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## The Productivity Power of AutoCAD® Tool Palettes Revealed!

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**GD215-4P** There is more to Tool Palettes than just a quick way to add blocks and hatch patterns to your drawing. Palettes provide the shortest, most efficient way to increase your productivity without programming. In this session, you'll learn hidden techniques to migrate your standards, build custom commands, and create AutoCAD objects into powerful Content Tools. You'll also learn the secret of how to create and manage shared palettes securely as an enterprise solution for your company standards. This session is for any user of AutoCAD from 2004 on, who wants to gain a comprehensive understanding of and full productivity using AutoCAD Tool Palettes.

### About the Speaker:

Matt has been recognized by Autodesk as a leader in providing professional training since 1985. He has served as an advisor and consultant to the training industry as chair of the Autodesk Training Center Advisory Board (ATCAB) and Executive Committee (ATCEC). Matt is also an Autodesk Approved Instructor (AAI) and a Certified Technical Trainer (CTT). He has received numerous instructional awards, including the ATC Eastern Regional Instructor of the Year for 2004. A widely acclaimed top trainer and featured columnist for *CADalyst* and *AUGIWorld* magazines, he has presented at Autodesk University for 14 years and was the top Autodesk University speaker in a large session for 2006.

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## Introduction

### What are Tool Palettes?

Tool Palettes have been incorporated into AutoCAD since the 2004 releases. They were originally designed to provide an easy way to create, access and insert blocks and hatch patterns. Since Autodesk released the Tool Palette Extension for AutoCAD 2004 and released AutoCAD 2005 there is now increased functionality such as Command Tools, Object Tools, Content Tools, Table Tools, Fly-outs, Palette Groups and true drag and drop creation from inside AutoCAD and outside AutoCAD with Microsoft® directory sources.

### Why use Tool Palettes?

Most users don't take the time or get the proper training to understand the power of palettes. But those who learn and apply palettes become more productive. Most users will never go back to using pull-downs and toolbars. The main benefits of Tool Palettes are:

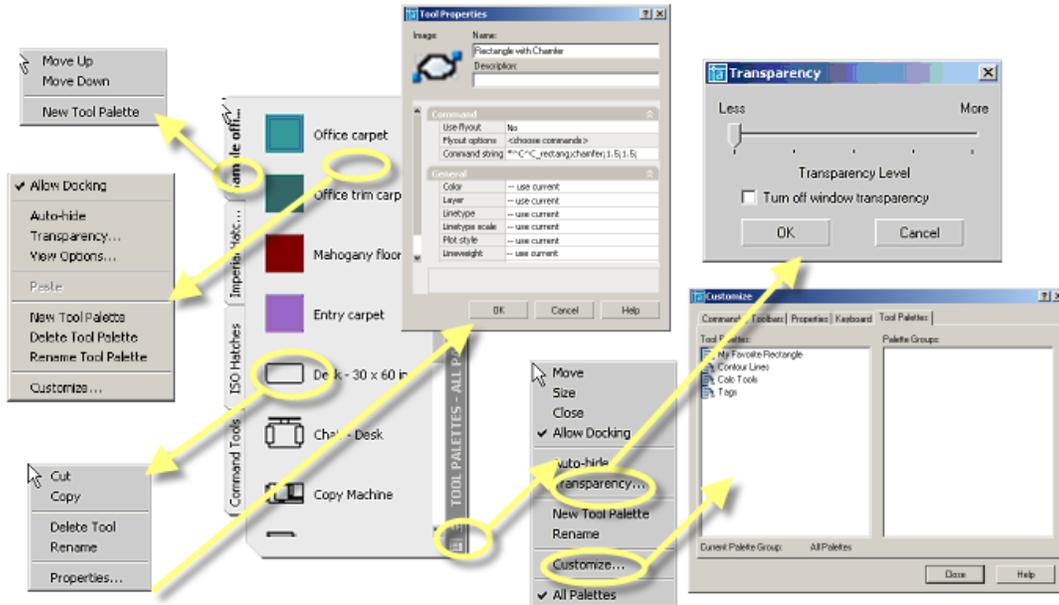
1. Easy customization without programming.
2. Palettes are also a great way to regain some of the screen real estate. Unlike toolbars, they can be docked, float, automatically hide and even be made transparent.
3. Tool Palette "tools" can be organized or grouped into tabs. This avoids multiple toolbars or pull-downs.
4. Tool Palettes make it easy to maintain company standards. They ensure accuracy and reduce rework due to items being drawn with the wrong color, layer, linetype, scale or style.
5. Finally, Tool Palettes will make you more productive because you will now use fewer clicks and picks. Reducing repetitive steps, clicks and picks is how you become more productive working with AutoCAD.

What I'm about to show you are many popular and some little-known secrets of Tool Palettes. I guarantee that the techniques I will demonstrate will allow you to create a variety of tools that will make you more productive.

**SECRET REVEALED:** When in doubt right-click! AutoCAD has many imbedded menus and features. Some are not as obvious as others. I always try to right-click on an object, menu or tab. This is especially true for a dialog box. As you shall soon see, there are many hidden features of Tool Palettes.

## Understanding Tool Palettes

Let's first begin by looking at the Tool Palette window.



The Tool Palette Window includes a title bar with several controls and individual Tool Palettes. The controls for the Tool Palette Window, the Tool Palette and the tools on the palette as well as the properties of the tools are all controlled by a right-click. Shown above are all the locations you can right-click to bring you into the pop-up control menu.

