AUTODESK. UNIVERSITY

CES321648

Tool Palettes: The Power of Standards

Justin Johnson
GPD Group – Akron, OH

Learning Objectives

- Creating and adding blocks, commands, buttons, and other tools to the palettes.
- Methods for organizing the tools on the palettes.
- How to edit blocks (details) using the tool palettes.
- How to save and distribute palettes from a network location.

Description

Learn how to create, standardize, and distribute tool palettes within a company network or organization. This class is for all levels of CAD users, whether as a refresher or for those just starting out using tool palettes. We will learn about the basics of creating tools, setting up custom buttons and commands, adding items to the palettes, organizing and naming the tools, editing tools (blocks) directly from the palettes, as well as saving and distributing palettes from a network location. We will see how these tools can streamline detailing across multiple users and help centralize CAD standards. The class will utilize several examples to walk through the process from start to finish, while discussing best practices and tool limitations.

Speaker(s)

Justin Johnson is a Design Team Manager for GPD Group, a multi-discipline nationwide architectural and engineering firm. Justin has 12 years of engineering industry experience and adds over 17 years of AutoCAD experience to his team. Justin started as a full-time CAD Designer while earning a Bachelor of Science in Construction Engineering from the University of Akron. He is an AutoCAD Certified Professional and a current member of the Autodesk User Group International. During his tenure, Justin has held the positions of CAD Designer, Drafting Team Leader and now Design Team Manager within the telecommunications division at GPD. In his current role, Justin is responsible for drafting quality control, standards, process innovation, design tool innovation and IT integration tasks of his practice. In addition, Justin serves on the GPD Standards Committee that acts as technical liaisons for the company.

Introduction

In 2004, Autodesk introduced Tool Palettes into the AutoCAD platform as an aid in productivity tools. This includes managing of blocks, line work, hatch patterns, and commands all in one centralized location. Later releases have improved the function by adding in additional capabilities to these tools. These improvements include items such as block content, custom commands, tables, fly-out options, all to help aid in productivity and managing company CAD standards.

Who Benefits from using Tool Palettes?

CAD Techs, CAD Managers, Project Managers and the most important to all of us, the client does! Almost everyone can benefit from using tool palettes and managing CAD standards. Tool palettes help users be more productive and provides an easy way for CAD managers to handle company standards.

Why do we want to use Palettes?

- Productivity is the key word here. Easy access to customized tools can help users to be more productive in their workflow. Creating these tools will reduce the time spent looking for tools or searching for block libraries buried deep within the ancient folder directories of the past.

- Consistency is another benefit of using tool palettes. Having tools already created that comply with company standards will help ensure accuracy and consistency across your team. This will eventually lead back to productivity with less time spent worrying about items drawn with the correct color, layer, scale or styles.

- One of the least thought of ways that tool palettes are utilized is for training. Content tools including PDF materials and links to video content can be added to the palettes. Having all of your training material and CAD standards in on place can help make sure everyone know the correct procedures, since everyone will be able to access the “Standards”.

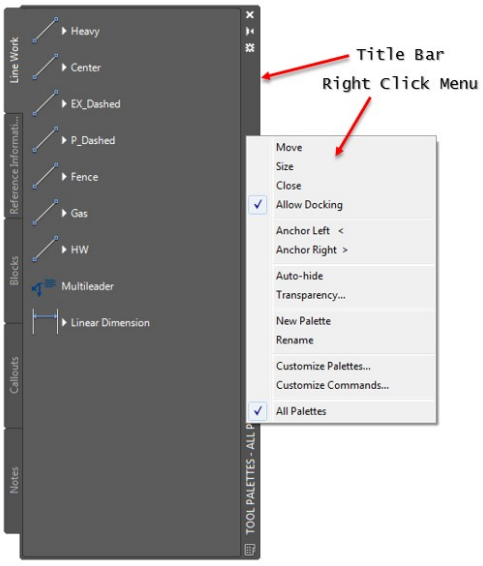
During this presentation, we are going to discuss setting up a variety of tools, customizing the look and function of both palettes and the tools located on the palettes, setting up custom commands, and how to edit the tools using the options within the tool palettes. We are also going to talk about sharing these tools from a network location and the benefits of locking down the content on them. By the end of this presentation, everyone will have a good working knowledge of Tool Palettes and be able to start setting up your own standards to share with the company.

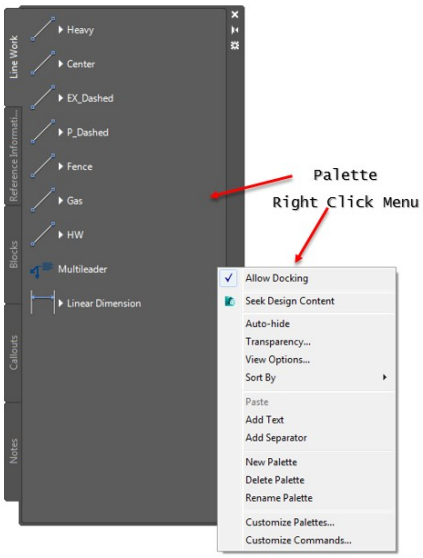
The Tool Palette Window

Let us start briefly at the beginning, How to locate as well as open and close the tool palette window. There are multiple ways to accomplish this, the keyboard shortcut for opening and closing is CTRL+3 (at the same time). We can also open and close them by typing TOOLPALETTES (command alias TP can be used just to open) and TOOLPALETTECLOSE in the command line. If you are more comfortable with using Ribbons or the toolbar, we can find the button for opening and closing the palettes under the “View” panel.

