

Getting Started

As we begin this book on the AutoCAD® program, I'm reminded of a quote by Chinese philosopher Lao-Tzu: "A journey of a thousand miles begins with a single step." In much the same way, learning AutoCAD is something anyone can do by taking it one step at a time. And I promise that AutoCAD is much easier than walking a thousand miles!

By buying this book, you have already taken the first step in this journey. When you finish, you will have a solid understanding of AutoCAD.

In this chapter, you'll learn to do the following:

- ▶ **Sign in to Autodesk® 360 on the Start tab**
- ▶ **Explore the AutoCAD 2018 for Windows user interface**
- ▶ **Set drawing units**

Sign In to Autodesk 360 on the Start Tab

Autodesk 360 is a cloud-based service that is integrated with AutoCAD. You have the option of automatically storing up to 5 GB of your drawing files in the cloud for free. The files you store in the cloud can be edited online and shared with others with your permission.

The Start tab appears when you launch the program. You can create new drawings, access existing drawings, connect to AutoCAD 360, receive notifications, and access a live chat with sales on the Try page that appears on trial versions, all on the Start tab.

Exercise 1.1: Configure Autodesk 360

To begin, launch AutoCAD 2018.

1. Click the Sign In button in the Connect section of the Start tab (see Figure 1.1).

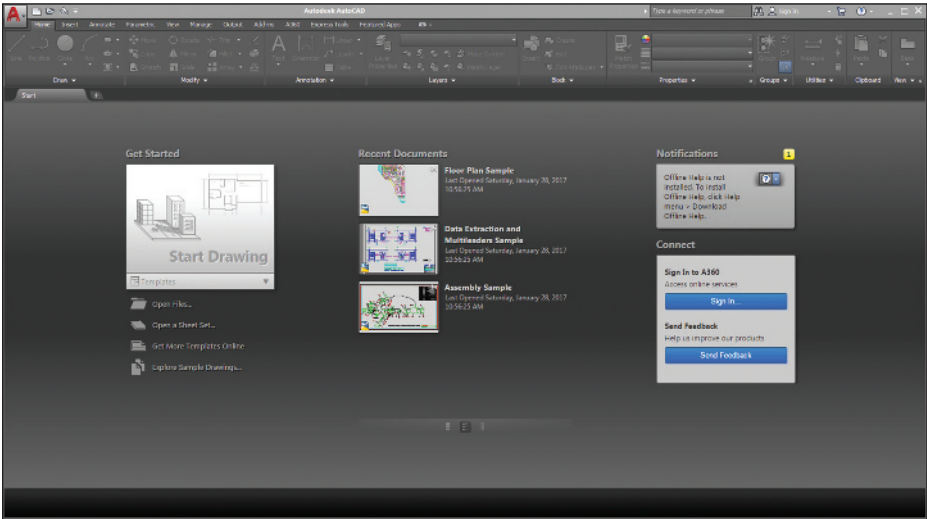


FIGURE 1.1 Clicking Sign In on the AutoCAD Start tab

- 2. Sign in with an Autodesk ID or email address and password. If you don't already have an Autodesk ID, click the Create Account link and create one online (see Figure 1.2).

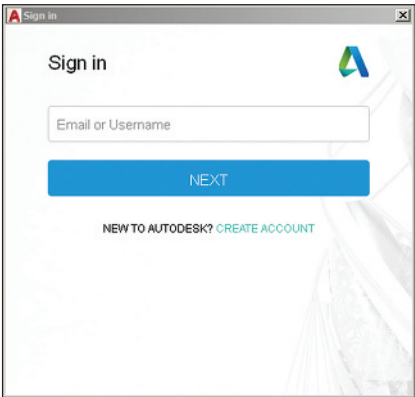


FIGURE 1.2 Signing in or creating an Autodesk ID

Take advantage of free cloud storage while you use this book. Storing your files offsite in the cloud is an effective backup strategy.



- 3. After you sign in using an Autodesk ID, the Default Autodesk 360 Settings dialog box appears. Select Sync My Settings (see Figure 1.3).
- 4. Click the large Start Drawing button in the Get Started section of the Start tab.

