



Make Your AutoCAD Training Grow Roots

Nowadays, with the high demand for instant productivity, training curriculum barely allots enough time to properly cover the ground needed for training let alone tackle the ever-growing list of new features and updated UIs. As a result, some of the more basic, but still important, elements of AutoCAD may be getting squeezed out. It is with my countless years of experience as an end user followed by support technician as well as AutoCAD/ AutoCAD® Architecture / Autodesk® Revit® Trainer that I am able to share with you the answers to some of the most asked questions and issues so that they may be minimized from the start.

With these topics as the foundation for your AutoCAD training/knowledge, your AutoCAD skills can really grow exponentially with a deeper understanding of the workings of AutoCAD, all the while avoiding most of the frustrations that may seem like weeds in an otherwise productive and fertile environment. Some of the features we will look at include settings/performance enhancements, drawing aids/productivity tools, and disaster recovery/avoidance.

SETTINGS/ PERFORMANCE ENHANCEMENTS

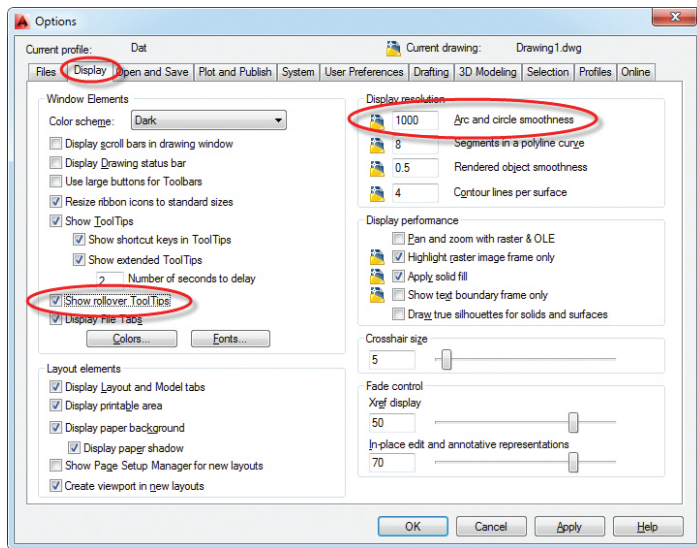
Many CAD managers cringe at the thought of users modifying some of AutoCAD's behind-the-scenes settings; however, that doesn't mean that some of these settings may not accidentally get switched on/off during the haste of drawing (as is the case when a user breaks out of a LISP routine or script before it has had a chance to complete). In fact, helping users understand what some of these settings do can only help them better understand the workings of the AutoCAD system from the ground up. After all, we want to plant the seeds for power users who can think for themselves. As a general rule of thumb when it comes to settings, most of the default/out-of-the-box settings should be left alone as just about every setting has a reason for its default setting. You may want to do screen captures of the default settings of each tab in the Options dialog for future reference. The more we tweak, the more unreliable things may become, not to mention the fact that we will have to keep transferring settings from one release to another. But we should all have an open mind when it comes to trying something new.

When it comes to performance enhancements, just because our computers are more powerful, faster, and loaded with RAM doesn't mean we should be sloppy about utilizing resources, especially since these resources are often shared with other applications running simultaneously in the background. Also, it is extremely beneficial to tune down many of the bells and whistles when it comes to virtualization (i.e., running AutoCAD in the cloud, having users login remotely, or when on a Mac using Parallels or Fusion to emulate Windows because graphics cards function differently in these modes).

