



Autodesk® AutoCAD® Customization Boot Camp: No Experience Required

Lee Ambrosius – Autodesk, Inc.

AC1542-L Autodesk AutoCAD software can be extended in a number of ways, but many users are unsure of where or how to get started. In this lab, you learn to create custom desktop icons, modify the Ribbon and Quick Access toolbar, create and modify command aliases that can be used to start commands, record and play back action macros, and define tools and tool palettes to reduce repetitive drawing tasks. This lab gives you a solid foundation in customizing AutoCAD so you can be more productive when you return to your office.

Learning Objectives

At the end of this class, you will be able to:

- Create custom desktop icons
- Create command aliases and record action macros
- Define tools and tool palettes
- Modify the ribbon and Quick Access toolbar in AutoCAD

About the Speaker

Lee is a Principal Learning Content Developer on the AutoCAD® team at Autodesk and has been an AutoCAD user for over 15 years in the fields of architecture and facilities management. He has been teaching AutoCAD users for over a decade at both the corporate and college level. He is best known for his expertise in programming and customizing AutoCAD-based products, and has 15+ years of experience programming with AutoLISP®, VBA, Microsoft® .NET, and ObjectARX®. Lee has written articles for AUGI® publications and white papers for Autodesk on customization. He is the author of several books on AutoCAD and has been an active technical editor for the AutoCAD Bible series.

Twitter: <http://twitter.com/leeambrosius>

Email: lee.ambrosius@autodesk.com

Blog: <http://hyperpics.blogs.com>

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1 Introduction

AutoCAD is an extensive 2D drafting and 3D modeling program. The functionality of AutoCAD has grown since it was first introduced almost 30 years ago in 1982. What sets AutoCAD apart from many other CAD programs is its expansive capabilities of being customized and tailored to the workflows specific to the way a company works. These workflows might be to extract data from a drawing for use downstream in a bill of materials or to consume project information from something like a spreadsheet or database.

This lab provides you with the opportunity to roll up your sleeves and get some experience with customizing AutoCAD, so you can go back to your office and get more out of your company's investment. While it is true that you need to learn how to program to get the maximum benefits out of AutoCAD, you do not need to learn how to program in order to be more productive in the everyday tasks you are already performing.

2 Which Customization and Programming Options are Available

Not all customization and programming options are created equally, and some of the ways you can customize AutoCAD are so well integrated into the program that you might not even realize you are customizing AutoCAD. Creating new layers and styles are forms of customization that many drafters perform on a daily basis, and do not even realize that they are customizing AutoCAD. Saving the layers and styles to a drawing template can help to reduce repetitive tasks and errors.

The following lists many of the common customization and programming options that are available:

Basic

- Layers
- Annotation styles (text, dimensions, multileaders, and tables)
- Blocks
- Drawing templates
- Plot styles
- User profiles
- Workspaces
- Desktop icon customization
- Command aliases
- Tool palettes
- Materials and visual styles

Intermediate

- Scripts
- User interface (CUI Editor)
- Dynamic blocks
- Action macros
- DIESEL
- Custom linetypes and hatch patterns
- Custom shapes and text styles

Advanced

- Database connectivity
- AutoLISP / Visual LISP
- Visual Basic for Applications (VBA)
- ActiveX / COM (VBA, VBScript, VB.NET, C#, C++)
- Managed .NET (VB.NET, C#)
- ObjectARX (C++)
- JavaScript
- Sheet Set Manager API
- Custom CAD Standards plug-ins

3 What You Need to Get Started

Most of the customization and programming options that are available in AutoCAD are supported through utilities or commands that can be found inside the program or are installed with the operating system (Windows or Mac OS). It is when you want to extend the functionality of AutoCAD by using .NET or ObjectARX that you will need to purchase, download, and/or install additional software.

4 Desktop Shortcuts

Shortcuts, often found on the desktop, are used to open documents and start applications. Application shortcuts are commonly used to start an executable and pass additional parameters to an application that alters the way the application starts up. For example, when you install an AutoCAD-based vertical program, it uses command line switches to set a profile current when launched.

Customizing a desktop shortcut is done by changing its Target property. You can add one of 15+ different command line switches to the Target property for a shortcut that starts the AutoCAD executable. Multiple command line switches can be used at a time and they are not case sensitive. The following is the default execution/target of the AutoCAD 2014 – English shortcut:

"C:\Program Files\Autodesk\AutoCAD 2014\acad.exe" /product ACAD /language "en-US"

Some of the most useful and commonly used command line switches are:

Switch Name	Description
/language	Specifies which installed language pack to use. /language "en-us"
/nohardware	Disables hardware acceleration at startup. /nohardware
/safemode	Prevents the loading and execution of all executable file types in the current session. (Introduced with AutoCAD 2014 and replaces /nolisp which was introduced with AutoCAD 2013 SP1) /safemode

Switch Name	Description
/nologo	Hides the splash screen at startup. /nologo
/p	Sets a named user profile current that is loaded in the product or loads a previously exported profile (ARG) file. /p "<<Unnamed Profile>>"
/pl	Loads a drawing set description (DSD) file created with the PUBLISH command and plots the drawings listed in the file in the background. /pl "mypublish.dsd"
/product	Specifies the AutoCAD-based product to launch when AutoCAD installed side-by-side with a vertical product. /product ACAD /product ACA
/t	Specifies the drawing template to use for the default drawing. /t "mytemplate.dwt"
/set	Loads a sheet set (DST) file. /set "mysheets.dst"
/w	Sets a named workspace current if it is part of the loaded CUI file. /w "2D Drafting"

Note: When specifying a folder or file that contains spaces in the Target property, you must surround the path and file name with double quotation marks.

The following shows an example of suppressing the splash screen (/nologo), creating the default drawing based on the C-size.dwt drawing template file (/t), and setting the 3D Basics workspace current (/w).

```
"C:\Program Files\Autodesk\AutoCAD 2014\acad.exe" /product ACAD /language "en-US"
/nologo /t "C:\Datasets\Tuesday\AC1542-L Autodesk® AutoCAD® Customization Boot Camp
No Experience Required\C-size.dwt" /w "3D Basics"
```

E1 Create a Desktop Shortcut

See the Exercises section at the end of the handouts.

5 Command Aliases

Commands are the heart and soul of AutoCAD, but they take time to type in or locate in the user interface. While there have been improvements to the user interface ever since AutoCAD was first introduced, the Command prompt is still the fastest way to execute a command.

Unlike the user interface, command aliases have stayed relatively consistent for well over 12+ releases. This is why many AutoCAD veterans can execute a command often in less time than

a user looking for a command in the user interface, whether in the 'Classic' workspace or using the ribbon.

Command aliases are stored in a Program Parameters (PGP) file named *acad.pgp* and can be edited using a plain text editor, such as Notepad. Two separate pieces of information, an abbreviation and an AutoCAD command name, are required to define a command alias and must use the following syntax:

*abbreviation, *command*

The following are examples of common command aliases:

```
C,    *CIRCLE
E,    *ERASE
L,    *LINE
P,    *PAN
Z,    *ZOOM
```

When defining new aliases, Autodesk recommends placing them at the bottom of the PGP file to make them easier to identify which aliases need to be migrated after upgrading to a new release. If you add an alias that has the same abbreviation as another alias in the PGP file, the last instance of an alias is the one AutoCAD loads and uses.

Tip: You can use the Alias Editor (ALIASEDIT command) that is part of the Express Tools to define and modify command aliases in the *acad.pgp* file.

Command aliases can only be used to start a command and not start a command with a specific sequence of options. To start a command and execute a series of options, you will want to create an action macro or define a custom function using AutoLISP.

The following are examples of short AutoLISP programs that execute a command and specific sequence of command options.

```
;; Custom Zoom commands
(defun c:ZW () (command "._zoom" "_w"))
(defun c:ZP () (command "._zoom" "_p"))

;; Insert title block
(defun c:TB () (command "._-insert" "C:/Datasets/Tuesday/AC1542-L Autodesk® AutoCAD®
Customization Boot Camp No Experience Required/C-Size Title Block.dwg" "0,0" "1" "1" "0"))
```

AutoLISP code can be loaded automatically into AutoCAD by placing it in a file named *acad.lsp* and then placing the file in a path defined under the Support File Search Path node on the Files tab in the Options dialog box.

Note: Starting with AutoCAD 2014, you must also make sure that your executable files, such as a LSP file, are placed in a folder that is designated as a trusted location under the Trusted Locations node on the Files tab of the Options dialog box; in addition to being listed under the Support File Search Path node.

The PGP file also allows you to define external commands that are used to start OS applications from inside of AutoCAD. External commands are not as common these days since it is much easier to launch an application from the Windows UI, instead of from a DOS prompt.

The following is an example of an external command alias defined with the name EXPLORER and is used to start Windows Explorer or File Explorer:

```
EXPLORER, START EXPLORER, 1,,
```

For more information about external command aliases, see the beginning area of the PGP file or the AutoCAD Help system.

E2 Define Custom Command Aliases

See the Exercises section at the end of the handouts.

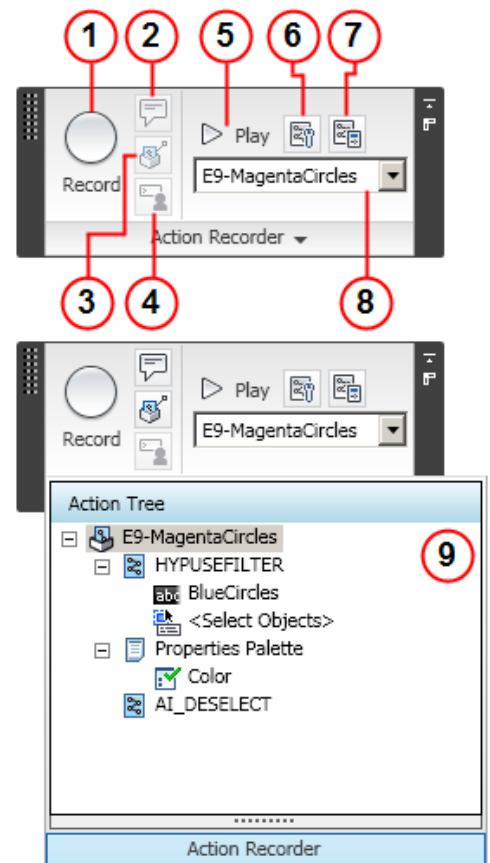
6 Action Macros

Action macros allow to automate repetitive tasks without needing to know how to program. You use the Action Recorder to create action macros.

The Action Recorder, see the illustration on the right, is a panel on the AutoCAD ribbon. From the Action Recorder, you record commands and input values as they are entered at the Command prompt or specified in the drawing area.

Recorded actions are saved to an action macro file which has the *.actm* file extension. Once saved, ACTM files can be played back later to repeat the same tasks that were recorded. You can playback an action macro by entering its name at the Command prompt.

The Action Recorder panel contains a set of controls that are always accessible with additional tools available when the panel is expanded. Click the panel's name to expand it. When expanded and docked, the panel can be pinned so it remains open until you switch tabs on the ribbon or unpin the panel.



The following describes each control on the Action Recorder:

1. **Record/Stop** – Starts and stops the recording of an action macro; stops the playback of an action macro.
2. **Insert Message** – Inserts a user message into the current action macro.
3. **Insert Base Point** – Inserts a pause for a base point; the base point is used by the proceeding coordinate entry/value in the action macro.
4. **Pause for User Input** – Inserts a pause for user input during playback on the selected value node.
5. **Play** – Starts the playback of the action macro selected in the Action Macro list.
6. **Preference** – Displays the Action Recorder Preferences dialog box, where you can control the display of the Action Recorder panel during recording and playback.
7. **Manage Action Macros** – Displays the Action Macro Manager, where you can copy, rename, modify, and delete action macros.
8. **Action Macro List** – Displays a list of all available action macros that can be played back or modified. Selecting an action macro sets it as the current action macro to be modified in the Action tree.
9. **Action Tree** – Displays the individual actions and values of the current action macro.

What Are Actions and What Can Be Recorded

Actions are the smallest tasks or user interactions that can be recorded with the Action Recorder. An action can be a command entered at the Command prompt that might launch a dialog box or prompt the user for input. While commands that display dialog boxes can be recorded, it is best to avoid such commands and use the command line equivalent instead.

Many of the commands that display a dialog box have an alternate command or set of system variables that can be recorded. Recording a dialog box will not “break” an action macro during playback, but displaying a dialog box can cause issues and inconsistencies during playback.

Many of the alternate commands that you should use instead of displaying a dialog box start with a “-” (hyphen). For example, the INSERT command displays the Insert dialog box, while the -INSERT command displays prompts for inserting a block reference at the Command prompt.

You will want to mainly use the Command prompt as the main method of starting a command and providing input when recording with the Action Recorder. You can also use the following user interface elements:

- Application menu, Quick Access toolbar, toolbars, ribbon panels, and status bars
- Properties and Quick Properties palettes
- Tool Palettes window

Commands that open, create, or close a drawing cannot be recorded along with a small number of other standard commands. You can find out which commands cannot be recorded and other tips about recording commands under the topic “About Action Macros” in the AutoCAD Help system.

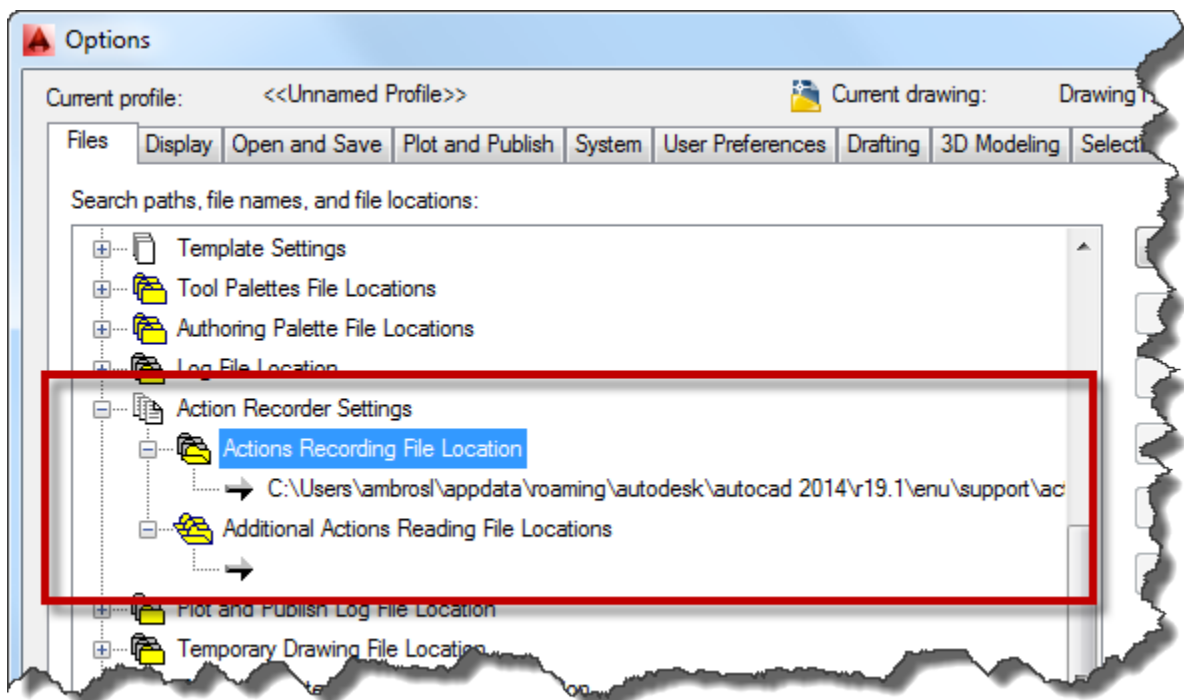
Recording Actions

Recording actions with the Action Recorder is similar to operating a DVD player or a digital video recorder (DVR). You use the Record button (ACTRECORD command) to start recording and when you are done recording you click the Stop button (ACTSTOP command).