Just like any other window in AutoCAD, the tool palette window has a mind of its own when it is first opened and pops up in some random spot on the screen. Do not worry, it can easily be fixed to a location within the CAD window and will continue to open in that same spot moving forward. Using the Auto-hide and Allow Docking options, you can control where and how the palette will be stored.

The tool palette window has hidden Right-Click option menus to help customize other properties of the palettes as well. Just to name a few these include a variety of sorting options as well as the ability to add palettes and modify existing palettes. As we move along this presentation will show how to utilize many of these options to help organize and format the tools to suit your needs.





Tip: “Anchor Left <” and “Anchor Right >” will not work unless the “Allow Docking” is option is checked.

The size of the palette window is easily adjusted by hovering over any of the edges of the palette (except title bar side) and dragging to the desired size. Moving the window around the screen is just as easy, click and hold down in the title bar and the user can reposition the window anywhere just by dragging it to the new location. One nice thing is AutoCAD allows the palettes to be located outside or inside of the drafting window.

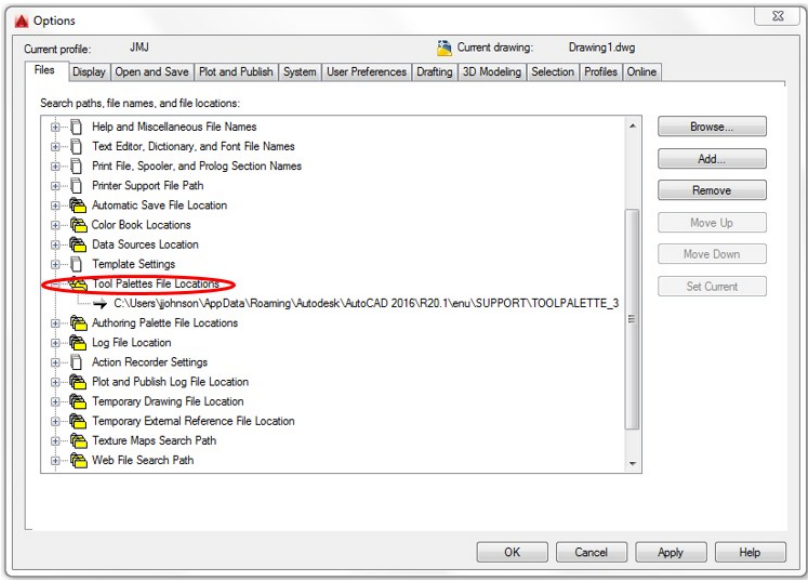
Creating Palettes

Folder Setup

Before we start adding tools to the palettes, we need to make sure AutoCAD will save the associated files where we want them. Two things will need to be set up to ensure the palettes will save correctly and are able to share them. We will talk about sharing them later on in the presentation.

The easiest method is to start by saving a working folder to a local network (i.e. C:\AU_19_Palettes\Build). For the purpose of this session, I have named my folder “Build” and saved it under a main folder I could easily find. The folder can have any name as long as it represents what the folder contains and we can easily copy it to a shared location later on.

Once the folder is set up, we will need to change the default path in AutoCAD or add our new path in addition to the default path for their standard palettes. This can be found within the AutoCAD options menu under the “Files” tab. Locate the folder Called “Tool Palettes File Locations”, click the “+” next to the folder to expand the folder and find the default path location as shown below.



Changing the default file location shown to where the new “Build” folder is located can be completed a couple different ways. First, clicking the default location and then using the “Browse” button will bring up a dialogue box where we can navigate to the folder location. We can also copy the location (C:\AU_19_Palettes\Build) from windows explorer and paste it in to overwrite the default location. Both of these will eliminate the default tools AutoCAD has built in.

If we want to add our new tools in addition to the standard AutoCAD Palettes, we can do that by adding a second folder location. Simply click “Add” and then type in or navigate (click Browse) to the folder location, or paste the folder location into the new line from windows explorer just like before. AutoCAD will write out to the first location as the primary palette folder then if that is locked (as we will discuss later) it will move on to the second.

Click “Apply” and “OK” to exit. Notice that AutoCAD has set up a new folder called Palettes and added an .atc file to our “Build” folder. The name of this file will start with something along the lines of “New Palette_85…”. The default name for any new palette created in CAD will be similar to this before we rename it in CAD.

