

Adding an Animated FBX Object to Unity (5.0) from Maya

Maya Version: 2015

Maya FBX Exporter Version: 2015.0

Unity Version: 5.0

Creating the Animation in Maya

It is generally best to include only one object per scene as you import the objects into Unity. If your object contains several sub-objects, select all the objects and group them first before exporting the group as an FBX file.

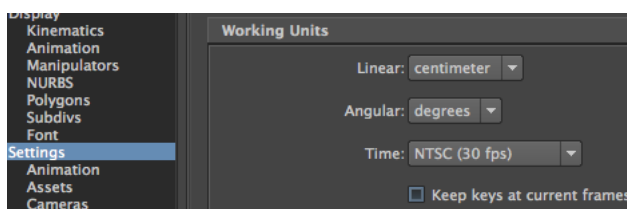
Start by creating a project and saving your scene in the project's scenes folder.

Open the Maya preferences and make the following changes (Maya > Preferences):

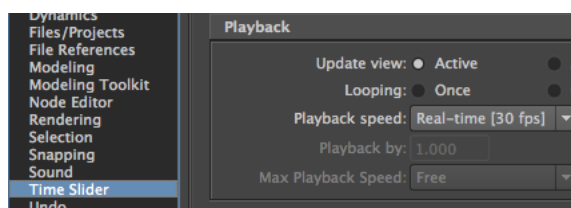
Reset the Preferences by choosing Edit > Restore default Settings

Settings section > Working Units section > Time: NTSC (30 fps)

Time Slider section > Playback section > Real-Time (30 fps)

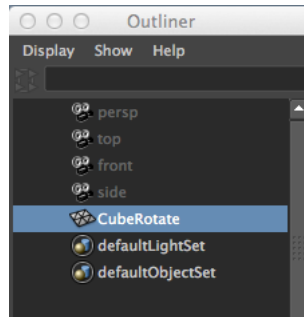


Set frame rate to 30 fps



Set preview playback speed to Real-time

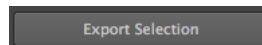
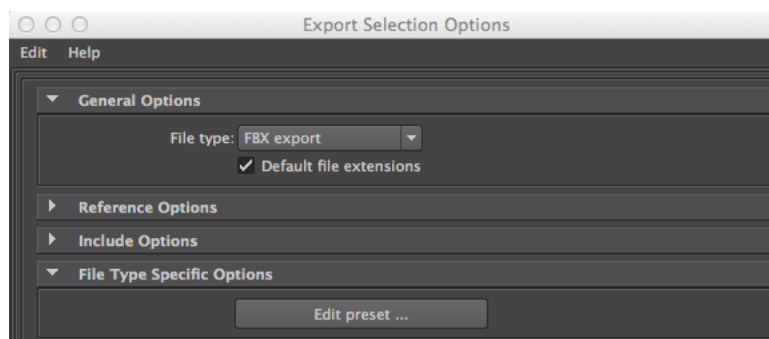
Create your polygon object in Maya and add an image file as a texture to the object. The image file should be placed in the project's sourceimages folder before adding it to the object. If you created your object using Nurbs objects, they must be first converted to polygon objects with Modify > Convert > Nurbs to Polygons. Select your object (or group) and choose Modify > Freeze Transformation, then Edit > Delete by Type > History. This simplifies the model for Unity. If your object is constructed of several objects, select the pieces and place them in a group (Edit > Group), then name the group in the outliner.



Name your object or group in the Outliner

Add a keyframe at frame one, then another keyframe at frame 120 and create an animation. It could be something as simple as rotating the object around the y axis.

Save your Maya scene. Select the single object or group in the Outliner and choose File > Export Selection (Include Options). Choose FBX export for File Type and press the Export Selection button.