Once the recording of an action macro is complete, you can save it to a file and modify it before playing it back. The Action Macro dialog box is displayed after recording has stopped and allows you to name and save the recorded action macro.

Storing of Action Macro Files

Newly recorded action macros are saved to one location, while other ACTM files can be played back from other locations. The paths used for recording and playing back ACTM files are grouped under the Action Recorder Settings node on the Files tab of the Options dialog box.



The two nodes that define the locations used by the Action Recorder are:

- **Actions Recording File Locations** – Specifies the location used to store newly recorded ACTM files. Action macros stored in this location can also be played back.
- **Additional Actions Reading File Locations** – Specifies the location of additional ACTM files that can be played back.

Play Back an Action Macro

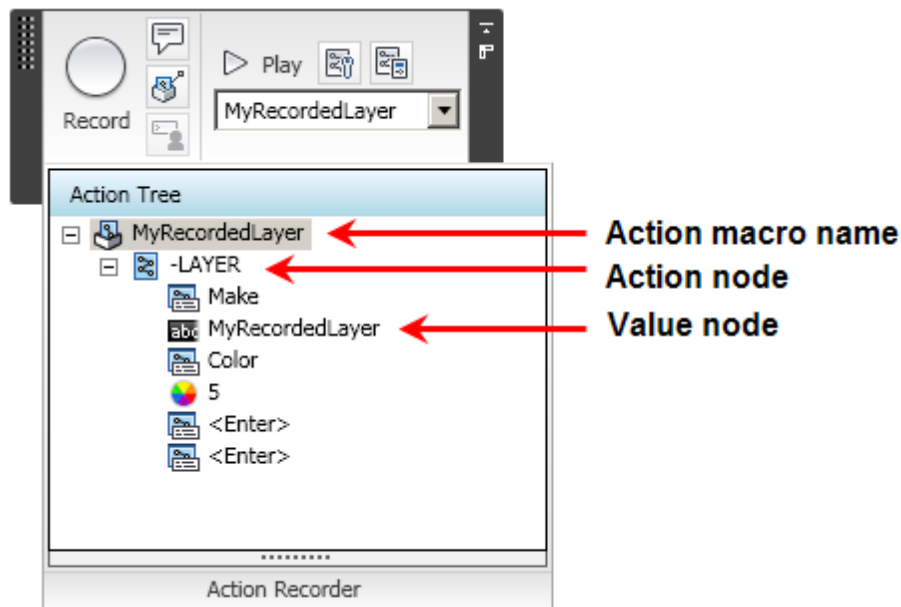
ACTM files that are stored in the folders specified by the Actions Recording File Locations and Additional Actions Reading File Locations nodes in the Options dialog box are automatically loaded when AutoCAD starts and when a new action macro file is created. To playback an action macro, you can do one of the following:

- At the Command prompt, type the name of the action macro and press Enter.
- On the ribbon, click the Manage tab ➤ Action Recorder panel ➤ Action Macros drop-down list and select the action macro to play back. Click Play.
- Right-click over the drawing area, click Action Recorder ➤ Play and then the action macro to play back.

Modifying an Action Macro

During the recording of an action macro, you do not have many options for modifying the action macro with the exception of inserting a pause for input or user message which can be done by right-clicking in the Action Tree. Once an action macro (ACTM) file is saved, you can then modify recorded values and delete unnecessary actions. Selecting the main node of an action macro allows you to make changes to the current action macro, and not one of its action or value nodes.

Value nodes store point values, object selection sets, and input that is entered for a command option. From the Action Tree you can edit the current value, set the value node to request a new value during playback, control object selection, and more.



Tip: If you delete an action macro, it can be recovered from the Windows Recycle Bin.

E3 Creating a Custom Action Macro

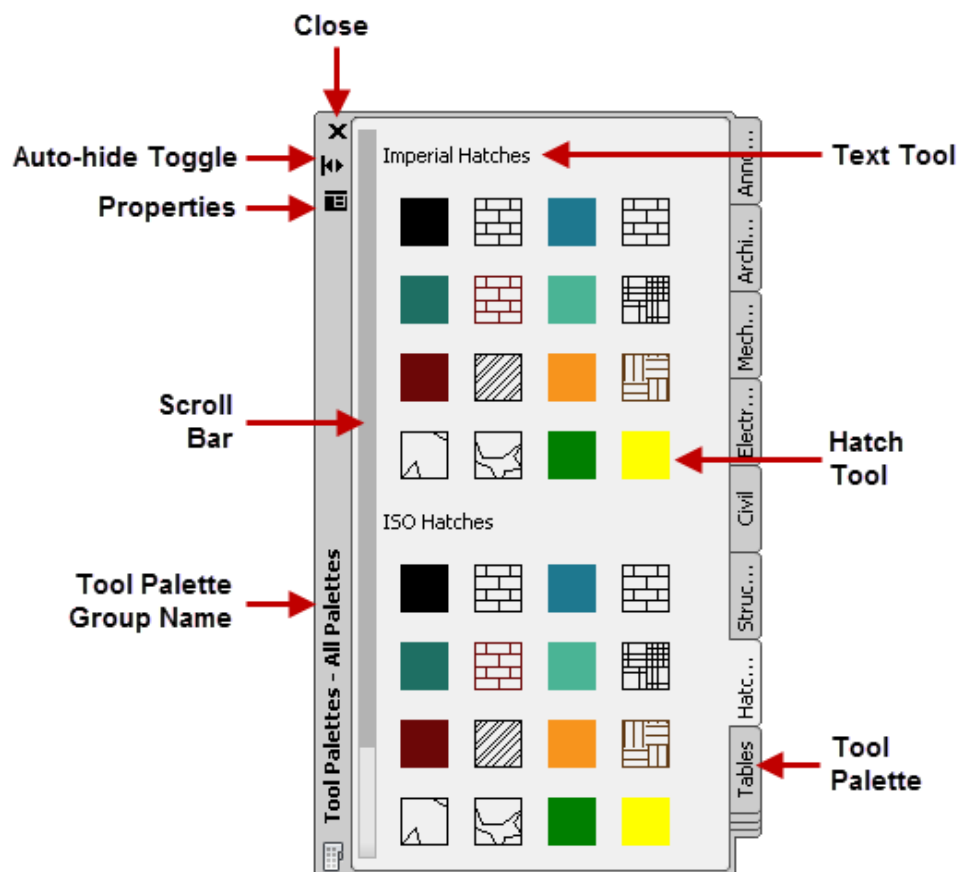
See the Exercises section at the end of the handouts.

7 Tool Palettes

Tool palettes are used to visually access commonly used drafting and annotation objects, commands, hatches and gradient fills, blocks and many other objects. Tool palettes were first introduced with AutoCAD 2004 and have been expanded to support new objects and styles over the releases since then.

Tool palettes are displayed in the Tool Palettes Window which can be displayed using one of the following methods:

- On the ribbon, click View tab ➤ Palettes panel ➤ Tool Palettes
- At the Command prompt, enter TOOLPALETTES or TP
- Press Ctrl+3



1. **Close** – Closes the Tool Palettes Window.
2. **Scroll bar** – Indicates additional tools are available and not currently visible. Click or drag on the scroll bar to move the other tools into the current view.
3. **Title bar** – Displays the palette's title and the current tool palette group.
4. **Auto-hide** – Collapses the Tool Palettes Window to just its title bar when it loses focus.

5. **Properties** – Displays the palette's shortcut menu.
6. **Text (Comment) Tool** – Displays information about the tools on the current tool palette.
7. **Tool** – Command or specialty tool that performs an action when clicked or dragged into the drawing area.
8. **Tool Palette** – Displays the tools associated with the tool palette in the Tool Palettes Window.

Tools and Tool Palettes

A tool is the smallest component of a tool palette that is displayed as part of the Tool Palettes window. Tool palettes can contain one of the following types of tools:

- Basic geometry (lines, arcs, circles, polylines, ...)
- Annotation (dimensions, text, tables, leaders, ...)
- External references (xrefs, raster images, and underlays)
- Hatch and gradient fills
- Blocks (static and dynamic)
- Visual styles
- Materials
- Lights
- Cameras
- Command and command sequences

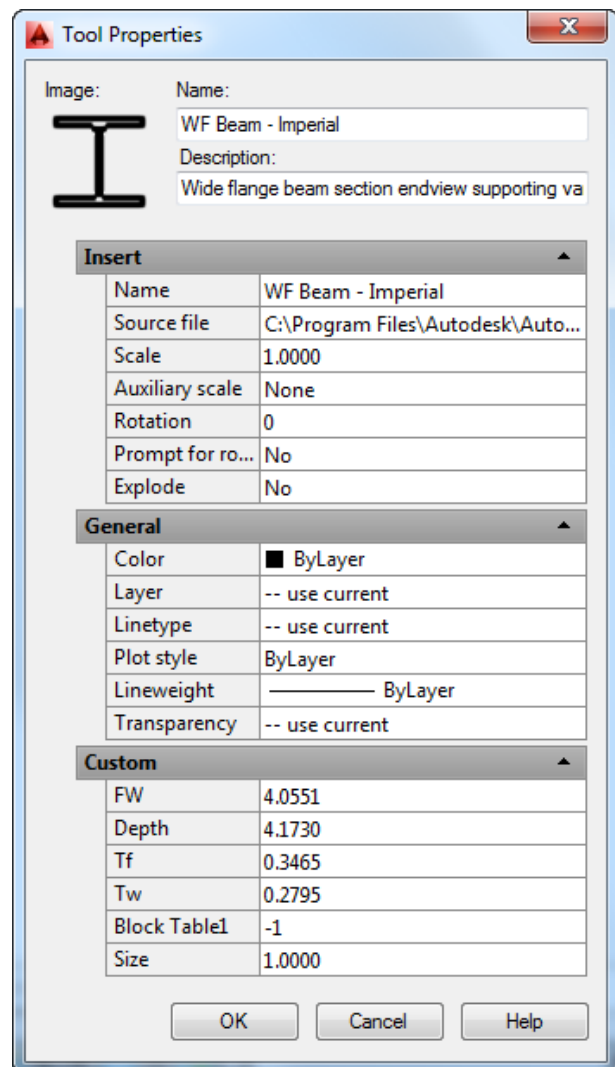
Create and Modify Tools

New tools can be added to a tool palette using one of the following methods:

- Drag an object from the drawing area to a tool palette
- Drag a command from the Commands pane in the Customize User Interface (CUI) Editor to a tool palette
- Drag a supported file format from Windows Explorer or File Explorer (DWG, PNG, JPG, PDF, DGN, ...) to a tool palette
- Use DesignCenter to add xrefs, blocks, raster images, and hatch patterns

Tools contain two different types of properties; tool specific and general properties that are common to most tools. The general properties that can be adjusted for most tools are:

- Color



- Layer
- Linetype
- Plot Style
- Lineweight
- Transparency

The properties of a tool can be modified using the Tool Properties dialog box. The Tool Properties dialog box is displayed by right-clicking over a tool and clicking Properties.

Tools can be copied and removed by right-clicking over the tool and clicking Copy or Delete. If you copy a tool, it can be pasted as a duplicate of the original tool on the same tool palette or it can be pasted on a different tool palette.

Warning: Removing a tool from a tool palette cannot be undone.

Tool Palettes

Tools are easy to create, and as a result can be hard to find without some planning and organization. You can create new tool palettes to group related tools together, and utilize both separators and text on a tool palette to further group related tools.

Tool palettes can be renamed and removed by right-clicking over a tab along the side of the Tool Palettes window.

Warning: Removing a tool palette cannot be undone.

Tool Palette Groups

Tool palette groups are used to control which tool palettes are displayed in the Tool Palettes window. The **All Palettes** tool palette group displays all loaded tool palettes in the Tool Palettes window. The Customize dialog box (CUSTOMIZE command) is used to create and manage tool palette groups.

A tool palette group can be set current by right-clicking the title bar of the Tool Palettes window, and clicking the tool palette group from the bottom of the menu.

Sharing Tool Palettes

Tool Palettes can be shared between multiple users. You can export a palette from one workstation and then import it on another, or place the tool palette files in a shared location. Exporting and importing tool palettes is handled through the Customize dialog box (CUSTOMIZE command).

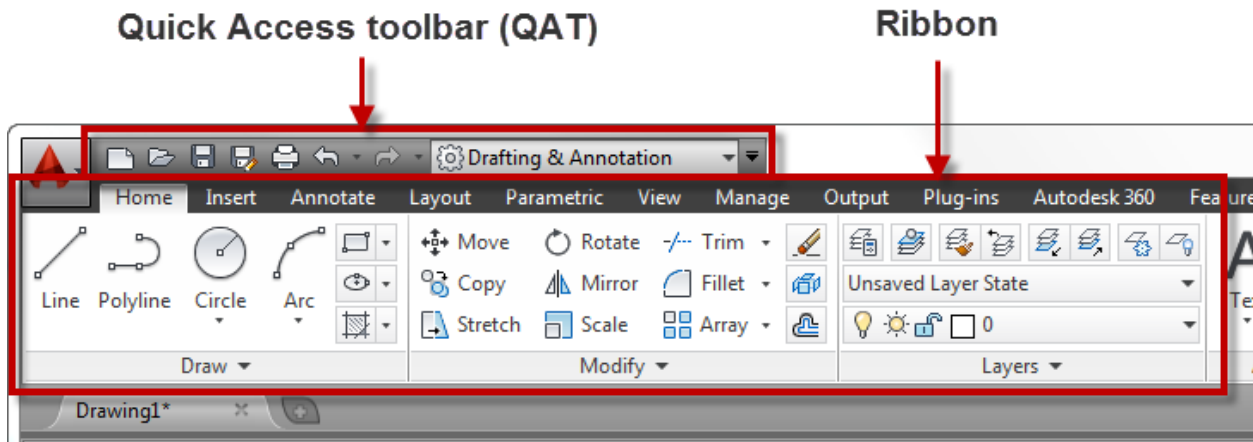
If you have access to a network, it might be more efficient to place the tool palette files on a network share and then add the location to the Tool Palettes File Locations item on the Files tab of the Options dialog box (OPTIONS command).