Adding Content to Palettes

After the folders have been created, we can start the process of setting up our palettes and adding tools to them. We will explore a couple methods for doing this. The first is by using the drag and drop method from an open .dwg file. Any palatable item can be added to a tool palette from an open drawing as long as it has been saved within that open drawing. If it has been saved, then simply click and hold the mouse button down then drag it to the desired tool palette to add it.

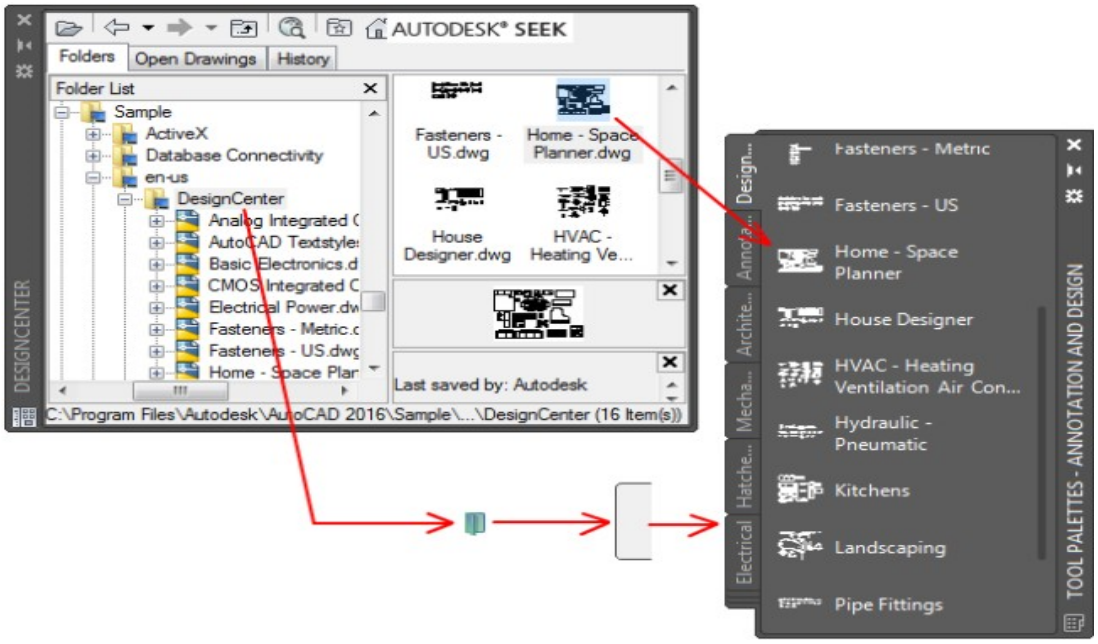
This method could be tedious, imagine having a drawing containing more than 100 blocks. You would have to drag all of those over to the palette.

Another method is using Design Center to add items to the tool palettes without opening the source file or folder. AutoCAD Blocks, image files, and hatch patterns saved to a .dwg file can be added using the design center window. This is the simplest and probably the most preferred method to add tools to a palette.

Tip: All other palatable items (line work, dimstyles, etc.) must be added from an open drawing file.

Design center can be opened by using the command ADC (or ADCENTER) in the command line. Under “Folder List” on the left hand side of the dialogue box (see image on next page) navigate to the desired folder location or drawing file. Once the drawing folder is active all of the available tools and images that can be added will appear on the right hand side of the window. These items can then be added by using the drag and drop method to bring individual items over to the desired tool palette window.

Tip: We can also right click on a folder location and use the “Search” option to locate files.



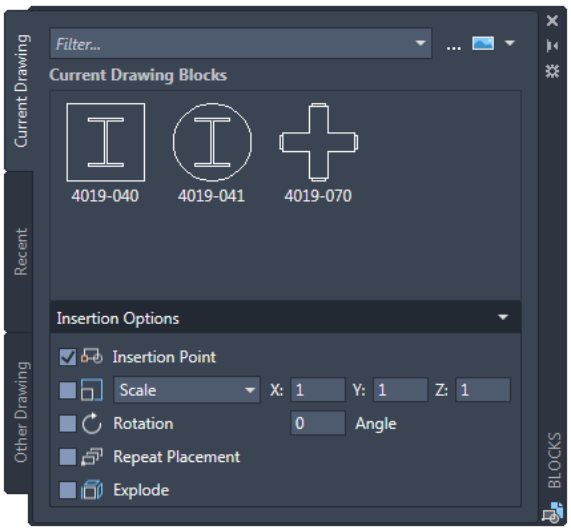
Design center also allows us to be able to add an entire library from a folder or file with one simple click. Right-click on the desired folder or file and find “Create Tool Palette” or “Create Tool Palette of Blocks” and watch the magic happen. A new palette is created of all of the palatable items. The tools will be named as they are within the associated files and the palette will be named to match the folder or .dwg file name depending on which was selected.

Tip: Simply dragging and dropping the folder or .dwg file to the palette window will also create a new palette from the palatable items.

Tip: Make sure to purge all unwanted items from the drawing file and all blocks are named before creating a palette. No need to create extra work for ourselves deleting tools we did not want to add to the palettes.