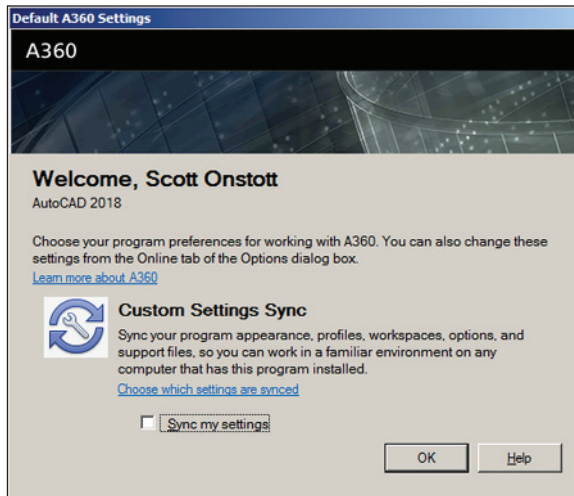
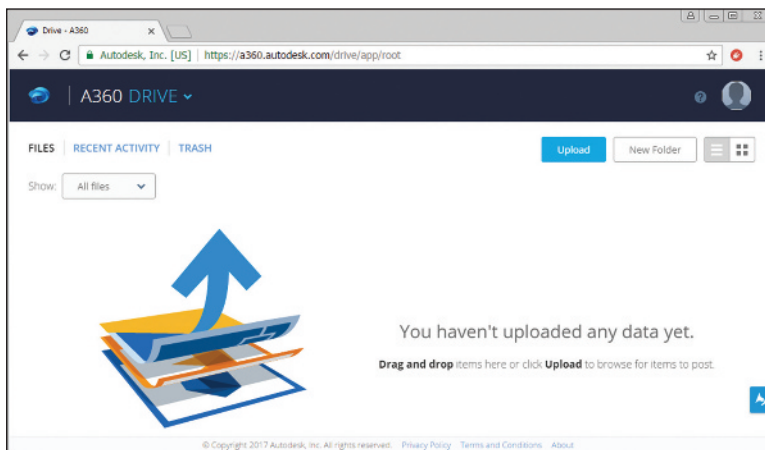


FIGURE 1.3 Setting Autodesk 360 options

This loads the full AutoCAD user interface, which you will learn about in the next exercise.

USING AUTODESK 360

Whenever you save your work in AutoCAD, a copy of your file will be uploaded to Autodesk 360 in the background. You can access this content at <http://a360.autodesk.com> (as shown here) or within AutoCAD from the A360 tab on the ribbon. You will learn about the ribbon in Exercise 1.3.



Explore the AutoCAD 2018 for Windows User Interface

AutoCAD for Mac has a user interface that is customized to the Mac experience. Although the Mac user interface is not covered in this book, its commands and capabilities are similar to those in AutoCAD for Windows (albeit with a slightly reduced set of features).

Autodesk has recently released new versions of AutoCAD, including the AutoCAD® 2018 and AutoCAD LT® 2018 software. The two Windows versions look nearly identical and function in almost the same way. The main difference between them is that AutoCAD LT doesn't support automation and some of the advanced 3D functions. Although this book was written using AutoCAD 2018 running on Windows 7, you can use it to learn any of the current versions of AutoCAD.

Exercise 1.2: Explore the Graphical User Interface

Before you can use AutoCAD, you'll need to familiarize yourself thoroughly with its graphical user interface (GUI). Figure 1.4 shows the AutoCAD 2018 (for Windows) user interface.