E4 Create a Tool Palette and Tools

See the Exercises section at the end of the handouts.

8 User Interface (Quick Access toolbar (QAT), Ribbon, Workspaces, and Profiles)

The AutoCAD user interface contains many features that are used to execute a command or change a current setting. The main features of the user interface that are exposed by default are the Quick Access toolbar (QAT) and the ribbon, which can also be seen in modern applications created by other software companies such as Microsoft and TechSmith.



Quick Access Toolbar (QAT)

The QAT is displayed in the top-left corner of the AutoCAD application window by default with the ribbon located below it. Most of the tools located on the QAT are related to file management tasks; opening, saving, creating, and plotting drawings.

Customizing the QAT is handled directly from the application window or the Customize User Interface (Editor). From the application window, you can toggle the display of items currently assigned to the QAT, add or remove controls, and the placement of the QAT below the ribbon using the Customize button located on the right side of the QAT.

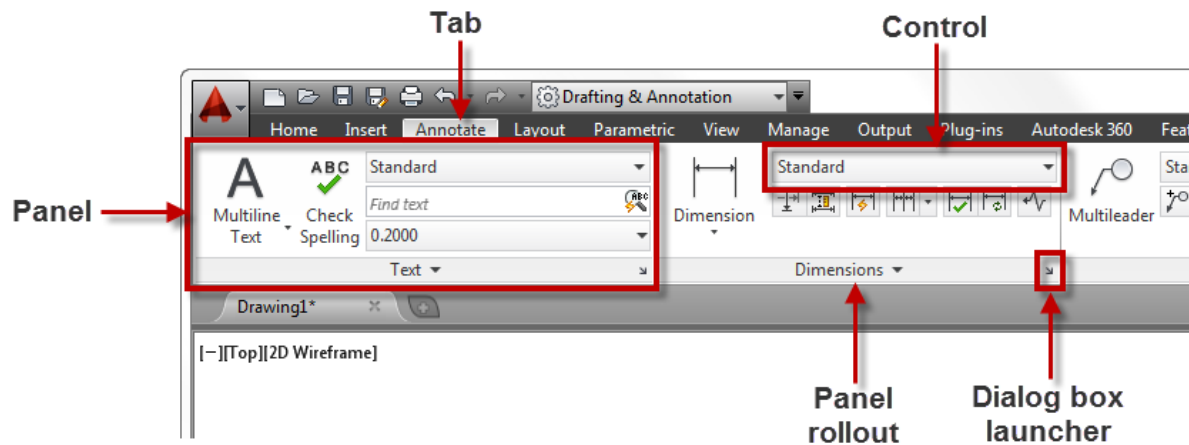
The Customize User Interface (CUI) Editor provides the most flexibility as you can create different Quick Access toolbars and assign them to different workspaces as needed.

E5 Create a Quick Access Toolbar

See the Exercises section at the end of the handouts.

Ribbon

The ribbon utilizes tabs and panels to group commands and settings by tasks.



1. **Tab** – Organizes panels by task; draw, annotate, and output among others.
2. **Panel** – Groups related commands and controls by feature/task; draw, modify, layers, and dimensions among others.
3. **Control** – Executes a command or changes a setting.
4. **Panel rollout** – Expands the panel to display additional controls.
5. **Dialog box launcher** – Starts a command macro, which commonly displays a dialog box or palette.

The ribbon can be customized in a limited capacity directly from the application window. You can minimize the display of the ribbon, toggle the display of panels and tabs that are currently assigned to the workspace, dock and undock ribbon panels, reorder panels on a ribbon tab, and assign a tool palette group to display when a tab is set current.

Most customization of the ribbon is handled through the Customize User Interface (CUI) Editor. You use the CUI Editor to create ribbon panels and then assign those ribbon panels to a ribbon tab. Like the Quick Access toolbar, you must assign a ribbon tab to a workspace before it can be displayed.

The creation and customization of a ribbon panel is very similar to a Quick Access toolbar, the main difference is that you can create multiple rows of controls on the ribbon instead of a single row, and you can specify which controls on a panel should be displayed by default and those that are available when the panel is expanded. Controls placed below the **<SLIDEOUT>** item are available only when the panel is expanded.

E6 Create a Ribbon Tab and Panel

See Exercises at the end of the handouts.

User Preferences (Workspaces and Profiles)

User preferences are stored primarily in two different places in AutoCAD: workspaces and profiles.

Workspaces

Workspaces control the display and placement of many user interface elements in the application and drawing window. AutoCAD ships with several pre-defined workspaces that help you to switch between the use of 2D drafting and 3D modeling tools. The Drafting and Annotation workspace is the default workspace that is used when AutoCAD is installed.

The user interface elements that workspaces control are:

- Quick Access toolbar (QAT)
- Toolbars
- Pull-down menus
- Palettes
- Ribbon tabs

Workspaces can also do the following:

- Set the Model tab or last used layout current when a drawing is opened
- Control the display of the
 - o menu bar,
 - o application and drawing status bars,
 - o navigation bar,
 - o drawing window model/layout tabs,
 - o and scroll bars in the drawing window.

Workspaces can be modified through the direct manipulation of user interface elements in the application window. After manipulating the interface, you use the WSSAVE command to save the changes to a new or existing workspace. If you need more control over the elements of a workspace, you can use the Customize User Interface (CUI) Editor.

E7 Modify and Create a New Workspace

See Exercises at the end of the handouts.

Profiles

Profiles are used to control the behavior of core features, last known locations of dialog boxes and other user interface elements, and the color scheme used. Some of the settings that profiles contain are:

- search paths used to locate support files,
- colors and fonts used by grips, Autosnap markers, application, and Command window,
- plot and publish options,
- open and save file options,
- performance settings related to layouts, zooming, and 3D,
- and many other settings.

Most settings are accessed using the Options dialog box (OPTIONS command). You can create and switch profiles using the Profiles tab of the Options dialog box or the /p command line switch to set a profile current at startup.

Profiles are an important aspect of customization as it instructs AutoCAD where to look for CUIx files, tool palettes, and action macros. Many of these file locations can be used to direct AutoCAD where to look for customized files on a local and/or network folder.

If you work in a corporate environment, placing your customized files on a network drive allows you to share updates to customized files with other fellow drafters quickly and easily. Updates can be posted to the network and picked up the next time AutoCAD is started.

Tip: You can export profiles and import them onto another workstation by using the Export option on the Profiles tab of the Options dialog box (OPTIONS command). This creates an ARG file which contains all the settings in the selected profile.

E8 Modify and Create a New Workspace

See Exercises at the end of the handouts.

9 Where to Get More Information

When you are first starting to use a new feature, you will have questions and where you go to find answers might not be clear. The following is a list of resources that you can use to get help:

- o **Help System** – The Customization Guide in the AutoCAD online Help system contains a lot of information on customizing many of the options mentioned earlier. To access the online help, go to: <http://docs.autodesk.com/ACD/2014/ENU/>.
- o **Autodesk Discussion Forums** – The Autodesk forums provide peer-to-peer networking and some interaction with Autodesk moderators. You can ask a question about anything in AutoCAD and get a response from a fellow user or Autodesk employee. To access the discussion forums, go to <http://forums.autodesk.com>, click AutoCAD, and then click one of the links for a subgroup.
- o **AUGI Forums** – The AUGI forums provide peer-to-peer networking where you can ask questions about virtually anything in AutoCAD and get a response from a fellow user. Visit AUGI at <http://www.augi.com>.
- o **Industry Events and Classes** – Industry events such as AUGI CAD Camp and Autodesk University are great places to learn about new features in an Autodesk product. Along with industry events, you might also be able to find classes at your local technical college or Autodesk Authorized Training Center (ATC).
- o **Internet** – There are tutorials on the Internet to learn many of the customization and programming options that are offered in AutoCAD. Use your favorite search engine, such as Google or Bing and search on the topic of interest.
- o **Books** – There are general and specialized books on AutoCAD that cover the customization and programming options that are available.

10 Exercises

This section contains all the exercises for this lab and for when you get back to the office.

E1 Create a Desktop Shortcut

This exercise demonstrates how to create a custom desktop shortcut to launch AutoCAD with a specific template and to set the '3D Basic' workspace current.

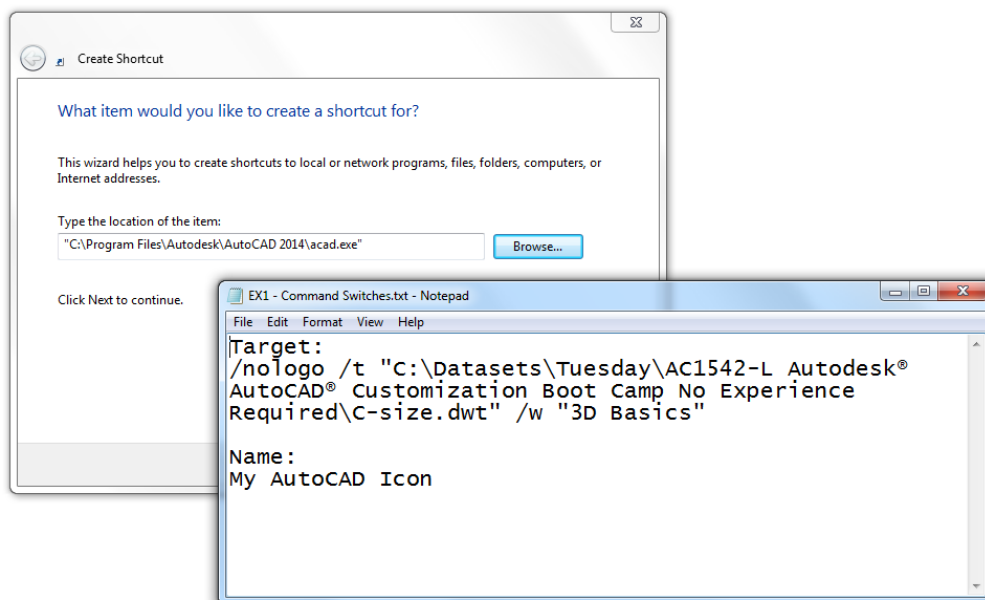
1. Open Windows Explorer or File Explorer, and browse to *C:\Datasets\Tuesday\AC1542-L Autodesk® AutoCAD® Customization Boot Camp No Experience Required*.

Tip: If you have a keyboard with a Windows key, press +E to launch Windows Explorer or File Explorer.

2. In Windows Explorer or File Explorer, double-click the *EX1 - Command Switches.txt* file to open it in Notepad.
3. Minimize all open applications until you get to the desktop.

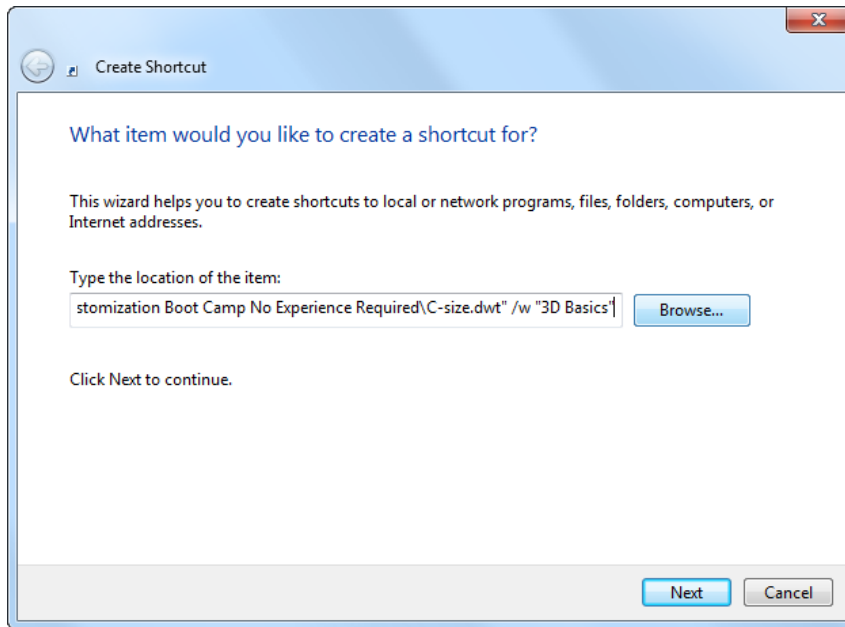
Tip: If you have a keyboard with a Windows key, press +M to minimize all open Windows.

4. Right-click in an empty area of the desktop and click New ➤ Shortcut.
5. In the Create Shortcut dialog box, in the Type the Location of the Item text box, type **C:** and then click Browse.
6. In the Browse for Files or Folders dialog box, navigate to *C:\Program Files\Autodesk\AutoCAD 2014* and select **acad.exe**. Click OK.

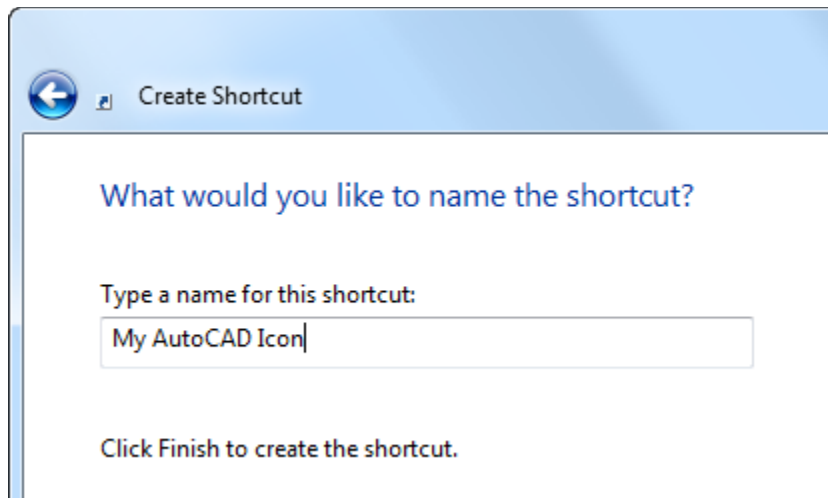


7. In Notepad, select the text under Target. Right-click the selected text and click Copy.
8. In the Create Shortcut dialog box, click in the Type the Location of the Item text box and press the End key.
9. Press the Spacebar once.
10. Right-click in the Type the Location of the Item text box. Click Paste to add the copied command line switches.

Note: If the dataset was placed in a different location, update the text *C:\Datasets\Tuesday\AC1542-L Autodesk® AutoCAD® Customization Boot Camp No Experience Required* in the pasted text to match the location of the dataset for this session.



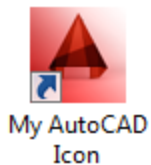
11. In the Create Shortcut dialog box, click Next.
12. In Notepad, copy the text under Name.
13. In the Create Shortcut dialog box, click in the Type a Name for this Shortcut text box and select the current text. Paste the text copied from Notepad.



