Microsoft

MOS Study Guide

Paul McFedries

EXAM MO-201

Microsoft Excel Expert

Microsoft

MOS Study Guide for Microsoft Excel Expert Exam MO-201

Paul McFedries

Microsoft Office Specialist
Exam MO-201

Objective 2.2: Format and validate data

Create custom number formats

One of the best ways to improve the readability of your worksheets is to display your data in a format that is logical, consistent, and straightforward. Formatting currency amounts with leading dollar signs, percentages with trailing percent signs, and large numbers with commas are a few of the ways you can improve your spreadsheet style. However, you can use Excel to go beyond these built-in formats to create custom number and date formats with which you can display your worksheet values exactly as you want them to be seen.

Excel's built-in numeric formats give you a great deal of control over how your numbers are displayed, but they have their limitations. For example, there is no built-in format you can use to display a different currency symbol, such as the Euro symbol (€), or to display temperatures using, say, the degree symbol (°).

To overcome these limitations, you need to create your own custom numeric formats. You can do this either by editing an existing format or by entering your own format from scratch. The formatting syntax and symbols are explained in detail later in this section.

Every Excel numeric format, whether built-in or customized, has the following syntax:

positive format;negative format;zero format;text format

The four parts, separated by semicolons, determine how various numbers are presented. The first part defines how a positive number is displayed, the second part defines how a negative number is displayed, the third part defines how zero is displayed, and the fourth part defines how text is displayed. If you leave out one or more of these parts, numbers are controlled as shown in the following table.

Number of parts used	Format syntax
Three	*positive format;negative format;zero format*
Two	*positive and zero format;negative format*
One	*positive, negative, and zero format*

The following table lists the special symbols you use to define each of these parts.

Symbol	Description
#	Holds a place for a digit and displays the digit exactly as typed. Displays nothing if no number is entered. For example, if a cell's custom format is ### and you enter *25* in the cell, Excel displays *25*.
0	Holds a place for a digit and displays the digit exactly as typed. Displays zero if no number is entered. For example, if a cell's custom format is *000* and you enter *25* in the cell, Excel displays *025*.
?	Holds a place for a digit and displays the digit exactly as typed. Displays a space if no number is entered. For example, if a cell's custom format is 0*???* and you enter *25* in the cell, Excel displays *0 25*.
. (period)	Sets the location of the decimal point. For example, if a cell's custom format is *#.#0* and you enter *34.5* in the cell, Excel displays *34.50*.
, (comma)	Sets the location of the thousands separator. Marks only the location of the first thousand. For example, if a cell's custom format is *#,###* and you enter *12345* in the cell, Excel displays *12,345*.
%	Multiplies the number by 100 (for display only) and adds the percent (%) character. For example, if a cell's custom format is *#%* and you enter *.75* in the cell, Excel displays *75%*.
E+ e+ E- e-	Displays the number in scientific format. E- and e- place a minus sign in the exponent; E+ and e+ place a plus sign in the exponent. For example, if a cell's custom format is *0.00E+00* and you enter *123456789* in the cell, Excel displays *1.23E+08*. Similarly, if a cell's custom format is *0.0E-00* and you enter *0.0000012* in the cell, Excel displays *1.2E-06*.
/ (slash)	Sets the location of the fraction separator. For example, if a cell's custom format is *0/0* and you enter *.75* in the cell, Excel displays *3/4*.
$ ( ) : - + <space>	Displays the character. For example, if a cell's custom format *is $##0.00* and you enter *123.5* in the cell, Excel displays *$123.50*.

Symbol	Description
*	Repeats whatever character immediately follows the asterisk until the cell is full. Doesn't replace other symbols or numbers. For example, you can create a dot trailer in a cell by adding *. to the format. So if the custom format is *#*.* and you enter *123* in the cell, Excel displays *123*..... (where the dots continue until the cell is filled).
_ (underscore)	Inserts a blank space the width of whatever character follows the underscore, which can often help you to align your numbers. For example, the custom format *_(#.00* inserts a blank space the width of the opening parenthesis at the beginning of the displayed value.
\ (backslash)	Inserts the character that follows the backslash. See the next item for an example. In general, you need to use the backslash only for reserved characters (such as # or @) or for the following letters: B, D, E, G, H, M, N, S, and Y. (For all other letters, if you just enter a single character by itself, Excel will display that character.) For example, if a cell's custom format is *#.##\M* and you enter *1.23* in the cell, Excel displays *1.23M*.
"text"	Inserts the text that appears within the quotation marks. For example, if a cell's custom format is *"Part "\#00-0000* and you enter *123456* in the cell, Excel displays *Part #12-3456*.
@	Displays the cell's text. For example, if a cell's custom format is *@" entry"* and you enter *credit* in the cell, Excel displays *credit entry*.
[color]	Displays the cell contents in the specified color. For example, if the cell's custom format is *[green]0.00; [red]0.00*, Excel displays positive cell values in green and negative cell values in red. The predefined color values you can use are *black*, *white*, *red*, *green*, *blue*, *yellow*, *magenta*, and *cyan*, and the color codes *color1* through *color565*.

Although the built-in date and time formats of Excel are fine for most purposes, you might need to create your own custom formats. For example, you might want to display the day of the week (for example, "Friday"). Custom date and time formats generally are simpler to create than custom numeric formats. There are fewer formatting symbols, and you usually don't need to specify different formats for different conditions. The following table lists the date and time formatting symbols.

