joints to my spline IK are angled whereas my hip/shoulder ctrls (the world up objects) are rotated clean 0-0-0.

Curvature of the spine shouldn't be a problem...but not having the X axis pointing down the bone is a big one. I'm not sure why it has to be this way, but the advanced twist only works when the positive X axis aims down the bone. Reorient your joints and give it another try.

I switched the joint orientation and it works perfectly!

AFR -- Head/Neck

-listEnum and maya 7.0

I'm on page 190 of the AFR section 2 and I cannot get the Constraint Snap UI to work. Maya returns this error.

Error: Invalid flag: -listEnum

Is this specific to Maya 8.0? I tried a search in the Help files and nothing came up for this command. To clarify, I get no UI with locator1 selected but I do get a UI with no pull down list when I selected the cubes.

oh man, I totally forgot to check this out. I'd guess that the listEnum flag is new to 7.5 or 8.0

AFR -- Leg

Saturday, December 13, 2008
7:21 PM

Create matching on right leg, not working?

As far as I can see I've setup the leg matching as in Jason's AFR 4 tutorial but I can't get it to work? When I try to match the IK to the FK I get an error message saying.

// Error: Cannot set the attribute 'r_foot_anim.upLegLength' below its minimum value of 0. //

I've setup the matching as per page 410 on the AFR part IV pdf.

Just noticed that the left leg no longer functions..
It doesn't give a error exactly, only stops at // Post attributes..

It seems that the matchObj script isn't working for any of the limbs when trying to match IK to FK. No errors, just nothing happens. I've also tested using the JJ rig created by Jason.

I guess I should mention I'm using Mac OS X, Maya 2008 extension 2, and version 1.0 of the js_matchObj.mel.

Right Leg Mirrored PV- stretch on r_knee_anim doesn't work

so it turns out the mirrored X axis is the problem..so after you mirror the leg and after you delete the geometry and match nodes that came with the new mirrored joints

Select the new r_upLeg_joint and Freeze transformations then REORIENT TO DEFAULT SETTINGS

THEN Parent the earlier mirrored geo to the new joints

However, you won't be able to rotate the FK legs in the same directions with mirrored results. You could hand rotate the right leg Y and Z axes so that they are the opposite of the left leg, but the X axis just won't work the same way..

So perhaps a reverse node somewhere might work?

whenever I use the Stretch attribute my low-leg gets flipped
and I assume the reason is the mirroring, I tried using Jason's updated scripts and
yet it still acts the same way...

I had this problem. What is going on is that when you mirror the joints over the x-Axis has negative x values in the translate. That's fine, but when you setup the stretchy ik and knee lock, you are using the distanceDimension node. This returns a positive distance and plugs it into the translateX of the leg joints. so what you have to do is add a reverse or muiltiplyDivide node between the distance and the leg.translateX to flip the values. do this for the lower leg as well. This fixed my problem. I also had to do this for the mirrored arm as well.

IK/FK leg matching

every time I try to add the Toe_Spin attr to the Pre- Match settings, it gives me this error:

// Error: No object matches name: L_Foot_anim.match_pre_4_Toe

I had this same problem on the arm, then realized I'd done a silly thing. Make sure the iteration attribute is selected before (and whilst) choosing object 1 and 2.

Stretch in IK noFlip leg problem

Correct me if i am wrong but when u lengthen any one of the leg joint, the stretchiness will not work. Because once you lengthen the leg, the total length will be different from what is set in the setDriven key. Is this supposed to be the correct behavior?

Part 4 comments

I noticed on page 99 of the docs for part 4 that a parenthesis is missing from the ball expression right after the first linstep function. The actual picture of the script in the expression editor on page 100 is correct however.

I'm in Part 4 and trying to mirror my SDK to the right hand. In my notes it says to change tabs but the script I'm using doesn't have a tab to switch. I'm using the latest js_copySetDrivenKeyUI.mel.

Ah my mistake this time. I should be using the script FROM part 4. That makes sense.

lol! yeah.. I found some bugs in it, and re-released the script with part 4.

AFR -- Arm

Saturday, December 13, 2008
7:39 PM

Right elbow lock?

When trying to match between from IK to FK while elbow lock is activated, because the joints are mirrored, it seems like the elbow locking flips the rotation values -- and causes the js_matchObj to completely miss the IK system.

I was sure it was only me, but I found the same happens in Jason's finished rig, so I am wondering if anybody has stumbled upon this issue?

