**Microsoft Excel Inside Out**

**(Office 2021 and Microsoft 365)**

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***MrExcel***



Microsoft Excel Inside Out (Office 2021 and Microsoft 365)

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*To Tom Vansweden and Bill & Katie Cullen. Thanks for being great neighbors.*

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**About the author**

**Bill Jelen**, Excel MVP and the host of [MrExcel.com,](http://mrexcel.com/) has been using spreadsheets since 1985, and he launched the [MrExcel.com](http://mrexcel.com/) website in 1998. He has produced more than 2,400 episodes of his daily video podcast,

*Learn Excel from MrExcel*. He is the author of 64 books about Microsoft Excel and writes the monthly Excel column for *Strategic Finance* magazine. Before founding [MrExcel.com](http://mrexcel.com/), Bill Jelen spent 12 years in the trenches—working as a financial analyst for finance, marketing, accounting, and operations departments of a $500 million public company. When he is not geeking out about Excel, you will find him kayaking Sykes Creek or photographing rocket launches from Cape Canaveral. Check out his photography at [WeReportSpace.com](http://wereportspace.com/). He lives in Merritt Island, Florida, with his wife, Mary Ellen.

**Inside OUT**

***You can find my favorite tricks in the Inside Out sidebars throughout this book.***

If you have a favorite Excel trick or technique that is not in this book, consider sending it via email to *InsideTips@MrExcel.com*. Anyone sending in a tip that is new to me will win bragging rights and a collectible Excel Guru patch, designed by the same people who design the NASA mission patches.



**Introduction**

Microsoft 365 Excel is now the dominant way to purchase Excel. Microsoft did a good job of offering more value to Microsoft 365. They are reluctantly releasing a perpetual edition of Excel 2021, but they say that it is only for specific scenarios where people do not have access to the Internet.

Those people without the Internet will be paying quite a premium for an obsolete version of Excel without any of the connected features. The price for the perpetual version of Office increased by 10% to $440 per device for Office 2021. In contrast, you can license Microsoft 365 for five devices for $99 per year.

The Excel team has been responsive to items requested through the [Excel.UserVoice.com](http://excel.uservoice.com/) website, and many small features and improvements have happened since the last edition of this book.

You can now unhide multiple worksheets at once.

The Conditional Formatting Rules Manager dialog box is now resizable.

Scroll horizontally with Ctrl+Shift+Wheel.

Increased the 218-character file limit.

When copying a worksheet, added a Yes To All option for dealing with Name conflicts.

The Excel team added a new padlock icon to the sheet tabs to indicate if a sheet was protected. When this was met with a chorus of complaints, the lock icon was promptly removed.

The SINGLE function, used to trigger implicit intersection, was replaced with the @ operator.

You can insert new icons and cut-out people in Excel.

Images can easily be set to semi-transparent so you can see the data behind an image.

Right-click any object and choose Save As Image to create an image of a chart, SmartArt, shape, and so on.

You can “write” data using the Action Pen.

Multiple task panes now collapse into a single strip at the right side of Excel.

There is a new Accessibility Checker tab in the ribbon.

Several performance improvements make Excel faster.

There are also several large changes made to Excel:

Co-authoring continues to improve. You can now @Mention people in comments and create tasks. Excel will allow each person to have their own version of the data with filters and sorting that only they can see. The new Show Changes feature lets you see changes made to your worksheet in the last 60 days. Read more in Chapter 28,

“Collaborating in Excel.”

A new XLOOKUP function is designed to improve on VLOOKUP and INDEX/MATCH functions. Excel also offers XMATCH. See Chapter 9, “Using powerful functions: logical, lookup, and database functions.”

New LET and LAMBDA functions let you store logic in a formula. See

Chapter 10, “Using names, LET, LAMBDA, and Data Types in Excel.”

There are new features in Power Query (found in the Get & Transform group on the Data tab). You can now import from PDF files. You can also define your own custom data types. Read about Power Query in Chapter 13, “Transforming data with Power Query.”

