

IT20496-L

AutoCAD Customization Boot Camp—Beyond the Basics

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Learning Objectives

- Learn how to write and run script files
- Learn how to record and playback action macros
- Learn how to create and load basic AutoLISP programs
- Learn how to manage user settings with profiles

Description

AutoCAD software supports a variety of customization and programming features that enable you to reduce repetitive tasks and improve workflows. In this lab, you will write script files, create action macros, develop basic AutoLISP programs, and manage settings with user profiles. This lab will help to broaden your understanding of the AutoCAD customization and programming features to become more productive when you return to your office. This session features AutoCAD.

Your AU Expert

Lee Ambrosius is a Principal Learning Experience Designer at Autodesk, Inc., for the AutoCAD software and AutoCAD LT software products. He works primarily on the CAD administration, customization, and developer documentation. Lee has also worked on the user documentation for AutoCAD on Windows and Mac. He has presented on a wide range of topics at Autodesk University over the past decade plus, from general AutoCAD customization to Autodesk ObjectARX technology. Lee has authored a number of AutoCAD-related books, with his most recent project being AutoCAD Platform Customization: User Interface, AutoLISP, VBA, and Beyond published by Wiley & Son's. When he's not writing, you can find him roaming various community forums, posting articles on his blog, or tweeting AutoCAD-related information.

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1 Introduction

The AutoCAD software is an extensive 2D drafting and 3D modeling program. The functionality of AutoCAD has grown since it was first introduced over 30 years ago in 1982. What sets AutoCAD apart from many other CAD programs is its expansive capabilities of being customized or automated. Using the customization and programming features of AutoCAD, individuals and companies can simplify the everyday workflows they follow. Workflows that many seek to customize or automate are:

- Initial drawing setup; layer creation, title block insertion and the population of attribute values
- Extraction of design data for use downstream in a bill of materials or ordering entry system
- Consumption of project information from a data source such as a spreadsheet or database

This lab provides you with the opportunity to roll-up your sleeves and get some hands-on experience with customizing and programming AutoCAD which will prepare you to apply the techniques covered back at the office. You do not need to learn how to program in order to be more productive in the everyday tasks you already perform with AutoCAD. While knowing how to program is not a requirement to customizing AutoCAD, learning how to program does provide you with a greater set of resources to automate tasks in AutoCAD.

2 Which Customization and Programming Options are Available

Not all customization and programming options are created equal, some options are well integrated into the program that you might not even realize you are customizing the AutoCAD program. Creating new layers and named styles are forms of customization that many drafters perform on a daily basis, and don't realize they are customizing the AutoCAD program. Saving layers and named styles to a drawing template can help eliminate the need to create the layers and named styles in each drawing.

The following lists many of the common customization and programming options 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

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

3 What You Need to Get Started

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

4 Supplemental Content

See the separate *IT20496-L-Ambrosius-Supplement.docx* for the supplemental content related to the exercises of this session.

5 Exercises

This section contains all the exercises that will be covered during this lab or when you get back to the office.

E1 Creating and Running a Script

This exercise explains how to create and run a script file. The script file inserts a title block and configures some basic drafting settings.

1. Start AutoCAD 2017 and create a new drawing.
2. In AutoCAD, at the Command prompt, type **notepad** and press Enter twice.

Notepad can also be started from Windows by doing one of the following:

- On the Windows 7 taskbar, click the Start Menu button > All Programs > Accessories > Notepad.
 - On the Windows 8 or Windows 10 Start Screen, type **notepad**. In the Search charm, click Notepad.
3. In Notepad, the editor area, type the proceeding text. When the text reads {Enter}, press the Enter key and don't actually type the text {Enter}.

```
limits 0,0 17,11{ENTER}
-insert b-tblk 0,0 1 1 0{ENTER}
zoom extents{ENTER}
orthomode 1{ENTER}
```



```
gridmode 0 snapmode 0{ENTER}
osmode 32{ENTER}
wscurrent Drafting & Annotation{ENTER}
{ENTER}
```

4. On the menu bar, click File menu ➤ Save As.
5. In the Save As dialog box, browse to the folder for this session.

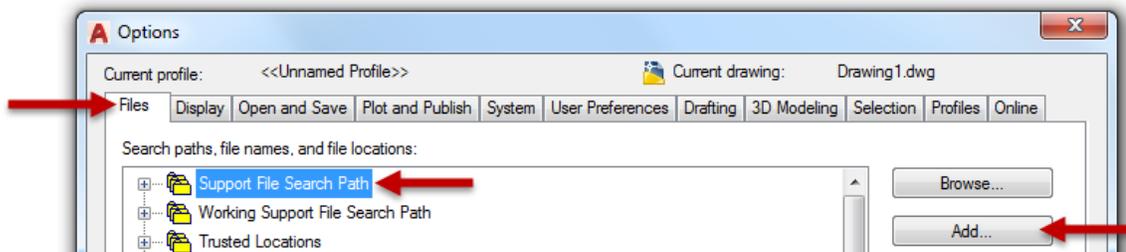
The name of the session folder should be

C:\Datasets\VT20496-L - AutoCAD Customization Boot Camp—Beyond the Basics

6. In the File name text box, select the existing text and type **startup.scr**.
7. Click the Save As Type drop-down list and choose All Files (*.*) .
8. Click Save.

Before the script can be executed, AutoCAD needs to know where the *b-tblk.dwg* file is currently stored.

1. If AutoCAD 2017 isn't already running, start it now and create a new drawing.
2. In the drawing area, right-click and choose Options.
3. In the Options dialog box, Files tab, select the Support File Search Path node and click Add.



4. Click Browse.
5. In the Browse for Folder dialog box, browse to and select the folder for this session.

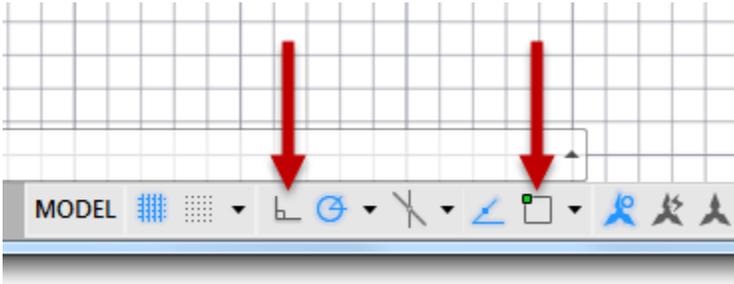
The name of the session folder should be

C:\Datasets\VT20496-L - AutoCAD Customization Boot Camp—Beyond the Basics

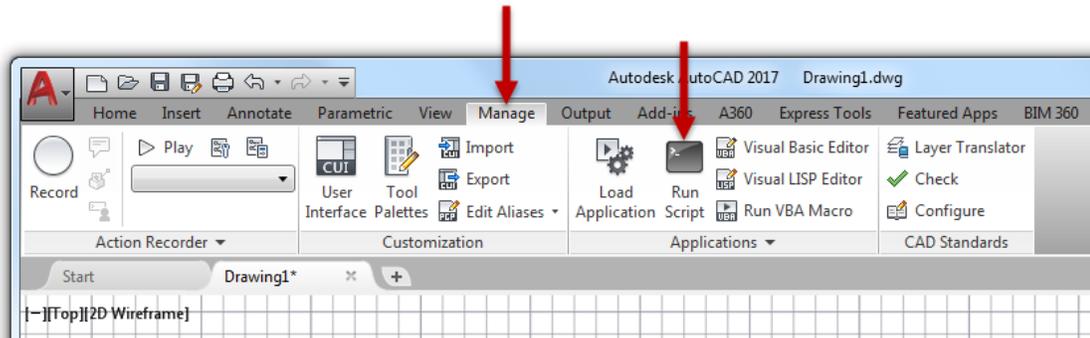
6. Click OK twice to exit the two dialog boxes and save the changes.

Now that AutoCAD knows where to locate the *b-tblk.dwg* file, the script can be executed. If AutoCAD can't locate the file, the script ends with AutoCAD trying to execute the *-INSERT* command.

1. In AutoCAD, create a new drawing.
Notice that the grid is displayed by default.
2. On the status bar, disable Orthomode and Object Snap.



3. On the ribbon, click Manage tab > Applications panel > Run Script.



4. In the Run Script dialog box, browse to the folder for this session and select the *startup.scr* file that you created earlier.
5. Click Open.

After the script finishes running, you should notice these changes have been made:

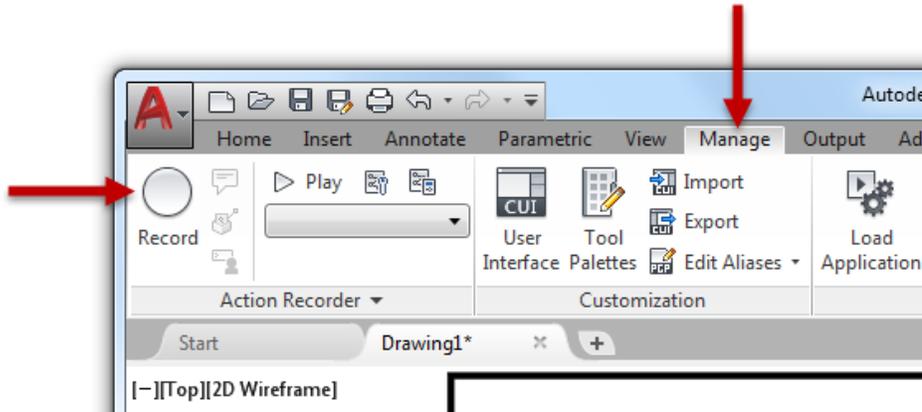
- Drawing limits have been set
- Drawing grid is turned off and the drafting aids ortho and object snap modes have been enabled
- A title block has been inserted into Model Space and the drawing has been zoomed to the extents of the title block
- Drafting & Annotation workspace has been set current, unless it already was current

E2.A Recording and Playing Back a Custom Action Macro

This exercise explains how to create an action macro that creates a new layer and prompts for the points to define a rectangular revision cloud.