As a little test, I built a new scene, with only 2 joint system, 1 I built and another mirrored.
Now I set a stretchy IK system on the mirrored one and without even moving the elbow, just turning elbow lock on, the rotations shifted from 0 0 0 to both up and low arm.

up_arm - 0 0 180
low_arm - 0 -180 0

Sticky elbow arm additions

I was working through the arm toolkit with the DVD, and managed to set it all up correctly (wooHOo), but I didn't like how if you changed from controlling the forearm from IK to FK with a pinned elbow, the arm changed size. So I found a way to circumvent this, so the arm is the same size it was while prior to switching.

Simply create another distance dimension node, with two new locators. Place the start one under the elbow_anim (the control) and the other under the IK's circle control (I can't remember the exact name off hand). Then, have that distance drive the X trans of the fk forearm's circular controller that is under the elbow's anim control. Oh, but you have to move the fk forearm's control to the elbow controller's position and freeze transformations first, that way its all relative to the elbow. Hopefully this makes sense. But now, as you pin the elbow, and switch from IK to FK, the arm maintains its length.

Next steps would be to include some sort of aiming device, so the elbow controller aims at where the hand's controller is at the time of the switch...and VOILA!...matching!

Arm mirroring reverse twisty issue

When mirroring your spline IK arm setup over, I've noticed that the lower arm spline IK joint chain doesn't rotate correctly with the wrist; it rotates in reverse. In your mirroring_leg_v26 file (which is the most complete rig example file I've found), the rotation is problematic on the lower arm twisty segment. I've found this to be true in my attempt at your setup as well.... Any ideas on how to fix this? I believe it's due to Advanced Twist needing X down the chain.

Strange, I had that problem at first, but thought I fixed it. I'll have to check. The most likely fix is to insert a reverse node before the rotation, but I'll double-check and make sure it's working correctly.

So I just ran into this issue and have been trying some ideas to get this to work.

Currently I do have a reverse node applied and the rotation is indeed going in the right direction but it seems the twist from the spline IK is doubled and is twisting faster than the hand.

I've tried placing the reverse node in a couple of different places and even dampening the rotation via a multiplyDivide node but I'm getting nowhere.

Hey Mike,

I posted a fix..here it is again..

TO FIX THE TWISTY SEGMENTS:
O Select the geometry in the low arm and up arm and unparent from the existing twisty segments
O DELETE r_up_arm_grp

NOTE: THE SCRIPTS DO NOT WORK ON THE ?X AXIS.
To solve this issue,

O Mirror the r_up_arm, delete the children of r_up_arm1 except the r_low_arm1
O Select the move tool, hold down the ?v? key and snap it into the r_up_arm (shoulder)
O Mirror the r_low_arm, delete the children of r_low_arm2 except the r_hand1

O Select r_up_arm1, USE AFRscripts create twisty segment and set the following:
  Prefix: r_up_arm1
  Joint: r_up_arm1
  Num Segments: 4
  World Scale: check
  Node: all_anim
  Attribute: global_scale

O Select r_low_arm2, USE AFRscripts create twisty segment and set the following:
  Prefix: r_low_arm1
  Joint: r_low_arm1
  Num Segments: 4
  World Scale: check
  Node: all_anim
  Attribute: global_scale

O   Select r_up_arm1_end_ctrl, take the move tool, hold down the V key and snap it into the r_low_arm joint (elbow)
O   Select r_low_arm2_end_ctrl, take the move tool, hold down the V key and snap it into the r_hand joint (wrist)

O Delete r_up_arm1 and r_low_arm2
O Parent the arm geometry under the appropriate NEW twisty joint on the right side

O Parent r_up_arm1_grp under r_fk_up_arm_orient_anim
O Parent Constrain r_up_arm1_start_ctrl (follower) to r_up_arm (leader) (joint)
O Parent Constrian r_up_arm1_end_ctrl (follower) to r_low_arm (leader) (joint)
O Parent r_low_arm2_grp under r_up_arm1_end_ctrl

O Parent Constrain r_low_arm2_end_ctrl to r_hand_base_skin

I found a problem with the mirrored r_arm. When I added the twisty-seg and parent constrained the start_ctrl to r_upArm, and the end_ctrl to the r_loArm, if i rotated the FK arm up in Z, and then rotated it in Y the twisty arm flips out.

As a work around i would create a temp up_arm joint with the local rotation axis not mirrored. select that and click create twisty arm. then connect it to the r_up_arm.

This fixed the wackiness, but the LRA don't match the r_up_arm joint.

another solution: import that "limb_segments.ma" and starts again...

but remember, do not "rotate" that "limb_seg_grp", just snap on desired points

anyone knows another script that makes twisty segments AND can be mirrored?

