About The FBX Exporter Package

Version: 1.2.0b1

The FBX Exporter package provides a round trip workflow for editing geometry assets. Use this workflow to send geometry from Unity to Maya, Maya LT, or 3ds Max, and back again, with minimal effort.

The FBX Exporter package includes the following features:

- **FBX Exporter:** Exports geometry as FBX files.
- **Convert To Linked Prefab Instance:** Converts a GameObject hierarchy to a Linked Prefab: a Prefab configured for auto-updating that is linked to an FBX Model.
- **FBX Prefab Component:** Handles non-destructively merging changes back into your Prefab whenever the FBX Model changes on disk.
- **Unity Integration for Maya and Maya LT:** Imports and exports assets between Unity and Maya, with minimal effort.
- **Unity Integration for 3ds Max:** Imports and exports assets between Unity and 3ds Max, with minimal effort

Requirements

The FBX Exporter package is compatible with the following versions of the Unity Editor:

- 2017.1 and later (recommended)

The Unity Integration for Maya feature supports the following versions of Maya:

- Maya 2017
- Maya 2018
- Maya LT 2017
- Maya LT 2018

The Unity Integration for 3ds Max feature supports the following versions of 3ds Max:

- 3ds Max 2017
- 3ds Max 2018

Known Issues

When installing a new version of the FBX Exporter Package after using version 1.1.0.b1, the link between assets and FbxPrefab components may be lost. See Installing the FBX Exporter Package for repairing instructions.

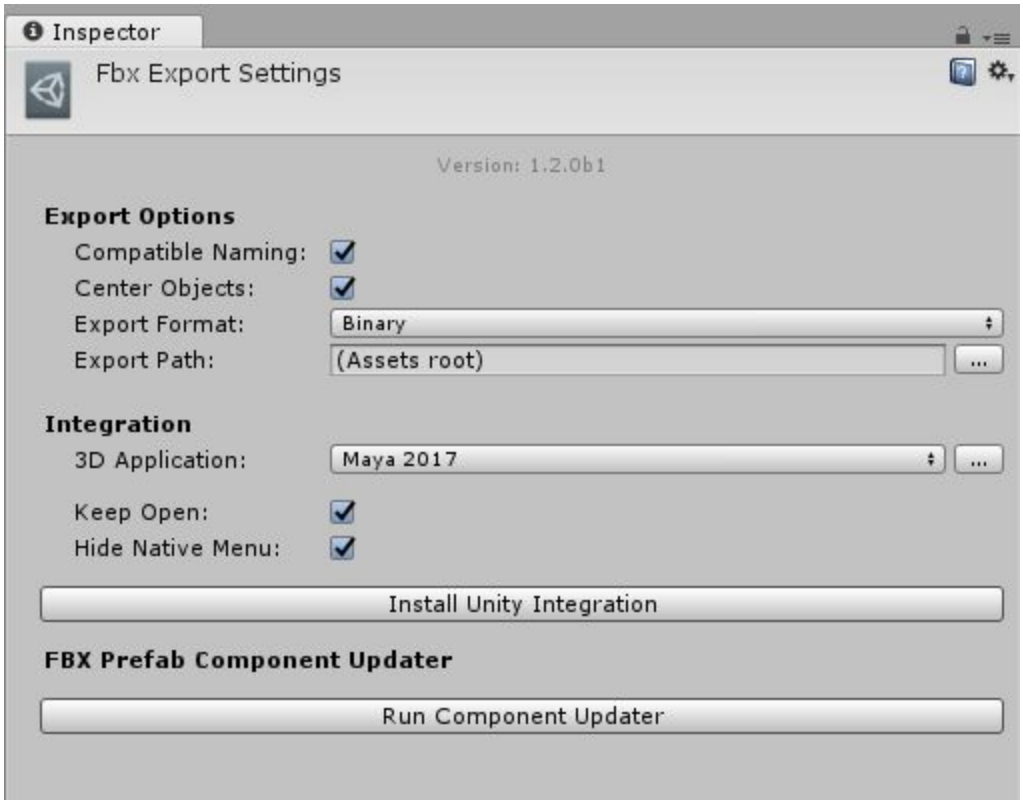
Installing the FBX Exporter Package

When you install the FBX Exporter Package, it is recommended that you do the following:

1. Back up your project.
2. Restart Unity.
3. Delete the FbxExporters folder.
4. Install the new version of the FBX Exporter Package.

If your previous version of the FBX Exporter Package was 1.1.0b1, some assets in your project may lose their FbxPrefab components. To repair this issue, follow these steps:

1. If your project assets are serialized as Binary, select **Edit > Project Settings > Editor** to view the Editor Settings. Change the **Asset Serialization** mode to **Force Text**. The **Force Text** option converts all project assets to text.
2. Before continuing, backup your project.
3. Select **Edit > Project Settings > Fbx Export** to view the Fbx Export Settings.
4. Click the **Run Component Updater** button.



Click the Run Component Updater button to repair all text serialized prefab and scene assets in the project containing the FbxPrefab component

Exporting FBX files

Use Export Model (menu: **GameObject** > **Export Model...**) to manually export GameObject hierarchies to an FBX Model file. All selected objects are exported to a single fbx file. The following rules apply:

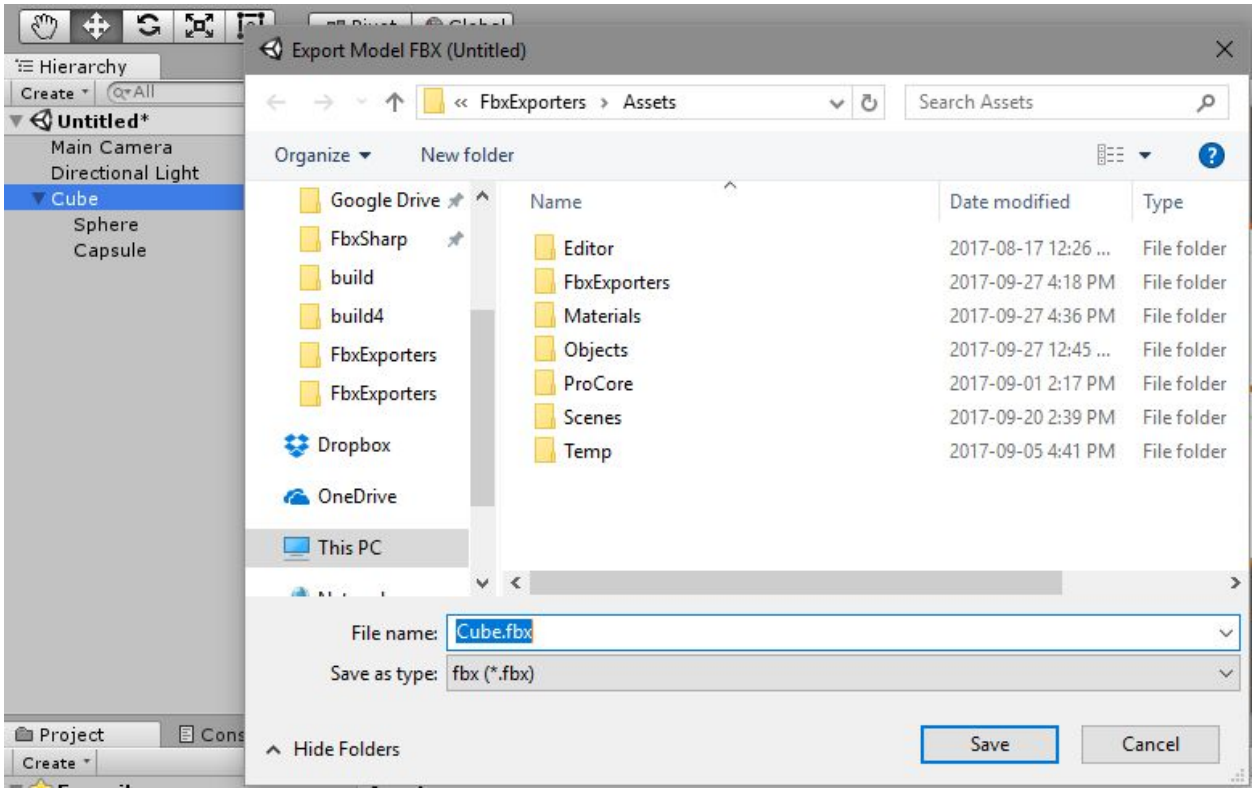
- Parents of selected objects are not exported.
- Siblings of selected objects are not exported.
- Descendants of selected objects are exported.
- If both a parent and a descendant are selected, only the parent is exported.

The following objects are exported from Unity:

- GameObject hierarchies and their transforms.
- Meshes and SkinnedMeshRenderer are exported as a static mesh. Multiple copies of the same mesh are exported as instances. The following mesh attributes are also exported:
    - Normals
    - Binormals
    - Tangents
    - Vertex Colors
    - All 4 Mesh UVs, if present
    - Quads or Triangles
- Materials are exported as Phong or Lambert. Phong if the material has specular, and Lambert in all other cases.
- Textures.
- Cameras are exported as film cameras with 35mm TV Projection. The following camera attributes are also exported:
    - Projection type (perspective/orthographic)
    - Aperture Width and Height (width set to 0.816 inches and height calculated as 0.612 inches relative to the aspect ratio of the Unity camera).
    - Aspect ratio
    - Focal length
    - Field of view
    - Near and far clipping plane

Specifying the Model File name

The default filename is the name of the top-level, selected object. If multiple objects are selected, the last filename exported is used. If this is the first time objects are exported, the filename is set to Untitled.fbx.



Exporting with relevant system units

The FBX Exporter exports in centimetre units (cm) with mesh set to real world (meter) scale. For example, if vertex[0] is at [1, 1, 1] meters, it is converted to [100, 100, 100] cm.

In 3ds Max, it is recommended to set the system units to centimeters to avoid any scaling on model import and export.

There are no specific import options to adjust between Unity and Maya. When working in Maya, it may be convenient to set the working units to meters.

For example, when working with large models in Maya, to ensure that the models clip to meters, adjust the scale of the near and far clipping planes for all cameras by 100x. In addition, you should scale lights by 100x so that objects display in the viewport

Exporting with a relevant transform

When the FBX Exporter exports a single GameObject hierarchy, the transform is reset so that it appears at the world centre in Maya, Maya LT, and 3ds Max. It is assumed that the identity of the transform is its initial state.

Important: If you create a Model with a factory primitive, such as a Cube or Sphere, transform changes on the root are not exported to the FBX file. To keep these transform changes, either place these primitives under a root GameObject, or use a modelling package such as ProBuilder.

Convert To Linked Prefab

The FBX Exporter package supports a minimal workflow for converting a GameObject hierarchy into a Linked Prefab. A Linked Prefab is automatically updated whenever the FBX files change on disk.

Use Convert To Linked Prefab (menu: **GameObject** > **Convert To Linked Prefab Instance**) to replace the GameObject hierarchy with an instance of a Prefab that is linked to an FBX Model. The Linked Prefab contains a FbxPrefab script component that merges FBX Model changes into the Linked Prefab.

Convert To Linked Prefab exports each selected GameObject hierarchy as a .prefab and a .fbx file. The following rules apply:

- Parents of selected objects are not exported.
- Siblings of selected objects are not exported.
- Descendants of selected objects are exported.
- If both a parent and a descendant are selected, only the parent is exported.

Automatic updates

Whenever an FBX file is changed on disk and the FBX file resides within the Asset folder of the Unity project, the built-in FBX Importer runs and updates the geometry. A Linked Prefab merges the following additional changes:

- Adding or removing objects in the hierarchy
- Changing the parent of objects in the hierarchy
- Adding or removing the mesh component for an object
- Changing the transform of the children in the hierarchy
- Adding or removing a camera component for an object
- Changing the camera component’s properties

Note: If a merge conflict occurs between a changed FBX file and a Linked Prefab, the FBX file takes precedence.

