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# Is Your InfraWorks Model Stale? Animate Objects for Use in InfraWorks

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## Learning Objectives

- Locate the resources to download Sketchup models – Trimble 3D Warehouse
- Discover how to import the Sketchup model into 3ds Max
- Learn how to animate parts of the model in 3ds Max
- Discover how to export the animated model as a collada file (.dae)
- Learn how to attach the collada file in InfraWorks with Interactive Placement

## Description

When most people hear or see “3ds Max”, they immediately turn away because of the fear of learning such a complex software. You don’t have to be a 3ds Max expert to perform this operation.

This class will guide you through the steps on how to take an inanimate object and animate it for placement within InfraWorks. Take a model from Trimble 3D Warehouse and bring it into 3ds Max. Animate the object and bring it into your InfraWorks model.

## Speaker

Mr. Todd Rogers is a BIM Manager for the Civil Infrastructure Group at Walter P Moore in Houston, Texas, with over 23+ years of experience in teaching, managing, and providing hardware and software solutions for hundreds of engineering firms throughout the greater Houston, Texas area.

Todd holds the “Autodesk Expert Elite” status – a program to recognize individual community members who have made extraordinary contributions with helping customers by sharing knowledge, providing community leadership, and exemplifying an engaging style of collaboration that drives a healthy and valuable Autodesk customer community. He is also on the Autodesk Infrastructure Participatory Design Council, and an acting member of the Board of Directors for AUGI (Autodesk User’s Group International).

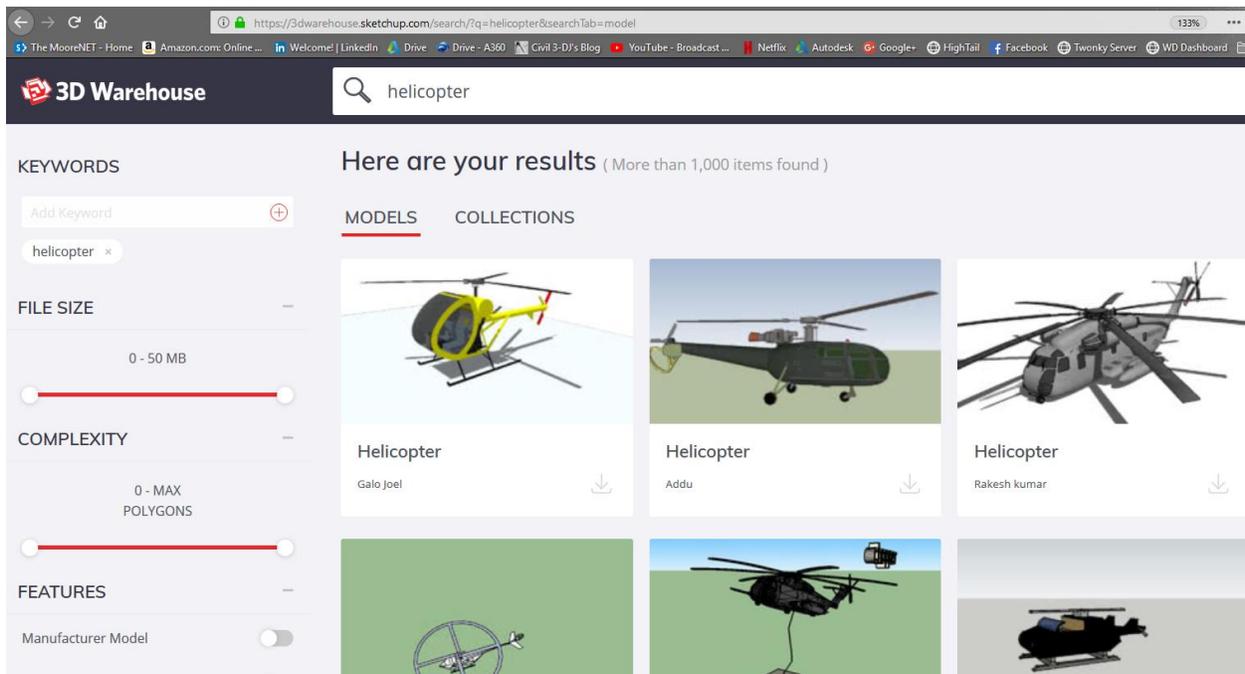
## Models from Trimble 3D Warehouse

This first part can potentially be very time consuming. There are a few reasons why...

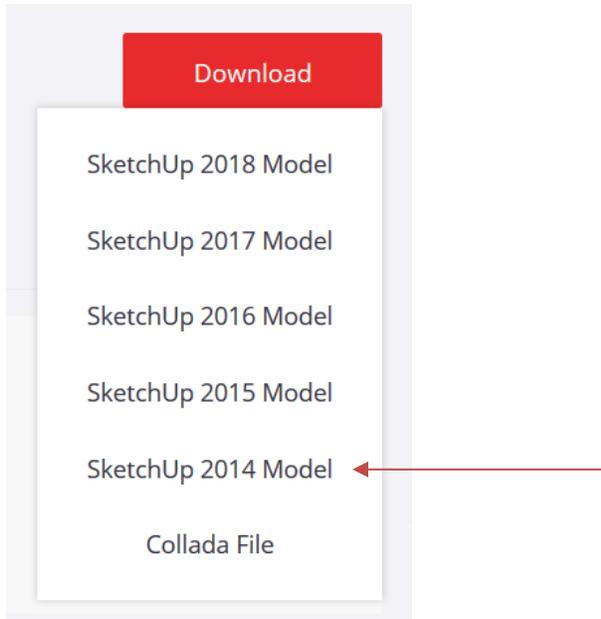
1. Searching for the “perfect” model
2. Model(s) are not as expected in 3D
3. Model(s) are incompatible with the versions you are using

We will discuss this further in the document. So, let’s get started.