ONLY if you're not using "all_Anim" globalscale stuff…

To add my two cents after I follow your solution: in your solution, after make the twisted ik in the duplicated r up arm1 and r low arm2:

1. Select r_up_arm1_end_ctrl, take the move tool, hold down the "v" key and snap it into the r_low_arm joint (elbow)

2. **Select r_low_arm2_start_ctrl, take the move tool, hold down the "v" key and snap it into the r_elbow joint (elbow), then** (the bold text should be a step too) Select r_low_arm2_end_ctrl, take the move tool, hold down the "v" key and snap it into the r_hand joint (wrist)

Missing MEL scripts

The problem here was that the Mac version of the shelf is buggy and not updated past the second DVD. So, this info is EXCLUSIVELY for Mac Users.

Here are all the most recently updated JS scripts together with an updated shelf AND a specially created new icon for rename-geo.iff (there used to be no icon at all).

http://www.hollowearth.org/dl/JS_Scripts.zip

Following these instructions **VERY CAREFULLY** will lead you to install them properly.

Mel Scripts:

To make sure the material is available to you, please copy the mel scripts provided in the "scripts" director to your own scripts directory.

On OSX that location will be:
$HOME/Library/Preferences/Alias/maya/scripts

Shelf:

Copy shelf_AnimatorFriendlyRigging.mel to the prefs/shelves directory.

On OSX that location will be:
$HOME/Library/Preferences/Alias/maya/8.0/prefs/shelves/

*note, replace 8.0 with the current version of Maya that you're using.

Icons:

In order for the shelf to work, you must install the correct icons. Please copy the icon files from the appropriate prefs directory into the following location:

On OSX the location will be:

$HOME/Library/Preferences/Alias/maya/8.0/prefs/icons/

Shoulder problem in IK mode

I've noticed that the shoulder in IK mode flips out / twist funny.. for example if you stretch the arm out right in front of him using this rig setup in IK mode for some reason the rotation on the twist in the shoulder doesn't know which way it should go so starts to flip the other way...

I've seen this behavior before Kris & I remember someone had posted a solution earlier.. let me search and see if I can find it for ya...

I've had a look myself and couldn't find anything except maybe by adding a twist fix function that manually puts the locator in the right position. I might be able to write an expression so if the shoulder starts to rotate it will counter rotate the other way?

Flipping with twisty segments

I'm surprised I haven't seen this mentioned anywhere - when rotating the hand control over 90 degrees in Z (effectively breaking the wrist) flipping occurs - this is due to the locator controlling the twisting on the ikSpline going through and past the joints in the arm.

It seems the only quick fix is to have the locators unlocked and visible so that we can prevent them from doing this.

This also happens up at the shoulder too, if you've rotated the body anim 90 degrees in X first.

This occurs on the JJ rig as well, so I don't think it's something I've missed.

See Cheryl's in-depth fix above.

AFR arm scale issue

So I was going through part 3 of AFR and while I was doing this I was creating both arms at the same time, and got to a spot where I am having an issue.

When I was testing the right arm of the rig, I had it in IK mode for both l_arm_state and l_low_arm_state. Moved the r_ik_hand_anim around and then adjusted the r_ik_elbow_anim. So far so good, but when I tested the stretch attribute it first scales in a negative fashion until you get to 0.8. I should also say that I used Cheryl's solution for the right arm twisty rotation issue (thanks by the way, that rocked).

The reason the problem happen is that when r_ik_elbow_anim.stretch became 1, the translateX value of r_ik_low_arm joint and r_ik_hand joint is controlled by the distance nodes; however the default translateX value of r_ik_low_arm joint and r_ik_hand joint is negative but distance nodes' distance value is positive. So, we need to multiply the distance nodes by -1, using multiplyDivideNodes.

1. Select r_ik_elbow_anim_loc(Shape)

2. Open Hypergraph-connection

3. create two rendernodes: multiplyDividedNode

4. insert the multiplyDivideNode between r_ik_low_arm_toElbowDist and r_ik_low_arm_toElbowDist_worldScale, and r_ik_low_arm_toEndDist and r_ik_low_arm_toEndDist_worldScale.

5. Set the multiplyDivideNodes' second input -1.

Thank you so much, I do believe that did the trick. I do have a question though. In my scene file I already had 2 multiply/divide nodes in those spots, and their 2nd input values were set to 1. But they were also connected, so I broke the connection and set the values to -1. At this point I just tested the rig and the stretch did indeed work.