Set the File Type to FBX export, then press the Export Selection button

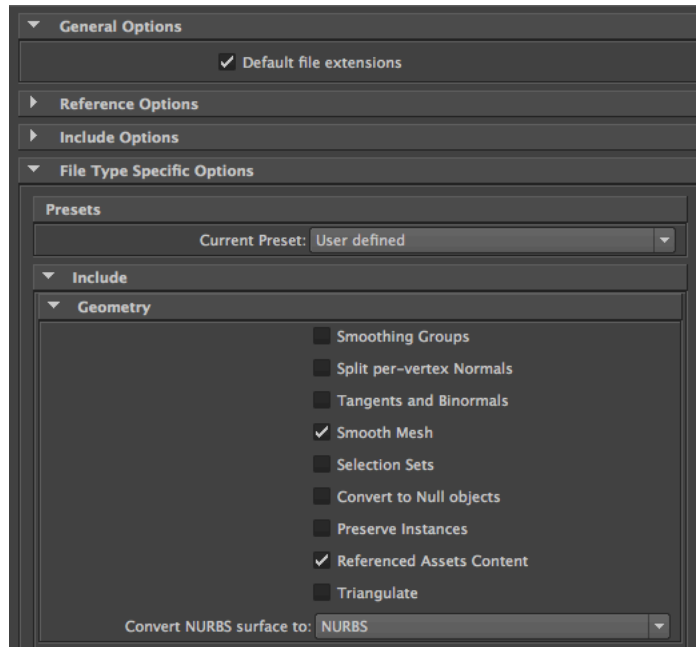
In the next dialog box, open the File Type Specific Options section.

Set the following options:

Include > Geometry

Check Smooth Mesh

Check Referenced Assets Content



Check Smooth Mesh and Referenced Assets Content in the Geometry section

Include > Animation

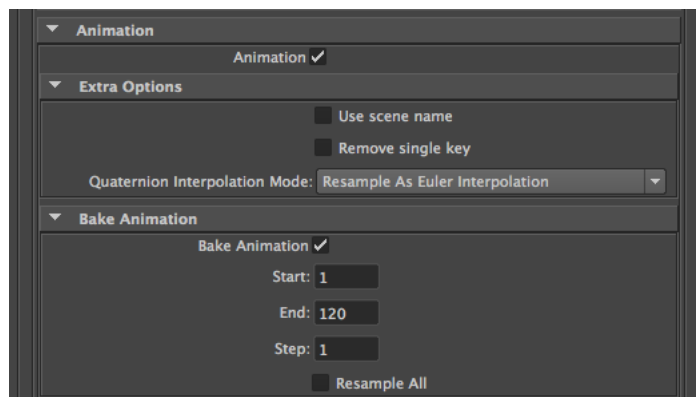
 Check Animation

Include > Bake Animation

 Check Bake Animation

 Set the Start and End frame for your animation (In our case, 1=Start and 120=End)

 Step: 1



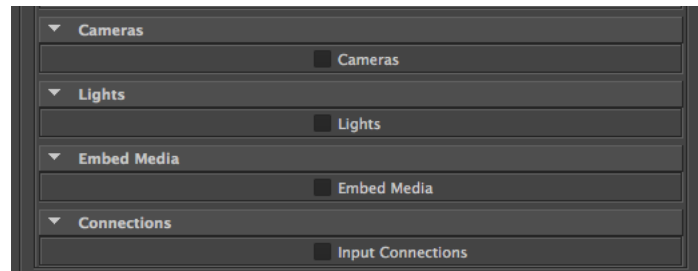
Check Animation, then Bake Animation and set your Start and End time

