

## IN THIS CHAPTER

- Using macros to automate step-heavy tasks you frequently perform.
- Recording a series of keystrokes and commands to create a macro.
- Running macros by pressing a key or clicking a button.
- Editing macro commands in Microsoft's Visual Basic Editor.
- Protecting Excel worksheets and your computer against macro viruses.



# 13

# AUTOMATING TASKS WITH MACROS

Excel is packed with tools to help you enter commands without winding through a series of menus and submenus. You can press Ctrl+S to save a workbook, click the Print button to print a worksheet, or press Ctrl+N to create a new workbook, just to name a few. By learning the dozens of toolbar buttons and shortcut keystrokes available in Excel, you can significantly reduce the amount of time you spend entering commands. To become even more efficient, you can create your own *macros*, as explained in this chapter.

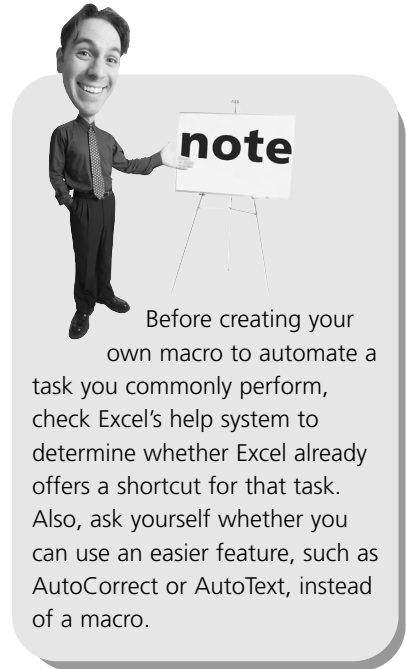
## What Is a Macro?

A macro is a recorded series of commands you can play back in Excel by selecting the macro's name from a list or by pressing a keystroke or clicking a button that's assigned to the macro. In this chapter, you learn how to record commands with the macro recorder, name and run your macros, and create toolbar buttons and keystrokes for convenient access to your macros.

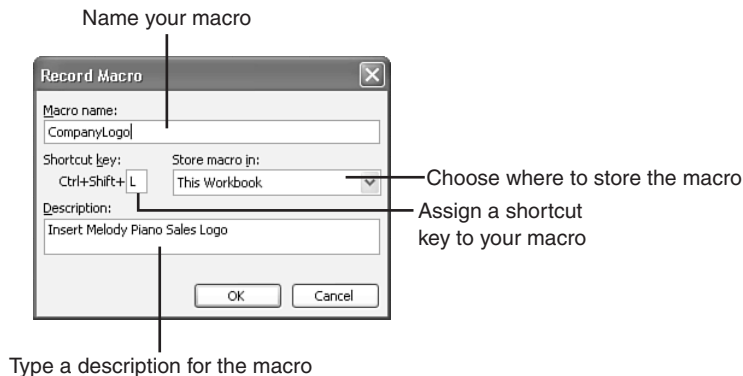
## Recording a Macro

The easiest way to create a macro is to use Excel's *macro recorder*. You simply turn on the recorder, type a name for the macro, perform the task you want to record, and then stop the recorder. The following instructions lead you step-by-step through the process of recording a macro:

1. Open the **Tools** menu, point to **Macro**, and choose **Record New Macro**. The Record Macro dialog box appears, as shown in Figure 13.1, prompting you to name the macro.



**FIGURE 13.1**  
Type a name for your macro in Excel's Record Macro dialog box.



2. Type a unique, descriptive, and brief name for your macro, up to 64 characters (no spaces). The macro name must start with a letter—never a number. The macro recorder supplies a default name—Macro1, Macro2, and so on, as you keep recording macros—but nondescriptive names such as these are not very helpful when you're trying to determine the purpose of each macro.
3. Open the **Store Macro In** drop-down list, and choose one of the following options:
  - Personal Macro Workbook** to make the macro available in all workbooks.
  - New Workbook** to have Excel create a new workbook and store the macro in that workbook.
  - This Workbook** to make the macro available only in the currently open workbook.
4. To assign a shortcut key to the macro, click in the **Shortcut key: Ctrl+** box and hold down the **Shift** key while pressing the letter key that you want to use in combination with the Ctrl key to launch your macro. This assigns the macro a **Ctrl+Shift+letter key** shortcut.
5. Click in the **Description** text box, and type a brief description of the macro's function (the task it performs).
6. Click the **OK** button. The Stop Recording toolbar appears with buttons for stopping the recording and for switching between relative and absolute cell references, as shown in Figure 13.2. (If the toolbar does not appear, right-click any toolbar and click **Stop Recording**.)
7. Perform the task whose steps you want to record. You can select menu commands, click toolbar buttons, and press keystrokes to enter commands. To select a cell, click it. To select a range of cells, drag over the cells. You can also type entries and select objects, such as charts and clip art.