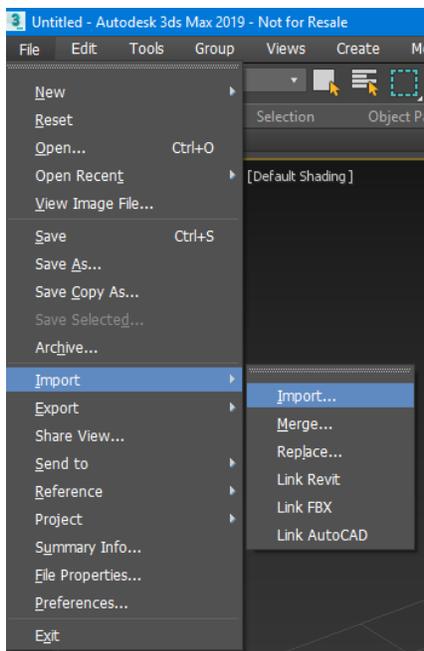
First, we want to navigate to <https://3dwarehouse.sketchup.com/> . There you will find an elaborate home page. There is a search bar at the top of the page. For this document, you will be using a helicopter.



Once you have found the model of your choice, click on it. This will open another page where you can view the model in 3D. If it doesn't look good in the 3D View, then go back and choose another model. If you are satisfied, then download the model. I highly recommend downloading the version as far back as it goes. For example, download the Sketchup 2014 Model...

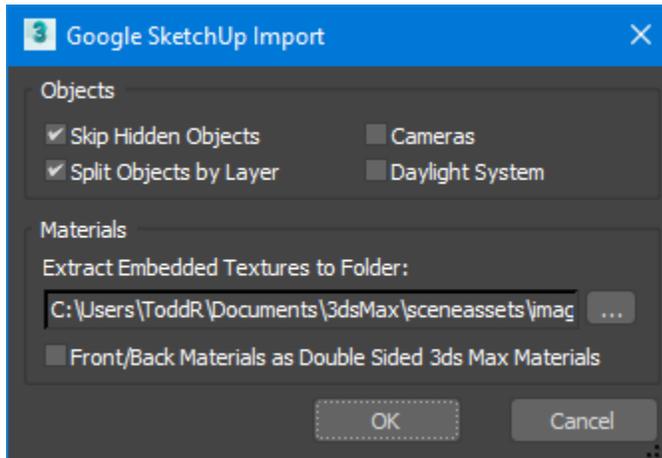


## Importing into 3ds Max



Once you have downloaded the Sketchup model, open 3ds Max. At the top left, click File>Import>Import

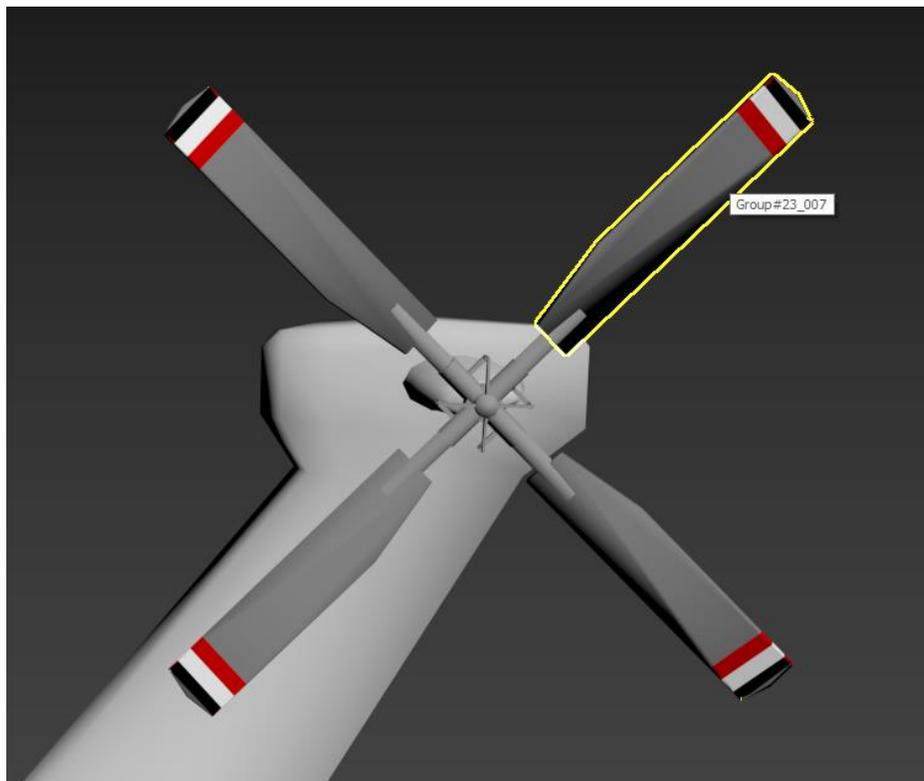
After you click Import, there will be a dialog box. In this dialog box, the only thing that needs to change, is to make sure that the first two boxes are checked. This is very important. See image below...



