Tutorial 2: Drawing Setup in AutoCAD 2010

Audience: Users new to AutoCAD

Prerequisites: None

Time to complete: 15 minutes

In this Tutorial

NOTE For more information on the topics covered in this tutorial, see the *AutoCAD User's Guide.*

In this tutorial, you learn how to do the following:

- Use a drawing template
- Display only the relevant tools specific for your drawing environment
- Set the drawing units
- Set the plot scale
- Use model space and paper space

Tutorial File

Download the tutorial file as follows:

1   Download the *drawing_setup.zip* from
    http://www.autodesk.com/autocad-tutorials.

2 Unzip *drawing_setup.zip* to *C:\My Documents\Tutorials*.

Lesson 1: Use a Drawing Template

In this lesson, you learn how to start a drawing using a drawing template file.

When you use a template file, new drawings created from the template automatically use the settings defined in the template. This saves you setup time and helps to make sure each drawing you create follows your company's CAD standards.

Drawing template files have a *.dwt* file extension

Some of the settings stored in drawing template files include

- Unit type and scale (precision)
- Title blocks/borders, blocks, and logos
- Layer names
- Snap, grid, and ortho settings
- Grid limits
- Annotation styles
- Linetypes

To start a drawing with a template

1 Click Start menu (Windows) ➤ (All) Programs ➤ Autodesk ➤ AutoCAD 2010 ➤ AutoCAD 2010 - English.

2 **NOTE** If the New Features dialog box appears, select Maybe later and OK to close it.

The AutoCAD window opens with an empty drawing file *Drawing1.dwg*.

3 Click ➤ New.
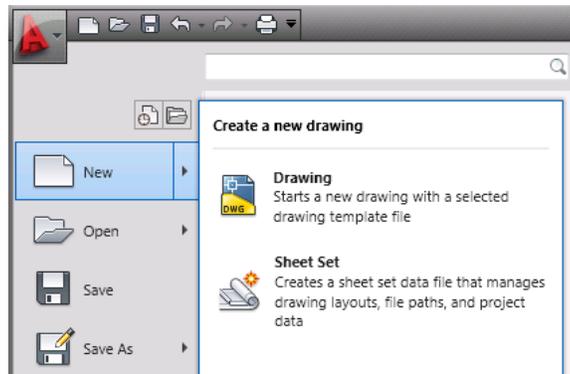
4 In the Select Template dialog box, select *Tutorial-iArch.dwt*.
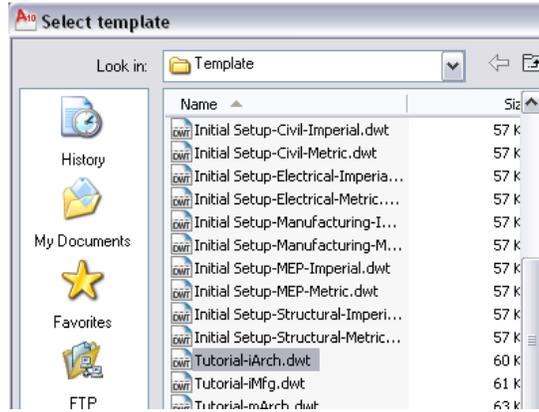
5 Click Open to open the *Tutorial-iArch.dwt* template.

Notice that the file name is *Drawing2.dwg.* You are not opening the *Tutorial-iArch.dwt* file template file, but are opening a new drawing based on the template file.

The *Tutorial-iArch.dwt* template file is used for architectural drawings, and includes predefined settings for drawing units, dimension style, linetype, layer, border and title block.

When you use a template file, you can start your drawing immediately without having to spend time defining settings and styles.

6 Click ➤ Close ➤ Current Drawing to close *Drawing2.dwg.*

Lesson 2: Switch Workspaces

The workspace is the AutoCAD window layout of dockable windows, menus, toolbars, and other user interface features. You can select a predefined workspace or define your own. In this lesson, you learn how to select the predefined workspaces, including the workspace for creating a 3D model.