Include > Cameras

 Uncheck Cameras

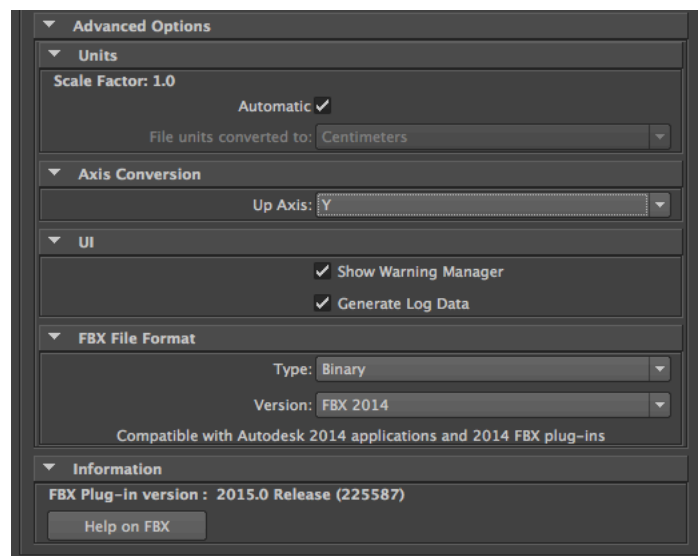
Include > Lights

- Uncheck Lights
- Include > Media
 - Uncheck Embed Media
- Include > Connections
 - Uncheck Input Connections



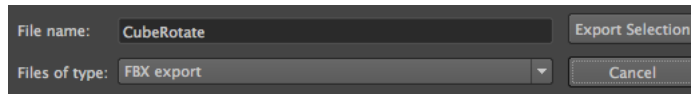
Deselect Cameras, Lights, Embed Media and Input Connections

- Include > Advanced Features > Units
 - Check Automatic
- Include > Advanced Features > Axis Conversion
 - Up Axis: Y
- Include > Advanced Features > FBX File Format
 - Type: Binary
 - Version: FBX 2014



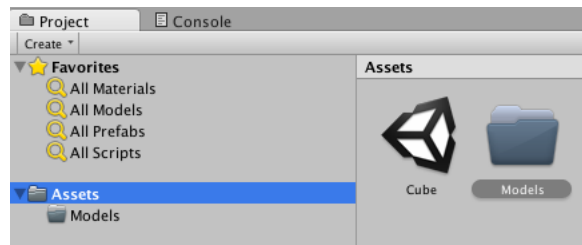
Click Automatic for Scale, set the Up Axis to Y and choose Binary with Version FBX 2014

Name your FBX file and save it in your project's assets folder.



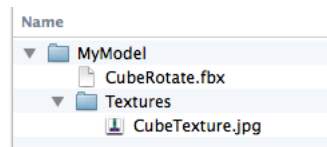
Name your file and save it in the assets folder, then click Export Selection

Quit Maya and launch Unity. Start a new project in Unity and save your scene. Add a folder to the Assets folder in Unity and name it Models.



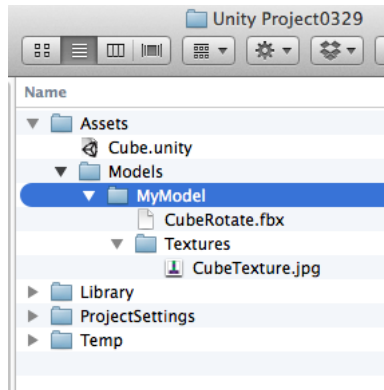
Add a folder inside the Assets folder called Models

Return to your Maya project and find the .fbx file that you just exported. Create a new folder and give it a name that matches the object (i.e., MyModel). Add another folder inside the MyModel folder and name it Textures. Drag a copy of the fbx file to the MyModel folder. Place a copy of your textures from the Maya sourceimages folder inside the Textures folder. Only include textures that were actually placed on your model.



Place the fbx file and Textures folder inside your MyModel folder

Once you have finished you should have your model inside the MyModel folder and its textures in the Textures folder. Drag the MyModel folder inside the Unity project's Assets folder. Using this system you can easily find your models in Unity since each object resides in its own folder.