Inserting from the new Blocks Palette

As we all know Autodesk comes out with new features every year, with v2020 Autodesk has added what they call the Blocks Palette. This palette has some of the same functions as a custom tool palette but has a few limitations as well. The main purpose of this palette is to streamline the process of inserting both nested blocks and blocks within other drawings into a drawing for use. Previously we had to use the “Insert” command or open up Design Center to add blocks to the drawings and/or tool palettes. The new Block Palette combines both of these into one easier to use palette that can be customized slightly just like Tool Palettes.



The new palette has three tabs to use for inserting blocks. These tabs house all of the blocks located within the current drawing or a file opened using the Other Drawing tab. The recent tab will show the recently inserted blocks into any drawing not just the current drawing that is open. The quantity shown here can be changed using the variable BLOCKMRULIST to show anywhere from 1 to 100 blocks.

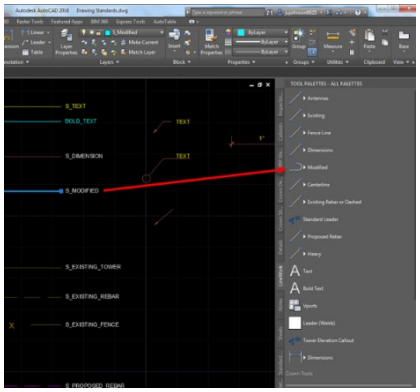
In the same manner as using tool palettes a block can be inserted by left clicking on a block and then selecting where to insert it. The other method is to drag and drop the tool to the desired location in the drawing window. Similar to using the INSERT command we can set the scale, rotation, angle, and choose to explode the block once inserted. We can also choose to repeat placement of the block with the same settings.

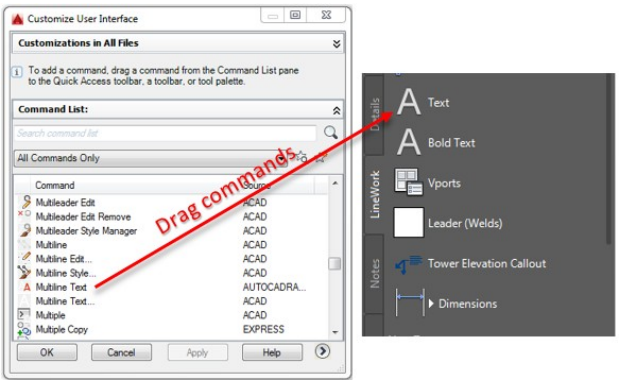
Now since this is about Tool Palettes there is a reason to bring up this new palette. We can use this as a method to copy blocks to the Tool Palettes. Using the drag and drop method from any of the three tabs onto a palette will copy that block to it. The block will still reference the host-drawing file and retain the properties of how the block was set up. This only works with blocks as that is all that the Blocks Palette contains, to add line work and other items we still need to do that from one of the following methods

Adding Command Tools

Instead of adding an entire Ribbon or Toolbar to a user's CAD interface so that one button they use is available, we can add those needed commands to a palette. Both standard and custom commands can be added to palettes. Adding commands to a palette rather than customizing the user interface (CUI) or adding new ribbons and panels will help reduce the amount of space taken up in the CAD Window.

Most commands can be added to palettes in two ways, one way is to simply drag and drop the item from an open CAD file. This method is good for creating line types, leaders, and dimension styles that are already defined with the company standards. The commands on the palette are saved using the layers, colors, and/or line types that they were created with.

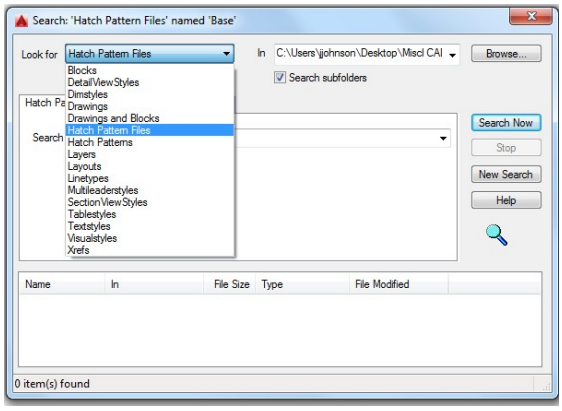


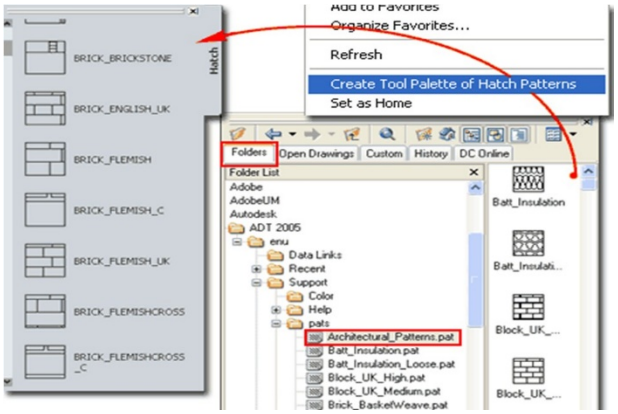


The second way is to open the CUI and again simply dragging the commands from the dialogue box to the Tool Palette. Commands added using this method would be more generic compared to adding them from an open .dwg file meaning they will not have company standards assigned to them.

