



Cyclops Model Import Complete Guide

Updated Jan 2024

Introduction

This feature will allow users to import simple OBJ or FBX files into Cyclops and use them as placeable assets. While this feature works well for simple models it has limitations and does not handle big or complicated or animated files. This doc will explain the procedures for importing assets into Cyclops and the best practices for setting up assets.

In addition to the Model Import feature, Cyclops can also load Unreal models as DLC files. Native Cyclops DLC models can support more features and be of higher quality than models imported directly in Cyclops. DLC model files can have full animation, FX, transparency, joints, RMA materials and more. If you need to put models into Cyclops that do not meet these specifications or want better quality models please get in touch to talk about creating native Cyclops files for you.

[email:business@thethirdfloorinc.com](mailto:business@thethirdfloorinc.com)

More information about native Cyclops DLC assets can be found here:

<http://cyclops.thethirdfloorinc.com/wp-content/uploads/2022/11/Cyclops-DLC-Asset-Guidelines.pdf>

Sample Files

This folder on Dropbox has a few sample FBX & OBJ files that can be imported into Cyclops. You can use these to test the Model Import feature and you can open the assets in Maya and see how they are set up.

<https://www.dropbox.com/scl/fo/u76w4taoit29idy4uef77/h?dl=0&rlkey=74zb0vutmoa8qgm46rmtiaa3>

Overview

In general, the process to get models into Cyclops is:

1. Export the model out of a DCC app like Maya
2. Copy the file(s) to your device
3. Use the iOS Files app to put the files in the `Cyclops5.2/Import` folder.
4. Use the Cyclops Model Import feature to import the files into Cyclops.

In this doc, we will cover the most common workflows. We'll talk specifically about using Maya for the asset export, however, you should be able to follow these general guidelines in any other 3D package that can export as FBX or OBJ.

We also have a section on Best Practices for creating/prepping assets to be loaded into Cyclops. Cyclops runs on an iPad and is not a full-fledged DCC, so it can't deal with everything that can be saved in an FBX files. Your models need to be set up properly to work the best in Cyclops.

Asset Export

Cyclops can import models in either OBJ or FBX format. These are both very common formats and almost all 3D apps out there will be able to export in one of both of these formats.

General Asset Specifications:

- OBJ or FBX format
- Polygons only.
- Cyclops works in 1cm=1cm scale
- Y-up or Z-up world space.
- Each Placeable asset should be in a separate file.

When exporting models you want to have each "item" be its own file. In other words, if you have 5 different cars you want to import into Cyclops then each car model should be in its own file.

The general rule for models is that simpler is better. The best practice is to combine all the mesh objects into a single mesh. The model should be at the origin with its "feet" (or the part meant to touch the ground) at 0 in height. The pivot of the model should be located at the "feet".

FBX vs OBJ

Cyclops can import models in either OBJ or FBX format. In theory, the FBX format can handle a lot more complex scenes than OBJ. However, the importer in Cyclops is very simple so they end up working nearly the same. Additionally, sometimes Cyclops will have a problem with a model exported as one format but be fine with it in the other format. Your mileage may vary.

Getting the Files onto Your Device

After you have exported the model files you need to get them onto your iPad or iPhone. There are a number of ways to transfer files to your device.

