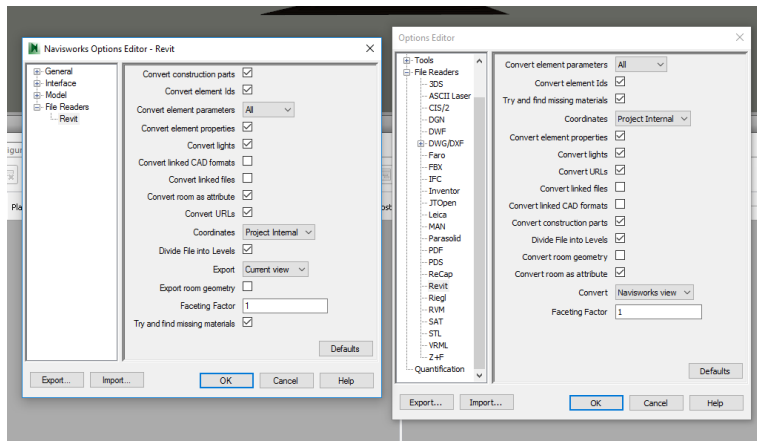


Setting up the Navisworks Scene

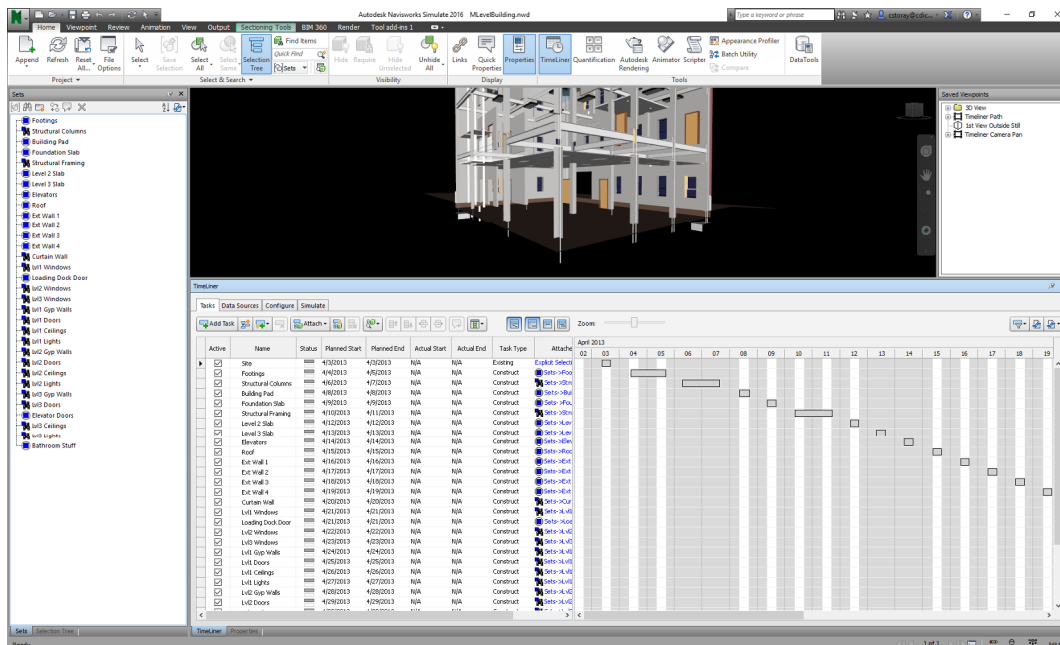
The first thing you should know about setting up the scene for export is that you'll want to make sure that every set you intend to export has all or most of its objects sourced from Revit files. The plugin doesn't export selections from DWGs or other such formats. This is because it needs Revit ID numbers, and without them there's no way to transfer the sets and tasks to 3DSMax. As of version 1.2, NaviSet Transfer will caution you if you attempt to export sets with elements belonging to incompatible files.

You can import Revit files directly into Navisworks, or use NWCs exported from within Revit. So long as the model comes from Revit and contains Revit data, it will work.