Using the controls on the title bar, you can close the Tool Palette Window and turn on auto-hide (i.e., roll it up when inactive), as well as making Tool Palettes transparent.

You can scroll through the block, hatch and command content of the sample Tool Palette using either the scroll bar or the cursor. The cursor changes to a hand when it is not on a tool, allowing you to press, pan and scroll. You can also resize the Tool Palette Window by stretching it along any corner. You can move the Tool Palette to any location on your display or even outside the AutoCAD window by holding down the Ctrl key. Moving the palette to the left or right side of the AutoCAD window will allow it to automatically dock, if you select “Allow Docking.” Transparency and Auto-hide are also controlled through the palette property.

Since AutoCAD 2007 we can now “Anchor” palettes so they take up less space than a toolbar!

**SECRET REVEALED:** The palette window will also remain active when floating, even when the AutoCAD window is resized. (This tip will be helpful when you are creating content tools outside of the AutoCAD environment.)

## Working with Tool Palettes

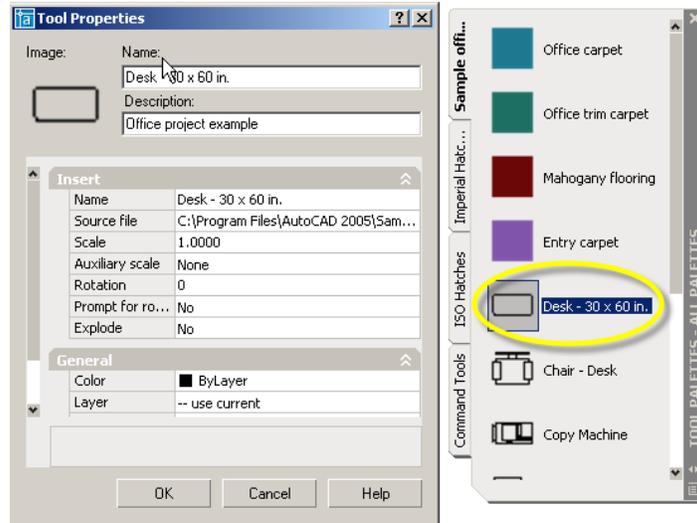
Before you create your own tools, let’s look more closely at the sample tools that come with AutoCAD. This way you’ll learn how to build your own perfect beast!

### Loading the Tool Palette Interface

The Tool Palette interface can be displayed by a variety of methods. You can turn the Tool Palette window on or off from the Tools pull-down menu, the key combination Ctrl+3 or by the TOOLPALETTES or TOOLPALETTECLOSE commands. You can also use the TP command alias.

### Modifying an Existing Tool

Making a change to any existing tool is always the same, no matter what type of tool is being edited. All tools share the same common properties. Follow the steps below to edit a tool.



Simply locate the tool that you want to edit on the Tool Palette Window, right-click over the tool and select “Properties...” from the shortcut menu. Now you can change the Properties for the tool. Once you’ve made the changes, click OK to accept the changes or Cancel to exit and ignore changes to the tool.

You can change color, layer, linetype and linewidth properties as well as the object properties. Once changed, the tool will now function with the new properties for all future uses of the tool. Prior instances of the tool within the drawing will remain with the previous tool properties. In other words it doesn’t work like redefining a traditional Block.

**SECRET REVEALED:** Renaming a tool does not redefine the tool. Changing the name under tool properties just makes the tool easy to identify on the palette.

### Making a Copy of an Existing Tool

You will notice that working with Tool Palettes is a very familiar process. Autodesk has implemented Microsoft standards such as Cut, Copy and Paste. To make a copy of an existing tool, simply locate the tool that you want to edit on the Tool Palette Window, right-click over the tool and select Copy from the shortcut menu, right-click again and select Paste. You can also select another tab that is part of your current Tool Palette set and paste it to that tab.

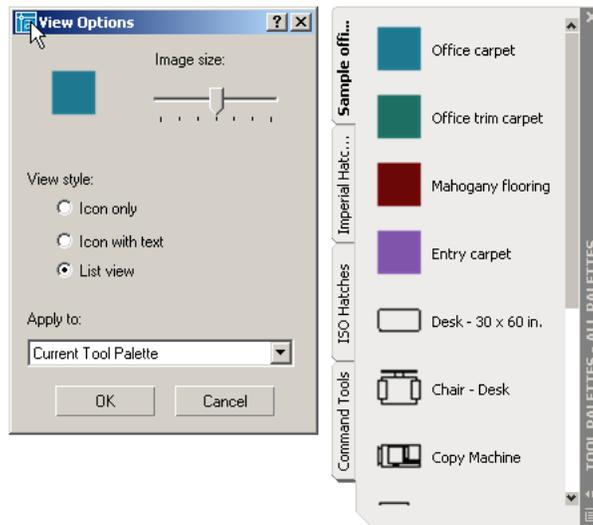
### Moving a Tool

You can Cut a tool to remove it from one Tool Palette and then Paste it to relocate it onto another tab in the Tool Palette set. The order of tools can be changed by holding down the left

button on a tool while dragging it around on the current tab. You can tell where the tool will be relocated by the bold line that shows up in the Tool Palette area as you hold the tool and move the cursor.

### Changing the Look

Tool Palettes can be represented with several different looks and each tab can independently have a different look. From the View Options dialog box you can change the image size and whether items are displayed with or without a description, and the View Options can be applied to the current palette or all palettes. You can also apply a “view” to all palettes, giving you consistency in the look and feel of the tools.