14. Click Finish to create the shortcut.

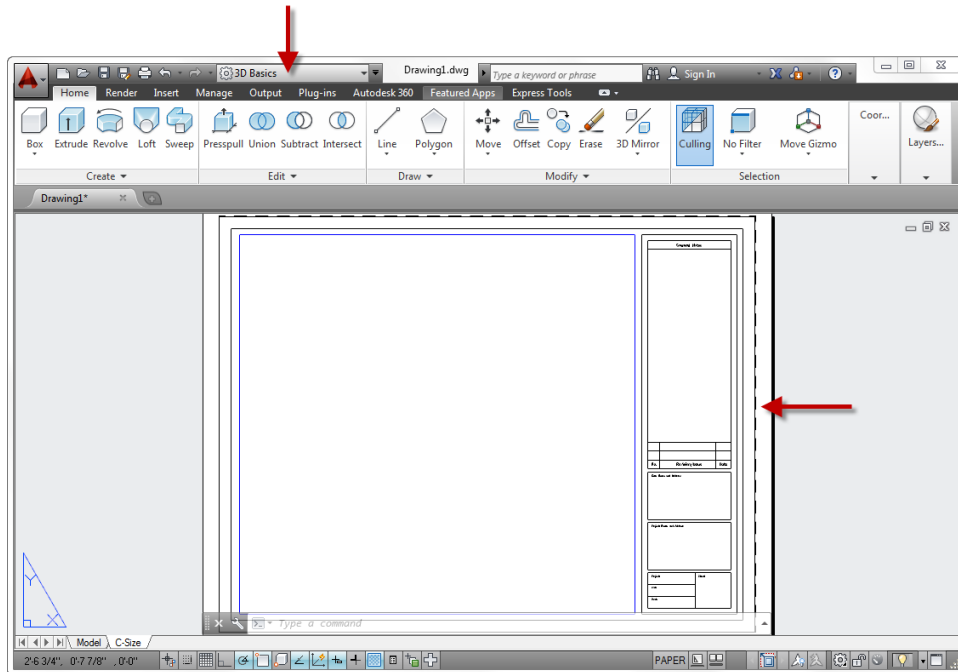
If a message box is displayed informing you that the shortcut already exists, click Yes. Normally, you would click No and change the name being used for the shortcut to avoid losing a previously customized shortcut.

15. Double-click the new My AutoCAD Icon shortcut to test it.

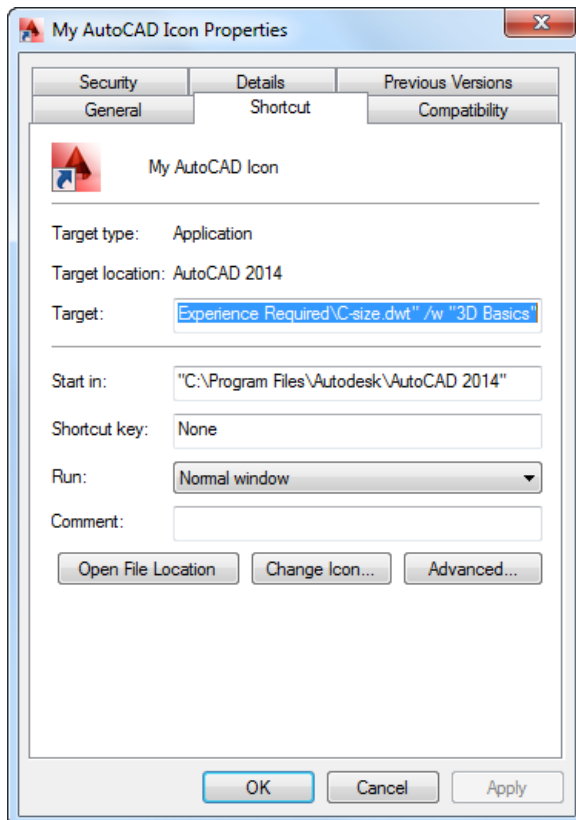


When AutoCAD starts, no splash screen will be displayed, the 3D Basic workspace will now be current, and the default drawing file that is opened will be based on the *C-size.dwt* drawing template file.

AC1542-L: Autodesk® AutoCAD® Customization Boot Camp: No Experience Required



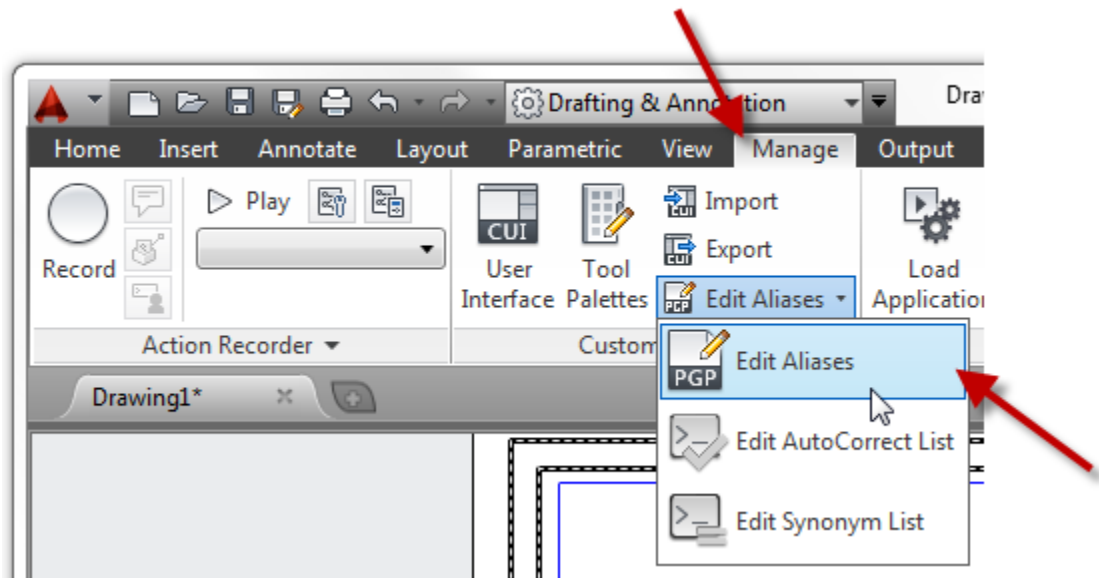
After you create a shortcut, you can modify it by right-clicking the shortcut and then clicking Properties.



E2 Define Custom Command Aliases

This exercise demonstrates how to define an alias to start the REVCLLOUD command, override the C alias to start the COPY command instead of CIRCLE, and create a new alias for the CIRCLE command.

1. In AutoCAD, on the ribbon, click Manage tab ➤ Customization panel ➤ Edit Aliases ➤ Edit Aliases.



2. In Notepad, scroll to the bottom of the file and click in the blank line under the 'User Defined Command Aliases' section.
3. Type the following text:

```
RV, *REVCLLOUD
C, *COPY
CC, *CIRCLE
```

The PGP file should now look similar to the following:

```
; than once in this file, items in the User Defined Command Alias take
; precedence over duplicates that appear earlier in the file.
; *****-----***** ; No xlate ; DO NOT REMOVE
RV, *REVCLLOUD
C, *COPY
CC, *CIRCLE
```

4. In Notepad, click File menu ➤ Save.
5. Switch back to AutoCAD, at the Command prompt, type **reinit** and press Enter.

6. In the Re-initialization dialog box, click PGP File and click OK.
7. At the Command prompt, type **rv** and press Enter.

The REVCLLOUD command should start.

8. Test the C and CC command aliases as well.

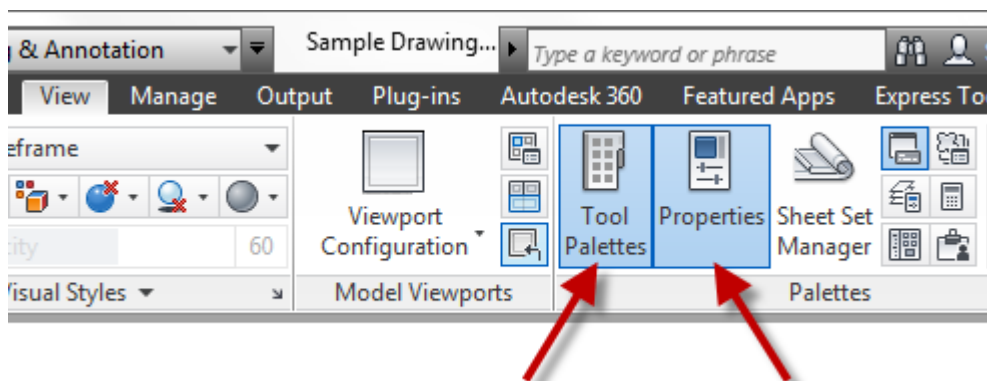
E3 Creating a Custom Action Macro

This exercise explains how to create an action macro that creates a new layer and inserts a dynamic block with a set of predefined property values.

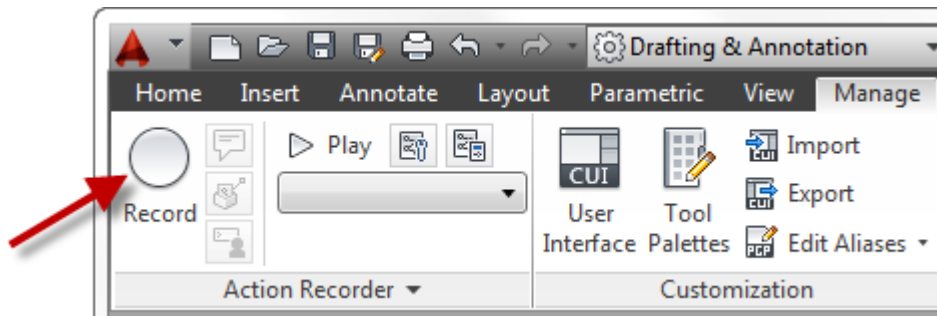
1. In AutoCAD, open the *Sample Drawing.dwg* file from the **C:\Datasets\Tuesday\AC1542-L Autodesk® AutoCAD® Customization Boot Camp No Experience Required** folder.
2. If the AutoLISP – Load Acad.lsp dialog box is displayed, click **Load Acad.lsp into Every Drawing**.

This dialog box is displayed because of the sample file *acad.lsp* that is in the dataset.

3. On the Quick Access toolbar, from the Workspaces drop-down list select **Drafting & Annotation**.
4. On the ribbon, click View tab ➤ Palettes panel and then click both **Tool Palettes** and **Properties**.

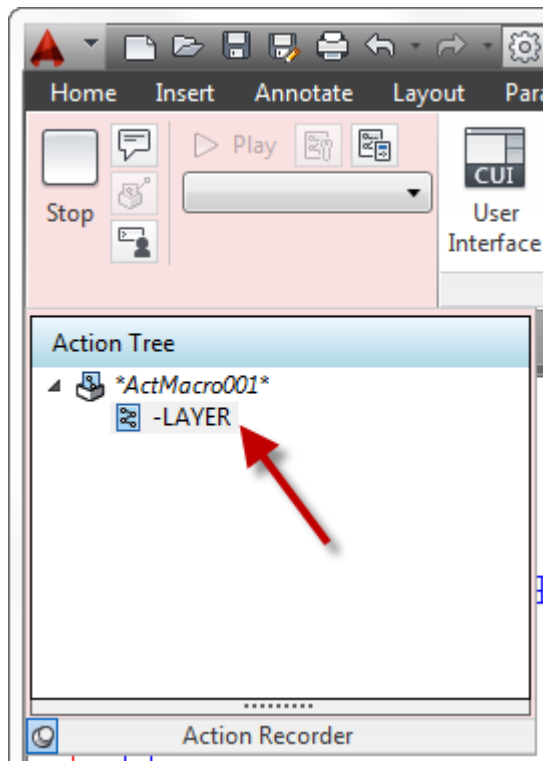


5. On the ribbon, click Manage tab ➤ Action Recorder panel ➤ Record.



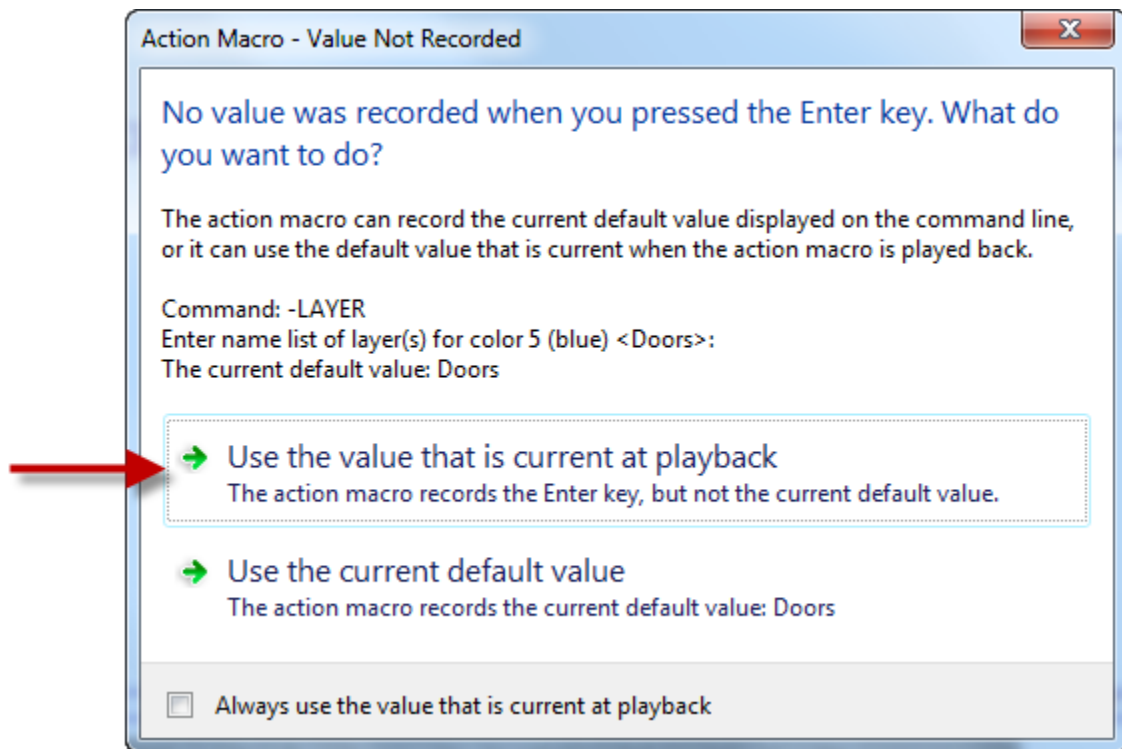
6. At the Command prompt, type **-layer** and press Enter.

After you press Enter, you should notice that the command is added to the Action tree.