Options Dialog / Behind-the-Scenes Settings

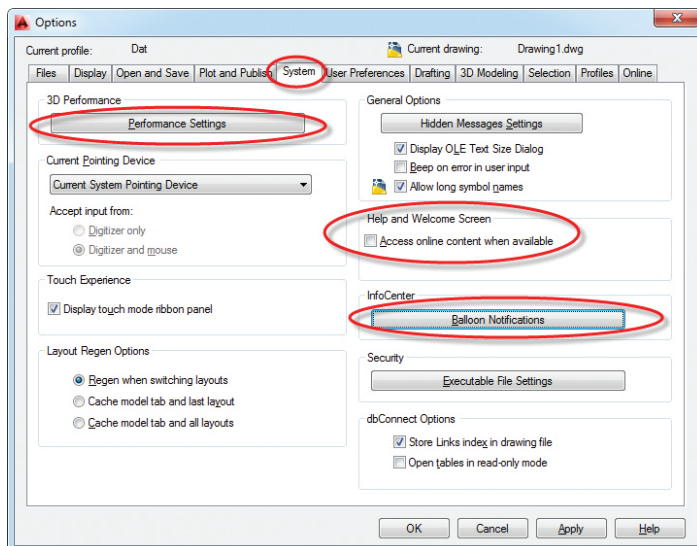
Files Tab

- Automatic Save File Location (make note of this as we will go into more detail when discussing Disaster Recovery/Avoidance).



Display Tab

- Show rollover tooltips (ROLLOVERTIPS)
- Display resolution arc and circle smoothness

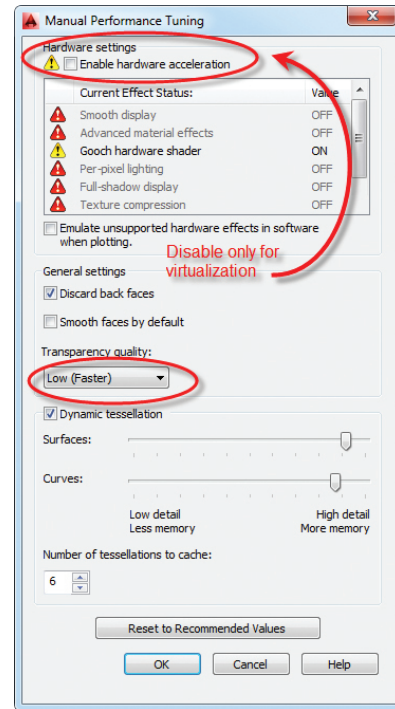


System Tab

Performance Settings

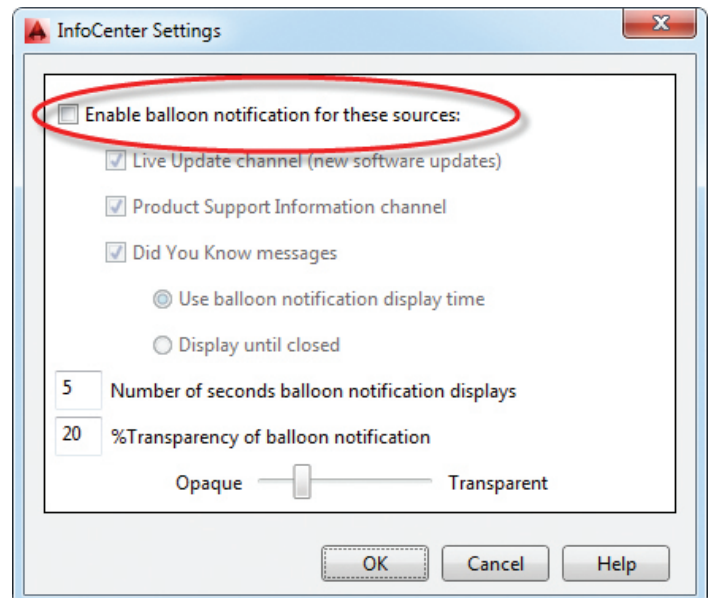
Manual Tune:

- Disable hardware acceleration on virtual pcs
- Transparency Control: Low (faster)



Help and Welcome Screen:

- Disable "Access online content when available" (Download and install local help files. Besides, users will naturally go to the Internet for help when needed.)
- Accidentally hitting F1 when you mean to hit esc for escape is a common problem

