AV11903

AV11903 - Easy-to-Use Techniques for Bringing Your Design Content to the Next Level with 3ds Max

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Learning Objectives

- Learn how to efficiently create stunning imagery and animations of your Inventor models
- Learn how to add a lived-in feel to your Revit interior visualization projects
- Learn how to add procedural content to your scenes using the new Max Creation Graph
- Learn how to easily add animated components in order to bring your designs to life

Description

With architects, designers, and engineers using 3ds Max software every day to complete their visualization projects, 3ds Max 2016 software offers the most comprehensive toolset to date. In this session we will explore both new and existing features in order to tell a compelling visualization story with the emphasis being on how to gain accessibility and ease of use without ever compromising quality. First we will look at some of the new Inventor-software-to-3ds-Max-software workflows used to quickly and efficiently create stunning imagery and animations of your models. Next we will look at various easy-to-use techniques for adding realism and a lived-in feel to your Revit software interior visualization projects. Lastly we will explore methods of adding procedural content as well as animated components to your scenes in order to bring your designs to life. Creating a pretty picture just got a whole lot more fun! Join me at Autodesk University and see what all the fuss is about.

Your AU Expert

Jose first joined Autodesk within the 3ds Max Quality Assurance Team in 2007. Specialized in rendering-related initiatives he worked on the ongoing integration of the mental ray rendering engine and the original implementation of iray. His previous experience in the field of television advertisement and product-shot visualizations contributed greatly to the team. Today as a 3ds Max Technical Specialist for Media & Entertainment, Jose is mainly focused on promoting the value of visualization throughout various industries. In this role, Jose can continue to explore and share his passion for creating striking photorealistic imagery for design visualization.

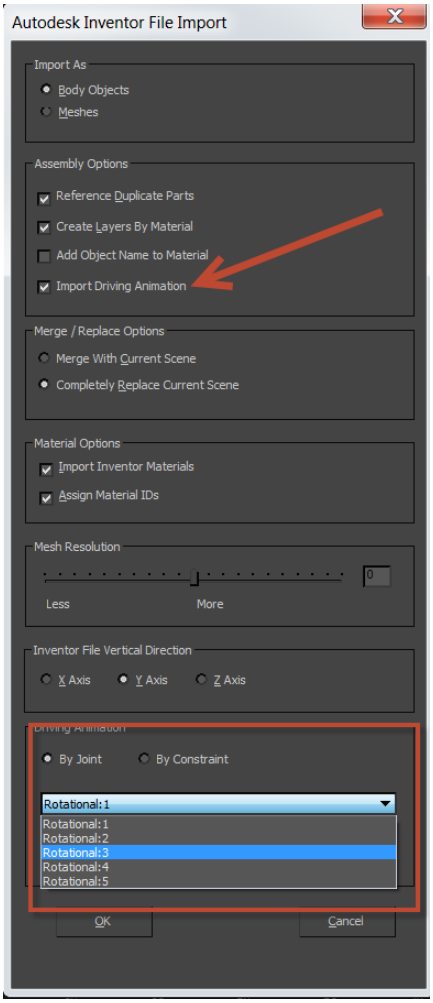
Jose speaks English, Spanish, French, and Portuguese.

Learn how to efficiently create stunning imagery and animations of your Inventor models

In this section we will look at workflows for bringing Inventor content into 3ds Max and quickly creating striking imagery and animations for presentation purposes or for concept validation.

3ds Max now supports Inventor Driving Animations which come in as baked key frames. We'll see how to set this up. We will also see how to create startup templates in order to customize your own startup experience of 3ds Max. We'll than see how to quickly explore and store different alternatives to your assemblies. Lastly we'll take a look at the new Print Studio for creating 3d prints of your models.