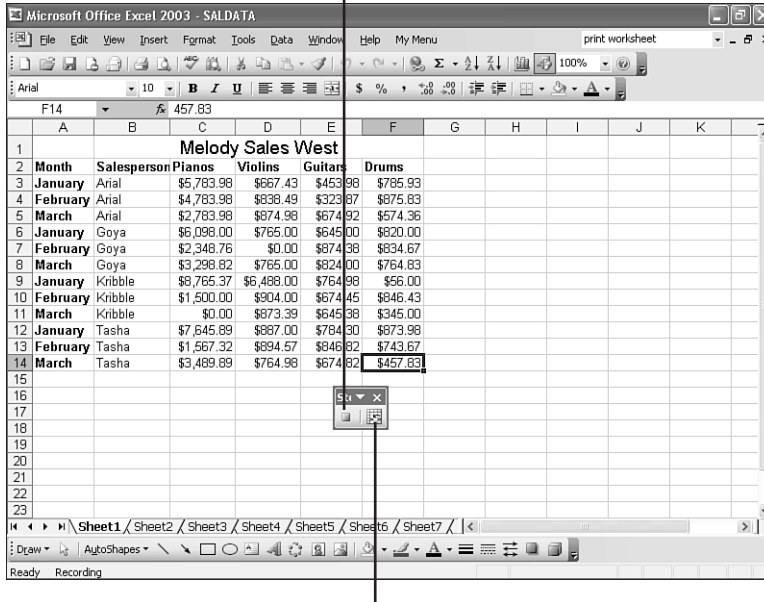


## caution

When specifying a shortcut key, avoid using keys that Excel has already assigned to other tasks, such as Ctrl+C to copy or Ctrl+P to print. By holding down the Shift key when assigning a keystroke, you avoid most conflicts. For example, if you press Shift+P, Excel assigns the Ctrl+Shift+P shortcut to the macro. If you were to press P, Excel would assign the Ctrl+P keystroke to the macro, and whenever you pressed Ctrl+P, Excel would run the macro rather than print a worksheet.

Stop Recording button

**FIGURE 13.2**  
Excel's Stop Recording toolbar can turn off recording when you're done.



Toggles between absolute and relative cell references

- When you are finished performing the steps, click the **Stop Recording** button, or open the **Tools** menu, point to **Macro**, and click **Stop Recording**. Excel saves your macro with the name you entered in step 2.

## Running a Macro

When you record a macro, its name is added to the list of macros you have recorded. If you assigned a shortcut keystroke to the macro, the easiest way to run the macro is to press the keystroke. If you did not assign a keystroke to the macro, you must select the macro from a list, as explained in the following steps:

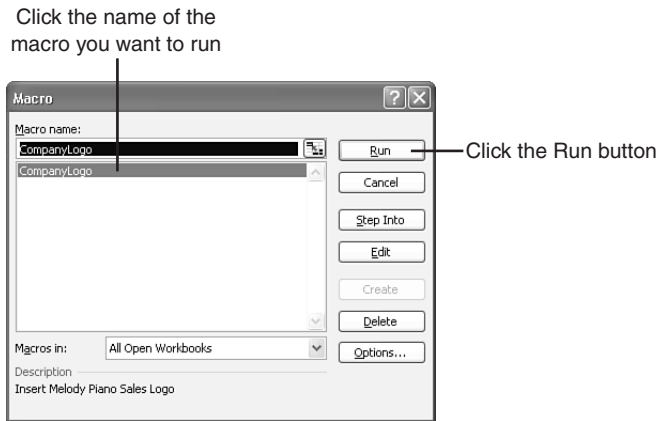
**note**

Excel macros automatically record any cell selections by using absolute references. If you want to use relative references, click the **Relative Reference** button on the **Stop Recording** toolbar. You can click this button repeatedly to switch back and forth from absolute to relative references. For an explanation of the difference between absolute and relative cell references, see Chapter 6, "Automating Calculations with Formulas and Functions."