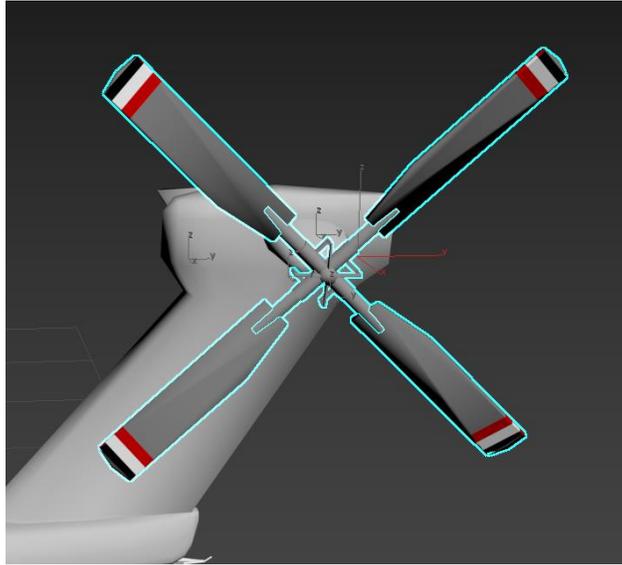
Skip Hidden Objects and Split Objects by Layer are the ONLY items that need to be checked

## Animating the Model

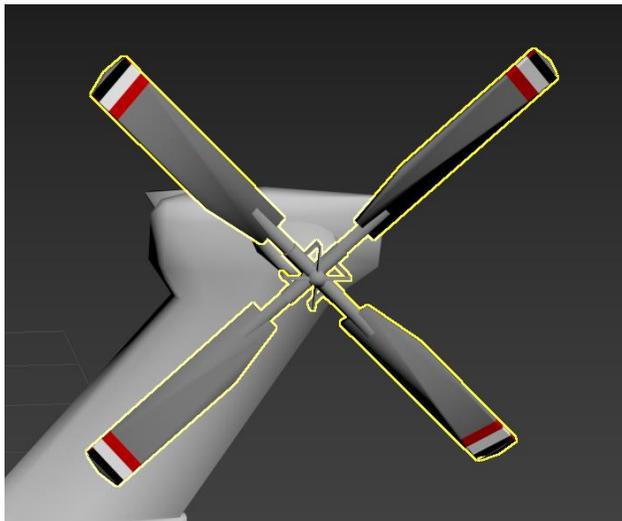
Now the fun starts. If you hover your cursor over the rear prop, more than likely it will have separate pieces as seen highlighted in the pic below...



If this is the case, you will need to combine them together by the Group command. Pick on one of the blades and it will turn a cyan color. Hold the CTRL key down and pick the remainder of the pieces you want to combine...

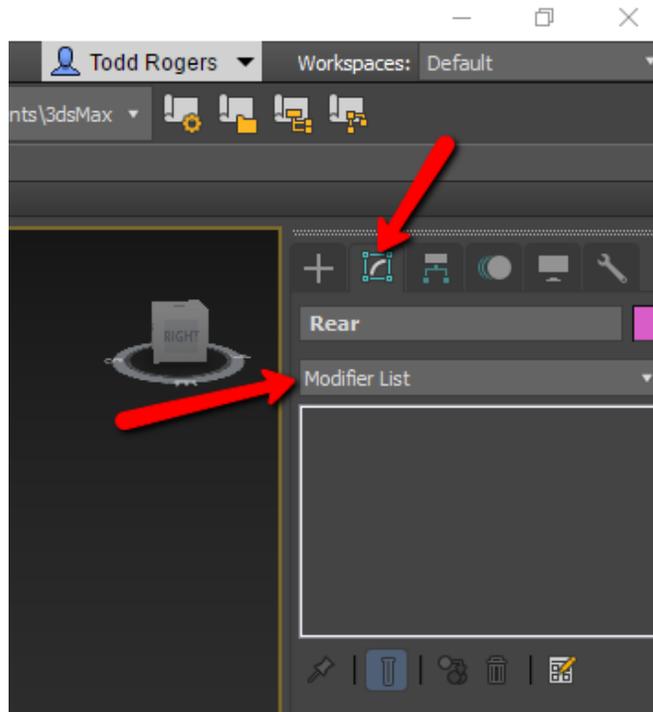


Now that you have selected the items that you want to combine, in the menu, click on Group>Group. Then, give it a name and click OK. Now when you hover over it, it should be one object.

