AS122153-L

AutoCAD Customization Boot Camp—Beyond the Basics

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Autodesk, Inc.

Learning Objectives

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

Description

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

Speaker(s)

Lee Ambrosius is a Principal Learning Experience Designer at Autodesk, Inc., for the AutoCAD and AutoCAD LT products on Windows and Mac. He works primarily on the customization, developer, and CAD administration documentation along with the user documentation. Lee has presented at Autodesk University for more than 10 years on a wide range of topics, from general AutoCAD customization to programming with the ObjectARX technology. He has authored a number of AutoCAD-related books, with his most recent project being AutoCAD Platform Customization: User Interface, AutoLISP, VBA, and Beyond. When Lee isn't writing, you can find him roaming various AutoCAD community forums, posting articles on his or the AutoCAD blog, or tweeting information regarding the AutoCAD product.

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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 customization and programming options available:

Basic

Drawing

- Layers
- Blocks
- Annotation styles (text, dimensions, multileaders, and tables)
- Materials and visual styles
- Drawing templates

Application

- Desktop shortcut
- Command aliases
- Tool palettes
- Workspaces
- User profiles
- Plot styles

Intermediate

Drawing

- Dynamic blocks

Application

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

Advanced (Application Only)

- AutoLISP / Visual LISP
- Visual Basic for Applications (VBA)
- ActiveX / COM (VBA, VBScript, VB.NET, C#, C++)
- Database connectivity
- Managed .NET (VB.NET, C#)
- ObjectARX (C++)
- JavaScript
- Sheet Set Manager API
- CAD Standards plug-ins
- Transmittal API
- Connectivity Automation API
- 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 *AS122153-L-Ambrosius-Supplement-AU2017.pdf* for the supplemental content in the dataset related to 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 Create and Run 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 2018 and create a new drawing.
2. In AutoCAD, at the Command prompt, type **notepad** and press Enter twice.
3. In Notepad, the editor area, type the proceeding text and press Enter after each line and make sure there is a blank line after the last line you enter.

```
limits 0,0 408,264↵
-insert b-tblk 0,0 24 24 0↵
zoom extents↵
orthomode 1↵
gridmode 0 snapmode 0↵
osmode 32↵
wscurrent Drafting & Annotation↵
```

4. On the menu bar, click File menu ➢ Save As.

5. In the Save As dialog box, browse to the dataset folder for this session.

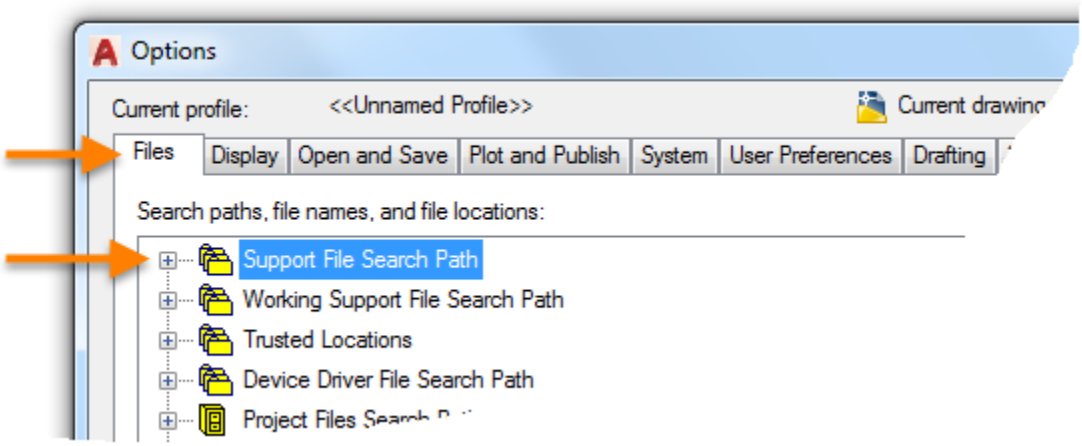
   The location and name of the dataset folder for this session should be

   C:\Datasets\Lee Ambrosius\AS122153-L

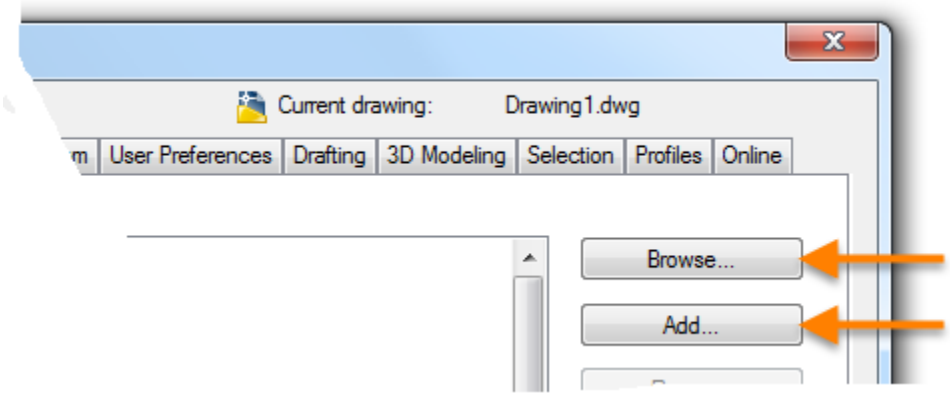
6. In the File name text box, select the existing text and type **startup.scr**.
7. Click the Save As Type drop-down list and choose All Files (*.*).
8. Click Save.

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

1. Switch back to AutoCAD.
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.



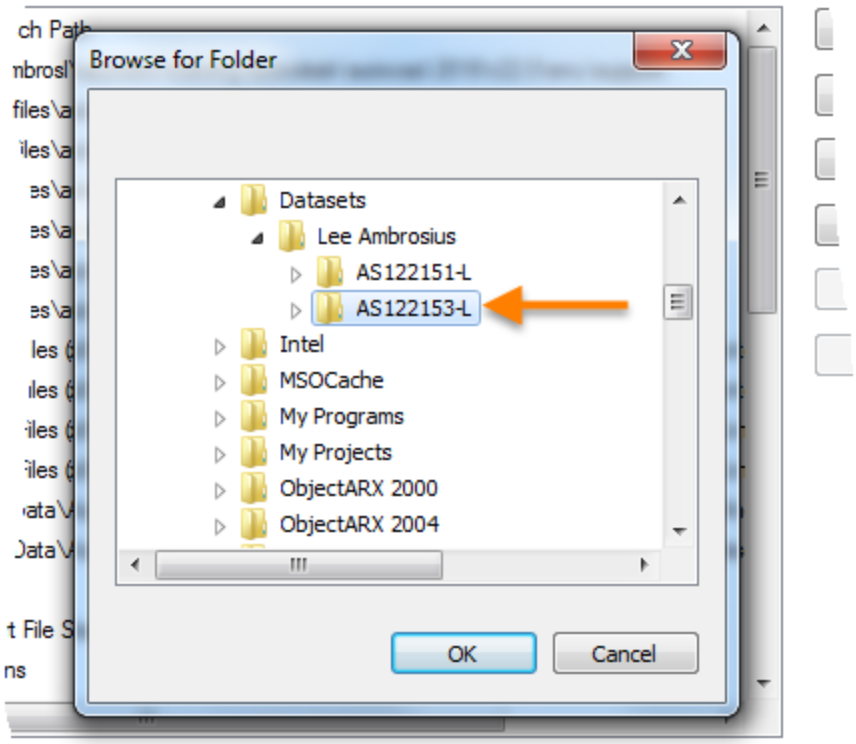
4. On the right side, click Add and then click Browse.



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

   The location and name of the dataset folder for this session should be

   C:\Datasets\Lee Ambrosius\AS122153-L



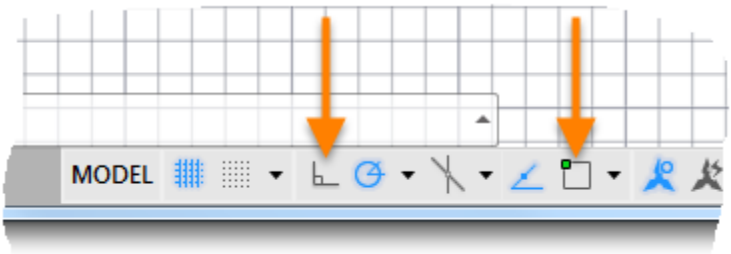
6. Click OK twice to exit the two dialog boxes and save the changes.

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.

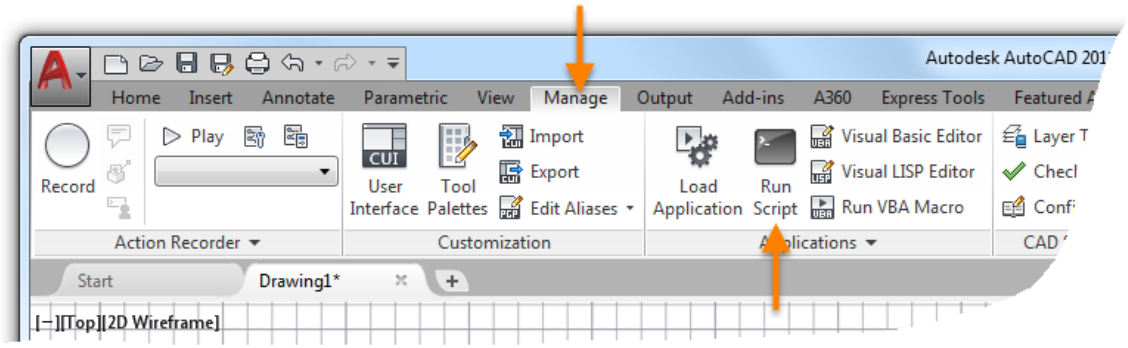
1. In AutoCAD, create a new drawing.

   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 dataset 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:

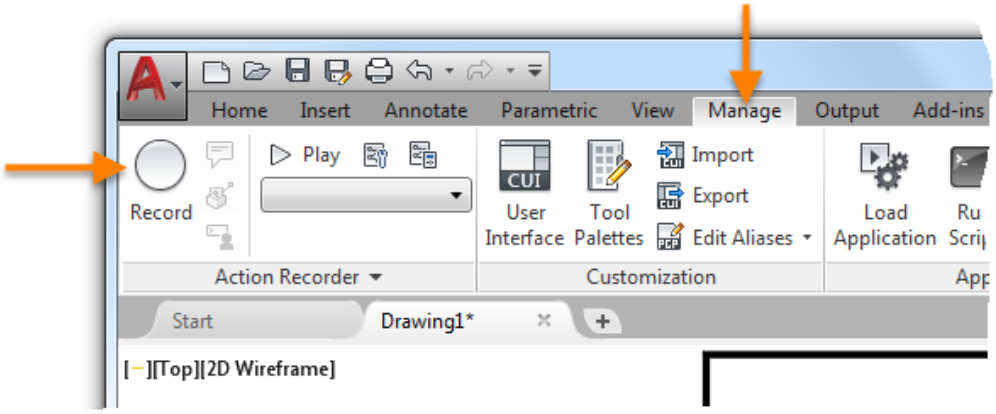
   - Drawing limits have been set
   - Drawing grid is turned off and the drafting aids ortho and object snap modes have been enabled
   - A title block has been inserted into Model Space and the drawing has been zoomed to the extents of the title block
   - Drafting & Annotation workspace has been set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

E2.A Record and Playback an 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.