KNOWN ISSUES:

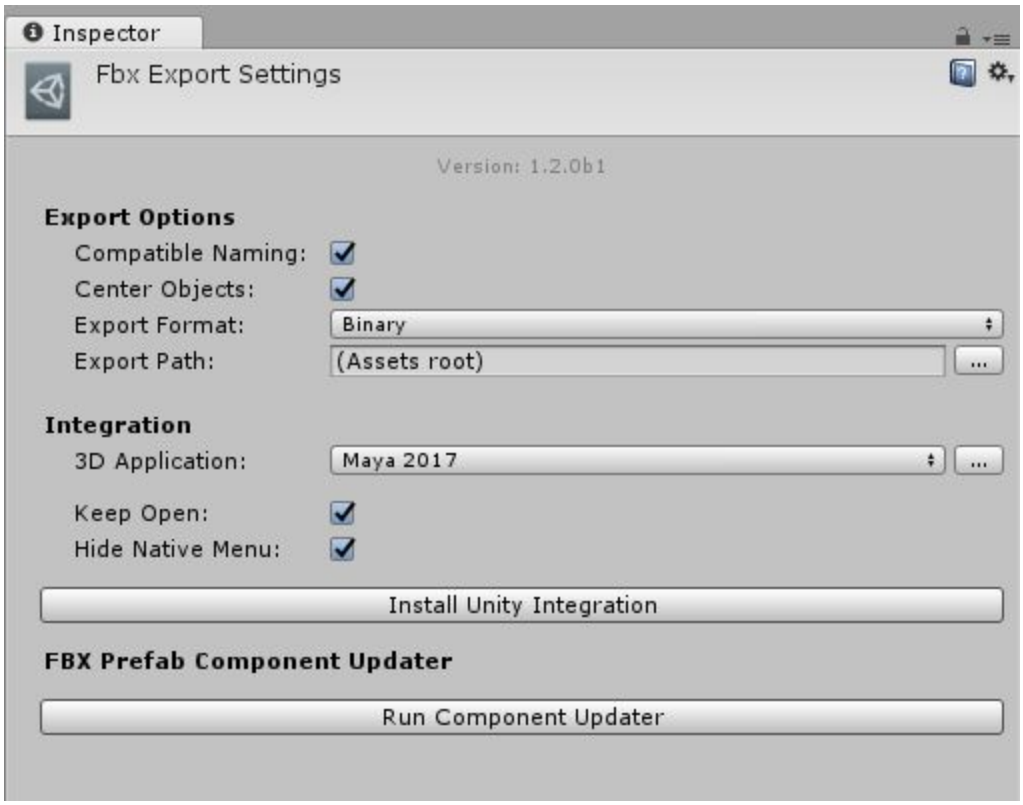
- If the converted hierarchy contains a Mesh Collider and you replace the mesh in the FBX file, the reference to the new mesh is not updated in the Mesh Collider. To resolve this

issue, you must manually update the Linked Prefab so that the Mesh Collider references the new mesh.

After a hierarchy with a Mesh Collider is converted, you must manually update the Mesh in the Linked Prefab to reference the new mesh.

Fbx Export Settings

Use the Fbx Export Settings to change how the Fbx Exporter exports FBX Models and to install the Unity Integration for Maya, Maya LT, or 3ds Max.



Property:	Function:
Compatible Naming	Controls the renaming of the GameObject and Materials on export. The FBX Exporter ensures compatible naming with Maya to avoid unexpected name changes between Unity and Maya. During export the FBX Exporter replaces characters in Unity names as follows: ● Replaces invalid characters with underscores ("_"). Invalid characters are all non-alphanumeric characters, except for colon (":"). ● Adds an underscore ("_") to names that begin with a number. ● Replaces diacritics. For example, replaces “é” with “e”. For FBX Model filenames, the FBX Exporter ensures that names do not contain invalid characters for the file system; the set of invalid characters may differ between file systems. **Note:** If you have a Material with a space in its name, the space is replaced with an underscore ("_"). This results in a new Material being created when it is imported. For example, the Material named "Default Material" is exported as "Default_Material" and is created as a new Material when it is imported. If you want the exported Material to match an existing Material in the scene, you must manually rename the Material before exporting.
Center Objects	Controls whether objects that are centered around a shared root keep their relative placement unchanged, or keep their global transforms from the scene.
Export Format	Controls whether FBX is exported in ASCII or binary format
Export Path	Specifies the location where converted GameObject hierarchies are saved as Linked Prefabs. Both .fbx and .prefab files are saved to this location.
3D Application	Selects the 3D application to integrate with Unity. Select “Browse" to choose a 3D application installed in a non-standard location. Maya 2017+, Maya LT 2017+, and 3ds Max 2017+ are the three applications currently supported.
Keep Open	After installing the 3D application of choice, keep the 3D application open instead of closing after install.

Hide Native Menu	Hide native “Send to Unity” menu in Maya and Maya LT.

Unity Integration for Maya, Maya LT, and 3ds Max

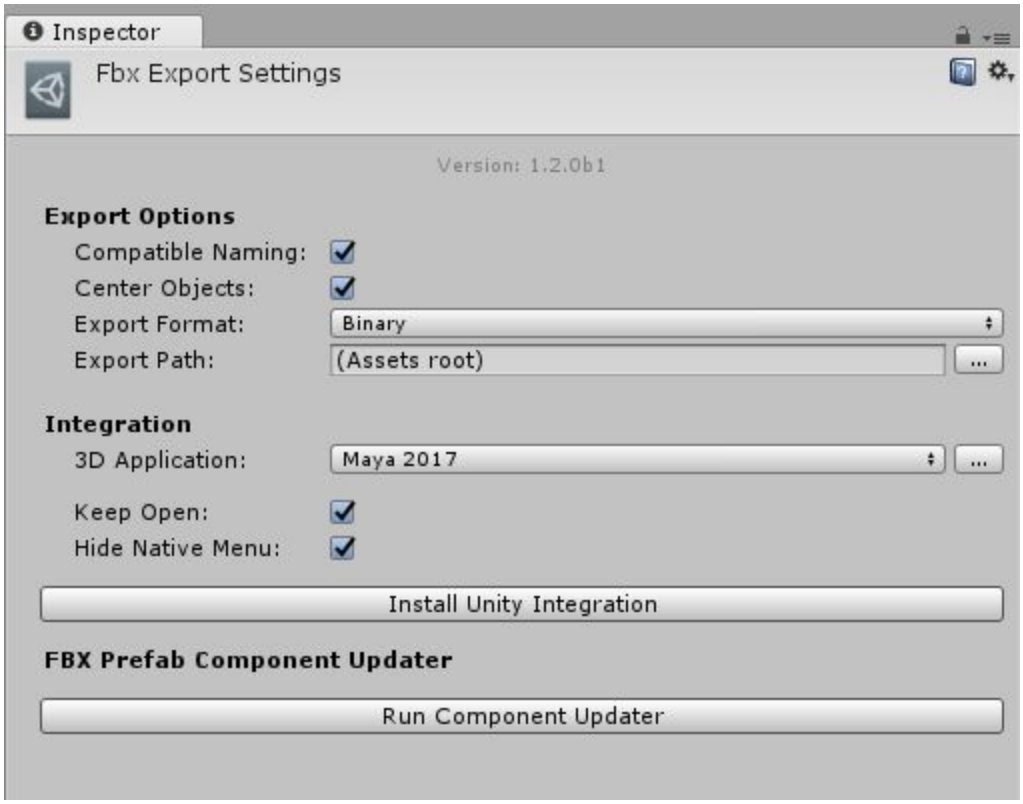
The Unity Integration is designed as an effortless experience for exchanging assets between Unity and either Maya, Maya LT or 3ds Max.