Inventor Driving Animations

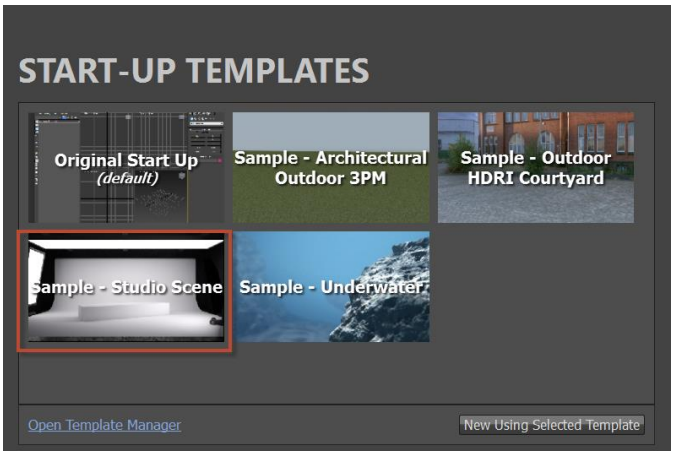


When importing Inventor assemblies through the Inventor import dialog, there is now a new option to import Driving Animations. When enabled, and if your assembly has driving animations setup, a dropdown will appear which allows you to select which constraint you want to import. For now, only one constraint can be imported at a time. Once imported, scrub the timeline to see the constraint animation inside 3ds Max.

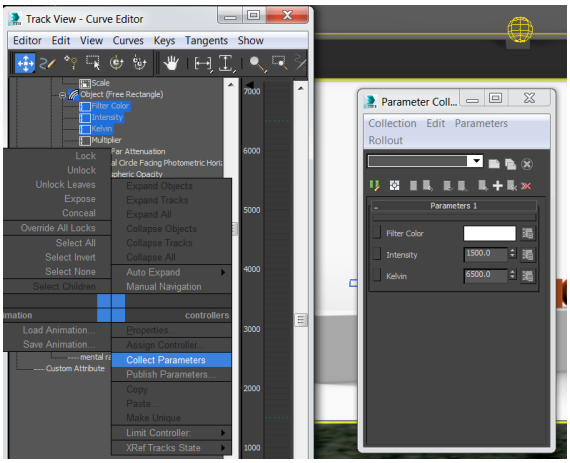
Harnessing the power of templates

New in 3ds Max 2016 is Startup Templates. Found on the Welcome Screen, templates allow you to customize your own startup experience of the product. There are 4 templates to choose from but of course, you can create, share and import your own custom templates. In this next section, we will customize the Studio Template scene to add a light control board for easy access to lighting parameters and see how to create a template from this scene.

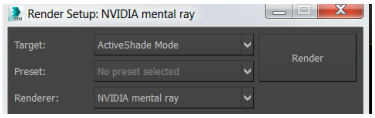
By selecting the Sample-Studio Scene Template, we can now modify this scene and create our own custom template. Highlight the template and click on "New Using Selected Template"



Next we will create a lighting control board. This makes accessing lighting parameters in the scene much easier. Select a light and right-click, choose Curve Editor. On the left side, locate the parameters you would like to have easy access to, for example Intensity, Filter Color and Kelvin. Highlight these and right-click and select Collect Parameters. These new parameters now appear in the Parameter Collector dialog which can be easily accessed by pressing Alt-2. Repeat this process for any other parameter you would like to add to the light board.



Now we will setup mental ray as our active shade renderer. This will allow us to interactively make adjustments to our scene and see what the rendering will look like. Open the Render Setup dialog (F10). Set Target to ActiveShade Mode and make sure Renderer is set to Nvidia mental ray.



Now we are ready to create a template from this scene. Save your scene to disk. Next, open the Welcome Screen to the Startup Template section. Open the Template Manager and click Add New. Give your template a Name, brief description and point it to your Max file. Hit the Done button and you are all set! Now you can select your template as a startup template.

Now let's bring in your Inventor model. File>Import, navigate to your assembly on disk. Make sure to enable Driving Animations if your model has one setup. Once in Max, position the model on the pedestal using standard move, rotate and scale tools. As a tip, use the Select and Place feature  located on the main tool bar to snap your model to surfaces detected under the mouse. If you right-click on the Select and Place tool, you will find more options here such as "Use Base as Pivot".

Using mental ray as an active shade renderer to quickly explore different material alternatives.

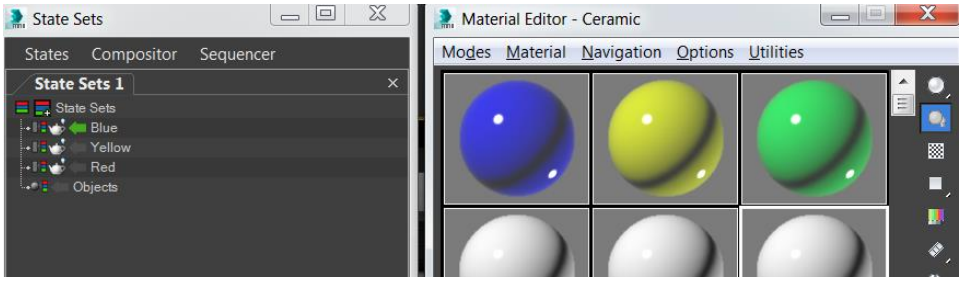
Once your model is positioned on the pedestal, you are ready for rendering. Simply click on the active shade button on the main toolbar  to initiate a render. Now you change your materials on the fly and also make lighting adjustments via the light board created earlier and see those changes impact the final render interactively.