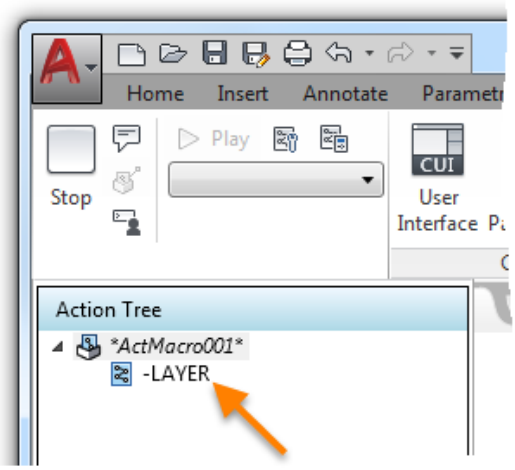
In these steps, you start the recording of an action macro and record the actions related to creating a new layer named A-Anno-RevCloud:

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

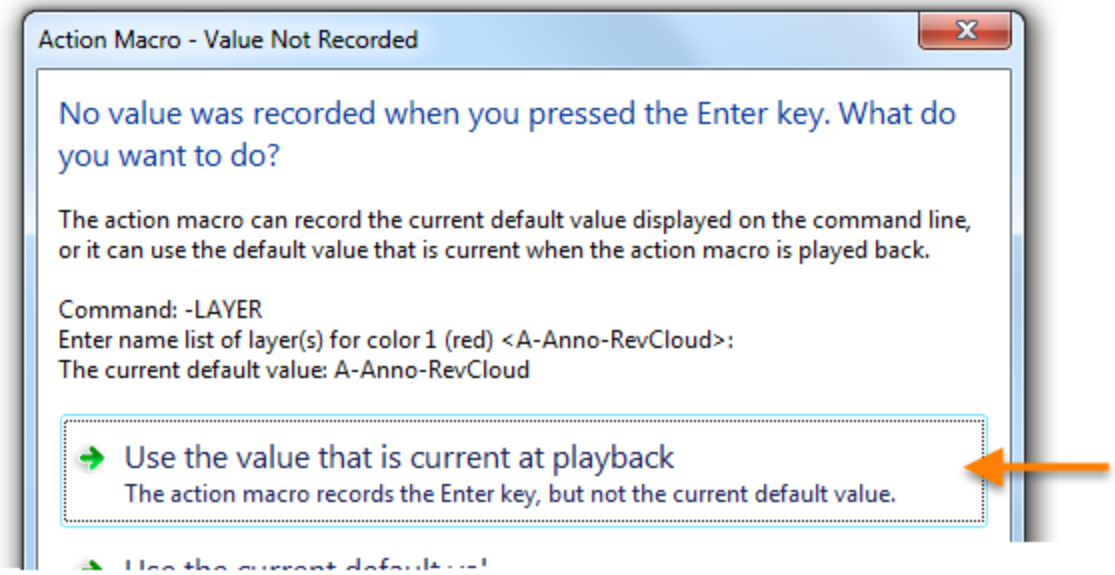


2. At the Command prompt, type **-layer** and press Enter.

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

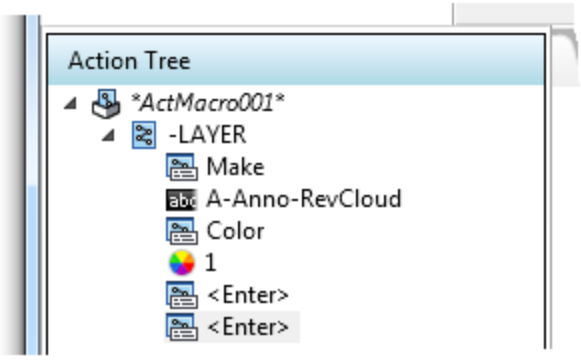


3. At the `Enter an Option` prompt, type **M** and press Enter.
4. At the `Enter name for new layer` prompt, type **A-Anno-RevCloud** and press Enter.
5. At the `Enter an Option` prompt, type **C** and press Enter.
6. At the `New Color [Truecolor/COlorbook]:` prompt, type **1** and press Enter.
7. Press 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.



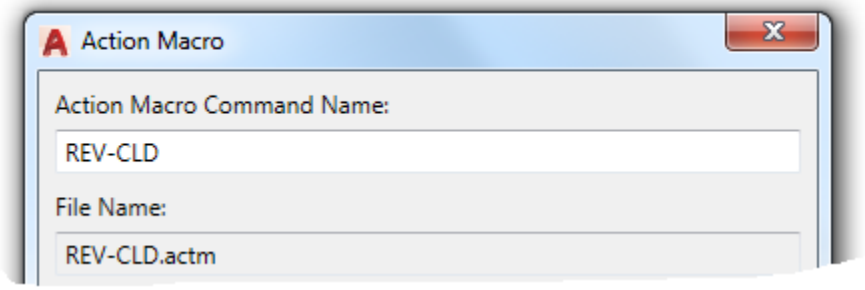
In these steps, you create a rectangular revision cloud with the REVCLOUD command:

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.
3. At the `Select arc style [Normal/Calligraphy] <Normal>:` prompt, type **C** and press Enter.
4. At the `Specify first corner point or [Arc length/Object/Rectangular/Polygonal/Freehand/Style/Modify] <Object>:` prompt, type **A** and press Enter.
5. At the `Specify minimum length of arc <0.5000>:` prompt, type **2.5** and press Enter.
6. At the `Specify maximum length of arc <2.5000>:` prompt, type **2.5** and press Enter.
7. At the `Specify first corner point or [Arc length/Object/Rectangular/Polygonal/Freehand/Style/Modify] <Object>:` prompt, type **R** and press Enter.
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:

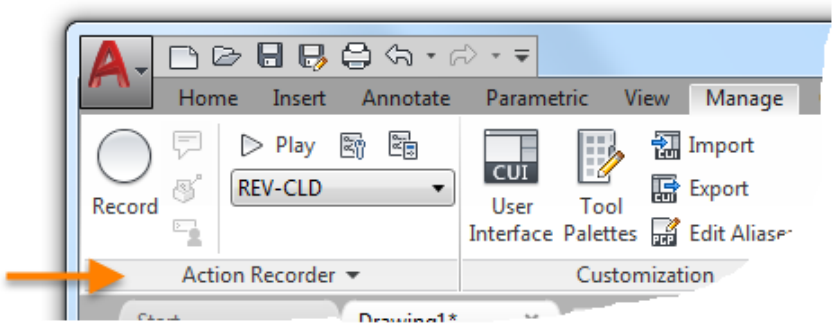
1. On the ribbon, click Manage tab ➢ Action Recorder panel ➢ Stop.
2. In the Action Macro dialog box, Action Macro Command Name text box, type **REC-CLD**.



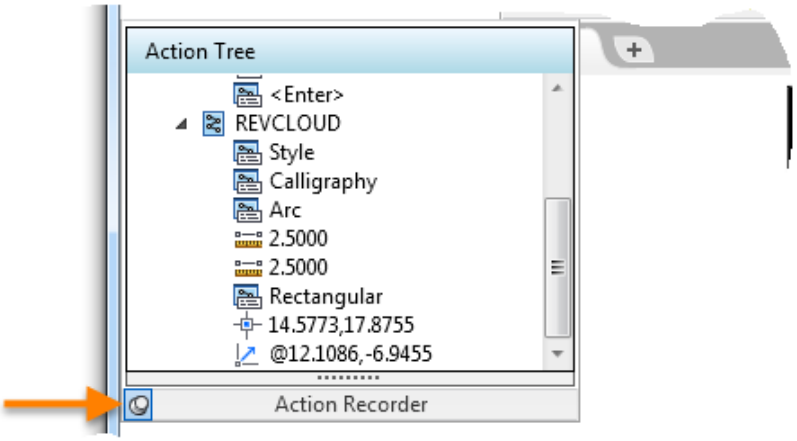
3. Optionally, in the Description text box, enter a description for the action macro.
4. Click OK.

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

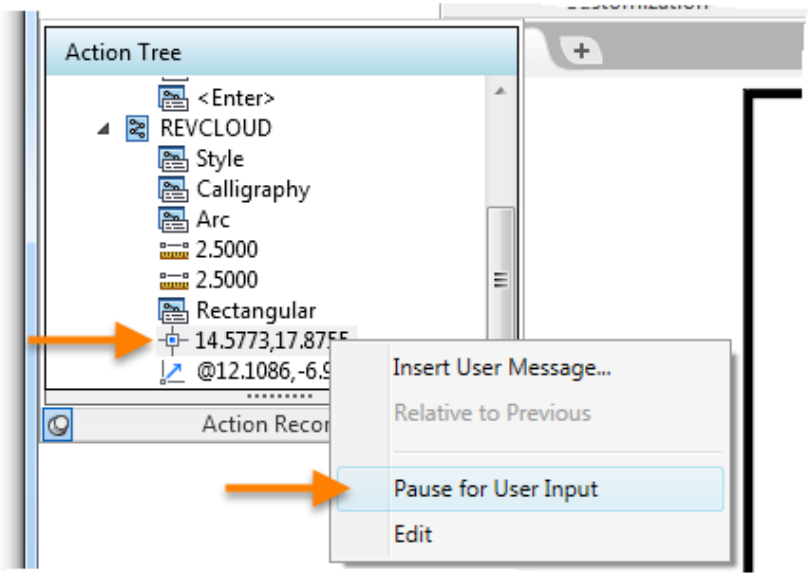
1. On the Action Recorder panel, click the Action Recorder panel's title to expand it, if it isn't already expanded.



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

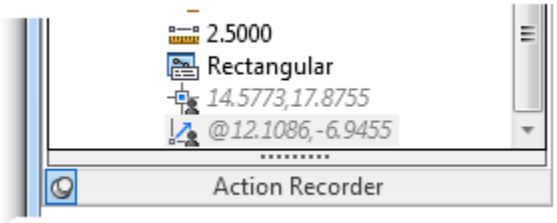


3. In the Action Tree, right-click over the coordinate point that represents the first corner of the rectangular revision cloud and click **Pause for User Input**.