Data types improve with the ability to return photos and arrays. There are several new categories from Wolfram including weather history for all cities. See Chapter 10, “Using names, LET, LAMBDA, and Data Types in Excel.”

The artificial-intelligence Ideas feature is re-branded as “Analyze Data.” The new version will create dynamic array formulas and allow you to ask a question about your data. Excel analyzes up to 250,000 cells of data and uses artificial intelligence to provide more than 30 charts. For now, this feature is exclusive to Office 365. See Chapter

15, “Using pivot tables to analyze data.”

Although this book covers VBA as the macro language, there is one new interesting feature in programmability: A new TypeScript macro language is available for Excel Online.

The Excel team continues to innovate, with several new features planned for the upcoming years.

**Who this book is for**

This book is for anyone who uses Excel twenty hours a week or more. Whether you use Excel for organizing your to-do list or to analyze 5 million rows of call center data every day, this book includes the information you need to solve problems quickly and easily.

**Assumptions about you**

I like to believe most of my readers use Excel 40 hours a week, and those are the weeks you are on vacation. At the very least, I’m assuming you regularly use Excel for your job. You are comfortable using Excel formulas beyond AutoSum. You likely know and use VLOOKUP and Pivot Tables regularly. You are looking for the fastest and most efficient ways to finish tasks in Excel.

**How this book is organized**

This book gives you a comprehensive look at the various features you will use. This book is structured in a logical approach to all aspects of using the Windows-based versions of Excel, with some mentions of Excel Online when there is important functionality available only in Excel Online.

Part I, “The Excel interface,” covers the ribbon, customizing Excel, and keyboard shortcuts.

Part II, “Calculating with Excel,” covers all Excel calculation functions.

Part III, “Data analysis with Excel,” covers Power Query, pivot tables, and other features that help you perform data analysis.

Part IV, “Excel visuals,” covers charting, 3D Map, and collaborating in Excel.

**About the companion content**

I have included the Excel workbooks I used to create the screenshots in this book to enrich your learning experience. You can download this book’s companion content from the following page:

[MicrosoftPressStore.com/Excel365insideout/downloads](http://microsoftpressstore.com/Excel365insideout/downloads) The companion content includes the following:

Workbooks used to create the examples in the workbook

Sample data that you can use to practice the concepts in the book VBA macros from Chapter 19

**Acknowledgments**

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Other Excel MVPs often offered their take on potential bugs. I could send a group email over a weekend, and someone like Ken Puls, Roger Govier, Liam Bastick, Jon Peltier, Jan-Karel Pieterse, Charles Williams, Brad

Yundt, Nabil Mourad, Wyn Hopkins, David Benaim, Oz du Soleil, or Ingeborg Hawighorst would usually respond. I particularly loved launching a missive just after the Microsoft crew in Building 36 went home on Friday evening, knowing they would return on Monday morning with 40 or 50 responses to the conversation. Without any Excel project managers to temper the discussion, we would often have designed massive improvements that we would have liked to have implemented in Excel. Someone would show up on Monday and tell us why that could never be done.

Thanks to the people who frequently leave constructive comments at my

[MrExcel.com](http://mrexcel.com/) YouTube channel: Mike Girvin, Rico S, Wayne Edmonson,

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Putting together a book requires careful coordination with editors, proofreaders, and compositors. My sincere thanks to Charlotte and Rick Kughen for guiding this book to completion. Thanks to Sarah Kearns for having the attention to detail in proofreading and to Tricia Bronkella for her awesome compositor skills.

I’ve been writing books for Loretta Yates since 2004. If my spreadsheet is correct, this is our 30th project. Thanks for 17 years of trusting me with your books.

At the MrExcel website, Suat Ozgur manages the database of more than 1 million Excel posts and makes sure that Google likes our content.

I wrote this book at the Kola Mi Writing Camp. The staff there was fantastic.

Mary Ellen Jelen did a great job of keeping me on track with this book.

