INTRODUCTION TO AutoCAD® 2024

A Modern Perspective

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continue to add to the selection set by selecting more objects. As objects are selected, AutoCAD prompts you if the object was found and keeps a running tally of how many total objects are part of the current selection set:

```
Select objects: 1 found, 2 total

Select objects:
```

You can enter **U<Enter>** in response to the *Select objects:* prompt to undo, or deselect, the last object selected. If you have more than one object selected, you can enter **U<Enter>** repeatedly to deselect multiple objects in the order they were selected.

You can also remove selected objects from the selection set by holding down the **<Shift>** key and selecting the object you want to remove.

If you try to select an object and you miss because the object isn't within the pickbox, you may automatically be put in what is known as *implied windowing* mode, depending on whether it is turned on or not.

Implied windowing is turned on and off on the **Selection** tab of the **Options** dialog box shown in Figure 7-2. If **Implied windowing** mode is on, AutoCAD automatically initiates the **Window** option. The **Window** option is discussed in detail a little later in this section. For the time being, you can press the **<Esc>** key to exit the window selection mode and return to selecting objects individually.

implied windowing: Feature that allows you to create a window, crossing, or lasso selection automatically by picking an empty space in a drawing to define the first corner point.

Toggling Between Adding and Removing Objects from a Selection Set. It is possible to toggle between adding and removing objects from a selection set using the **A** (Add) and **R** (Remove) selection set options. If you type **R<Enter>** in response to the *Select objects:* prompt, AutoCAD enters the **Remove** object mode, and the prompt changes to *Remove objects:*. Objects you then select are removed from the selection set so that they are no longer highlighted. AutoCAD stays in the **Remove** object mode until you enter **A<Enter>** in response to the *Remove objects:* prompt to switch back to **Add** object mode. Switching to **Add** object mode changes the prompt back to the familiar *Select objects:* prompt.

NOTE
The **Add** and **Remove** toggle also works with all the multiple object selection modes described later in this chapter.

Using the <Shift> Key to Add to a Selection Set. When selecting objects individually, it is possible to change the selection mode so that you must use the **<Shift>** key when adding objects to the current selection set. If you select the **Use Shift to add to selection** check box in the **Selection modes** area on the **Selection** tab of the **Options** dialog box (see Figure 7-2) so that it is turned on, you must hold down the **<Shift>** key when selecting more than one object. When the **Use Shift to add to selection** mode is on and you try to select more than one object *without* using the **<Shift>** key, the first object is deselected so it is no longer highlighted. By default, the **Use Shift to add to selection** mode is off.

Selecting Stacked and Overlaid Objects. It is possible to easily select overlapping objects either by picking the **Selection Cycling** button on the AutoCAD status bar shown in Figure 7-5 or by using the **<Ctrl>+W** keyboard combination.
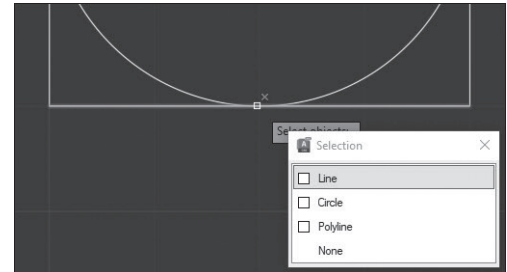
> **NOTE**
> By default, the **Selection Cycling** button is not displayed on the status bar. It can be turned on using the **Customization** menu on the far right of the status bar.

When **Selection Cycling** is turned on and you try to select an object that overlaps one or more other objects, AutoCAD displays a list of all the overlapping objects that you can select from, so you can select the desired object. When you pass your cursor over an object in the list, AutoCAD highlights the object in the drawing so you know which object in the list it is associated with, as shown in Figure 7-6.

Figure 7-6
The **Selection Cycling** list of overlapping objects
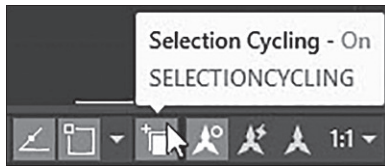
Figure 7-5
The **Selection Cycling** button on the status bar

Select the object from the list, and it becomes part of a new or existing selection set.

