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Little things in 3ds Max: Simple tips and tools I've found along the way

Chris Medeck
AECOM

Learning Objectives

- Work more quickly and efficiently in 3ds Max
- Better manage your 3d scenes and files
- Have a greater understanding of certain functionality in Max
- Impress your peers with your newfound knowledge

Description

This class will introduce 3ds Max users to, or in some cases remind them of, simple little things that can improve workflow and efficiency when using the software. Much of what will be covered is useful shortcuts and functionality that have been a part of 3ds Max for many versions and possibly overlooked by new users or forgotten by veterans.

Your AU Expert(s)

Chris Medeck is a Visualization Manager with AECOM. He graduated with honors in the summer of 2000 from the Art Institutes International, Minnesota, receiving his AAS in Computer Animation. His career began as the solo 3d artist for a small, local architecture firm. After seven years he joined the larger architecture and engineering firm Ellerbe Becket, which later merged with the worldwide company AECOM. Currently, Chris is the production lead of a small team of 3d artists in Minneapolis, producing high quality 3d images and animations for internal and external clients. He also is active in the Autodesk community, frequenting the AREA forums, and is an Autodesk Expert Elite member.

Starting Up

Art takes time. A coworker's daughter had written these words on a picture she'd made for him, and he had it hanging at his desk as a reminder to himself and those working around him. But when making art is also work, time can be limited. Every time-saving trick will allow more time to improve the final product of your efforts, and I hope those listed below will help you.

The Maxstart.max file

If you find yourself changing certain settings every time you open up 3ds Max, then you should consider making those your defaults via the maxstart.max file. This file is loaded like a template when you first open Max. Settings it contains include which render engine you're using, default output resolution, system units, etc. It can also have objects like geometry or lights saved to it, so your new scene begins with these already created.

Creating a maxstart.max file

Open 3ds Max and set all of your settings as you like. Once your file is ready, save it to your default 'scenes' folder with the name maxstart.max.

This file is not only loaded when Max is started, but also when you choose to Reset Max. Reset is similar to choosing New, except the maxstart file is used rather than the general default settings.

Templates

New to 3ds Max 2016 are Templates. Using templates is similar to creating your Maxstart file, except you can create and choose from multiple templates when you first start up 3ds Max. Different project types may call for different settings, and having the ability to preset everything at the start of a new project can save a lot of time later on. And, there is something to be said for maintaining consistency, especially when working in a team environment.

General Interface

First we'll go over some tips regarding the interface and how to navigate and manipulate it.

Viewports

1. If you work with multiple viewports, you can use ALT-W to quickly toggle the active viewport to be full screen and back again.
2. If you're in a maximized viewport, Shift-Windows Key will allow you to cycle through and select the other active views (similar behavior to Alt-Tab in Windows)
3. Click and drag on the edge of a view to increase or decrease the size of the window. Right-click and choose Reset Layout to return to the default sizes.
4. Shift-Z is the Undo command for views. Useful when importing or isolating objects automatically zooms extents.

5. If you're in a Perspective view, pressing Ctrl-C will make a new camera at that location. Or, if you already have a camera selected, it will be oriented to that view.
6. Mouse scroll not working? Try the bracket keys [+] to zoom in and out. The 'I' key will also center the view at your cursor location.
7. Materials in the viewport getting confusing? Don't turn them off! Go to the Display tab and click the radio button after Shaded from Material Color to Object Color.

Quad Menus

1. Quad menus are found by right-clicking in a viewport. Their content will change depending on what you have selected. They can also be edited, and custom menus created.
2. The last used command in a Quad Menu always appears highlighted. To repeat the command quickly, you can click on the inner border of that quad.
3. If you have a camera selected, you can change the selection to the target via the Quad Menu.

Modeling

Many of us spend much of our time modeling our scenes, so any way to save a few seconds from a much repeated command can add up to hours over time.