- Email
- USB drive
- iCloud Drive
- Dropbox/Google Drive
- Airdrop

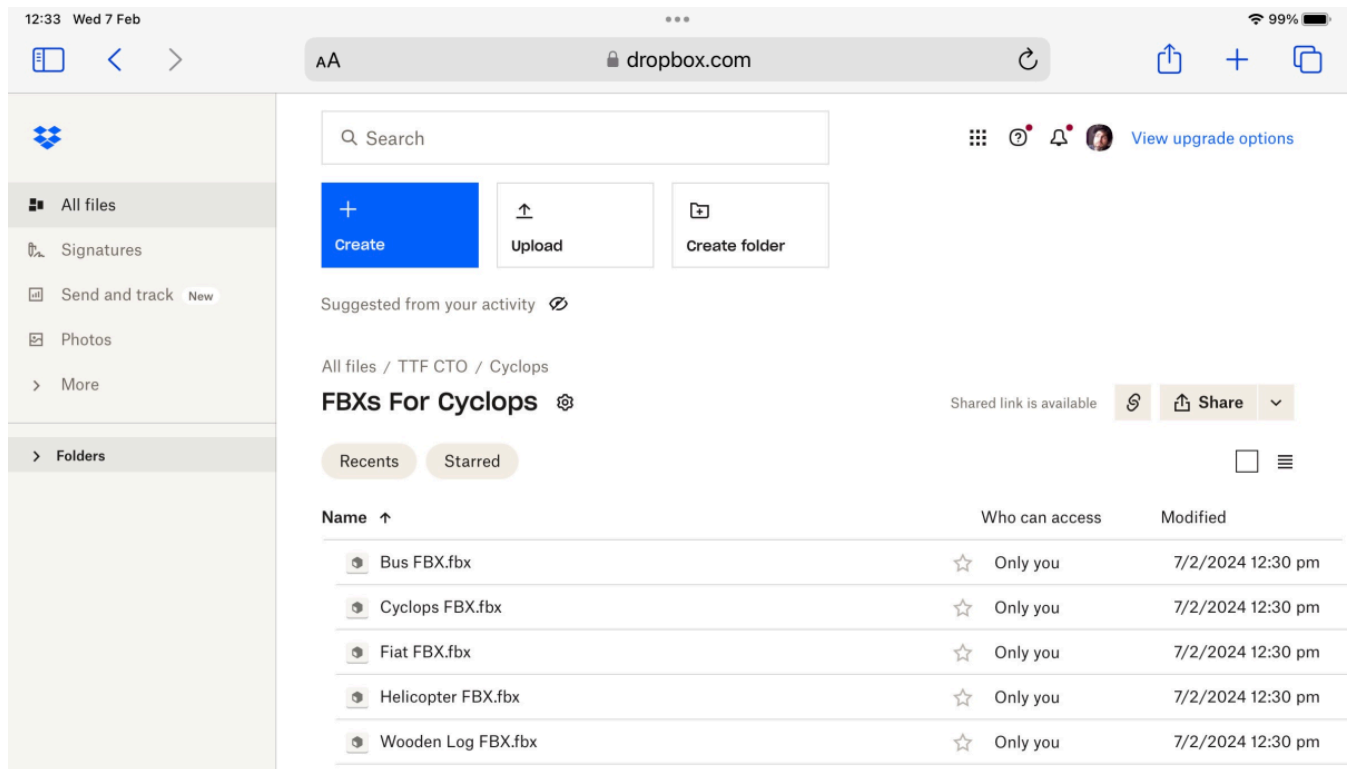
Apple has this page about Transferring files to your iOS device:
<https://support.apple.com/en-gb/guide/iphone/iphf2d851b9/16.0/ios/16.0>

Move the Files into the Cyclops Folder

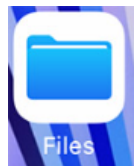
The files need to be saved in a special folder in the Cyclops App. (Unfortunately, iOS does not allow apps to have access to the entire file system)

For this example, I will get the files from Dropbox. This assumes that you or someone else has already uploaded the files to Dropbox and created a share link.

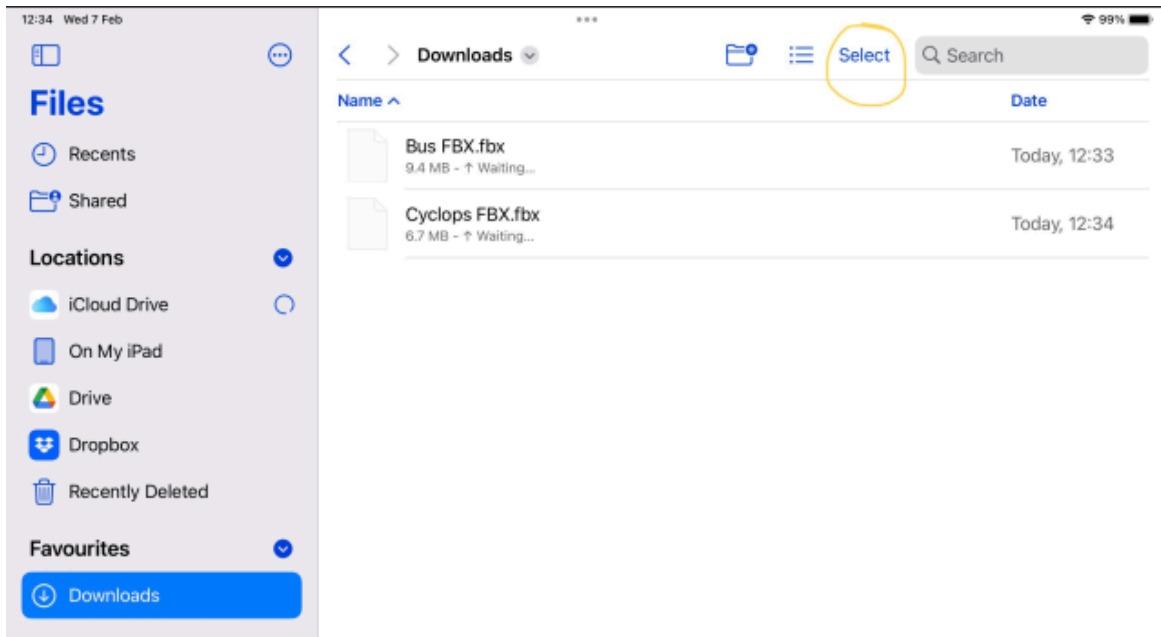
- 1) Open the share link in Safari on your iOS device. Download the desired file(s) to your device.



