

Character Creation Tutorial:

This tutorial will walk you through the step by step process for creating a character from scratch. At the end of the tutorial is a section on how to copy settings from one character to another.

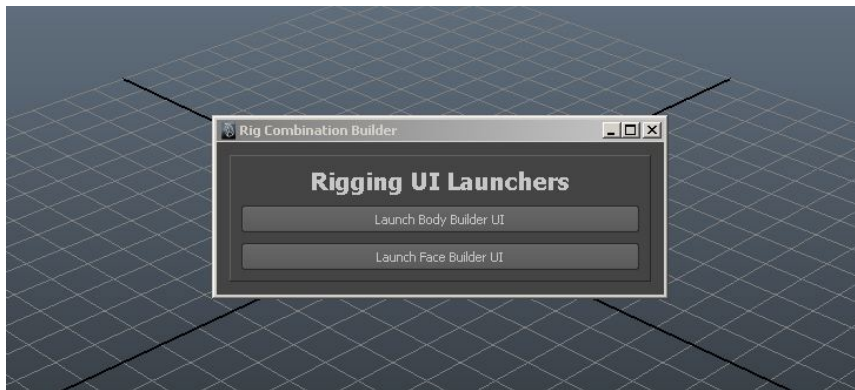
1. Opening the 'Body Builder' UI:

First we need to launch the 'Rig Combination Builder' UI. From there we can access the 'Body Builder' and 'Face Builder' UI's. To do this we need to make sure that we have Maya's PYTHON_PATH configured correctly. Refer to the 'RigBuilder Software Package Setup' document on how to do this.

If the PYTHON_PATH is set up correctly we can type this in a Python console from within Maya:

```
#Start
from rigBuilder.combination import rigCombinationBuilderUI
rigCombinationBuilderUI.showRigCombinationBuilderUI()
#End
```

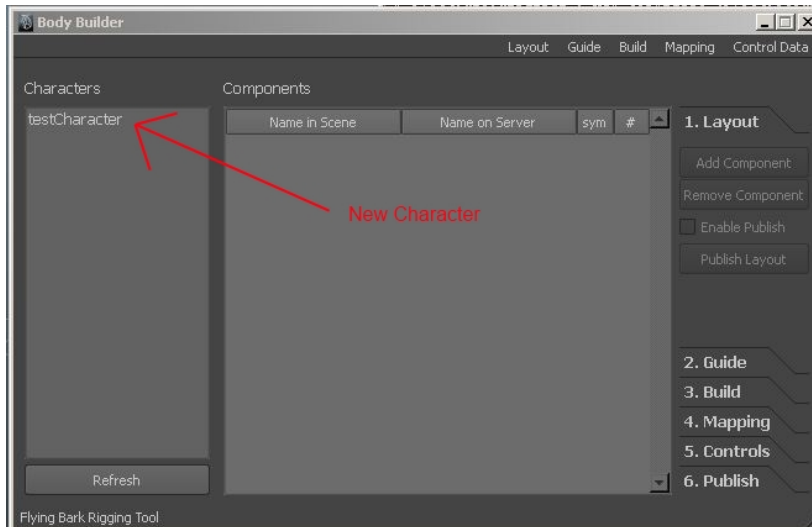
A window should be displayed within Maya that looks like this:



If this does not open there is probably something wrong with the PYTHON_PATH.

If it does open you can select the 'Launch Body Builder UI' button. This should show the 'Body Builder' UI and should look like this.

(In this example I have created a character called 'testCharacter' for the tutorial. See the 'RigBuilder Project Creation' document for details on how to do this).

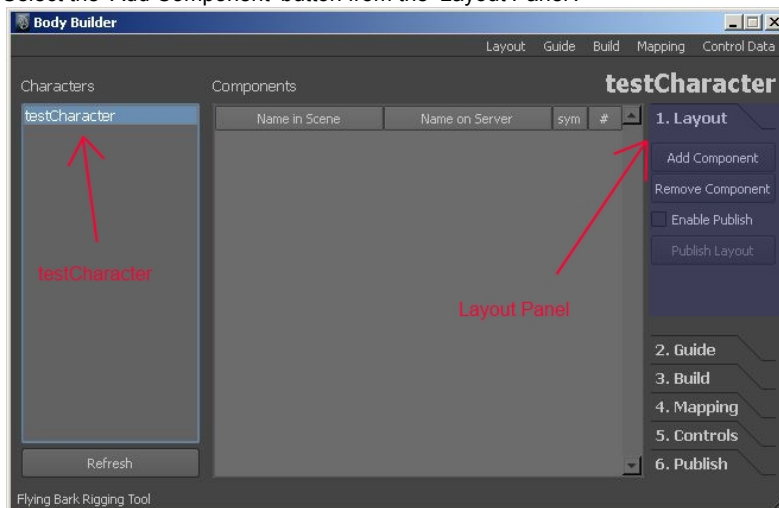


2. Adding new components for a character:

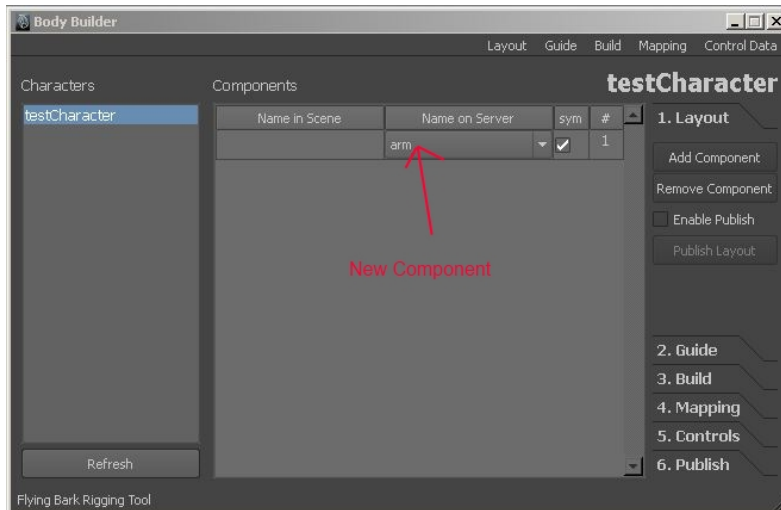
Select the new character in the characters list from the left hand side of the UI. In this example it is 'testCharacter'.