**Support and feedback**

The following sections provide information on errata, book support, feedback, and contact information.

**Errata, updates, and book support**

We’ve made every effort to ensure the accuracy of this book and its companion content. You can access updates to this book—in the form of a list of submitted errata and their related corrections—at:

[MicrosoftPressStore.com/Excel365insideout/errata](http://microsoftpressstore.com/Excel365insideout/errata)

If you discover an error that is not already listed, please submit it to us at the same page.

For additional book support and information, please visit [MicrosoftPressStore.com/Support](http://microsoftpressstore.com/Support).

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**Stay in touch**

Let’s keep the conversation going! We’re on Twitter:

[*http://twitter.com/MicrosoftPress*](http://twitter.com/MicrosoftPress) [*http://twitter.com/MrExcel*](http://twitter.com/MrExcel)

**PART I**

**The Excel interface**

**CHAPTER 1**

**What’s new in Microsoft 365 Excel**

**CHAPTER 2**

**Using the Excel interface**

**CHAPTER 3**

**Customizing Excel**

**CHAPTER 4**

**Keyboard shortcuts**

**Chapter 1**

**What’s new in Microsoft 365 Excel**

Excel opens faster

Unhide multiple worksheets

Performance improvements

Stock data automatic refresh every five minutes

Show changes from last 60 days

Browse during Save As

Searching while opening workbooks

Find dialog box shows all options on open

Smooth scrolling for tall or wide cells

Arrange All in Windows 11

Collapsible tasks panes now support pivot tables

Accessibility tab in ribbon and the navigation pane

New Lambda helper functions

LAMBDA functions now support optional arguments

The ribbon has rounded edges

Cut-out people

Image transparency

Save any object as picture

Write data using the Action Pen

Other new features

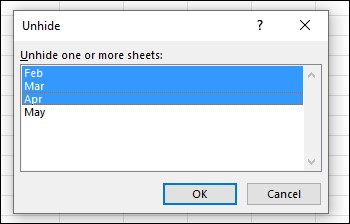
This chapter explains the new features introduced in Excel since the previous edition of this book. These features are too new to have made it into the rest of the book.

**Excel opens faster**

Microsoft introduced a new look for Office in the summer of 2021. While the rounded edges may not seem exciting, the fact is that Excel is loading much faster now than before. The new splash screen is present for just a second or two and then the grid appears.

**Unhide multiple worksheets**

It was always possible to hide many sheets in one command. But then unhiding sheets had to be done one at a time. A new Unhide dialog box introduced in 2021 allows you to use Ctrl or Shift to select multiple worksheets and unhide them all at once (see Figure 1.1).



**Figure 1.1** Finally, unhide multiple worksheets in a single command.

**Performance improvements**

A series of performance improvements rolled out to Microsoft 365 customers late in 2020:

**Indexing for SUMIFS and similar functions:** Say you have 10,000 rows with a similar SUMIFS formula. While Excel is calculating the result for the first row, it is building an index that can be re-used for the remaining 9,999 rows. This improvement affects all the conditional aggregation functions: COUNTIFS, AVERAGEIFS, MAXIFS, MINIFS, COUNTIF, AVERAGEIF, and SUMIF.

**Faster opening of workbooks with user-defined functions (UDFs):**

The linear scan that searched for UDFs upon the opening of a workbook has been improved.

**Improvements to pasting from the clipboard:** If you’re pasting large sections of HTML or images from outside Excel, there were bottlenecks in getting that data into Excel. Microsoft made improvements to the underlying streaming data structure to make that happen faster.

**Inserting columns in filtered data:** This was a problem, particularly when the hidden rows contained thick borders. Calculating border thickness is a time-consuming process, and there’s no need to do it for the hidden rows in the data.

**Deleting ranges that contain merged cells:** Excel was iterating through the rows multiple times before performing the delete. This has been improved.