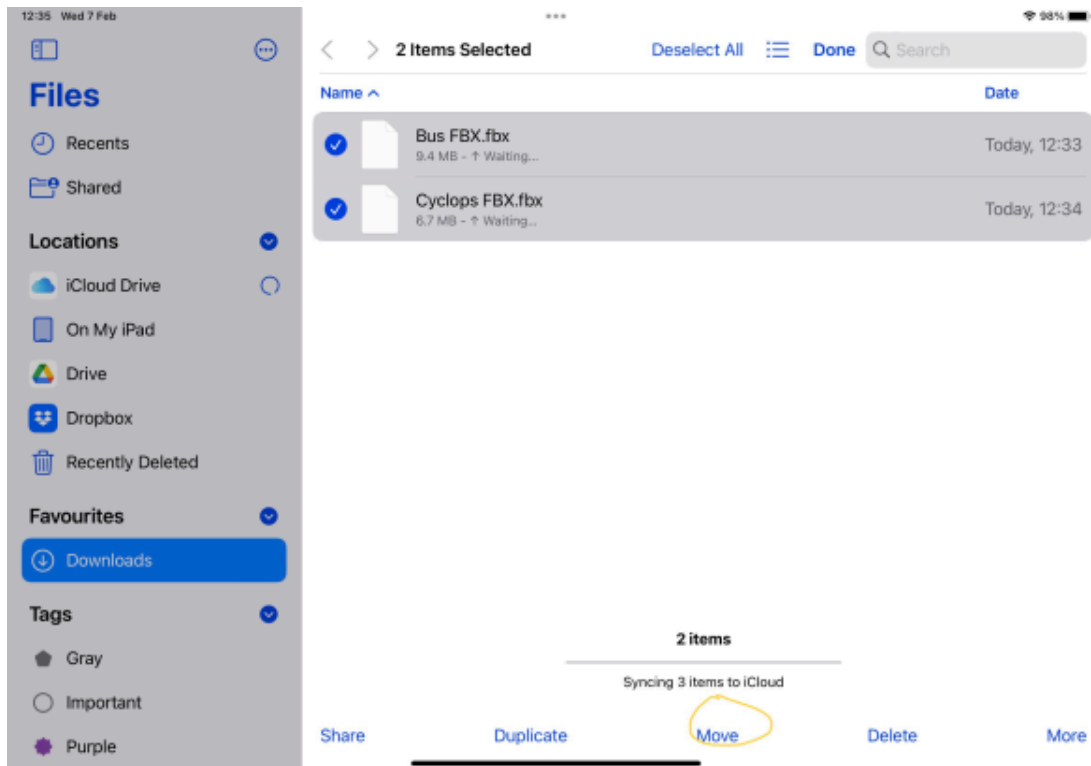
- 2) Next you need to launch the Files app on your device. In the Files App, you can find your downloaded files in the Downloads folder on the left sidebar.