From the right hand side of the UI select the Layout panel. This is where we will add and publish components such as an arm, a leg, a torso or head.

Select the 'Add Component' button from the 'Layout Panel':



This will add a new component within the 'Components' list:



3. Adjusting Components for a character:

There are four columns in the 'Components' list. 'Name in Scene', 'Name on Server', 'sym' and '#'.

.Name in Scene:

This is a namespace used for that component in the scene. For example if you had front and back legs the 'Name in Scene' for the back legs would be 'back' and the 'Name in Scene' for the front legs would be 'front'.

.Name on Server

This is the name of the component on the server as a maya file. Components live under the "\$ (RIG_BUILDER_PROJECT_ROOT)/asset/" directory. See the 'RigBuilder Project Creation' document for how this is created.

.sym

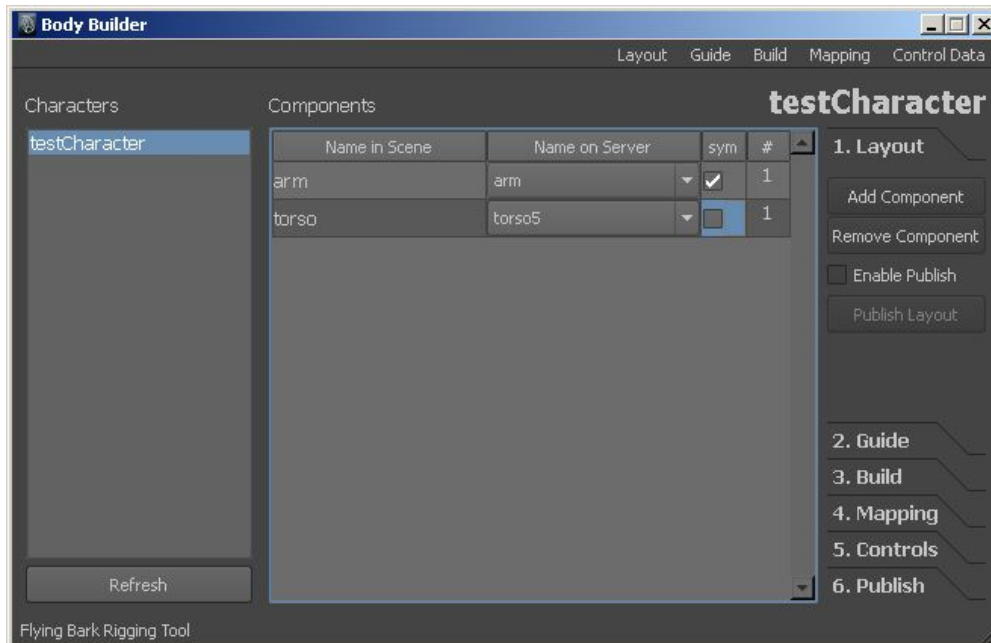
This check box indicates that the component should be mirrored. For example... An arm would be mirrored across the x axis so the checkbox would be checked. However a head would not so this checkbox would not be checked for a head.

#

This value indicates how many components of that type will be created. For example... If you had four pieces of hair you could set the # value to 4. (Note that this is NOT the same as having front and back or left and right components.)

For this tutorial we will set the 'Name in Scene' for the new arm component to 'arm' (This can be done by double clicking the field under 'Name in Scene' for the arm component). Leave sym checked and leave the # value at 1.

Now add another component, set the 'Name in Scene' to 'torso'. Change the 'Name on Server' to 'torso5' and turn 'sym' off. It should now look like this:



4. Publishing The Components of a character:

To publish these two components for our 'testCharacter', enable the checkbox 'Enable Publish' in the layout panel. This will enable the 'Publish Layout' button and you can now publish the components by clicking on that button.

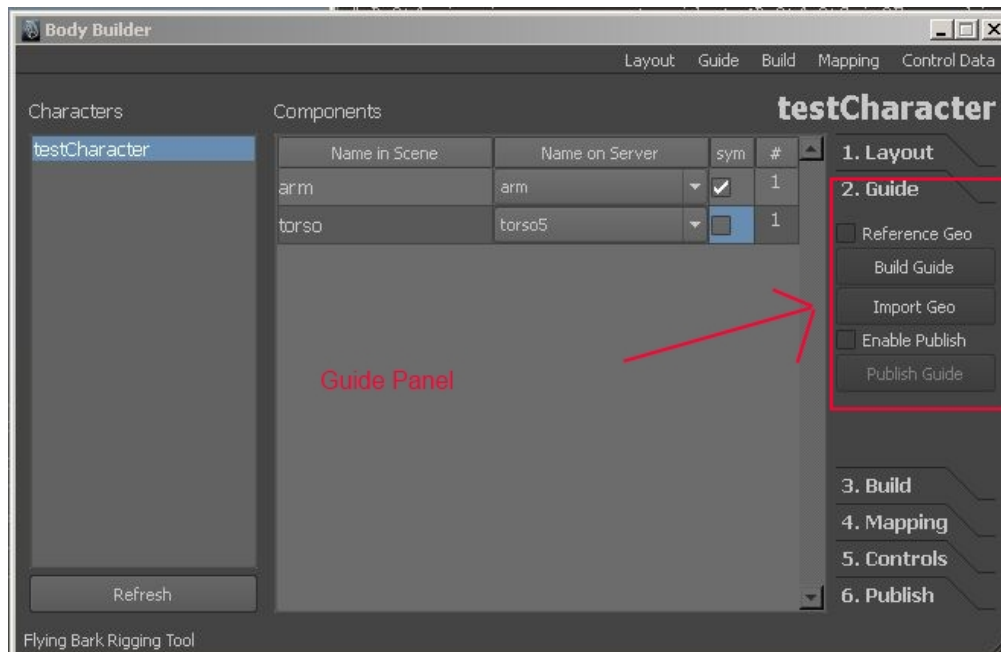
To check this has published correctly you can check the script editor to make sure it has printed something like this:

```
#Start
rig >> New component added.
rig >> New component added.
rig >> Saving temp layout file for testCharacter: c:\users\tim~1\mac\appdata\local\temp\tmplq8swq.xml
rig >> Published:
S:\tim.mackintosh\rigBuilderProject\asset\character\testCharacter\rig/body/layout\testCharacter_rig_layout_v001.xml
rig >> Changes committed.
#End
```