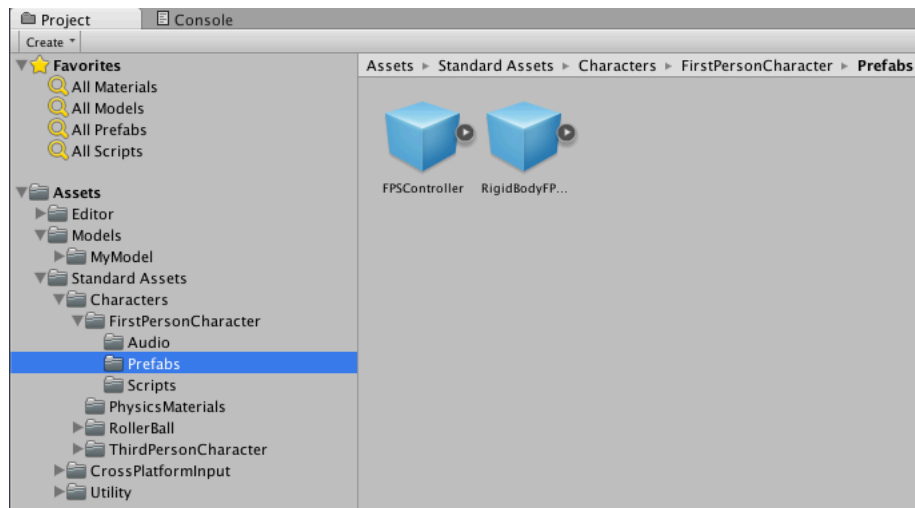


Place your MyModel folder inside the Unity project's Assets folder

Unity Scene Setup

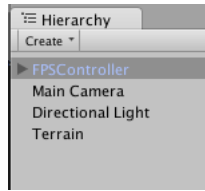
Return to Unity and add a Terrain object to the scene by choosing **GameObject > 3d Object > Terrain**. This will give you a ground plane in the scene.

To run around and look at our animation, we need to add a First Person Controller. Choose **Assets > Import Package > Characters**. Click **Import** once the **Importing Package** dialog box appears. Open the folder labeled **Standard Assets** in the **Project** panel. Now open the sub-folder labeled **Characters**. Inside the **Characters** folder you will find a folder called **FirstPersonCharacter**. Open the **FirstPersonCharacter** folder, then click the **Prefabs** folder. The contents displays in the panel to the right. Drag the **FPSController** from the panel to the **Scene** window.



Drag the FPSController to the Scene window

With the **FPSController** Prefabs selected in the **Hierarchy** panel, hover the mouse over the **Scene** window and press the **f** key.

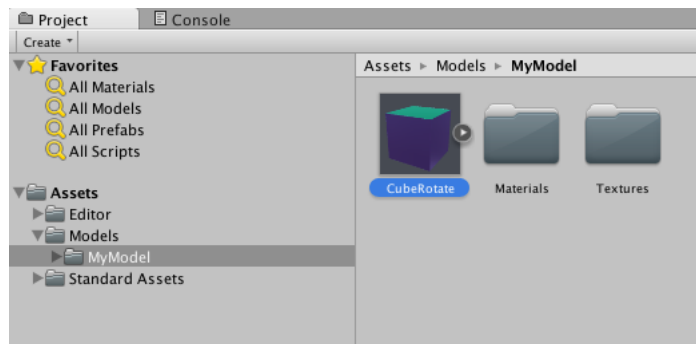


Select the FPSController in the Hierarchy panel to select it, then press the f key to take a closer look

This dollys the scene camera in so you can see the controller. Use the move tool if necessary to move the controller slightly above the terrain. If you forget this step, the controller will just free fall right through the terrain.

Setting up the FBX file's Animation in Unity

Click the Models folder in the Project panel, then click the triangle to expose the folder containing your fbx file. Click the MyModel folder to expose its contents in the panel to the right.



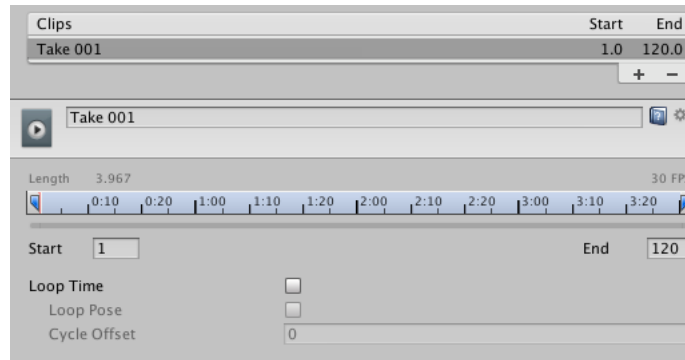
Click the Maya scene icon

With the object selected, take a look at the Inspector panel. There are three buttons across the top, they are Model, Rig and Animations. Click the Animations button.