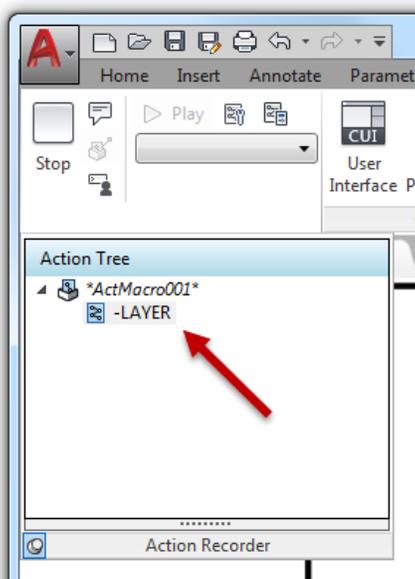
In these steps, you start the recording of an action macro and record the actions related to creating a new layer named A-Anno-RevCloud.

1. On the ribbon, click Manage tab > Action Recorder panel > Record.



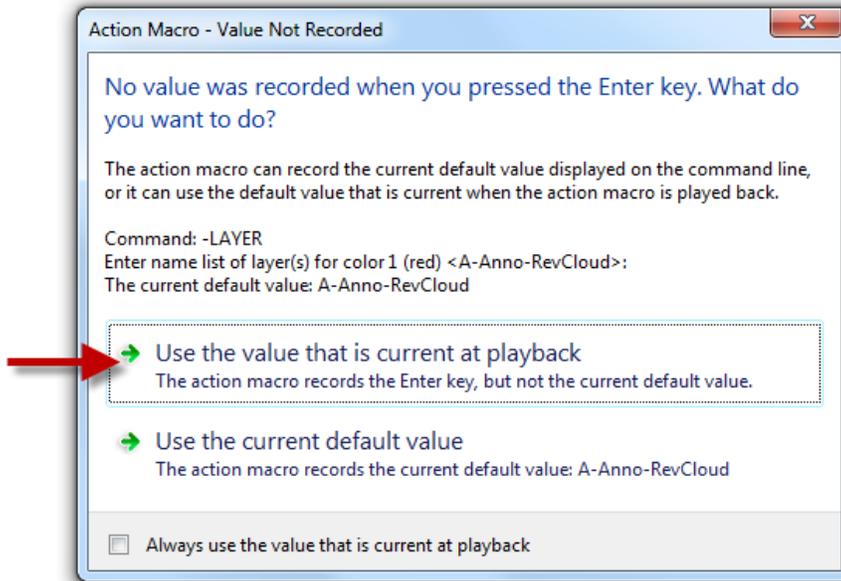
2. At the Command prompt, type **-layer** and press Enter.

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



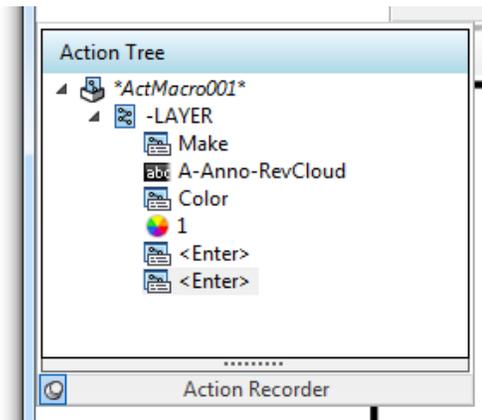
3. At the Enter an Option prompt, type **M** and press Enter to start the creation of the new layer.
4. At the Enter name for new layer prompt, type **A-Anno-RevCloud** and press Enter to set the name of the new layer.
5. At the Enter an Option prompt, type **C** and press Enter to set the color for the new layer.

6. At the `New Color [Truecolor/Colorbook] :` prompt, type **1** (or Red) and press Enter.
7. Press Enter again to assign the color 1 (red) to the A-Anno-RevCloud layer.
8. In the Action Macro – Value Not Recorded dialog box, click Use the Value that is Current at Playback.



9. 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.



In these steps, you create a rectangular revision cloud with the REVLOUD command.

1. At the Command prompt, type **revcloud** and press Enter.
2. At the `Specify first corner point or [Arc length/Object/Rectangular/Polygonal/Freehand/Style/Modify] <Object> :` prompt, type **S** and press Enter to set the style for the revision cloud.
3. At the `Select arc style [Normal/Calligraphy] <Normal> :` prompt, type **C** and press Enter to use the Calligraphy style.



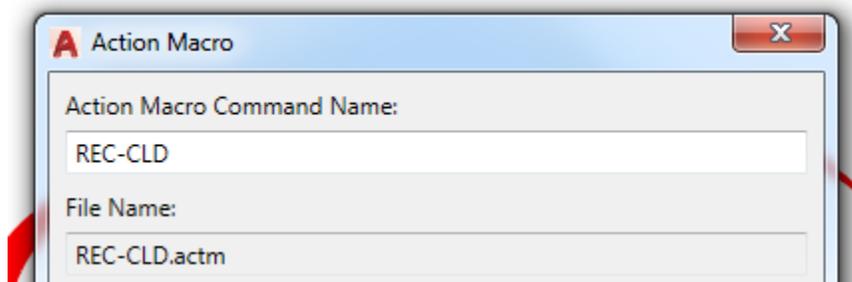
4. At the Specify first corner point or [Arc length/Object/Rectangular/Polygonal/Freehand/Style/Modify] <Object>: prompt, type **A** and press Enter to set the arc length for the revision cloud.
5. At the Specify minimum length of arc <0.5000>: prompt, type **2.5** and press Enter to specify the minimum arc length.
6. At the Specify maximum length of arc <2.5000>: prompt, type **2.5** and press Enter to specify the maximum arc length.
7. At the Specify first corner point or [Arc length/Object/Rectangular/Polygonal/Freehand/Style/Modify] <Object>: prompt, type **R** and press Enter to define a revision cloud based on two opposite points.
8. Specify the first and opposite corner points of the revision cloud anywhere in the drawing area.

The revision cloud that you create should look similar to the following image.



In these steps, you stop recording and save the actions to an action macro named REC-CLD.

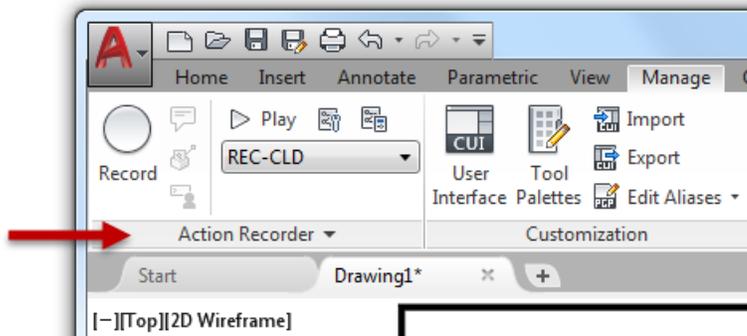
1. On the ribbon, click Manage tab ➤ Action Recorder panel ➤ Stop.
2. In the Action Macro dialog box, Action Macro Command Name text box, type **REC-CLD**.



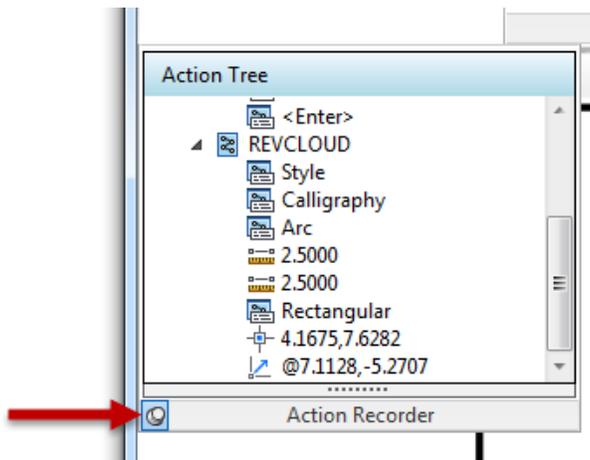
3. Optionally, in the Description text box, enter a description for the action macro.
4. Click OK.

In these steps, you modify the action macro so it prompts for the two corners of the rectangular revision cloud during playback.

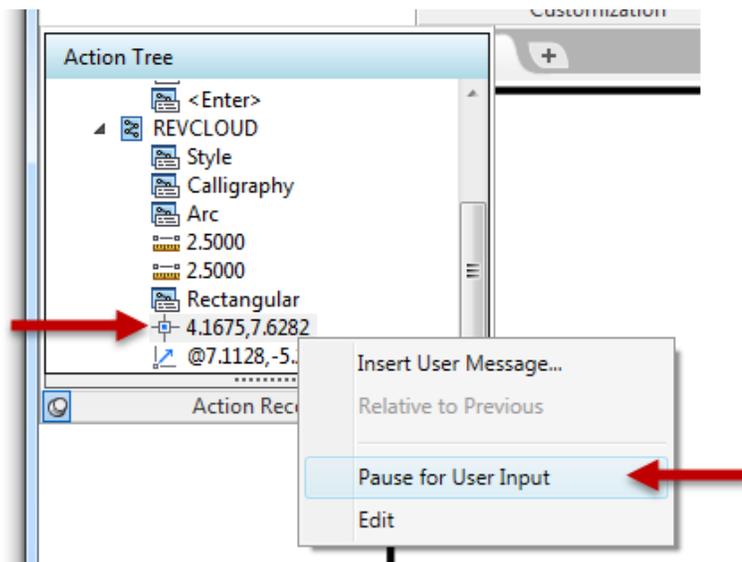
1. On the Action Recorder panel, click the Action Recorder panel's title to expand it, if it isn't already expanded.