1. Open the **Tools** menu, point to **Macro**, and choose **Macros** (or press **Alt+F8**). A list of available macros appears, as shown in Figure 13.3.

**FIGURE 13.3**

You can select the macro you want to run from a list of recorded macros.



2. Click the name of the macro you want to run.
3. Click the **Run** button.

Although selecting a macro from a comprehensive macro list is a foolproof way to find and play the macro, it is hardly the most efficient. If you find yourself frequently playing back the macro, consider assigning a shortcut keystroke to the macro. To assign a keystroke to an existing macro, follow these steps:

1. Open the **Tools** menu, point to **Macro**, and choose **Macros** (or press **Alt+F8**). A list of available macros appears, as you saw in Figure 13.3.
2. Click the name of the macro to which you want to assign a keystroke.
3. Click the **Options** button. The Macro Options dialog box appears, as shown in Figure 13.4.
4. Click in the **Shortcut key: Ctrl+** box and hold down the Shift key while pressing the letter key you want to use in combination with the Ctrl key to launch your macro. By doing so, you assign the macro a **Ctrl+Shift+letter key** shortcut.

## caution

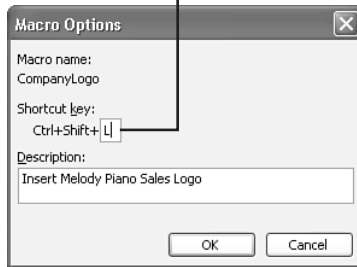
Before running your macro for the first time, save your workbook. If the macro performs some actions that you do not approve, close the workbook without saving the changes. If, however, the macro includes a File, Save command, you might be out of luck. To stop a macro before it does too much damage, press **Ctrl+Break** to stop the macro, and then use the **Undo** feature to try to recover from any damage the macro has caused.



Assign a shortcut key to the macro

**FIGURE 13.4**

Enter your preferences in the Macro Options dialog box.



5. Click the **OK** button to close the Macro Options dialog box and return to the Macro dialog box.
6. Click the Macro dialog box's **Close** button. You can now use the shortcut key-stroke you assigned to your macro to run it.

Another way to run a macro is to create a toolbar button for it, as explained in the following section.

## Creating a Toolbar Button for Your Macro

Excel's toolbars give you quick access to the most commonly used commands. Instead of having to flip through a series of menus and submenus, you simply click a button in one of the toolbars or select the desired option from one of the drop-down lists. These toolbars can give you quick access to your macros as well. To add a macro to one of Excel's toolbars, follow these steps:

1. Make sure the toolbar on which you want to place your macro button is displayed. (Select **View, Toolbars** to display a list of available toolbars.)
2. Open the **Tools** menu and choose **Customize**.
3. Click the **Commands** tab.
4. In the Categories list, click **Macros**, as shown in Figure 13.5.
5. Drag the **Custom Button** from the Commands list over the toolbar on which you want it to appear, drag it to the

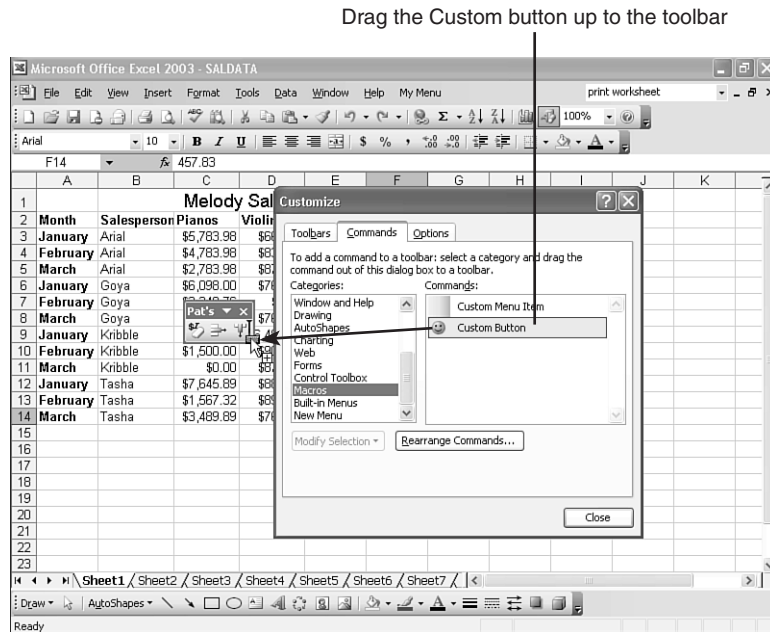


### tip

To learn how to create your own toolbars, flip back to the section named "Creating Your Own Toolbars" in Chapter 12, "Customizing Excel."

desired location (watch for a dark I-beam pointer that shows where the button will appear), and release the mouse button. (See Figure 13.5.) The button appears on the toolbar. (Leave the Customize dialog box open to perform the next steps.)