You can also look at the following path to make sure it has published. If there is an xml file in there it has been successful.
 \$(RIG_BUILDER_PROJECT_ROOT)/asset/character/testCharacter/rig/body/layout

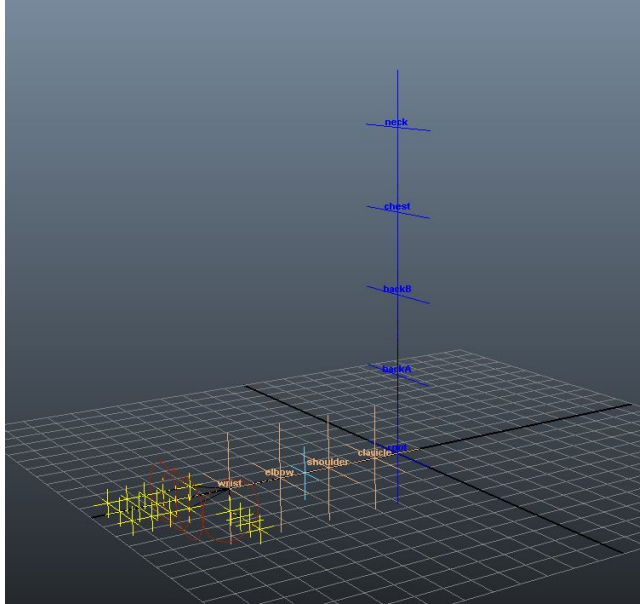
5. Building the Guides:

Guides are the rigs we use to refit and position the components into the geometry. Once you have published your components from the layout tab you can move onto building the guides. Select the guide panel on the right hand side of the UI.



Click on the 'Build Guide' button. In the prompt that displays click 'Ok'. This will build the guides for the components we defined in the 'layout' panel. At this point you can click on the 'Import Geo' button in the Guide panel to import some geometry for your character. In this example I will be using a basic bit of geometry, but this could be geometry from a published shotgun asset.

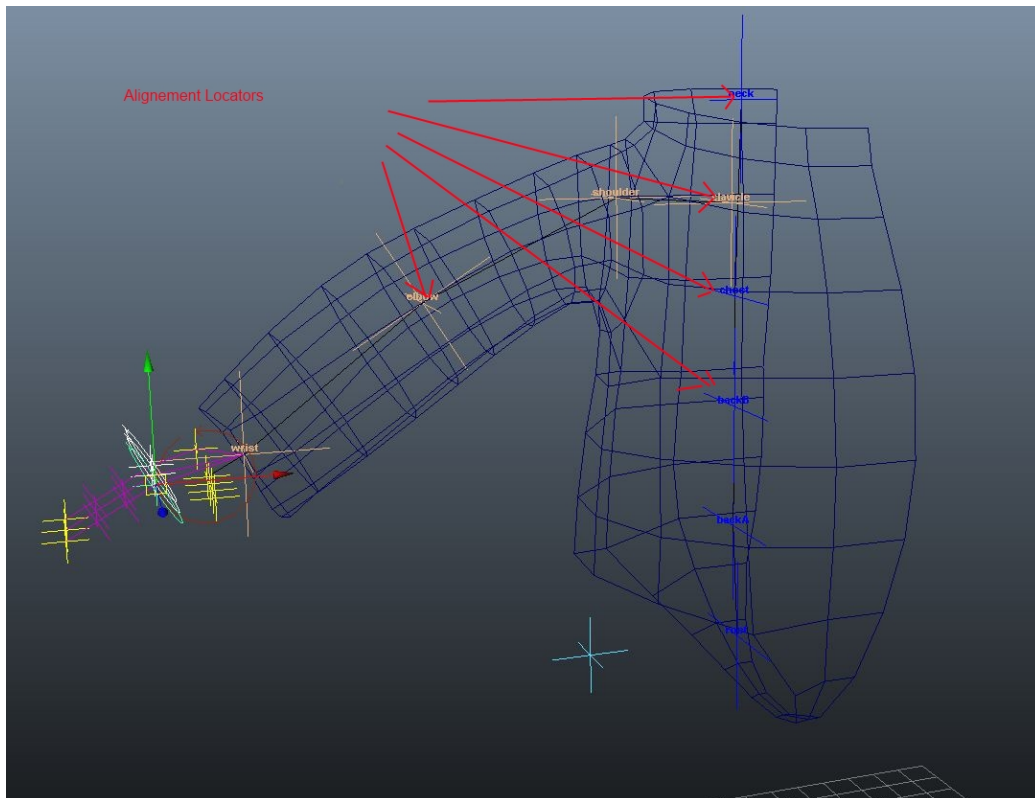
You should now have a scene that looks like this: (note. In this example I have hidden the geometry for clarity.)