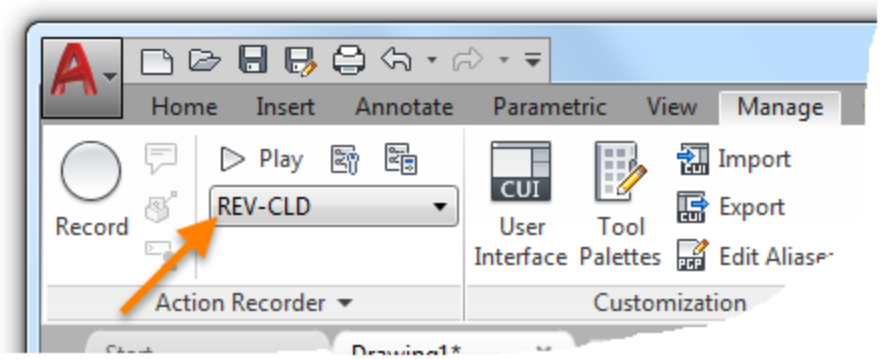


4. Repeat Step 3 for the opposite corner of the rectangular revision cloud.

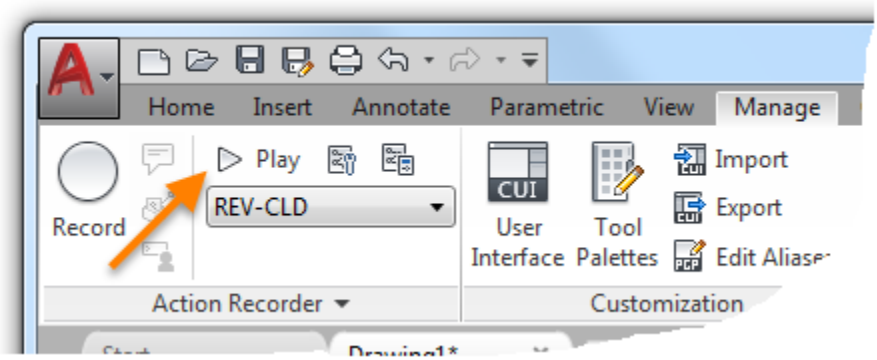
   The badges of the two values should now show a silhouette indicating the user will be prompted for a value during playback.



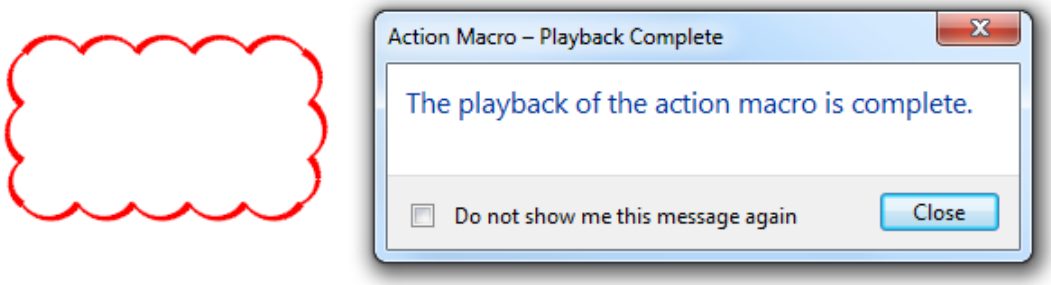
5. Click the Pin to collapse the Action Tree.
6. Create a new drawing.
7. On the ribbon, click Manage tab ➢ Action Recorder panel, select REC-CLD from the Action Macros drop-down list.



8. Click Play.

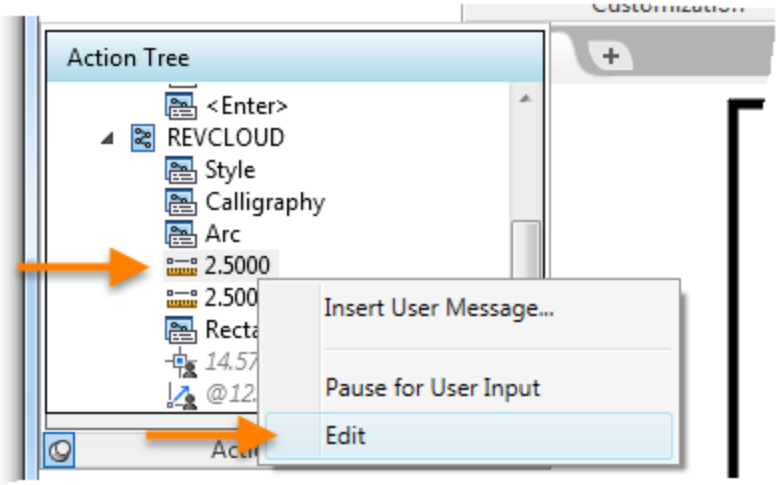


9. After playback of the action macro starts, specify two points in the drawing area.
10. In the Action Macro - Playback Complete message box, click Close.



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

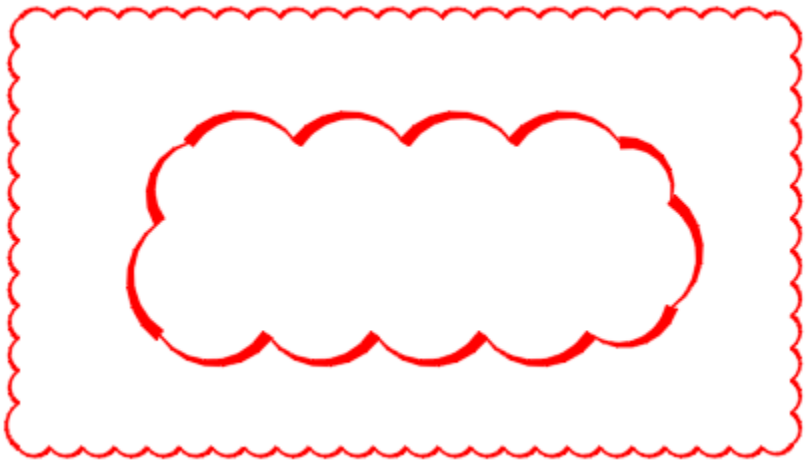
1. On the Action Recorder panel, click the Action Recorder panel's title to expand it.
2. In the Action Tree, right-click over the first Distance node under the REVCLOUD command and click Edit. Type **0.75** and press Enter.



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 Insert a Dynamic Block with an 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.

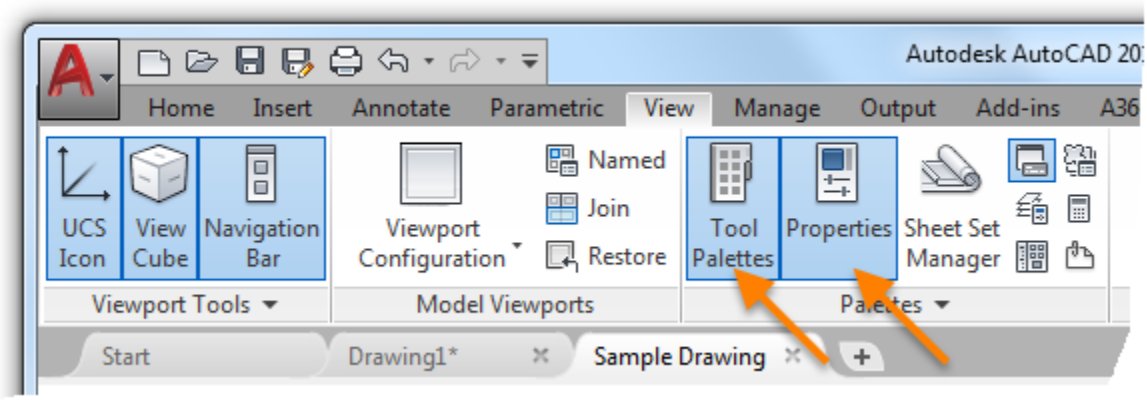
In these steps, you start the recording of an action macro and record the actions related to creating a new layer named Doors:

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

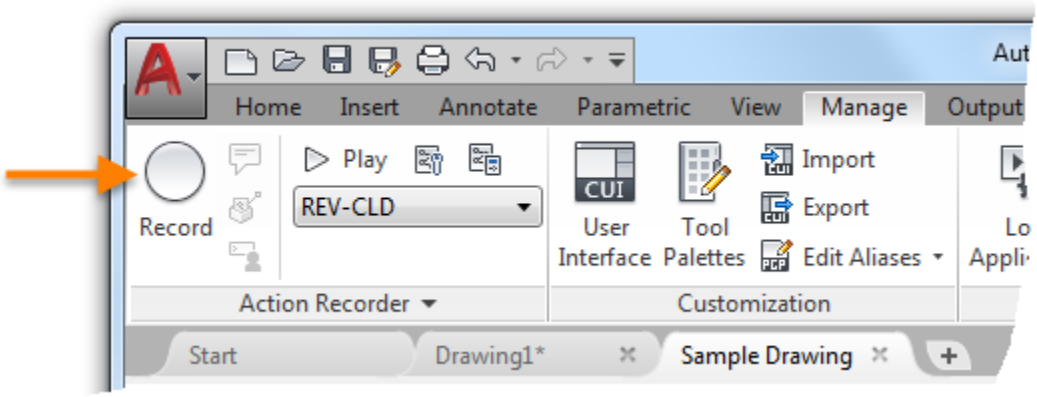
   The location and name of the dataset folder for this session should be

   C:\Datasets\Lee Ambrosius\AS122153-L

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.

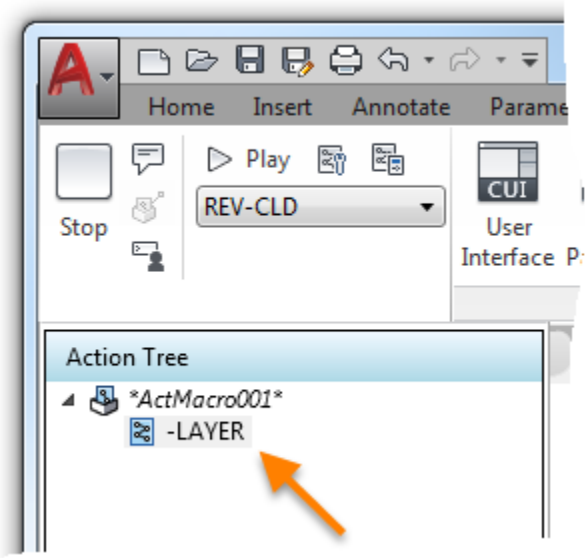


3. On the ribbon, click Manage tab ➢ Action Recorder panel ➢ Record.



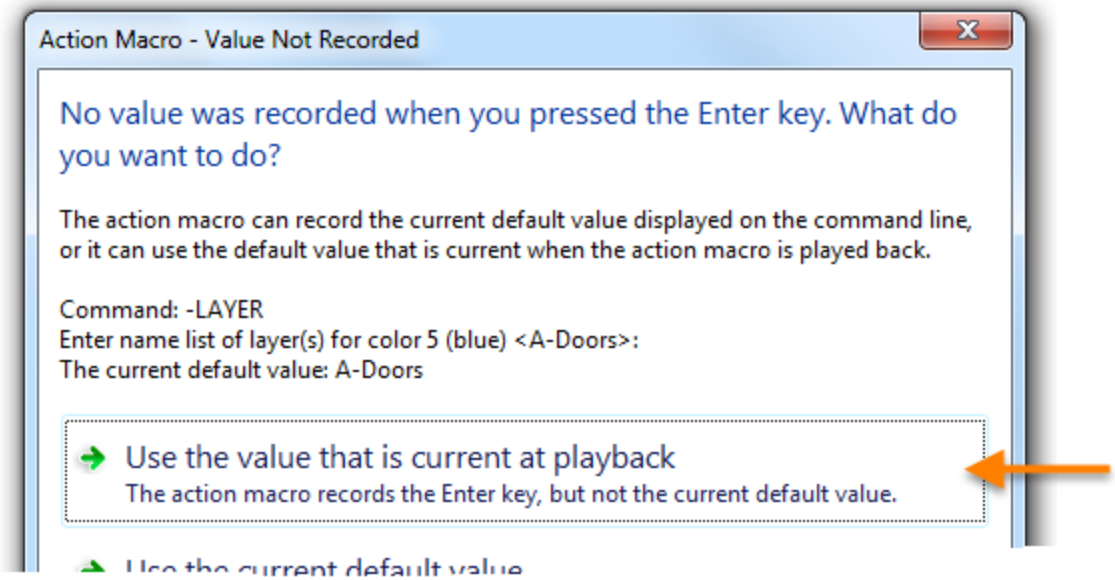
4. At the Command prompt, type **-layer** and press Enter.