Use the Unity Integration to import and export models directly to and from Unity without having to specify filenames, select objects, or set FBX importer or exporter settings.

To customize FBX Exporter settings in Maya or Maya LT, use the unityFbxExportSettings.mel file, located in the Integrations/Autodesk/maya/scripts folder. For 3ds Max use the unityFbxExportSettings.ms file located in the Integrations/Autodesk/max/scripts folder.

Installing the Integration for Maya, Maya LT, or 3ds Max

To install Unity Integration for Maya or 3ds Max, open the Fbx Export Settings (menu: **Edit** > **Project Settings** > **Fbx Export**)



Use the 3D Application property to choose the 3D application and version where the Unity Integration is to be installed.

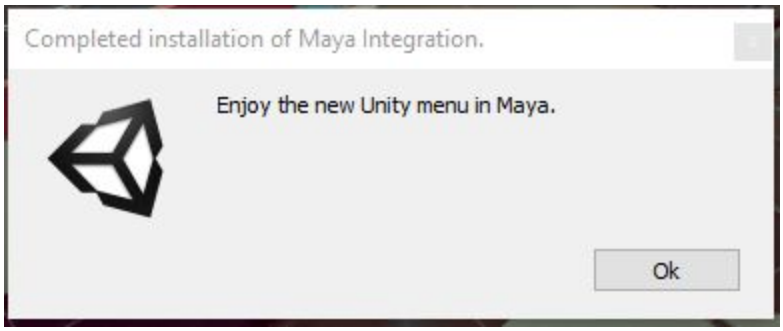
To select a version of Maya, Maya LT, or 3ds Max installed outside the default location, click the Browse button.

3D Application property with Browse button (red outline)

Close all instances of the selected 3D Application, that matches the specified version, before installing the Unity Integration.

Click **Install Unity Integration** to install the Unity Integration for the selected 3D application. The Unity Integration comes packaged in several zip folders (one zip per supported application). You are prompted to select a folder to unzip the Unity Integration to. This folder can be unzipped outside of your current project. Maya and Maya LT both use the same zip folder.

The application will start, configure the plugin, and automatically exit. Unity reports whether the installation was a success.



If an error occurs during startup, Maya may not close. If this happens, check the Maya console to see if you can resolve the issue, and then manually close Maya.

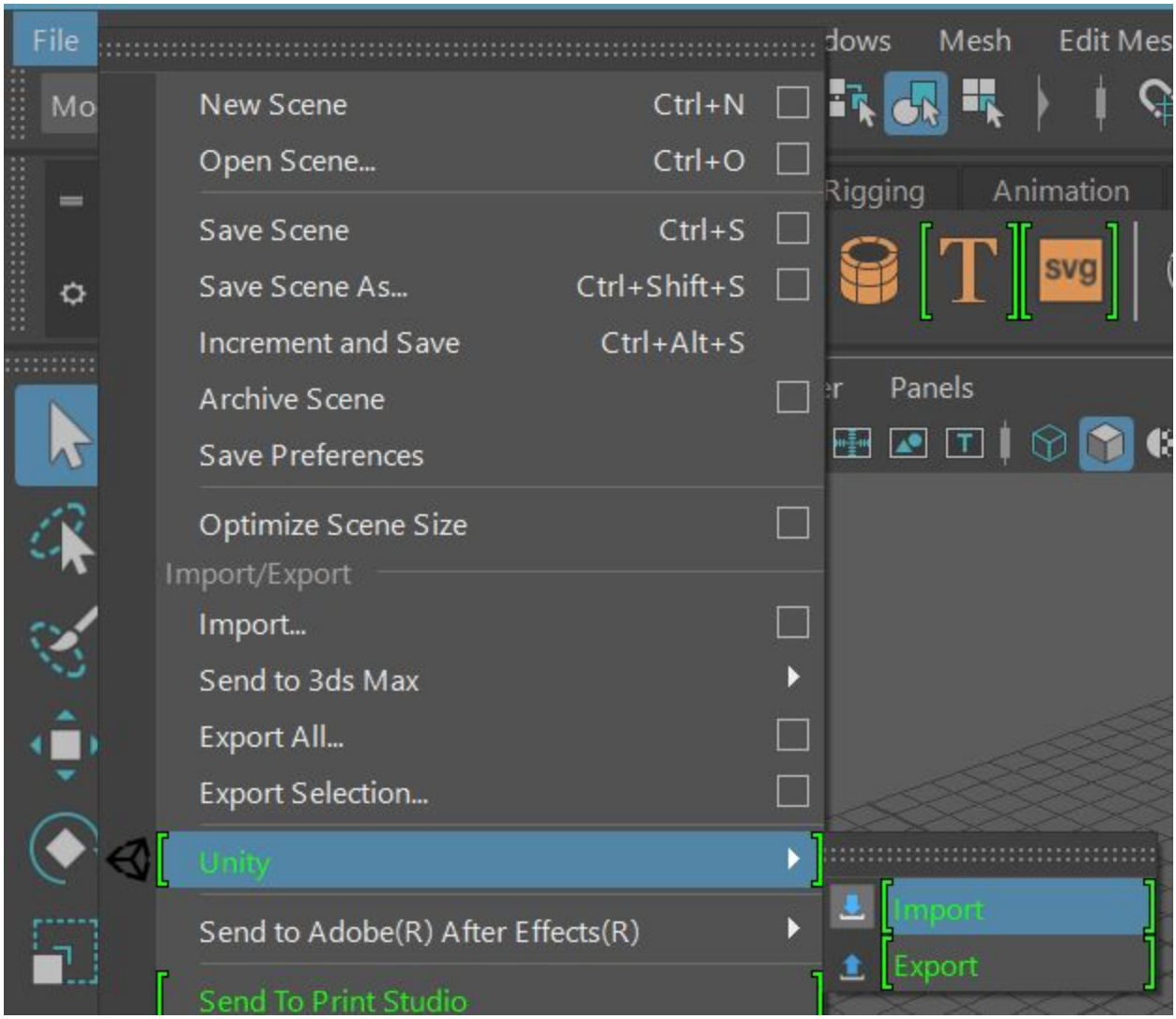
If the **Keep Open** option is selected in the export settings, then Maya will stay open after installation completes.

