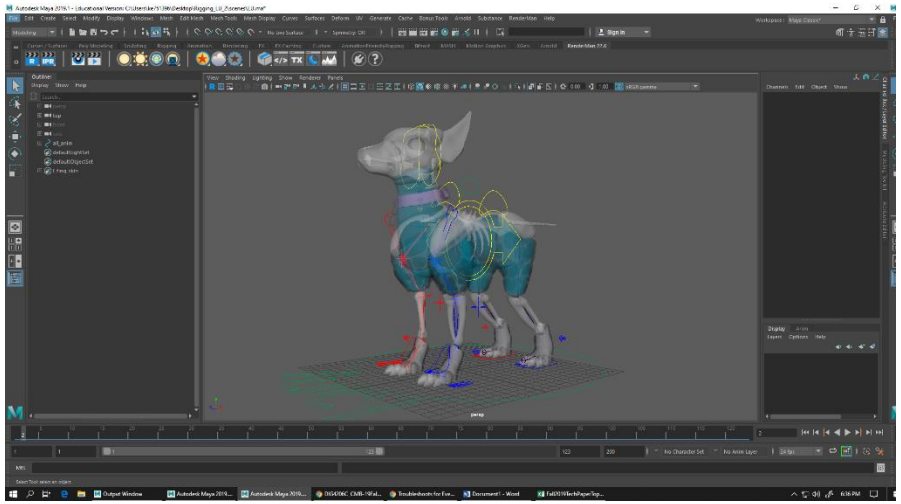
How to export part of an old rig and import it and connect it to a new rig (hand example)

Opening your Maya file:

- Open your old Maya file and new Maya file. If you cannot open two Maya files on your computer, just open the old Maya file of your rig.
    1. Start Maya on your computer, if you have a Mac you can open Maya through the Lanchpad, search for Applications and select Maya in the Autodesk folder, or select it off your Doc. If you are using a PC push the Start button and select it out of the Autodesk folder in the Applications column or select the magnifying glass and search for Maya
    2. In your Maya window go up to File and scroll down and select Set Project
    3. Select the Maya folder your old rig is in.
    4. The go up to File again and select Open Scene
    5. Select your scene
- This is my old Lucy rig, in her new rig her front legs were completely re-rigged.