To change the appearance of a Tool Palette or a set of Tool Palettes, simply select the tab that you want to change, right-click over the tab, or on an empty area of the tab, and select the “View Options...” from the shortcut menu. Now you can change the View style to the way you would like to work. Once you make the changes, click OK.

**SECRET REVEALED:** You can apply the View style changes to the Current Tool Palette or to All Tool Palettes by changing the drop-down in the “Apply to:” window. This makes it easy to create consistency from one palette to another.

### Making Palatable Tools

Following the lead of Microsoft you can create a tool on a palette with the “drag and drop” technique. So what are the types of tools you can create by this technique?

#### Block Tool

The Block tool allows you to insert a block into a drawing that has created as either a block within a drawing or as a drawing file (dwg). Blocks have been around for a long time and Tool Palettes add a new twist to an old idea. For instance, it is no longer necessary to create a WBLOCK in order to make a global block. Simply drag and drop a block from your current drawing, from Windows Explorer, DesignCenter or even from your Internet browser onto a palette. You can even control the insertion properties of the Block from within the tool. These extended techniques are also known as creating a Content Tool.



### **Hatch Tool**

The Hatch tool allows you to drag and drop a hatch pattern into a closed boundary in your current drawing session. Like the Block Tool, you can specify all the properties for applying the hatch, such as color, layer and scale. Again, you can create a Hatch tool by simply dragging and dropping an existing hatch pattern from your current drawing or multiple patterns from DesignCenter. When applying a Hatch from a palette, you can apply it to only one closed area at a time. Unlike the Bhatch command, there is no way to pick multiple areas for hatching. Gradient Hatch can also be added as a tool in AutoCAD 2004 with Extensions and in AutoCAD 2005. Remember the Gradient Hatch is actually color fills, not hatches.

### **Fly-out Tool**

The Fly-out tool works in a similar fashion to a Fly-out on a Toolbar. A Fly-out allows you to use a group of tools that are common in use. Dimension tools are an example of a Fly-out tool. Each tool's properties can be modified, giving you power and control over its use. Currently there is no easy way to build a custom Fly-out directly on the Tool Palette. I would imagine that we may see a way to create and assign custom Fly-outs in a future release of AutoCAD (did someone say "wish list"?).

### **Command Tool**

The Command tool works just like a Toolbar button. A custom image and a user-defined macro that can contain a command string with options can be assigned to the Tool. You can even put AutoLISP code in a command tool, provided you are not using AutoCAD LT. The command tool can even be created from existing objects within your current drawing. Unlike using a toolbar button, when you create a command tool from an object, you maintain all the physical properties of that object. Those properties are applied with any future use of that command. I like this for creating Dimension Tools. With the "Customize" option set you can even drag and drop commands from the CUI.

### **Content Tool**

Content tools are the most misunderstood of the palette tools. This is probably because you need to think outside the AutoCAD box to create them. Just about any place you can find AutoCAD content, you can place it as a tool on a palette. This includes Microsoft Windows Explorer and Internet Explorer, and opens up exciting possibilities.

### **Table Tool**

The Table tool allows you to specify the creation of a Table object. Tables are new to AutoCAD 2005 and are a great way to set up standards if you create lots of charts or tables for your designs. This tool also supports and maintains the original properties of the table when added to the palette.

## **The Power of Content**

Tool Palettes don't make you go out of your way to create content, although you can go out of AutoCAD to find it. This technique of managing tools and content is new to most AutoCAD users. Tool Palettes allow you to tap into the content that has already been established. You'll need to think out of the AutoCAD box to understand the power of using this new style of interface. Below are many of the ways to populate your Tool Palettes with Content Tools.

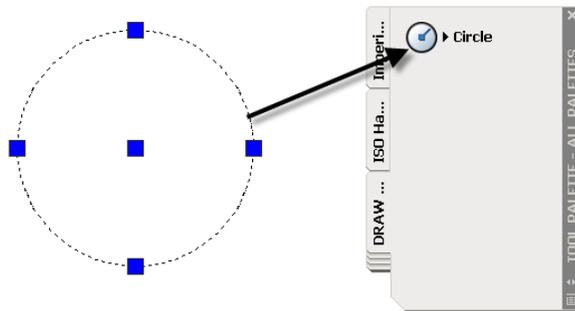
### Drag and drop

A finished drawing contains the guidelines and company standards that were used to create it. So the objects in the drawing can be used to build new tools to help adhere to these standards for future projects.

When some object types are added, they display a small black arrow just to the right of the tool button. If you click on the arrow, a small fly-out appears similar to the one that is associated with a Toolbar button.

Once the tool has been added to the Tool Palette, its properties can be accessed by a right-click over the button and selecting Properties from the menu. The General Section shows the properties of the original object that was used to create the tool.

There are a few objects that cannot be added to the Tool Palette. If you try to add a Solid, for example, or another type of content, the cursor will be changed to display a circle with a line through it.



### DesignCenter (ADC)

Now let's go back to AutoCAD 2000 when Autodesk introduced DesignCenter. Back then, AutoCAD Design Center (ADC) added a way to reuse information from existing drawings. However, it was a poor way to ensure that drawing standards were being used. DesignCenter allows you to steal or cannibalize content from one drawing into another. Although powerful, it gives you almost no control. For example, blocks are placed on the current layer only. Hatch and Block tools give you much more control for consistency and maintaining standards for each.