2. Click the Pin to keep the Action Tree from closing, if it isn't already pinned.

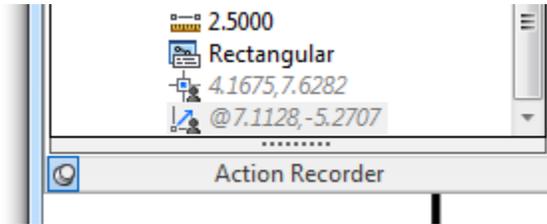


3. In the Action Tree, right-click over the coordinate point that represents the first corner of the rectangular revision cloud and click **Pause for User Input**.

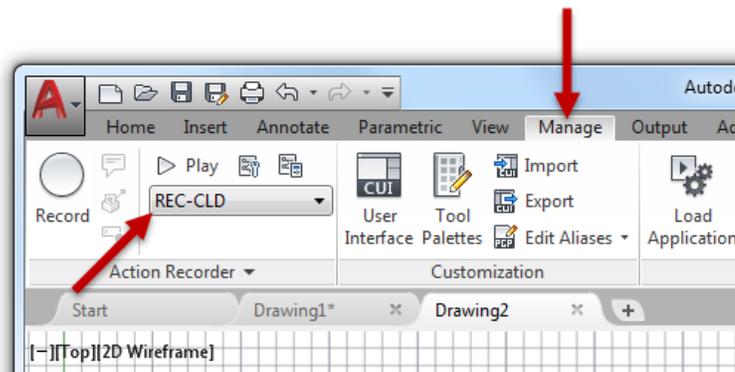


- Repeat Step 3 for the opposite corner of the rectangular revision cloud.

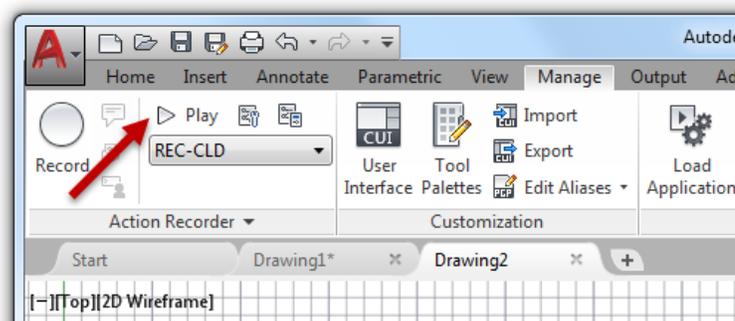
The badges of the two values should now show a silhouette indicating the user will be prompted for a value during playback.



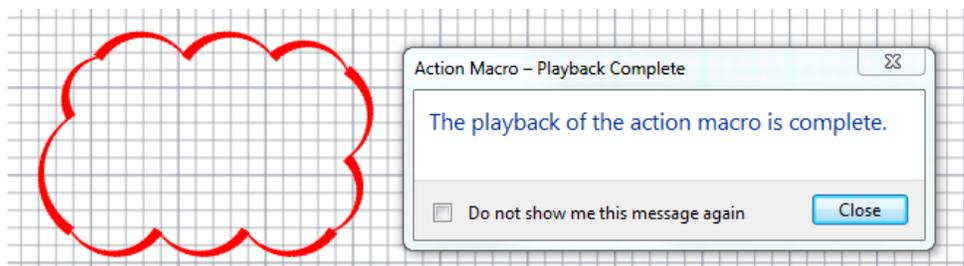
- Click the Pin to collapse the Action Tree.
- Create a new drawing.
- On the ribbon, click Manage tab > Action Recorder panel, select REC-CLD from the Action Macros drop-down list.



- Click Play.

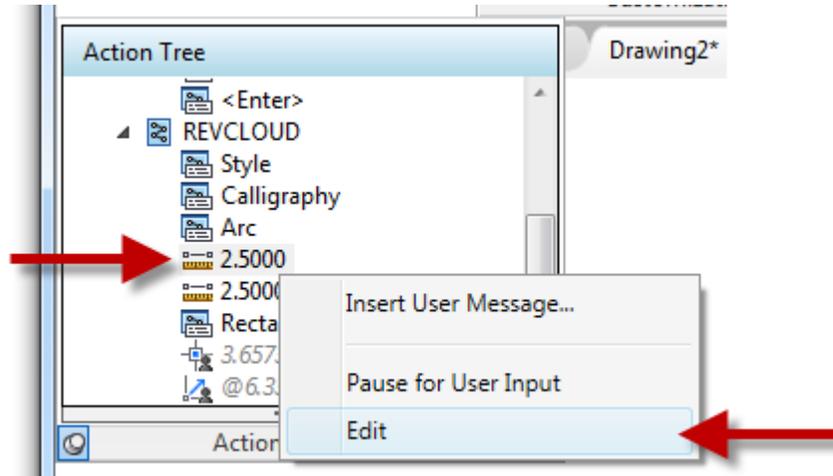


- After playback of the action macro starts, specify two points in the drawing area.
- In the Action Macro - Playback Complete message box, click Close.



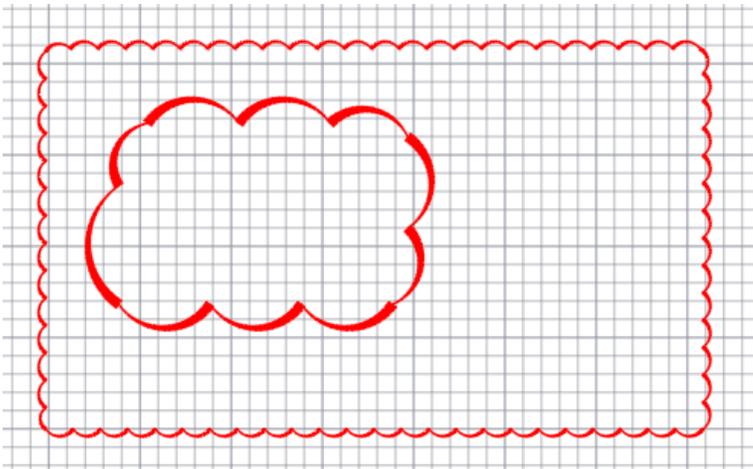
In these steps, you modify the action macro to use a different minimum and maximum arc length for the revision cloud during playback.

1. On the Action Recorder panel, click the Action Recorder panel's title to expand it.
2. In the Action Tree, right-click over the first Distance node under the REVCLLOUD command and click Edit. Type **0.75** and press Enter.



3. Repeat Step 2 for the second Distance node.
4. Playback the REC-CLD action macro again.

Notice that the arcs are smaller compared to the previous revision cloud created.



5. Close the new drawing and discard any changes made.

E2.B Inserting a Dynamic Block with 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.

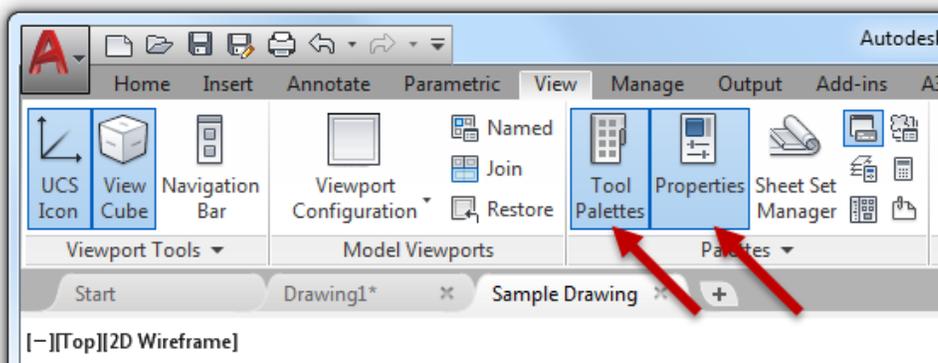
In these steps, you start the recording of an action macro and record the actions related to creating a new layer named Doors.

1. In AutoCAD, open the *Sample Drawing.dwg* file from the dataset folder for this session.

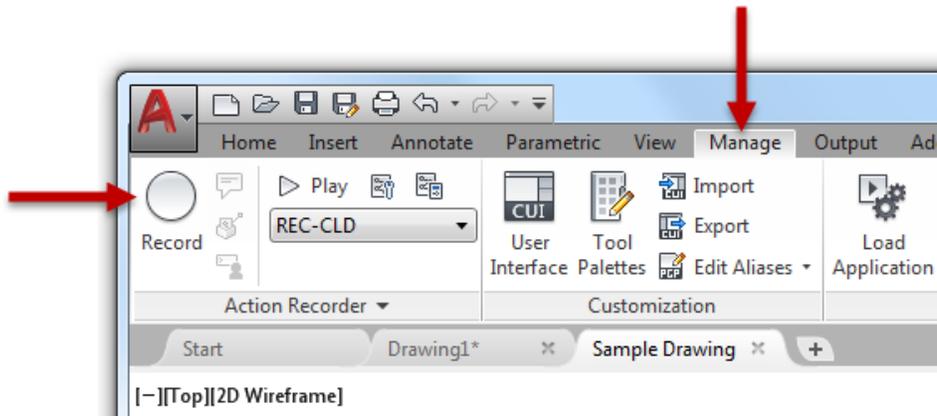
The name of the session folder should be

C:\Datasets\VT20496-L - AutoCAD Customization Boot Camp—Beyond the Basics

2. On the ribbon, click View tab > Palettes panel, and then
 - a. click Tool Palettes to display the Tool Palettes window.
 - b. click Properties to display the Properties window.