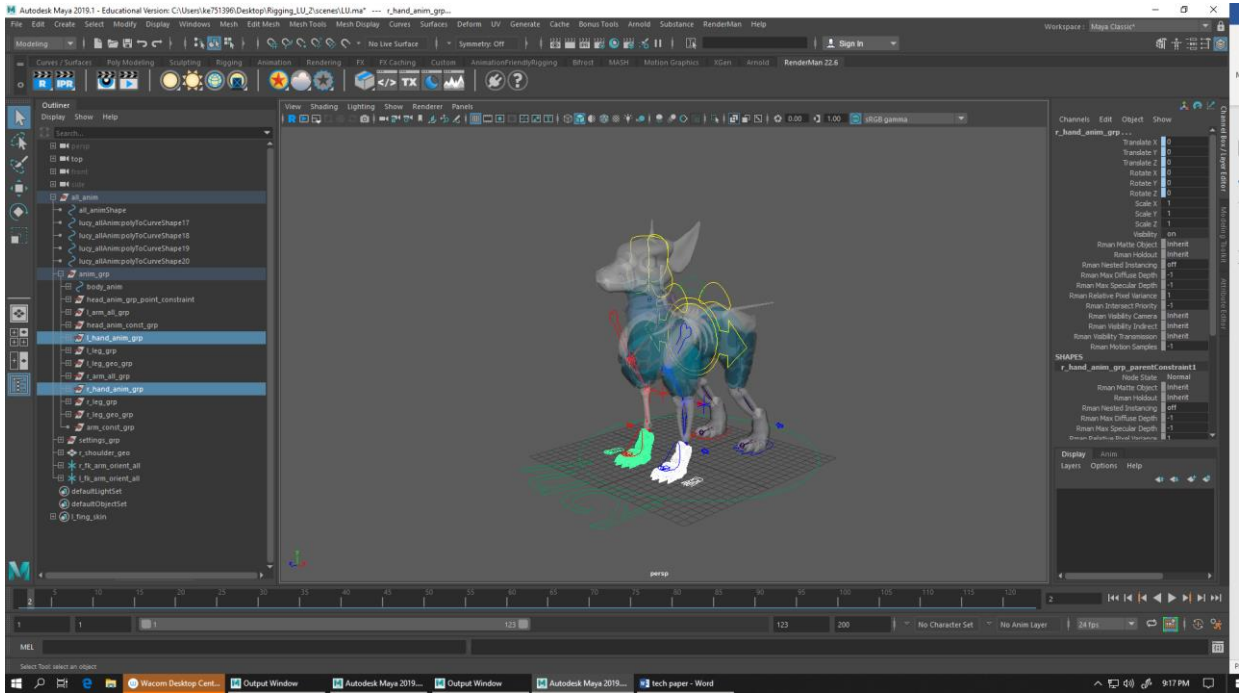


Exporting and importing the hands on the old rig to new a rig:

1. In your old rig file you need to find the l_hand_base_skin in your Outliner. It is located under the all_anim in the all_anim_group. Select and open l_hand_anim_grp and then open l_hand_doNotTouch and select l_hand_base skin. An

easier way to find and select it is to put it either in the search bar over your Outliner or put the name in the Menu of Input Line Operations and then push F. You need to find the l_hand_base_skin because it is part of what you need to export.

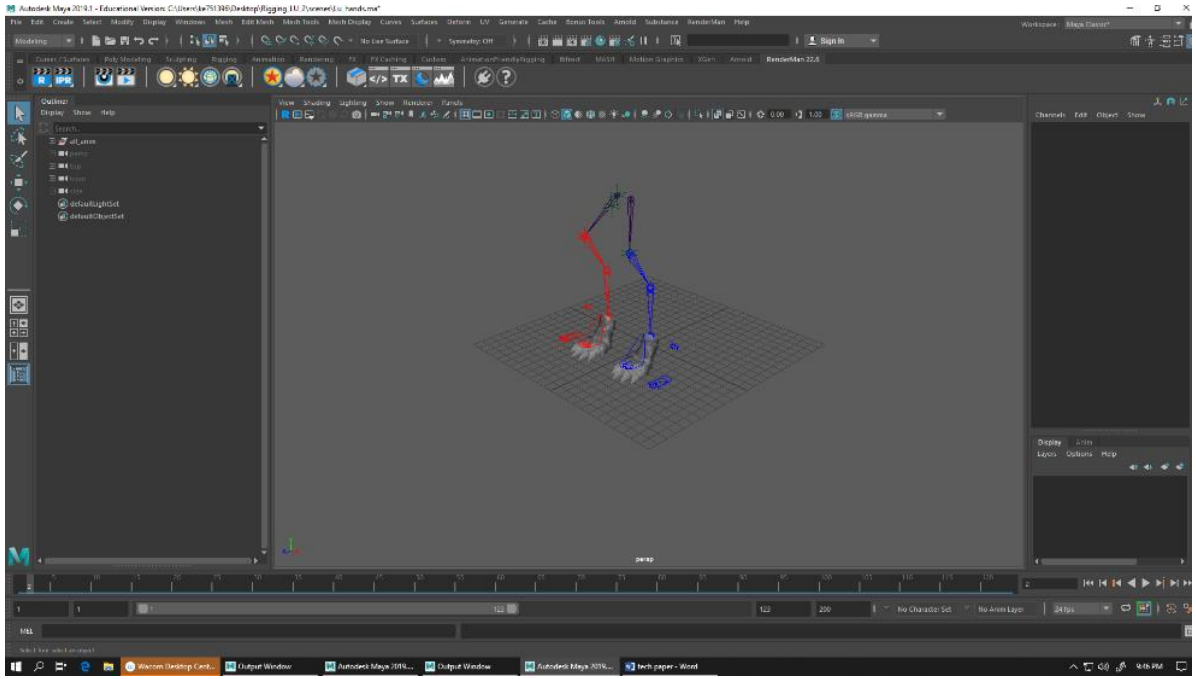
2. Follow the same steps in step 1 to find the l_hand_base_const. It should be in the l_fing_bend_loc group which is parented under the l_fing_side2_loc. L_fing_side2_loc is a group under l_fing_side_loc which is also under the l_hand_doNotTouch group.
3. After you find the l_hand_base_skin and the l_hand_base_const, select the l_hand_anim_grp. The l_hand_anim group has a series of groups (children) underneath it, l_hand_doNotTouch should be one those groups.
4. With the l_hand_anim_grp selected, select the r_hand_anim_grp. On a PC you Shift select another selection in the outliner. On a Mac you Command click another selection.