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



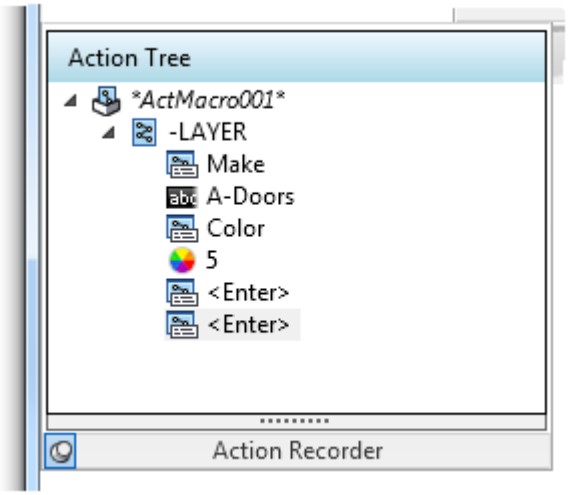
5. At the `Enter an Option` prompt, type **M** and press Enter.
6. At the `Enter name for new layer` prompt, type **A-Doors** and press Enter.
7. At the `Enter an Option` prompt, type **C** and press Enter.
8. At the `New Color [Truecolor/COlorbook]:` prompt, type **5** and press Enter.
9. Press Enter again to assign the color 5 (blue) to the A-Doors layer.

10. In the Action Macro – Value Not Recorded dialog box, click Use the Value that is Current at Playback.



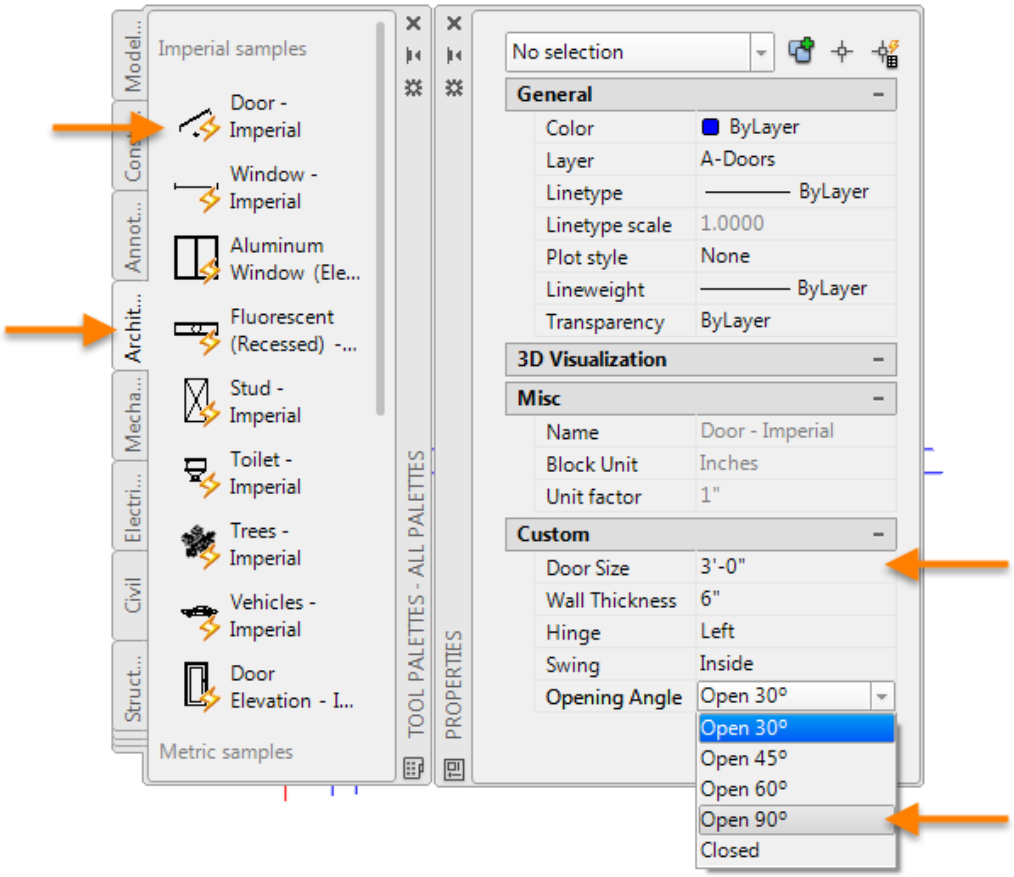
11. Press Enter again to end the -LAYER command.

    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:

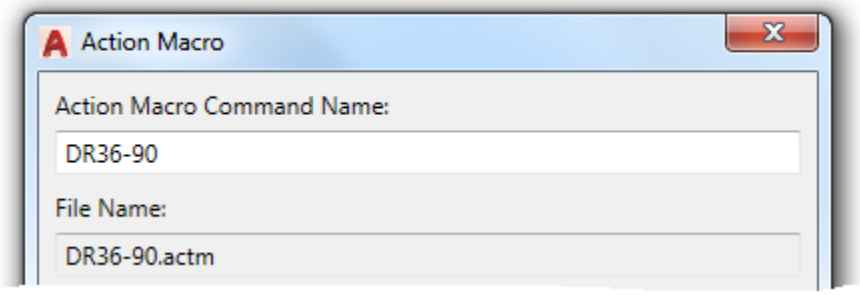
1. On the Tool Palettes window, Architectural tab, click the **Door – Imperial** tool.
2. On the Properties palette, under Custom, select **3'-0"** (or 36.0000) from the Door Size drop-down list and select **Open 90°** from the Opening Angle drop-down list.



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:

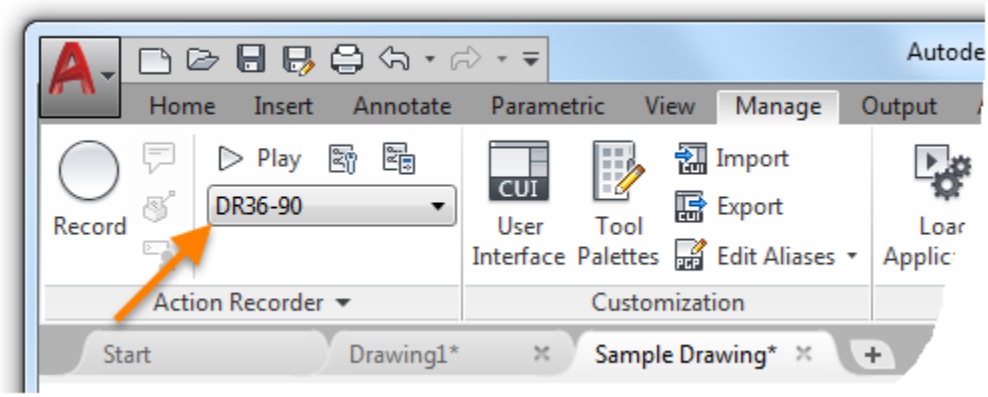
1. On the ribbon, click Manage tab ➢ Action Recorder panel ➢ Stop.
2. In the Action macro dialog box, Action macro Command Name text box, type **DR36-90**.



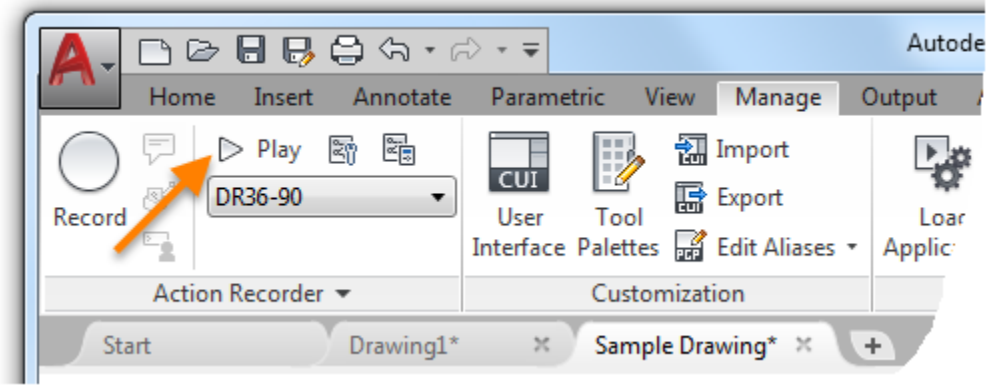
3. Optionally, in the Description text box, enter a description for the action macro.
4. Click OK.

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.

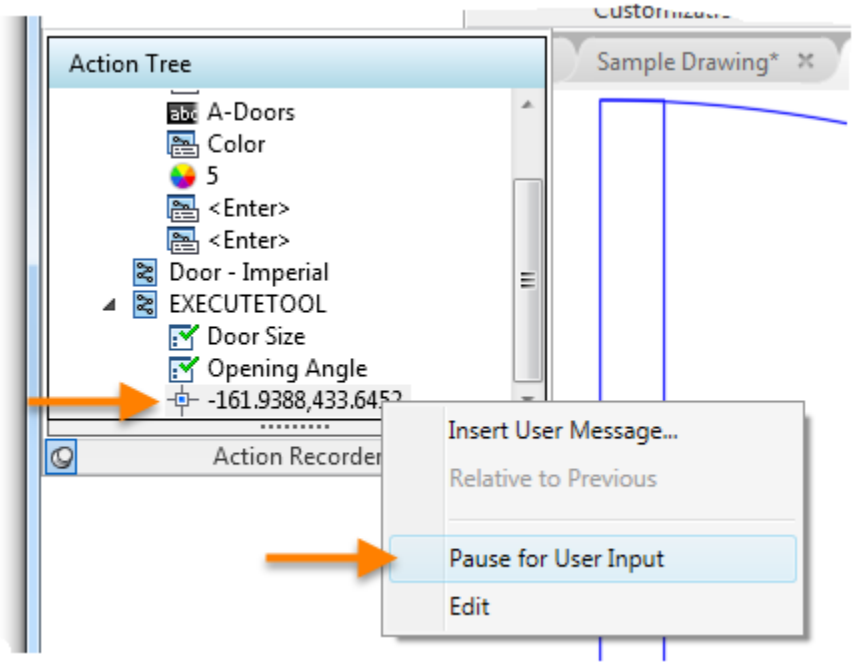


3. Click Play.



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.



During playback, you will now be able to specify a unique insertion point.

8. Playback the DR36-90 action macro again and specify a point in the drawing area.

   Tip: While specifying an insertion point, you can specify a different rotation value and change other values using the Properties palette.

9. Close the new drawing and discard any changes made.
10. Close the Tool Palettes window and Properties palette.

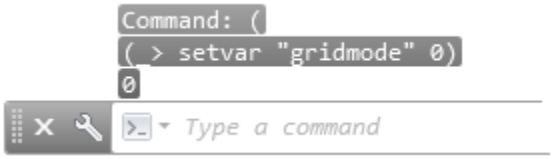
E3 Enter AutoLISP Expressions at the Command prompt

This exercise explains how to use some basic AutoLISP concepts and enter expressions at the AutoCAD Command prompt.