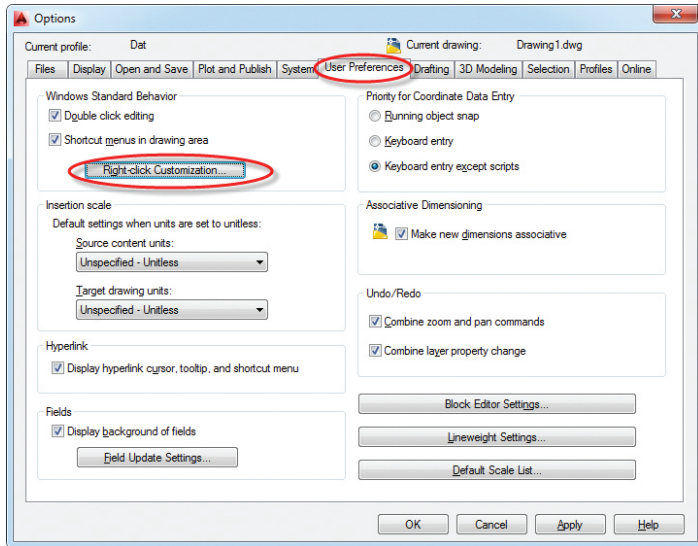


InfoCenter:

- Disable balloon notifications. The old adage “if it ain’t broke, don’t fix it” applies here. Turning off the chatter means users may focus on the job at hand. Autodesk tends to not be shy about sending emails when new updates are available anyway.

User Preferences

Right-click Customization: turn on all Shortcut menu options; however, enable time-sensitive right-click (best of both worlds).

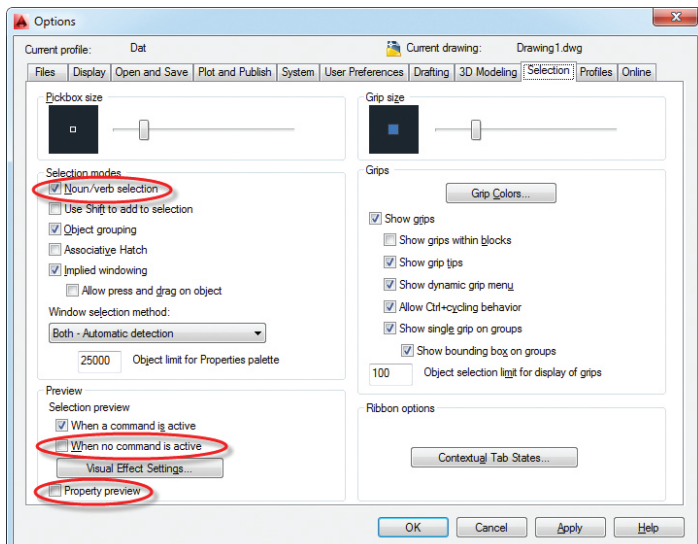


Drafting

“Ignore hatch objects” (OSNAPHATCH=0)

Selection

- Check Noun/verb selection
- Preview: Uncheck “When no command is active” and Property preview (QPMODE=0)



Profiles

It’s a good idea to not only save and set your new profile current, but also export your profile to a .arg file on the network or external drive so that if you had to set up AutoCAD again, you can quickly get your settings back. Remember to modify your AutoCAD shortcut to either use your new profile (by specifying the /p switch in the “Target” section of the shortcut’s properties) or to use the last profile (by removing the /p switch altogether).

Other Notable Settings

HPDLGMODE=1 (displays hatch/gradient box for items selected in drawing)

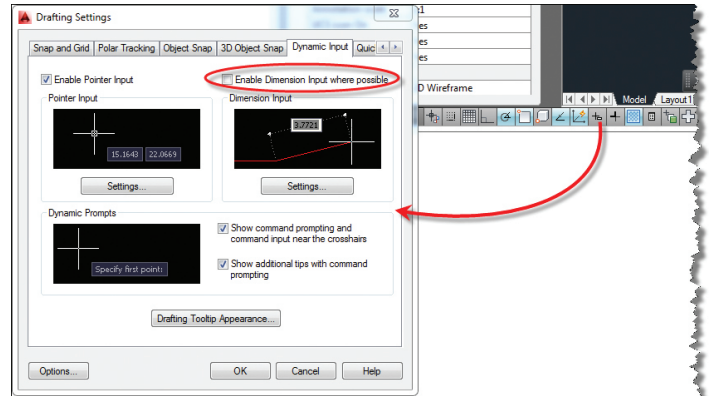
HPQUICKPREVIEW=0 (disables hatch preview, set to 1 if you’re dealing with atypical hatch pattern)