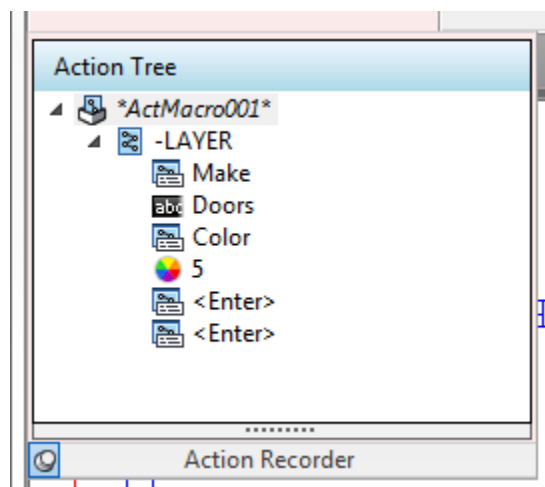
7. At the *Enter an Option* prompt, type **m** and press Enter to create a new layer.
8. At the *Enter name for new layer* prompt, type **Doors** and press Enter to set the name of the new layer.
9. At the *Enter an Option* prompt, type **c** and press Enter to set the color for the new layer.
10. At the *New Color [Truecolor/COLORbook]* prompt, type **5** (or Blue) and press Enter.

11. Press Enter again to assign the color 5 (blue) to the Doors layer.
12. In the Action Macro – Value Not Recorded dialog box, click **Use the Value that is Current at Playback**.

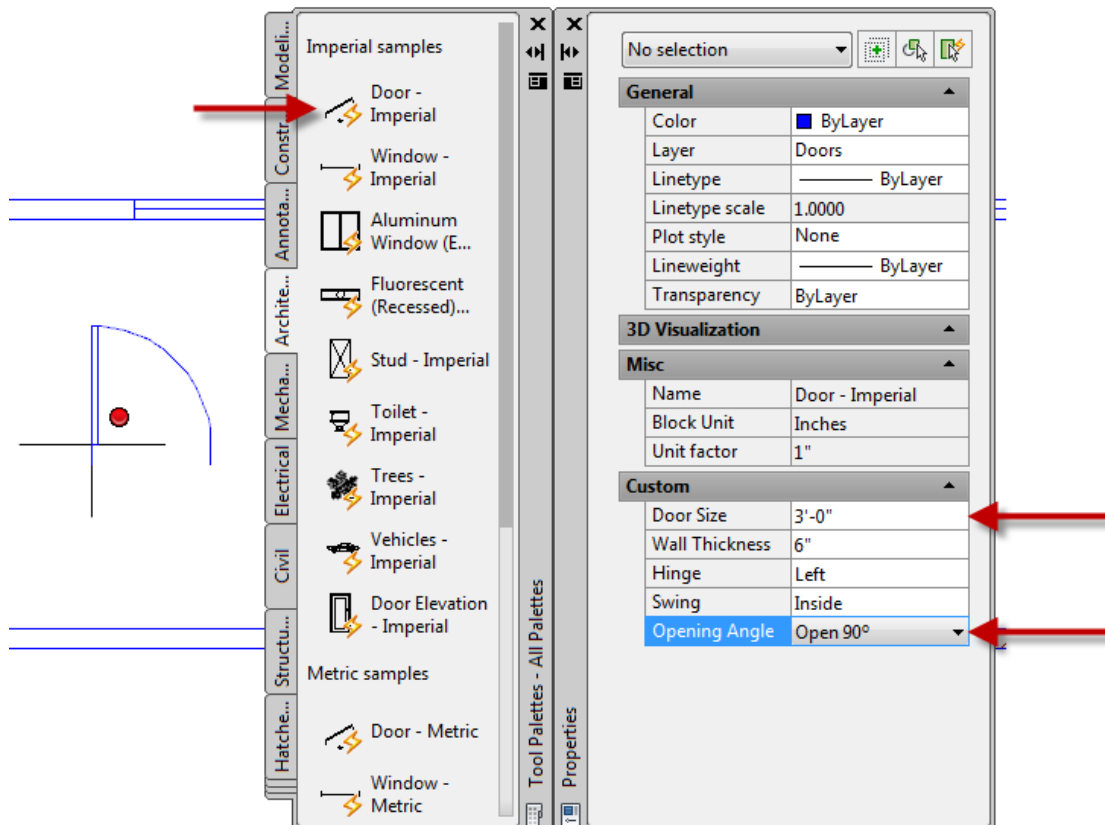


13. Press Enter again to end the -LAYER command.

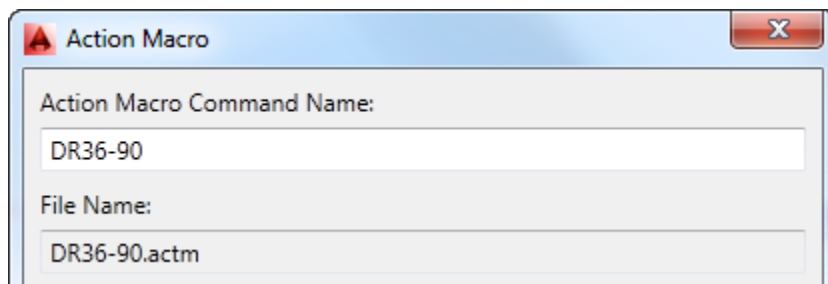
You are returned to a blank Command prompt, and the new layer is created and set current. The Action tree should now look like the following image.



14. On the Tool Palettes window, Architectural tab, click the **Door – Imperial** tool.
15. On the Properties palette, under Custom, select **3'-0"** (or 36.0000) from the Door Size drop-down list and select **Open 90°** from the Opening Angle drop-down list.



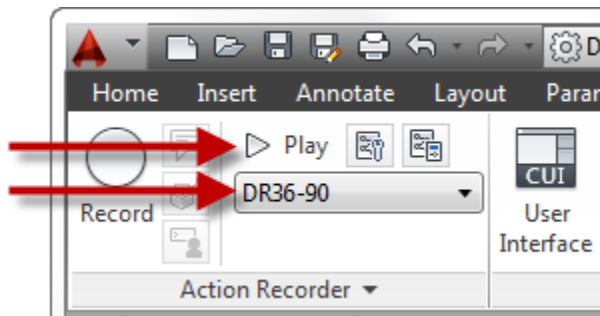
16. Click anywhere in the drawing area to place the door block.
17. On the ribbon, click Manage tab ➤ Action Recorder panel ➤ Stop.
18. In the Action Macro dialog box, Action Macro Command Name text box, type **DR36-90**.



19. Click OK.

20. Create a new drawing.

21. On the ribbon, click Manage tab ➤ Action Recorder panel. From the Action Macros drop-down list, select **DR36-90** and then click Play.

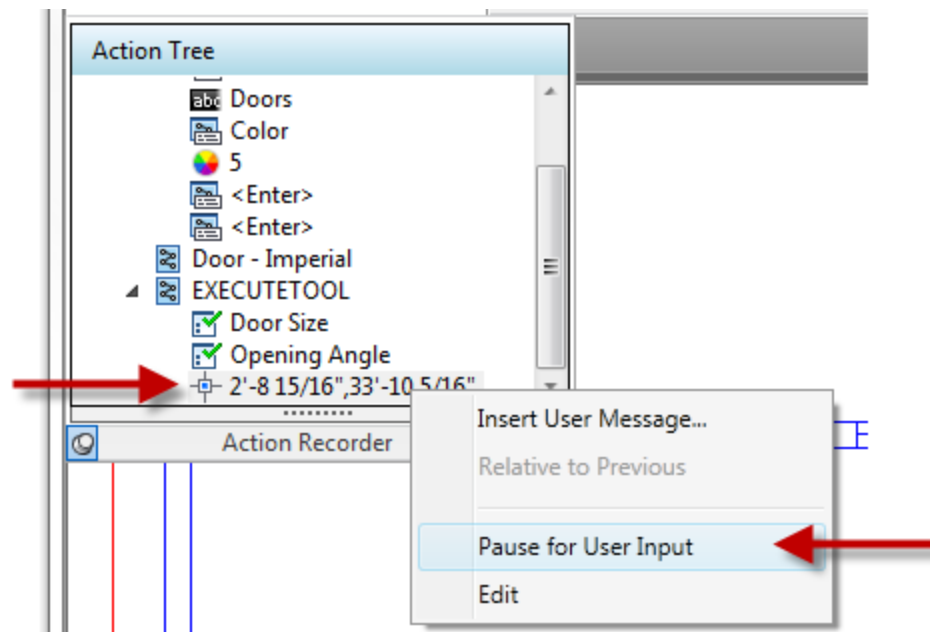


22. If the Action Macro – Playback Complete dialog box is displayed, click **Close**.

23. Use the ZOOM command with the Extents option to zoom to the extents of the drawing.

24. On the Action Recorder panel, click the Action Recorder panel's title to expand it.

25. In the Action tree, right-click over the coordinate point for the inserted block and click **Pause for User Input**.



26. Play back the DR36-90 action macro again.

27. Specify a point in the drawing area when prompted.

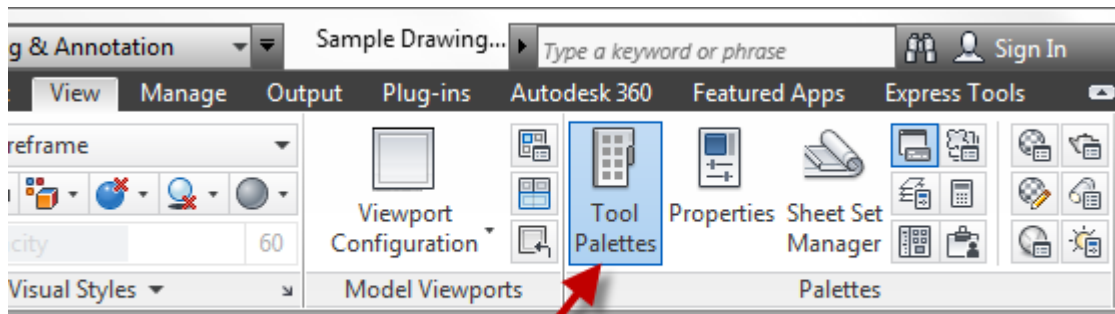
28. Close the new drawing and discard any changes made to it.

E4 Create a Tool Palette and Tools

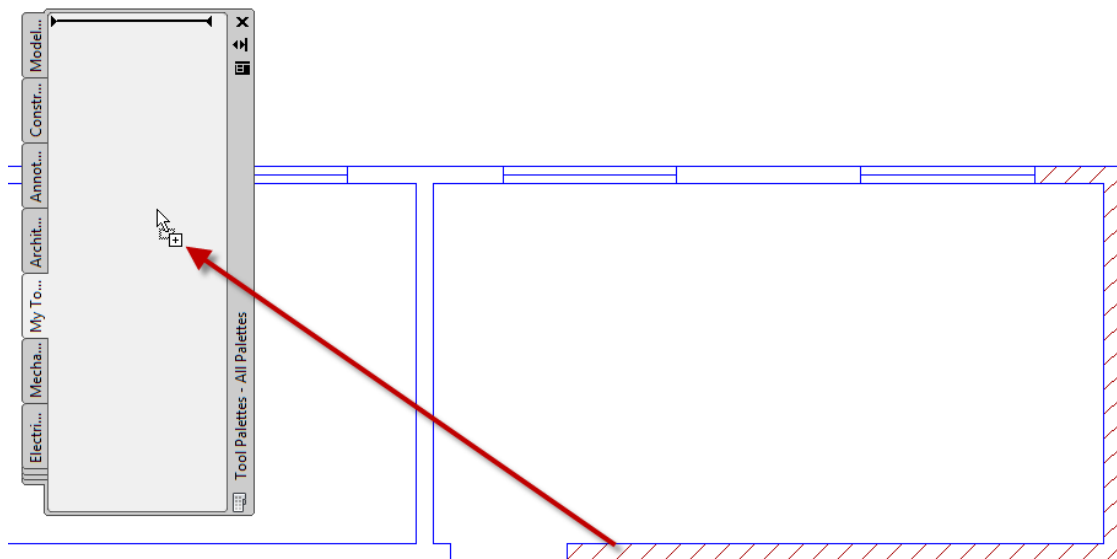
This exercise explains how to create a new tool palette with some new tools.

1. Open the *Sample Drawing.dwg* file from **C:\Datasets\Tuesday\AC1542-L Autodesk® AutoCAD® Customization Boot Camp No Experience Required** if you do not already have it open from the previous exercise.
2. Display the Tool Palettes window if it is not displayed from the previous exercise yet.

On the ribbon, click View tab ➤ Palettes panel ➤ Tool Palettes.

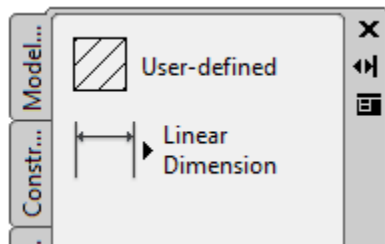


3. On the Tool Palettes window, right-click over a tab and click **New Palette**.
4. In the in-place editor, type **My Tools** and press Enter.
5. Click the hatch object located in the walls along the right side of the drawing. Press and hold down the right mouse button, and then drag the cursor over the My Tools palette.



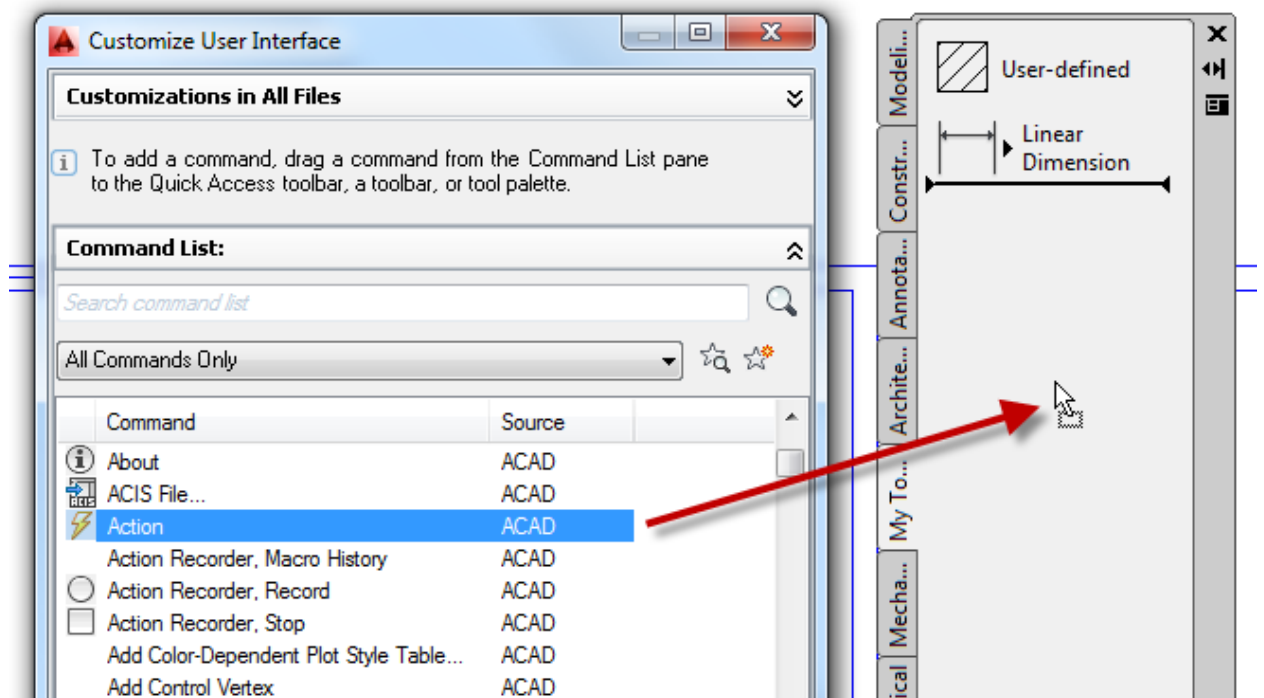
6. Release the right mouse button to create a new hatch tool based on the properties of the selected hatch object
7. Click and drag the dimension from the left side of the drawing onto the My Tools palette.