Numeric fields

1. Any numeric field that recognizes units can automatically convert them. If you are working in inches, inputting a value as '5.08 cm' will become '2"'. No need for outside conversion tables or web converters.
2. Pressing Ctrl-N while your cursor is in a numeric field will open the Numerical Expression Evaluator. That's a fancy word for calculator. But it does more than add and subtract, multiply and divide. It can handle some fairly complex mathematical expressions.

The powerful Right-Click

1. If you start a command, such as transforming an object or rolling a spinner, clicking the right mouse button before releasing the left button will cancel you current command. This is extremely useful when you accidentally start to move or rotate an object. No need for undo, just right-click and everything is back to where it was.
2. Any value that has a spinner next to it can be quickly set to zero (or close to it) by right clicking on the spinner arrows. Some values can't be zero.

Spline creation

1. If you are drawing a line and click a point in the wrong spot, no need to cancel or undo. Hit the backspace key to remove the last vertex. You can do this for all vertices you've made in that spline.
2. Drawing long splines is a great time to use the bracket keys to zoom in and out.
3. There are times when you want a long, gentle curve between two vertices on a spline, but the segment insists on become a straight line. If you uncheck the Optimize box under the Interpolation rollout, your curves will stay curved. Just be aware that even a straight line will become segmented should you make that spline into geometry.

Modifiers, Tools and Transforms

The Scale tool can be dangerous

When something doesn't fit just right, it is tempting to just scale it to the right size. Do not give in to this temptation! Scaling an object at base level will affect any modifiers and materials applied to it.

1. Scale objects in a sub-object mode when possible (element, poly, vertex, etc.).
2. Otherwise, add the XForm modifier and scale the gizmo. One advantage to this method is you can first adjust the Center of where it should scale from. Once the object is scaled, feel free to collapse this modifier down.

Clone and Align tool

1. This tool will take a base object and clone it around your scene, aligning the clones to target objects in your scene.
2. Great for replacing 'copied' objects with 'instanced' versions.
3. Quick and easy way to align a Light object with existing light fixture models

Instances and the Modifier Stack

1. If you have instanced objects with several modifiers and try collapsing the modifier stack, only the selected object will be affected and any instance link is lost. Unless you right-click on a modifier in the stack and choose 'Collapse To'. This will collapse ALL instances to that modifier.
2. A right-click on any modifier will give a list of options, including 'Off in Viewport' and 'Off in Render'. Turbosmooth slowing down the viewport? Make it only active during rendering.
3. Right-clicking on an instance object also allow you to convert it to a Reference. A Reference still reads any changes to the original, like an Instance, but allows modifiers to be added without affecting the original.
4. Speaking of right-clicking modifiers, one option you have is Rename. I like to use this when I'm applying different UVW Map modifiers for separate Map Channels. It's also great for adding some text explaining why a particular modifier was added.

Transform Type-In box

1. F12 key, or a right-click to any of the transform buttons, will bring up this handy box.
2. It can show the absolute values of transforms, local, offset, etc. It is a good way to move or rotate an object by a given value.
3. At the bottom of the screen is a similar set of fields that show only the absolute values.

The Mirror tool can be as bad as Scale

1. Clicking the Mirror tool to flip an object is tempting, but beware. Prior to 3ds Max 2016, it merely applied a negative scale to your object, and we've all learned that scale = bad.
2. Since 3ds Max 2016, hitting the Mirror button gives you a dialog box with some options. Never choose Transform!
3. Choosing the Geometry option adds a Mirror modifier to your object. This is okay, and is, in fact, the preferred method of mirroring an object.

4. Something to note: if you have an object that does not seem to display it's absolute rotation correctly, check it's scale. It likely has a negative scale applied, which for some reason confuses Max's interpretation of the object's rotation.

Materials

Real World Map Size

When applying texture maps to several objects, if you enable Use Real World Map Coordinates you can very easily ensure that all objects are mapping the material correctly. The size of the map is controlled in the Bitmap settings, rather than the UVW Map.