Using State Sets to store material alternatives

State Sets is a feature which allows you store scene information into different states, which you can than toggle in and out from. It's a great way to store alternatives to access later on.

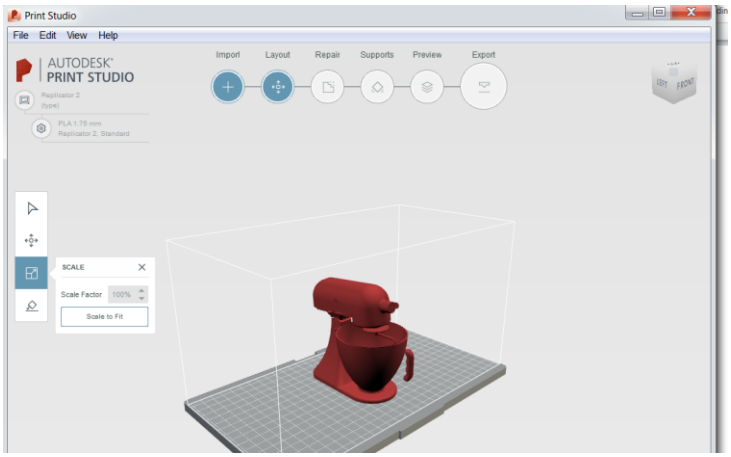
First, bring your material into the material editor. To do so, open the material editor (M) and use the color picker on your model.

Next drag and copy your material into another slot. Here, make the changes you want and rename it. Do this for all the different materials you want to store. Next, open State Sets found under the Rendering menu. Add as many states as materials you want to store, name them appropriately. Click on arrow next to a state to activate the state. When the arrow is green, this indicates the state is currently recording scene changes. With the state active, assign alternate material to your model. Repeat this for each material alternative and each state. Now you can interactively swap to a different material even while mental ray active shade is rendering. And if you access this scene at a later date, these alternatives will always be stored in State Sets!



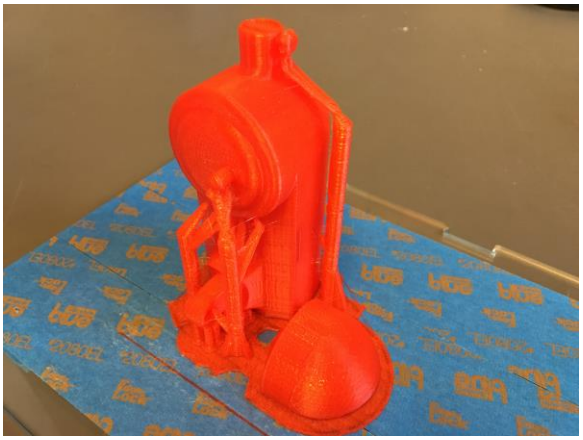
Print your model via Print Studio

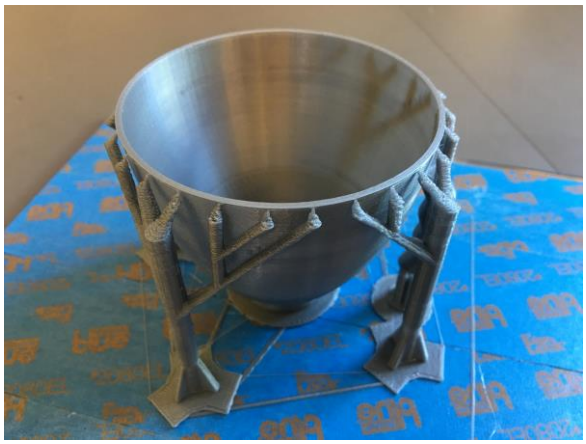
New in Extension 2 for 3ds Max 2016 is the ability to send your model to Autodesk Print Studio. Select your model and from the main menu, select Print Studio> Send to Print Studio.