**Check for errors:** In the past, using Check For Errors on 10,000 rows of data with some empty cells would take minutes or hours. Most people assumed that Excel had frozen and would kill the task. The command now builds an efficient data structure and should return the results in seconds instead of minutes.

**Faster international text comparisons:** The code to perform comparisons of text that contain international characters has been improved.

**Inside Out**

***While Microsoft was trying to reduce bottlenecks, they discovered one problem that is within your control.***

If you have a workbook that uses VBA User Defined Functions, you can speed up calculation by closing the VBA Editor. When you are creating VBA macros, it is possible to run a macro from the VBA Editor. The title bar of the VBA Editor changes to include the word “Running” while the macro is running and then changes back to the original title bar when the macro finishes.

A User Defined Function is nothing more than a VBA macro that returns the results to a cell. If you have 1,000 cells that call the same VBA macro, Excel is updating the title bar of the VBA Editor as each cell starts calculating and then updates it again as the cell finishes calculating. This happens even if the VBA editor is open in the background.

By switching to the VBA Editor and using the red X in the top-right corner to close the VBA Editor, Excel can calculate the UDF cells without having to update the title bar twice for each cell.

**Stock data automatic refresh every five minutes**

Excel has two ways to retrieve stock data; historical information via the STOCKHISTORY function and current stock price using the Stock Data Types found on the Data tab.

Since each update of a data type cell requires a call to the Internet, Microsoft decided not to update these cells at each calculation. Previously, you had to use Data, Refresh All to force an update of all cells or refresh a range at a time by right-clicking Data Type, Refresh.

A new option is introduced in 2021. Right-click any data type cell and choose Data Type, Refresh Settings. (See Figure 1.2.)

A screenshot of a computer

Description automatically generated

**Figure 1.2** Access the new Refresh Settings for a data type cell.

A new Data Types Refresh Settings task pane will list each kind of data type in the workbook. Expand the Stocks section. You can now choose Automatically Every 5 Minutes, On File Open, or Manual. (See Figure 1.3.)

A screenshot of a computer

Description automatically generated

**Figure 1.3** You can control if the data type cells update frequently or only on File Open.

**Show changes from last 60 days**

In the summer of 2021, the Show Changes feature debuted in Office Online. As soon as you save a workbook to OneDrive or SharePoint Online, Excel starts tracking every change made to a worksheet.

These changes are available for 60 days. This provides a great audit trail to see who changed a cell, when they changed it, and the new value.

To see the changes, open the workbook in Excel Online.

**Note**

Many people have never opened Excel Online. Using any browser, search for Excel Online. In late 2021, the URL is [https://www.office.com/launch/excel,](https://www.office.com/launch/excel) but it could change before you read this. You will have to sign in using the same account that you use in Windows Excel, under File, Accounts.

On the Review tab, choose Show Changes.

Here is an important distinction: Let’s say that B2 contains a forecast for January. The next 11 cells use a formula to calculate the forecast for the remaining months. If someone types a new value in B2, the formulas in C2:M2 will update. Show Changes is only tracking the data entry in B2, not the changes as a result of a formula.

However, if someone edits one of the formulas, such as changing the calculation for June, that formula change will be logged.

Figure 1.4 shows an example of the Changes task pane.

A screenshot of a cell phone

Description automatically generated

**Figure 1.4** Changes to individual cells are logged with date, time, and person.

**Browse during Save As**

When you are performing a Save As command, the backstage view now has a folder path shown at the top of the center section. This folder is clickable and quickly opens the File Explorer.

I’ve always preferred navigating to a new folder using the File Explorer window instead of Excel’s backstage view. Clicking this item at the top gets you to the File Explorer quicker. (See Figure 1.5.)

Yes—this is the same as clicking the Browse icon at the bottom of the left panel. But you will find that clicking the path at the top of the screen is easier and more efficient than finding Browse at the bottom of a long list of file locations.

A screenshot of a computer

Description automatically generated

**Figure 1.5** Click this folder path to abandon the backstage view and get to File Explorer to locate where to save your workbook.