5.Go up to File and scroll down Export Selection Option Box.

6. In the Export Selection Options pop-up, change the file type from mayaBinary to mayaAscii and then push Export Selection

7. A pop-up window of your scenes file will appear. In the File Name put a name for your exported hands. For my name I put Lu_hands. You need to name your scene something easy to remember and something easy to find. When you rig a character, your file holding the rig has all your progress from when you started, messed up, and succeeded. There is a lot of scenes in your rig file. You can also save your hand export to your Desktop if it is easier for you to find. You can do this by clicking on Desktop in the top left corner of the pop-up.



8.Go up to File and select Open Scene

9. Select your exported hand file (Lu_hands)

10. Your scene should just have leg rigs and hand rigs. Your Outliner will have all_anim, click on the plus sign by the all_anim to open it and select l_hand_anim_grp and r_hand_anim_grp.

11. On your keyboard push Shift + P. This unparents l_hand_anim_grp and r_hand_anim_grp from all_anim.

12. Select and Delete the all_anim. You delete the all_anim because if your new rig has re-rigged arms it would make your scene messy with two arms and it would make connecting your hands to your new rig confusing. In your scene you should only have hands. Your Outliner will only have l_hand_anim_grp and r_hand_anim_grp.

13. Save your scene

14. Go up to File and select Open Scene and open your new rig

15. Go up to File and select Import

16. Select your hands (Lu_hands)

17. If you already have hand geometry in your file, hide lu_hands:l_hand_anim_grp and Lu_hands:r_hand_anim_grp in the outliner. Select the hand anim groups in the Outliner and push H. If there is a colon in a name that means that it was imported. So, Lu_hands is the scene and l_hand_anim_grp is what was imported.

18. Find and delete l_hand_geo and any other geometry that is on the hand. This can be found in l_hand. Lucy has rocks on her hands so I deleted the geometry of the rocks.

<u>Cleaning the Namespace Editor:</u>

1. Select your imported l_hand_anim_grp (Lu_hands:l_hand_anim_grp) and then go up to Windows.
2. In the Windows drop down scroll over General Editors
3. A pop-up will appear next to the drop down, select Namespace Editor.
4. Select your hands (Lu_hands) on the left side of the pop-up.
5. Push Delete on the right side of the pop up and then push Merge with Root on the warning pop-up.
6. Push Close. Merging with the root takes out Lu_hands of the name