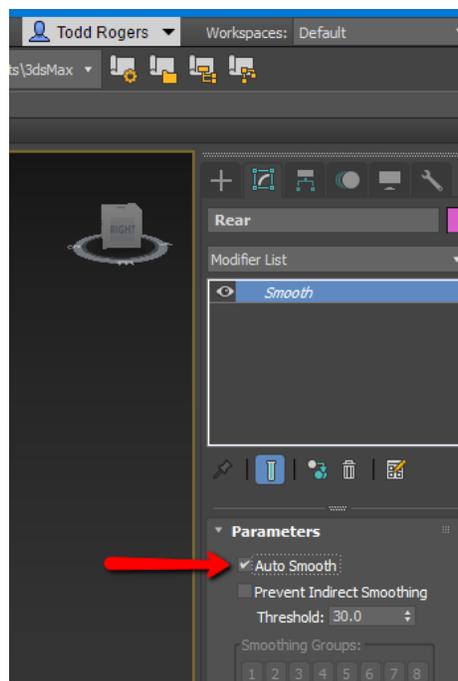


You can now start the animation process. Select the prop, right-click and choose Convert to>Convert to edible mesh.

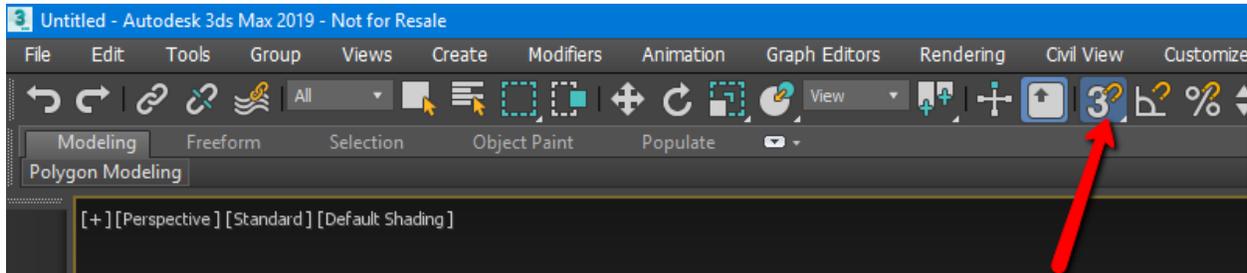
On the right, you will see a toolbar. Click the second icon and you will see a Modifier List...



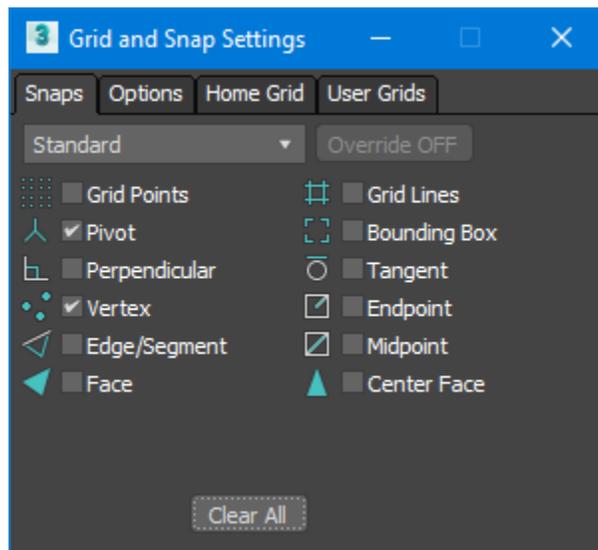
From the Modifier List, scroll down until you see Smooth and choose it. Now, check the box for Auto Smooth...



Now we will position the gizmo for our pivot point. This point will be the point of rotation. Make sure you have the object selected, and in the toolbar, select the Snaps toggle...

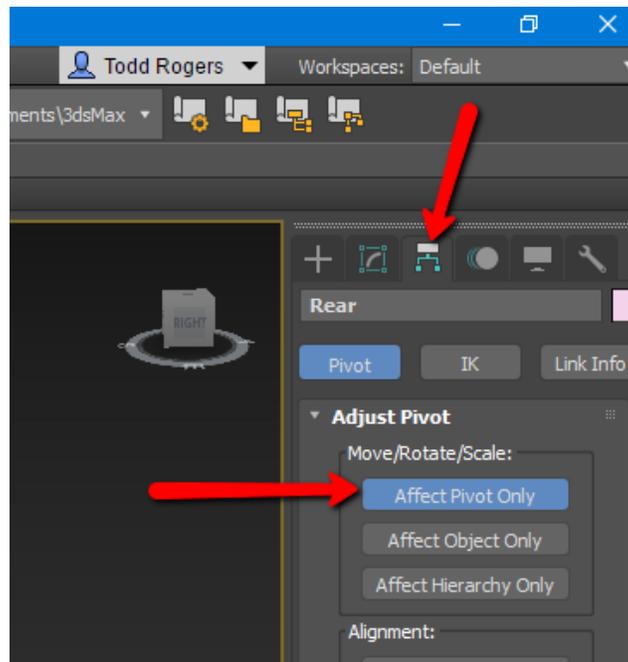


Now, right-click on the Snaps toggle. In this dialog box, make sure the ONLY boxes checked are Pivot and Vertex...