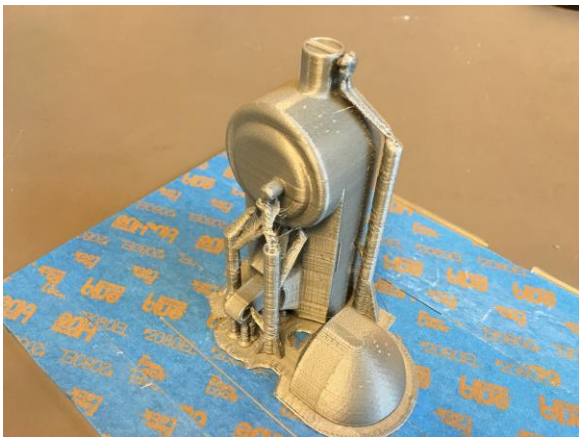


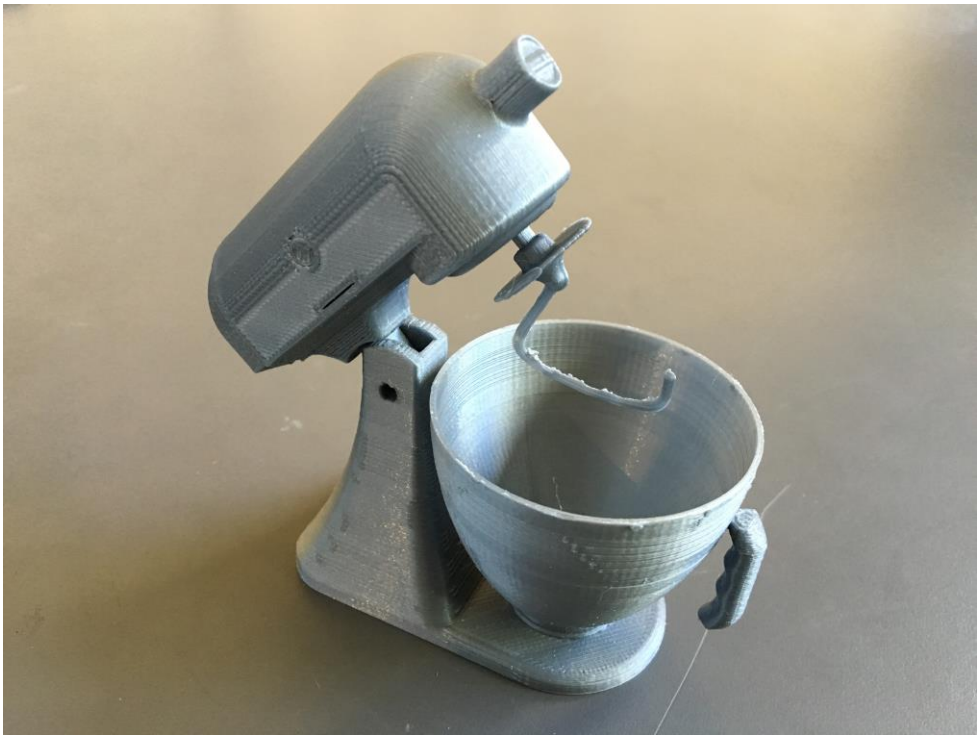
From here you can:

- Select the appropriate printer bed
- Reposition and scale the model to fit in the bed selected
- Fix any errors your model might have (open faces, etc)
- Automatically add supports
- Export print ready file or send to printer directly









Learn how to add a lived-in feel to your Revit interior visualization projects

In this section we will explore workflows for adding a "lived in" feeling to your designs. Too often design visualizations are perfect and pristine and while often times this a look that is desirable; in some cases adding a little messiness to your environments helps take your designs to the next level. While there many different to achieve a lived in feeling, we will be exploring 2 main concepts this class. The first involves using Pflow to simulate floating dust particles often seen when observing the light shining through a window. The second workflow we will explore involves using massFX to simulate cloth, in this case a dish rag lying on a counter. See reference images below:

Using Pflow to simulate dust

Pflow is a very powerful tool used to create all sorts of event driven particles. It can seem overwhelming when approaching it for the first time. Let's demystify pflow and create dust!

Watch the following video for steps on how to setup Pflow to create dust (as seen in class).

https://www.dropbox.com/s/pe7g68xtgoy94cn/01_Pflow.mp4?dl=0

Using MassFX to create a messy looking cloth

MassfX is tool primarily used to create realistic physics simulations. In the following example we will use the mCloth feature included with MassFX to generate a cloth on a countertop. It can of course be used to generate any kind of cloth thrown on any surface.