VTENABLE=0 (disables smooth view transitions, turn on if you’re viewing 3D mechanical drawings)

MBUTTONPAN=1 (middle mouse button pans)

IMAGEFRAME=0 (turns on/off the bounding box on your images. Turn on to be able to select and manipulate the image)

Drafting Settings (Right-click on Osnap Toolbar)



We will cover Drafting settings in the next section, but because Dynamic Input ties into performance, it is worth mentioning here. Dynamic input was introduced to provide users with the ability to receive and input data as close as possible to the object in question. This can be a bit overwhelming, so it was a huge request to disable it for snap tracking while keeping it enabled for other inputs.

- Dynamic Input: Uncheck “Enable Dimension Input where possible” {DYNMODE=1}

Get Your Bearings

The single most important thing you can do when starting a project is to start drawing relative to the origin. When this step is left out, you can easily get inconsistently placed files, especially when dealing with Xrefs and coordination with consultants. To facilitate the process, a few UCS tools should be set from the start:

UCSICON = ON (turns on the UCS Icon)

UCSICON = Origin (places the UCS Icon at the origin)
 UCS = World (Sets the UCS to the default world coordinate system)
 Plan = Current (orients the view orthogonal to the current UCS)

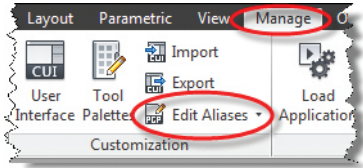


DRAWING AIDS/PRODUCTIVITY TOOLS

Many of us have seen Lynn Allen's awesome list of AutoCAD Tips & Tricks. Consider this the list that has been forgotten.

Keyboard Shortcuts Versus Ribbon/Toolbars/Dialog Boxes/Palettes/Icons

Each section so far has had one item that you shouldn't miss. In the Productivity section, this is it. Not only is it faster to get to command by typing keyboard shortcuts, it's also more consistent. Take, for instance, when a new release comes out and icons have been updated and moved around. Knowing the keyboard shortcuts means you can get right to work and hunt down the icons later. When AutoCAD launched on the Mac, things were noticeably different. But I was able to get up and running in this totally foreign environment by doing simple things like typing in "L" for line. And it worked! However, don't get too carried away with customizing the default Acad.pgp file (Manage ribbon, Customization Panel, Edit Aliases) as this could be counterproductive.

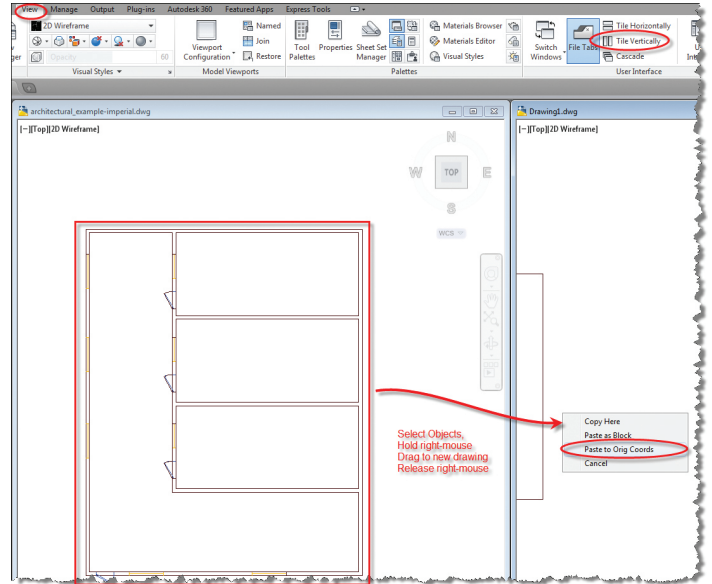


Copy between Two Files

It is good practice to always start a new drawing with a clean and approved template that contains your company's standards without all of the junk that you might get if you tried recycling a drawing from the last project. In fact, this is one of the best ways to avoid errors down the road (to be discussed in the next section on Disaster Recovery/Avoidance). However, you may wish to borrow elements from past projects. Use this technique to easily copy items from one drawing to another while maintaining its origin.