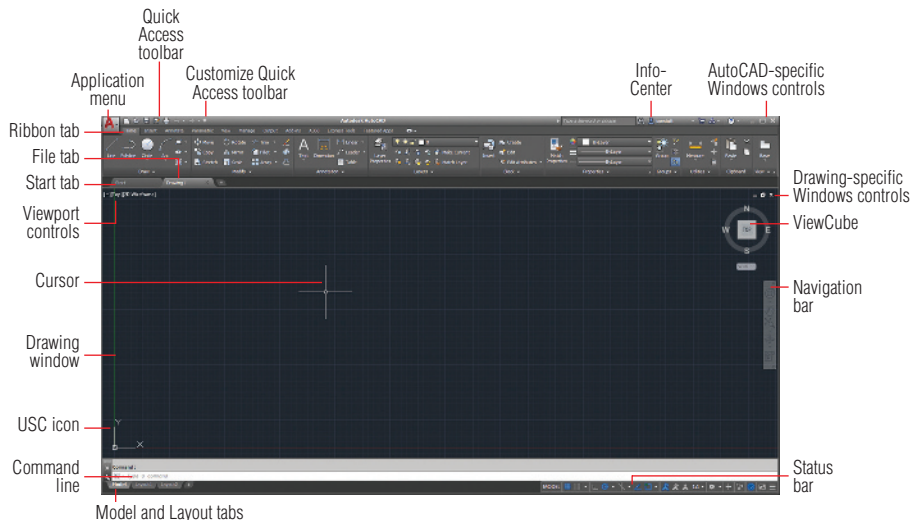


FIGURE 1.4 AutoCAD 2018 user interface

Certification Objective

Let's now step through the basic user interface for AutoCAD.

1. Click the Application menu to open it. Type **polygon** and observe that the text appears in the search box at the top of the Application menu.

The search results (see Figure 1.5) list many related AutoCAD commands. Search is useful when you're not sure how to access a command in the interface or what its exact name is.

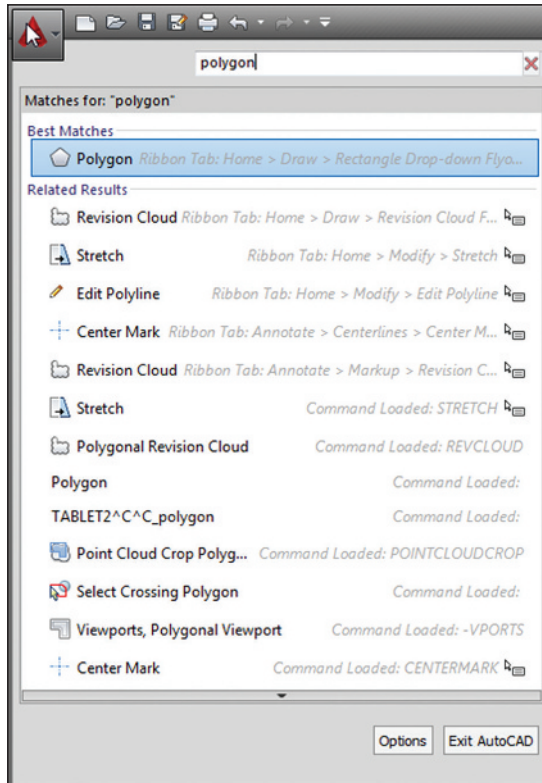


FIGURE 1.5 Searching for commands in the Application menu

2. Click the red X at the extreme right edge of the search box to make the initial Application menu interface reappear. Here you can create new or open existing drawings, export or print drawings, and more. Hover the cursor over Open and then click Drawing (Figure 1.6).
3. Select the following sample file; then click Open in the Select File dialog box:

C:\Program Files\Autodesk\AutoCAD 2018\Sample\
Sheet Sets\Manufacturing\VW252-02-0142.dwg

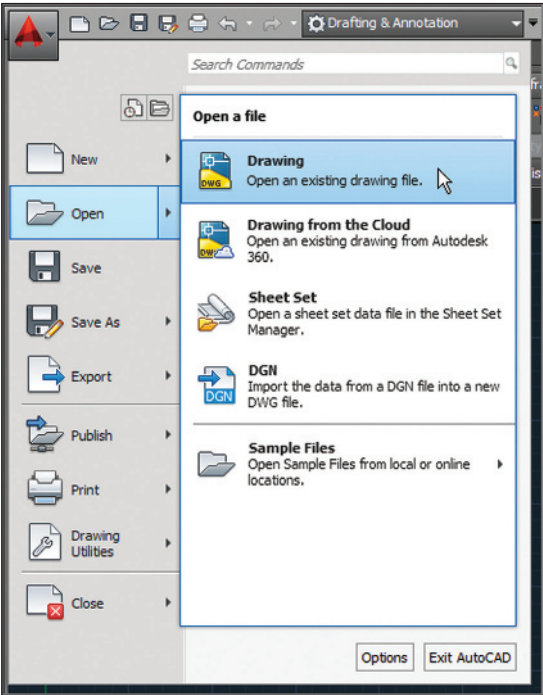


FIGURE 1.6 Opening a drawing from the Application menu

▶
Sheet sets are an optional feature in AutoCAD.