When you use a workspace, only the menus, toolbars, ribbon tabs, and palettes relevant to a task are displayed.

To switch workspaces

1 The status bar is located at the bottom of the window. The Workspaces icon on the status bar is shown below.

> **NOTE** If you do not see this icon, right-click in an empty area on the status bar and click Workspaces. If you still do not see this icon, you may need to maximize the AutoCAD window.

2 Click the down arrow to display the menu of predefined workspaces.

3 On the Workspace menu, click 3D Modeling.
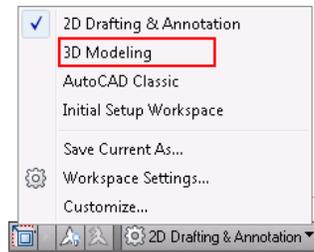
4 The 3D Modeling workspace is displayed. The Workspaces icon in the status bar indicates that you are now in the 3D Modeling workspace. In this workspace, you can access the various commands and tools needed for creating 3D drawings. For example, notice the 3D modeling commands available in the ribbon.

> **NOTE** The selected workspace is retained when you close and reopen AutoCAD. To return to 2D Drafting & Annotation, you must select it.
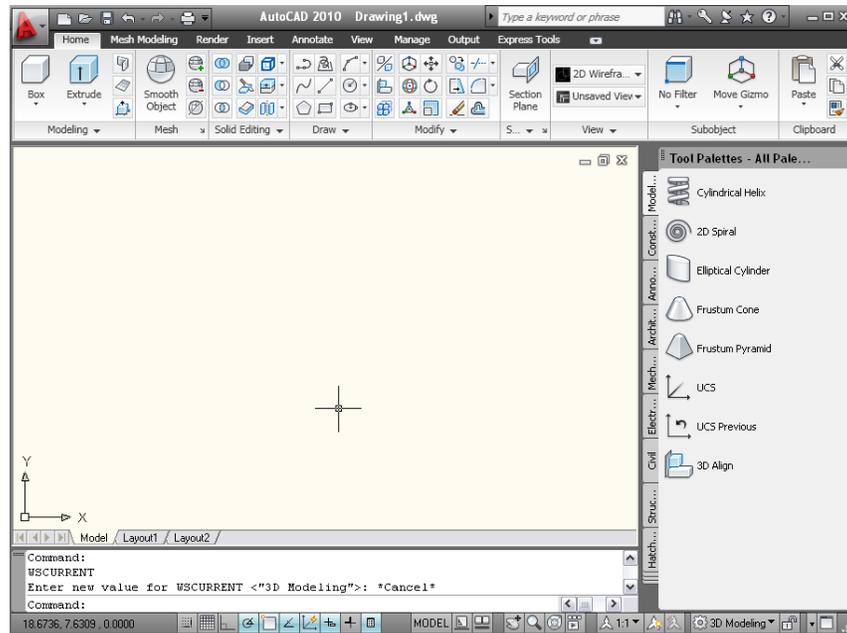
5 To access help information for the Ribbon commands, place the mouse cursor over one of the commands and keep the cursor there for a second. Help information for the Smooth Object command is shown below.
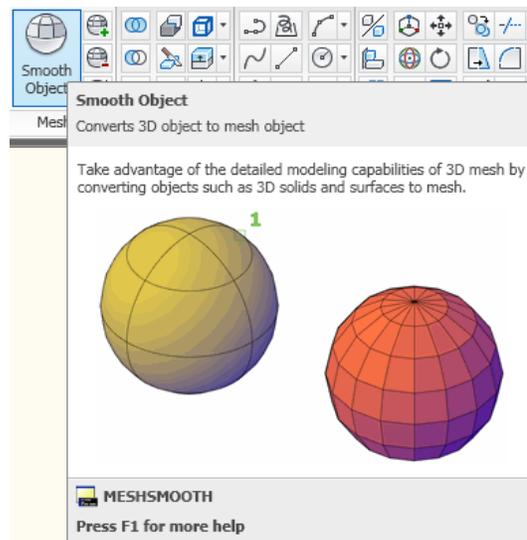
6 Use the Workspaces icon on the status bar to switch back to the 2D Drafting & Annotation workspace.