Hatch Tools

Hatch patterns can be added to tool palettes as well and just like all of the other tools we can preset the scale, layer, rotation, etc. that we need. We can also add hatches from drawing file through the design center or individually from an open drawing file. To add hatches within an open drawing file just simply use the drag and drop method to save an existing pattern to the palettes.





We can also use the design center to add an entire hatch library to a palette. We first need to navigate to the folder or drawing file containing the hatch patterns we want to add within the Design Center. Right click on that folder or file and click “Search”. Within the dialogue box here we can search for “Hatch Pattern Files” or “Hatch Patterns”.

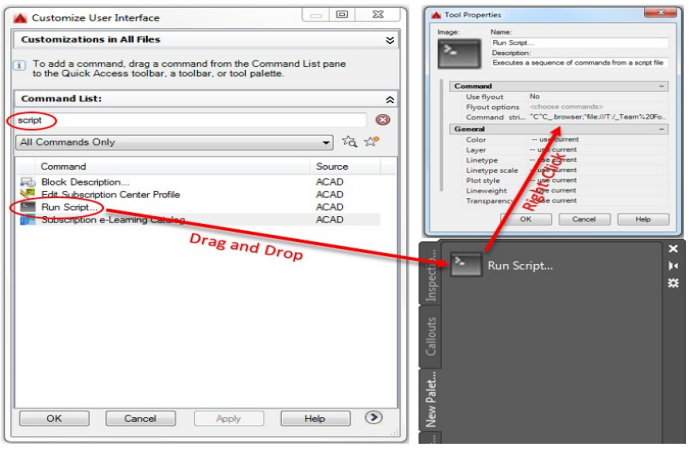
Once Design Center locates the hatch files we can add the patterns similar to other tools. Click on one of the .pat files and the associate patterns will populate on the right hand side. Drag and drop any of the patterns from this window onto the palettes. We can also right click on the file to create an entire palette of the nested hatch patterns at once.

Additional Content Tools

Links and references to outside sources including PDF documents and training videos can also be added to Tool Palettes. This content will open in your default web browser and provides easy access to reference material you might want to share. Creating tools like this will help centralize the content as well as make sure each user had access to the same information.

Creating a shortcut to open content from a Tool Palette requires some knowledge of macros but is simple. Right click over the palette window and choose “Customize commands”, within the search box type “script”. Once found drag and drop the Script command onto your palette, and yes do this before changing anything. Now close out of the command dialogue box and right click on your new tool to open ‘properties’. To add the macro, right click on the tool and choose ‘Properties’. Now add the following text to the ‘Command String’ field:

```
^C^C_start "explorer" "C:/AutoDesk_University_2019/CAD_Standards.pdf";
```



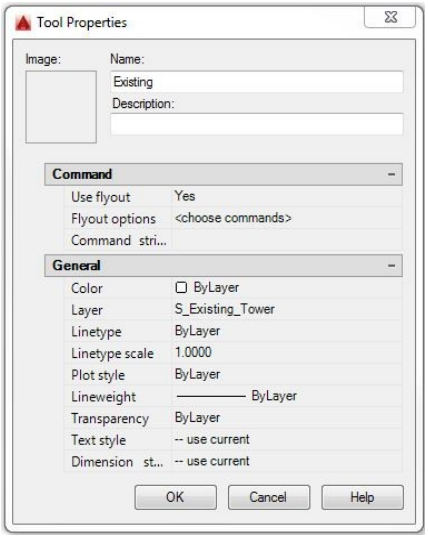
Since this isn’t a “Programming” class so we won’t dive too much into the specifics but to give an idea here is what this command does, most of this can be applied to other macros. First the command clears active commands twice (^C^C), next it starts and looks for the associated document in windows explorer. It does this behind the scenes; we will not actually see the windows explorer window open. The semi-colon (;) at the end essentially stops the command but can also be used to separate multiple commands if needed.

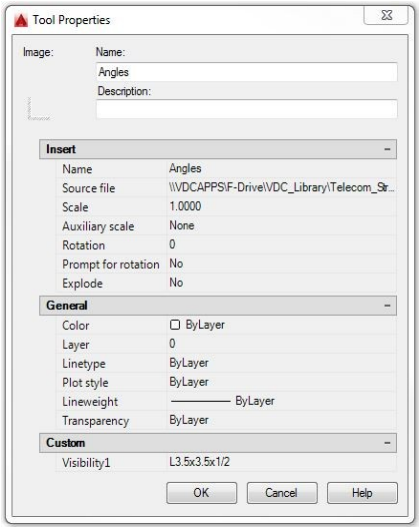
When you are done, click ‘OK’ to close the Tool properties window and click on the button to try it out. If we have done this right, your default web browser will now open the ‘CAD_Standard.pdf” document.