6. Aligning the Guides to your characters geometry:

Using the labeled locators of the built guides, you can now position the guide components to fit your geometry. Be careful when moving the locators all at once. You will need to experiment on the guides to figure out what each locator does. These guides are developed by the rigger for placement and orientation of the rig components and will differ depending on the component.

Once aligned you should have something that looks like this... (note: This is with example geometry).



7. Publishing Guide Components:

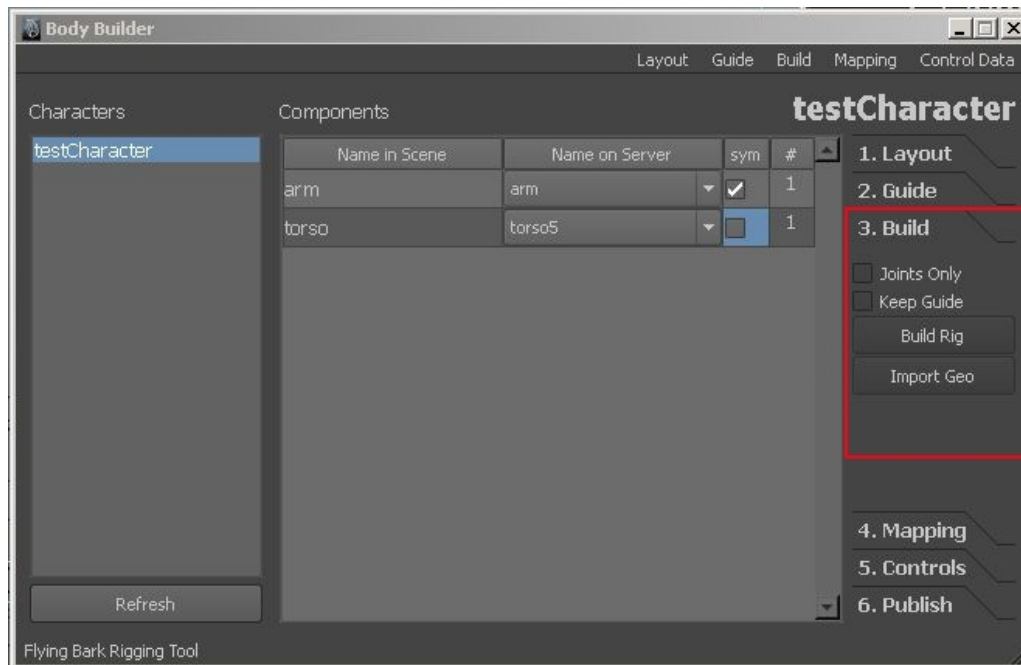
If you are happy with your guide placement you can check the 'Enable Publish' checkbox in the Guide panel and then hit the 'Publish Guide' button.

If all goes well there should be output in the script editor that looks something like this:

```
#Start
rig >> Saving temp file for testCharacter: c:\users\tim~1.maclappdata\local\temp\tmpnhuzzr.ma
rig >> Removing lockNode commands from temp file: c:\users\tim~1.maclappdata\local\temp\tmpnhuzzr.ma.ma
rig >> Published:
S:\tim.mackintosh\rigBuilderProject\asset\character\testCharacter\rig\body\guide\testCharacter_rig_guide_v001.ma
rig >> Guide committed.
#End
```

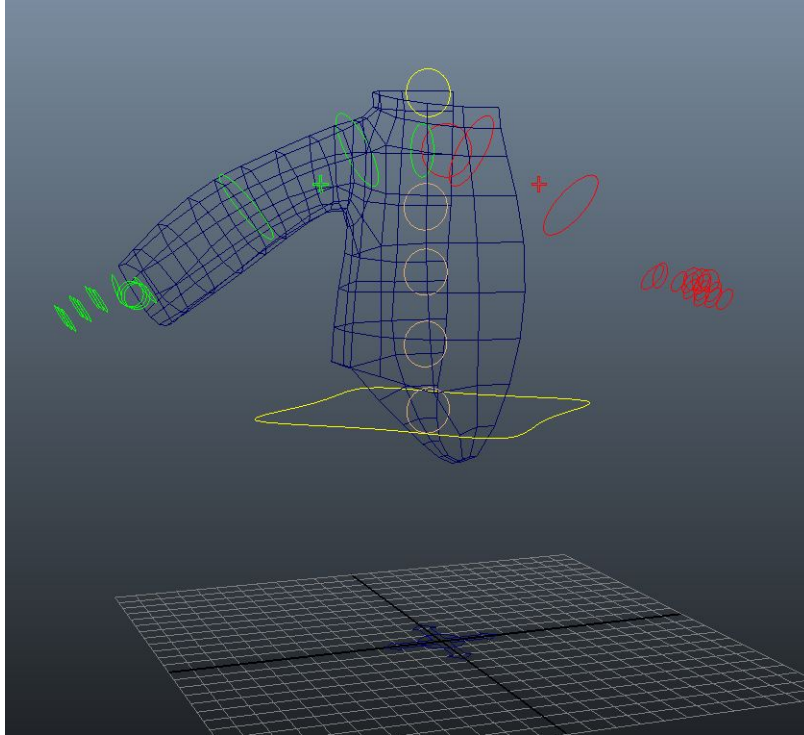
8. Building your rig:

Once you have defined what components are involved in the rig and you have built and aligned the guides for the components you can build your rig.