Importing a Model from Unity

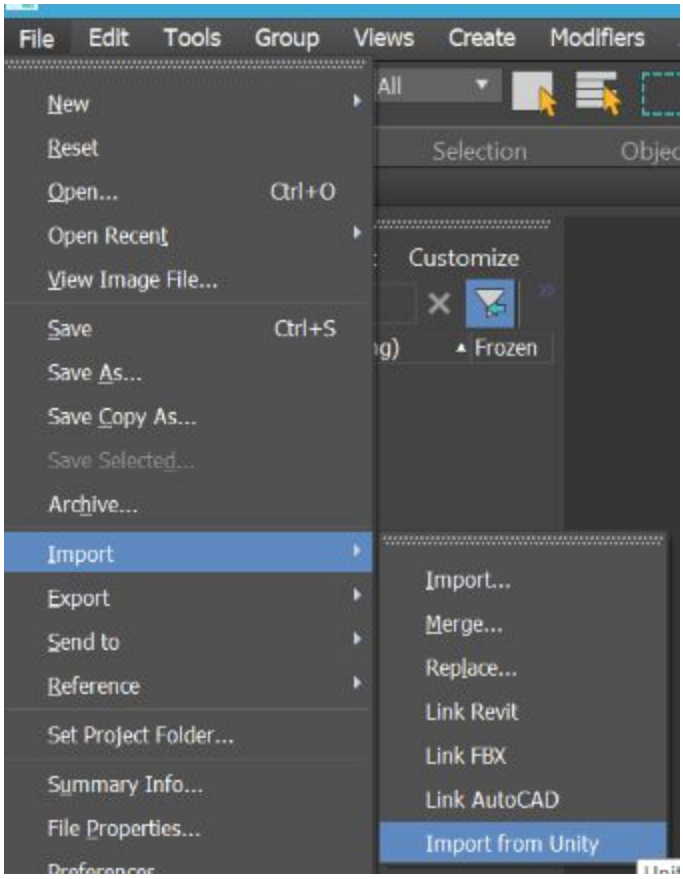
Importing an FBX model automatically configures the plugin for export. The plugin remembers your Unity Project, the export filename, and which objects to export.

Select Import to open a file browser directly in your current Unity Project. Use the file browser to select the Model to import.

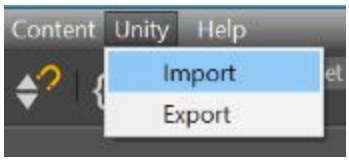
In Maya and Maya LT, select **File > Unity > Import.**