The Sheet Set Manager appears when the sample file is opened (see Figure 1.7). This palette automatically appears when you open any drawing that’s part of a sheet set. AutoCAD has many palettes to organize tools and reusable drawing content.

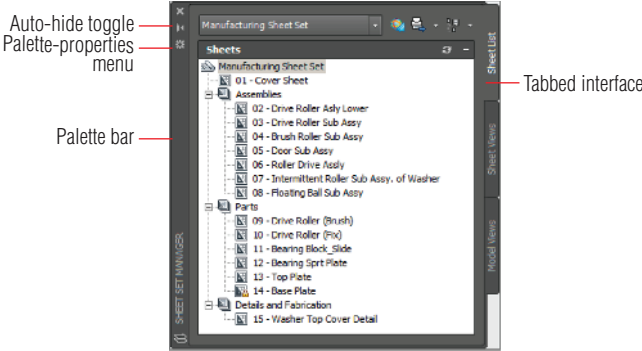


FIGURE 1.7 Opening a sample drawing reveals the Sheet Set Manager.

4. Click the Sheet Views tab along the edge of the Sheet Set Manager and observe that tabs provide a means of accessing additional interface content. In its present state, the Sheet Set Manager is a floating palette. Drag its palette bar and relocate it onscreen.
5. Click the Auto-hide toggle and watch the palette collapse to its vertical palette bar; this saves space onscreen. Hover the cursor over the palette bar and watch the whole palette reappear so that you can access its content. Now toggle Auto-hide off.
6. Click the Palette properties menu and select Anchor Left. The Sheet Set Manager palette is docked along the left edge of the user interface. You can use many options to organize the user interface to match the way you work.
7. Select Sheet Views on the tabbed interface. Double-click Detail-B under 04 – Brush Roller Sub Assy in the Manufacturing sheet set (see Figure 1.8). A new drawing appears in the drawing window.

Drag floating palettes to a secondary monitor if you have one to maximize the drawing area on your primary monitor.

Certification
Objective

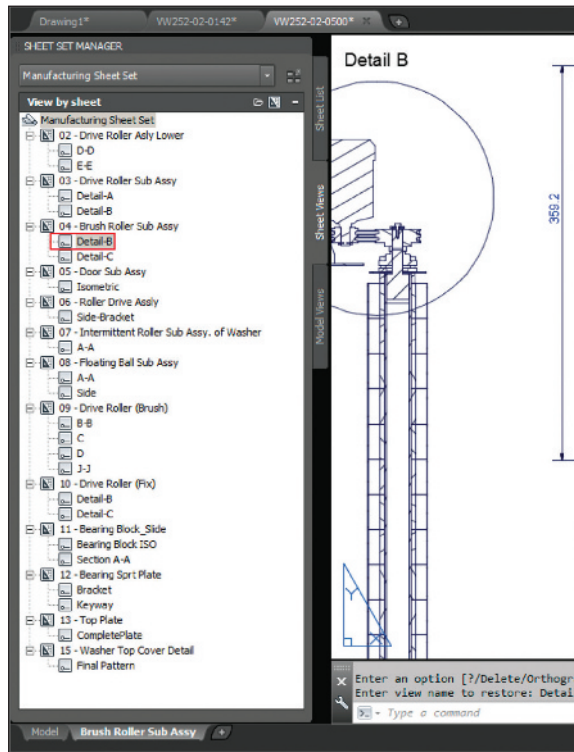


FIGURE 1.8 Selecting a drawing

The Quick Access toolbar is a convenient way to open drawings, especially when you're not using the Sheet Set Manager.



8. Click the Open button in the Quick Access toolbar. Select any drawing in the Manufacturing folder and click Open. Once you open a drawing, pressing Ctrl+Home or using the GOTOSTART command brings you back to the Start tab.
9. Move the cursor over the drawing that you opened in the previous step's tab and observe two icons. Click Model to open the drawing's model space (see Figure 1.9).