1. Open both drawings and tile them side by side (View ribbon, User Interface tab, Tile Vertical)
2. Make sure you're not in the middle of any commands in the target drawing. Select the object you wish to copy from the source file.

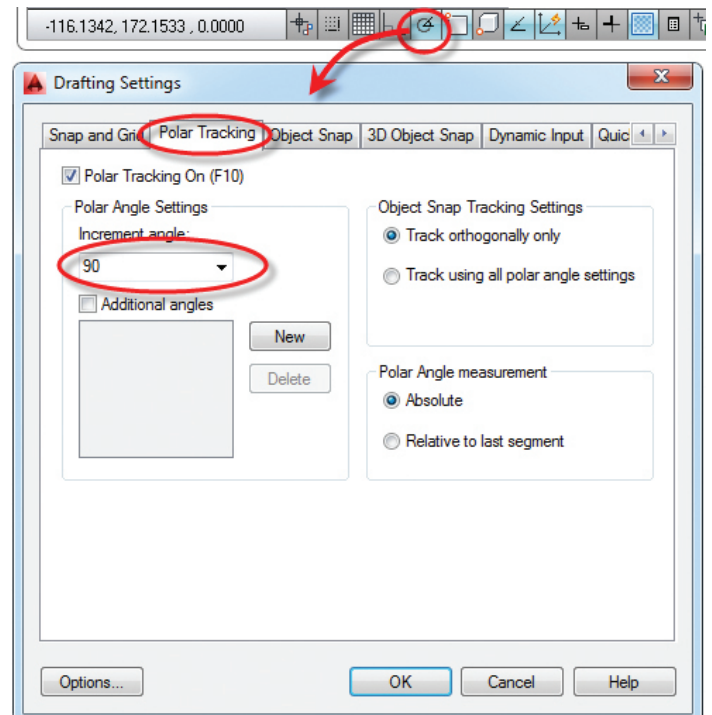
3. Hold down the right mouse button until you see the silhouette of the selected objects, then without releasing the button drag the items to the target drawing, then release the mouse button.
4. You will then be prompted to "Copy," "Paste as block," or "Paste to original coordinates."



Voila! A quick and easy way to copy elements between files.

Drafting Tools

Located at the bottom left of the drawing window, this series of tools allow you to draw accurately and efficiently if used correctly. Following are the most notable ones.



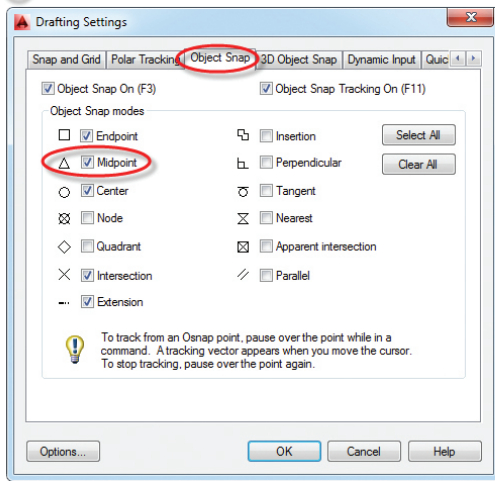
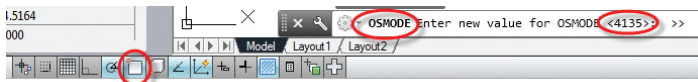
Polar Tracking:

Great option to use over Ortho as you can define multiple angles. Works in conjunction with Snap Tracking.