Lesson 3: Select the Drawing Units

In this lesson, you learn how to set the drawing unit and the scale for a drawing.

Before you start a drawing, you must first decide what drawing units to use. In AutoCAD, distances are measured in drawing units. In a drawing, one drawing unit may equal one inch, one millimeter, one meter, or one mile.
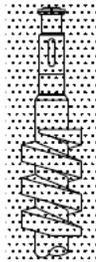
Shaft
1 unit = 1 mm
(grid spacing = 2 mm)
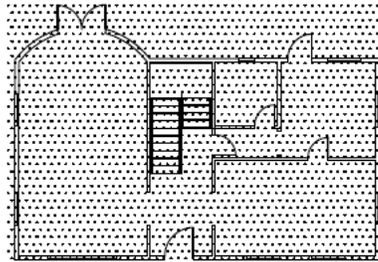
Office plan
1 unit = 1 inch
(grid spacing = 12 inches)

Before you begin drawing, you decide what one drawing unit will represent. AutoCAD does not include a setting that determines the length of a drawing unit.

After you decide what drawing units to use, you can set the format of the drawing units. The format settings available for linear units include

- **Architectural.** A length of 15.5 units displays as 1'-3 1/2"

- **Decimal.** A length of 15.5 units displays as 15.5000

- **Engineering.** A length of 15.5 units displays as 1'-3.5"

For example, a mechanical engineer who works in millimeters would set the format for linear units to decimal. An architect who works in feet and inches, would set the format to architectural.

The drawing unit format controls only the display style of the drawing units on-screen, such as in the display of coordinates and values in the dialog boxes and prompts.

To set the format of the drawing units

1 Click ➤ Drawing Utilities ➤ Units.
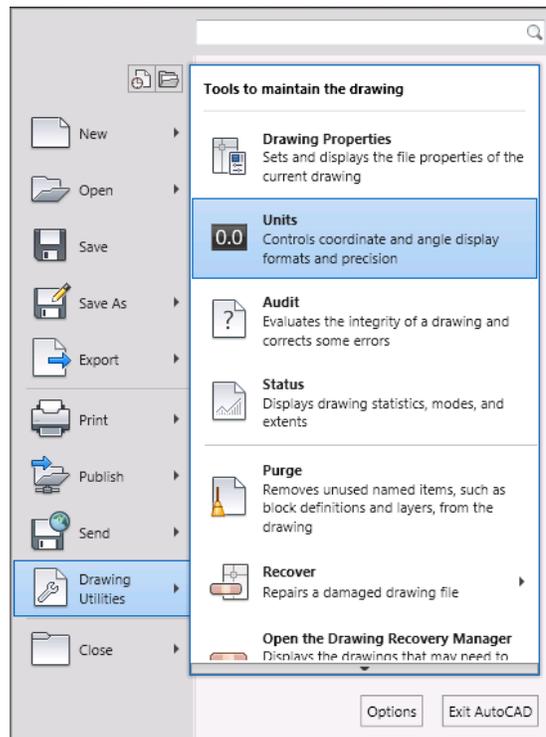
2 In the Drawing Units dialog box, under Length, select the following values:
   ■ Type: **Architectural**
   ■ Precision: **0'-0 1/8''**
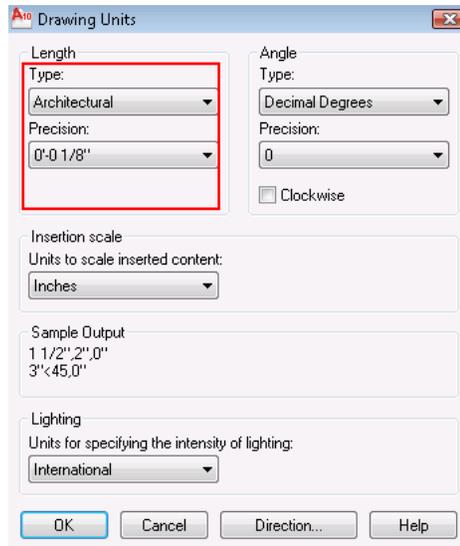
The Sample Output section shows the display style of the drawing units on-screen. Select different length types, such as Decimal, Scientific, or Engineering and notice how the sample output changes.