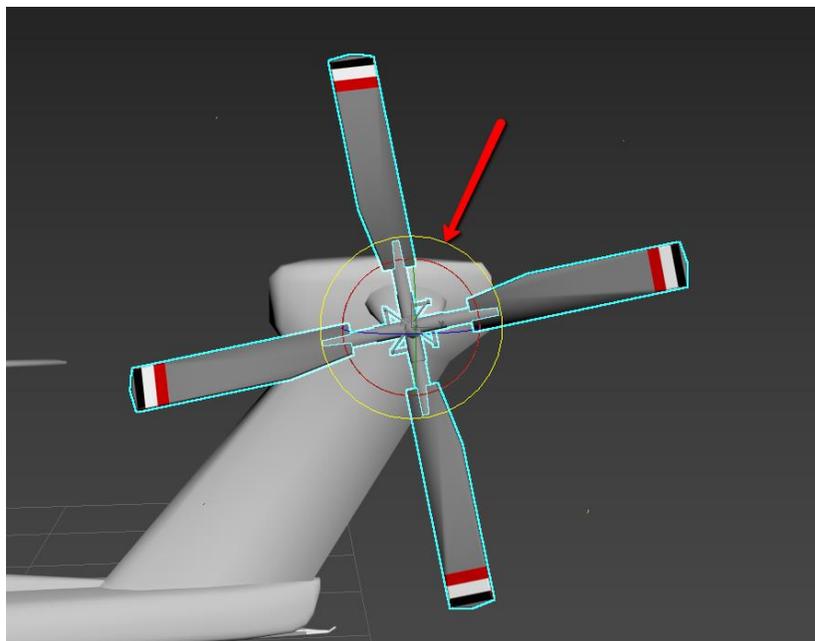


Close the dialog box. Click on the Move button in the ribbon. The gizmo will appear on or near your selected object.

You don't want to move the whole object, only the gizmo. So, over to your right, click on the third icon and toggle on Affect Pivot Only...

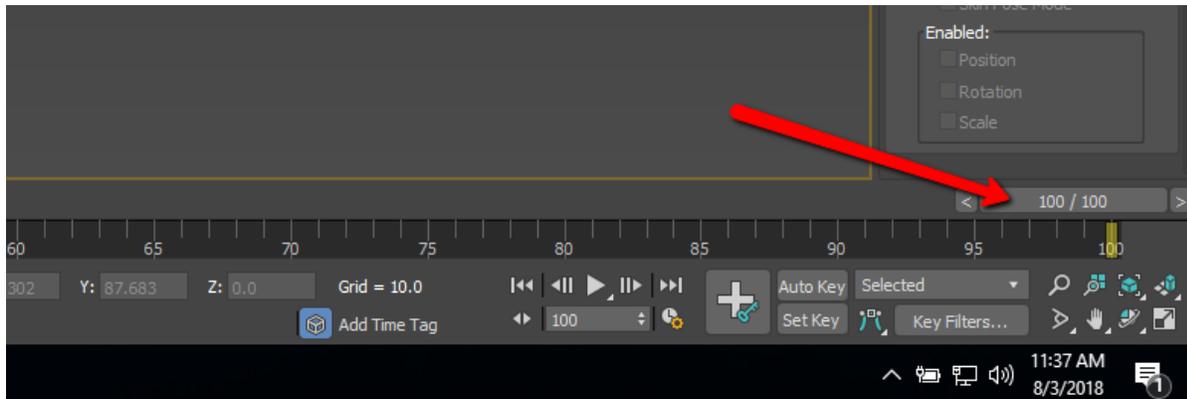


With the gizmo not able to move and snap to your object, move it to a pivotal point that will make it spin at the correct axis. To check this, untoggled the Affect Pivot Only, and press the E key on the keyboard. This will show the rotate command. The rotate command can rotate along all the axes. Grab the outer "ring" and rotate it...