From the build panel select the 'Build Rig' button. This will create a new scene and build your rig using your defined components and guide placements. You can use the 'Import Geo' button in the 'Build' panel to bring in your geometry.

Once you have done this you should have something like this in your scene.



note.

There are two extra options when building the rig.

1. Building only the joints which is good for checking your joint placement is right. This can be done by checking the checkbox labeled 'Joints Only'.
2. Building the rig and keeping the guide so that you can check that the rig has built properly using the guide as as reference. This can be done by checking the checkbox 'Keep Guide'.

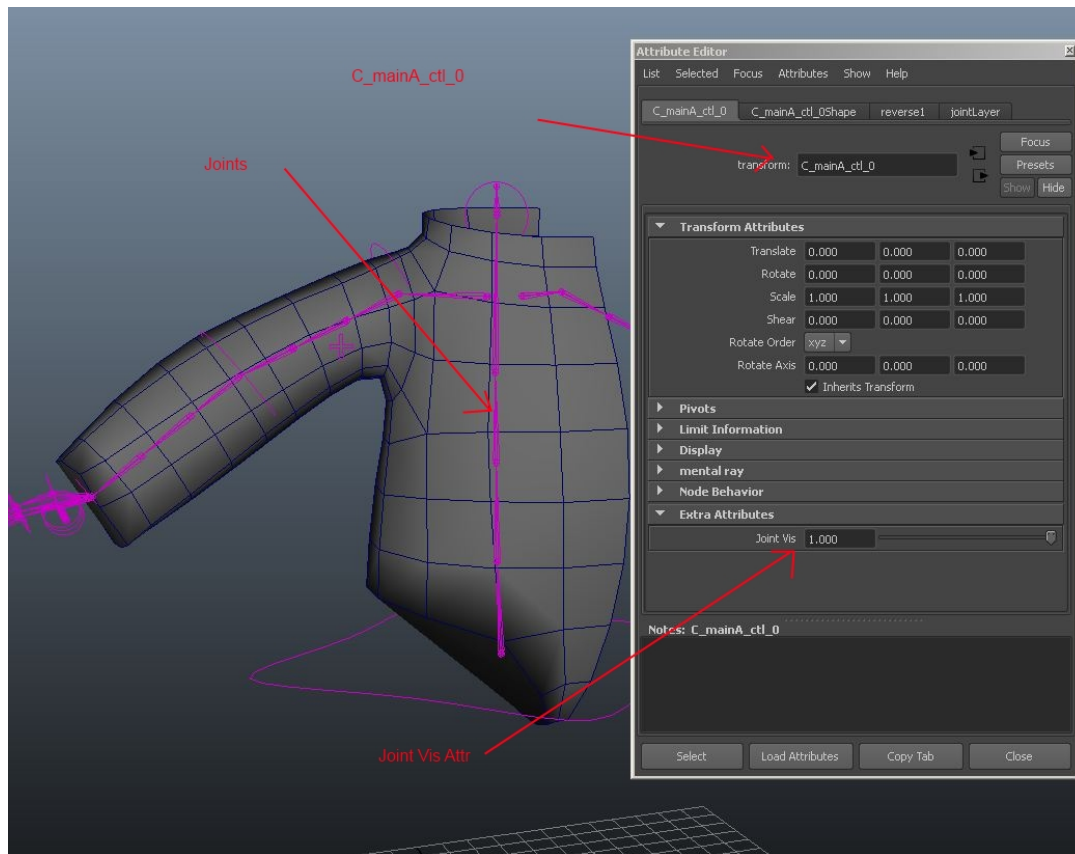
At this point you can either move onto skinning your character or go back to the Guide stage and adjust your guide. If you feel that you need to adjust your guide you would go back to step 5.

8. Creating skinClusters for your character (Mapping):

(This is where deformation for you characters geometry is created)

Once you are happy with the build of your rig you can move onto creating the skinClusters for your characters geometry.

With the rig built in your scene you can select the top control curves transform named 'C_mainA_ctl_0'. In the attribute editor under 'Extra Atributes' there is an attribute named 'Joint Vis'. Set this to 1 and you will see the joints of your rig.



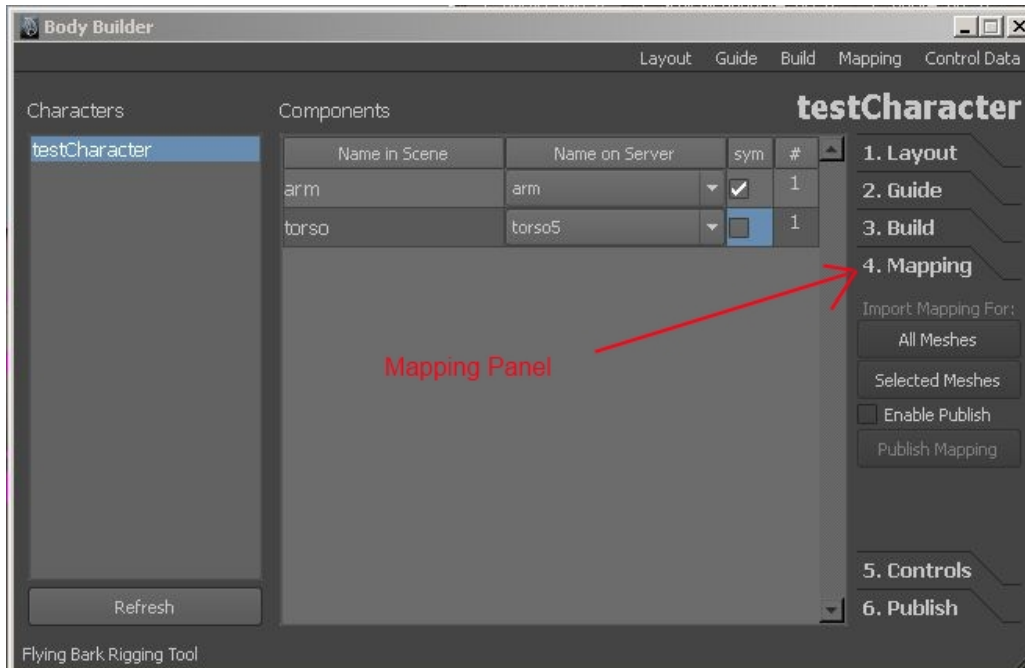
There is also a selection set called 'bind_joints_set' that can be found in the outliner. The joints contained in this set are the joints which are intended to be used for influences in your skinClusters. Using these joints you can go ahead and create skinClusters for the geometry.

