

Prerequisites

- A character with a T-Pose and other animations.

Setting Up a Root Bone

For the translation of an animation, CRYENGINE requires a root bone that acts as the first bone in the parent-child hierarchy of joints.

Usually the relative position of the character is made the "root", which makes it easier to reorient the model than if, say, the hip joint acted as the root. The root bone is also responsible for translating/rotating the model relative to the world space.

Choose and import your first animation into Maya using the **File Import** option from its main menu. If



not already docked, click the icon on the left side of Maya's interface to open the Outliner, which lists the different components of your scene.

You need to add a root bone to your animation. To do so:

1. Switch to the **Rigging** menu set in Maya, and select the **Rigging** shelf tab as shown in the image below.



Rigging

2. Click the  button, and then double click in the viewport to create a joint. The joint should be listed in the Outliner, while its attributes are displayed in the Channel Box.
3. Next, place the joint at (0,0,0) so that it's right underneath your character. Navigate to the Channel Box and set the joint's **Translate X/Y/Z** values to 0.
4. Additionally, to correctly position the joint in CRYENGINE's coordinate system, set **Rotate X = 90**, **Rotate Y = 0**, and **Rotate Z = 180**.
5. Finally, rename this joint to "root" by double-clicking on its listing in the Outliner.

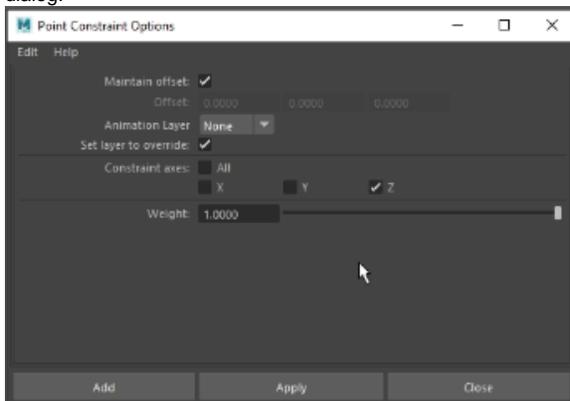
Pairing the Root Bone with the Hip Bone

Begin by creating a point constraint between the hip bone and the root bone.

1. Click on the hip bone, and then on the root bone in the Outliner while holding **CTRL**.

Make sure you click on the hip first, as the root bone needs to follow the hip.

2. In the main menu (with the Rigging menu set enabled), select the **Constrain Point** option to bring up the Point Constraint Options dialog, which contains additional properties we can modify.
3. Keep the **Maintain Offset** and **Set layer to override** options ticked; since we're only going to constrain the Z axis, only enable the **Constraint axes Z** option. Click **Apply** and then close the dialog.



Point Constraint Options dialog

You've now attached the root bone to the moving animation.

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Baking the Animation to the Root Bone

To bake the animation, or rather, the translation information from the hip to the root bone:

1. Switch to the **Animation** menu set.
2. Select the root bone, and then select the **Key Bake Animation** option.
If you play your animation now, you should see the root bone move along with it. Additionally, if you expand the root bone's listing in the Outliner, you should be able to see listed the point constraint that was created with the hip bone. Go ahead and delete it since it's not needed anymore.

Making the Hip a Child of the Root

1. Since CRYENGINE requires a root bone to be at the top of the joint hierarchy however, the hip needs to be made a child of the root as follows:
2. Select the hip bone in the Outliner.
3. In the Channel Box, select the **Translate X/Y/Z** options, right-click, and then click the **Delete Selected** option from the context menu.

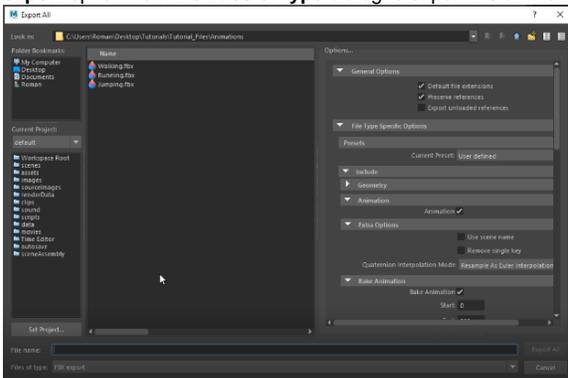
4. Click the  icon beside the root bone, and drag it to the root bone.

This deletes all translation movements from the hip, so that the root bone is the one driving the animation.

If you'd like the animation to play at a fixed position, you can get rid of the forward motion by selecting the  node in the Outliner, and deleting the **Translate X/Y/Z** options from the Channel Box.

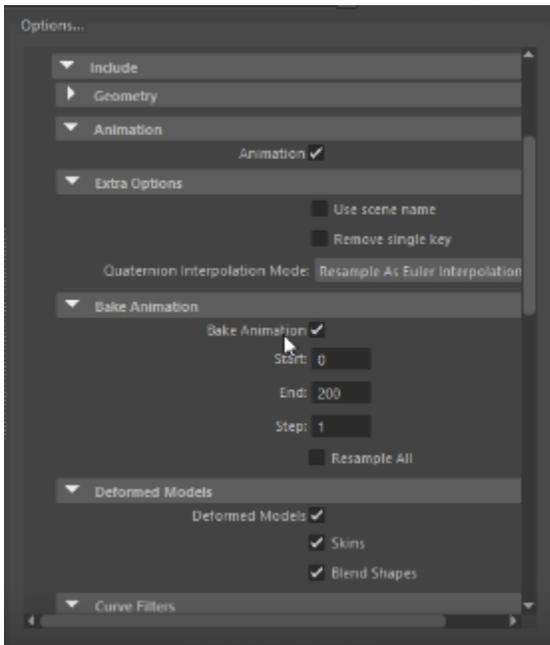
Exporting the Animation

1. Select the **File Export All** option from the main menu in Maya.
2. In the Export All window, set where you'd like the file to be exported to, and select the **FBX export** option from the **Files of type** dialog to export the animation in FBX format.