The Navisworks export options are pretty important. To the left are the settings I use. The left-most image is the Revit NWC exporter properties; the one on the right is the Navisworks Revit importer settings. They're basically the same thing, but you'll want to set both for consistency. The most important setting to have checked is Convert Element IDs. Without that, NaviSet Transfer may not see the required ID numbers.

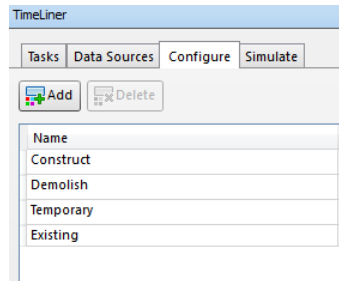
After checking your settings and bringing the model into Navisworks, you can create sets and tie the model to a schedule. When you're done, save your file and you're ready to begin the process of transferring that into 3DSMax for tweaks and rendering.



Transfer Navisworks Scene to 3DSMax

Next, check your TimeLiner Configuration. It should look something like the image here. The NaviSet Import script supports the following supported task types:

- Construct
- Demolish
- Temporary
- Construct w/o Finish
- Veneer / Finish

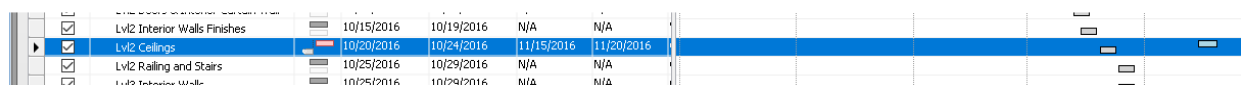


(It will ignore any other task type, though you will still have the affected task accessible to you as a set within Max.)

The first three are built into Navisworks by default, and you can add the last two if you need them. All together, these will control the behavior of a task in Max. The first three behave as you might expect, with “Construct” building items, “Demolish” taking them away, and “Temporary” showing an item in place for the duration of its task.

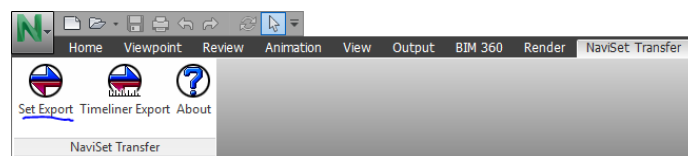
When using “Construct w/o Finish”, you’re telling the task importer to animate a material such that it starts as a construction task that ends as a flat, gray surface. Afterwards, a “Veneer / Finish” task can occur upon the same selection, which will show the texture fading into place as though the surfaces were being completed for real.

Also, as of January 8th, 2018, Actual Start/Finish task time entries are recognized. Just remember that if Actual task times are entered, Planned task times are ignored for that task.



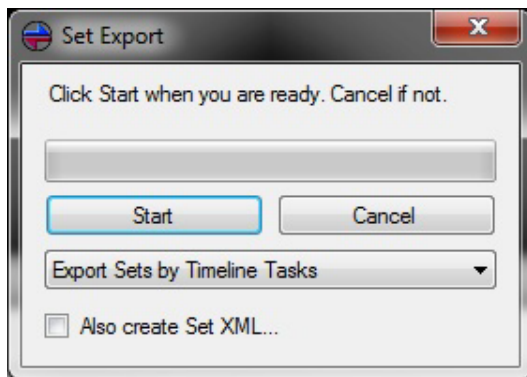
Task Name	Start Date	End Date	Actual Start	Actual End
Lvl2 Interior Walls Finishes	10/15/2016	10/19/2016	N/A	N/A
Lvl2 Ceilings	10/20/2016	10/24/2016	11/15/2016	11/20/2016
Lvl2 Railing and Stairs	10/25/2016	10/29/2016	N/A	N/A
Lvl3 Reinforce Walls	10/25/2016	10/29/2016	N/A	N/A

Once you’re ready, you can export the sets and timeline. To start, open the NaviSet Transfer tab and click Set Export...



You can start the set collection and export with this window. Optionally, you can click “Also create Set XML”, which will create an XML in addition to the normal set transfer file (DAT). This XML can be re-imported into Navisworks as a Search Set XML. The benefit above the normal built in XML export feature is that this one will export **Selection Sets**.