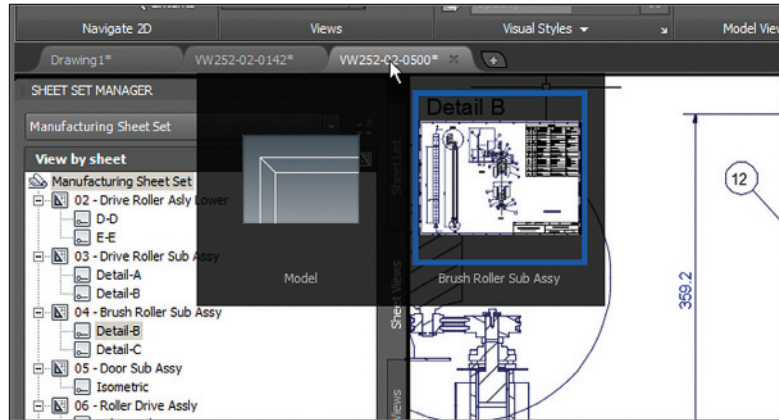


FIGURE 1.9 Accessing open drawings and their spaces

The DWG format has been updated in AutoCAD 2018, improving opening and saving performance.

10. Move the cursor over the current drawing tab and click Brush Roller Sub Assy to reopen the layout.
11. Click the Save button on the Quick Access toolbar. The drawing is saved locally on your hard drive, and a backup copy is also automatically uploaded to your Autodesk 360 account. Click the file tab of Drawing 1 and close all the sample files by typing CLOSEALLOTHER and pressing Enter. In addition, close the Sheet Set Manager.



AUTOCAD DRAWING SPACES

AutoCAD has two types of drawing spaces: paper and model. *Paper space* is a two-dimensional area analogous to, and having the dimensions of, a sheet of paper. Various sizes of “paper” can be created in individual layouts (see Chapter 13, “Working with Layouts and Annotative Objects”). *Model space*, on the other hand, is a single three-dimensional volume where everything is drawn in actual size.

Model space is typically scaled down in viewports and displayed in the paper space of layouts. Most of the drawing you will do in AutoCAD will be in model space. A drawing can have only one model space, whereas any number of layouts displaying model space through viewports can be saved in the same file.

Exercise 1.3: Control the AutoCAD Ribbon

AutoCAD has so many palettes and ribbon controls that finding the right tool for the job can seem like a job in itself. The ribbon is therefore an important feature that was introduced to AutoCAD 2010. Autodesk adopted Microsoft's ribbon standard to organize the ever-increasing number of toolbars in a single palette, making tools much easier to find. Now let's explore the various ribbon modes and identify the user interface elements of each mode (see Figure 1.10).

Certification
Objective

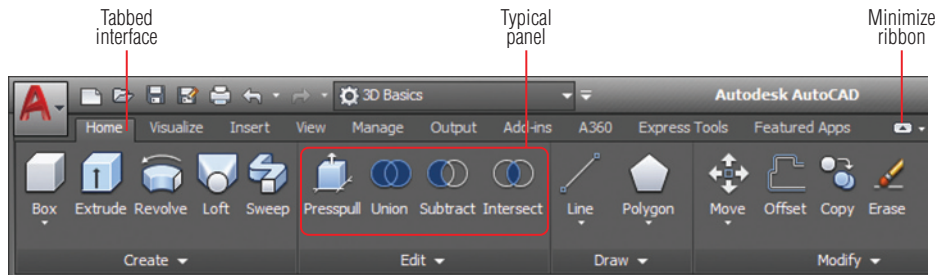


FIGURE 1.10 The full ribbon interface

1. Open the Customize Quick Access Toolbar menu and choose Workspace. Choose the 3D Basics workspace from the drop-down menu in the Quick Access toolbar. Close the Tool palette if it is open.

WORKSPACES

Workspaces (not to be confused with drawing spaces) are stored sets of user interface controls, which include floating palettes and the configuration of the ribbon. People use workspaces to configure the interface quickly for the task at hand.

2. Click the Minimize Ribbon button and observe that the full ribbon changes to display tabs and panel buttons (see Figure 1.11). Hover the cursor over the panel buttons. The buttons expand to reveal all the tools shown on the full ribbon.