You should now have two new tools on the My Tools palette.

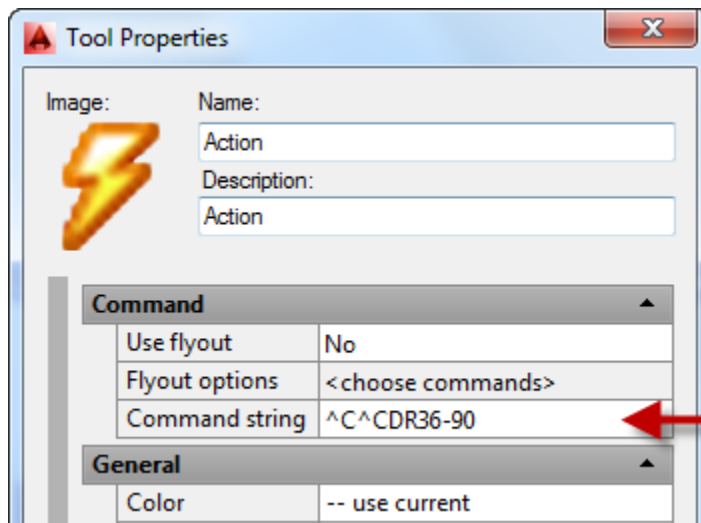


8. In an empty area of the My Tools palette, right-click and click **Customize Commands**.
9. In the Customize User Interface (CUI) Editor, in the Command List pane, Commands list, select Action.
10. Click and drag the Action command from the Commands list onto the My Tools palette. Release the mouse button to add the Command tool.

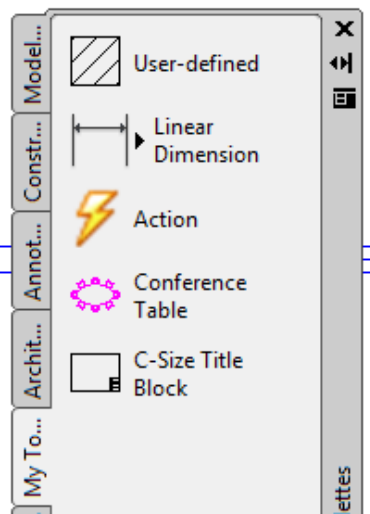
Note: You might need to move the Customize User Interface (CUI) Editor to see the Tool Palettes window.



11. In the Customize User Interface (CUI) Editor, click Cancel.
12. On the Tools Palettes window, right-click over the Action tool and click Properties.
13. In the Tool Properties dialog box, Command String field, change the text to **^C^CDR36-90** and click OK.



14. At the AutoCAD Command prompt, type **explorer** and press Enter. Navigate to the **C:\Datasets\Tuesday\AC1542-L Autodesk® AutoCAD® Customization Boot Camp No Experience Required** folder.
15. Drag and drop the *Conference Table.dwg* and *C-Size Title Block.dwg* files onto the My Tools palette.



16. Switch back to AutoCAD and try each of the tools you added.

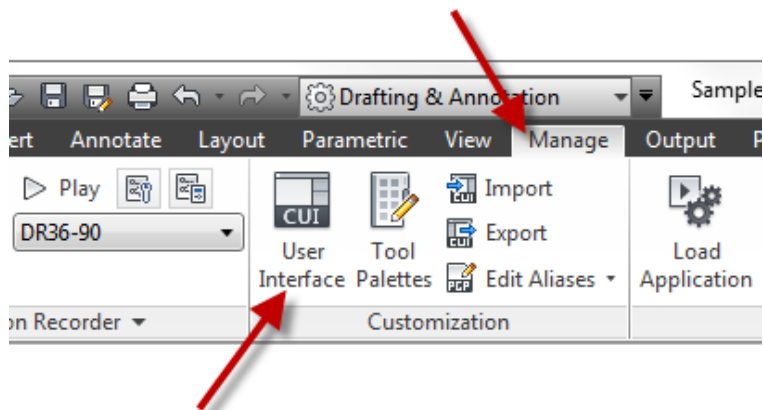
Some tools can be clicked only, while others can be clicked, or dragged and dropped into the drawing area.

Tip: Pressing the Spacebar repeats the last tool used from the Tool Palettes window.

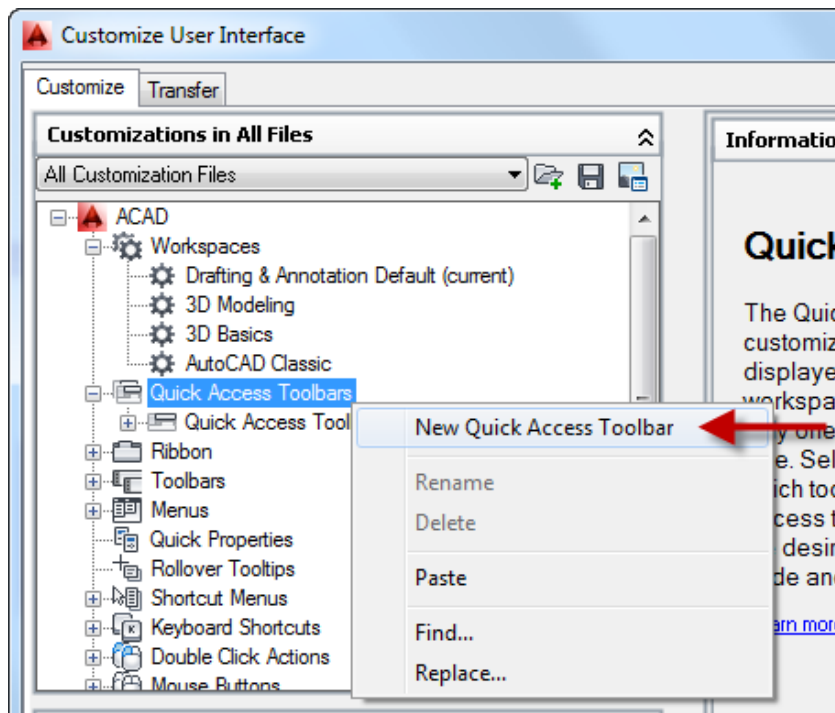
E5 Create a Quick Access Toolbar

This exercise explains how to create a new Quick Access toolbar and assign it to a workspace.

1. On the ribbon, click Manage tab > Customization panel > User Interface.



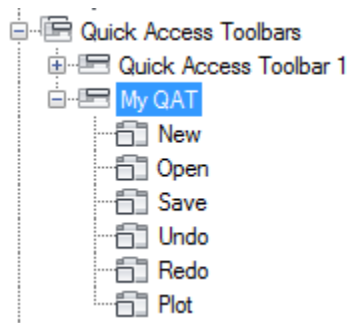
2. In the Customize User Interface (CUI) Editor, Customizations In pane, right-click the Quick Access Toolbars node and click New Quick Access Toolbar.



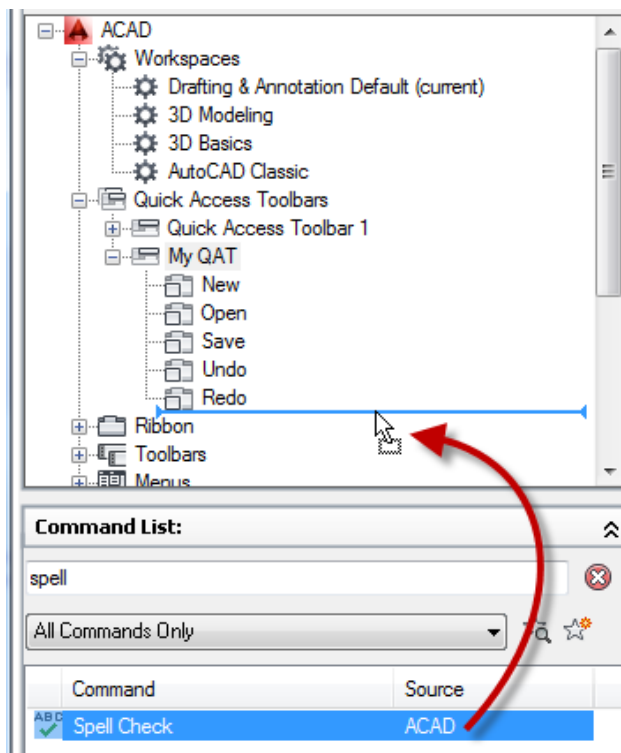
3. Rename the new toolbar by typing **My QAT** and pressing Enter.

If you cannot change its name, right-click the new toolbar and click Rename.

4. Click the plus sign next to the new toolbar and reveal the default commands that are added.



5. Right-click the Plot command and click Remove. Click Yes to delete the element.
6. In the Command List pane, in the Search Command List text box, type **spell**.
7. Click and drag the Spell Check command from the Command List and drop it onto the My QAT toolbar.



8. In the Command List pane, in the Search Command List text box, type **publish**.

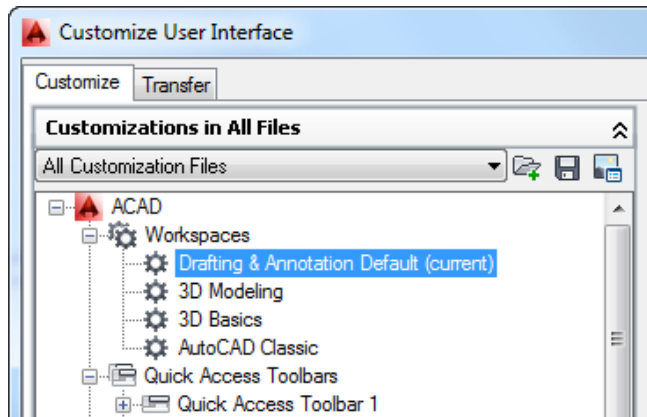
9. Add the Publish... command above Spell Check on the My QAT toolbar.



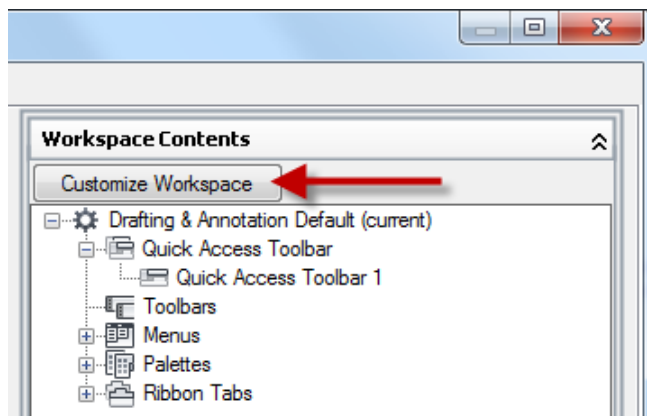
10. Click Apply to save the changes to the toolbar.

Once you create a Quick Access toolbar, it must be added to a workspace to be displayed.

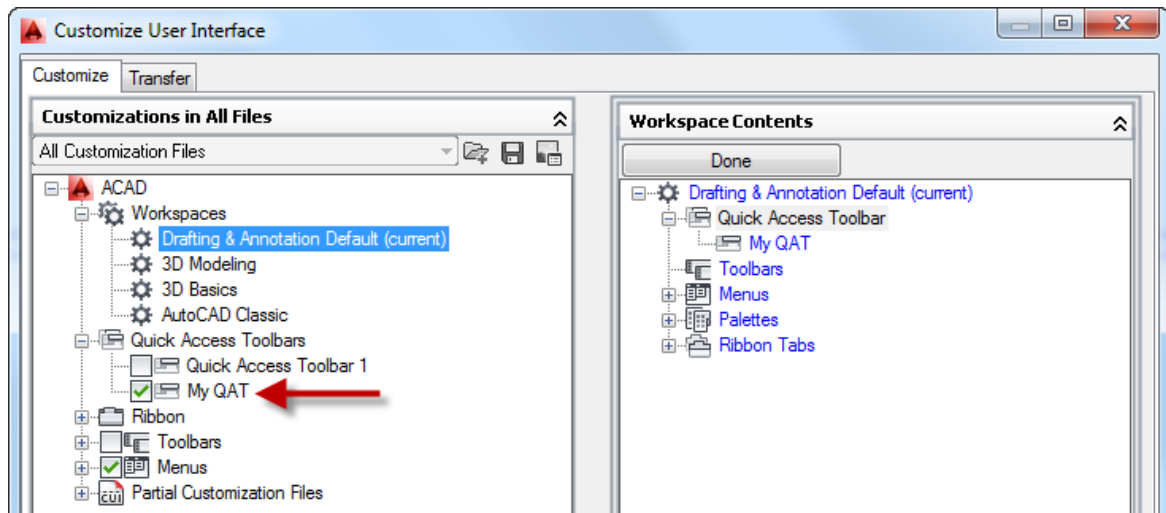
1. In the Customize User Interface (CUI) Editor, Customizations In pane, click the plus sign next to the Workspaces node to expand it.
2. Select the workspace that ends with the text **(current)**.



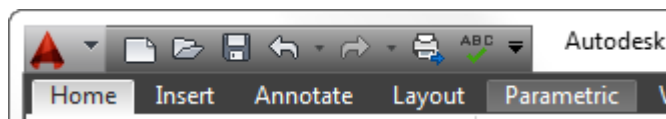
3. In the Workspace Contents pane, click Customize Workspace.