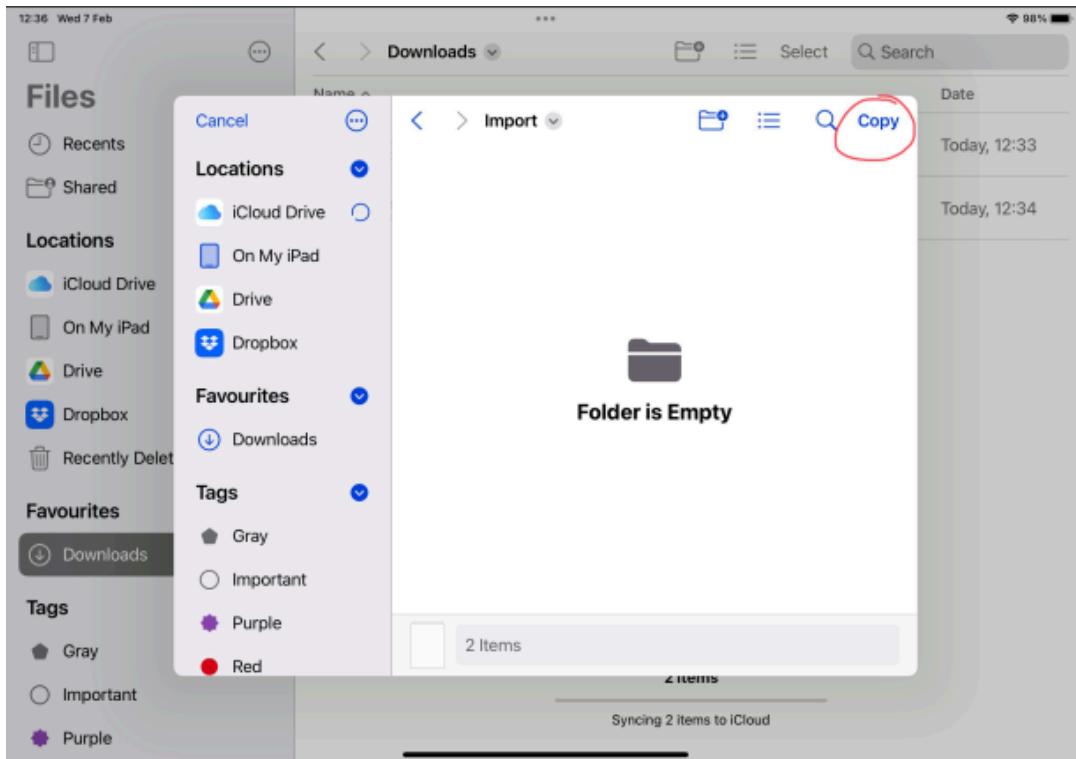
- 3) Use the **Select** button in the upper right corner to select all the files you want to copy into Cyclops.



4) After you have selected all your files tap the **Move** button at the bottom of the screen.



5) A new window will pop up for you to choose where to copy the files to. Select:
 On My iPad > Cyclops5.2 > Import
 Then click the **Copy** button in the upper right.



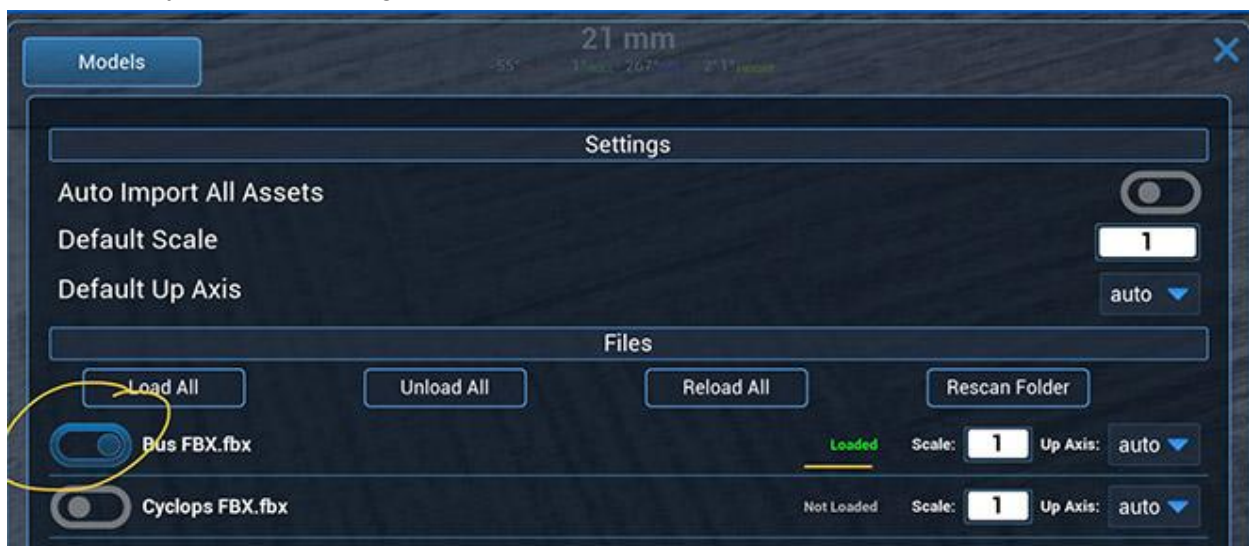
The files have to be in the Import directory for Cyclops to be able to find and import them.

(FYI There are a couple of other ways to use Dropbox that are a little better if you have to download lots of c files. You can use the Dropbox app or connect to Dropbox directly in the Files app.)