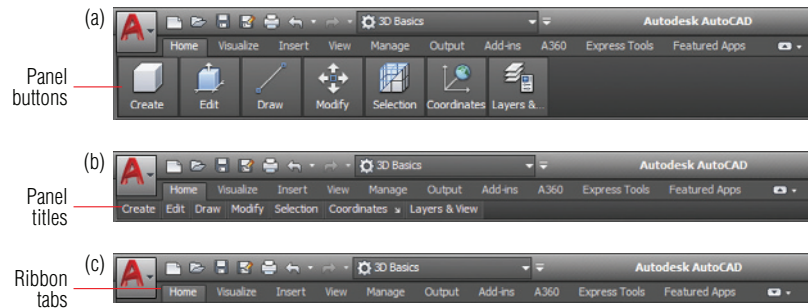


FIGURE 1.11 Ribbon modes

**Certification
Objective**

I recommend using the full ribbon interface until you learn the location of all the tools. Use one of the minimized modes to save space onscreen.

AutoCAD is based on commands. If you know the name of a command, you can type it instead of finding it in the GUI.

3. Click the Minimize Ribbon button again. The panel buttons change into panel titles. Hover the cursor again over the titles to reveal each panel's tools.
4. Click the Minimize Ribbon button again. Hovering the cursor over the tabs doesn't have any effect. Click the Home tab to reveal the full panel temporarily. It disappears after you move the cursor away.
5. Verify that Cycle Through All is selected in the Minimize Ribbon button's menu and then click the Minimize Ribbon button one last time. The full ribbon interface is restored.
6. Click the Edit button at the bottom of the Edit panel to reveal additional tools. Hover the mouse over one of the tools to display a tooltip that identifies the tool and describes its function. Holding the cursor a while longer reveals an image that illustrates what the tool does (see Figure 1.12).
7. Observe that the bottom of the tooltip shown in Figure 1.12 reveals the command name (SOLIDEDIT in this case). The ribbon, menus, toolbars, and palettes are all graphical alternatives to typing commands.
8. Press and release the Alt key. Keytips appear on the ribbon (see Figure 1.13). Pressing any of the letter combinations activates that part of the GUI. Type IN and observe that the Insert tab is selected without moving the cursor.

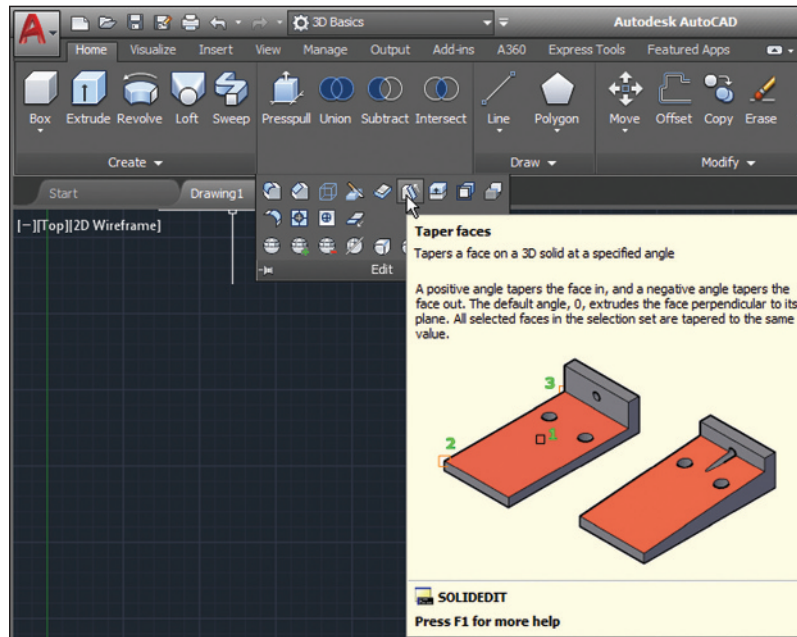


FIGURE 1.12 Tooltip and illustration

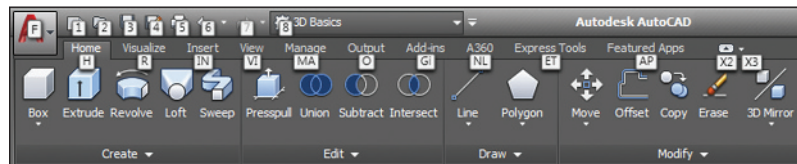


FIGURE 1.13 Keytips allow you to press keys to manipulate the ribbon with the keyboard.