3 Click Cancel to close the dialog box.

Lesson 4: Set the Plot Scale

In this lesson, you learn to specify a scale to output your drawing.

When you plot a drawing, you either specify a precise scale or fit the image design to the current paper size. For example, a distance of one drawing unit typically represents one millimeter or one meter in a metric drawing, while one inch or one foot in real-world units are common in an imperial drawing.

plotted at 1=1   plotted at .5=1   plotted at 1.5=1
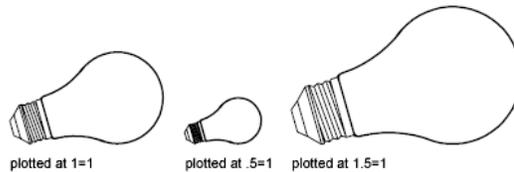
To plot using a custom scale

1 Click ➤ Open ➤ Drawing and select *Architectural - Imperial.dwg* in the Select File dialog box.
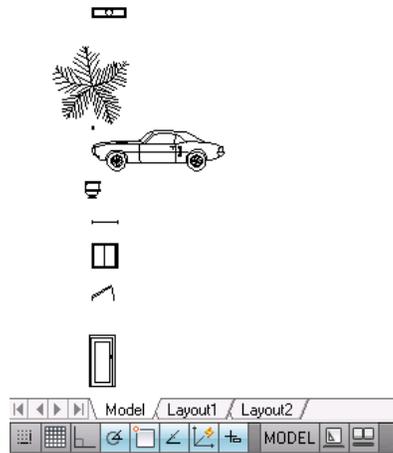
2 Verify that the Model tab at the bottom of the drawing window is selected. You must be in model space for this lesson.

3 Click ➤ Print ➤ Plot .

4 In the Plot dialog box, under Page setup, click Add.
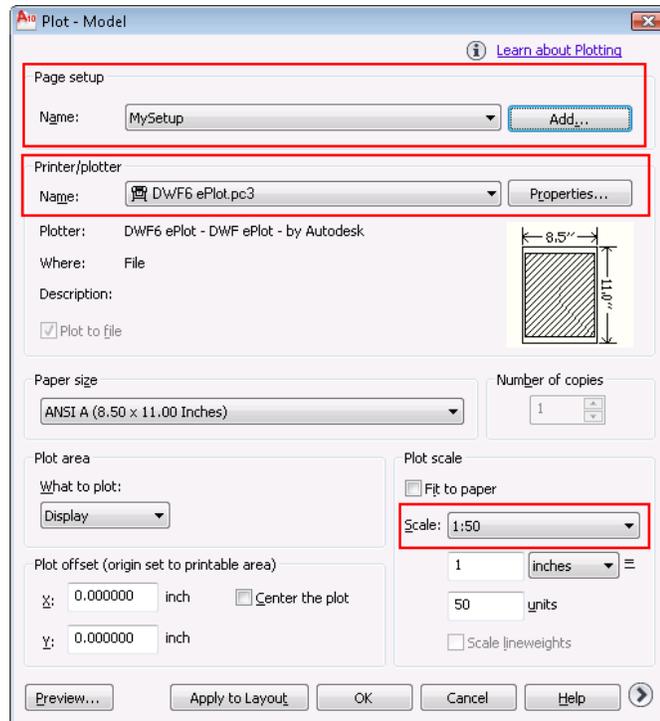
5 In the Add Page Setup dialog box, enter **MySetup.** Click OK.