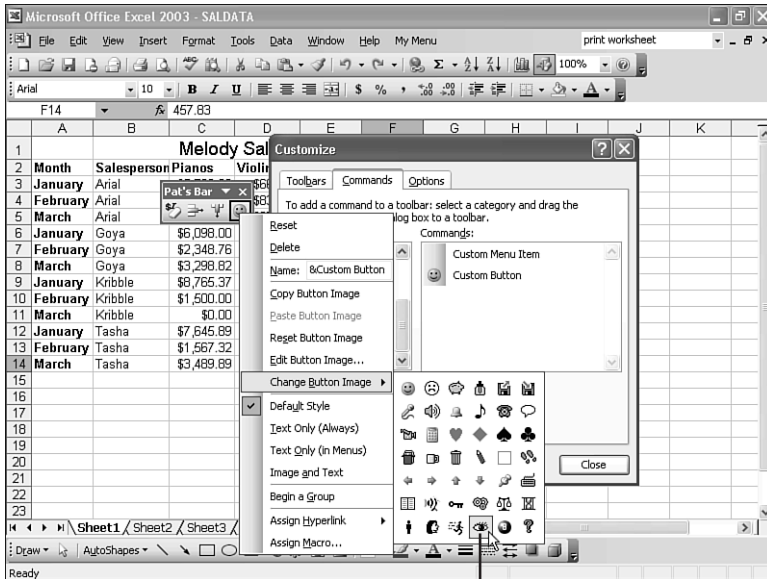
**FIGURE 13.5**  
You can add macro buttons to any toolbar.



6. To change the name of the button, right-click it, drag over the entry in the **Name** text box, and type a new name for the button.
7. To add an image to the button, right-click the button, point to **Change Button Image**, and click the desired image, as shown in Figure 13.6. If you want to display the image only, not the button name, right-click the button and select **Default Style**.
8. Right-click the button and choose **Assign Macro**. The Assign Macro dialog box appears, as shown in Figure 13.7.
9. Click the name of the desired macro and click **OK**.
10. When you are finished, click the Custom dialog box's **Close** button to close the dialog box.

**FIGURE 13.6**

You can pick a different image for your macro button.

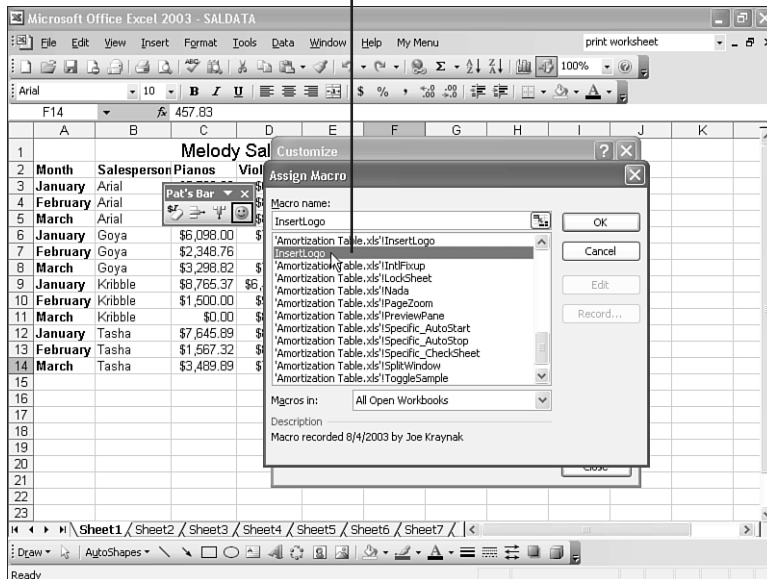


Click the desired image

Pick a macro to assign it to the button

**FIGURE 13.7**

Assign the desired macro to the button you created.