9. Publishing skinClusters and deformers for your character:

(This is where skinWeights for your characters geometry is saved)

Once you are happy with your deformation it can be saved out so you can re-apply it next time you build the rig. You can also re-apply skinWeights or deformer information here if you have already created them.

Select the 'Mapping' panel on the right hand side of the UI.



If this is the first time you are creating deformers for your geometry you will see a greyed out 'Import Mapping For:' label. If you have previously created deformers this label will not be greyed out and you would be able to re-apply the previously created deformers using the 'All Meshes' or 'Selected Meshes' buttons.

If you are happy with your deformation select the 'Enable Publish' checkbox and select the 'Publish Mapping' button. If all goes well and everything was successful you will see output in the script editor that looks something like this:

#Start

```
rig >> Saving temp file for testCharacter: c:\users\tim~1\mac\appdata\local\temp\tmpqygrxn.json
```

```
rig >> Writing file: c:\users\tim~1\mac\appdata\local\temp\tmpqygrxn.json
```

```
rig >> Published:
```

```
S:\tim.mackintosh\rigBuilderProject\asset\character\testCharacter\rig\body\mapping\100\testCharacter_rig_mapping_v001.json
```

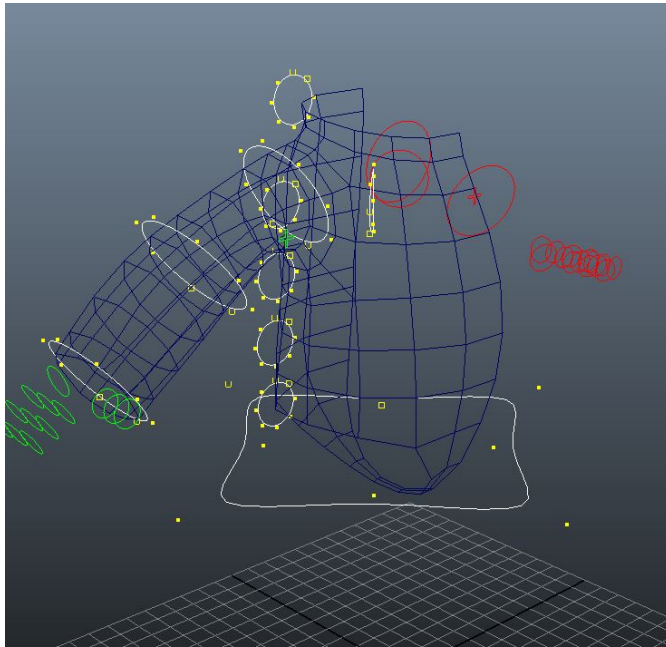
#End

You now have saved skinClusters for your characters geometry.

10. Fitting Controls to fit your characters geometry:

(This is where cv's for the all the characters controls can be sized to better fit your character so they are more selectable for the animator)

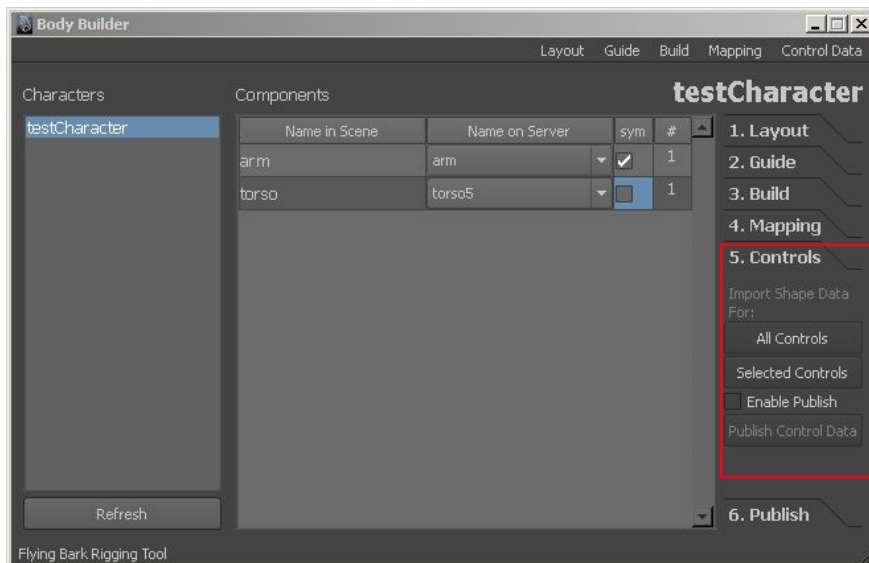
At this stage you might want to resize the controls for your character so that they fit the characters geometry better. To do this all you need to do is select the control's that you want to resize and go into component mode and move the cv's.



11. Saving the controls cv positions:

(This is where we save the controls cv positions so that we can get the same positions next time the rig is build)

Select the 'Controls' panel in the UI.