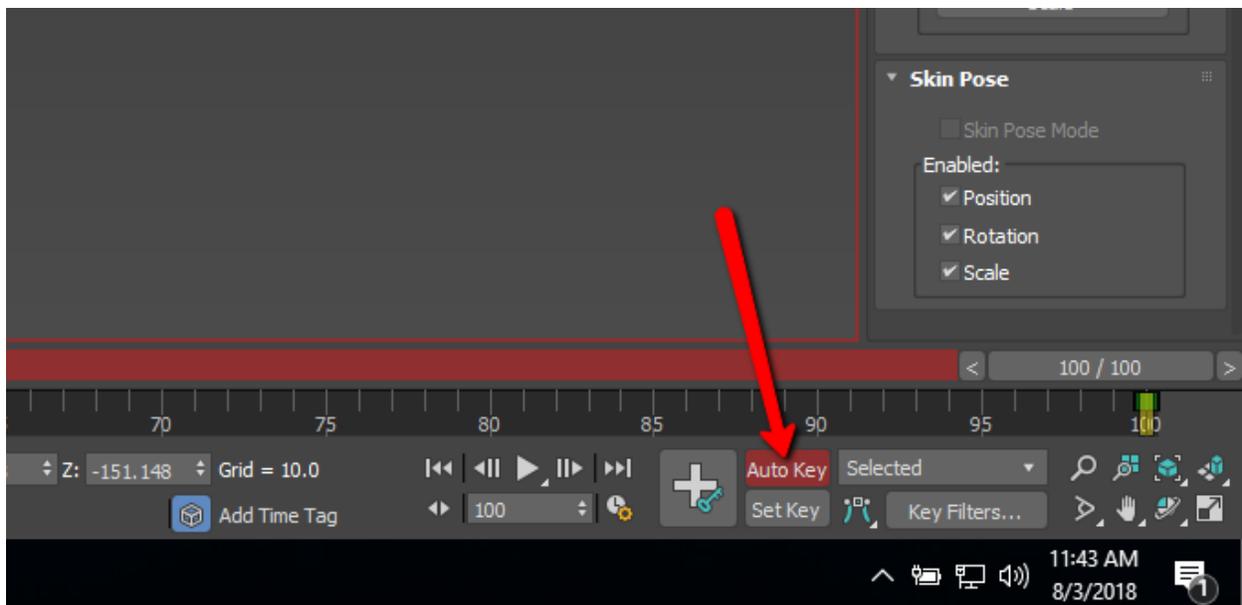


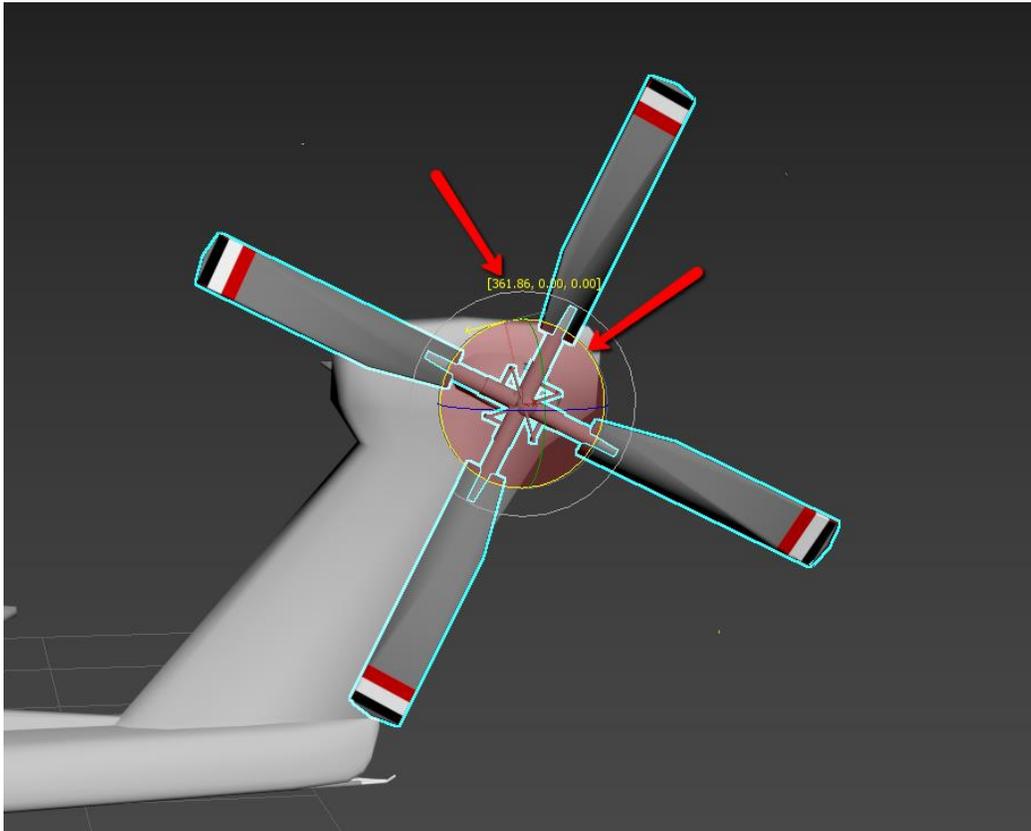
If you are satisfied with how it rotates, then we can add the animation to it. If you are not satisfied with it, tweak it until you are.

Take the scrubber bar (0 / 100) and move it all the way to the right. It should now read 100 / 100...

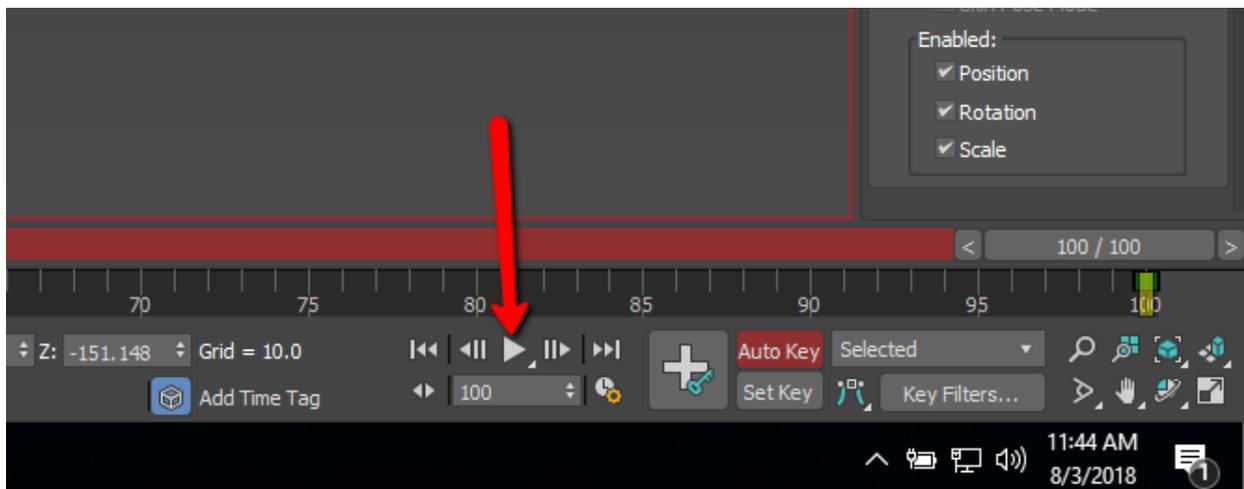


Now, toggle on the Auto Key button. Make sure your object is selected, and press E on the keyboard to activate the rotate command. Grab the yellow ring and move your cursor until it reads 360 or more...