> **NOTE**
> When you hover your cursor over any overlapping objects in a drawing, a small icon representing two overlapping squares is displayed indicating stacked objects. This is your cue that, if you pick a point, the **Selection Cycling** list in Figure 7-6 will be displayed so you can select the correct object.

EXERCISE 7-1   Selecting Objects Individually

1 Start a new drawing using the **acad.dwt** drawing template.

2 Make sure that your **Selection modes** settings on the **Selection** tab of the **Options** dialog box match those shown in Figure 7-2.

3 Draw a 2×2 square similar to the one shown in Figure 7-3 using the **LINE** command so that the rectangle consists of four separate line segments. *Do not use the* RECTANG *command!*

4 Start the **ERASE** command.

5 Select the top line as shown in Figure 7-4 and press **<Enter>**. The line is erased.

6 Type **U<Enter>** or select the **Undo** tool so that the line is undeleted.

7 Start the **ERASE** command again.

8 Select the top line as shown in Figure 7-4.

9 Select the other three lines in a clockwise direction using your cursor so that all the rectangle lines are highlighted.

10 Type **U<Enter>** three times so that only the top line is highlighted as shown in Figure 7-4.

11 Select the other three lines again in a clockwise direction using your cursor so that all the square lines are highlighted.

12 Hold down the **<Shift>** key, and select the vertical line on the left side of the square so it is no longer highlighted.

13 Type **R<Enter>**.

14 Select the remaining three highlighted lines so that all the square lines are no longer highlighted.

15 Type **A<Enter>**.

16 Select all four lines so that the entire square is highlighted again, and press **<Enter>** so that the square is erased.

17 Type **U<Enter>** or select the **Undo** tool so that the square is undeleted.
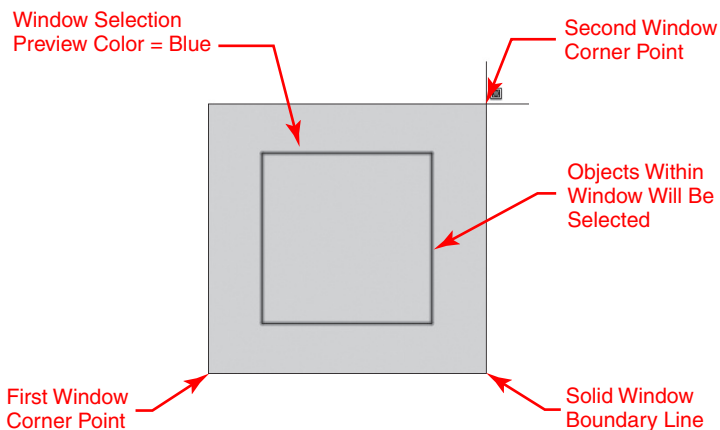
Selecting Multiple Objects

Often, you need to select more than one object when modifying a drawing. Suppose you need to erase a large portion of your drawing—you don't want to have to pick each object individually. Doing so would be very time-consuming. Fortunately, AutoCAD provides a number of selection set options that expedite the process of selecting multiple objects. All these options are entered via the keyboard in response to the *Select objects:* prompt. The following sections explain each of these selection set options.
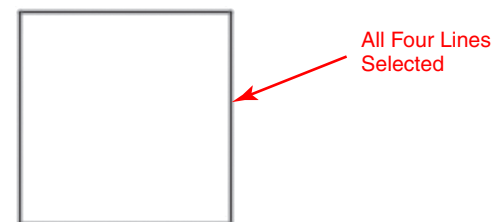
W—Window Option. The **Window** option allows you to define a rectangular window selection area by prompting you to pick two corner points as shown in Figure 7-7.

By default, the windowed area is shaded a semitransparent blue color to make it obvious which objects will be selected before the second corner point is picked. This selection preview feature helps you avoid the unintentional selection of objects.

Using the **Window** option, only objects that are *completely within* the window boundary area are selected. Objects that cross the window boundary are ignored (see Figure 7-8).