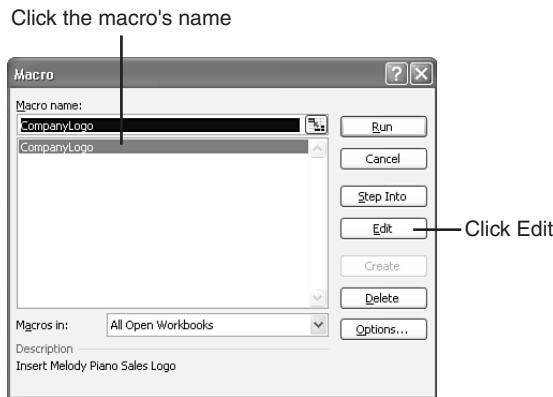


## Editing Macros in Visual Basic Editor

If you run a macro and it does not perform the desired task as you intended it to, you do not need to re-record the macro. Instead, you can modify the macro's recorded commands in Visual Basic Editor or delete commands you inadvertently recorded. To open a macro and edit it in the Visual Basic Editor, follow these steps:

1. If you saved the macro you want to edit in a particular workbook, open the workbook file in which you created and saved the macro.
2. Open the **Tools** menu, point to **Macro**, and choose **Macros**. The Macro dialog box appears, as shown in Figure 13.8.

**FIGURE 13.8**  
You can edit any recorded macro.



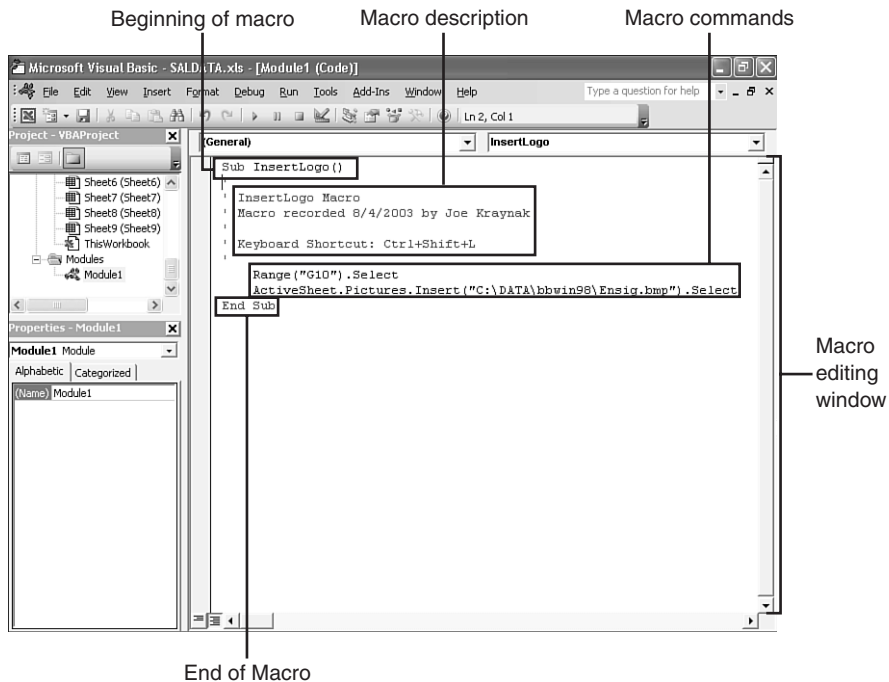
3. Click the name of the macro you want to edit.
4. Click the **Edit** button. Visual Basic Editor appears and displays the commands that compose the selected macro, as shown in Figure 13.9.
5. To delete a command or any text, drag over the command or text to highlight it and then press the **Delete** key.
6. To add a command or text, type the command or text where you want it to “play” in the macro.
7. To save your macro, open the **File** menu and choose **Save**, or press **Ctrl+S**.

### caution

If you try to edit a macro stored in the Personal Macro Workbook (Personal.xls), Excel displays a warning box indicating that you cannot edit a macro stored in a hidden workbook file. Click **OK** to close the warning box, and then click the Macro dialog box's **Cancel** button to close it. In Excel, open the **Window** menu and choose **Unhide**. Click **PERSONAL.XLS** and click **OK**. Repeat steps 1–3 to open the macro in Visual Basic Editor.