Object Snaps:

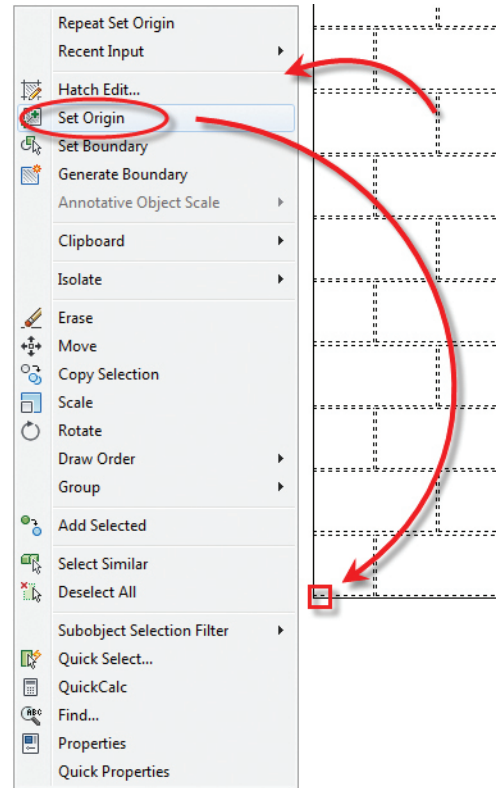
Object snaps are crucial to any accurate drawing and definitely a personal setting. However, out-of-the-box, the Midpoint running Osnap is not turned on. Also, you may want to minimize using the “Nearest” Osnap as a running Osnap and only invoke it on demand (shift, right-click). Once you find your favorite settings, type “OSMODE” from the command prompt to find your special object snap settings number so if they get reset, you can quickly get all of them back.

Speaking of on-demand Osnaps, one of the most useful is the “mid between two points” Osnap (or M2P from the command line) that allows you to find the middle of a corridor or just about any shape, saving you from having to draw temporary construction lines.



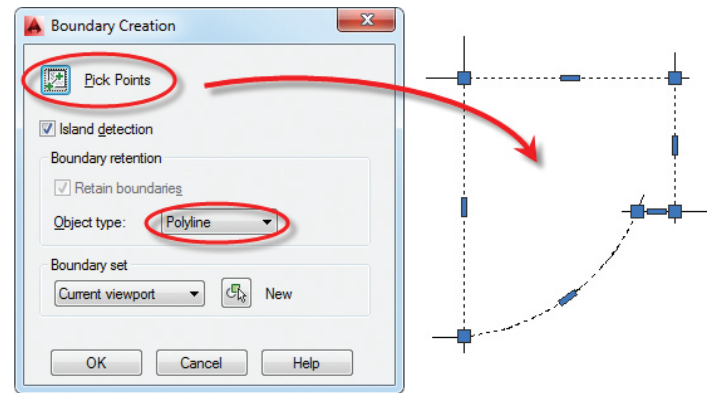
Hatch Set Origin:

In the architectural world, hatch patterns are more than just a pattern. Often, it’s important to make sure the building “courses out.” By using the “Set Origin” option (select the hatch pattern, right-click → “Set Origin”), you can ensure that the pattern lines up with the building.



Bpoly / Boundary Creation

Another good rule is to always keep your shapes closed, especially polylines. Closed polylines give you valuable information such as the area of the shape. You may still find it useful to use the Bpoly or Boundary Creation tool to quickly draw a closed polyline.