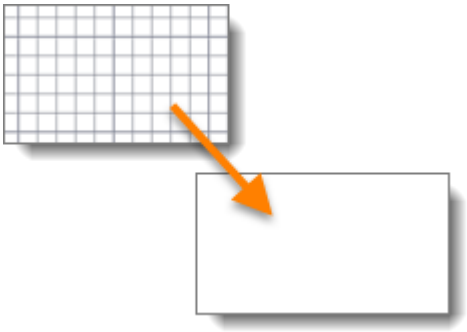
1. In AutoCAD, create a new drawing.
2. At the Command prompt, type **(** and press Enter.

By entering a (, you indicate to AutoCAD that you want to work with AutoLISP. The (_> prompt that is displayed lets you know AutoLISP is standing by and waiting for a bit more information along with one or more balancing right parentheses.

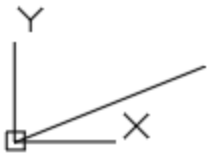
3. Type **`setvar "gridmode" 0)`** and press Enter to complete the AutoLISP expression.



The GRIDMODE system variable is set to 0, disabling the grid display in the drawing window.



4. Type **`(command "line" "0,0" "5,2" "")`** and press Enter.
5. Zoom to the extents of the drawing to see the new line object drawn from 0,0 to 5,2.



6. 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.

7. Type **(setq rad 3.5)** and press Enter.

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

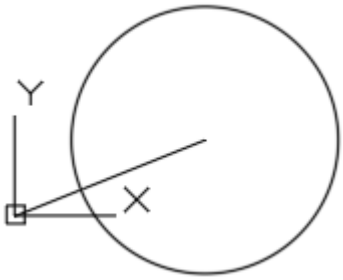
8. Type **!rad** and press Enter.

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

9. Type **(setq pt (list 5 2 0))** and press Enter.

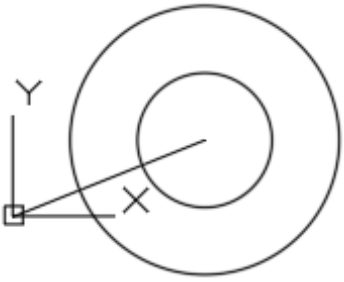
The coordinate value of 5,2,0 is assigned to the user-defined variable *pt*.

10. Type **circle** and press Enter.
11. At the `Specify center point for circle or [3P/2P/Ttr (tan tan radius)]:` prompt, type **!pt** and press Enter.
12. At the `Specify radius of circle or [Diameter]:` prompt, type **!rad** and press Enter.
13. Zoom out to see the new circle drawn at 5,2 with a radius of 3.5.



14. Type **`(command "circle" pt (/ rad 2))`** and press Enter.

    A new circle is drawn inside the previous circle with a radius that is 1/2 the value assigned to the user-defined variable *`rad`*.



E4 Create Custom AutoLISP Functions

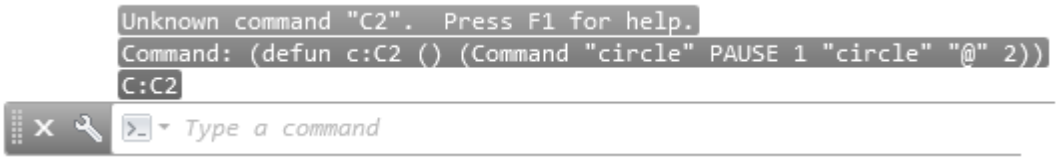
This exercise explains how to create a basic AutoLISP function which can be executed from the AutoCAD Command prompt.

1. In AutoCAD, 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.

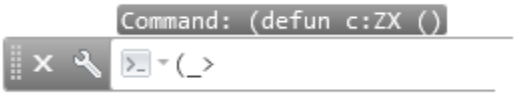
2. Type **`(defun c:C2 ()(command "circle" PAUSE 1 "circle" "@" 2))`** and press Enter.

   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.

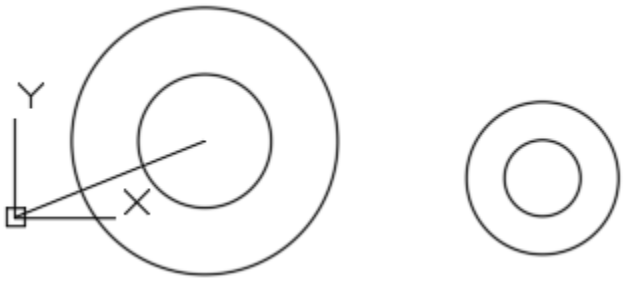
   AutoCAD responds with the prompt (_> again.

5. Type) and press Enter.

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

6. Zoom out in the current drawing.
7. Type **C2** and press Enter.
8. 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 drawn at the point specified.



9. 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.

10. Create a new drawing.
11. Type **C2** and press Enter.

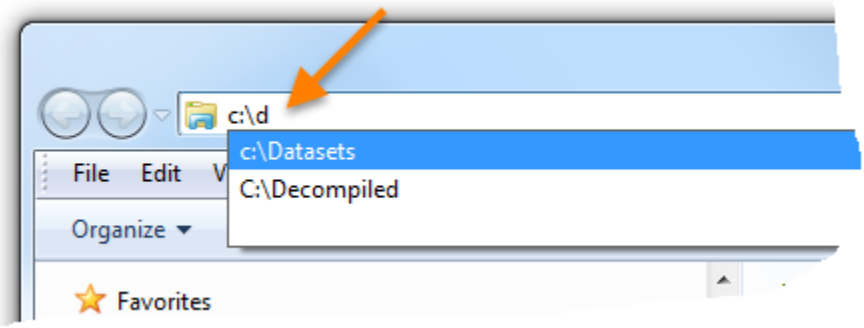
    The text `Unknown command "C2". Press F1 for help.` is displayed in the Command Line window history because no function is defined with the name C2 in the new drawing. Functions defined with AutoLISP are only available in the drawing which they were defined.

E5 Create and Load a LSP File

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

In these steps, you copy some comments and AutoLISP expressions from an existing text file, and then add them to a new LSP file:

1. In AutoCAD, at the Command prompt, type **explorer** and press Enter.
2. In Windows Explorer or File Explorer, in the Address Bar, type **c:\d** and select the Datasets folder.



3. Navigate to the dataset folder for this session.

   The location and name of the dataset folder for this session should be

   C:\Datasets\Lee Ambrosius\AS122153-L
4. In the *AS122153-L* folder, double-click the *au2017-code_snippet.txt* file.
5. In Notepad, in the text editor area, right-click and choose Select All.
6. With the text selected, right-click and choose Copy.
7. Minimize or close the Notepad application window.

In these steps, you create new a LSP file named *au2017.lsp*:

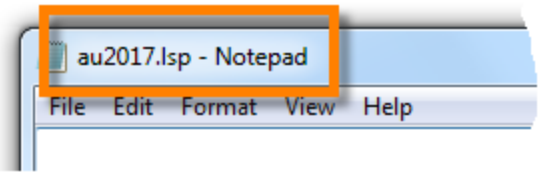
1. Switch back to AutoCAD.
2. In AutoCAD, at the Command prompt, type **notepad** and press Enter twice.
3. In Notepad, on the menu bar, click File menu ➢ Save As.
4. In the Save As dialog box, browse to the dataset folder for this session.

   The location and name of the dataset folder for this session should be

   C:\Datasets\Lee Ambrosius\AS122153-L
5. In the File Name text box, select the existing name and type **au2017.lsp**.
6. In the Save As Type drop-down list, select All Files (*.*).
7. Click Save.

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

1. In Notepad, make sure the title bar reads au2017.lsp – Notepad to ensure you are working with the correct file.



2. In the text editor area, right-click and choose Paste.

   The contents from the *au2017-code_snippet.txt* file should now be inserted into the *au2017.lsp* file.

3. Replace the text **[Today's Date]** with the current date, and replace **[Your Name]** with your name or a value of your choosing.