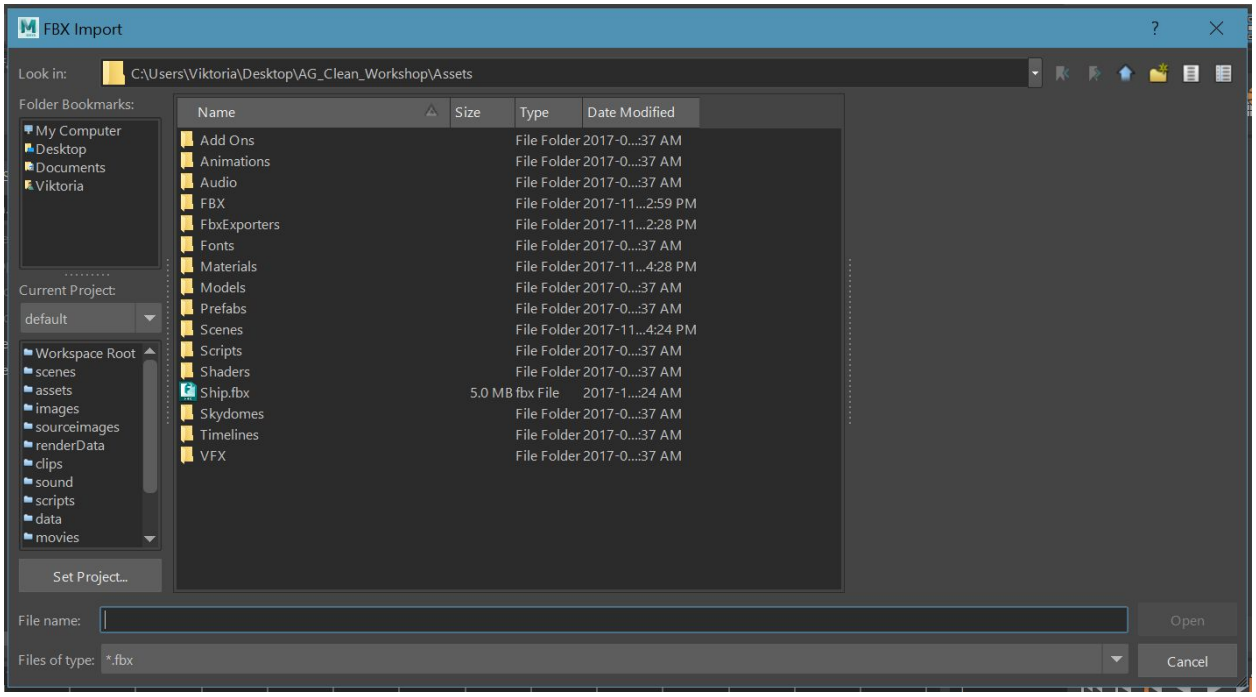


In 3ds Max 2018, select **File > Import > Import from Unity.**

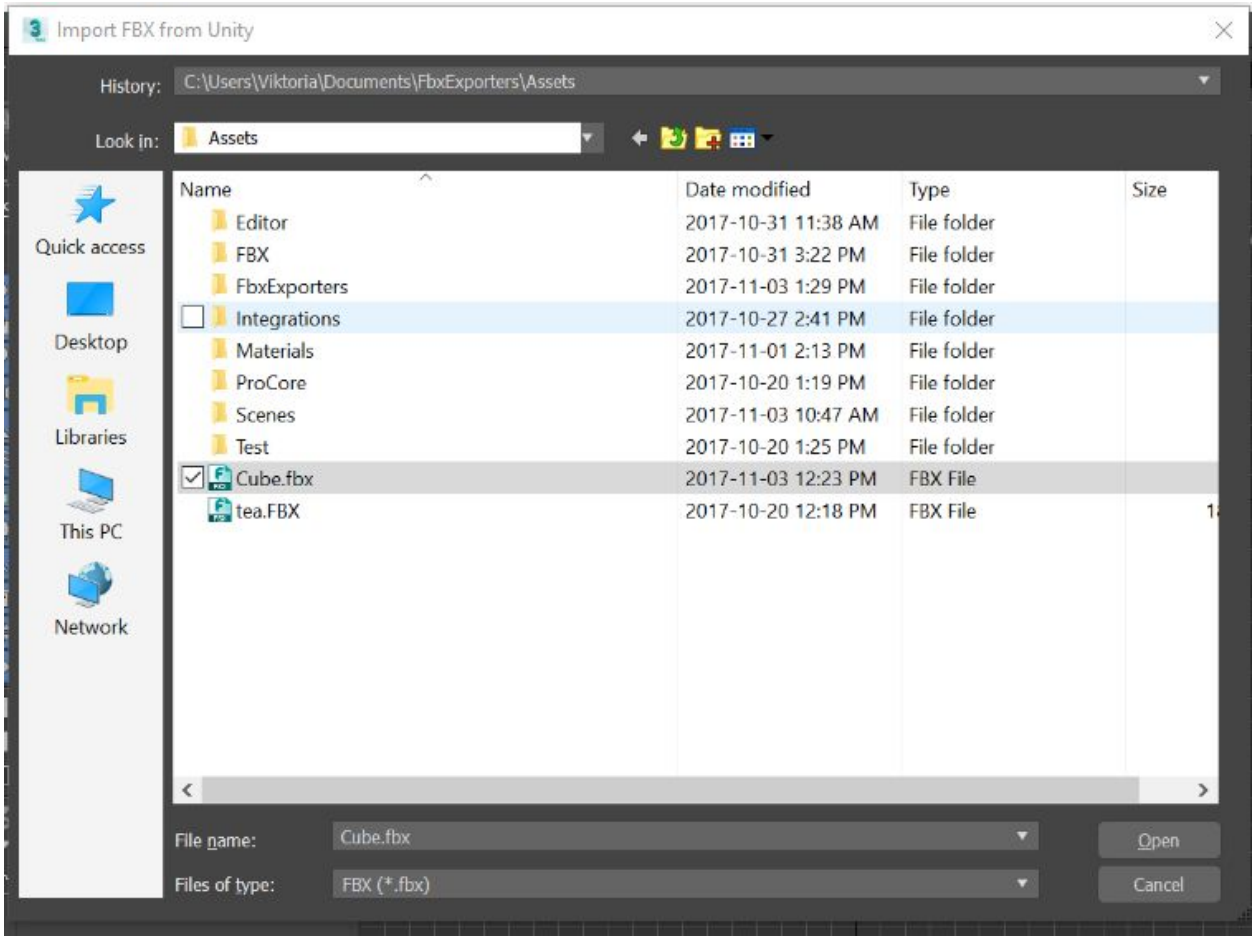


In 3ds Max 2017, select **Unity > Import**.



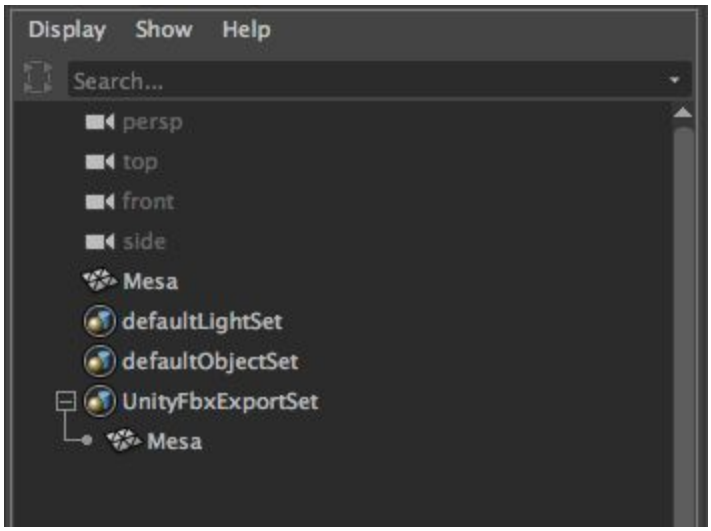


Maya and Maya LT FBX import menu

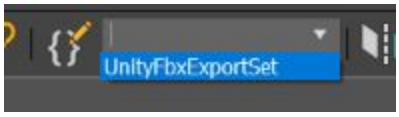


3ds Max FBX import menu

Unity import automatically creates a UnityFbxExportSet set with the imported objects. Unity export also uses this set to determine which objects to export. If you add a new object to the model, you must also add this new object to the UnityFbxExportSet set.