My question is do I need to reconnect the second input for both of these nodes or can I leave them as is? I ask because I can't exactly remember what was connected to those outputs. I wanna say that it was the distance attribute from r_ik_low_arm_toEndDistShape and r_ik_low_arm_toElbowDistShape.

Don't break connection of 2nd input of multiply\divide nodes you already had. Those are connected to all_anim.globalScale.

connect "r_ik_arm_toEndDistShape.distance" to "new_multiplyDivide1.input1X",
connect "new_multiplyDivide1.outputX" to "r_ik_low_arm_toEndDist_worldScale.input1X",
connect "r_ik_arm_toElbowDistShape.distance" to "new_multiplyDivide2.input1X" and
connect "new_multiplyDivide2.outputX" to "r_ik_low_arm_toElbowDist_worldScale.input1X".

Or, go back to the file before you edit and run this MEL script I have just wrote.

First, select the r_ik_elbow_anim_loc locator. It is under r_ik_elbow_anim.

(Script removed; new version below)

Here is new version of the script. This one uses a reverse node insted of using two multiply/divide node. More efficient!

Select the locator under the elbow control and execute!
If you have same problem with your right knee, you can use this
script for the knee as well. Just select the r_knee_anim_loc locator
under r_knee_anim, and execute my script.

```
global proc fixStretchFlipping()
{
   string $ik_loc[] = `ls -sl`;
   for ($each_loc in $ik_loc)
   {
      if (`nodeType $each_loc` == "transform")
      {
         string $temp[] = `listRelatives -children $each_loc`;
         $each_loc = $temp[0];
      }
      if (`nodeType $each_loc` == "locator")
      {
         string $distNodes[] = `listConnections -shapes 1 -type "distanceDimShape" $each_loc`;
         string $reverseNode = `substitute "to.*Shape" $distNodes[0] "to_dist_reverse"`;
         string $reverse = `shadingNode -asUtility -name $reverseNode reverse`;
         int $i = 0;
         string $XY[] = {"X", "Y"};
         for ($each in $distNodes)
         {
```

```
            if ($i > 1) error "Third distance node connected";
            string $worldScale[] = `listConnections -source 0 $each`;
            connectAttr -force ($each + ".distance") ($reverse + ".input" + $XY[$i]);
            connectAttr -force ($reverse + ".output" + $XY[$i]) ($worldScale[0] + ".input1X");
            $i++;
        }
    }
    else
        warning "Wrong Selection.";
    }
}

fixStretchFlipping;
```

Possible wrist error

Page 247

Where it says:

"Select l_up_arm_orient, l_fk_up_arm, l_fk_low_arm, and l_fk_wrist"

I think it should be:

"Select l_up_arm_orient, l_fk_up_arm, l_fk_low_arm, and l_fk_hand"

There is no "l_fk_wrist" node.

page 261

"Select l_shoulder, l_up_arm_grp, and l_hand_grp"

I think there is no " l_hand_grp" but please reply if I'm wrong.

Part 3 comments

Just wanted to bring up a possible error in the docs:
Page 56--the last 2 bullets as far as I can tell aren't needed.

Okay! found out what the last two bullet points are..

This is in regards to what attributes are available in the channel box for the hand. The last two bullet points say to highlight the translateX channel and hide it, not hide & lock it.

This is totally necessary, as if we don't hide the translateX channel, the animator will save keys for it when they hit S. Notice, we're not hiding and **locking** translateX with translateY and translateZ because it has an incoming connection that controls the length of the arm.

Does that make sense?

AFR -- Mel scripts

Saturday, December 13, 2008
8:10 PM

Length script

So I've noticed something interesting with the length script.

After you set the x translation to infinity and all that, the X translation stays in the graph editor, even if you lock and hide the control. While this isn't that big of a deal, it's a big hassle for an animator. Every time they hit show all the scale zooms way far out.

Is there any way to hide this control in the graph editor?

Moveable pivot on an object that is constraining other objects

I have a question about how to have moveable pivots on an obj that is constraining another obj (the master). The pivot switching works except that there is a pop in the constraint target. I assume this is from the correction in the translate.

The workaround I found was to have a child of the pivotable obj be the constraint master, but i was wondering if there is some matrix magic, or a connection that I am not thinking about to get this to work without added another node.

Transforms in MEL

I need to calculate the transforms resulting form parenting an object to another group, setting the translates and rotates of the object to zero (causing the objects to align) and then re-parent to another group. Is this hard to calculate in mel?

Okay I don't know which transforms you're wanting but if you get the world space pos and orientation of your object and then get the same data after applying your parenting and zero transforms you just need to calculate the difference between your final values and your original values...