<u>Checking your hand attributes:</u>

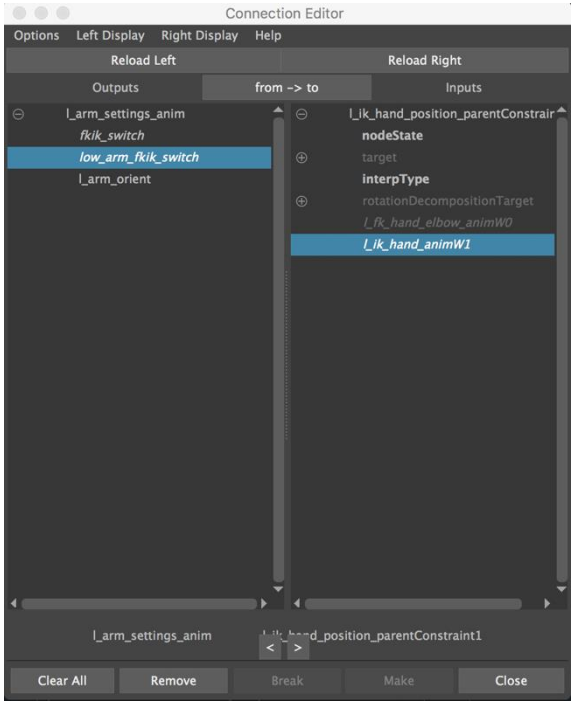
- I like to check all the attributes on the hand to make sure that they are working
  1. Click on the l_fingers_anim.
  2. In your channel box test all the attributes (Bend, Side, Curl, Scrunch, Relax, Spread, Mid Spread, Ring Spread, Twist, and Lean)

3. Check each individual finger attributes in the Channel box. You should be able to move the fingers as a group and individually
4. If your attributes are not working, check your finger codes and edit them to reconnect it. Keep in mind that every character is different so edit the code from AFR to how your character is supposed to be. Lucy does not have thumbs so I took out all code that had to do with thumbs.
5. If reconnecting the codes does not work recreate the Set Driven Keys for your hand positions and then re-enter the code from AFR.

<u>Connecting the left hand to the left arm:</u>

- In this example you are connecting a fully finished hand to a fully finished arm. When you finish the hand, some parts are re-named like l_hand_ctrl_grp is renamed to l_hand_anim_grp.
  1. Select the l_hand_anim_grp and then command (MAC) or ctrl (PC) click the anim_grp and hit p. The l_hand_anim_grp should be parented under the anim_grp.
  2. Search for and select the l_ik_up_arm_distance_end in the outliner and ctrl+d. Rename the duplicate l_ik_hand_position and delete all of the children. The children are duplicates of what is in the l_ik_up_arm_distance_end so there does not need to be another duplicate of the children.
  3. Select the l_ik_up_arm_distance_end and then command (MAC) or ctrl (PC) click the l_ik_hand_position in the outliner and choose Windows and scroll down to General Editors and select Hypergraph Editors. Move the hypergraph pop-up to a spot on the screen that makes it easy for you to work with multiple windows open.