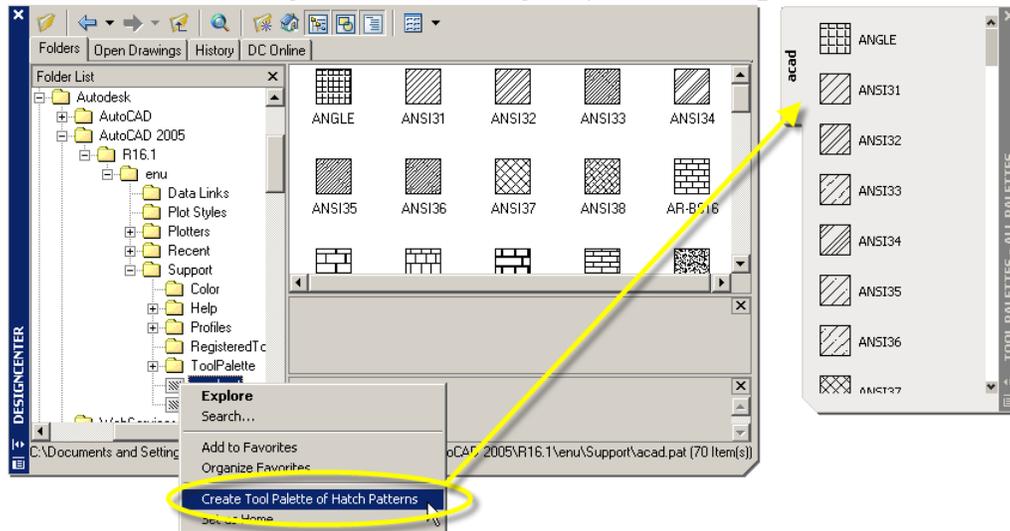
There are two types of tools that can be created from the content found in DesignCenter. These tools are Hatch and Block tools.

### Creating a Hatch Tool

There are two ways to add a Hatch tool to a Tool Palette. The first involves creating/adding a Hatch object to the drawing. Simply drag and drop an existing Hatch pattern in your drawing onto the palette. The second method involves viewing a Hatch Pattern file in DesignCenter and adding the pattern from there. To create a Hatch tool by the second method use the following steps.

1. Open DesignCenter by pressing Ctrl+2 or selecting DesignCenter from the Tools pull-down.
2. Right-click on any drawing file found in DesignCenter and choose search.
3. Choose "Look for" "Hatch Pattern Files." Then under "Search for the name" put in \*.pat to search for all pattern files. Make sure you choose all local drives for the "In" location.
4. Once the list comes up, choose the file by right-clicking. This way you can load the Hatch Pattern file directly into the Content Area.

5. Right-click in the folders window to load all the patterns into a palette. Or select the patterns in the content window that you would like on your palette and right-click to create the palette.



### Creating a Block Tool

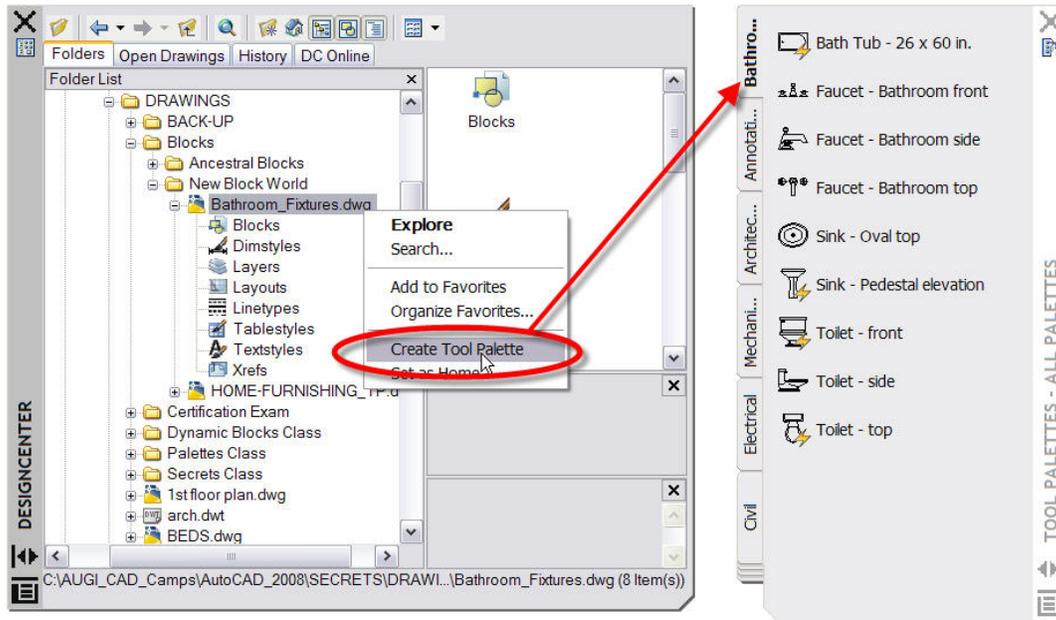
Blocks are by far the most popular method of customizing AutoCAD and building reusable content. They are probably the most common element that you might find on a Tool Palette due to the flexibility of the Block tool.

The power of the Tool Palettes' Block tool allows you to assign properties such as layer, color, etc. to the blocks on a palette. There are even more powerful properties of the Block tool that allow you to set rotation and scale and even whether the block should be exploded or not when it is inserted into a drawing.

The procedure for creating Block tools from an entire folder of our legacy blocks is easy. Right-click on any folder found in DesignCenter and choose Create Tool Palette. A new palette will be made from all the Blocks within that folder and the folder name will become the name of the palette.