Click the Animations button

With the default clip selected (ours was Take 001), set the animation start and end time. You can also change the clip name by entering a name in the box above the timeline. Make sure to avoid spaces and symbols in the name. If you want your animation to loop, click the Loop Time checkbox.



You can change your clip name, set the start and end times and activate looping

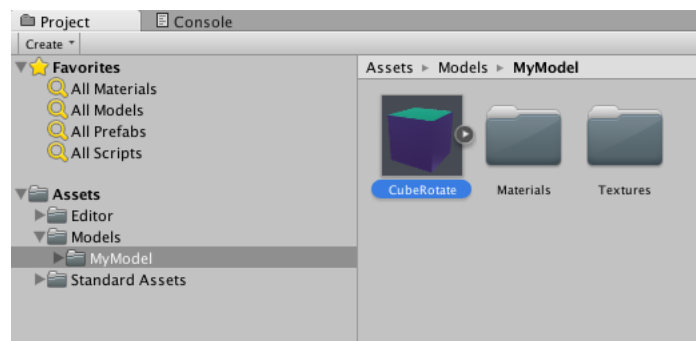
Click Apply to save your settings.



Once you are satisfied, click Apply

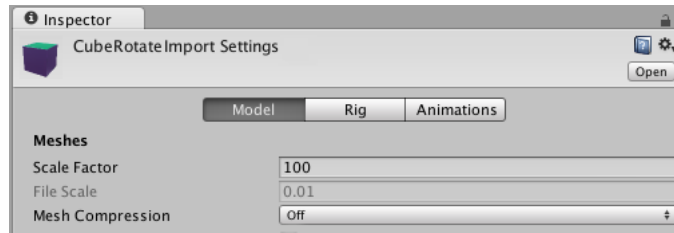
Adding Your Object to the Scene

With the Models folder open and your object's folder selected in the Project panel, drag your object into the Unity scene window.



Select the scene and drag it to the Unity Scene window

If your object needs scaling, select the object in the Project panel and change the Scale values in the Model section of the Inspector panel. With Maya's default units set to centimeters and Unity's set to meters, you can enter a value of 100 and your model now matches the Unity scale. You can also position your object in the scene with the move tool.



Increase the Scale values to 100 to convert Maya's centimeters to Unity's meters

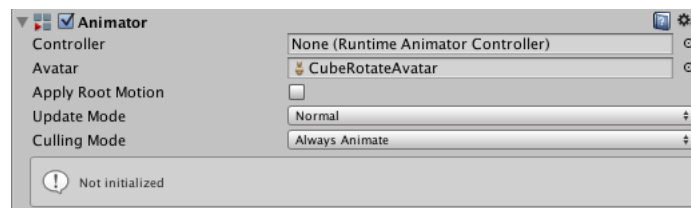
Adding an Animator Controller

The final step involves connecting the animation to the object. Click the object name in the Hierarchy panel.



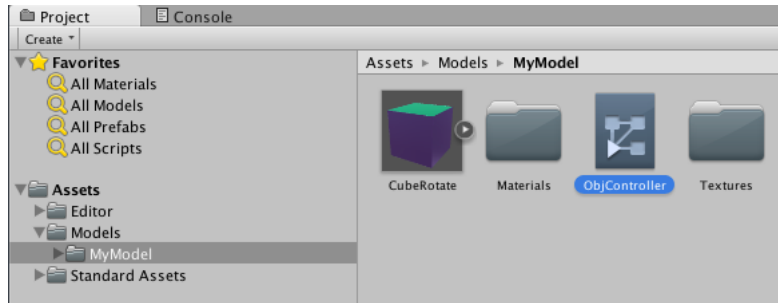
Select your object in the Hierarchy panel

Notice that when you added the object to the scene, there were several components added to the object. The Animator component currently has None listed as the Controller. We need to tell Unity that the Maya animation needs to drive the object.