Tip: We will need to switch the back slash (\) to a forward slash (/) in the path to the content. Back slash will add a pause for user input to the command.

Modifying the New Tools

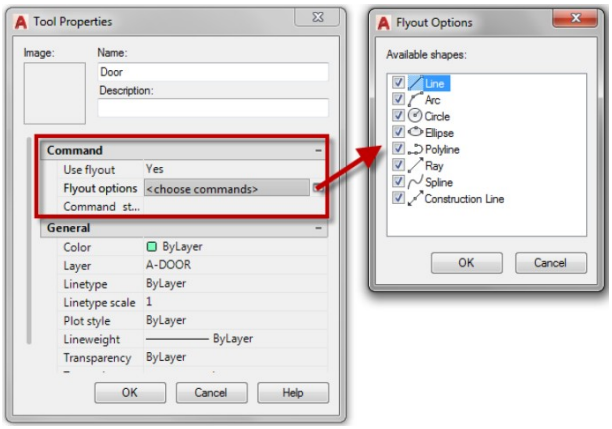
All of the tools have their own right-click menu options for additional ways to customize the look and function of the tools. A majority of the options in the menu are your basic customizing options such as cut, copy, paste, and move. The “Properties” menu is where most of the magic happens. The menu options will change slightly based on which tool is selected. The following image shows a couple examples of the properties windows.





Using these menus we can change the tool properties without opening the source file. Earlier we discussed setting up the tools using company standards before adding them to the tool palettes, which is still the best method. These options will allow us to customize the tools for the one-off situations where we might need the tool to be slightly different.

The ability to set the scale factor or rotation the object will be inserted before we add it to the drawing are probably two of the most beneficial options found in the menus. These properties will begin the next time the tool is inserted and will not change any previous properties that the block was inserted with. They will continue to be inserted with the most recent properties until they are changed again



A few other items within the menu include Fly-out options, command strings (macros), Description, and visibility state options. Fly-out options give us the ability to set which tools will be available from the drop down list when available. A tool with these options will always start with the full list checked and by unchecking them; we can eliminate the ones we may not want to use.

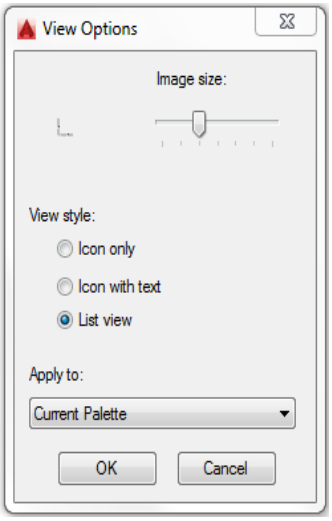
Tip: Giving a tool a description will show up as a tool tip when you hover over it on the palette.

Moving and copying tools

In an active palette a tool can be moved by clicking and dragging it to a new location. A bold line indicates the new location; the tool being moved will also appear as a silhouette above the line. The user can also copy tools from one palette to another by using the copy or cut commands, cut will automatically remove the tool from its current palette. Paste will make a copy or relocate the tool to another desired location. All of this is very similar to using any Microsoft based programs.

Changing the Looks

AutoCAD has built in the ability to customize the looks of the tools to suit the individual user. Right clicking in the palette window and selecting “View Options” and you will get the dialogue box on the right. Here we can change the tool Image size and what is shown for the tool.



Once the user is done making changes simply choose whether they are to be made to the Current Palette or to all Palettes in the dropdown menu and click OK. The user can make these changes even if the tool palette itself is locked.

We can also change the default image to a custom one of our own desire. This is mainly helpful when setting up custom commands and tools to indicate what the tool is, or if you just want to have some fun with your co-workers.

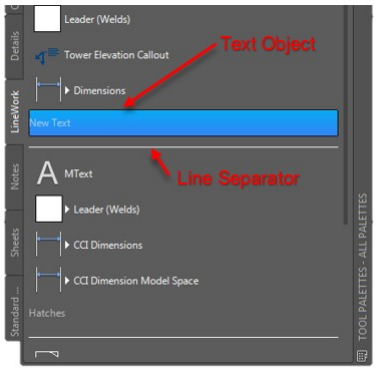
Tip: We can change back to the default images in the right click menu.

Tool Organization

Tool Dividers

Sometimes there might be a need to separate the tools or we might want to organize them on the palette so the content is easier to manage. There are two items within the right-click menu that can help us achieve this, “Line Separator” and “Text Object”.

To add a line separator right click in the palette window and select “Add Separator”. The line will be added to the window at the location that you clicked, do not worry it can be moved. Just like all of the other tools, we simply just click and drag the line to where it is needed.



Now that the tools are separated, we might need to let the users of the content know what the line is separating. We can add a text description near the line to help to clarify what comes next. In the same manner as adding the line separator just right click and select “Add Text”. Change the default “New Text” to whatever description is needed and click anywhere outside of the text box. This also can be moved easily by clicking and dragging to a new location.