Taking this process one step further with our new world of dynamic blocks, you can create Block tools from all the blocks that exist inside a drawing file. The procedure is very similar. Simply right-click on any drawing file found in DesignCenter and choose Create Tool Palette. A new palette will be made from all the Blocks within that file and the drawing name will become the name of the palette. All the blocks in the file, including the dynamic blocks, will be placed on the new palette.

**SECRET REVEALED:** You use this method for creating a palette of Block Tools from a single drawing file. You'll need to run Purge to remove all "Anonymous Name" block references. Failing to remove these will cause them to appear on the new palette.



Not only can you place blocks on a Tool Palette, you can also have an External Reference (or Xref) as a tool type.

**SECRET REVEALED:** You can also use the search feature discussed in Creating a Hatch Tool to locate a drawing file on a drive.

**SECRET REVEALED:** You can add an Image tool by dragging an image file from DesignCenter onto the Tool Palette.

**SUPER SECRET REVEALED:** You can also change the scale and rotation of a block tool without exploding or redefining the Block. Right-click on the Block Tool, choose properties.

### Windows and Internet Explorer

Autodesk enabled the use of dragging and dropping files directly from Windows Explorer onto a Tool Palette. This works in a similar way to dragging content from the DesignCenter to a Tool Palette. Some of the file types that can be dragged to the Tool Palette from Windows Explorer are drawing files and image files.

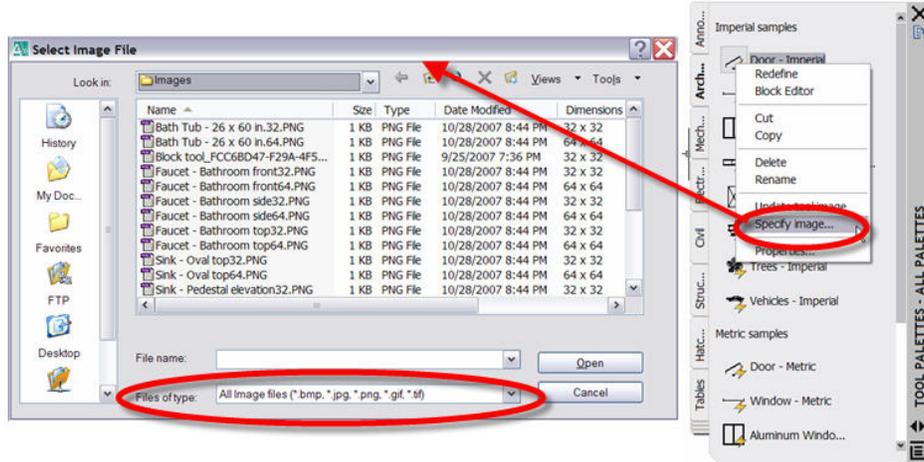
### Toolbars and Customized Command

I think that the power of Tool Palettes will surely replace Toolbars as the preferred way to work in AutoCAD. You can start adding commands onto Tool Palettes now! Autodesk enabled the Tool Palette Extension for AutoCAD 2004 to have the ability to add content from the Customize dialog box or existing Toolbars. Follow these steps to add a Command tool.

**SECRET:** Tools can be created from Toolbar buttons as well. Just bring up the Customize dialog box and start grabbing content from open toolbars. Fly-outs cannot be dragged from a Toolbar onto a Tool Palette but command tools can. Fly-outs are automatically created but can be shut off by changing the property of the Tool.

## Replacing a Tool Image

In AutoCAD 2008 you can now replace the image of a tool with a right-click on the tool itself. Replacing a tool image is done when the tool is so dense, it is too difficult to see or distinguish.



AutoCAD 2008 supports most common image types. Simply choose the replacement image and the picture of the tool will update.

**SECRET REVEALED:** AutoCAD 2007 and prior does not support right-click image replacement, so you can open and modify the PNG files by locating the “Images” folder under the “Palettes” folder. Once you replace the files, the next reload of the palette will show the new tool image.

## Managing Tool Palettes

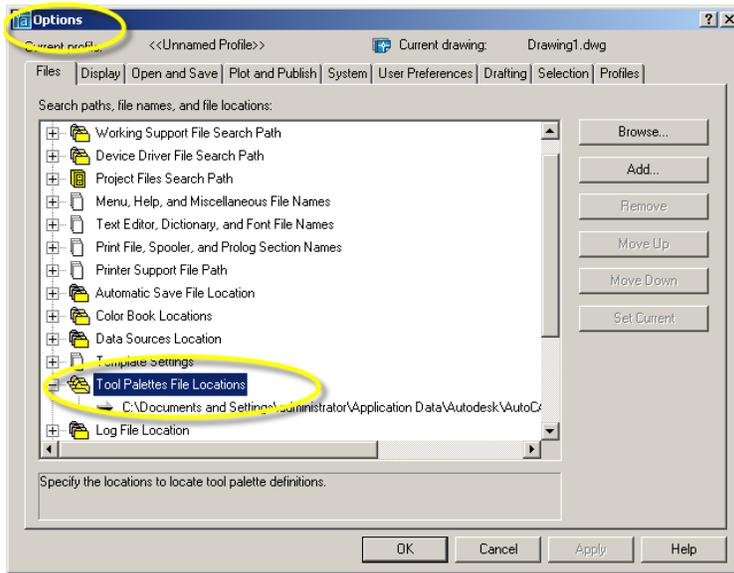
### Tool Palette Groups

Tool Palette groups are a way to simultaneously control the display of certain Tool Palettes. You might have a Tool Palette for electrical and another for plumbing when creating building plans. Maintaining organization used to be difficult as all palettes were open and active at once. But this organization problem has been resolved with the Group feature when customizing, if you’re using Tool Palette Extension in AutoCAD 2004 or AutoCAD 2005. By default, All Palettes is active.