Watch the following video for steps on how to MassFX (ass seen in class).

https://www.dropbox.com/s/xhfy2ifqdsfxixx/02_MassFX.mp4?dl=0

Learn how to add procedural content to your scenes using the new Max Creation Graph

The Max Creation Graph (also known as MCG) is a brand new system inside 3ds Max 2016 which allows users to create and share their own custom tools, thus extending the capabilities of the product. It is a node based, visual programming environment which is also fully procedural. Users can create all new procedural tools including modifiers, geometric objects, animation controllers and more. In the following example we will see how to generate a procedural clone modifier. We will also look a more elaborate and finished tool for generating procedural window blinds.

Building a clone modifier with MCG

The ability to intelligently and procedurally clone objects inside 3ds Max has been a long standing user request. There are of course many different ways of building a clone modifier and different ways to use one. We will build a clone modifier that allows for cloning on 3 axes as well as the ability to rotate and scale these clones.

Watch the following video on steps for creating a clone modifier with MCG (as seen in class).

https://www.dropbox.com/s/klnbgvla690vlv1/03_MCG_Cloner.mp4?dl=0

How to use the MCG blinds tools

This next example uses an already built MCG tool for generating blinds. We will see some of the parameters exposed in this tool. We'll also see how we can rig this tool to other scene components in order to manipulate the blinds as in the real world.

Watch the following video on steps for using and rigging the MCG blinds tool (as seen in class).

https://www.dropbox.com/s/xloxvqaco7swyll/04_MCG_Blinds.mp4?dl=0

Learn how to easily add animated components in order to bring your designs to life

Adding animations to your designs is one of the most powerful ways of conveying design intent. 3ds Max has very powerful tools that allow you to create any animation you can dream of. In the following section we will explore many different workflows which use animation to help tell your story. First we will look how to quickly extract animation information from a simple object and applying it to multiple objects using the new Animation Preset system. Then, we'll take a look at the new text tool for adding animated three dimensional text to your projects. Lastly, we will see how to import Autodesk CFD simulation data into 3ds Max and how to use this data to create striking animations.

Animating the appearance of objects using Animation Presets

Animating the appearance and disappearance of multiple objects over time can be tedious. 3ds Max 2016 Extension just solved that problem! In this exercise we see how to create a simple animation on one object and how to quickly apply it along with offsets to multiple other objects using the new Animation Preset system. Of course, objects appearing and disappearing is but one use case of this system. Hopefully the following workflow will spark your imagination by creating all sorts of different animation presets.

Watch the following video on how to create your very own animation preset (as seen in class)!

https://www.dropbox.com/s/wt1g4ictlmm9gra/05_Animation_Presets.mp4?dl=0

Adding animated 3d text to your designs

3D text is another powerful way to telling a story in a design. We can communicate all sorts of relevant information by having text appear and disappear throughout an animation. In the following exercise we learn how to not only create 3d text using the new TextPlus tool, but also how to animate this text using the new Offset Controllers in Extension One.

Watch the following video on how to setup 3d text as well as animate it (as seen in class)!

https://www.dropbox.com/s/9pdotrufz1o0bcc/06_Animated_Text.mp4?dl=0

With the new TextPlus tool, users can now use relevant scene information such as measurements and others, to drive what is displayed in the text object. Plus, it's fully interactive!