Re-arranging Tools

When you re-arrange tools on a palette, AutoCAD does not overwrite the original format of an existing palette. Therefore, any changes you have made to the tool order will not be the same when AutoCAD is restarted, annoying right. AutoCAD saves the changes order in what is called a display file and it is not a permanent change to the palette order. This file is stored locally and will not share to other users.

There is good news! The fix for this is easy:

1. Make your changes to the desired palette.
2. Click once with the left mouse button anywhere on the palette
3. Use CTRL+A to select everything on the palette.
4. Use CTRL+X to cut all the tools on the palette
5. Create a new palette and name it accordingly
6. Use CTRL+V and paste the tools to the new palette
7. Delete the old Palette
8. Save and close to write the changes out

Cutting and pasting the tools back in forces AutoCAD to save the tools in the current order and deleting the old palette will remove duplicate palettes and tools.

Saving Changes

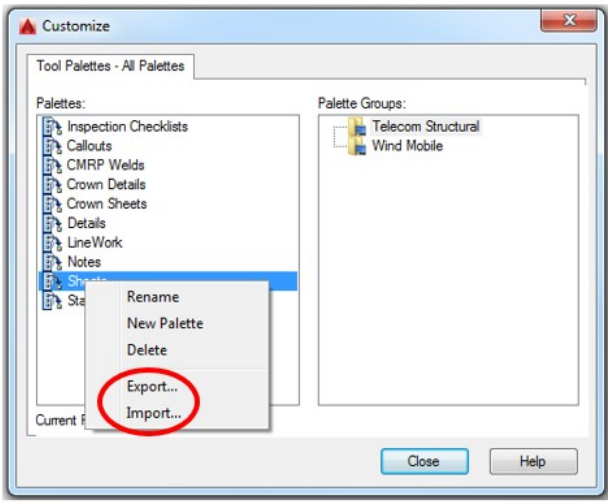
I have mentioned throughout this tutorial, and will continue to, the importance of saving and closing AutoCAD when changes are made to the palettes. This is the only way AutoCAD will keep the changes that we have worked so hard on. At the same time that saving is a benefit it can also be a curse. If everyone has access to the new palettes that were created then everyone can change them. This is where locking and sharing them comes in handy.

Tool Palette Sharing

Simply put this next section is probably the most important to all of us, sharing the great tools we have just set up with the rest of the company. There are many ways to do this and how you set them up at your company depends of the format and how much control you have over network folders. I hope that everyone has a great IT department to help you out.

Import/Export Palettes

First, the simple method, using the “Import…” and “Export…” functions within the “Customize Palettes” option. To start right-click on the palette title bar and find “Customize Palettes” and you will see the below dialogue box open. Once in here we can then right click on the desired palettes and choose what we want to do.



The manager or palette creator can “Export” the palette to a shared folder on the network and then notify the user(s) that it is available. Exporting the palette creates an .xtp file in the selected folder location. The user(s) will then have to locate the same menu from the palettes, select “Import”, navigate to the folder on the network, and finally select the palette file. It does have its benefits for smaller applications but can be a more tedious way of sharing palettes for larger groups.

Import/Export Palette Groups

Sometimes we will want to “group” palettes together based on the type of work we are completing or content that relates to each other. Using the group function, we can do just that. In the previous photo on the right hand side of the window titled “Palette Groups”, right click here and select “New Group”. Give the new group a name that indicates the tools that will be saved on it.

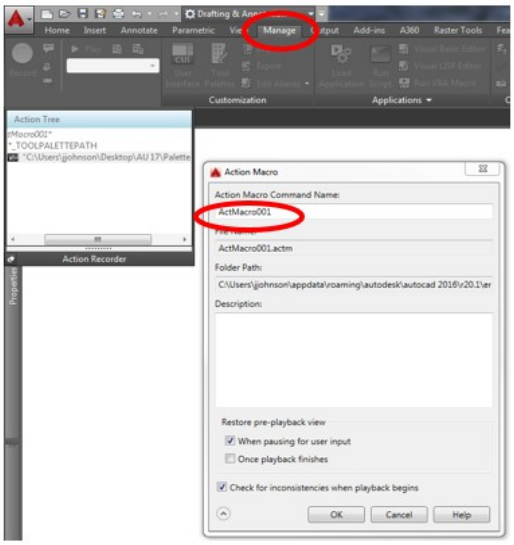
Once the group is available it is easy to add the palettes from the left side to the group on the right. Simply just, click and drag the palette from the left hand column and drop it under the group you want to add it to. Palette groups can be imported and exported for sharing in the same manner as individual palettes.

Tip: The individual palettes need to be imported before the palette groups or the groups will not load properly.

Demand Loading Palette Groups

We can make switching between palette groups easier by using Macros to set up custom commands that will change the palette file location. Under the manage tab find the “Action Recorder” panel and hit record. At the command line type “*_toolpalettepath”, we then are prompted to enter a new location for the tool palettes. We can copy the file path from Windows explorer, paste it into the command line, and then hit “Enter”. Once completed click stop on the Ribbon and the “Action Macro” dialogue box will open.