This may be useful for transferring and backing up the entirety of your sets, which is handy for files that have a lot of them to keep up with.



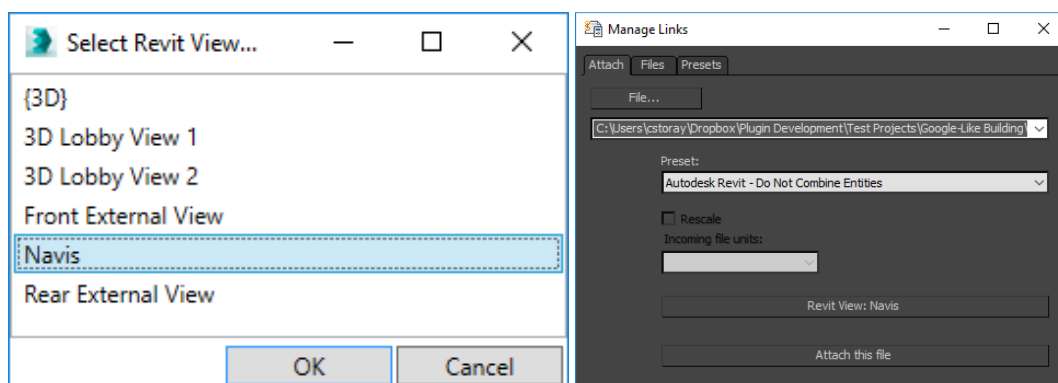
When you're ready, make sure Export Sets by Timeline Tasks is selected and click Start. Once you begin, you won't be able to cancel the operation until it is complete. An exception to this rule is if you receive an alert message about using non-Revit files in your sets. If this appears, it will allow you can cancel or continue the export process.

When the progress bar is filled, the plugin will prompt you to save the sets file. After you've done so, you can export the timeline using the NaviSet's TimeLiner Export feature.

To start, simply hit the TimeLiner Export button under the NaviSet Transfer tab. If successful, the operation is near-instantaneous and you can save your time line file (TLN) right away.

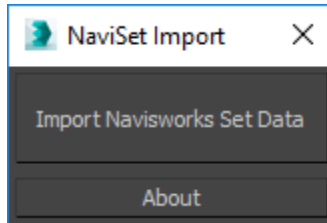
To bring this all into 3DSMax, open the program and link in the associated Revit files using the Link Revit import option in the file menu. After you select your file, a window will come up to give you options on how to go about importing it.

First it'll ask you to pick a Revit View. If you have a view specifically for Navisworks, pick that. Otherwise, pick the 3D view that's most likely to match the model you worked with in Navisworks. Next, you will want to select "Autodesk Revit – Do Not Combine Entities" as your import preset.



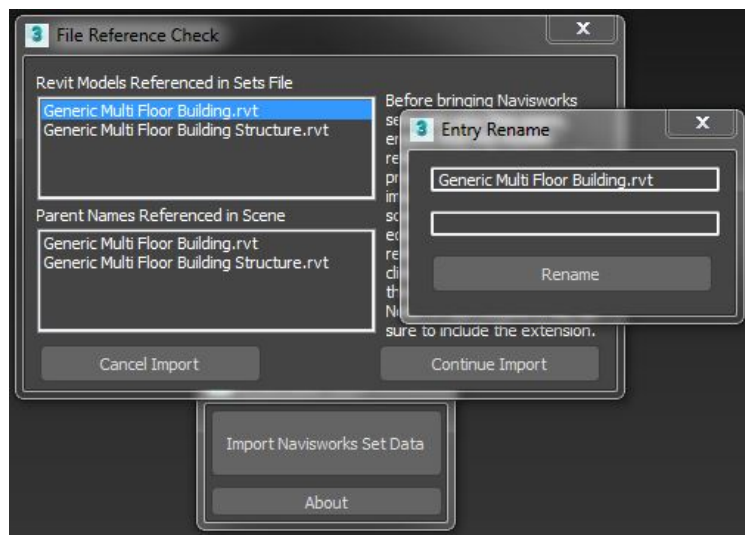
Applying the Sets and Timeline in 3DS Max

With your models imported and ready to work with, you can now import your sets and timelines from previously exported DAT and TLN files. First, you should save the Max file as it is. Next, go up to your Scripting menu and select Run Script.