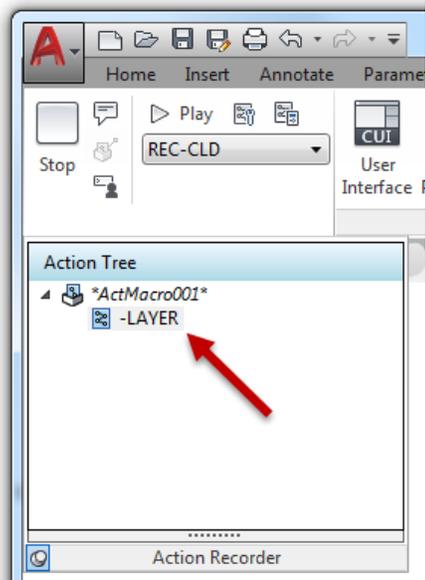


3. On the ribbon, click Manage tab > Action Recorder panel > Record.

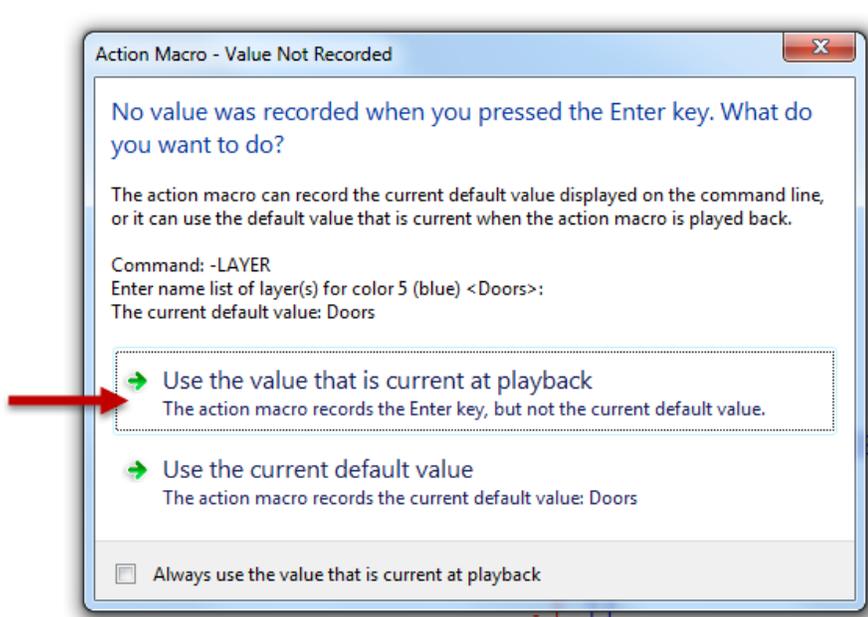


- At the Command prompt, type **-layer** and press Enter.

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

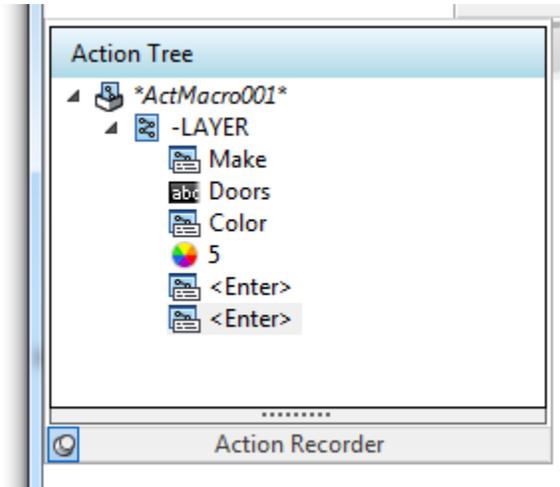


- At the *Enter an Option* prompt, type **M** and press Enter to create a new layer.
- At the *Enter name for new layer* prompt, type **Doors** and press Enter to set the name of the new layer.
- At the *Enter an Option* prompt, type **C** and press Enter to set the color for the new layer.
- At the *New Color [Truecolor/COLORbook]* prompt, type **5** (or Blue) and press Enter.
- Press Enter again to assign the color 5 (blue) to the Doors layer.
- In the Action Macro – Value Not Recorded dialog box, click Use the Value that is Current at Playback.



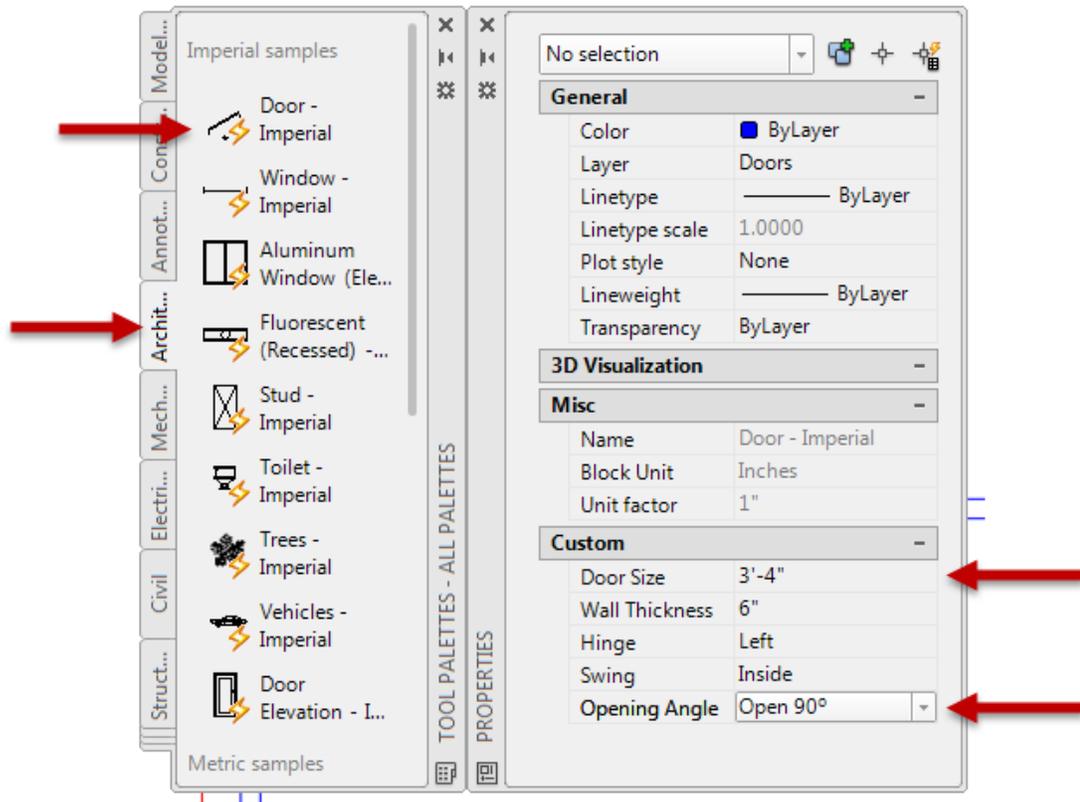
11. Press Enter again to end the -LAYER command.

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.



In these steps, you record the actions related to inserting a dynamic block.

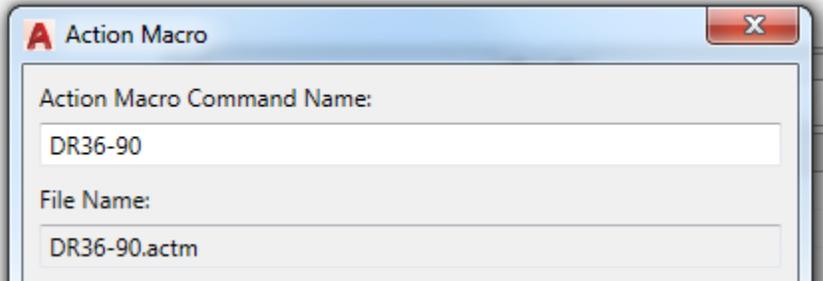
1. On the Tool Palettes window, Architectural tab, click the **Door – Imperial** tool.
2. On the Properties palette, under Custom, select **3'-0"** (or 36.0000) from the Door Size drop-down list and select **Open 90°** from the Opening Angle drop-down list.



3. In the drawing area, specify a point to place the door block.

In these steps, you stop recording and save the actions to an action macro named DR36-90.