Tip: The command *_toolpalettepath is a hidden command, using the * first indicates a hidden variable to CAD.



In this window, we can give the macro a command name, view the folder path, and give a description. Once we are satisfied with the options here click OK, the macro is now stored with the command name you gave it. As a word of caution if the name given is the same as an existing command or alias in AutoCAD it will overwrite the existing one.

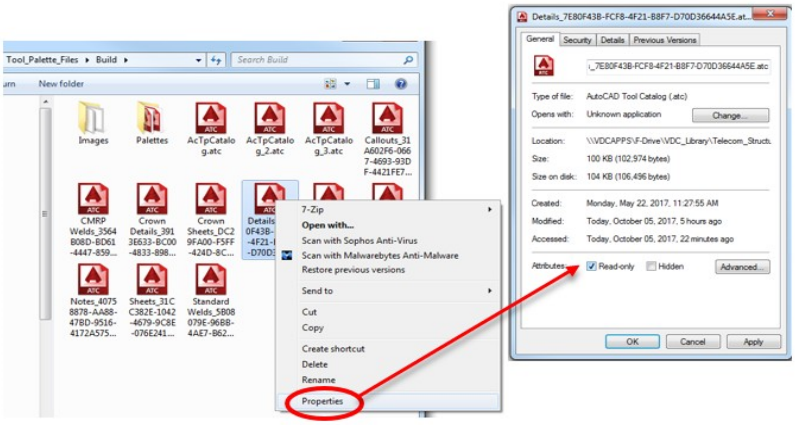
Now loading the palette group is as easy as typing in the command name and the file path will be changed. We can also add these new commands as buttons on our tool palettes using the "Run Script" command and adding the script into the tool to save it to the palette.

Tip: Writing out the command steps in word or txt document can speed up the Action Recording process. You can just copy and paste the text into the command line to record the process.

Network Sharing of Palettes

The previous methods discussed are good for just about any user and in about any situation. The next couple of ways we are going to discuss are for sharing Palettes over a company network. We should have already saved our "Build" folder to a shared network location. If not that is the first step that needs to be done to share across a network.

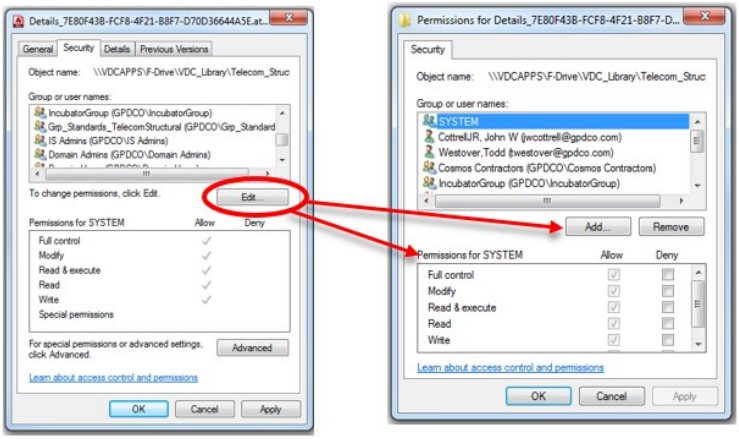
Assuming we have created all of our tools, the next step is to create another folder in the same directory as the "Build" folder, let us call this one "Deploy". Copy the content of the Build folder and paste it into the new "Deploy" folder. All of our .atc files and the "Images" folder should now be in this folder.



Now we want to lock our palettes to protect other users from changing them. To do this right-click on the palettes that need locked (or ctrl+A for all) and select "Properties". Within the properties window, under the "General" Tab, find the "Read-Only" box and click the box. Close out and restart CAD and the palettes are now locked for editing

To make the above method work all other users will need to have their palette file location set to the "Deploy" folder. This method is good for networks where all users have access to save files in the network folder.

This next method is very similar but might involve a little more IT help depending on how the company network is set up. With the same assumptions as above, let us again right click on the “Build” folder and go to properties. This time navigate to the Security tab at the top of the dialogue box and click edit to change permissions. In the second dialogue box, we can Add/Remove users to set the read/write permissions for the folder.



This creates a few benefits over the previous method of individually locking the folder or individual palettes. If we limit the read/write access through the folder permissions, we can get away with only creating one folder on the network for the palettes. Since only one person, most likely the CAD manager, would then be able to write to the palettes folder we reduce the chance of someone accidently overwriting them.

Tip: Using this method eliminates the need to copy and paste from one folder to another every time there is a change that needs added.

Summary

As a production tool, incorporating palettes to manage content and training material for users is probably one of the most effective ways to accomplish that. Making this content available to all users seamlessly will increase efficiency and productivity of the users. Between the ease of customization and the editing features there are not very many limits to the content we can streamline. Tool palettes continue to be one of my favorite features in AutoCAD and are easy to use and set up.