4. In the Customizations In pane, expand the Quick Access Toolbars node and click the check box next to My QAT.



5. In the Workspace Contents pane, click Done.
6. Click OK to save the changes and exit the CUI Editor.

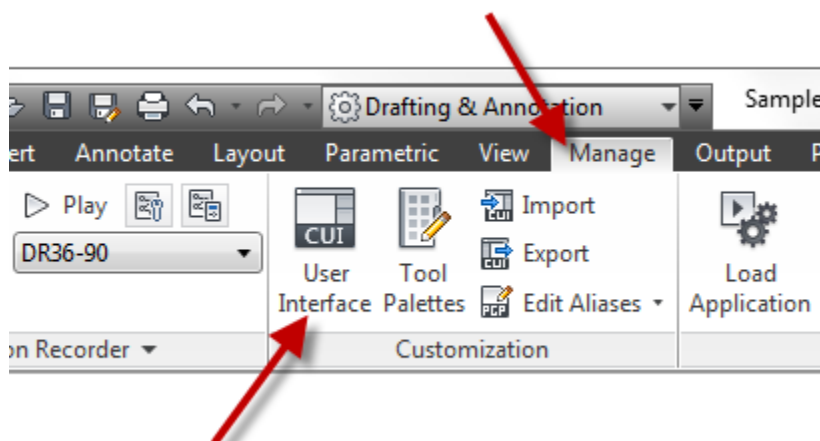


If any message boxes are displayed, click OK to continue loading the changes to the CUIx file.

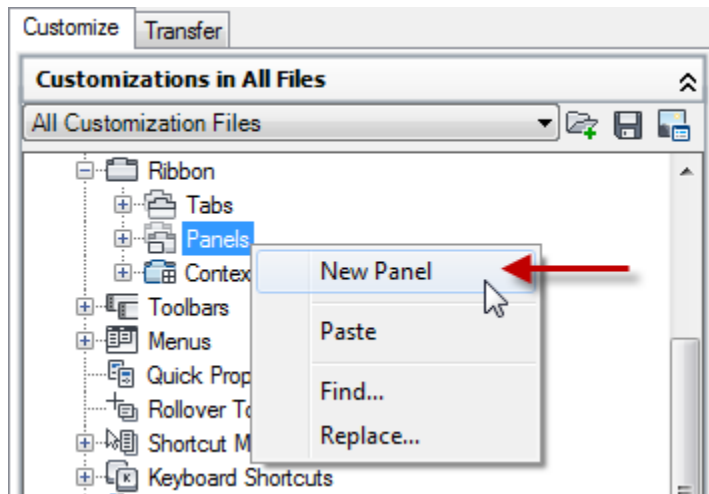
E6 Create a Ribbon Tab and Panel

This exercise explains how to create and customize a ribbon panel.

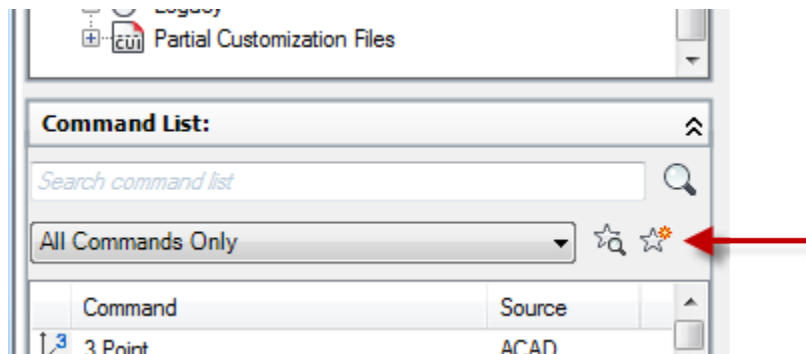
1. On the ribbon, click Manage tab ➤ Customization panel ➤ User Interface.



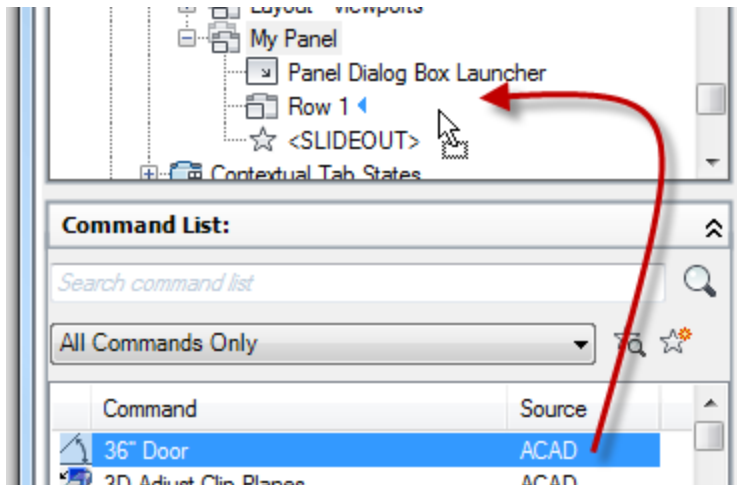
2. In the Customize User Interface (CUI) Editor, Customizations In pane, click the plus sign next to the Ribbon node to expand it.
3. Right-click the Panels node and click New Panel.



4. Rename the new ribbon panel by typing **My Panel** and pressing Enter.
If you cannot change its name, right-click the new ribbon panel and click Rename.
5. In the Command List pane, click Create a New Command.



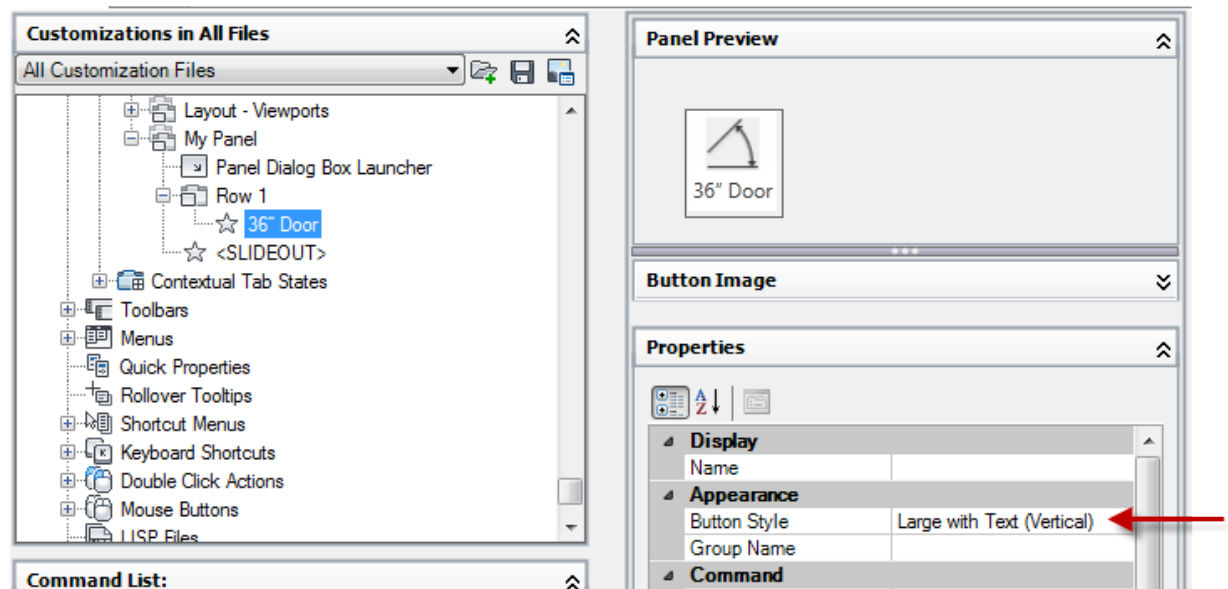
6. In the Properties pane, change the following values
 - **Name:** 36" Door
 - **Macro:** ^C^CDR36-90
7. In the Button Image pane, select an image to assign it to the button.
8. In the Command List pane, select the 36" Door command and drag it to Row 1 under the My Panel ribbon panel.



9. Release the mouse button to add the 36" Door command to Row 1 on the My Panel ribbon panel.

10. Select the 36" Door command in Row 1 under the My Panel ribbon panel.

11. In the Properties pane, change Button Style to Large with Text (Vertical).

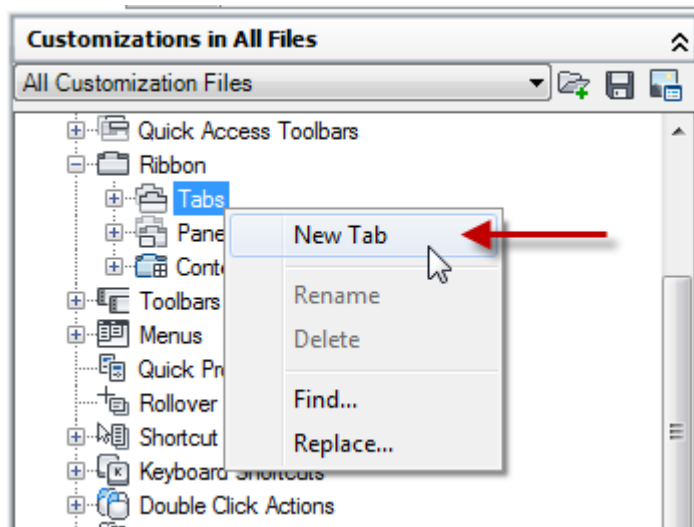


12. Add a few of your favorite commands from the Command List pane to the My Panel ribbon panel.

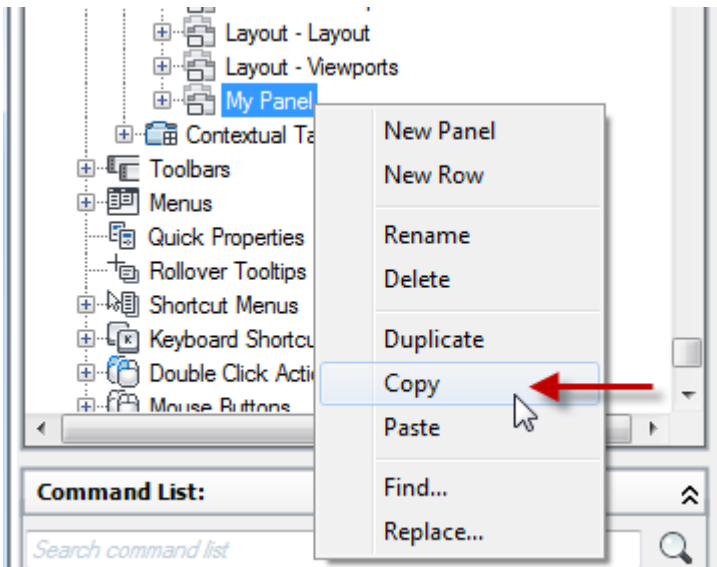
13. Click Apply to save the changes.

The following explains how to create and customize a ribbon tab.

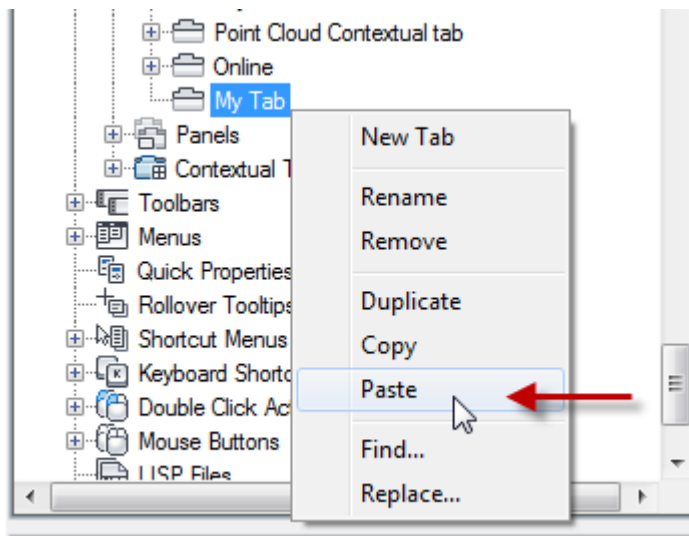
1. In the Customize User Interface (CUI) Editor, Customizations In pane, click the plus sign next to the Ribbon node to expand it.
2. Right-click the Tabs node and click New Tab.



3. Rename the new ribbon tab by typing **My Tab** and pressing Enter.
If you cannot change its name, right-click the new ribbon tab and click Rename.
4. Expand the Panels node under Ribbons.
5. Under the Panels node, right-click over My Panel and click Copy.



- Under the Tabs node, right-click over My Tab and click Paste.

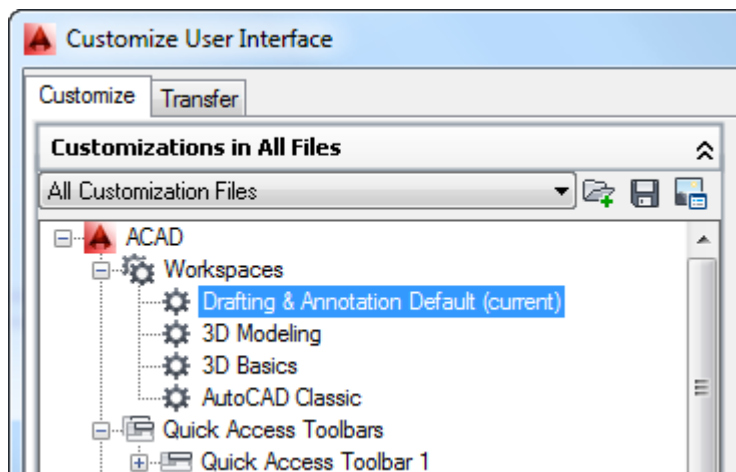


A reference to the ribbon panel is added to the ribbon tab.

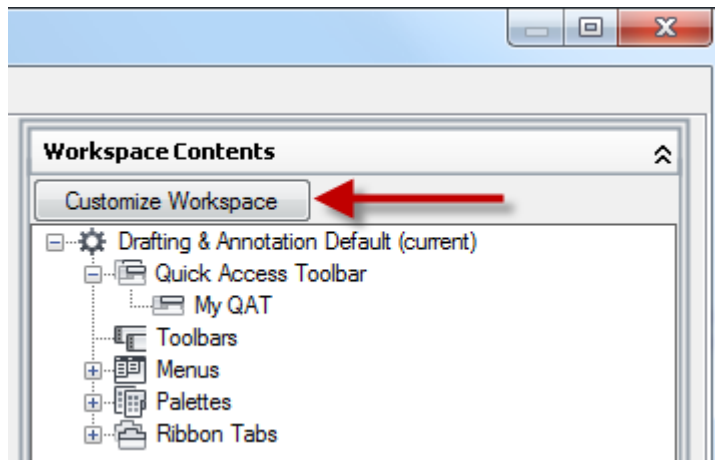
- Click Apply to save the changes.

The following explains how to add a ribbon tab to the current workspace.