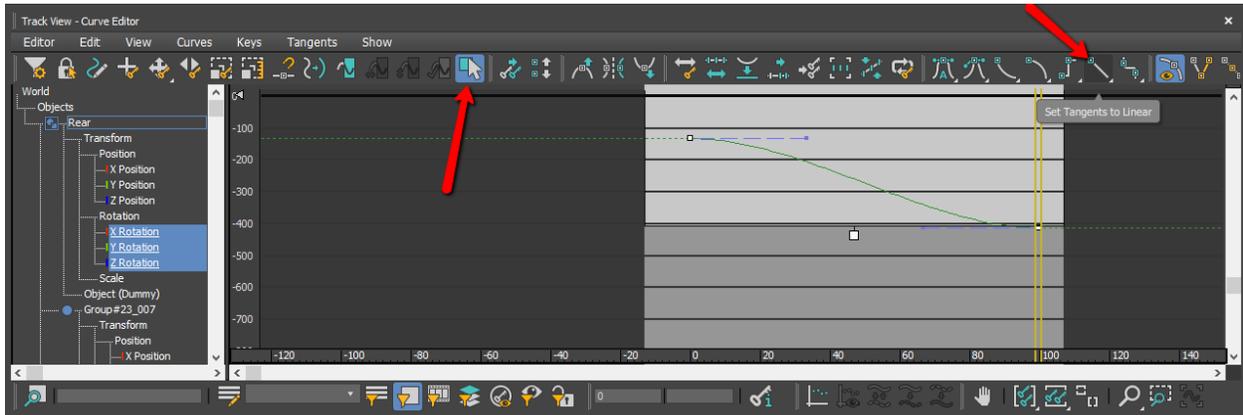


Now click the Play button and see if it looks like it's rotating correctly...



Notice how when it's in "play" mode, that it starts off fine, then it slows down, then speeds up, then slows down. This is not how you want it to look. So, to fix this, right-click on the object and choose Curve Editor. A new dialog box appears.

In this dialog box, you will see a curved line. This is why it's speeding up and slowing down. With your cursor, window in the curve and select Set Tangents to Linear...



Close the dialog box. Now, click the play button. You will notice a nice, smooth animation that is continuous.

Continue with the model and do the main propeller of the helicopter. Don't forget to toggle OFF the Auto Key while you're working on the other propeller. Follow the same steps as above. Once done, they will both be animated.

## Export Out to a Collada File for Use in InfraWorks

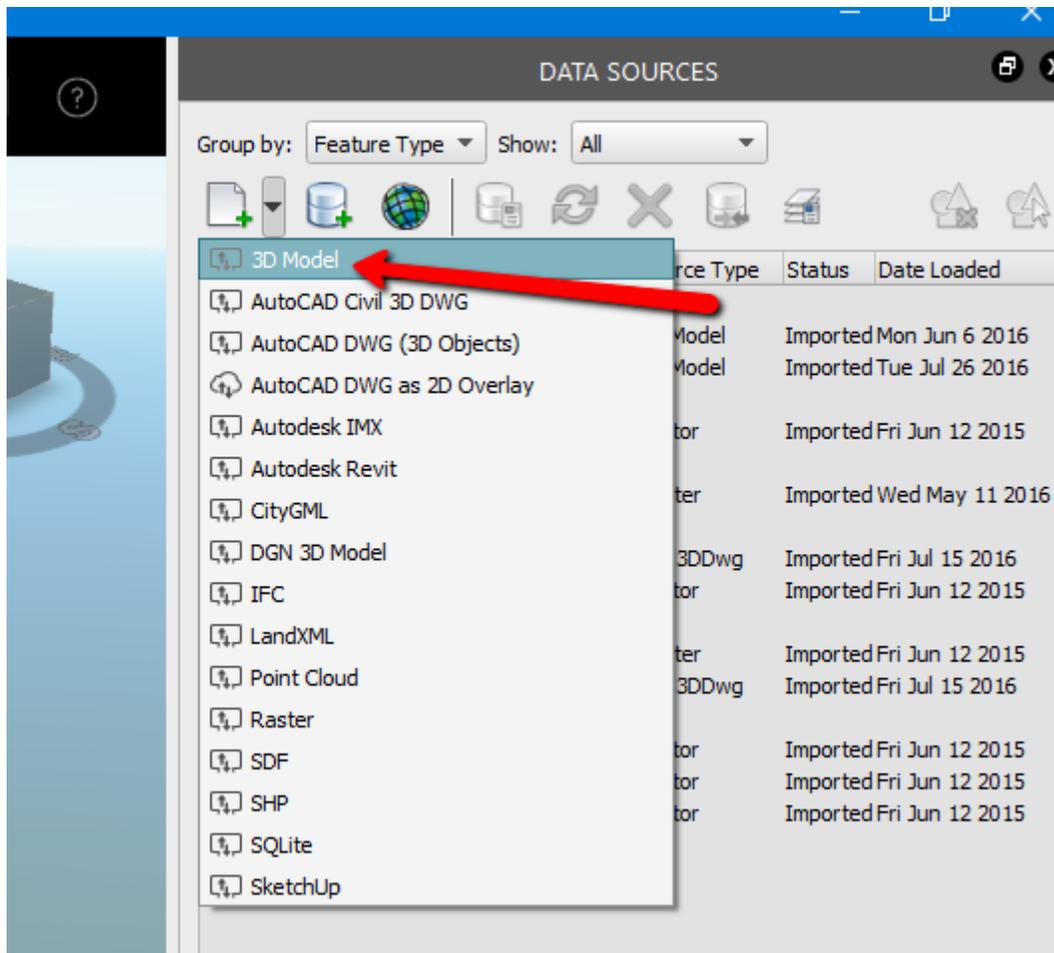
Now that you are finished animating the object, click on File>Export>Export. Select a destination for your file and give it a name. For the Save as type, choose Autodesk Collada (\*.DAE), then click Save.