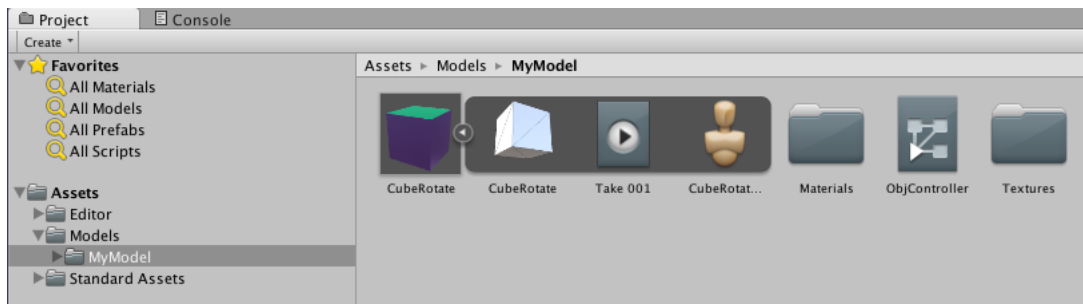
Notice that the Animator component in the Inspector has no Controller

With the Models folder still open and the object folder selected, right-click the panel that displays the fbx object and choose Create > Animator Controller. Name your controller, ObjController.



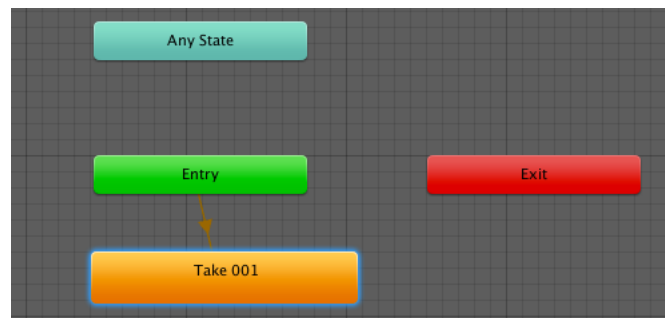
Add an Animator Controller by right clicking the panel and choosing Create > Animator Controller, then rename the controller

With the new Animator Controller selected, choose Window > Animator. Click the right-facing arrow for the fbx object in the to expose the animation clip name.



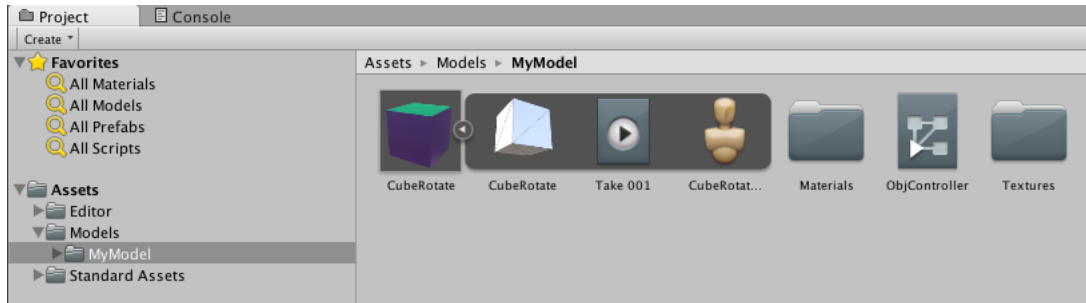
Click the right facing arrow on the scene icon to view it's contents

Drag the animation clip (Take 001) to the Animator window. It automatically connects to the Entry node.



By dragging the Take 001 icon to the Animator window, the connections are automatically made

Drag the Animator Controller (ObjController) to the object or the root level of the object, if it is a group, in the Hierarchy panel.



Drag the ObjController to the object in the scene

Press Play and navigate in your scene. The object should animate just like it did in Maya. Don't be surprised if your object appears at another part of the terrain. To fix this problem, create an empty game object (GameObject > Create Empty). Parent your animated object to the empty object by dragging the animated object to the empty object in the Hierarchy panel. Now you can move the empty game object to reposition the animated object.