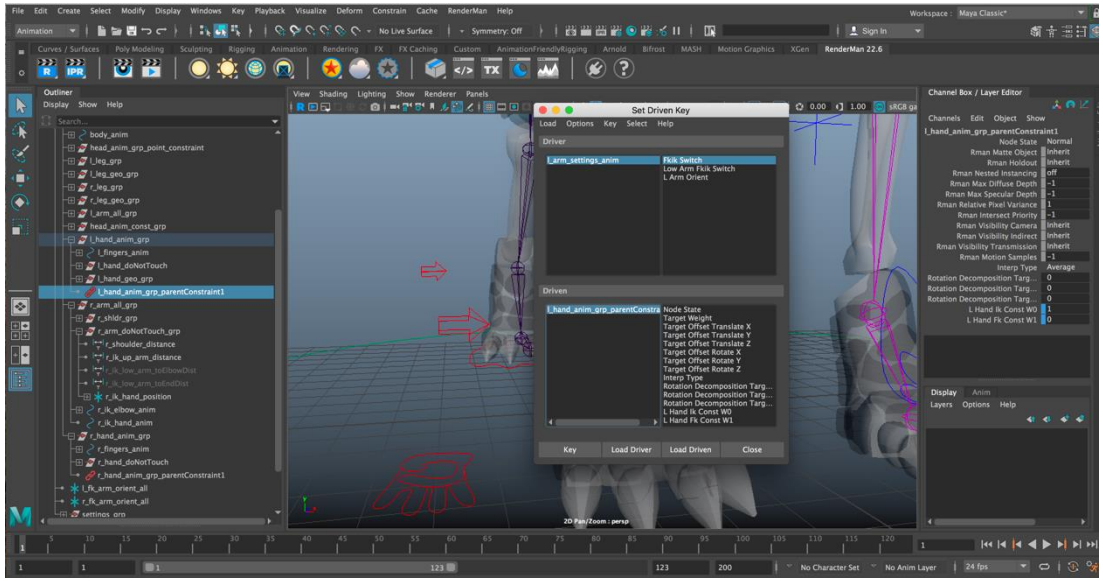
4. Select the l_fk_hand_elbow_anim and then the l_ik_hand_anim. You need to select in that specific order because the parent constrain we are going to do will not constrain correctly if selected in the incorrect order. This constrain is one of the steps to get the hand to move with both the fk and ik arm.
5. With the l_fk_hand_elbow_anim and the l_ik_hand anim selected, then select the l_ik_hand_position and go up to Constrain and select Parent in the rigging menu set. You can also hold down the space bar and select Constrain Parent.
6. Open the Connection Editor by going up to Windows and scrolling down to General Editors and selecting Connection Editor.
7. Find the l_arm_settings_anim and load on the left of the Connection Editor and find and load l_ik_hand_position_parentConstaraint1 on the right. You can find l_ik_hand_position_parentConstaraint1under the l_ik_hand_position_parentConstrain1
8. On the left of the Connection Editor select low_arm_fkik_switch and on the right side of the connection editor select l_ik_hand_animW1. This connects the two together
9. Click on the reverse node in the Hypergraph or you can search for it and click reload left in the Connection Editor
10. Select outputX on the left of the Connection Editor and l_fk_hand_elbow_animW0 on the right to connect it.
11. Search for and delete l_ik_up_arm_distance_end_parent_constrain
12. Search for and select l_ik_up_arm_distance_end and then command (Mac) or ctrl (PC) click on l_hand_base_skin and push P to parent
13. Search for and duplicate l_hand_ctrl_grp and rename the duplicate l_hand_fk_const and delete all of the children
14. Duplicate the l_hand_fk_const and rename it l_hand_ik_const