4. On the menu bar, click File menu ➢ Save.

5. 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))
```

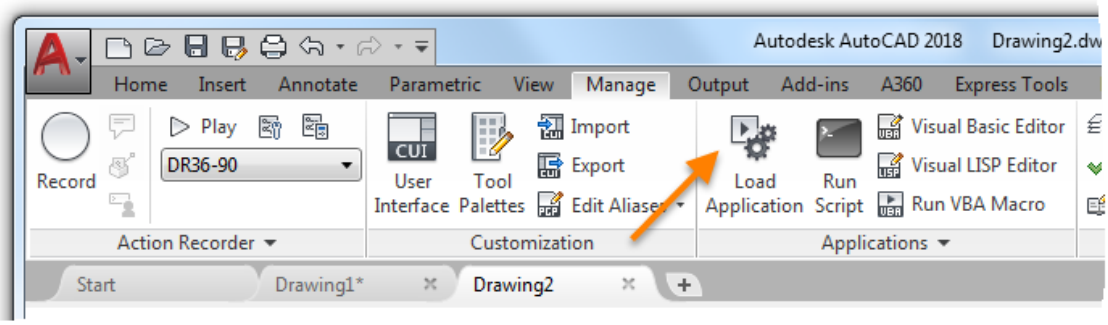
   The two statements should look familiar as they are the same ones you entered at the Command prompt earlier along with a comment before each function.

6. On the menu bar, click File menu ➢ Save.

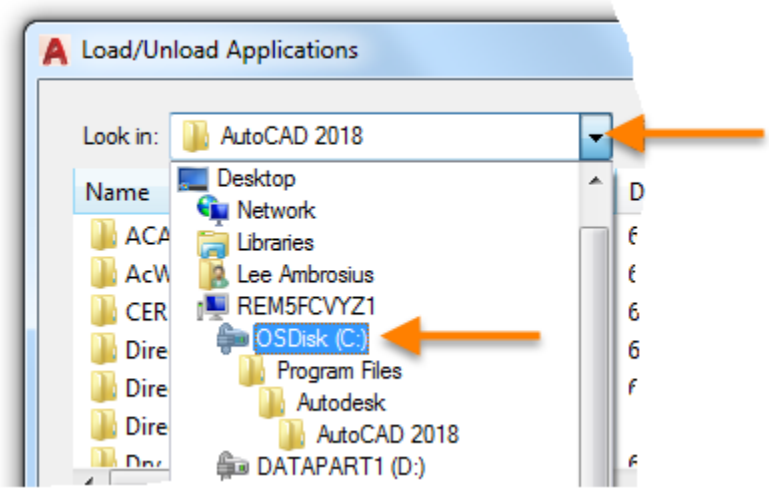
In these steps, you learn how to load the *au2017.lsp* file into AutoCAD:

1. Switch back to AutoCAD and create a new drawing.

2. On the ribbon, click Manage tab ➢ Applications panel ➢ Load Application.



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

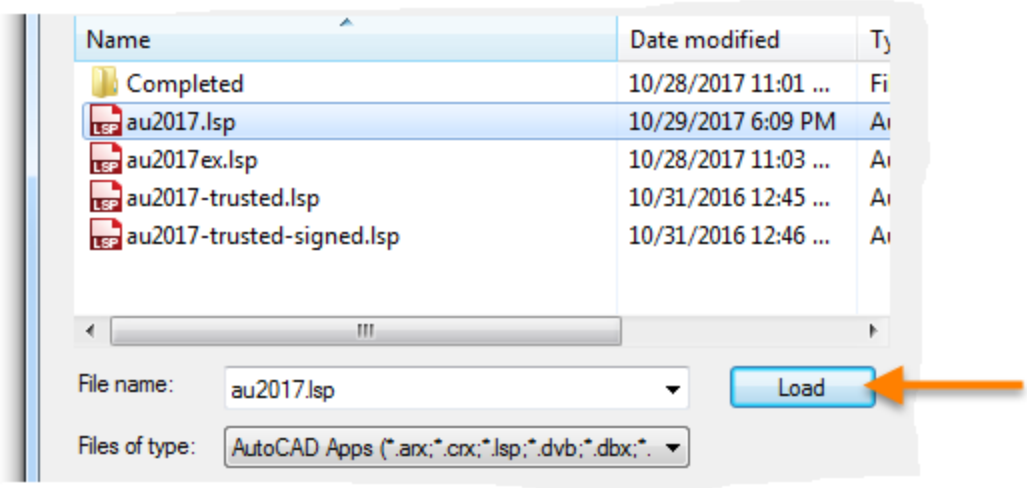


4. Select **C:** and browse to the dataset folder for this session.

   The location and name of the dataset folder for this session should be

   C:\Datasets\Lee Ambrosius\AS122153-L

5. In the *AS122153-L* folder, select the *au2017.lsp* file and click Load.



   A message near the lower-left corner of the dialog box appears displaying the text "`au2017.lsp successfully loaded.`" which lets you know the file loaded.

6. 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.

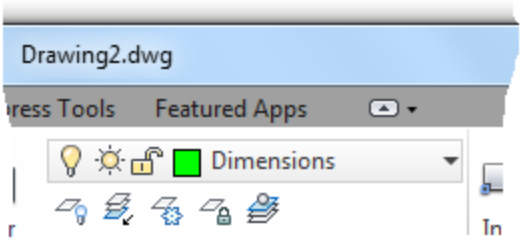
7. In the Load/Unload Applications dialog box, click Close to exit the dialog box.
8. Press F2 and you should notice the message `AU2017 AutoLISP Examples loading...` is displayed in the Command Line window history, this was done by the AutoLISP statement that used the `prompt` function.

   ```
   (prompt "\nAU2017 AutoLISP Examples loading...")
   ```

In these steps, you test the functions that were loaded as part of the *au2017.lsp* file:

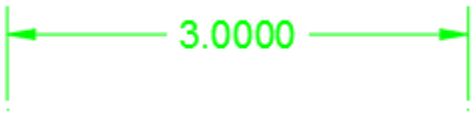
1. On the ribbon, click the Home tab.
2. At the Command prompt, type **DLI** and press Enter.

   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 as a result of the DLI function defined in the *au2017.lsp* file.



3. Specify three points in the drawing area.

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



4. Type **C2** and press Enter. Specify a point in the drawing area.
5. Type **ZX** and press Enter to zoom to the extents of the drawing.
6. Try the C2 and ZX functions that you added to the *au2017.lsp* file.
7. Create a new drawing.
8. 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 function is defined with the name C2 in the new drawing. You would need to load the au2017.lsp file in the new drawing.
9. Type **DLI** and press Enter, and specify three points in the drawing area to place the dimension.

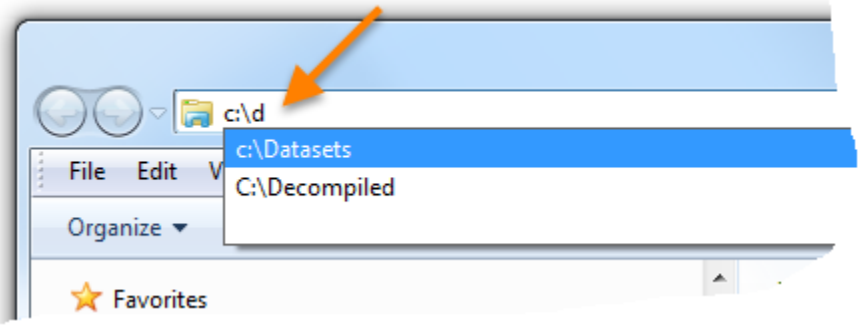
   Notice the standard DLI command alias defined by the AutoCAD program is executed which starts the DIMLINEAR command and places the dimension on the current layer.

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

This exercise explains how to define and deploy a custom plug-in bundle which can be used to load custom LSP files.

In these steps, you learn how to create a plug-in bundle named *AS122153-L.bundle*:

1. Switch to Windows Explorer or Windows Explorer, and the dataset folder for this session.
    a. If it isn't open from before, in AutoCAD, at the Command prompt, type **explorer** and press Enter.
    b. In Windows Explorer or File Explorer, in the Address Bar, type **c:\d** and select the Datasets folder.

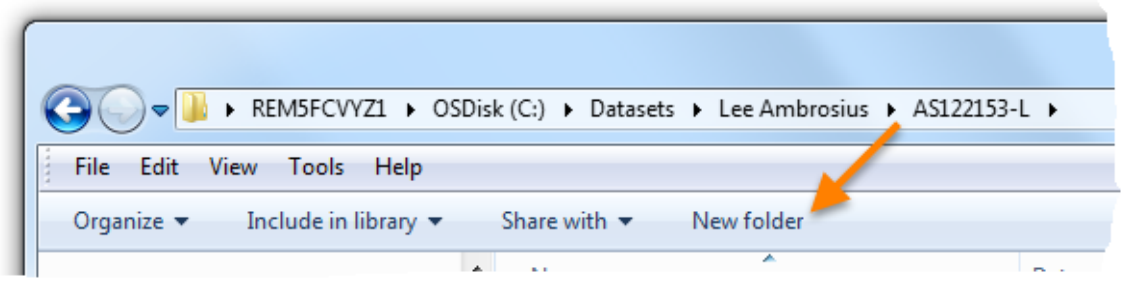


    c. Navigate to the dataset folder for this session.

    The location and name of the dataset folder for this session should be

    C:\Datasets\Lee Ambrosius\AS122153-L

2. In the *AS122153-L* folder, click New Folder.



3. In the in-place editor, type **AS122153-L.bundle** and press Enter.
4. In Windows Explorer or File Explorer, select the *au2017.lsp* file you created earlier.
5. Hold down the Ctrl key and select the following files in the *AS122153-L* folder:
    - *au2017ex.lsp*
    - *PackageContents.xml*
6. Right-click over one of the selected files and choose Copy.
7. Double-click the *AS122153-L.bundle* folder.

8. In the empty folder, right-click and choose Paste.

In these steps, you learn how to deploy the bundle named *AS122153-L.bundle*:

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

   This can be done by doing one of the following:

   - Click in an empty area of the files list and pressing Backspace
   - Click the previous folder name in the Address bar
   - Edit the folder path in the Address bar by removing the text AS122153-L.bundle and pressing Enter

2. Right-click over the *AS122153-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:

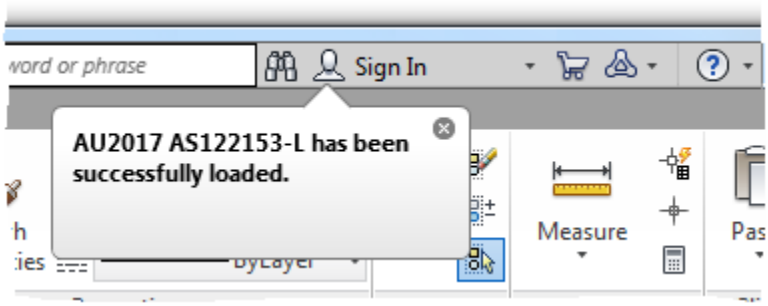
   - *%ProgramFiles%\Autodesk*
   - *%ProgramFiles(x86)%\Autodesk*

4. Double-click the *ApplicationPlugins* folder, 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 load 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.

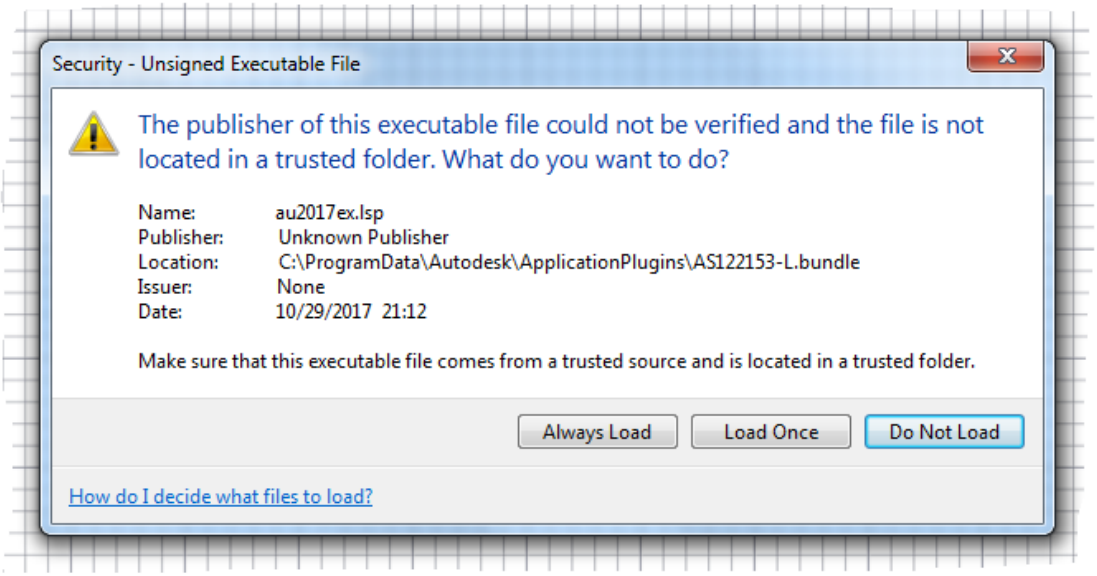
5. Switch back to AutoCAD 2018.

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



6. Close and restart AutoCAD 2018; discard the changes of all open drawings.
7. After AutoCAD 2018 restarts, create a new drawing.

8. 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.

9. At the Command prompt, type **C2** and press Enter. Specify a point in the drawing area.
10. Type **DLI** and press Enter. Specify three points to create the linear dimension.
11. 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 *AS122153-L.bundle* to load another LSP file:

1. In Windows Explorer or File Explorer, in the *AS122153-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 add 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.