The main command you want to be looking at is xform, this command allows you to retrieve specific transform data and apply transformation matrices to objects.

So you have 3 objects? parent1, parent2 and object?
Is this what you want to do?

```
parent $object $parent;
set ($object + ".translate") 0 0 0;
set ($object + ".rotate") 0 0 0;
parent $object $parent2;
```

Moveable pivot

Just a few questions regarding your movable pivot scripts. I'm working on prepping my generic character so that it can have moveable pivots - gotta move a few constraints around first - but I ran into something when I add the setup. The pivot_mov is added just fine, but it doesn't have zeroed out transformations, meaning I can't easily set it back to the original position after it's moved somewhere new. I tried freezing the values, but then the pivot snap goes all crazy. I know we're

dealing with temperamental pivots, but it sure would be nice to zero those out, any ideas?

Also, when I post this rig (for download on my website) would it be okay to include the scripts needed to move and snap the pivots? Can I embed them into the file, or package the mel script with the rig? If you don't want to give too much away, perhaps I could use one that has the pivot_create proc stripped out? I just need something I can distribute (credit going to you, of course) that would retain the pivot snapping awesomeness, but wouldn't undermine your livelihood. What do you think?

I haven't tried it with zeroing out the transform, but I'll look into it.
Is it the pivot that you want zeroed, or the object?

And yeah, you can distribute the snapping script as long as you link back here & recommend the DVD!

It seems that whenever I add a moveable pivot, the _mov locator (and thus also the _anim locator) has transform values that are relative to the world, so if I set them back to zero, the locators go straight to the origin. My control object that I run the script on is zeroed out, it's just the locators that have some extra transforms. Weird?

All I did was create an extra locator that stays in the original location. So if I want, I can snap the pivot back to this location.

I've got a script (based totally on Jason's) that does pretty much this. It'll be available in August, so you might have to wait till then.

Yeah, I'm thinking I'll do a "reset pivot" button that does essentially the same.

edit I just added a few lines to the create proc that stores the original pivot location onto some hidden attributes. Then I've got a small proc that reads these attributes to reset the pivot. Simple enough, but it works.

Snap position and orientation

A SIMPLE LITTLE SCRIPT THAT WILL MATCH THE SECOND OBJECT"S ROTATION AND POSITION TO THAT OF THE FIRST OBJECT IN WORLD SPACE. COPY THE SCRIPT AND MAKE A SHELF BUTTON.

```
$firsttwo = `selectedNodes`;
$alignRot = `xform -q -a -ws -ro $firsttwo[0]`;
$alignPos = `xform -q -a -ws -t $firsttwo[0]`;
rotate -a -ws $alignRot[0] $alignRot[1] $alignRot[2] $firsttwo[1];
move -a -ws $alignPos[0] $alignPos[1] $alignPos[2] $firsttwo[1];
```

Credits: The original written by **J ADAM BURKE** (http://www.adamburke.net)

You can make this a little more useful by using a for each loop, so you can snap multiple objects.
```
string $sel[] = `ls -sl`;

float $pos[] `xform -q -ws -rp $sel[0]`;
float $rot[] = `xform -q -ro $sel[0]`;

for ($each in $sel)
{
     move -rpr -xyz $pos[0] $pos[1] $pos[2] $each;
    xform -ws -ro $rot[0] $rot[1] $rot[2] $each;
}
```

Couldn't you also do:

```
delete `pointConstraint`;
delete `orientConstraint`;
```

Of course, if you don't mind snapping your objects via constraints, it's a quick and dirty way to snap, but yet quite efficient! Then you could even do:

```
delete `parentConstraint`;
```

flag -listEnum -- maya 8 thing?

It must be a Maya 8 flag. This is the procedure I use in Maya 7.0 to get a list of the enum strings.

```
//Returns an array of the names of an enum attribute
global proc string[] apEnumNames (string $obj,string $attr)
{
string $enumStr,$enums[],$enumNames[];
if (`attributeExists $attr $obj`){
if (`addAttr -q -at ($obj+"."+$attr)` != "enum") error ("Attribute \""+$obj+"."+$attr+"\" is
not of type enum");

//Query the enum names and tokenize them
$enumStr = `addAttr -q -en ($obj+"."+$attr)`;
tokenize $enumStr ":" $enums;

for ($n=0;$n <= `size $enums`-1;$n++){
tokenize $enums[$n] "=" $enumNames;
$enums[$n] = $enumNames[0];
}
return $enums;
}
else error ("Attribute \""+$obj+"."+$attr+"\" does not exist");
return {};
}
```