6 Under Printer/plotter, Name list, select your printer to plot the current layout.

7 Under Plot Scale, select **1:50** from the Scale drop-down list.

NOTE If the Fit to paper check box is selected, the Scale list is not available

8 Click Preview. If the Plot Scale Confirm dialog box is displayed, click Continue. The plot preview of the drawing is displayed at the selected scale of 1:50.
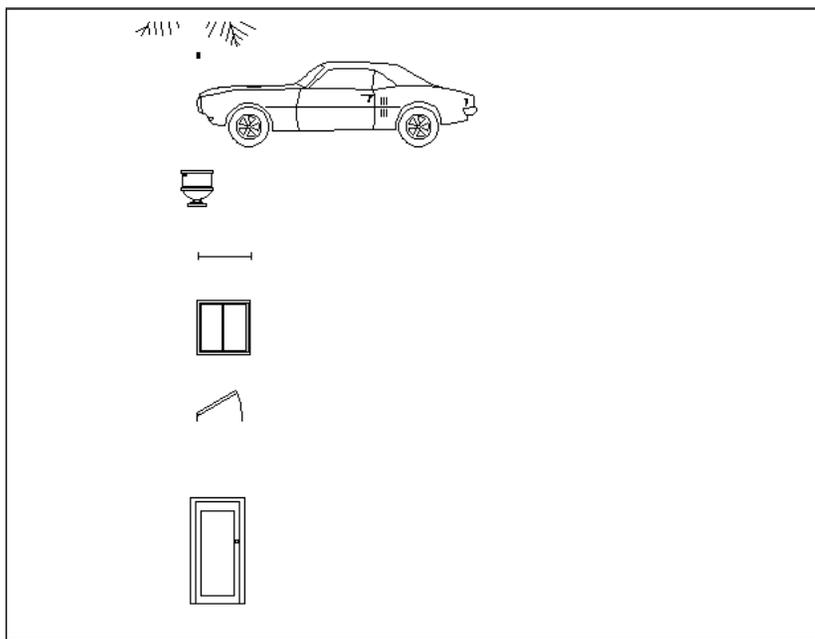
9 In the preview window, click Plot 🖨 to print the drawing.

10 Click ⊗ to close the preview window, and click Cancel to close the Plot dialog box.

To scale a drawing to fit the page

1 Click 🅰️ ➤ Print ➤ Plot. 🖨

2 In the Plot dialog box, under Plot Scale, select the Fit to Paper check box.
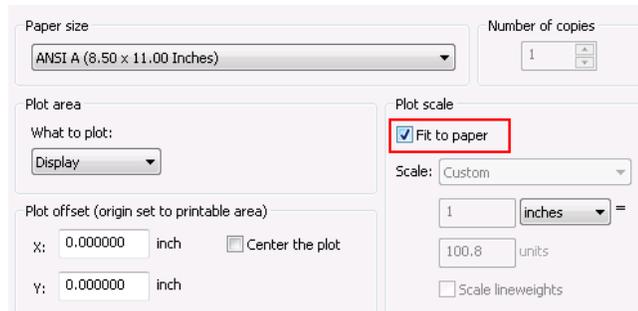
The resulting scale is automatically calculated. The ratio of plotted to drawing units in the custom scale is displayed.

3 Click OK to plot the drawing.

TIP To preview the plotted drawing, in the Plot dialog box, click Preview.

Lesson 5: Understand Model Space and Paper Space

In this lesson, you learn some basic concepts about model space and paper space.

There are two distinct working environments or "spaces," in which you can create objects in a drawing, *model space* and *paper space.*

Use the tabs at the bottom of the drawing area to access model space and paper space. Use the Model tab for model space, and use one or more of the Layout tabs for paper space.

NOTE These tabs can be hidden, appearing instead as buttons on the status bar.

In model space, you draw a model of your subject at 1:1 scale. In paper space, you can create one or more *layout viewports*, dimensions, notes, and a title block to represent a drawing sheet.