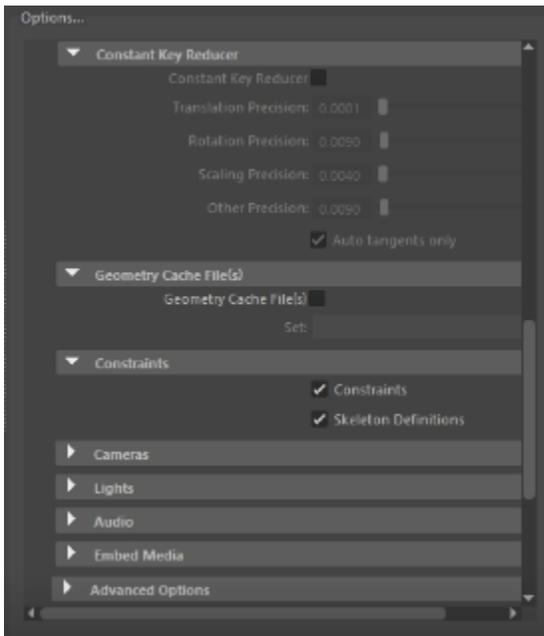
Export All dialog

3. Next, in the **Options...** panel, navigate to the **Animation** tab and enable the **Animation** option. Also enable **Bake Animation** under the Bake Animation panel.



Bake Animation

4. If you'd also like to export constraints and/or skeleton definitions, if any, tick their corresponding boxes under the **Constraints** tab. Finally, click on **Export** in the Export All dialog to complete the process.

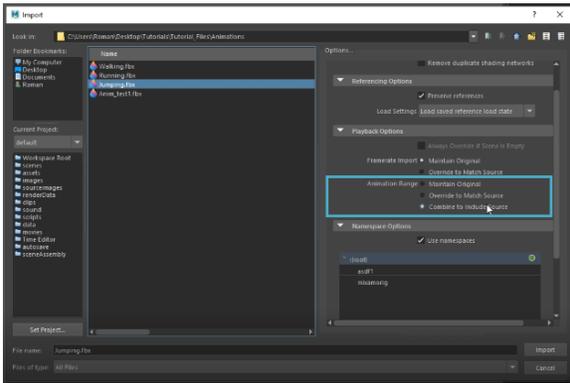


Constraints

Importing Animations via a Python Script

You could also, as an option, use a Python script to speed up the process of exporting characters and animations together:

1. Begin by importing a T-posed character into Maya.
2. Create a root bone, as explained previously, and set **Rotate X = 90**, **Rotate Y = 0**, and **Rotate Z = 180**. Make sure to name it "root".
3. Next, import an animation of choice; while doing so however, make sure to check the **Animation Range Combine to include Source** option under the **Playback Options** tab of the Import dialog. This combines both the T-pose and jump animation in the exported output.

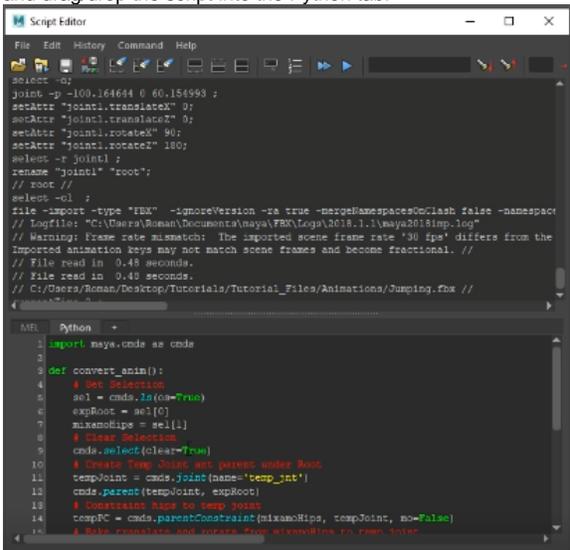


Combine to include source

- Download the following Python script.



- Click the  button at the bottom-right corner of your Maya interface to open the Script Editor, and drag/drop the script into the Python tab.



Drag/drop the script

- Select the root and hip bones in the Outliner, before clicking the  button in the Script Editor to play the script.
- You can now export the character and animation using the **File Export All** option from the main menu in Maya.

Make sure to remove the **Translate X/Y/Z** options of the root bone, if you'd like to remove the forward motion of the animation.

Importing into CRYENGINE

To test the exported animations in CRYENGINE:

1. Create/open an empty level, and then create a new folder in the Asset Browser; drag and drop your FBX files into this folder.
2. Once all your imported files have been generated, drag the **.cdf** (Character Definition File) into the Viewport.
3. With the character selected in the Viewport, assign an animation to it using the **DefaultAnimation** field in the Properties panel.

If the animation was correctly reoriented in Maya, you should now be able to see it playing in the Y (forward) direction of CRYENGINE's world coordinate system.

Video Tutorial