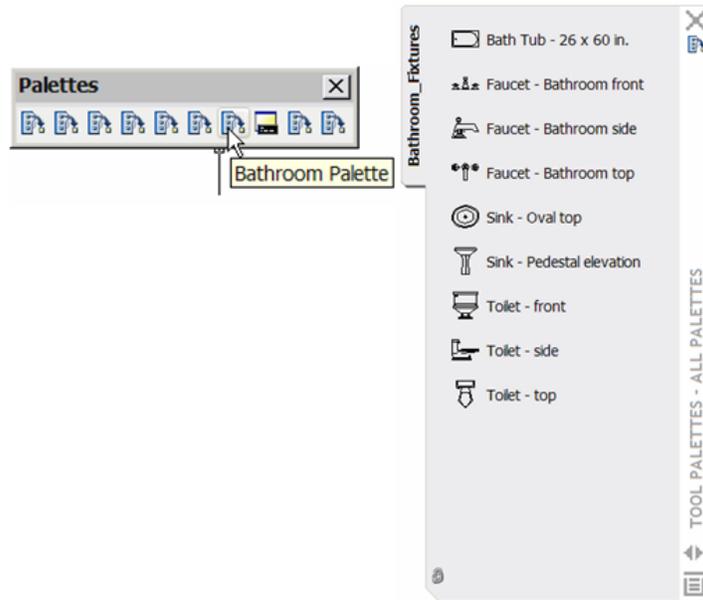
There are some problems with the group feature. Groups are not easily shareable with those using AutoCAD 2006 and prior, as they are stored with each user’s AutoCAD profile. But I have a solution for you!

### Managing Tool Palettes with Paths

Just like managing your support path statements in AutoCAD, you can set a Tool Palette path location and not use the group feature.

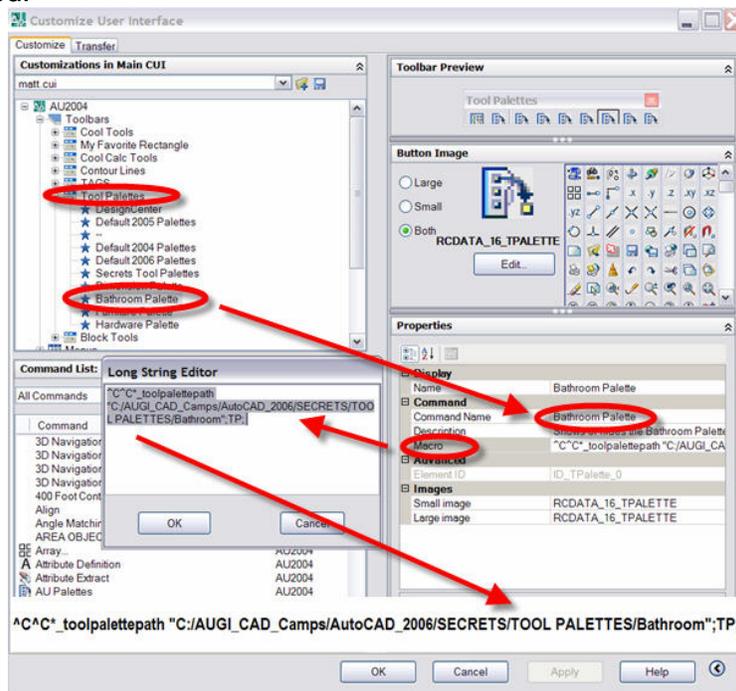


To demand-load palettes, you can set the Tool Palette path using the environment variable. Having multiple paths set with a small toolbar macro will allow you to switch between palettes. This technique uses an environment variable called `*_TOOLPALETTEPATH` and allows you to change the location AutoCAD is looking in for Tool Palettes. By default the location is: "C:\Documents and Settings\Application Data\Autodesk\AutoCAD 200X\R16.X\enu\support\ToolPalette".



To get this macro to work correctly you'll need to access the CUI to create a toolbar and new button to contain the macro. The secret to the macro is in three parts:

- 1- You need to add the star (\*) in front of the Toolpalettepath statement. The star tells AutoCAD that it is a hidden variable that needs to be active. Without the star, the setting will not work. I also add the underscore (\_) in front to tell the macro to run in English.  
\*\_toolpalettepath
- 2- Flip the back slashes to forward slashes in the path statement as the back slash is reserved for a pause and the macro will stop. Enclose the path statement with quotes.
- 3- Use the semicolon (;) as an Enter to set the statement.
- 4- I also add the (TP) to load the Tool Palette window.
- 5- Repeat this process to create additional buttons for all the different palette folders you have created.



If you copy the local Tool Palette directory to a secure location on the network, you can use a macro like the one below with a Toolbar button to switch to that location. This gives the illusion of groups, but in more of a manageable way: `^C^C*_TOOLPALETTEPATH "H:/Tool Palettes/Electrical Tools"`. You will also automatically get the padlock in the lower left corner of the palette window, showing the palette is locked (shown above).