```
    <ComponentEntry Description="Your custom file"
       AppName="AU2017Examples"
       Version="1.0"
       ModuleName="./au2017.lsp">
    </ComponentEntry>
    <ComponentEntry Description="Additional examples"
       AppName="AU2017AdditionalExamples"
       Version="1.0"
       ModuleName="./au2017ex.lsp">
    </ComponentEntry>
  </Components>
</ApplicationPackage>
```

3. In Notepad, on the menu bar, click File menu ➢ Save.
4. Close and restart AutoCAD 2018; 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 Create and Run 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 bubble and the endpoint of the leader line.

E7 Create and Modify 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 "au2017-trusted.lsp")`** and press Enter.
2. In the Security – Unsigned Executable File message box, click Load Once.

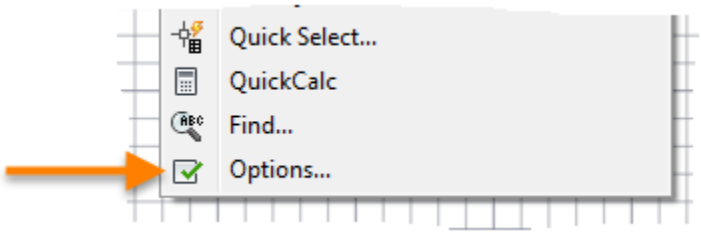
   The message box informs you that the custom program file being loaded isn't located in a trusted location and it hasn't been previously digitally signed.

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

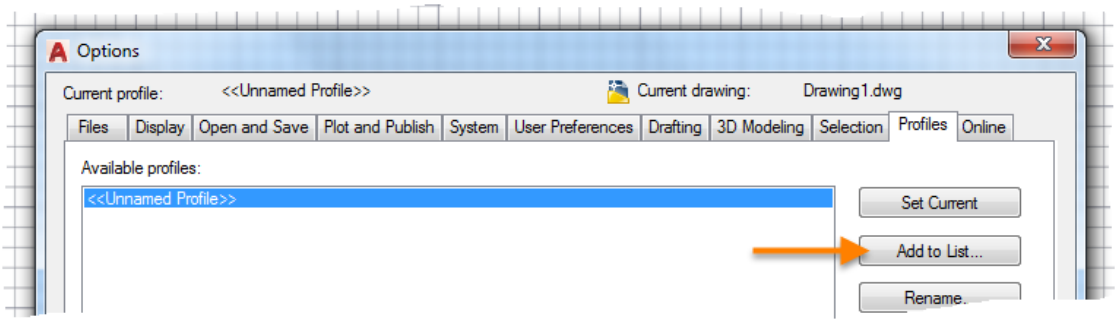
   Upon the loading of the LSP file, an AutoCAD message box is displayed with the alert function.
3. In the AutoCAD message box, click OK.
4. At the Command prompt, type **`(load "au2017-trusted-signed.lsp")`** and press Enter.
5. If the Security – Signed File Not in Trusted Folder message box is displayed, click Load Once.

   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.

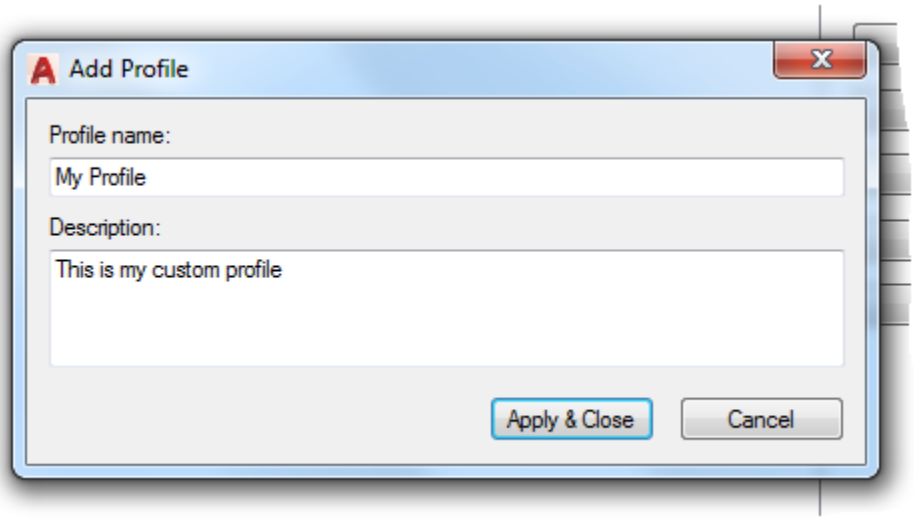
7. Right-click in the drawing area and click Options.



8. In the Options dialog box, on the Profiles tab, click Add to List.



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



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

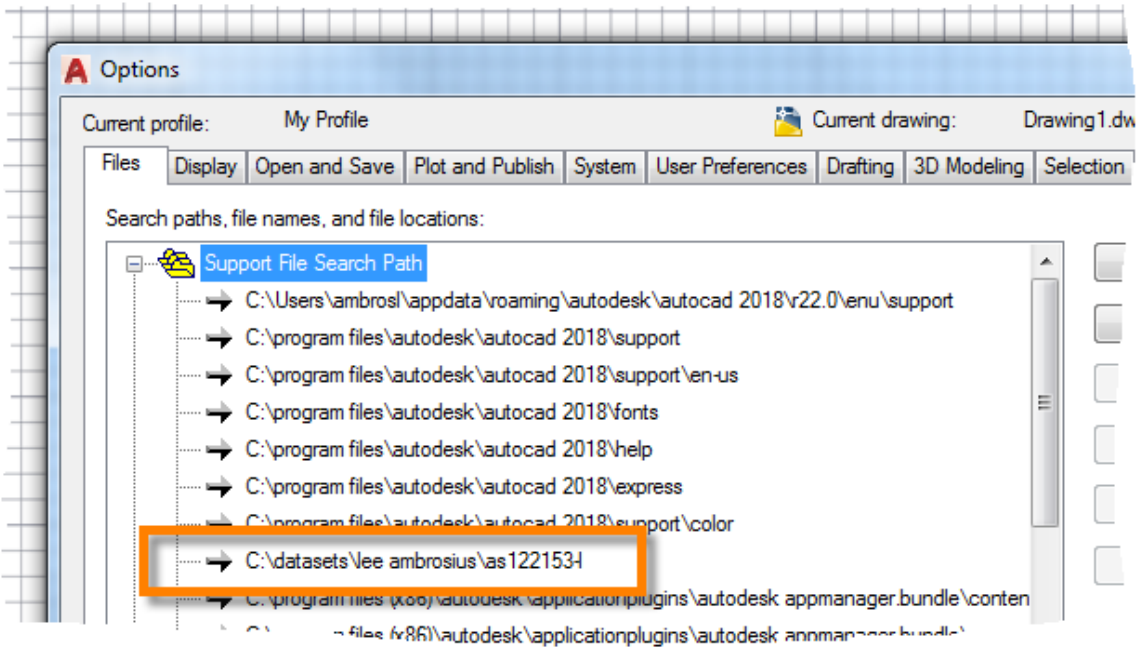
    Tip: The `/p` command line switch can be used to set a profile current when AutoCAD is started from a desktop shortcut. For more information on the `/p` command line switch, search on the keywords “command line switch” in the AutoCAD Online Help system.

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

1. In the Options dialog box, on the Files tab, expand the Support File Search Path node and verify that the dataset folder for this session is listed.

   The name of the dataset folder for this session should be

   C:\Datasets\Lee Ambrosius\AS122153-L

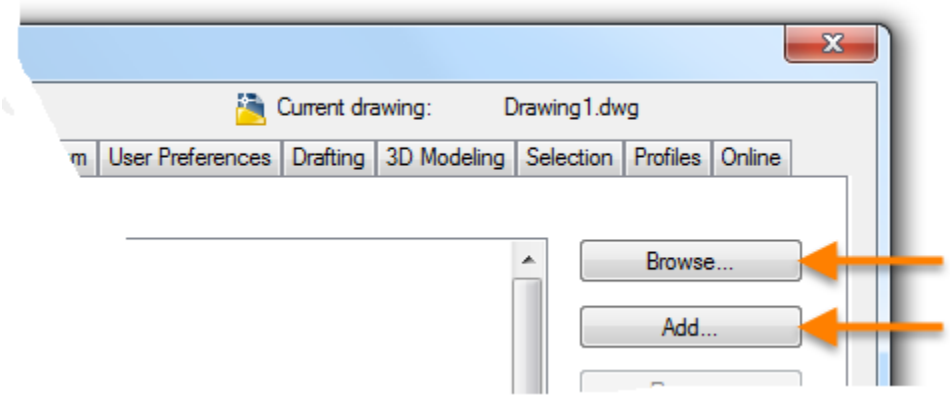


   The folder should have been inherited from the <<Unnamed Profile>> profile, you originally added the path as part of the exercise named *E1 Create and Run a Script*.

2. If the folder mentioned and shown in the previous step is missing, do the following otherwise go to Step 3:

   a. Select the Support File Search Path node.

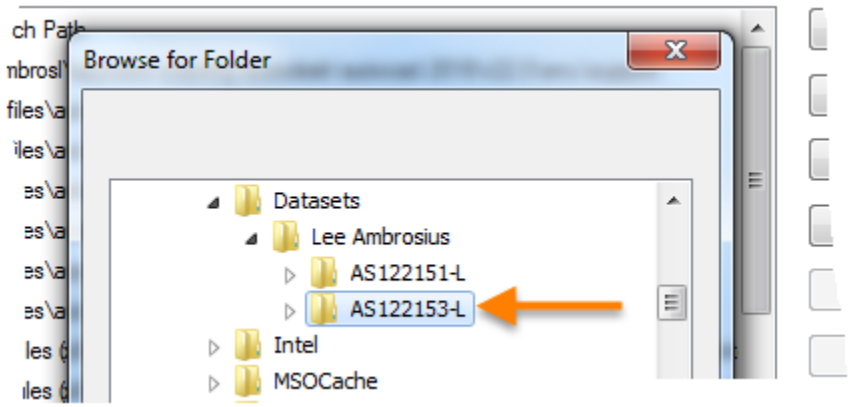
   b. On the right side, click Add and then click Browse.



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

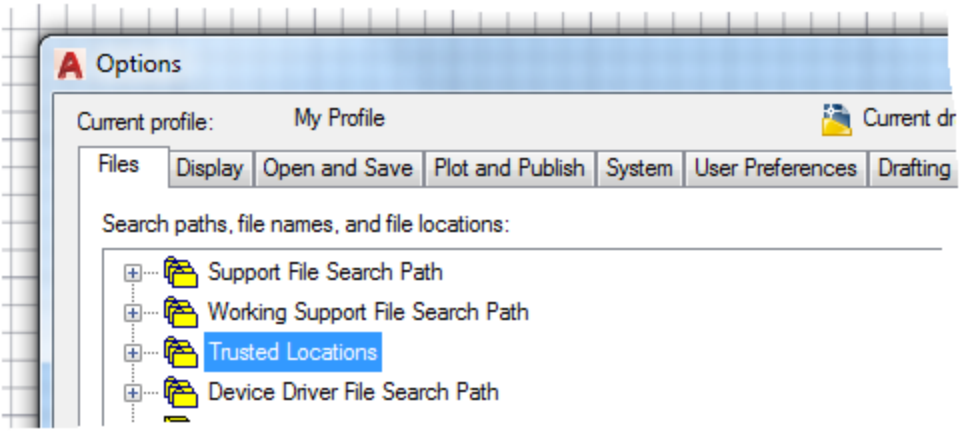
The name of the dataset folder for this session should be

C:\Datasets\Lee Ambrosius\AS122153-L

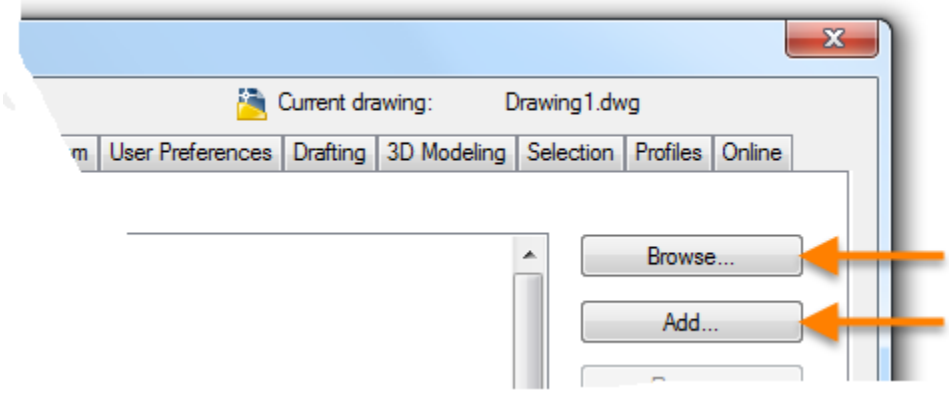


d. Click OK.

3. Select the Trusted Locations node.



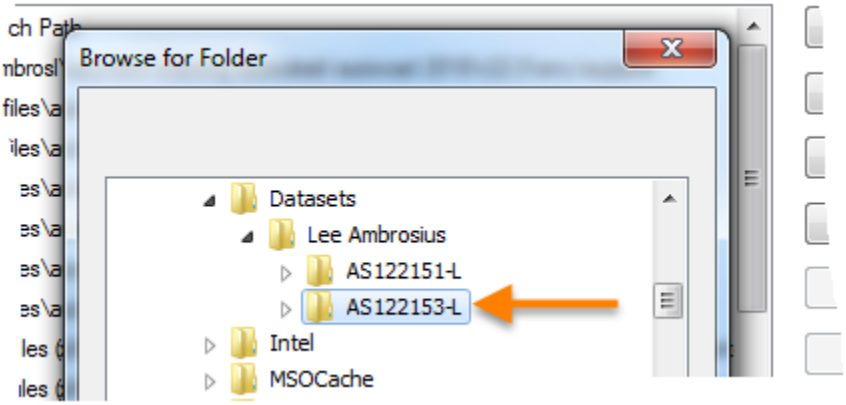