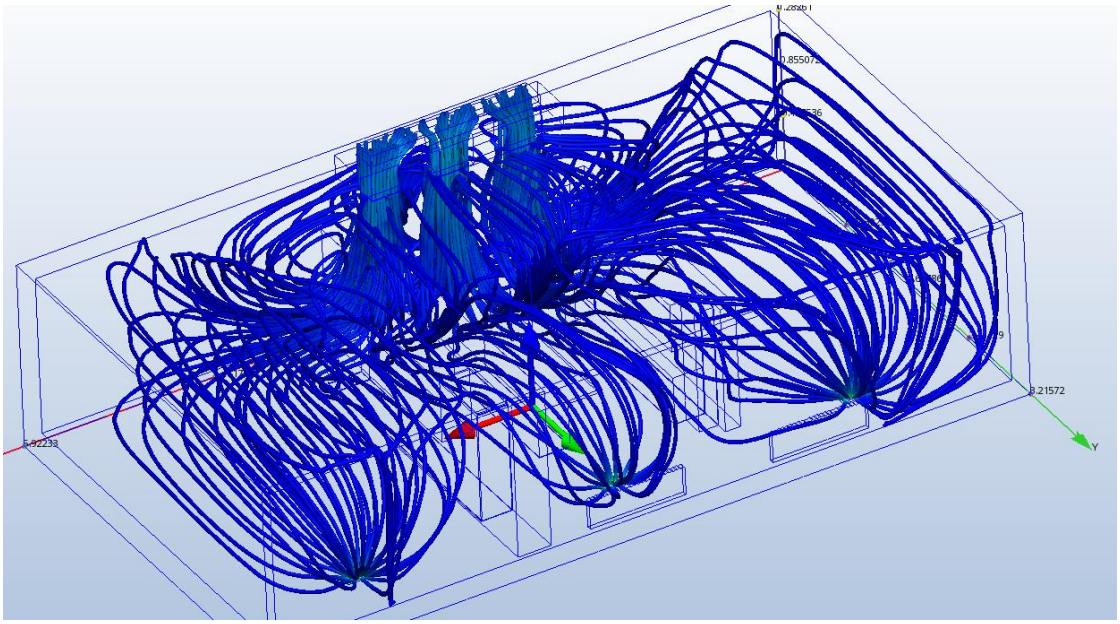
Watch the following video on how to setup data-driven text (as seen in class).

https://www.dropbox.com/s/mheqqpkam5z9o2z/07_Data_Driven_Text.mp4?dl=0

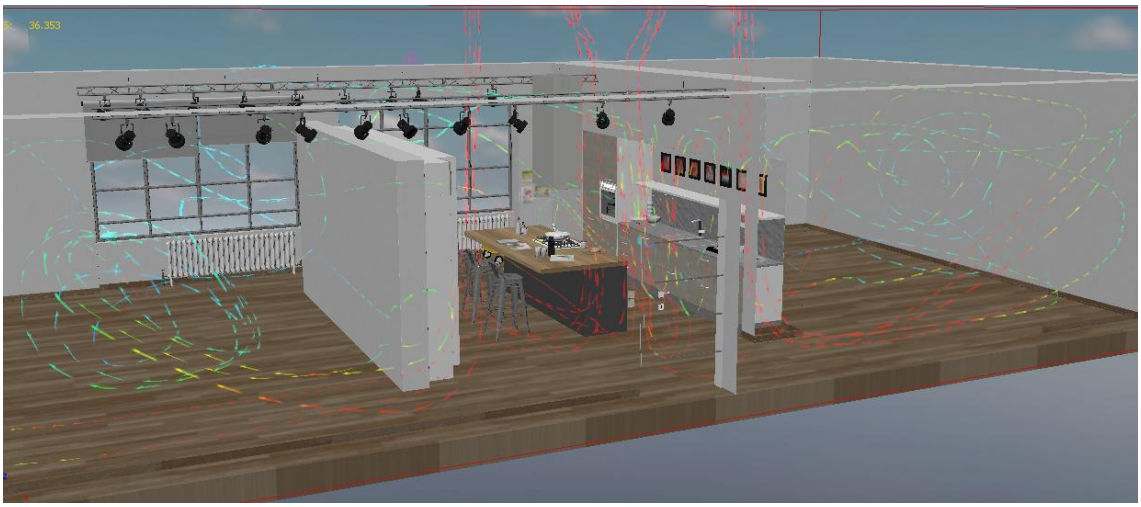
Importing and animating CFD data

Autodesk CFD is a powerful tool used for understanding how fluids (liquids and gases) behave and how they work with the products we design. 3ds Max 2016 Extension 2 now provides a toolset to visualize CFD data. The following example walks through a workflow, from start to finish, on how to generate beautiful visualizations from CFD point cloud information.

Autodesk CFD:



3ds Max CDF Visualization:



Watch the following video on how to setup a CFD visualization (as seen in class).

https://www.dropbox.com/s/j4fp1pw301hrn1k/08_CFD_Visualization.mp4?dl=0

Extras

Use the following links to download content as seen and used in class.

Workflow videos:

https://www.dropbox.com/sh/nxt64zm8bwnu7wy/AAAFReWfzlK4WFOCKlPLL4axa?dl=0

Additional content:

https://www.dropbox.com/sh/48tpqrq2ebvh8u9/AAC6X8ainKw6EjnEA_w9DTvma?dl=0

This content is only available to attendees of this class and will remain live until the end of the year. Please download at your earliest convenience.