**Searching while opening workbooks**

When you select File, Open to open a workbook, Excel shows workbooks that you have pinned to the list and then the last 10 to 50 workbooks. I frequently find that the workbook that I want to open is not in the list. It might be a workbook that I use every other week, but on days when I open dozens of files, those workbooks get pushed out of the list.

The new Search box at the top of the screen works very well. Type a word of two from the workbook name, and if you’ve opened the workbook recently, Excel will offer it as shown in Figure 1.6.

A screenshot of a computer

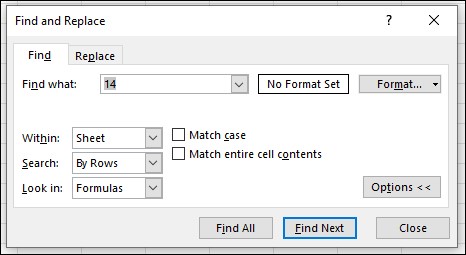
Description automatically generated

**Figure 1.6** The Search box reveals all recent workbooks with the name Zeke in the file name, whether they are in the 10 most recent or not.

**Find dialog box shows all options on open**

Press Ctrl+F or Ctrl+H and Excel opens the dialog box shown in Figure 1.7. Previously, Excel would start at a simpler form of the dialog box, hiding the settings for Match Case and Match Entire Cell Contents. That lead to problems because the dialog box used the settings from the previous Find. So, a macro might have done a search a few hours ago and used “Match Entire Cell Contents”. That setting would be remembered but was not visible in the dialog.

Today, this dialog opens to the expanded view every time. You can still collapse it to the simpler form by clicking Options<<, but it seems unlikely that you would need to do this.



**Figure 1.7** The bottom five options are now initially visible in the Find And Replace dialog box.

Another change in this dialog: the Look In drop-down menu now offers Formulas, Values, Notes, and Comments. Previously, you could only search Notes, not Threaded Comments.

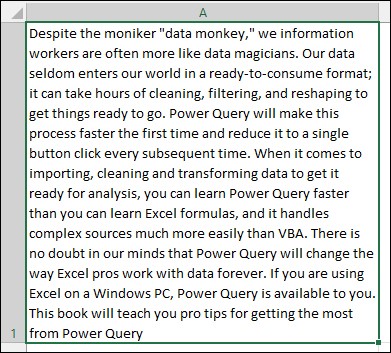
**Smooth scrolling for tall or wide cells**

A single cell in Excel can hold over 32 thousand characters. Some people will store paragraphs in a cell. It is possible to increase the row height to 409.5 and the column width to 254.9.

Imagine that you have a worksheet with 50 rows of paragraphs that have a height of 400. When you grab the wheel mouse and scroll, Excel would scroll three rows at a time when only 1 or 2 rows are visible on the screen.

The people storing this much data in a cell have been clamoring for a way to scroll slowly. An improvement in August 2021 allows you to scroll one line at a time within a cell. If you use Ctrl+Shift+Wheel Mouse, you can scroll one character left or right at a time.

Figure 1.8 shows a large cell with several lines of text.



**Figure 1.8** A single cell with many lines of text.

The other somewhat amazing improvement is that when you let go of the scroll wheel or the scroll bar, Excel will stay “parked” in the current view, even if it is halfway through the cell. Previously, if you scrolled part way through a cell, Excel would re-draw the screen, so the window started either at the top of that cell or the top of the next cell.

Figure 1.9 shows the same cell from Figure 1-8 with the first three lines scrolled out of view and the first seven characters scrolled out of view to the left.

A screenshot of a computer

Description automatically generated

**Figure 1.9** You can scroll part way through a cell and leave the cell parked in that location.

**Arrange All in Windows 11**

At the top of each window are three icons for Minimize, Restore, and Close. A cool trick just arrived in Windows 11 with rumors saying that it will also come to Windows 10. If you have multiple Excel windows open and right-click the Restore icon, Excel will offer to arrange your workbooks in a variety of layouts.