Symbol	Description
Date Formats	
d	Day number without a leading zero (*1* to *31*)
dd	Day number with a leading zero (*01* to *31*)
ddd	Three-letter day abbreviation (*Mon*, for example)
dddd	Full day name (*Monday*, for example)
m	Month number without a leading zero (*1* to *12*)
mm	Month number with a leading zero (*01* to *12*)
mmm	Three-letter month abbreviation (*Aug*, for example)
mmmm	Full month name (*August*, for example)
yy	Two-digit year (*00* to *99*)
yyyy	Full year (*1900* to *2078*)
h	Hour without a leading zero (*0* to *24*)
hh	Hour with a leading zero (*00* to *24*)
m	Minute without a leading zero (*0* to *59*)
mm	Minute with a leading zero (*00* to *59*)
s	Second without a leading zero (*0* to *59*)
ss	Second with a leading zero (*00* to *59*)
AM/PM, am/pm, A/P	Displays the time using a 12-hour clock
/ : . —	Symbols used to separate parts of dates or times
[color]	Displays the date or time in the color specified

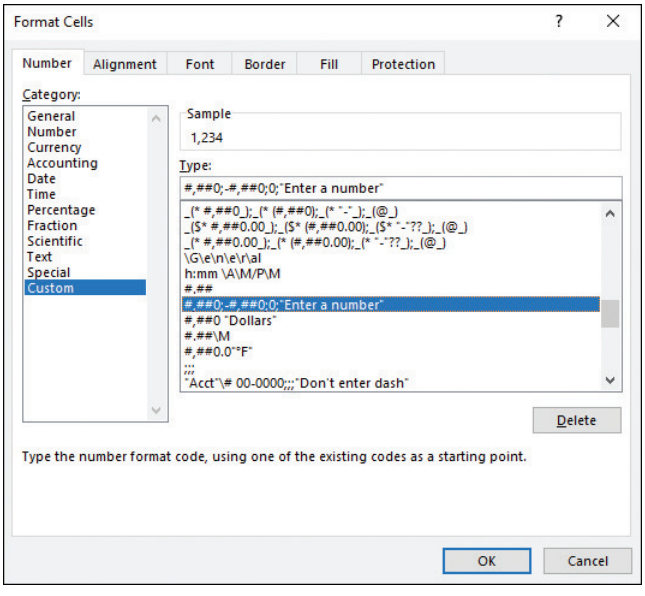
The best way to become familiar with custom formats is to try your own experiments. Excel stores each format that you try. If you find that your list of custom formats is getting a bit unwieldy or that it's cluttered with unused formats, you can delete those formats.

To open the Format Cells dialog box, do one of the following:

- ➜ On the **Home** tab, in the **Cells** group, click **Format**, then click **Format Cells**.
- ➜ Right-click the cell or range, then click **Format Cells**.
- ➜ Press **Ctrl+1**.

To create and apply a custom number format

1. Select the cell or range of cells you want the new format to apply to.
2. Open the **Format Cells** dialog box.
3. On the **Number** tab, in the **Category** list, click **Custom**.
4. To base the custom number format on an existing format, click the base format in the **Type** list.
5. Edit or enter the symbols that define the number format.



Define custom number formats in the Type box.

6. When you are done, click **OK** to return to the worksheet.

To delete custom number formats

1. Display the **Number** tab of the **Format Cells** dialog box.
2. In the **Category** list, click **Custom**.
3. In the **Type** list, click the format you want to remove.

Tip You can delete only custom formats; you can't delete built-in formats.

4. Click **Delete** to remove the format from the list.
5. Click **OK** to close the **Format Cells** dialog box and return to the worksheet.

Configure data validation

Formulas are only as good as the data they're given. For basic data entry errors (for example, entering the wrong date or transposing a number's digits), there's not much you can do other than exhort yourself or the people who use your worksheets to enter data carefully. Fortunately, you have a bit more control when it comes to preventing the entry of improper data such as data that is the wrong type (for example, entering text in a cell that requires a number) or data that falls outside of an allowable range (for example, entering 200 in a cell that requires a number between 1 and 100).

You can prevent these kinds of improper entries, to a certain extent, by adding comments that describe what is allowable inside a particular cell. However, this requires other people to both read and act on the comment text. You can also use custom numeric formatting to "format" a cell with an error message if the wrong type of data is entered. This is useful, but it works only for certain kinds of input errors.

Exam Strategy The Excel Expert exam emphasizes collaboration between users, so be sure to also study the information related to setting up workbooks for other people to view and edit in "Objective 1.2: Prepare workbooks for collaboration."

The best solution for preventing data entry errors is to use the data-validation feature of Excel. With data validation, you create rules that specify exactly what kind of data can be entered and in what range that data can fall. You can also specify pop-up input messages that appear when a cell is selected and error messages that appear when data is entered improperly.

You configure data-validation rules on the Settings tab of the Data Validation dialog box. The following validation types are available:

- **Any Value** Allows any value in the range (that is, it removes any previously applied validation rule). If you're removing an existing rule, be sure to also clear the input message, if any.
- **Whole Number** Allows only whole numbers (integers). You use the Data list to select a comparison operator (such as Between, Equal To, or Less Than) and then enter the specific criteria. For example, if you click the Between option, you must enter Minimum and Maximum values.