Importing the Files into Cyclops

Now that you have copied your files into the special Cyclops directory you can import them into Cyclops.

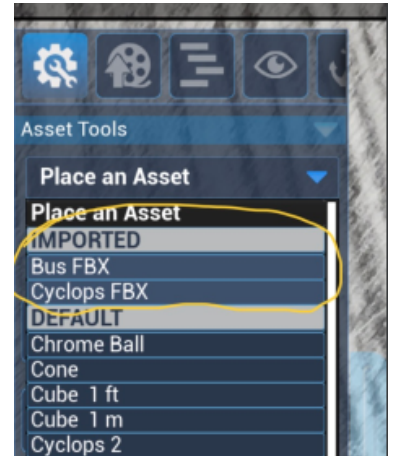
1) Launch Cyclops and then go to the **Main Menu > Import**. This will open the Import Window.



In this window, you will see the FBX and OBJ files that you have placed in the Import directory. This only shows FBX & OBJ files. If you don't see your file, try the Rescan Directory button. If you still don't see your files that means that you have likely copied them to the wrong location.

2) Toggle the switch next to the model that you want to import into Cyclops. You should see a green “Loaded”.

3) Exit the Import window and open the Tool Drawer and in the Asset Tools tap the **Place an Asset** list to open it. You’ll see your imported assets listed above the default assets.



4) Tap the asset you want to place and then use the Place Asset tool and tap the screen where you want to place your asset.



Once placed into the world you can use any of the Cyclops Asset Tools to manipulate your imported model including using it as a Holdout object.. (the model has been scaled down to fit in the office)

Model Import Panel Options

The Model Import panel offers a lot of options for how Cyclops treats your models when importing them. We’ll discuss all the options here. The panel is divided into three areas, Settings, Files & Help



Settings

Auto Import All Assets: Toggling this on will cause Cyclops to automatically attempt to Load all the model files that are in the Import directory. Whenever Cyclops is launched it'll attempt to Import all the files it finds.

Default Scale: This is the default scale that Cyclops initially applies to all new assets that are placed in the Import dir. Cyclops works in real-world 1cm=1cm scale. This option is handy if you know that all your assets will be in decimeter scale.

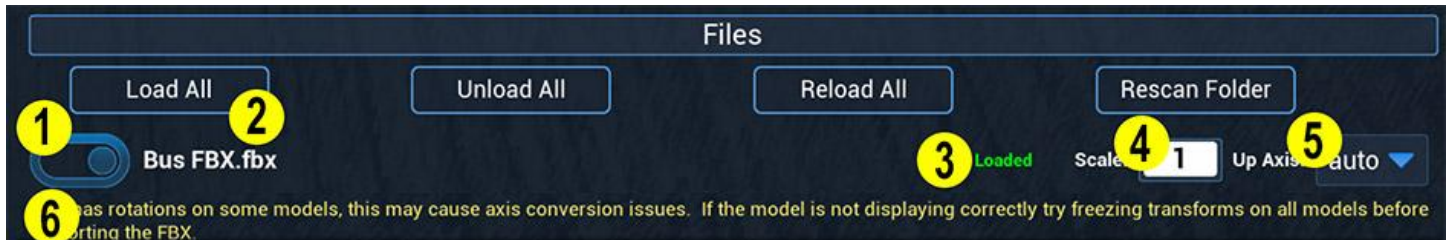
Note, this only applies to new assets when they are first added to the dir. Once Cyclops has seen an asset it remembers the setting for that individual asset. You can change the scale value for individual assets in the Files section.

Default Up Axis: This is the default Up Axis that Cyclops uses for all new assets that are placed in the dir. It is usually best to leave this on auto.

Like the Default Scale option, this only applies to the first time an asset is added to the dir. After that, the asset will use its individual Up Axis setting.

Files

This section shows all the files that can be loaded into Cyclops and allows you to change settings for each individual file. All the settings for each individual file are saved in the preferences and should be the same the next time you run Cyclops, this includes the loaded state.



Buttons:

Load All: Clicking this button will load all the assets in the list of assets.

Unload All: Clicking this button will unload all assets in the list of assets

Reload All: Clicking this will reload all the currently loaded assets.

Rescan Directory: Clicking this will cause Cyclops to rescan the directory for new files. If you add a new file to the dir while Cyclops is already running then you need to use this button to make Cyclops rescan the directory and discover the new file(s).