**SECRET REVEALED:** You could also create a Command Tool which could be used to switch between different directories of Tool Palettes paths. You can use this method to share Tool Palette content while allowing users to add and manage their own content by having multiple Tool Palette paths, like this macro: `^C^C*_TOOLPALETTEPATH "C:/Documents and Settings//Application Data/Autodesk/AutoCAD 200XR16. X/enu/support/ToolPalette,H:/Tool Palettes/Site Plan Tools"`.

**SUPER SECRET REVEALED:** You can also create a blank palette window with no tools by setting a path to an empty folder. AutoCAD will automatically build the necessary XML content as an ATP file with support folder locations for images. It's that simple.



**ALL-KNOWING SECRET REVEALED:** This previously mentioned technique for managing Tool Palettes will work with ALL release of AutoCAD and AutoCAD LT from 2004 to 2008! Unfortunately for AutoCAD LT, users you cannot create a custom button macro. But path statements can easily be cut and pasted into the Tool Palette Path under the Options dialog box.

### Importing and Exporting Tool Palettes

A Tool Palette is exported and imported through the Customize dialog box. This is the same dialog box that is used for adding and modifying both Toolbars and Accelerator Keys.

You can specify both a name and location for the exporting of the Tool Palette. AutoCAD creates an XTP (eXported Tool Palette file) and a new folder containing the images for the tools. (I always wished toolbars did that.) If some images do not appear they were probably created from toolbar buttons. Darn! Also, since these tools use absolute paths in the tool, AutoCAD does not pull this information together when exporting a Tool Palette. This is why I mentioned earlier that Tool Palettes could be shared as long as the drive path in the tool property is the same.

To import a Tool Palette is pretty much the same as exporting a Tool Palette. Select Import instead of Export and the Import Tool Palette dialog box will come up. Browse to the location in which the XTP file and its associated images are stored and select it.

Once the XTP file has been selected, click the open button and the Tool Palette will be added. This will not overwrite an existing Tool Palette, if one with the same name already exists.

**Note:** The technique listed here is for “vanilla” AutoCAD only and has some release dependencies. For example, Tool Groups are not exported in AutoCAD 2004 or 2005 releases. Also, Architectural Desktop (ADT) and Autodesk Building Systems (ABS) do not have an Import or Export option like the ones found in AutoCAD 2004 and 2005. This works ONLY for “vanilla” AutoCAD 2006 and higher!

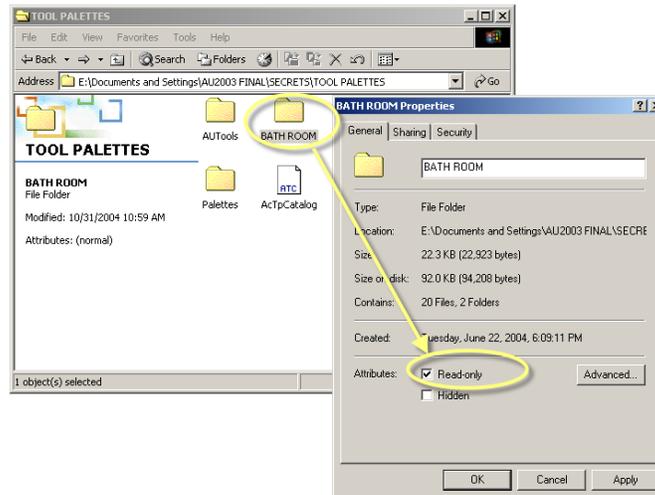
### Sharing Your Cool Tools!

Tool Palettes can be shared with others by exporting and importing, from one machine to another. The cleanest and easiest way is to copy and move the entire palette folder to a secure network location. Make sure other users have the same drive letter mapping for block tools when installing Tool Palettes on different machines. If the mapping is not consistent from your machine to another, the tools MAY not work. Block Tools on Palettes follow the same mapping search through the AutoCAD working folders.

**Note:** If your Blocks Tools do NOT work, make sure you add the path locations for the source files into your support path locations under Options... Files... choose “Support File Search Path” or “Working Support File Search Path”. This will fix those broken Block Tools when the “Source file” location has been moved.

### Protecting Your Tools

As I mentioned earlier, once you have created your content and set your palettes in a shared folder, you’ll want to protect them from being modified. Network drives can be set to read only and local drives can be set by right-clicking on the file in Windows Explorer and setting the properties of the folder to read only.



The next time you restart AutoCAD and open the Tool Palette Windows you'll see a small padlock in the lower corner.

**SECRET REVEALED:** Locking the Tool Palette folder only prevents the content from being changed. Individuals who have access to the folder that contains the definition will still have the ability to rearrange the tools on the palette as well as control the appearance of the palette.

**SECRET REVEALED:** When moving ATC files and folders to new locations, tools that appear in the palette will appear in the order in which they were created.