To switch between model space and paper space

1 If not already open, click ➤ Open ➤ Drawing and select *Architectural - Imperial.dwg* in the Select File dialog box.

2 Click the Model tab (if not already selected). In model space, you draw, view, and edit your model.
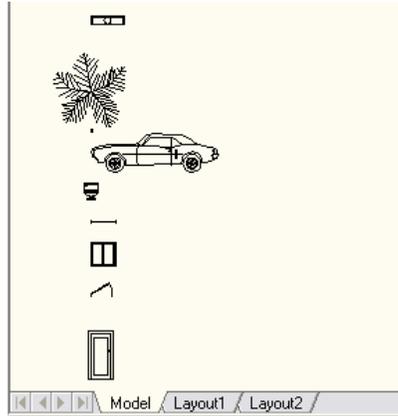
3 Click the Layout1 tab to enter paper space. You can tell you are in paper space, when you see the icon (shown in blue below) in the lower corner. If you are not in paper space, double-click the left mouse button in a blank area outside of the rectangle.
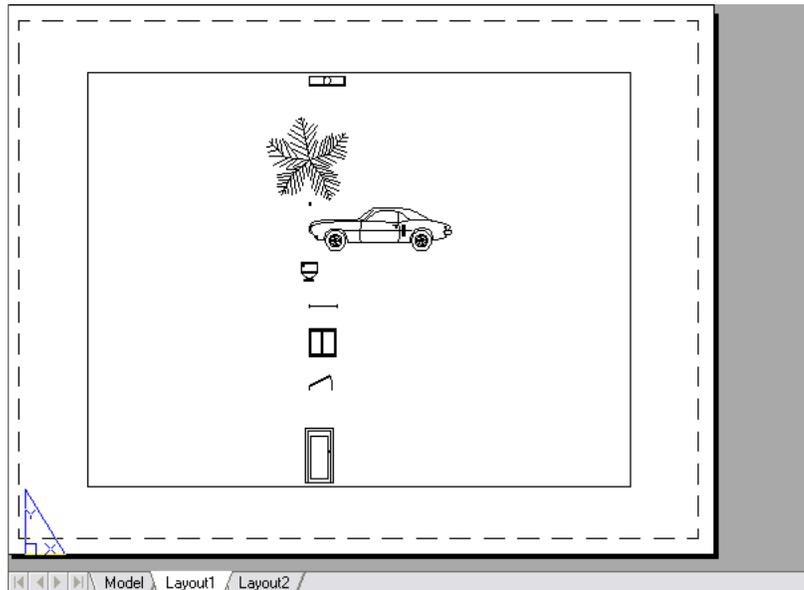
4 You can toggle back and forth between paper space and model space. To enter model space, double-click the left mouse button in the middle of the rectangle. Notice that the border of the inside rectangle becomes thicker and the blue icon indicating paper space disappears.
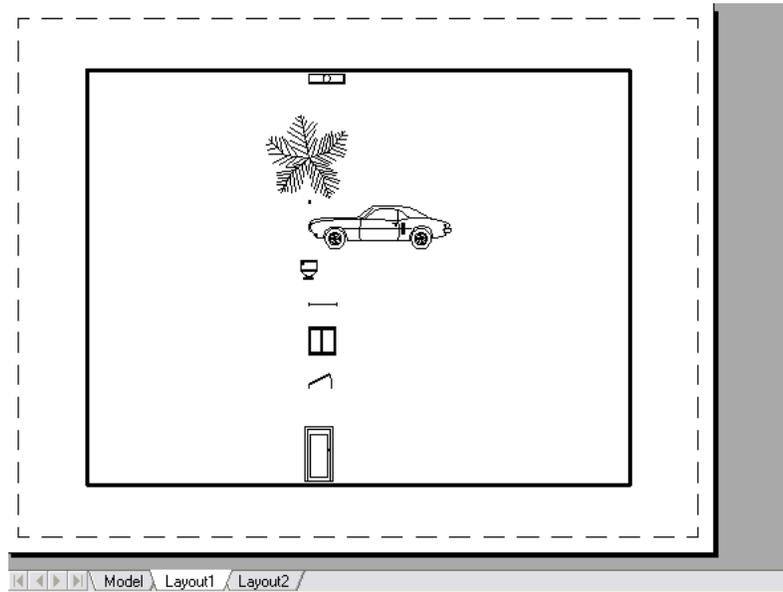
5 In model space, the area surrounded by the rectangle with the thick border is the layout viewport. You can use layout viewports to access model space from within paper space. A layout viewport is like a picture frame containing a "photograph" of the model in model space.