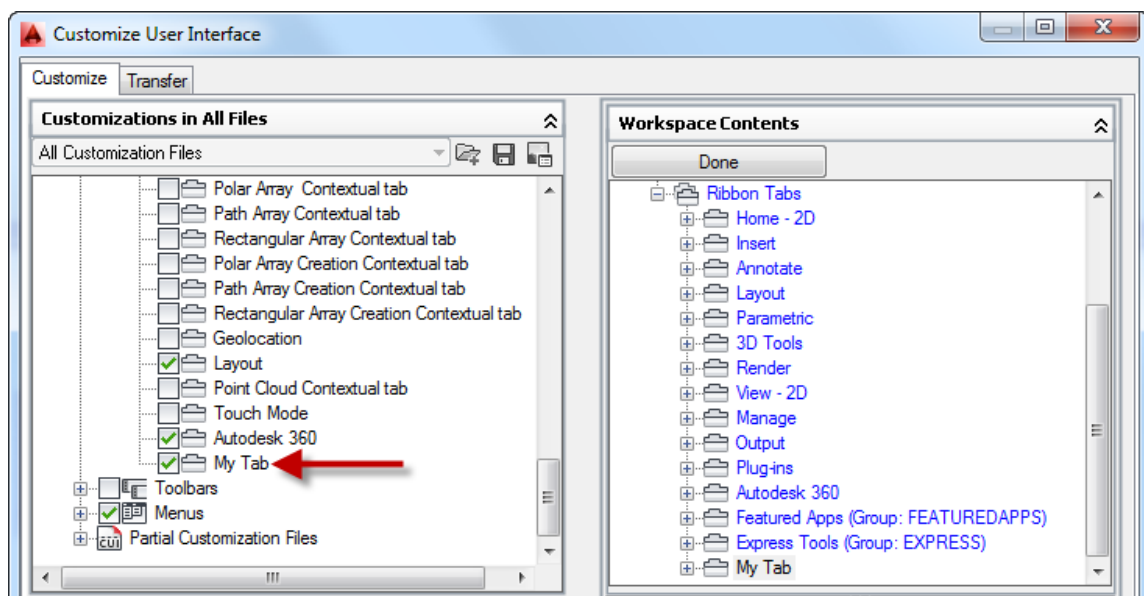
- In the Customize User Interface (CUI) Editor, Customizations In pane, click the plus sign next to the Workspaces node to expand it.
- Select the workspace that ends with the text **(current)**.



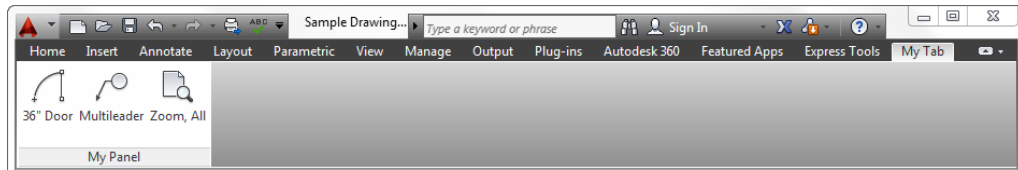
3. In the Workspace Contents pane, click Customize Workspace.



4. In the Customizations In pane, expand the Ribbon > Tabs node and click the check box next to My Tab.



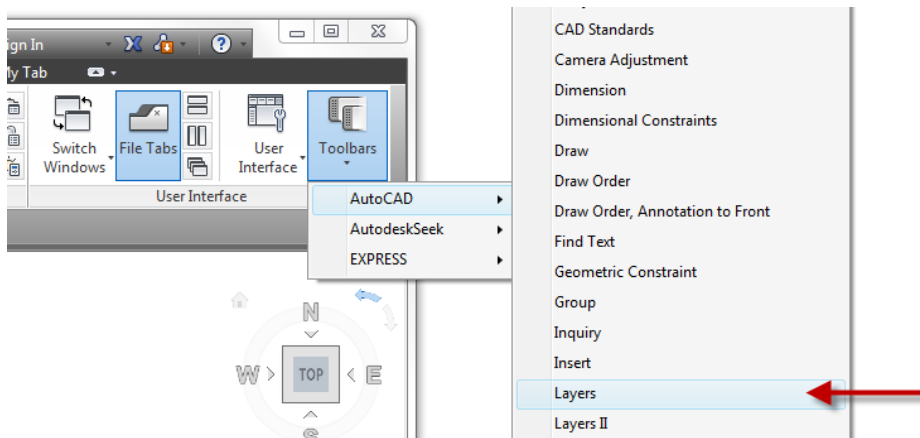
5. In the Workspace Contents pane, click Done.
 6. Click OK to save the changes and exit the CUI Editor.
- If any message boxes are displayed, click OK to continue loading the changes to the CUIx file.
7. Click the new My Tab on the ribbon to see what the My Panel looks like.



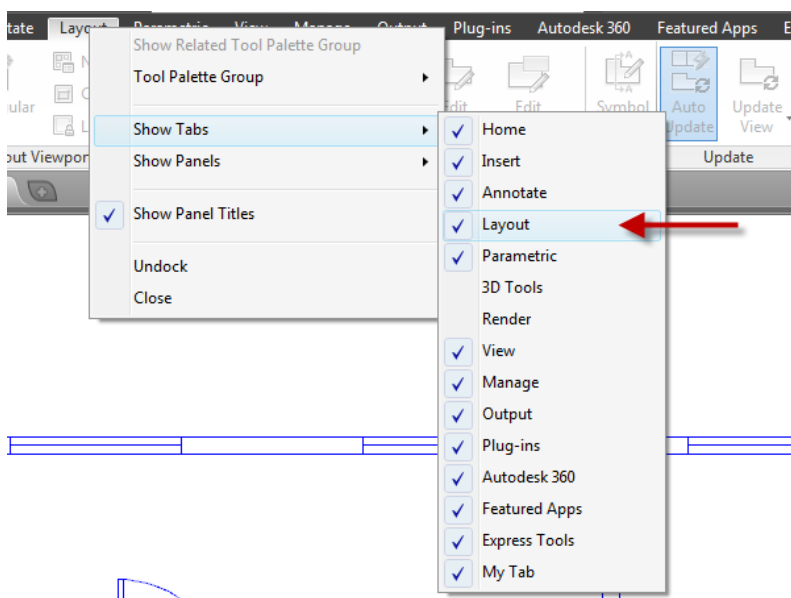
E7 Modify and Create a New Workspace

This exercise explains how to interactively modify and create a new workspace from the AutoCAD user interface.

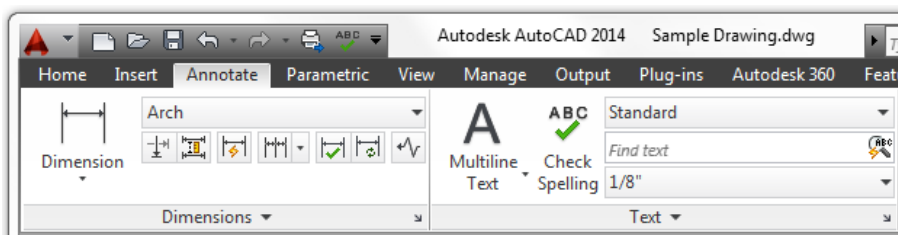
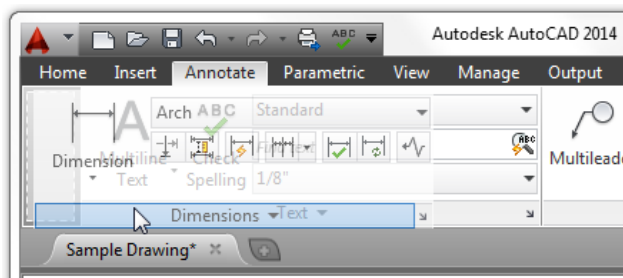
1. On the ribbon, click View tab ➤ User Interface panel ➤ Toolbars drop-down menu ➤ AutoCAD ➤ Layers.



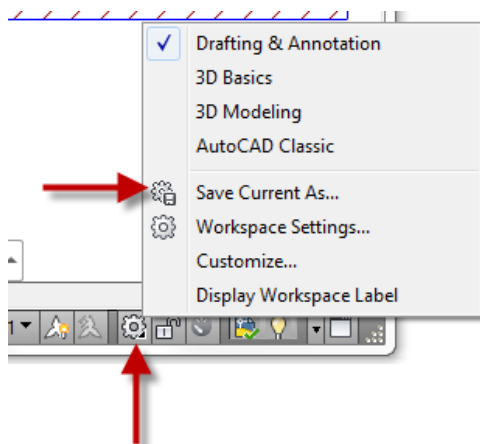
2. On the ribbon, right-click a ribbon tab and click Show Tabs ➤ Layout to hide the ribbon tab.



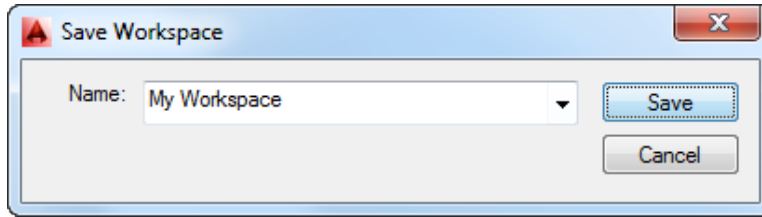
3. On the ribbon, click the Annotate tab.
4. Click and hold the left mouse button over an empty area of the Dimensions panel and drag it to the left of the Text panel. Release the mouse button to reposition the Dimensions panel.



5. On the ribbon, click View tab ➤ Palettes panel ➤ Properties.
6. If the Design Feed palette is open, close it.
7. On the status bar, click Workspace Switching ➤ Save Current As.



8. In the Save Workspace dialog box, Name text box, type **My Workspace** and click Save.



9. On the status bar, click Workspace Switching ➤ Drafting & Annotation.

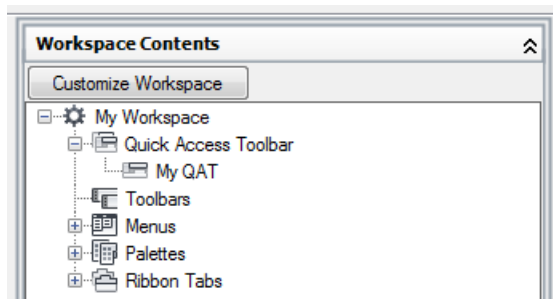
You should notice your changes are no longer present. The Layout tab is displayed once again on the ribbon and the Properties palette is hidden.

10. On the status bar, click Workspace Switching ➤ My Workspace.

Your changes are restored. The Layout tab and Design Feed palette are hidden once again and the Properties palette is displayed.

Note: You can update an existing workspace by selecting it from the Name drop-down list in the Save Workspace dialog box.

If you need additional control over the elements in a workspace, you can use the Customize User Interface (CUI) Editor. Select a workspace from the Workspaces node and adjust the properties of the elements in the Workspace Contents pane by dragging elements up and down or using the Properties pane. Click Customize Workspace to add or remove elements.

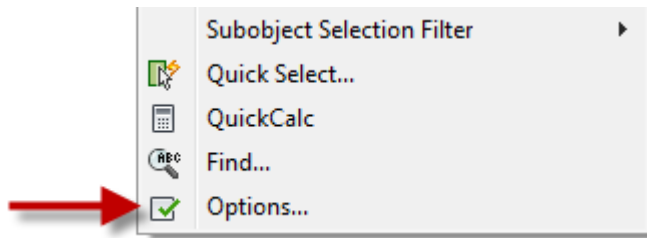


Tip: You can use the /w command line switch to set a workspace current as AutoCAD starts up when using a desktop shortcut.

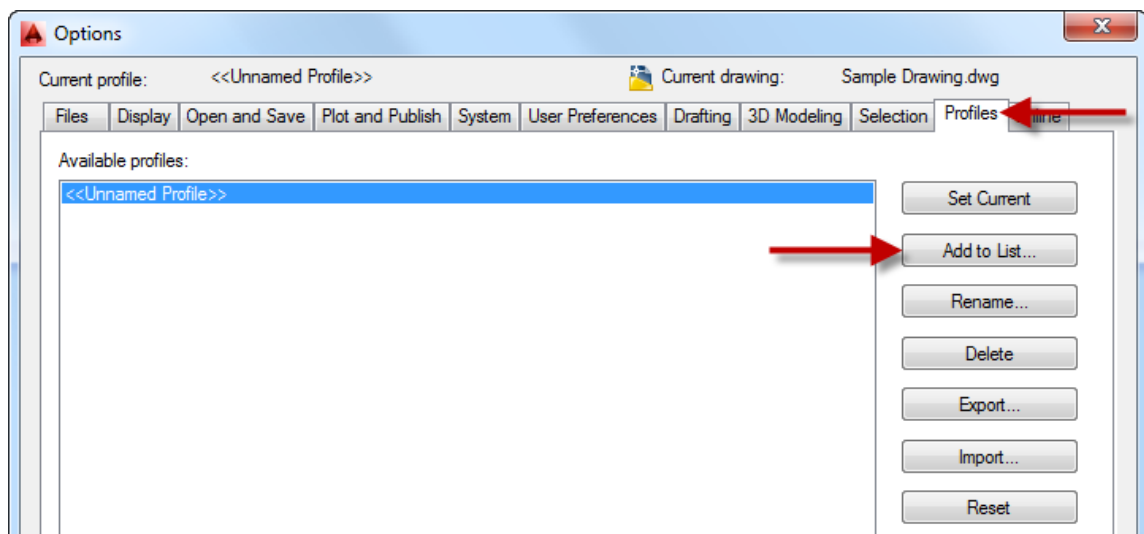
E8 Modify and Create a New Profile

This exercise explains how to create a new profile and set it current.

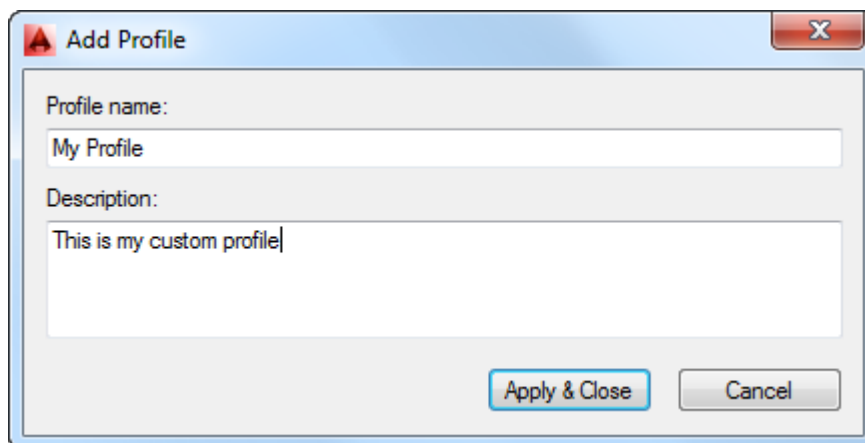
1. Right-click in the drawing area and click Options.



2. In the Options dialog box, click the Profiles tab.
3. On the Profiles tab, click Add to List.



4. In the Add Profile dialog box, Profile Name text box, type **My Profile**.
5. In the Description text box, type **This is my custom profile**.



6. Click Apply & Close.

7. From the Available Profiles list, select My Profile and click Set Current.
8. Change the new profile using the settings on the other tabs of the Options dialog box.
9. Click Apply.
10. Set the previous profile current, <<Unnamed Profile>>, and the settings of that profile are current once again.

Tip: You can use the /p command line switch to set a profile current as AutoCAD starts up when using a desktop shortcut.