Once you choose a layout, the active workbook becomes the first tile in the layout. Windows then shifts focus to the next tile and waits for you to choose which workbook should be in that tile.

It takes some getting used to, but it is a useful technique.

**Collapsible tasks panes now support pivot tables**

It is possible to be working in Excel and have two task panes open at the same time. If you really tried, you could even get three or four task panes open. On a 1080p monitor, those four task panes might take up most of the screen real estate and you are left seeing only Columns A and B on the left side of the screen.

Microsoft introduced a dock for task panes. Any time that you opened multiple task panes, one would stay visible, and all the task panes would appear as tiny icons on a dock on the right side of the screen. It was a nice improvement. On the day it was released, it did not support the PivotTable Fields task pane, but by mid-2021, it worked with all task panes.

Figure 1.10 shows the PivotTable Fields pane. To the right are small icons for the other open task panes.

A screenshot of a computer

Description automatically generated

**Figure 1.10** Two other task panes are collapsed into the dock.

**Tip**

What if you want to display multiple open task panes at one time? You can undock a task pane by clicking the title and dragging it to the grid. To re-dock, you can drag the title completely off the right or left side of the screen. If you dock task panes on the left side of the screen, they will never collapse.

**Accessibility tab in ribbon and the navigation pane**

Excel includes an Accessibility Checker and displays “Check Accessibility” prominently on the left side of the Status Bar. When you start the Accessibility Checker, a new Accessibility tab appears in the ribbon. The tab offers a collection of features that might be used to correct problems found in the Accessibility pane. (See Figure 1.11.)

A screenshot of a computer

Description automatically generated

**Figure 1.11** Tools for making a workbook more accessible are collected on this new tab.

Imagine having to navigate a workbook with limited vision. Microsoft talked to people who were using a screen reader with Excel and found it is difficult to get your bearings to figure out where the data and pivot tables are located.

In the summer of 2021, Microsoft added the Navigation pane to Excel. The pane will display worksheets, named ranges, charts, contiguous ranges of data, and pivot tables. To open the Navigation pane, choose View, Show, Navigation. The idea is that the person using a screen reader can use the navigation pane to find major elements of the workbook and navigate to the correct one. (See Figure 1.12.)

You can improve the navigation pane by naming your worksheets, adding range names, and so on.

A screenshot of a computer

Description automatically generated

**Figure 1.12** The Navigation task pane helps someone using a screen reader to find their way around a workbook.

**New Lambda helper functions**

LAMBDA functions debuted in beta in late 2020. By August, as they were rolling out to more people, Microsoft realized that they needed a series of helper functions to make Lambda functions easier to use.

LAMDA functions are covered in Chapter 10. But these brand-new helper functions are documented only here. It will likely be 2022 before they make it to the general Microsoft 365 audience.

Each of these new functions will iterate over a range and pass each cell or row or column to a LAMBDA function written as the last argument in the

helper function.

Figure 1.13 shows a simple example. Your goal is to make a rectangular array that is 12 rows by 5 columns. The formula starts with =MAKEARRAY(12,5,LAMBDA(...)). The LAMBDA function has three arguments in this case:

The first argument is a variable to hold the row number of each item in the array.

The second argument is a variable to hold the column number of each item in the array.

The third argument is formula logic that transforms the row and column into the value for that element in the array.

A screenshot of a spreadsheet

Description automatically generated

**Figure 1.13** Use MAKEARRAY to generate a rectangular array.

The other functions in this group are:

**MAP:** Pass a range or an array and a LAMBDA to the MAP function. Excel will use the LAMBDA function on each element in the incoming range and produce an array that is the same size as the incoming array.

**REDUCE:** Pass a range or an array and a LAMBDA to the MAP function. The LAMBDA needs an accumulator variable to hold the final result, the incoming array, and then the logic. The logic is applied to each element in the incoming data, and the results are added to the accumulator. For example, the logic might count how many elements are between 3 and 9. REDUCE always produces a single answer.