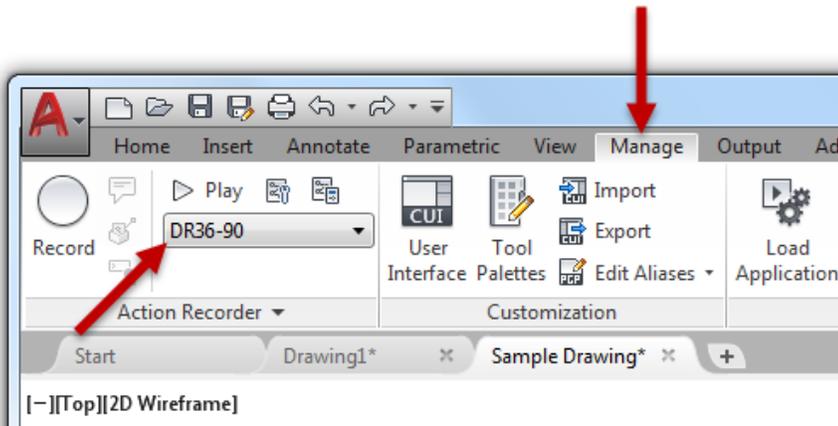
1. On the ribbon, click Manage tab > Action Recorder panel > Stop.
2. In the Action macro dialog box, Action macro Command Name text box, enter **DR36-90**.



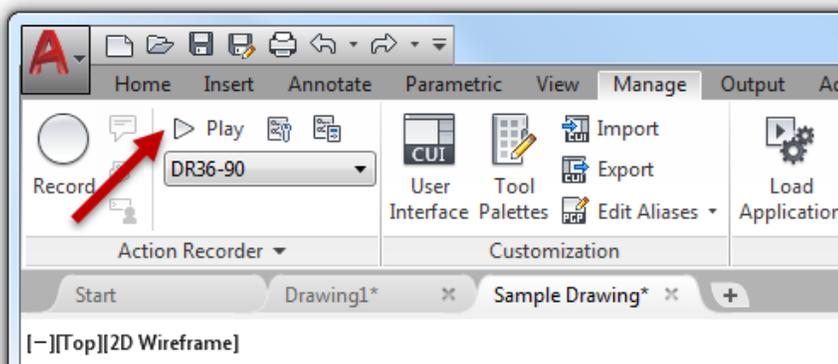
3. Optionally, in the Description text box, enter a description for the action macro.
4. Click OK.

In these steps, you modify and test the action macro named DR36-90.

1. Create a new drawing.
2. On the ribbon, Manage tab > Action Recorder panel, select **DR36-90** from the Action macros drop-down list.

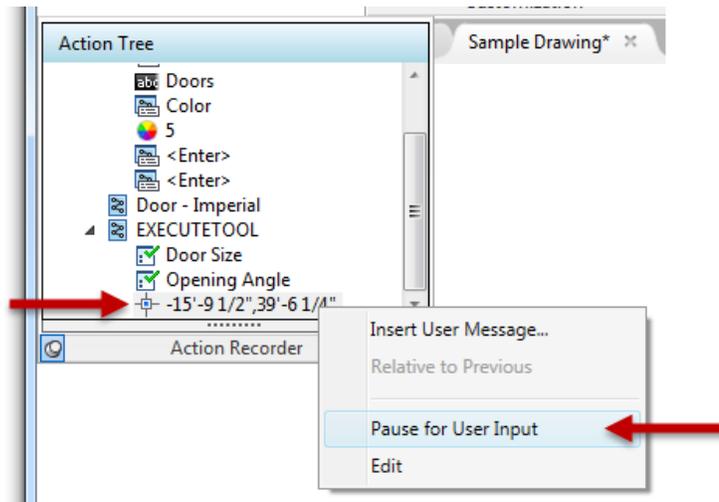


3. Click Play.





4. If the Action Macro – Playback Complete dialog box is displayed, click **Close**.
5. Use the ZOOM command with the Extents option to zoom to the extents of the drawing.
6. On the Action Recorder panel, click the Action Recorder title to expand the panel.
7. In the Action Tree, right-click over the coordinate point for the inserted block and click Pause for User Input.



8. Playback the DR36-90 action macro again.
9. Specify a point in the drawing area when prompted.
You can specify a different rotation value while specifying an insertion point.
10. Close the new drawing and discard any changes made.
11. Optionally, close the Tool Palettes window and Properties palette.

E3 Entering AutoLISP Expressions at the Command prompt

This exercise explains how to work with AutoLISP expressions and user-defined variables at the AutoCAD Command prompt.

1. In AutoCAD, create a new drawing.
2. At the Command prompt, type `!rad` and press Enter.

The value of `nil` is expected unless the user-defined variable `rad` was previously defined in the drawing. Press F2 to expand the Command Line window or display the AutoCAD Text Window, and see the Command Line window history. When the Command Line window is floating, press Ctrl+F2 to display the AutoCAD Text Window.

3. Type `(setq rad 3.5)` and press Enter.

The user-defined variable is assigned the value of 3.5.

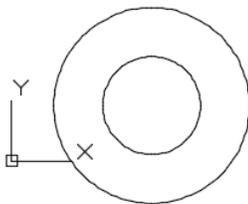
4. Type `!rad` and press Enter.

The value of 3.5 is output to the Command Line window.



5. Type `(setq pt (list 5 2 0))` and press Enter.
The coordinate value of 5,2,0 is assigned to the user-defined variable *pt*.
6. Type **circle** and press Enter.
7. At the Specify center point for circle or [3P/2P/Ttr (tan tan radius)]: prompt, type **!pt** and press Enter.
8. At the Specify radius of circle or [Diameter]: prompt, type **!rad** and press Enter.
9. Zoom to the extents of the drawing.
10. Type `(command "circle" pt (/ rad 2))` and press Enter.

A new circle is added at the point assigned to the user-defined variable *pt* and with a radius that is 1/2 the value assigned to the user-defined variable *rad*.



11. Select the last circle that was created and right-click in the drawing area. Click Properties.
12. In the Properties palette, review the properties of the circle.

You should notice that the center of the circle is at 5,2,0 and it has a radius of 1.75. If you selected the first circle, the radius would be listed as 3.5.

E4 Creating Simple Custom AutoLISP Functions

This exercise explains how to create a basic AutoLISP function which can be executed from the AutoCAD Command prompt.

1. At the Command prompt, type **C2** and press Enter.
The text `Unknown command "C2". Press F1 for help.` is displayed in the Command Line window history because no command is defined with the name C2.
2. Type `(defun c:C2 () (command "circle" PAUSE 1 "circle" "@ 2))` and press Enter.
AutoCAD responds with `C:C2` letting you know the custom function has been defined.
3. Type `(defun c:ZX ()` and press Enter.
AutoCAD responds with the prompt `(_>` letting you know the previous AutoLISP expression hasn't been completed.
4. Type `(command "zoom" "e")` and press Enter.
AutoCAD responds with the prompt `(_>` again.

- Type **)** and press Enter.

AutoCAD responds with `C : ZX` letting you know the custom function has been defined.

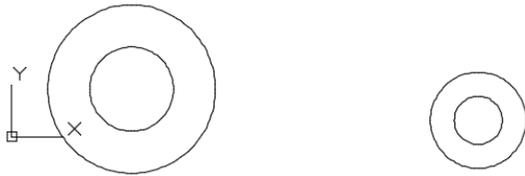
- Type **C2** and press Enter.

- At the `Specify center point for circle or [3P/2P/Ttr (tan tan radius)] :` prompt, specify a point in the drawing area.

Two concentric circles are drawing based on the point specified.

- Type **ZX** and press Enter.

The ZOOM command is executed with the Extents option resulting in the drawing being zoomed to the extents of all visible objects.



- Create a new drawing.

- Type **C2** and press Enter.

The text `Unknown command "C2". Press F1 for help.` is displayed in the Command Line window history because no command is defined with the name C2 in the new drawing. Functions defined with AutoLISP are only available in the drawing which they were defined.

E5 Creating and Loading a LSP File

This exercise explains how to create a LSP file and then load it into the AutoCAD program.

In these steps, you create a LSP file named *au2016.lsp*.

- In AutoCAD, at the Command prompt, type **notepad** and press Enter twice.

Notepad can also be started from Windows by doing one of the following:

- On the Windows 7 taskbar, click the Start Menu button ➤ All Programs ➤ Accessories ➤ Notepad.
 - On the Windows 8 or Windows 10 Start Screen, type **notepad**. In the Search charm, click Notepad.
- In Notepad, on the menu bar, click File menu ➤ Save As.
 - In the Save As dialog box, browse to the folder for this session.

The name of the session folder should be

C:\Datasets\VT20496-L - AutoCAD Customization Boot Camp—Beyond the Basics

- In the File Name text box, select the existing text and type **au2016.lsp**.
- In the Save As Type drop-down list, select All Files (*.*) .
- Click Save.



In these steps, you define and add custom functions to a LSP file.

1. In Notepad, in the text editor area, enter the following text:

```
; AU2016 AutoLISP Examples  
; Created on: [Today's Date]  
; Created by: [Your Name]
```

Replace the text [Today's Date] with the current date of this session, and replace [Your Name] with your name or a value of your choice. The text to the right of a semi-colon is known as a *comment* and isn't executed.

2. In the text editor area, click after the last comment and press Enter twice. Enter the following text:

```
; Executed when the LSP file is loaded  
(prompt "\nAU2016 AutoLISP Examples loading...")
```

The message AU2016 AutoLISP Examples loading... will be displayed at the Command prompt when the LSP file is loaded.