**FIGURE 13.9**  
Use Visual Basic Editor to edit your macro.



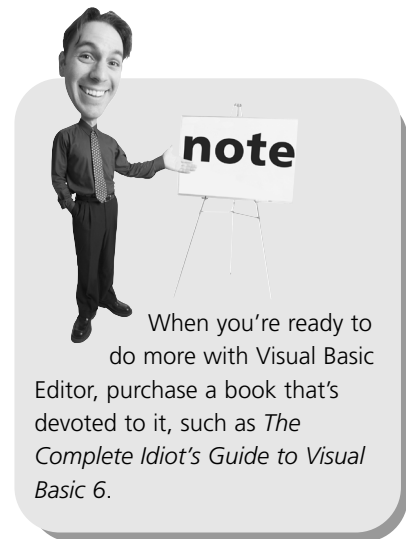
These steps make it sound as though typing macro commands is easy. You soon realize, however, that you must know the command to type it. When you start using Visual Basic Editor, use it to delete superfluous commands and edit any text entries that are part of the macro. For example, if you have a macro that inserts your company's logo into a cell, the macro contains the location of the logo's graphic file, as shown in the fourth line of the following example:

```

Sub InsertLogo()
    InsertLogo Macro
    Macro recorded 11/21/2003 by Sally Rogers
    ActiveSheet.Pictures.Insert
    ("C:\AcmeInc\logo.gif").Select
End Sub

```

If you move the graphic file, you can open the macro in Visual Basic Editor and edit the path to the file rather than record a new macro.



## Protecting Your System Against Macro Viruses

Excel's macros are powerful programs that can enter a complex series of commands with a mere keystroke, but this power comes with some risks. Just imagine the damage a macro could do if it were designed to highlight a worksheet, delete everything on it, and then save the blank worksheet to disk.

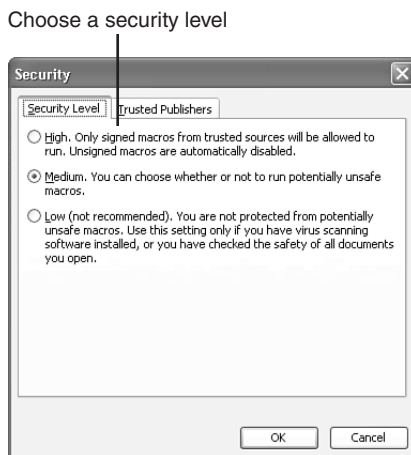
To prevent macros from running on your system without your permission, you can tighten Excel's macro security settings. These settings can warn you whenever you open a workbook that contains macros, so you can decide whether you want the workbook's macros to run.

To change the macro security setting in Excel, follow these steps:

1. Open the **Tools** menu, point to **Macro**, and click **Security**. The Security dialog box appears, as shown in Figure 13.10.

**FIGURE 13.10**

Excel enables you to choose the desired macro security level.



2. Click the desired macro security level:  
**High** to run only digitally signed macros from trusted sources.

### caution

If you don't share workbooks or open workbooks from the Web, you don't need to worry about macro viruses.

However, if you open workbooks you receive from friends, relatives, colleagues, or unknown sources, your system is at risk, even if you trust the person who sent you the workbook.



### tip

Macro security warnings are annoying. Install a good antivirus utility, such as Norton or McAfee AntiVirus, and choose the Low macro security level in Excel.



**Medium** to have Excel display a warning dialog box before you open a workbook file that contains macros. (You can then choose to disable macros for this workbook.)

**Low** to have Excel open all workbooks without warning you about macro viruses. Choose this option only if you never open workbooks from outside sources or if you have a good antivirus program that can identify macro viruses.

3. Click **OK** to save the security setting and close the Security dialog box.

## THE ABSOLUTE MINIMUM

When you find yourself frequently entering the same series of commands to perform the same task in Excel, that's a good sign that you need a macro. The next time you perform the task, record the steps, save the recording as a macro, and assign the macro to a keystroke or toolbar button. To play back the macro, simply press its keystroke or click its button. As you work with macros, keep the following in mind:

To start recording a macro, open the **Tools** menu, point to **Macro**, and choose **Record New Macro**.

When assigning a keystroke to a macro, hold down the **Shift** key while pressing one of the letter keys.

You can play a macro by pressing its keystroke, clicking the button you created for it, or selecting it from a list of macros.

To edit a macro, open the **Tools** menu, point to **Macro**, and click **Macros**. Click the name of the macro you want to edit, and click the **Edit** button.

Macros can contain both commands and text.

To prevent macro viruses from damaging your files and infecting your computer, set the macro security level to **Medium** or **High**, or install a good antivirus program.

With the skills you acquired in this chapter, you can save a significant amount of time performing common, repetitive tasks. You can also secure Excel and your computer system from the outside threats posed by macro viruses. The next chapter focuses not on the threats posed by outside sources, but on the Excel features that enable you to share your worksheets on the Internet and access resources that are available there.