6 Practice toggling back and forth between model space and paper space by double-clicking the left mouse button inside the viewport (to enter model space) and outside in the blank area (to enter paper space).

NOTE If you are having trouble entering model space, click the word PAPER from the status bar to switch to MODEL.

To set a viewport to a specific scale

1 Ensure that you have *Architectural - Imperial.dwg* open.

2 Click the Layout1 tab to the right of the Model tab. Make sure you are in paper space.

3 Click the border of the viewport.
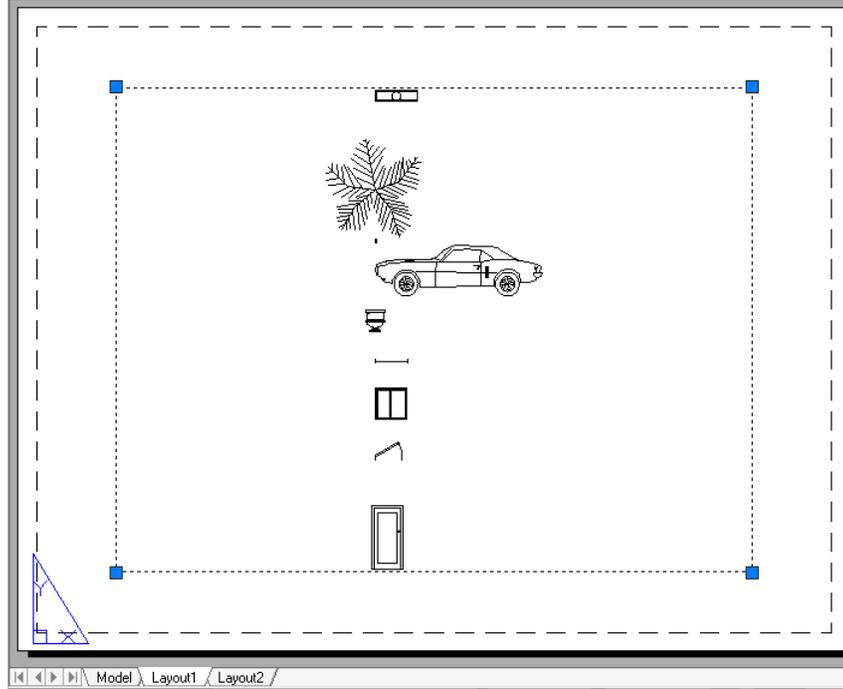
4 Right-click, and then click Properties.
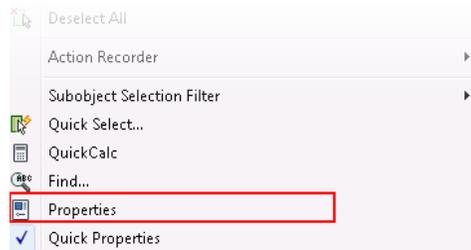
5 In the Properties palette, select Standard Scale, and then select **3/8" = 1'-0"** from the list.
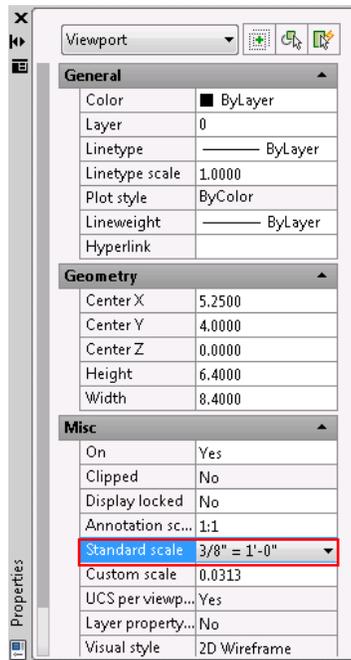
The selected scale is applied to the viewport.