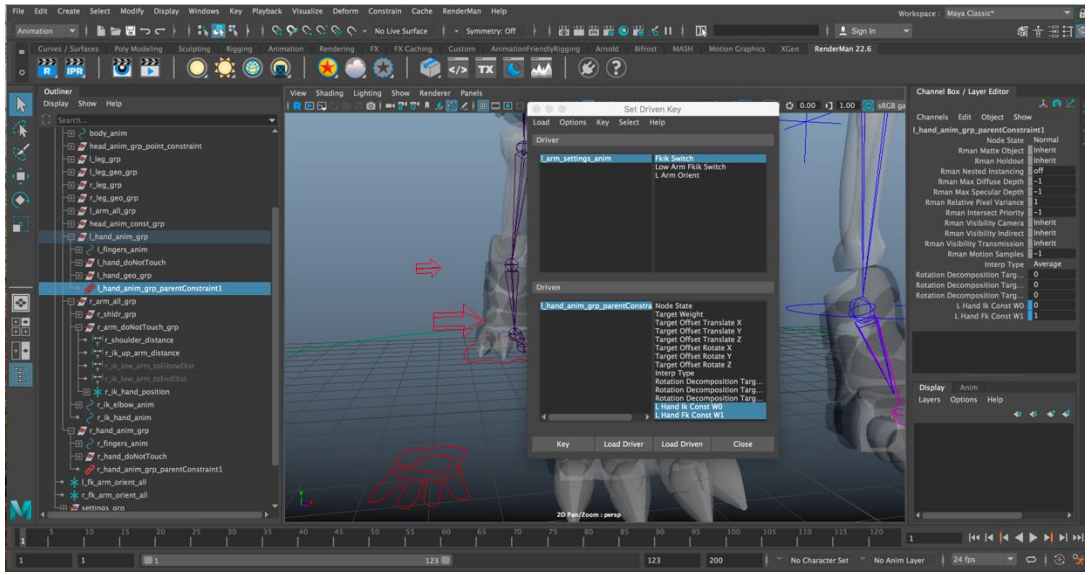


15. Select l_hand_fk_const, l_hand_ik_const, and l_hand_ctrl_grp, scroll up to Constrain and select Parent.
16. Select l_hand_fk_const and parent to l_fk_hand_anim
17. Select l_hand_ik_const and parent to l_ik_hand_position
18. Find and select the l_hand_anim_grp_parentConstraint1. It should be under l_hand_anim_grp. With l_hand_anim_grp_parentConstraint1 selected, be in the Animation window set and go up to Key and scroll down to Set Driven Key and select Key or with the spacebar held down select key and scroll to Set Driven Key and select key.
    a. On a PC you need to select the option box next to Key.
19. Find and select l_arm_settings and push load driver on the Set Driven Key pop-up. l_hand_anim_grp_parentConstraint1 should already be loaded as driven.
20. Next to l_arm_settings select fkik_switch (driver) and l_hand_fk_constW0 and l_hand_ik_constW1 next to l_hand_anim_grp_parentConstraint1(driven)
21. Make sure your settings anim for the l_arm is in fk (0)
22. Click on l_hand_anim_grp_parentConstraint1and in the channel box change l_hand_fk_constW0 to 1 (on) and l_hand_ik_constW1 to 0 (off)
23. Push Key
24. Set the settings anim for the l_arm to ik (1)
25. Click on l_hand_anim_grp_parentConstraint1and in the channel box change l_hand_fk_constW0 to 0 (off) and l_hand_ik_constW1 to 1 (on)
    a. When working with the fkik switch for the hand 0 means off and 1 means on. When the fkik switch is at 0 it means ik is turned off so fk is turned on. It's the opposite when the switch is turned to 1, ik is turned on and fk is turned off. So when connecting the new hand to the arm, the Set Driven Key is allowing for the hand to correctly follow the arm that is turned on.

26. Push Key

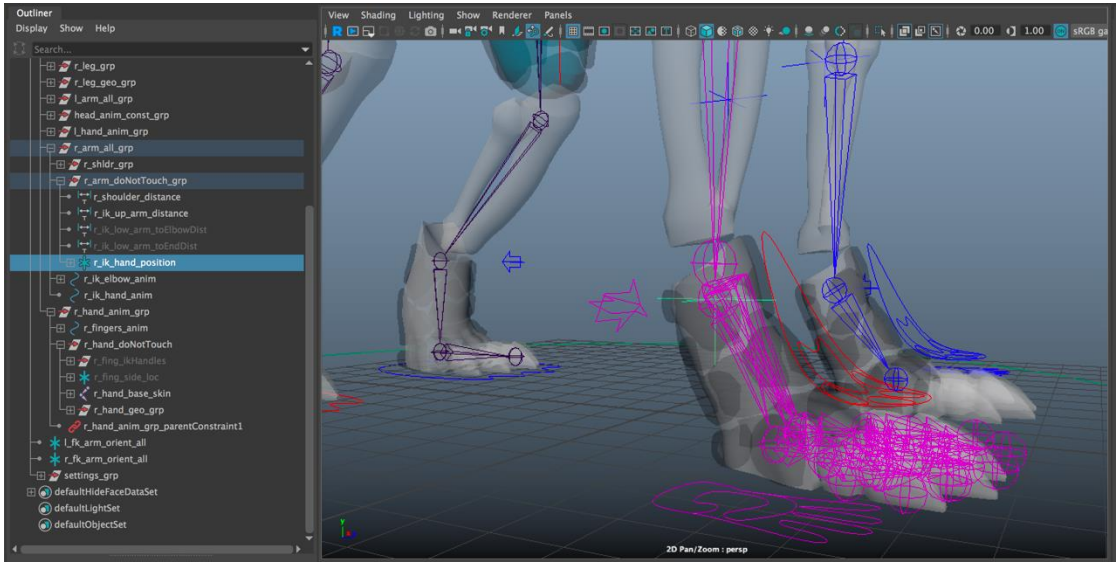
27. Find and select the l_hand_base_skin and push H to hide.