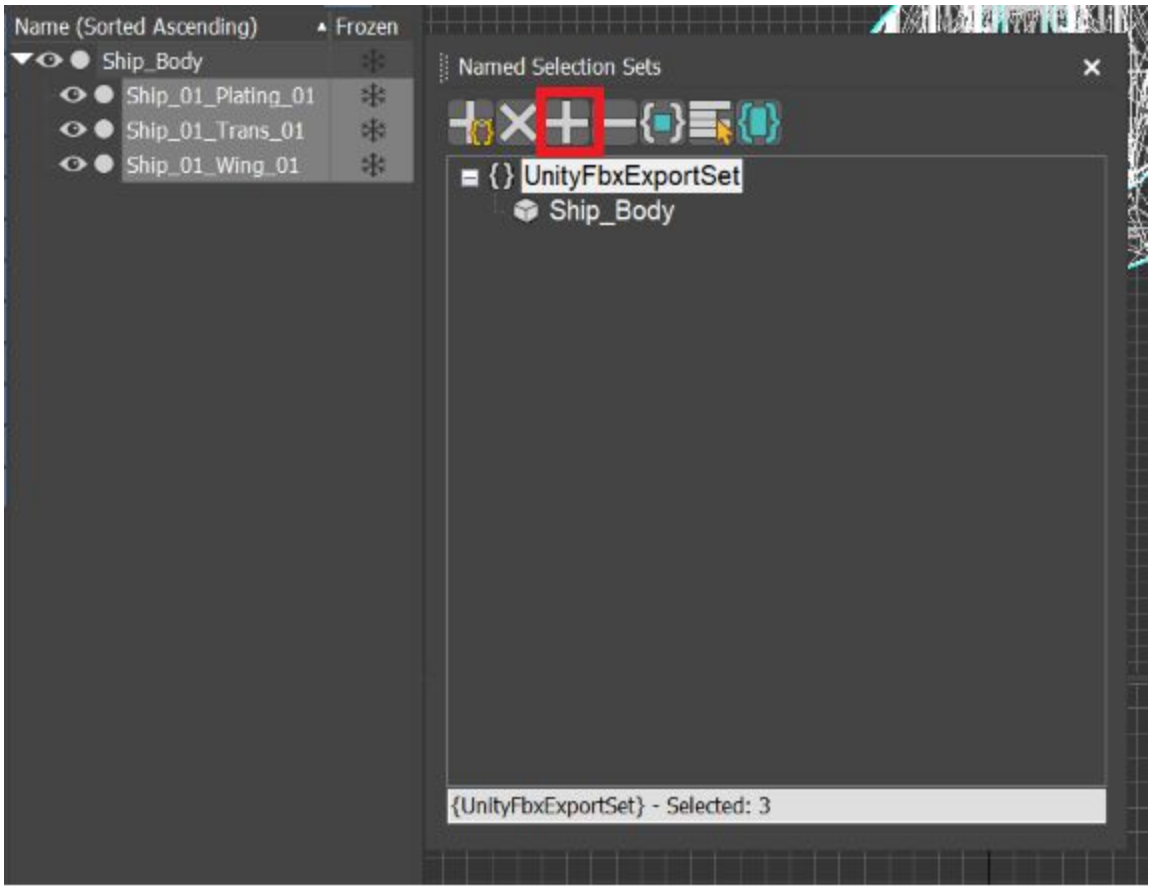


UnityFbxExportSet in Maya



UnitFbxExportSet in 3ds Max

In 3ds Max, click the **Edit Named Selection Sets** button to edit the UnityFbxExportSet. To add an object to the set, select an object and click the **Add Selected Objects** button. To remove an object from the set, select the object in the set and click the **Subtract Selected Objects** button. You can also Right-click UnityFbxExportSet and add or remove objects with the context menu.

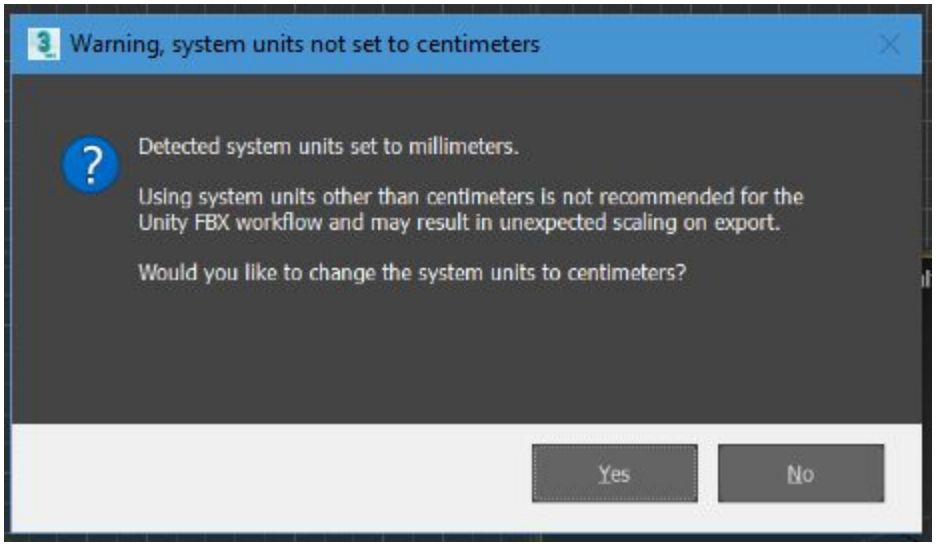


*In 3ds max, use the **Add Selected Objects** button (red outline) to add objects to the UnityFbxExportSet.*

In 3ds Max, if the system units are not set to centimeters, you are prompted to change the system units to centimeters. Select one of the following options:

- Click **Yes** to change the system units (recommended) to centimeters, ensuring that the scaling is maintained on export.