Window Selection Preview Color = Blue

Second Window Corner Point

Objects Within Window Will Be Selected

First Window Corner Point

Solid Window Boundary Line

Figure 7-7
Defining the window selection area

All Four Lines Selected

Figure 7-8
Objects selected using the **Window** option
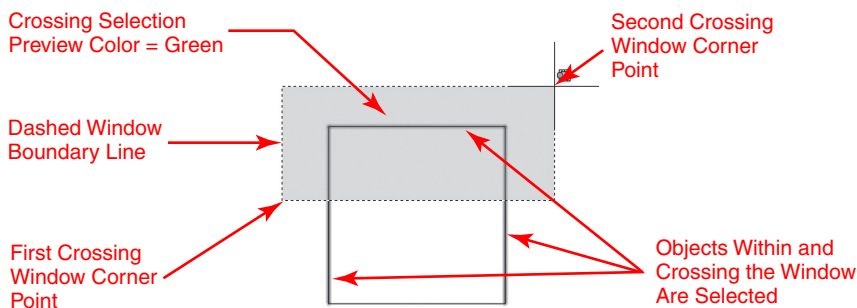
EXERCISE 7-2   **Selecting Multiple Objects with the Window Option**

1 Continue from Exercise 7-1.

2 Start the **ERASE** command.

3 Type **W<Enter>**.

4 Create a window selection similar to the one shown in Figure 7-7, and press **<Enter>** twice. The four lines of the square are erased.

5 Type **U<Enter>** or select the **Undo** tool so that the square is undeleted.

C—Crossing Option.   The **Crossing** option allows you to define a rectangular window selection area by picking two corner points similar to the **Window** option, as shown in Figure 7-9.
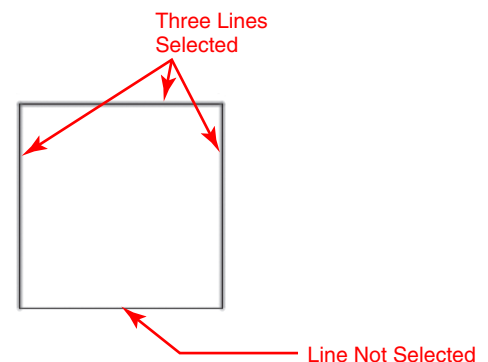
To distinguish between the **Window** option and the **Crossing** option, the **Crossing** option window boundary is dashed (see Figure 7-9), whereas the **Window** option window boundary is solid (see Figure 7-7). In addition, the **Crossing** option windowed area is, by default, shaded a semitransparent green color (see Figure 7-9) instead of the default blue color used with the **Window** option (see Figure 7-7).

The major difference between the **Crossing** option and the **Window** option is that the **Crossing** option will select objects that *cross over* the rectangular window boundary in addition to the objects that lie completely within the window boundary area (see Figure 7-10).

Crossing Selection
Preview Color = Green

Second Crossing
Window Corner
Point

Dashed Window
Boundary Line

First Crossing
Window Corner
Point

Objects Within and
Crossing the Window
Are Selected

Figure 7-9
Defining the crossing selection area

Three Lines
Selected

Line Not Selected

Figure 7-10
Objects selected using the **Crossing** option

EXERCISE 7-3   **Selecting Multiple Objects with the Crossing Option**

1 Continue from Exercise 7-2.

2 Start the **ERASE** command.

3 Type **C<Enter>**.

4 Create a crossing selection similar to the one shown in Figure 7-9 and press **<Enter>** twice. The top horizontal line and the two vertical lines of the square are erased. The bottom horizontal line remains in the drawing.

5 Type **U<Enter>** or select the **Undo** tool so that the three lines are undeleted.

Implied Windowing.   As mentioned earlier in the section "Selecting Objects Individually," it is possible to initiate the **Window**, **Crossing**, or **Lasso** option automatically by relying on a feature called *implied windowing*. **Implied windowing** can be turned on and off on the **Selection** tab of the **Options** dialog box shown in Figure 7-2.