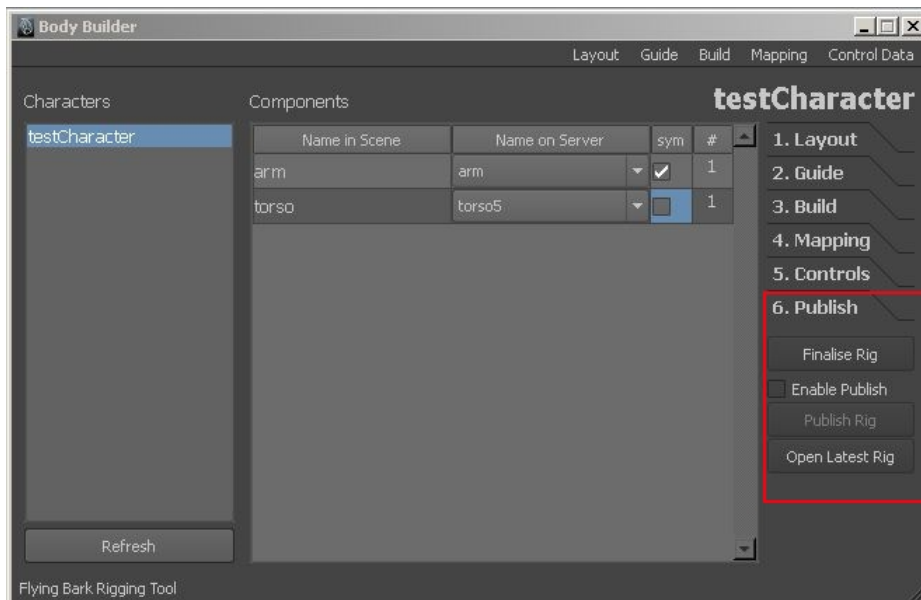


Check the 'Enable Publish' check box and select the 'Publish Control Data' button. At this point it is wise to check the script editor for errors like we have in previous steps.

12.Publishing Rigs:

(At this stage we are ready to finalise and publish our rigs)

select the 'Publish Panel' on the right of the UI.



Once you have the guides fitted to your geometry and your rig built and your skinCluster saved and applied and your controls resized to fit your character you can finalize the rig. You can do this by selecting the 'Finalise Rig' button in the 'Publish' panel. This cleans the rig by locking and hiding all the unnecessary attributes and deleting things like the 'bind_joints_set' set.

Once this is done you can publish the rig by enabling the 'Enable Publish' check box and selecting the 'Publish Rig' button. You now have a published rig... Hopefully ready for animators to use :)

You can also open the latest published rig from the 'Publish' panel by selecting the 'Open Latest Rig' button.

13. Re-iterating over steps to refine your rigs:

There is no reason that you can't go back to a step and refine what you did. For example if you wanted to refine the skinClusters for your characters geometry you would just go back to the 'Build' panel, build the rig, import your geometry and then apply the previously saved deformer information from the 'Mapping' panel. Then publish the skinClusters again.

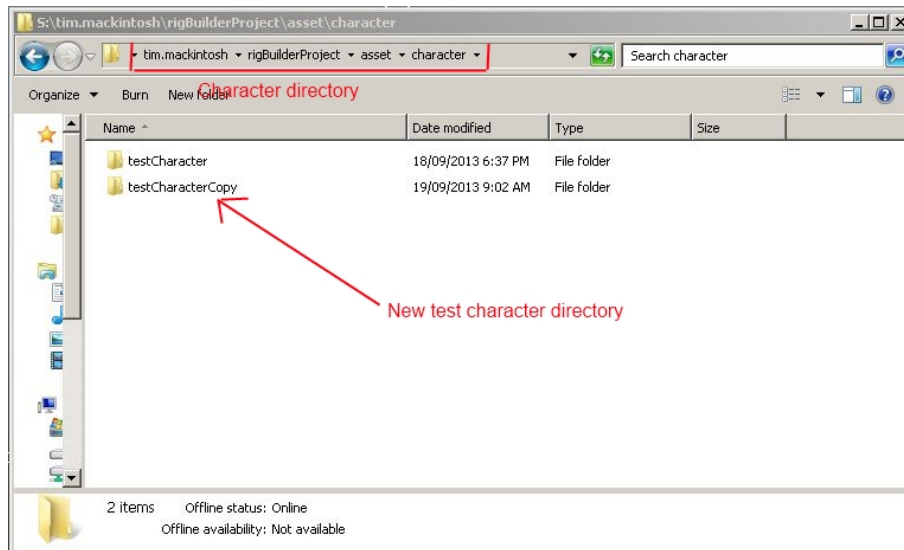
Creating a new character from an existing character tutorial:

This tutorial will walk you through how to create a character based of a character that you have already defined. We will use the 'testCharacter' that we defined in the above 'Character Creation Tutorial' as our source character and create another character called 'testCharacterCopy'.