Flatten / Set z Value to 0

Often when we receive drawings from other sources, not all the lines may be drawn on the same plane. You can usually tell when this happens by inconsistent dimensions or if you start to get messages such as “Points are non-coplaner.” There are many third-party tools you can download and try out including the Flatten command in the Express Tools; however, these don’t work in all circumstances. A more robust method is to simply use the following routine:

(command "MOVE" (ssget "x") "" "0,0,0" "0,0,1e99")
 (command "MOVE" (ssget "p") "" "0,0,0" "0,0,-1e99")

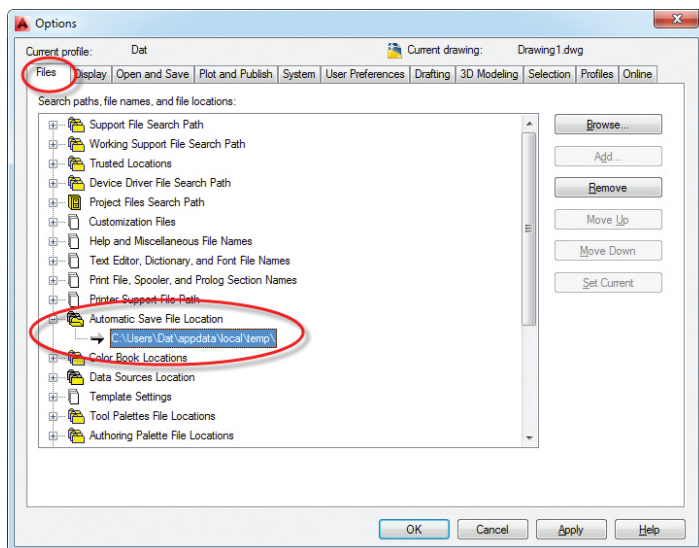
Just make sure all your layers are on, thawed, and you can either copy/paste the lines above into your drawing, create a tool palette tool to invoke this, or modify the CUI to add this as a custom command.

DISASTER RECOVERY/AVOIDANCE

Whether we like it or not, things are going to happen that are out of our control. Often, it happens for no apparent reason. Instead of wondering what happened, you can usually take immediate steps to get back up and running by being prepared. Here are some tips.

Salvage the Autosave File

If you get nothing out of this entire article, make sure you get this: In the event of an AutoCAD crash, do not let AutoCAD shut down when prompted. Instead, open Windows Explorer and navigate to the autosave file location mentioned at the beginning (Options → Files tab → Automatic Save File Location) and copy your autosave file (usually a file with a .sv\$ extension) to a secured folder. Then switch back to AutoCAD and let it do its thing. If AutoCAD crashes without any prompts, chances are the autosave file is still intact and you will get the Drawing Recovery Manager when you reopen AutoCAD. If you shut down AutoCAD, it thinks that everything is hunky-dory and deletes your autosave file, leaving you without a backup in the event that your file gets corrupted in the process.



Spring Cleaning

Keeping things tidy should not only be a task for the CAD manager. It is everyone's responsibility, all of the time. When you notice performance degrading and trying all of the above still doesn't help, it may be time for some Spring cleaning, such as the following.

Purge Command:

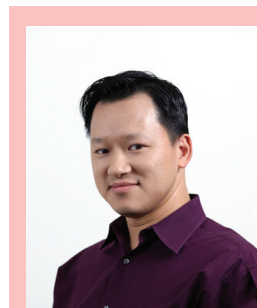
Everyone knows (or should know) about the purge command. However, not everyone knows that there's a difference in using the dialog box versus the command line option ("-purge"). The latter allows you to purge "Registered Apps," which have a way of sneaking into your drawings and causing demand loads to happen in the background, which turns your AutoCAD experience to mud.

Start with a Clean Template File:

As mentioned earlier, always start your drawings with a clean template file to ensure that you don't compound errors down the road. However, if there are some stubborn issues that cannot be resolved, it's time to transfer your elements to a new clean file by using the "copy between two files" method. What you get is a fresh drawing that is free from undefined blocks, extraneous layers, and one that will perform much better. Just be sure to rename the old file and put this one in its place to satisfy any Xref pathing requirements.