Individual Files

1. Toggles loading and unloading the individual asset.

2. File name of the file including file extension

3. Feedback message. This will tell you the loaded state of the asset and if Cyclops fails to load it.

4. This allows you to set the scale factor for each model. This is useful if you are not working in a 1cm=1cm scale. When you change this it will only affect new models that you place in the scene, it does not affect models already in the scene.

5. This allows you to set the up-axis for each model. In general, it is best to leave this on "auto." When you change this it will only affect new models that you place in the scene, it does not affect models already in the scene.

6. Feedback Message. This is only displayed if there is a Warning or Error loading a file. Warnings are in yellow. If it is just a warning the file has been loaded but there might be issues when you place the asset in the world. Errors are in red. If there is an error then the file can not be loaded.

Help

The Help section has some quick info for creating models to be used in Cyclops and a button to get to this doc.



Asset Set-up Best Practices

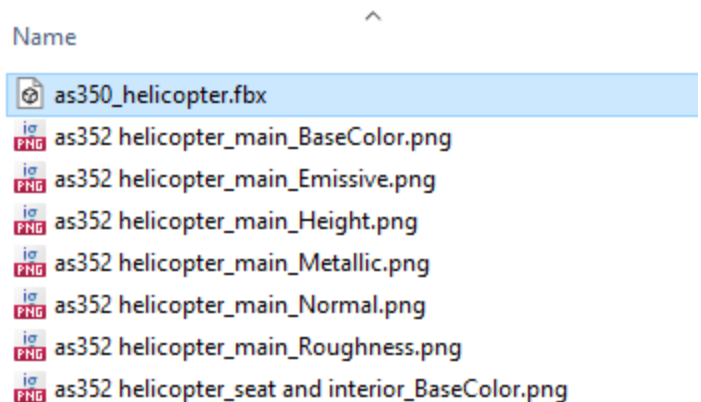
The internet is a great place to get cheap or free FBX and OBJ models. Unfortunately, the models that you can get from various websites can vary widely in quality and how they are set up. The Model Import feature in Cyclops can only deal with simple files that are set up properly.

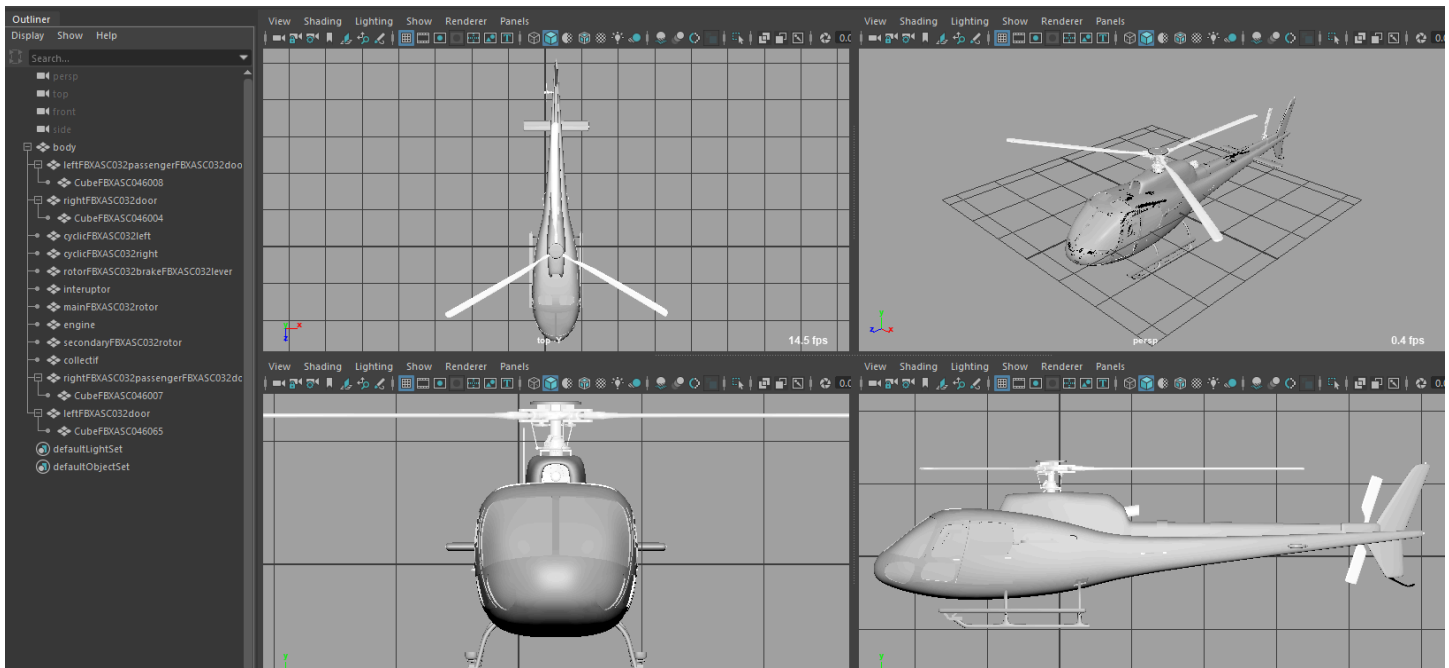
If you are downloading models and attempting to open them straight in Cyclops you might not get the best results. We recommend that you use a DCC app like Maya to open the models and make sure that they are set up correctly before attempting to import the file into Cyclops.