You'll find the script you need in the default Scripts directory. (C:\Program Files\Autodesk\3ds Max 20xx\scripts)

Select NaviSetImport.mse, and click Open. Immediately you'll see a window open up with two buttons. Click Import Navisworks Set Data, and select your sets DAT file.

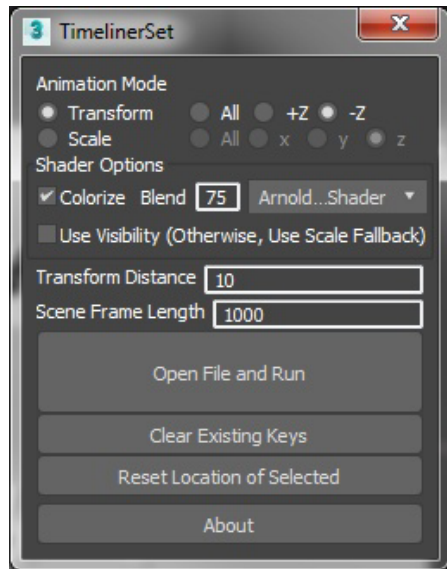


The next window you'll see is called the File Reference Check. This is a new feature that allows you to make sure that both NaviSet Import applies the imported sets onto the correct model. If the file names listed appear different, it's likely that you're working with a different version of the model in Navisworks than what you've just imported in Max. In this case, simply double click the names in question to change them with the Entry Rename function. This action does not rename the file, nor does it change the set file contents, instead the reference to the file is changed in memory during import.

Once you're ready, click Continue Import. This process could take a little while depending on the size of your project, but once it's complete, save it so that you can avoid doing this over gain in the event that 3DS Max crashes.

Next, check your sets list to see what you have and select one or two of them to try them out. If you're satisfied, you're ready to bring in the Navisworks Timeline data. Return to the Scripting menu and select Run Script again. Use the file opener to select TimeLinerSet.mse in the Scripts directory.

The window that opens up next will look like this:



There are a few modes you can try out. There's **Transform**, which will either drop or elevate the models as they're created (from a defined distance), or alternatively have them all fly in from random directions. The default Transform Distance is ten, when set to zero and with Colorize active, it will behave most similarly to the Navisworks Timeliner.

Scale will allow you to animate the construction of the elements by scaling them into place on a select axis, and of course, any option you select, can be tried and cleared easily with the **Clear Existing Keys** and **Reset Location** buttons near the bottom. (Reset Location is useful for when a set is left floating somewhere it shouldn't after you clear off the keys – I've largely fixed the bug that caused this, but I'll leave it for now in case it happens again.)

Use Visibility is an option that's unchecked by default in 3DSMax 2018. Prior to 2018, the best renderers to use with NaviSet Transfer were iRay and MentalRay, and these understood how to use the Visibility controller. Now, those renderers are no-longer bundled with 3DSMax. What we're left with is an extremely fast and capable Arnold, Autodesk's ART, and the old Scanline Renderer. Neither Arnold nor ART appear to use the Visibility controller, so it's left unchecked in Max 2018. What happens instead is every object on the timeline is scaled down to zero within the fraction of a second to emulate that lost functionality.

You can also select the **Blend Material** used to animate the task colors. Arnold and ART can use both options, but it might work better with its own Mix Shader, thus, I've added that option to the script.

Once you're ready, hit **Open File and Run**. It's a quick process. What's left are any tweaks you decide to make to the scene within 3DS Max itself. Of the renderers included in the default installations of 3DSMax, I recommend using Mental Ray or the new Arnold renderer for the best results.

As a final quick note: You can change the default task colors after everything is imported. Just open the Compact Material Editor, these materials will be the first four on the top row. Changing these will change the task colors for the whole project.

If you have any concerns or questions, feel free to contact me at trancerobot@outlook.com.