CONCLUSION

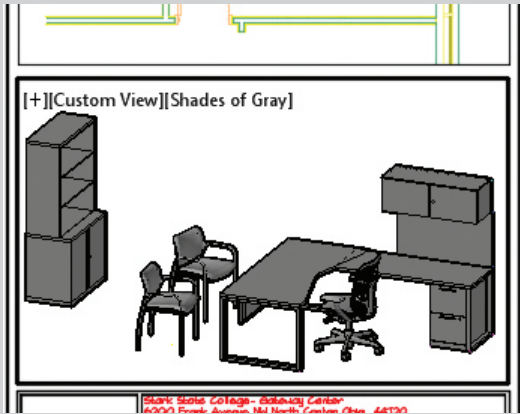
From settings and fine tuning AutoCAD for optimum performance, to simple yet productive tools, to avoiding and recovering from disasters, hopefully you'll find this guide a useful reference and can work it into your next training. It's a lot to absorb, but your labor will start to bear fruit in no time. Whether you've been using AutoCAD a long time or you just dabble, these tips will help you save time, avoid costly issues, and keep the weeds out of your AutoCAD garden.



Dat Lien has traveled all over the globe for renowned architectural firms such as Gensler, PGAL, and Morris Architects. After managing a team of experts at Total CAD Systems, an Autodesk reseller, he has now added entrepreneurship to his repertoire with the formation of Axoscape, a service-based company offering BIM, CAD, and Visualization solutions. With over a decade of architectural experience, Dat combines leveraged technology with the AEC business so clients can stay competitive while maintaining flexibility. Dat also keeps busy with organizations such as the Houston Area Revit Users Group, A Child's Hope, and helping out other non-profits. By utilizing his education, experience, and eagerness to educate, Dat enjoys helping and sharing his knowledge with others.

And Here's How to...

Set a Viewpoint from the Quick Access Toolbar



Once you have established a 3D viewpoint—using whatever method you prefer—many of you are aware that you can save that view by name so you can restore it later in other viewports or after you have gone back to the Plan view.

Named views are great, but they are saved in the current drawing. What if you would like to use that particular “eyeball position” on all your drawings?

The following procedure can be accomplished while you’re in model space or in a viewport.

HOW TO CAPTURE A NON-STANDARD VIEWPOINT

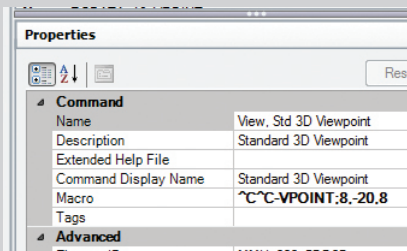
1. Set your view to a position other than one found in the standard collection of NE, NW, etc.

Hint: You can hold down the Shift key, then use your wheel-mouse pan feature and (slowly) move your cursor to kick your system into 3D orbit.

2. With the view the way you want it, enter `-VPOINT` (the leading dash/hyphen is the key to this trick), and in the history above the default command line, you see the viewpoint stated as `VIEWDIR= [X,Y,Z]`, similar to this:

`VIEWDIR = 8'-5 9/16",-20'-1 13/16",7'-10 7/8"`

3. Jot down the numbers, rounding them to the nearest whole number. You don't have to include the feet



since the values define the vector position of your eyeball. For my position, I'll use `8,-20,8`.

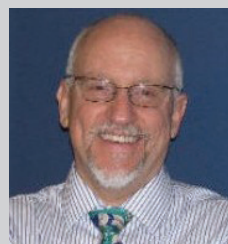
4. Open the CUI.
5. In the Command list, right click on 'View, Viewpoint' then click *Duplicate* (which is, effectively, a Copy + Paste). The copy will have an Element ID with an 'MMU' prefix.
6. Now modify the Properties to something like you see in the image shown.
7. For the macro, enter the following, replacing the X,Y,Z with the values you got from Step 2, above:

`^C^C-VPOINT;X,Y,Z`

Memo: It's really important that there are NO spaces in the macro string of characters.

8. In the upper left quadrant of the CUI, under *Customizations in All Files*, expand *Quick Access Toolbar 1*, then expand *Quick Access Toolbars*.
9. Now, drag and drop your new View button up into the QAT command listing.
10. Click OK to close the CUI and save your changes.

The next time you have a drawing and want that very same eyeball position, hit that button!



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