This section will walk you through the steps in Maya to get a model to work properly in Cyclops. We are using a model of a helicopter purchased from TurboSquid. I downloaded the FBX file and textures and put them into a directory on my desktop.

The first thing I'm going to do is to go ahead and delete all the emissive, height, metallic, normal, & roughness maps as Cyclops can't use those.

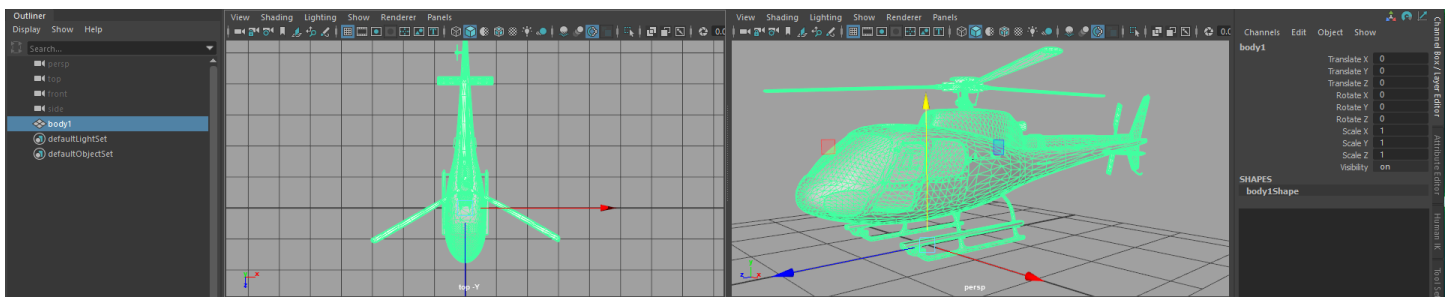
Next, I'm going to import the FBX file into Maya.





Next, let's fix the placement of the copter in the scene. We want the bottom of the skids that are meant to be on the ground to be at the Y 0 plane. And I noticed that the copter is not quite centered in the front view, so we should fix that. We also want to make sure the model is "facing forward" in the negative Z direction (front camera). This way when we place the asset in Cyclops it'll automatically be facing toward us. In this case, the model is already facing the correct direction.

The next step is that we are going to combine all the models into a single model. This is not necessary but we recommend doing it.



Ok, we've combined the objects and deleted History. As a benefit of the combine, the transforms are now all zeroed out and the pivot is at the origin which we want.

We should check the scale of the model. Cyclops works in real-world scale. (1cm=1cm) Your Maya scene scale should be set to centimeters.

Now let's deal with the textures, you want to make sure Maya can find all the texture files. I'll turn on Texture View to see if any textures are missing.



Great! The textures seem to be linking up.

Now we are ready to export the model. Select the asset and use Export Selected. Choose FBX from the file type and save the file. Be sure to check the option for **Embed Media** to save the textures into the FBX file. You can check the rest of the FBX Export options at the bottom of this doc. You can name the file pretty much anything you like. The name of the file is the name that the asset will have inside Cyclops.

Your model should now be good to go in Cyclops. Follow the instructions at the top of this doc to see how to transfer your files to your device and Import the model into Cyclops.



Here is the helicopter placed in our office. (I have scaled it down a little to fit in the room.)

Asset Troubleshooting

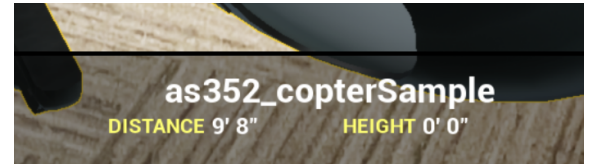
The file will not Import into Cyclops. Cyclops says “Error” in the Model Import Panel.

Check the feedback message in red.

Try OBJ as it sometimes has better results.

When Placing the Asset you don’t immediately see it.