3. In Notepad, on the menu bar, click File menu ➤ Save.
4. In the text editor area, click after the last statement and press Enter twice. Enter the following text:

```
; Zoom extents shortcut  
(defun c:ZX () (command "zoom" "e"))  
  
; Draws concentric circles  
(defun c:C2 () (command "circle" PAUSE 1 "circle" "@" 2))  
  
; Creates a layer and sets it current  
; Usage: (create-layer "NewLayer" "45")  
(defun create-layer (lay-name lay-clr / )  
  (command "-layer" "m" lay-name "c" lay-clr "" "")  
)  
  
; Replaces the DLI command alias with a custom command  
(defun c:DLI ()  
  (create-layer "Dimensions" "3")  
  (command "dimlinear")  
)
```

The previous statements define three functions that can be entered directly at the Command prompt similar to a standard command. The `create-layer` function can be entered at the Command prompt, but must be formatted as an AutoLISP expression since it requires arguments and isn't prefixed with `c:.`

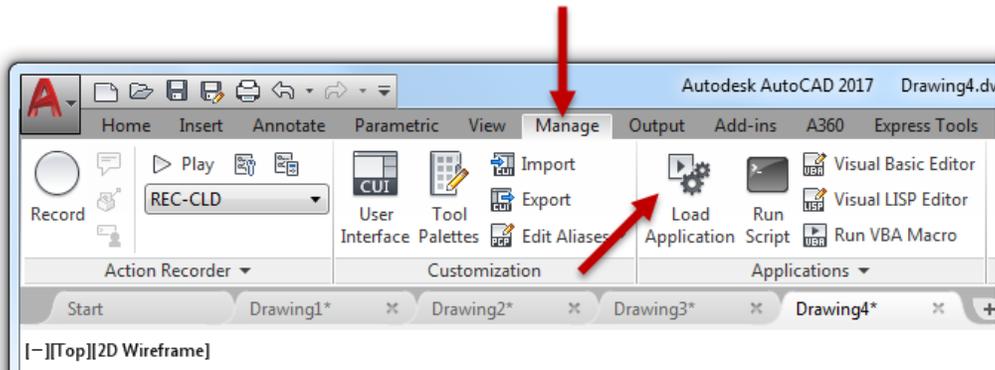
5. In Notepad, on the menu bar, click File menu ➤ Save.

In these steps, you learn how to load the file `au2016.lsp` into AutoCAD.

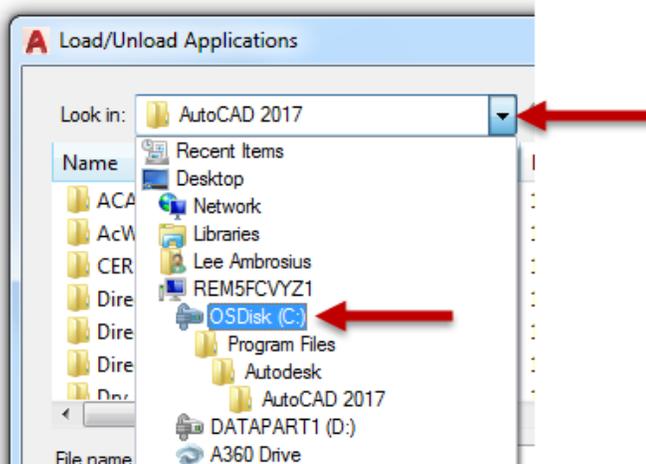
1. In AutoCAD, at the Command prompt, type **DLI** and press Enter.

The DIMLINEAR command is started.

2. Specify three points in the drawing area.
Notice the linear dimension is drawn on the current layer.
3. On the ribbon, click Manage tab > Applications panel > Load Application.



4. In the Load/Unload Applications dialog box, click the Look In drop-down list near the top and scroll up to the C:\ drive.



5. Browse to the folder for this session and select the *au2016.lsp* file.
The name of the session folder should be
C:\Datasets\VT20496-L - AutoCAD Customization Boot Camp—Beyond the Basics
6. Click Load.
A message near the lower-left corner of the dialog box appears displaying the text "au2016.lsp successfully loaded."
7. In the Security – Unsigned Executable File message box, click Load Once.
Note: This message is displayed as a result of the security changes to AutoCAD 2013 SP1 and later releases.
8. Click Close to exit the Load/Unload Applications dialog box.
9. On the ribbon, click Home tab.



10. At the Command prompt, type **DLI** and press Enter.

The Dimensions layer is created and set current, which can be seen in the Layers drop-down list, and then the DIMLINEAR command is started.

11. Specify three points in the drawing area.

The new linear dimension should now be placed on the Dimensions layer and appear in the color green.

12. Create a new drawing.

13. At the Command prompt, type **DLI** and press Enter, and then specify three points in the drawing area to place the dimension.

Notice the dimension is drawn on layer 0.

E6 Creating a Basic Plug-in Bundle to Load an AutoLISP Program

This exercise explains how to define and deploy a custom plug-in bundle.

In these steps, you learn how to create a plug-in bundle named *IT20496-L.bundle*.

1. In AutoCAD, at the Command prompt, type **explorer** and press Enter.

Windows Explorer or File Explorer can also be started from Windows by doing one of the following:

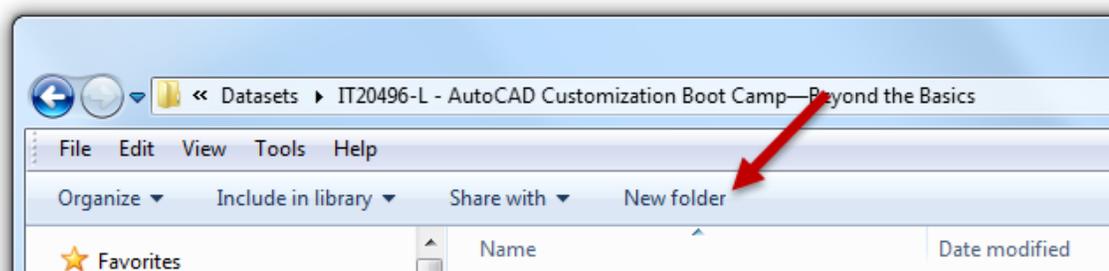
- On the Windows 7 taskbar, click the Start Menu button > All Programs > Accessories > Windows Explorer.
- On the Windows 8 or Windows 10 Start Screen, type **explorer**. In the Search charm, click File Explorer. You can also right-click in the lower-left corner of the screen and choose File Explorer.

2. In Windows Explorer or File Explorer, navigate to the folder for this session.

The name of the session folder should be

C:\Datasets\IT20496-L - AutoCAD Customization Boot Camp—Beyond the Basics

3. Click New Folder.



4. In the in-place editor, type **IT20496-L.bundle** and press Enter.

5. In Windows Explorer or File Explorer, select the *au2016.lsp* file you created earlier.

6. Hold down the Ctrl key and select the following files:

- *au2016ex.lsp*
- *PackageContents.xml*

7. Right-click over one of the selected files and choose Copy.
8. Double-click the *IT20496-L.bundle* folder.
9. In the empty folder, right-click and choose Paste.

In these steps, you learn how to deploy the bundle named *IT20496-L.bundle*.

1. In Windows Explorer or Files Explorer, go back (or up) one folder so you are in the session folder.

This can be done by doing one of the following:

- a. Click in an empty area of the files list and pressing Backspace.
 - b. Click the previous folder in the Address bar
 - c. Edit the folder path in the Address bar.
2. Right-click over the *IT20496-L.bundle* folder and choose Copy.
 3. In Windows Explorer or File Explorer, in the Address bar, type **%ProgramData%\Autodesk** and press Enter.

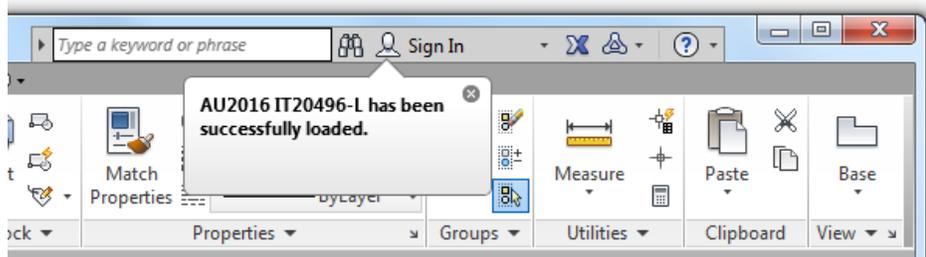
Note: It is recommended to add plug-in bundles to one of the following locations instead of the *ProgramData* folder:

- *%ProgramFiles%\Autodesk*
 - *%ProgramFiles(x86)%\Autodesk*
4. Double-click the *ApplicationPlugins* folder.
 5. Right-click in an empty area and choose Paste.

The plug-in bundle is now deployed and ready for AutoCAD to pick up. By default, the plug-in bundle should be loaded into AutoCAD automatically after placing it in the folder. If it doesn't the value of the APPAUTOLOAD system variable might have been changed from its default value of 14.

6. Switch back to AutoCAD 2017.

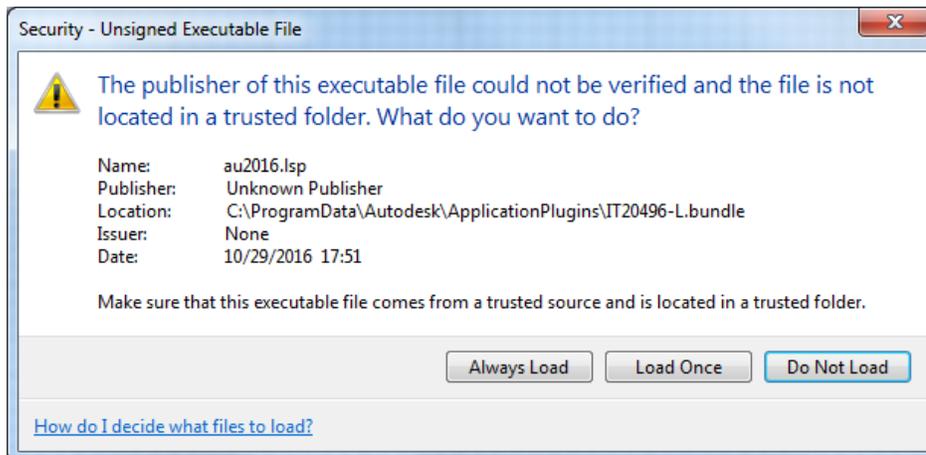
After about 5-10 seconds, you might see a balloon notification appear that indicates your plug-in bundle was loaded. It doesn't stay displayed for too long though. While the bundle has been loaded, the actual LSP files in the bundle aren't loaded.