Connecting the right hand to the right arm:

1. Select r_hand_anim_grp in the outliner and then command click (MAC) or ctrl click (PC) the anim_grp in the outliner and push P to parent.
2. Search for and select r_hand_base skin and push H to unhide.
3. Under the r_hand_base skin in the outliner delete the l_hand_base_parentConstraint1 and l_ik_up_arm_distance_end1.
    a. These are old constraints that will no longer work in the new rig.
4. Find and select the r_hand_base_const (leader) and then the r_hand_base_skin (follower) and parent constrain.
5. Go up to create and select Locator. Name the locator r_ik_hand_position and move it to the location r_hand joint.
    a. If the new hand has the r_hand joint in a slightly different spot, put the r_ik_hand_position in the r_hand joint that is connected to the arm, not the old hand joint that holds the hand.



6. With the r_ik_hand_position selected, find and command click (MAC) or ctrl click (PC) the r_arm_doNotTouch_grp and push P to parent. You can find the r_arm_doNotTouch_grp under the r_arm_all_grp

7. Select the r_fk_hand_elbow_anim (leader) and r_ik_hand_anim (leader) and then select the r_ik_hand_position (follower) and Constain Parent
8. Select the r_ik_hand_position_parentConstrain1 and open the Set Driven Key pop-up. Be in the Animation menu set and go up to Key and scroll down to Set Driven Key and select Key.
    a. On a PC you need to select the option box next to Key
9. r_ik_hand_position_parentConstrain1 should open up under Driven. Find and select r_arm_settings_anim and click Driver on the Set Driven Key pop-up
10. Next to r_arm_settings_anim (on the right) select low_arm_fkik_switch and next to r_ik_hand_position_parentConstrain1(on the right) select r_fk_hand_elbow_animW0 and r_ik_hand_animW1 (driven)
11. Switch low_arm_fkik_switch to fk (0), we are going to connect fk first. Select r_fk_hand_elbow_animW0 and put 1 (on) and r_ik_hand_animW1 to 0 (off)
12. Switch low_arm_fkik_switch to ik (1). Select r_fk_hand_elbow_animW0 and put 0 (off) and r_ik_hand_animW1 to 1 (on)
13. Search for r_hand_anim_grp and duplicate but pressing ctrl/command D and delete all of the children.
14. Rename the duplicate r_hand_ik_const and then duplicate again and rename r_hand_fk_const.
15. Find and select r_hand_fk_const and command/ctrl click r_hand_ik_const and then select r_hand_anim_grp and push Constrain and Parent.
16. Find r_hand_ik_const and parent it under r_ik_hand_position. Also find r_hand_fk_const and parent it under r_fk_hand_anim.
17. Select the r_hand_anim_grp_parentConstraint1and in the Animation menu set go up to Key and scroll down to Set Driven Key and then select key.
    a. On a Mac you need to select the option box next to key.

18. r_hand_anim_grp_parentConstraint1should automatically load in as the Driven. Find and select r_arm_settings_anim and on the Set Driven Key pop-up click Driver.
19. Next to r_arm_settings anim select fkik_switch (on the right, driver) and next to r_hand_anim_grp_parentConstraint1 select r_hand_fk_const_W0 and r_ik_const_W1 (on the right, driven)
20. Make sure your r_arm_settings fkik switch is on fk (0)
21. Click on r_hand_anim_grp_parentConstraint1and on r_hand_fk_constW0 set it to 1 (on). Set r_hand_ik_constW1 to 0 (off)
22. Hit Key
23. Set the r_arm_settings fkik switch to ik (1)
24. Click on r_hand_anim_grp_parentConstraint1and on r_hand_fk_constW0 set it to 0 (off). Set r_hand_ik_constW1 to 1 (on)
25. Hit Key
26. Search for r_ik_hand_position and push H to hide it
27. Search for r_ik_up_arm_distance_end and parent under r_hand_base_skin
28. Search for r_ik_up_arm_distance_end and push H to hide it
29. Search for r_hand_base_skin and push H to hide it.