This can be caused by a few different things. The first thing to do is to check if you have the asset selected. When you place the asset it should be automatically selected. If you see the name of the asset at the bottom of the screen then it is selected. If the asset is selected then Cyclops placed something in the scene.



- You might not see the asset if it is too small or too big. Try using the scale tool to adjust the scale of the asset.
- Sometimes if it's a big asset you could be inside it. Try using the move tool to push the asset away from you.
- It could be that Cyclops doesn't like the geo, in which case try the **Mesh > Cleanup** tool in Maya and re-importing
- Make sure your file complies with all the recommendations at the end of this doc.

The model is missing pieces/parts

This can sometimes happen if some of the geo pieces are children of other pieces. Import the file in Maya and put everything at the root of the scene or combine all the geo into a single object.

Some parts of the geometry may have their normals facing the wrong direction. Cyclops only allows one-sided geometry. You'll need to open the file in Maya and flip the offending normals.

Some geo pieces are in the wrong place or the wrong scale

This can sometimes happen if the model is multiple pieces and the pieces don't have frozen or zeroed transforms or their pivots are not at the origin. Import the model into Maya and Freeze Transforms on all the pieces and put all their pivots at the origin. Or combine all the geo into a single object.

The model is on its side

This is probably because the Up-axis is set incorrectly. Try changing the UpAxis for that asset in the Model Import panel. Remember that you need to change the setting and then test it by placing a new copy of the asset in the scene.

The model is the wrong scale

You can change the base scale of the asset in the Model Import panel. Remember that you need to change the setting and then test it by placing a new copy of the asset in the scene.

All the textures are missing

Make sure you checked On the Embed Media option in the FBX export window. Or make sure to copy over the textures to the Import directory.

Check the texture specifications at the bottom of this doc.

Some textures are missing

Make sure the file is either in JPG or PNG format.

Sometimes image files get corrupted. Try opening the file in Photoshop (or another image app) and resaving.

Try switching the model from OBJ to FBX or vice versa.

Check the texture specifications at the bottom of this doc.

General Assets Specs

Set-up

- **Required**
 - The file should be named the way you'd like it to appear in the asset menu.
 - Each file should have a unique name
 - Polygons only. (no nurbs, joints, deformers, camera, lights, etc)
 - No Animation
- **Recommended**
 - The asset should be combined into a single mesh
 - The asset should be at the origin
 - The asset's "feet" or the spot that touches the ground, should be 0 height
 - The asset's pivot should be at 0,0,0.
 - The asset should be facing in the negative Z direction
 - Freeze or zero transforms

Geometry

- **Required**
 - No two-sided geometry.
 - Max triangle count per asset is 1 million (2.5 million verts) (depending on your device)
 - No inverted normals. One-sided geo only
- **Recommended**
 - Triangle count per asset less than 200k (800k verts)
 - Tris or Quads.
 - Avoid co-planar geometry
 - Use Maya's Mesh > Cleanup tool

Materials

- **Required**
 - Simple Lambert, Blinn, or Phong materials only. (All materials are converted to Lambert in Cyclops)
 - Diffuse/Base Color channel only. Everything else is ignored.
 - Color or texture files only. No other material operations.
 - No semi-transparent materials
 - No Two-sided materials

Textures

- **Required**
 - Textures in JPG or PNG format only
 - No alpha/transparency in PNG
 - Diffuse & Normal textures only. (no spec, metallic, roughness, etc)
 - sRGB color space
 - No UDIMs
 - Only 1 UV set per model.
- **Recommended**
 - No higher than 1k per texture file.
 - Avoid overlapping UVs
 - Texture dimensions should be power-of-2
 - Use FBX Embed Media

FBX Export Settings (Maya)

Everything turned off unless noted below:

- Smooth Mesh: On
- Referenced Asset Content: On
- Triangulate: On
- Embed Media: On
- Advanced
 - Scale Factor: 1.0 or Automatic
 - Up Axis: Y
 - Type: Binary
 - Version: FBX 2018

Asset Quality on iOS

As a general rule iOS can not display 3D assets as nicely as they look on a PC or Mac. This is due to the GPU and shading language on iOS devices. This means that assets will often not look as good as they looked on your PC or Mac. While iPad Pro now has the M1 & M2 processors you can still not get the same quality of look that you can get on the Mac.

Additionally, iOS devices have a lot less RAM memory than a PC or Mac. Different devices have different processors and amounts of RAM memory, so it's often hard to know how "heavy" of an asset can be loaded in Cyclops. In general, you want to make sure your assets are as optimized as possible. Maxing out the RAM in iOS will crash Cyclops.