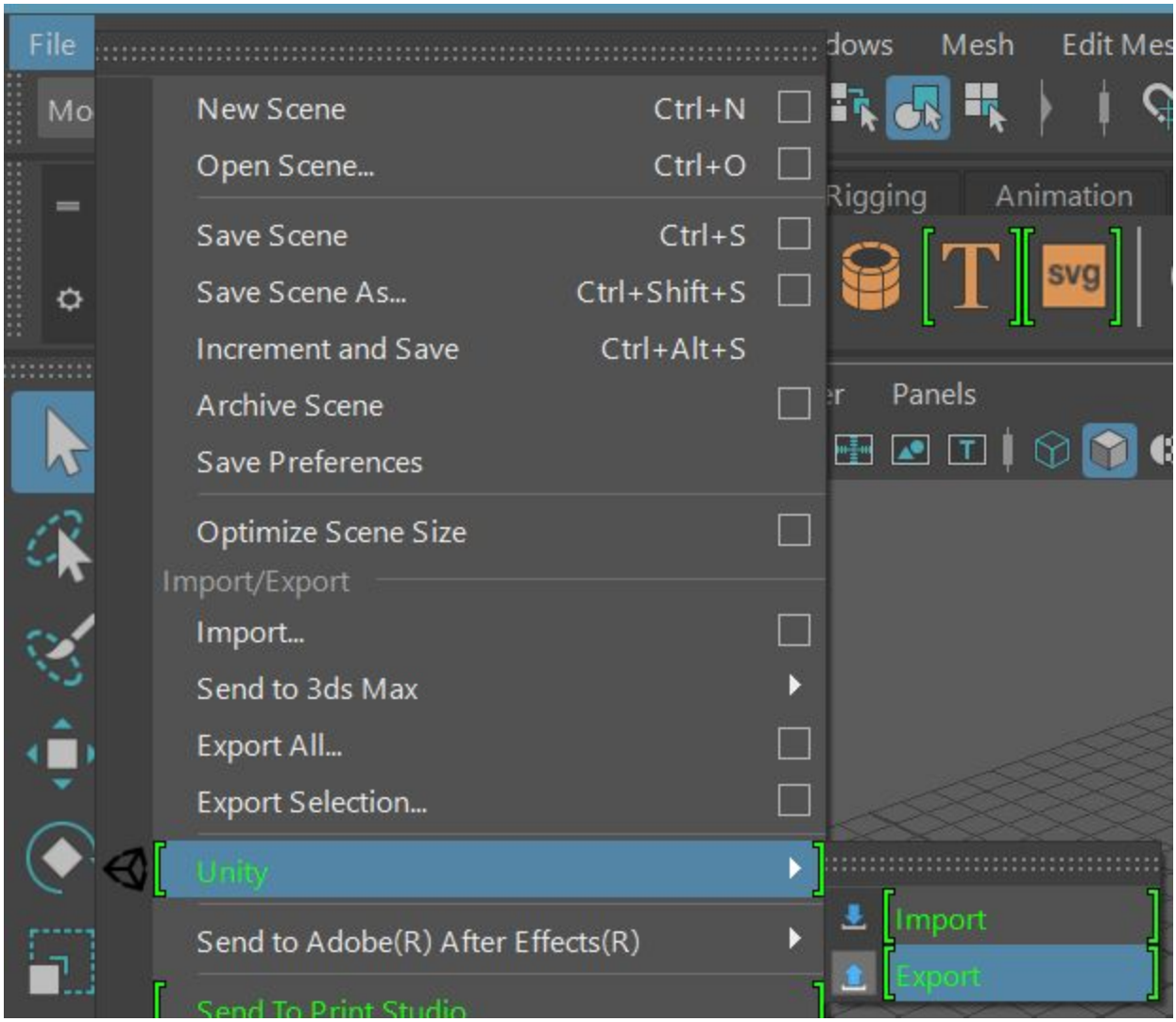
- Click **No** to use the current system units (not recommended). The prompt will not appear again for the remainder of the 3ds Max session or, in the case of a .max file, will not appear again for this file.



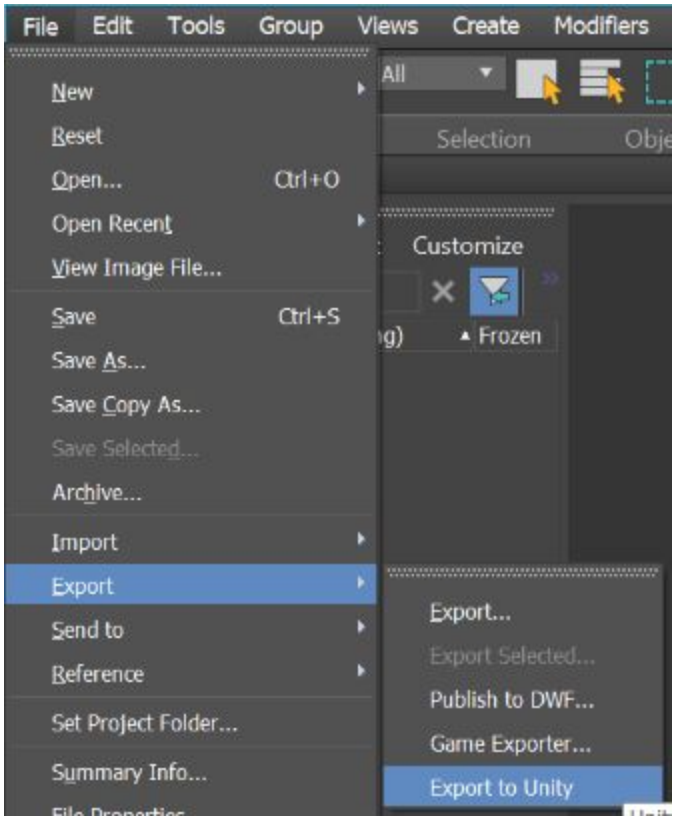
Exporting a Model to Unity

Select Export to automatically export with the settings and models configured during import. No additional steps are required.

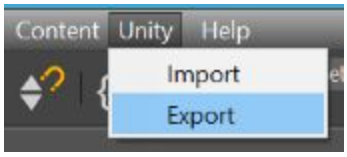
In Maya and Maya LT, select **File > Unity > Export**.



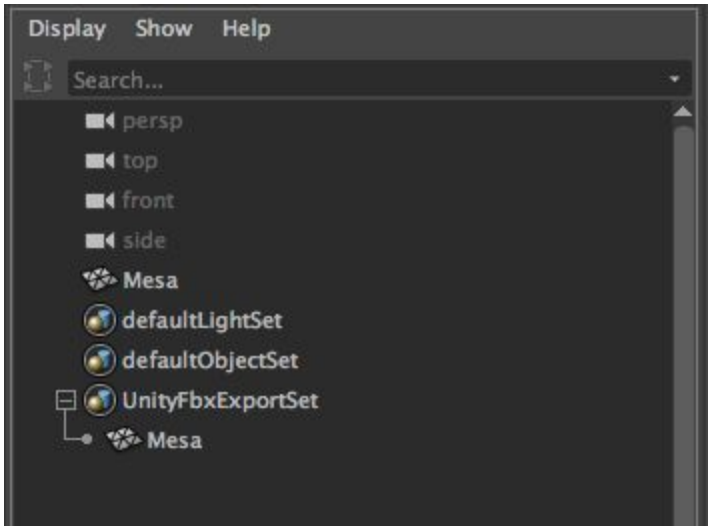
In 3ds Max 2018, select **File > Export > Export to Unity**.



In 3ds Max 2017, select **Unity > Export.**



Note: If you added new objects to the model since the last import or export, you must manually add them to the UnityFbxExportSet set.



Selecting **Export** automatically exports the current Model back to Unity. When you switch back to the Unity application, your scene has already been updated.