If you undock the command line, it can be configured to be partially transparent and to show a number of lines of prompt history.

9. Press the F2 key to open the AutoCAD Text window. The bottom line, Command:, is called the command line. It is the active line where commands appear, regardless of whether they are typed or triggered from the GUI. The complete history of commands scrolls upward as new commands are entered. Close the AutoCAD Text window. Two lines of this command history appear at the bottom of the user interface, just above the command line that reads Type a command by default.

- 10. The application status bar contains a coordinate readout on the left and a number of status toggle buttons, as shown in Figure 1.14. The icons that have arrows adjacent to them open menus. Toggle off all the status bar toggles so that no icons are highlighted in blue. Open the customization menu by clicking the rightmost icon on the status bar and deselect Clean Screen, Coordinates, Isometric Drafting, and Annotation Monitor from the context menu that appears. You can control which buttons appear on the status bar using this menu.

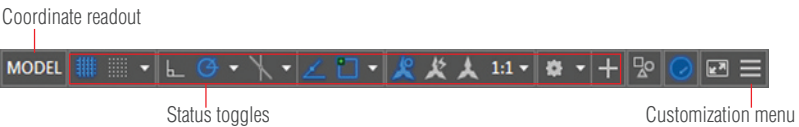


FIGURE 1.14 Status bar

Some commands and system variables can be quite lengthy, so using AutoComplete saves time typing.

- 11. Type `POL` and observe how the AutoComplete feature highlights commands in alphabetical order as you type (see Figure 1.15). Use the arrow keys to move up or down through the list; press Enter when you find the command for which you are looking, or click its name in the list instead of typing the entire word.

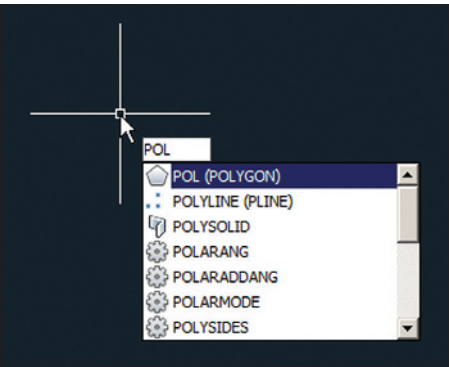


FIGURE 1.15 Command line's AutoComplete feature

- 12. Take a look at the InfoCenter at the top right of the screen (see Figure 1.16). Click in the search box and type `solid`.

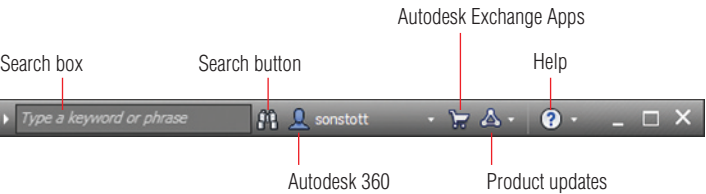


FIGURE 1.16 InfoCenter

13. Click the binoculars icon on the right of the search field, and the AutoCAD Help dialog box appears. Multiple online books are searched, and relevant results appear in the left panel. The description of the SOLID command appears in the right panel.
14. Click the Help button on the right edge of the InfoCenter. The Help Table Of Contents page opens. All AutoCAD documentation is accessible through this interface.
15. Open the Quick Access toolbar's workspace drop-down and select Drafting & Annotation to restore the ribbon to its original configuration.



The AutoCAD Exchange website contains the Apps store, where you can access free and paid apps that add functionality to AutoCAD.

Set Drawing Units

Before you start drawing, it's important to decide what one drawing unit represents in the real world. Architects in the United States typically equate one drawing unit with 1 inch in AutoCAD. You need to choose a unit type that matches your country's industry standard.

Architectural Most American architects will choose this type, which displays units in feet and inches. For example, 12', 6 ½" is typed as 12'6-1/2. The hyphen is used to separate inches from fractions of an inch rather than feet from inches.