In the Export dialog box, Expand Include, then Expand Animation, then Bake Animation. Make sure you check the box to Bake Animation. Click OK. You will see a dialog box with multiple warnings and errors. Disregard them and click OK. Close 3ds Max. You can choose to save your work, or not. It does not matter because we have already exported out our file.

## Attaching Model in InfraWorks

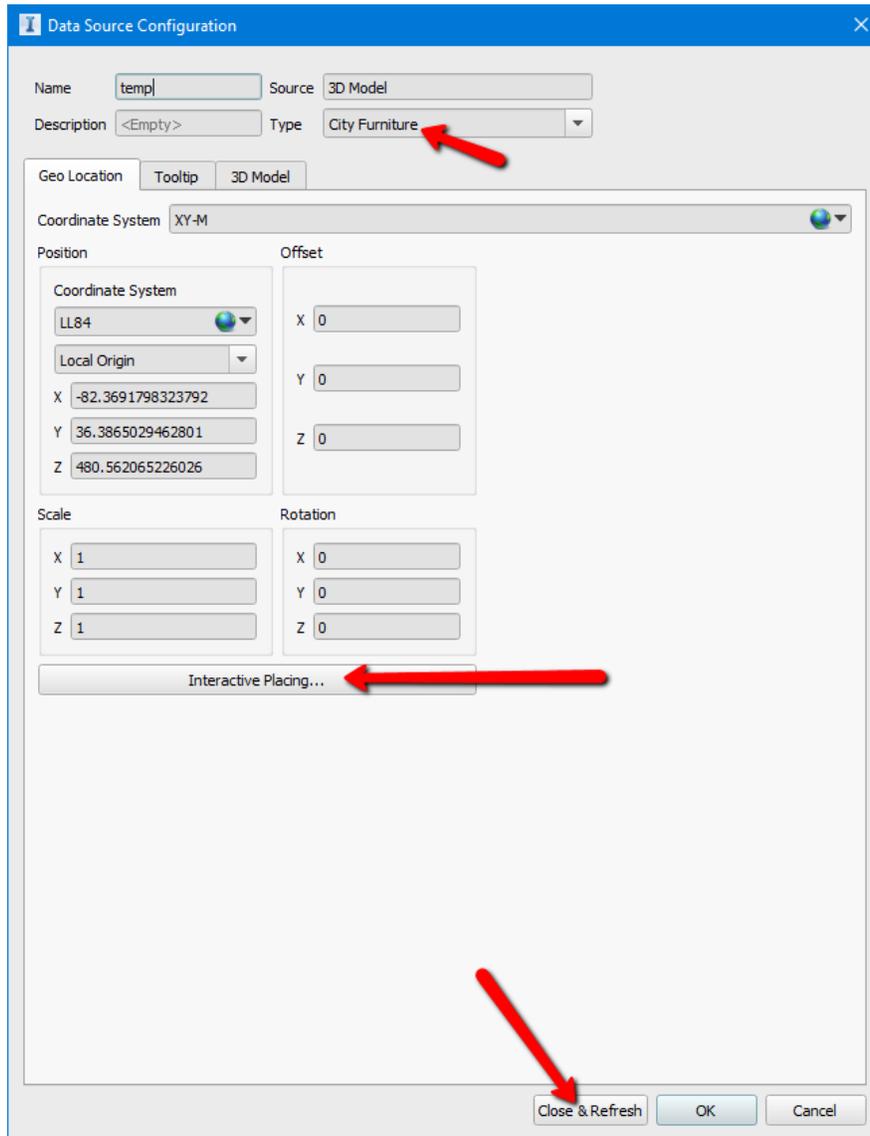
Open InfraWorks.

In the Data Sources, you're going to choose 3D Model.



Browse to your collada file. Once it shows up in the list, double-click on it to configure it.

For the type, select City Furniture. Then select Interactive Placing. Pick a location in your InfraWorks model to place the helicopter. Double-click to place it. Now click Close & Refresh...



## Conclusion

By animating objects to use in InfraWorks, you can make your model more appealing, and less stale. This brings vibrant models to the table when you want to impress stakeholders. Leveraging the AEC Collection with its multiple software platforms will make your company stand out on the cutting edge of technology.