When **Implied windowing** is on, you can initiate the **Window**, **Crossing**, or **Lasso** option by picking an empty space in your drawing so that no objects fall within your pickbox in response to the *Select objects or* ↓ prompt. If you pick and release the mouse button, AutoCAD interprets the pick point as the first corner point of a rectangular window area and prompts you to select the second corner point as follows:

```
Specify opposite corner:
```

This is where it gets interesting. If you move your cursor to the *right* of the first pick point, you initiate the **Window** option—the window boundary outline is solid, and the default shade color is blue (see Figure 7-7).

If you move your cursor to the *left* of the first pick point, you initiate the **Crossing** option—the window boundary outline is dashed, and the default shade color is green (see Figure 7-9).

In addition to the implied **Window** and **Crossing** options, it is also possible to select objects using an implied **Lasso** option. This option allows you to select the objects you want to by holding the mouse button down after clicking in an empty space in the drawing and dragging a lasso around the objects as shown in Figure 7-11.
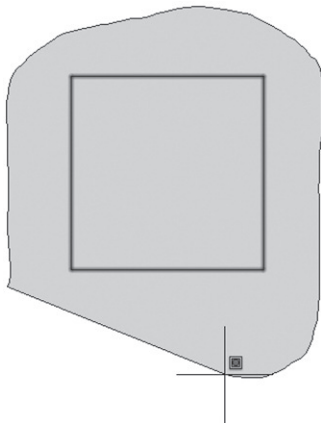
Figure 7-11
Selecting objects using the **Lasso** option

> **NOTE**
> The **Lasso** option also allows you to apply the **Window** or **Crossing** option. Clicking and dragging the cursor to the right creates a **Window**-type lasso. Clicking and dragging the cursor to the left creates a **Crossing**-type lasso. You can press the spacebar when creating a lasso selection to switch between the two options.

> The **Lasso** drag mode is enabled by selecting the **Allow press and drag for Lasso** check box in the **Selection modes** area on the **Selection** tab of the **Options** dialog box (see Figure 7-2). By default, the **Allow press and drag for Lasso** selection mode is turned on.

EXERCISE 7-4   **Selecting Multiple Objects with an Implied Window**

1 Continue from Exercise 7-3.

2 Start the **ERASE** command.

3 Pick a point to the lower left of the square so that no objects are within your pickbox, and pick a point.

4 Release the mouse button, and move the cursor up to the right of the square so that an implied window similar to the window selection shown in Figure 7-7 is created, and pick a point.

5 Press **<Enter>**. The four lines of the square are erased.

6 Type **U<Enter>** or select the **Undo** tool so that the four lines are undeleted.

7 Start the **ERASE** command again.

8 Pick a point to the upper right of the square so that no objects are within your pickbox, and pick a point.

9 Release the mouse button and move the cursor down and to the left of the square so that an implied window similar to the crossing selection shown in Figure 7-9 is created, and pick a point.

10 Press **<Enter>**. The top horizontal line and the two vertical lines of the square are erased. The bottom horizontal line remains in the drawing.

11 Type **U<Enter>** or select the **Undo** tool so that the three lines are undeleted.

12 Start the **ERASE** command again.

13 Pick a point to the lower left of the square so that no objects are within your pickbox.

14 Drag the mouse up and to the right to create a lasso similar to the lasso selection shown in Figure 7-11.

15 Press **<Enter>**. The four lines of the square are erased.

16 Type **U<Enter>** or select the **Undo** tool so that the four lines are undeleted.

It is also possible to use the **Window Polygon**, **Crossing Polygon**, and **Fence** selection options discussed in the next sections when using the implied windowing technique. All three of these options are available after picking the first implied window point via the command line or dynamic input.

WP—Window Polygon Option. The **Window Polygon** option allows you to define a polygonal window area using multiple pick points so that you can select multiple objects in a complex drawing that you might not be able to select using a simple rectangular window. When you enter the **WP** option, AutoCAD prompts you for the first polygon point and then prompts you for line endpoints until you press **<Enter>** as shown in Figure 7-12.

Similar to the **Window** option, the **Window Polygon** option selects only objects that are completely within the window boundary area. Objects that cross the window boundary are ignored (see Figure 7-13).