Decimal Metric users should select this type. One decimal unit can be equal to 1 millimeter, 1 centimeter, or any metric unit that you decide.

Engineering Like the Architectural type, engineering units feature feet and inches, but the inches are represented in decimal form—for example, 126.500 feet.

Fractional American woodworkers often prefer to set AutoCAD drawings in fractional units of inches because that is how their work is normally reckoned. For example, 12', 6 ½" reads 150- ½" in fractional units.

Scientific In scientific units, 12.000E+06 is broken down into two parts: 12.000 indicates 12 accurate to a precision of three decimal places, and E+06 indicates the exponential function raised to the sixth power, or $10 \times 10 \times 10 \times 10 \times 10 \times 10$, bringing the total in this example up to 12 million.

Exercise 1.4: Set the AutoCAD Drawing Units

Let's set the AutoCAD drawing units.

Certification Objective



1. Click the New button on the Quick Access toolbar. Click the arrow button next to the Open button in the Select Template dialog box and choose Open With No Template – Imperial (see Figure 1.17).

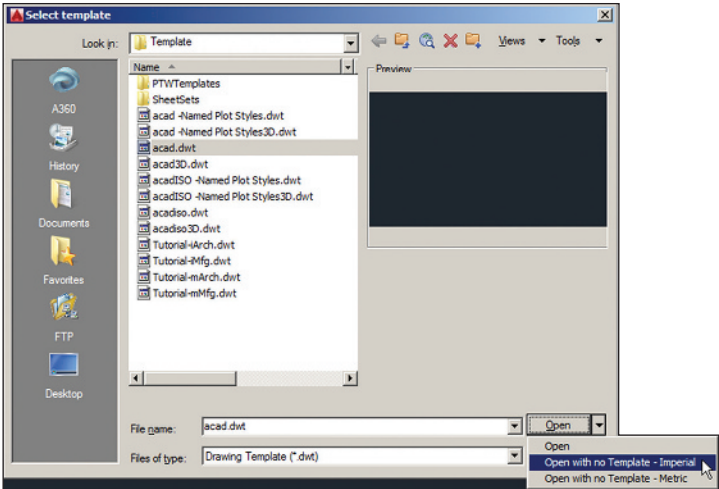


FIGURE 1.17 Opening a drawing with no template

2. Type UN and press Enter to bring up the Drawing Units dialog box (see Figure 1.18). UN is the command alias (abbreviation) of the UNITS command. Most commands have aliases that minimize typing.

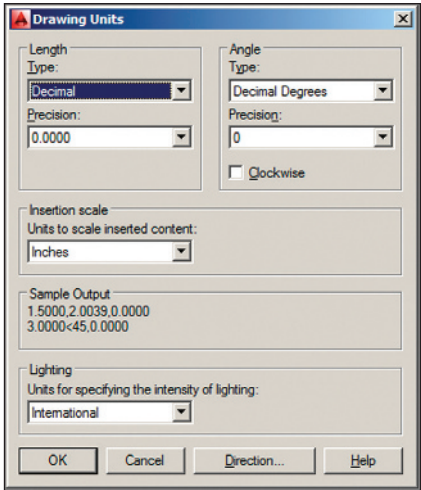


FIGURE 1.18 Setting drawing units

You can press Enter or the spacebar to enter commands (command names never have spaces). Commands and their options can be typed in uppercase or lowercase.

3. Select Architectural from the Type drop-down menu. I'm using Architectural in this book, but you should select the unit type that fits your industry when working professionally. Metric users should select Decimal length units.
4. Click the Length Precision drop-down menu and select 1/8" (or 0.0 for metric). Set Angle Type to Decimal Degrees and Angle Precision to 0.0.
5. Click the Insertion Scale drop-down menu and select Inches (or Centimeters for metric). Click OK to close the Drawing Units dialog box.

AutoCAD 2018 has US Survey Feet as an option for insertion scale units.

Now You Know

In this chapter, you learned how to sign in to Autodesk 360, open and save sample drawings, identify user interface elements, access model space and paper space, change workspaces, control the appearance of the ribbon, type commands using AutoComplete, identify commands in the graphical user interface, and set the drawing units.