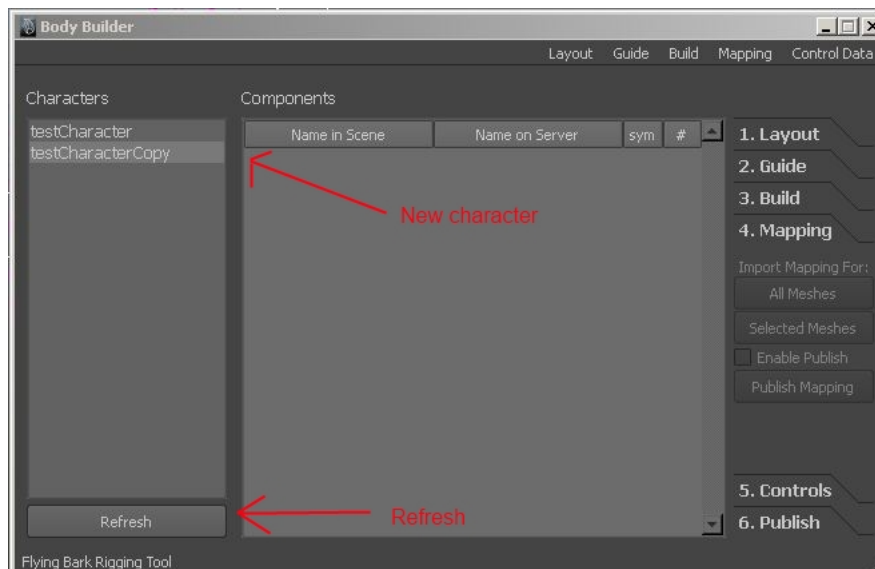
This is useful when you have two or more characters that share similar features.

1.Creating the new character:

In your “\$(RIG_BUILDER_PROJECT_ROOT)/asset/character” directory create a new directory called 'testCharacterCopy'. Your character directory should now look like this.

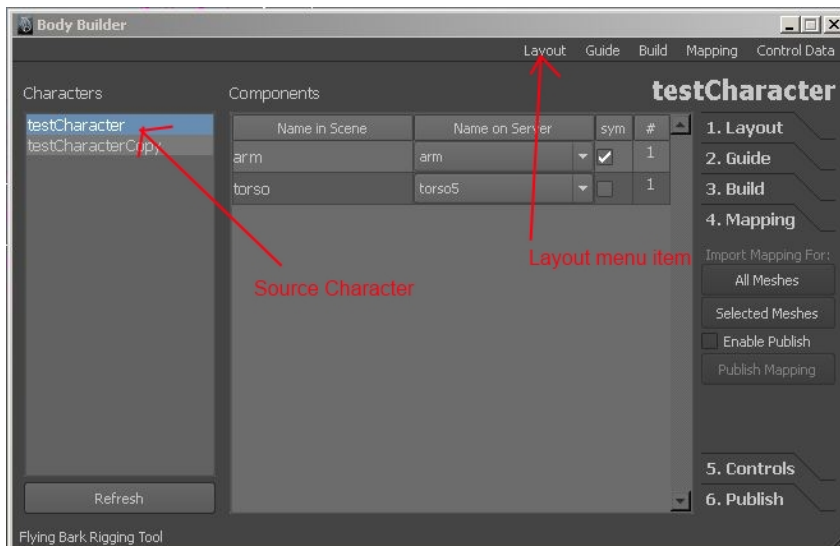


Now hit the 'Refresh' button in the lower left hand corner of the 'Body Builder' UI. This will reveal a new character called 'testCharacterCopy' in the 'Characters' list.

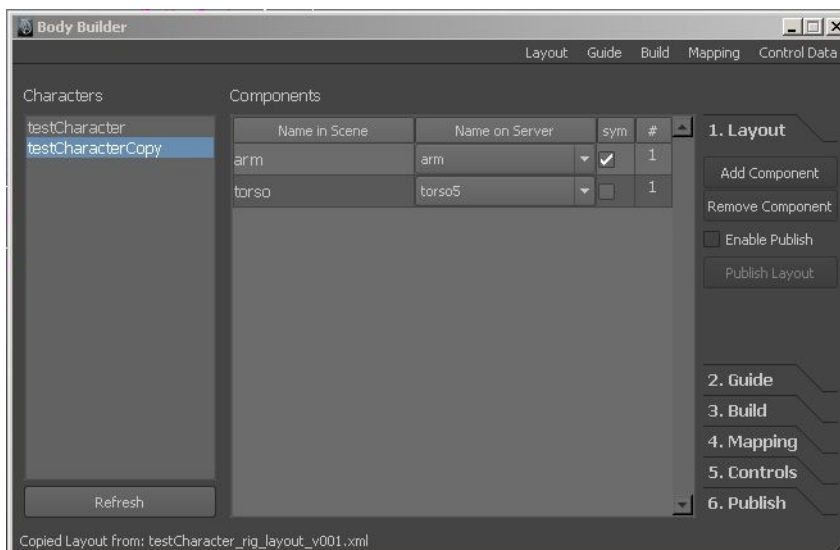


2.Copying the layout from source character to destination character:

Select the 'testCharacter' from the 'Characters' list. At the top of the 'Body Builder' UI there is a 'Layout' menu item. From the 'Layout' menu item select the 'Copy Layout' option. This will copy the layout for 'testCharacter'.



Now select the 'testCharacterCopy' character from the 'Characters' list. Go to the 'Layout' menu item again but this time select the 'Paste Layout' option. The 'testCharacterCopy' should now have the same component layout that the 'testCharacter' character has and should look like this:



The layout from 'testCharacter' has now been copied and published to 'testCharacterCopy'.

3. Copying the Guides from source character to destination character:

To copy guides from one character to another you can follow the steps from step 2 but use the 'Guide' menu item instead of the 'Layout' menu item.

4. Copying the Mapping from source character to destination character:

To copy mapping from one character to another you can follow the steps from step 2 but use the 'Mapping' menu item instead of the 'Layout' menu item.

5. Copying the Control data from source character to destination character:

To copy control data from one character to another you can follow the steps from step 2 but use the 'Control Data' menu item instead of the 'Layout' menu item.

6. Publishing Rigs:

You now have all the components for your new character. You can build your rig using the steps from the 'Character Creation Tutorial' tutorial. Then publish your rig using the 'Finalise Rig' and 'Publish Rig' buttons in the 'Publish' panel if the 'Body Builder' UI.