7. Close and restart AutoCAD 2017; discard the changes to any open drawings.
8. After AutoCAD 2017 restarts, create a new drawing.



9. In the Security – Unsigned Executable File dialog box, click Load Once.



This dialog box is displayed to let you know that the file hasn't been digitally signed and isn't placed in a trusted location.

10. At the Command prompt, type **C2** and press Enter. Specify a point in the drawing area.
11. Type **DLI** and press Enter. Specify three points to create the linear dimension.
12. Type **ZX** and press Enter to zoom to the extents of the drawing.

In these steps, you learn how to update the *PackageContents.xml* file for the *IT20496-L.bundle*.

1. In Windows Explorer or File Explorer, in the *IT20496-L.bundle* folder under *%ProgramData%\Autodesk\ApplicationPlugins*, right-click the *PackageContents.xml* file and choose Open With > Notepad.
2. In Notepad, scroll down to the Components element and added the text in bold; you can copy and paste the existing ComponentEntry element just above the bold text instead of typing all the text in bold.

```
<Components Description="Windows and Mac OS operating systems">
  <RuntimeRequirements
    OS="Win32|Win64|Mac"
    SeriesMin="R19.0"
    Platform="AutoCAD*"
  />
  <ComponentEntry Description="Your custom file"
    AppName="AU2016Examples"
    Version="1.0"
    ModuleName="./au2016.lsp">
  </ComponentEntry>
  <ComponentEntry Description="Additional examples"
    AppName="AU2016AdditionalExamples"
    Version="1.0"
    ModuleName="./au2016ex.lsp">
  </ComponentEntry>
</Components>
</ApplicationPackage>
```

3. In Notepad, on the menu bar, click File menu > Save.



4. Close and restart AutoCAD 2017; discard any changes made to the open drawing.
5. In AutoCAD, create a new drawing.
6. Click Load Once for each of the Security – Unsigned Executable File dialog boxes that are displayed.
7. At the Command prompt, type **TB** and press Enter.

The title block *t-blk* is inserted into the current space. The path of the block was setup as part of the exercise *E1 Creating and Running a Script*.

8. Type **ZX** and press Enter.
9. Type **ZP** and press Enter.

The previous view is restored.

10. Type **TAGBUBBLE** and press Enter. Type **C** and press Enter for the circle bubble and then press Enter to accept the default text height of 3. Specify the center of the circle and the end of the leader line.

E7 Creating and Modifying a New Profile

This exercise explains how to create a new profile, set the new profile current, and then make changes to the profile.

In these steps, you create a new profile and set it current.

1. In AutoCAD, at the Command prompt, type (`load "au2016-trusted.lsp"`) and press Enter.
2. In the Security – Unsigned Executable File message box, click Load Once.

The message box informs you that the custom program file being loaded isn't located in a trusted location and it hasn't been previously digitally signed.

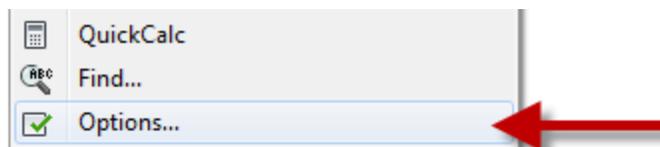
Note: It isn't recommended to load custom programs from a location that hasn't been previously trusted.

Upon the loading of the LSP file, an AutoCAD message box is displayed with the alert function.

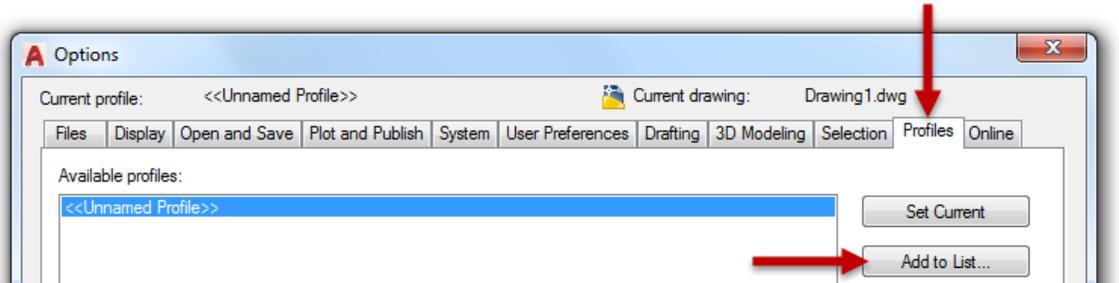
3. In the AutoCAD message box, click OK.
4. At the Command prompt, type (`load "au2016-trusted-signed.lsp"`) and press Enter.
5. In the Security – Signed File Not in Trusted Folder message box, click Always Load.

The message box informs you that the custom program file has been digitally signed, but isn't being loaded from a trusted folder.

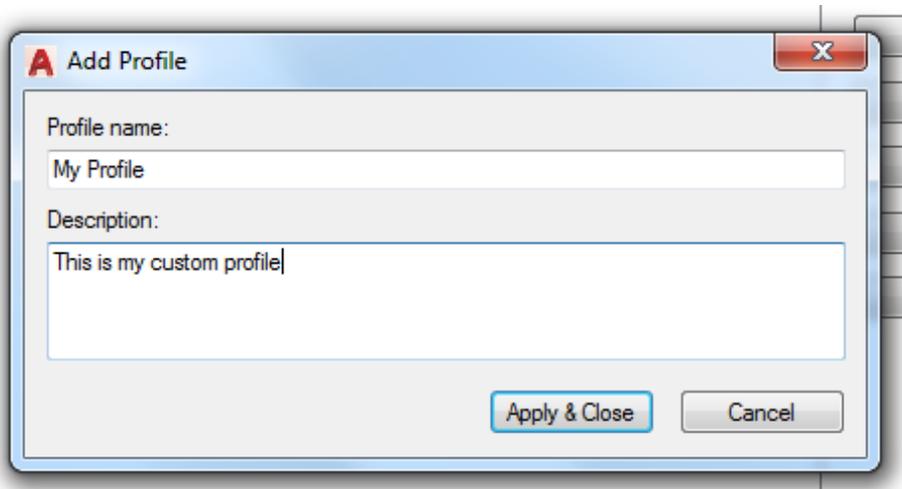
6. In the AutoCAD message box, click OK.
7. Right-click in the drawing area and click Options.



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



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



- Click Apply & Close.
- From the Available Profiles list, select My Profile and click Set Current.

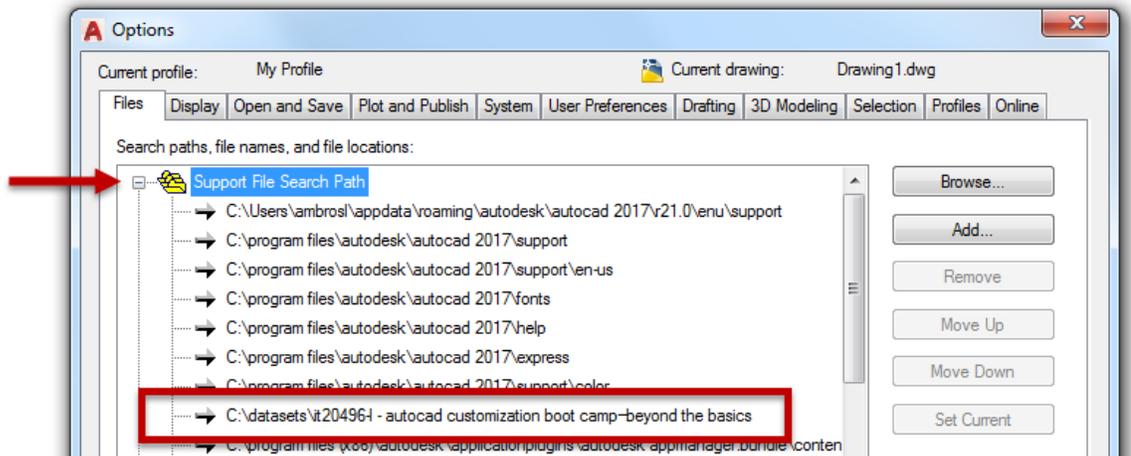
Tip: The /p command line switch can be used to set a profile current when AutoCAD is started from a desktop shortcut. For more information on the /p command line switch, search on the keywords “command line switch” in the AutoCAD Online Help system.

In these steps, you modify a profile and add this session's folder as a trusted path.

1. In the Options dialog box, click the Files tab.
2. On the Files tab, expand the Support File Search Path node and verify that the session folder is listed.