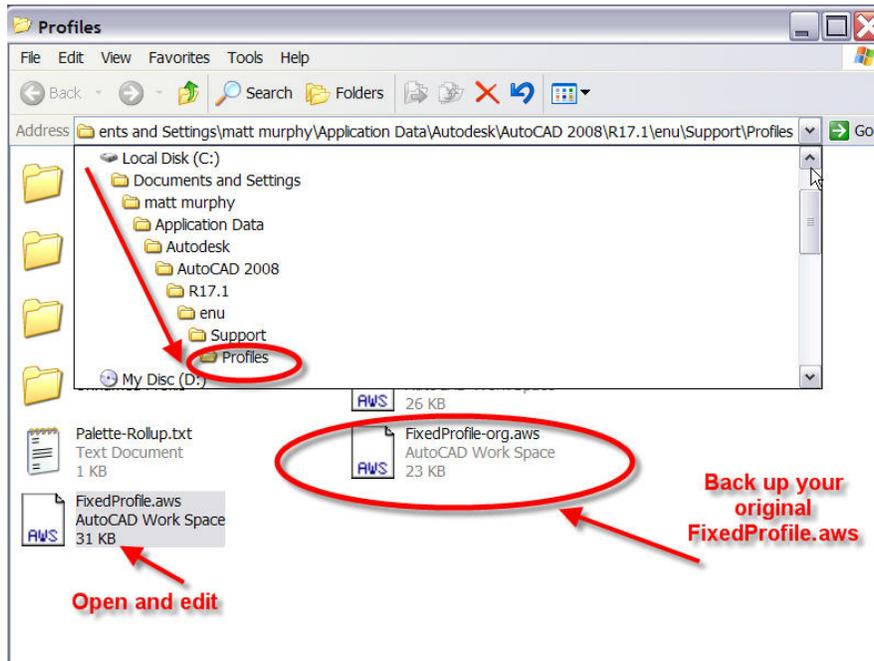
**SUPER SECRET REVEALED:** If you want to maintain the order of tools on shared palettes, you'll need to move the original profile (.AWS) file to the local machine. As long as the profile exists locally with the same name as the original profile, the .AWS file will maintain the order of the tools based on their most recent locations. Otherwise, with a little preplanning, create the palettes and the tools in the order you want them to appear. The last created palette and last tool created are the last in the list.

### Controlling Palette Rollup

Speaking of the fixed profile, everywhere I go, someone will ask me if there is a system variable that controls the rollup and rollout speed of not only Tool Palettes but the Property Palette and all other AutoCAD palettes when you "Anchor Left <" or "Anchor Right >". The answer is no, there is no system, drawing or environment variable to control this, but you can modify the fixed profile to get a slower or faster speed.

The timer settings for rollup, rollout and the new "roll out then rollup" (called "holdopen") are **stored in the fixed profile XML file**. By default, these settings are not specified and the programmed defaults are used. You can add these settings to the file by editing it to provide non-default values for each of these behaviors.

1. To make the changes, first back up the "FixedProfile.aws" file.

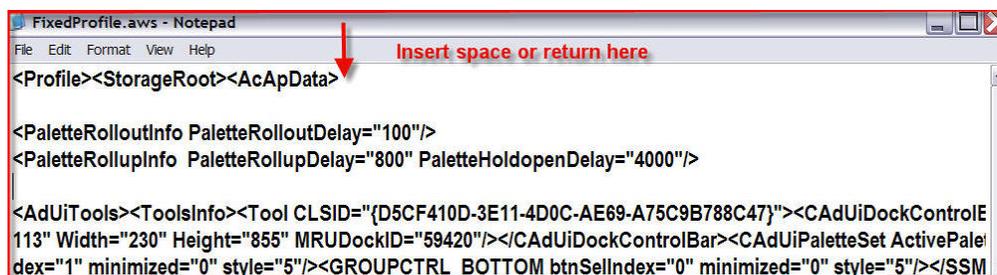


2. Open the FixedProfile.aws in Microsoft Notepad or any text editor. The file will be hard to read because it is not well formatted, but thankfully the changes to make are near the top of the file.

Search for the word “ **<AcApData>** ” (should be right at the top), and immediately after this string paste in the following:

```
<PaletteRolloutInfo PaletteRolloutDelay="100"/>  
<PaletteRollupInfo PaletteRollupDelay="800" PaletteHoldopenDelay="4000"/>
```

It's OK to insert carriage returns or additional white space in this file, but just be sure to not introduce any returns/spaces in the middle of a word (like "PaletteRolloutDelay" or value). The key here is to separate >< brackets only when they are nose-to-nose.



**Each of the values is specified in milliseconds.** In the sample above, the values provided are the same as the defaults (1/10th second rollout delay, 8/10th second rollout delay, 4 second holdopen delay). These changes are global and affect all palettes.



**So to change the holdopen delay to 3 seconds use:**

```
<PaletteRollupInfo PaletteRollupDelay="800" PaletteHoldopenDelay="3000"/>
```

You will need to restart AutoCAD for these changes to take effect.

**SECRET REVEALED:** Make sure you exit out of AutoCAD first before attempting to edit the FixedProfile.aws for two reasons. First, AutoCAD will only read this file upon start-up. Second, AutoCAD will rewrite this file upon close with all current profile settings. Any manual edits will get overwritten if you do not close AutoCAD first.

**FINAL SECRET REVEALED:** Changes that you make to the Palette speeds will affect all anchored palettes, not just Tool Palettes! That's wicked cool!

Special thanks to John Beltran of the AutoCAD Software Development Team for revealing the secret on how to change the speed of the Palette Rollout and Rollup.

**Summary**

I believe that the creation and incorporation of Tool Palettes into AutoCAD is the greatest productivity tool ever! If you learn to apply palettes you will never go back to using pull-downs and toolbars. Tool Palettes provide the easiest way to customize without the need for programming. You gain valuable drawing real estate and you can organize or group your tools into tabs. You can't do that with toolbars or pull-downs without tedious cascade and fly-out programming.

Finally, Tool Palettes will make you more productive because you will be able to do your design work with fewer clicks and picks. Reducing repetitive steps and reducing clicks and picks is how you become more productive working with AutoCAD, period!