4. On the right side, click Add and then click Browse.



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

   The name of the dataset folder for this session should be

   C:\Datasets\Lee Ambrosius\AS122153-L

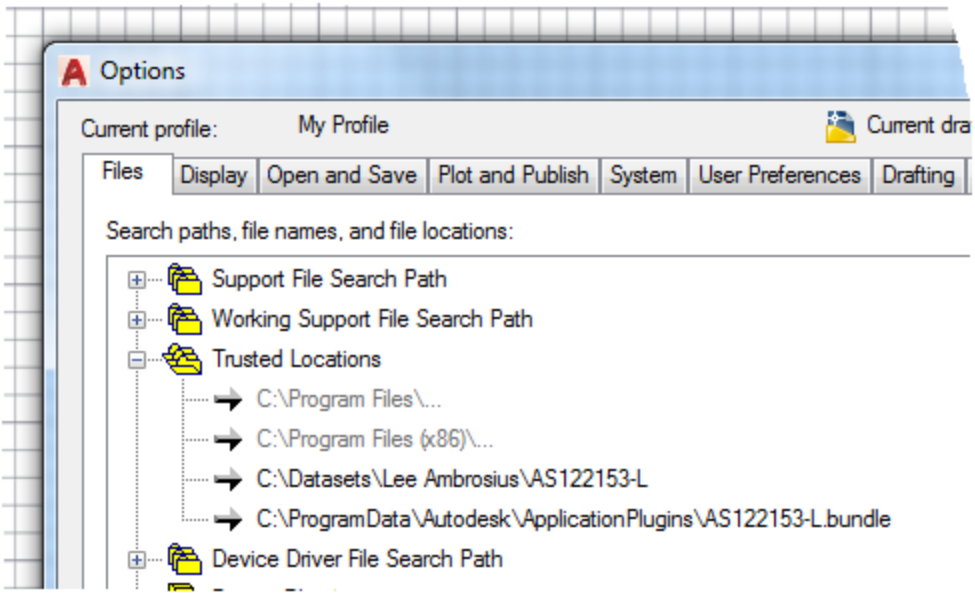


6. Click OK.
7. In the Trusted File Search Path - Security Concern dialog box, click Continue.

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

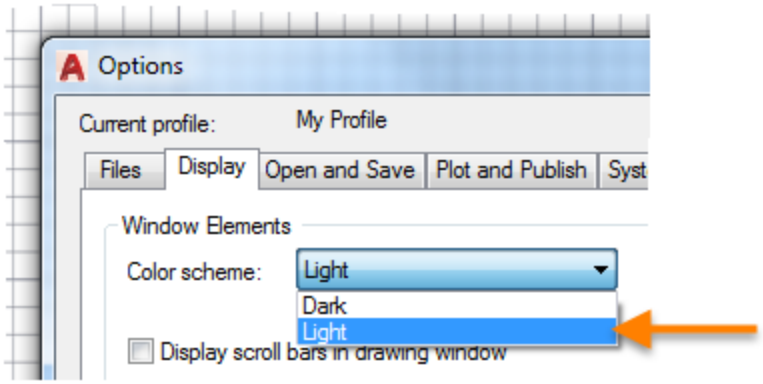
8. Repeat steps 4 through 7, and add the following folder to the trusted locations:

   C:\ProgramData\Autodesk\ApplicationPlugins\AS122153-L.bundle

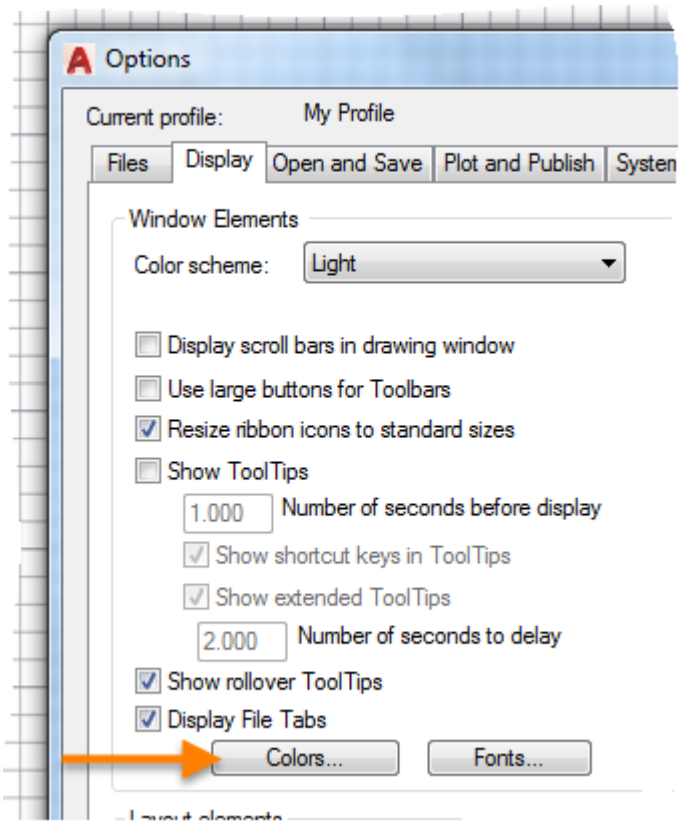


9. Click the Display tab.

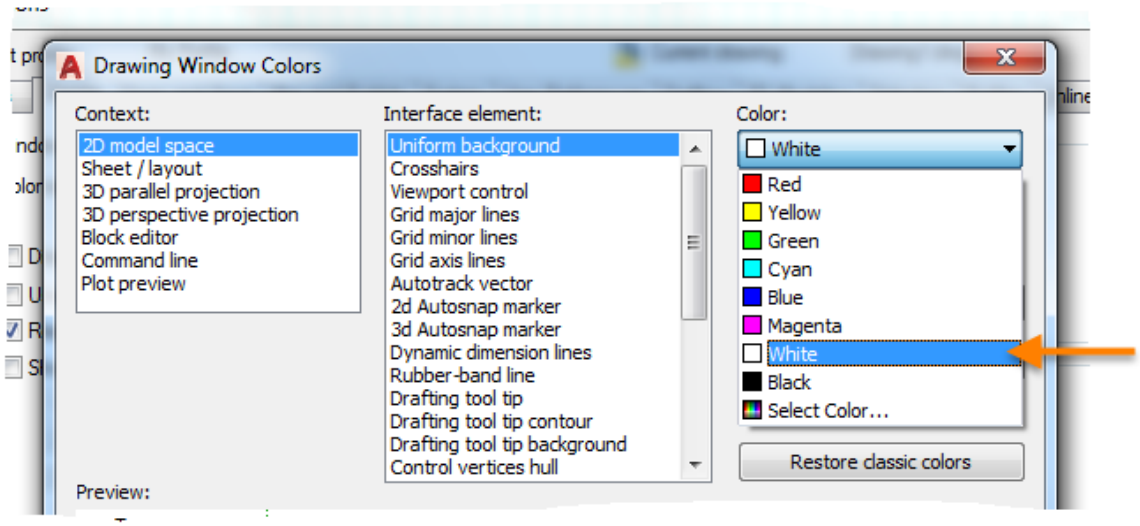
10. In the Window Elements section, click the Color Scheme drop-down list and select Light.



11. Click the Colors button.



12. 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 select White.



13. Click Apply & Close.
14. 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 2018; discard any changes to the open drawing.
2. In AutoCAD, create a new drawing.
3. At the Command prompt, type **`(load "au2017-trusted.lsp")`** and press Enter.
4. Click OK to dismiss the message box.

   Notice unlike earlier, the Security – Unsigned Executable File dialog box isn't displayed this time when the *au2017-trusted.lsp* file is loaded. If the message box is displayed, verify that you added the correct dataset folder for this session to the Trusted Locations node in the Options dialog box.
5. Right-click in the drawing area and click Options.
6. In the Options dialog box, Profiles tab, from the Available Profiles list box, select <<Unnamed Profile>> and click Set Current. Click OK.
7. Close and restart AutoCAD 2018.
8. Create a new drawing.
9. 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.

10. At the Command prompt, type `(load "au2017-trusted.lsp")` and press Enter.

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

11. In the Security – Unsigned Executable File dialog box, click Load Once.
12. Click OK to dismiss the message box.
13. At the Command prompt, type `(load "au2017-trusted-signed.lsp")` and press Enter.
14. Click OK to dismiss the message box.

E8 Reset the AutoCAD Environment

This exercise explains how to reset AutoCAD back to its default settings and remove the custom plug-in bundle.

In these steps, you reset the AutoCAD program:

1. Close all instances of AutoCAD 2018.
2. Do one of the following:
   a. On the Windows 7 taskbar, click the Start button ➢ All Programs ➢ Autodesk ➢ AutoCAD 2018 - English ➢ Reset Settings to Default. 
   b. On the Windows 8 or Windows 10 Start Screen, under the AutoCAD 2018 - 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 When the Reset Settings - Confirmation message box is displayed, click OK.

In these steps, you remove the custom plug-in bundle:

1. On the keyboard, press the key combination  +E, or launch Windows Explorer or File Explorer using a different method.
2. In Windows Explorer or File Explorer, in the Address bar, type **%ProgramData%\Autodesk** and press Enter.
3. Double-click the *ApplicationPlugins* folder.
4. Select the *AS122153-L.bundle* folder and press Delete.
5. In the Delete Folder message box, click Yes.