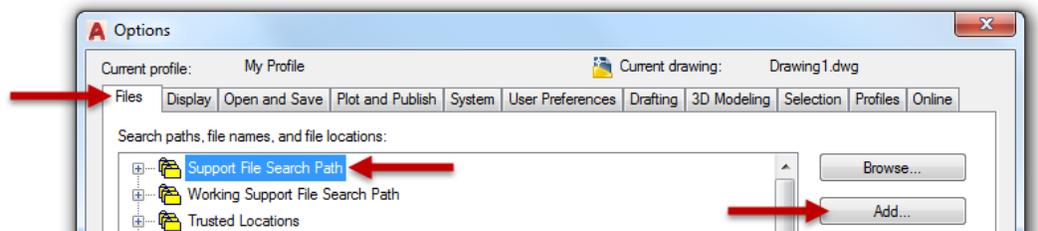
The name of the session folder should be

C:\Datasets\VT20496-L - AutoCAD Customization Boot Camp—Beyond the Basics



The folder should have been inherited from the <<Unnamed Profile>> profile when you created the new My Profile. You originally added the path as part of the exercise named *E1 Creating and Running a Script*.

3. If the folder mentioned and shown in the previous step is missing, do the following:
 - a. Select the Support File Search Path node and click Add.



- b. Click Browse.
 - c. In the Browse for Folder dialog box, browse to and select the folder for this session.

The name of the session folder should be

C:\Datasets\VT20496-L - AutoCAD Customization Boot Camp—Beyond the Basics

- d. Click OK.
4. Select the Trusted Locations node and click Add.
5. Click Browse.



6. In the Browse for Folder dialog box, browse to and select the folder for this session.

The name of the session folder should be

C:\Datasets\VT20496-L - AutoCAD Customization Boot Camp—Beyond the Basics

7. Click OK.
8. In the Trusted File Search Path - Security Concern dialog box, click Continue.

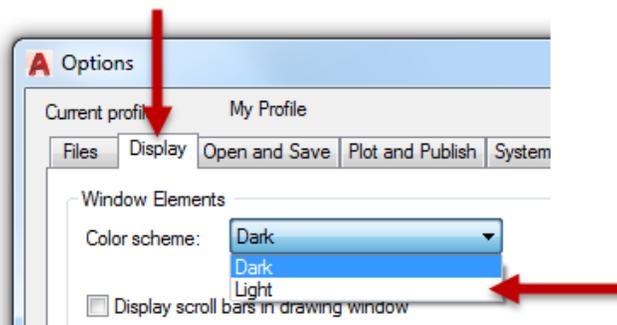
The folders you specify as trusted locations should be read-only to avoid potential problems with programs modifying the custom files in that location.

9. Add the following folder to the trusted locations:

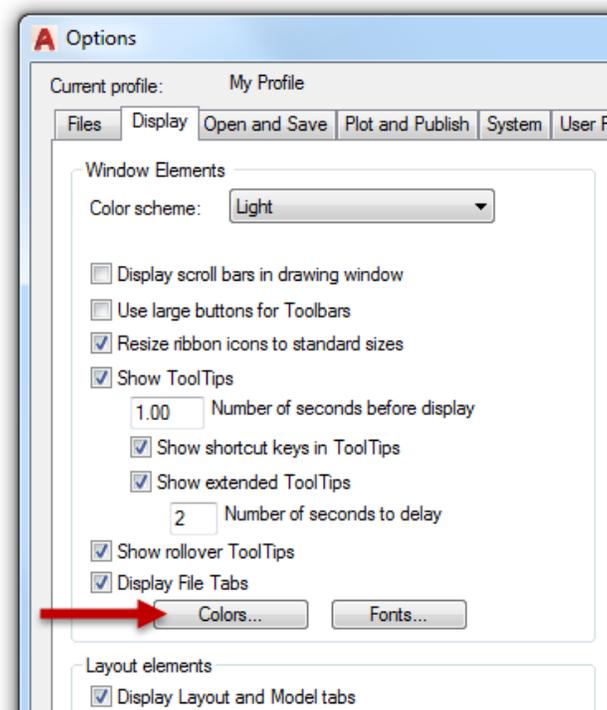
C:\ProgramData\Autodesk\ApplicationPlugins\VT20496-L.bundle

10. Click the Display tab.

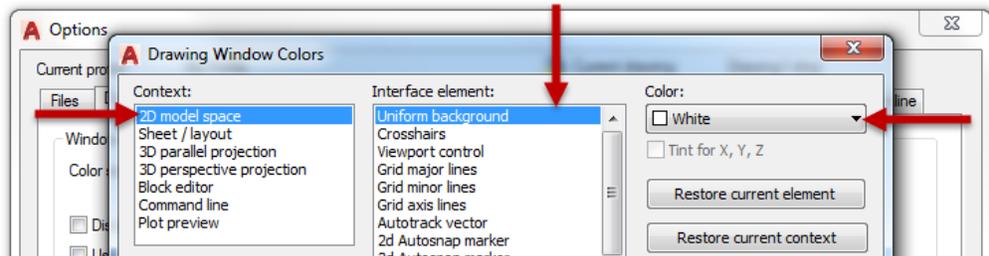
11. In the Window Elements section, click the Color Scheme drop-down list and choose Light.



12. Click the Colors button.



13. In the Drawing Window Colors dialog box, do the following:
 - a. In the Context list box, select 2D Model Space.
 - b. In the Interface Element list box, select Uniform Background.
 - c. Click the Color drop-down list and choose White.

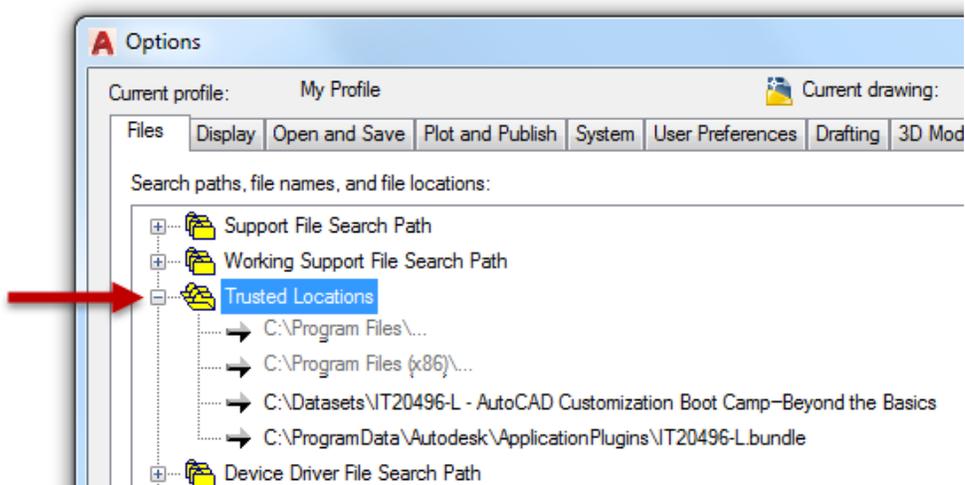


14. Click Apply & Close.
15. Click OK to close the Options dialog box.

In these steps, you test the changes to the profile's trusted paths.

1. Close and restart AutoCAD 2017; discard any changes to the open drawing.
AutoCAD remembers the choice you made in the Security – Unsigned Executable File dialog box for a custom program file while the session is still open.
2. In AutoCAD, create a new drawing.
3. At the Command prompt, type (`load "au2016-trusted.lsp"`) and press Enter. Click OK to dismiss the message box.

Notice unlike earlier, the Security – Unsigned Executable File dialog box isn't displayed this time when the *au2016-trusted.lsp* file is loaded. If the message box is displayed, verify that you added the correct session folder to the Trusted Locations node in the Options dialog box.



4. Right-click in the drawing area and click Options.
5. In the Options dialog box, Profiles tab, from the Available Profiles list box, select <<Unnamed Profile>> and click Set Current. Click OK.



6. Close and restart AutoCAD 2017.
7. Create a new drawing.
8. Click Load Once each time the Security – Unsigned Executable File dialog box is displayed.

Notice the Security – Unsigned Executable File dialog box is displayed once again for the files in the plug-in bundle because the trusted location for the session and plug-in bundle is no longer specified.

9. At the Command prompt, type (`load "au2016-trusted.lsp"`) and press Enter.

The Security – Unsigned Executable File dialog box is displayed once again.

10. In the Security – Unsigned Executable File dialog box, click Load Once.

11. Click OK to dismiss the message box.

12. At the Command prompt, type (`load "au2016-trusted-signed.lsp"`) and press Enter.

The Security – Signed File Not in Trusted Folder message box is not displayed because all signed files by the same publisher are trusted.

13. Click OK to dismiss the message box.

E8 Resetting the AutoCAD Environment

This exercise explains how to reset AutoCAD back to its default settings.

1. Close all instances of AutoCAD 2017.
2. Do one of the following:
 - a. On the Windows 7 taskbar, click the Start button > All Programs > Autodesk > AutoCAD 2017 - English > Reset Settings to Default.
 - b. On the Windows 8 or Windows 10 Start Screen, under the AutoCAD 2017 - English category, click Reset Settings to Default.



3. In the Reset Settings - Backup dialog box, click Reset Custom Settings.

When back at the office, you might want to click Back Up and Reset Custom Settings to create a ZIP file containing the

4. When the Reset Settings - Confirmation message box is displayed, click OK.
5. In Windows Explorer or File Explorer, in the Address bar, type **%ProgramData%\Autodesk** and press Enter.
6. Double-click the *ApplicationPlugins* folder.
7. Select the *IT20496-L.bundle* folder and press Delete.
8. In the Delete Folder message box, click Yes.