1. Don't mix Real World Size and standard mapping. If your map is using Real World Scale, use it in your UVW Map as well.
2. If you merge an object that was built using different System Units than your current scene, you may need to reset UVW Map modifiers to use the current System Units.

Slate Material Editor

1. If you aren't already using it, it's time to start. Force yourself, you won't regret it.
2. If you click and hold on a node (map or material), a list of available slots will appear. Some of these aren't readily visible in the editor.
3. If you are editing a Bitmap, you can right-click over the map path button and copy/paste bitmaps.
4. High resolution maps can slow down Slate's performance. But you can disable rendering globally, by map, and/or by material.
5. Select by material behavior differs by editor; Slate will NOT select objects using the current material as a sub-material, such as in a Multi/Sub-Object material, but Compact Material Editor will.
6. In the Scene Materials browser, right-clicking on the header and choosing Filter Selected Objects will make it show only the material(s) assigned to the selected object.
7. You can create multiple Views in Slate to help organize your materials
8. Materials can be moved between views via the right-click menu, or copied by dragging the right node to another View tab.

High resolution maps

When working with high resolution maps, you'll find that your RAM consumption can get out of control, especially when you've rendered an image.

1. In the Maxscript Listener, type 'freescenebitmaps()' and all bitmaps loaded into memory will be released. You'll see your RAM levels drop considerably if using several large bitmap images.
2. Another RAM cleaner is the garbage collector, type 'gc()' in the Listener.

Animating

If you want to set a key for a particular transform (Move, Scale Rotate), you can do this by right-clicking on the Time Slider. Sometimes you only want to create a Rotate key without a Scale and Move, and this is a quick and easy way to do it. Just hitting the Set Key button will create a key for all three transforms.

Miscellaneous tips

Linking DWG files

1. Link DWG files rather than importing. Links can be removed which will eliminate all of the data, including annoying Block helper objects, etc.
2. If you need lines to remain after detaching, it is easy to add an Edit Spline modifier and detach the splines or segments you need to keep.
3. Linking also allows you to choose the layers you want, and change them by simply reloading and choosing others.
4. Linked DWG objects are parented to a helper object. Moving and rotating this helper will allow you to quickly and easily align the objects, and a double-click on the helper will select all objects parented to it.
5. Of note: occasionally I've come across flattened sections of a curve brought in from AutoCAD. I believe it has something to do with how the lines were drawn. To un-flatten that curve, enable sub-object Segment mode in Edit Spline and right-click with the offending segment selected. In the Quad Menu, you'll see that segment is set to Line. Change that to Curve, and you'll be happy once again.

Working with Revit models in 3ds Max

1. Your 3ds Max scene should be set to System Units of Feet when importing or merging models built in Revit. Revit's base units are always in feet, even if it is displaying Metric units. Mixing units results in objects being scaled, and we all know that scale = bad.
2. In recent versions, geometry brought in from Revit that features curved surfaces will have most of its edges hidden. This is nice in the viewport, but don't add an Edit Poly modifier without first unhiding those edges. Edit Poly ignores hidden edges, and will make some odd polygons if there aren't enough visible edges to a surface.

Sharing or Storing your models

If you have the need to share a Max scene with someone, or just want to archive the scene at the end of the project, it is important to collect all the maps and other referenced files and keep them with the Max file. There are a few ways to do this.

1. File > Save As > Archive will grab you file and all referenced files and add them to a ZIP file. This method retains the relative file structure as well, so be careful when unzipping.
2. Under the Utility tab of the Command Panel is a tool call Resource Collector. It can collect all referenced maps and other files and either copy or move them to a new location. Resource Collector also gives you the option to include the Max file, and create an archive. This does not have a folder structure like Archiving creates.

In Closing…

Hopefully you've found some useful tips in this list, whether you're a long-time veteran of the software or just started dabbling. But everything listed above will help speed up the process of creating wonderful images and fantastic animations. Every moment saved in content creation is a moment that can be spent improving the content. Art takes time, and using these tips should give you just a little more time to create that art.