SCAN is similar to REDUCE, but it returns an array of all of the intermediate answers. If the incoming array is 4 rows by 3 columns, REDUCE returns a single value. SCAN will return 4 rows and 3 columns and shows the intermediate results after each step.

BYROW and BYCOL apply a LAMBDA to each row or each column of an incoming array. If you want to find the MAX value in each row of a rectangular array, BYROW is perfect.

Note that these functions are in a very early beta, and there is a good chance the names and arguments will change before they reach general availability. Find an example of each in “Using Lambda helper functions” in Chapter 10.

**LAMBDA functions now support optional**

**arguments**

The definition for a LAMBDA function now allows you to mark arguments as optional by placing them in square brackets. Later, in the logic for the LAMBDA, you can test to see if an argument is omitted by using the ISOMITTED function.

**The ribbon has rounded edges**

There was a lot of social media excitement when Microsoft announced that a new look was coming for the ribbon and then rolled it out to no one for a week. Everyone clamoring to see the new ribbon was trying to update their Microsoft 365 hourly to see the new ribbon.

When it finally arrived, all the fuss was over rounded edges. Instead of squared-off tab names, everything now has a round curve to the edge (see Figure 1.14).

You will see that Undo and Redo moved from the Quick Access Toolbar to the left side of the Home tab. This means you shouldn’t have any issues if you are using the Insert, Draw, Page Layout, or other tabs. I am hoping this decision gets reversed in the final release.

If you move the Quick Access Toolbar below the ribbon, you have an option to show the name of each icon. This is actually very useful. However, it means that Microsoft renamed all 2,500+ icons so they would look better in the Quick Access Toolbar. That makes it tougher for someone trying to customize the ribbon or the Quick Access Toolbar. It used to be that all five Speak Cells commands were located together in the “S” section. Now they are spread throughout the list.

A screenshot of a computer

Description automatically generated

**Figure 1.14** Rounded corners in the ribbon, formula bar, and sheet tabs are the big redesign for the new look for Office.

**Cut-out people**

Open the Icons command on the Insert tab. There are many new icons, plus stickers and a large series of cut-out people. Excel offers 20-30 poses each for 40 stock people. As the name suggests, they have a transparent background, so you can have the people next to or on top of your data.

Studies at YouTube have found that YouTube title cards that feature the face of a person get more views than title cards without, so it makes sense that adding a person to your report might make someone stop and read the report.

You can search the Cutout People by emotion or characteristic, such as Smiling, Happy, Angry, Pointing, Holding A Sign, and so on (see Figure 1.15).

A collage of people posing for a photo

Description automatically generated

**Figure 1.15** You can insert any of these smiling people in your worksheet.

**Image transparency**

Images in Excel are shown on a drawing layer that is above the grid. This means that any image will hide the data underneath. A new Transparency icon appears on the Picture Format tab in the ribbon. Make the image more transparent so you can see the data behind the picture (see Figure 1.16).

A person pointing at a picture

Description automatically generated

**Figure 1.16** Increase transparency of any object to be able to see the data underneath the object.

**Save any object as picture**

Right-click any object in Excel and you can now choose Save As Picture. This might save you from using the Screen Clipping tools in Office. Note that it works with charts, Smart Art, images, and Word Art, but it does not work with cells unless you copy the cells and paste a linked picture of the cells.

Unless you need to save a lot of charts, you might find it is just as easy to keep using SnagIt or the screen snipping tools instead of the new Save As Picture feature.

**Write data using the Action Pen**

This is one of the bizarre features in Excel. Sometimes, Excel gets a new feature because the PowerPoint engineers designed something, and it was easy to port to Word and Excel. The Action Pen seems like it fits in that category.

First, there is a Drawing tab in the ribbon. They made a big deal a few years ago about adding new pens to the Drawing tab—glitter pens...all sorts of pens. In 2020, they added an Action Pen.

When you use an Action Pen, you can handwrite your data using a mouse or a touchscreen. A few seconds later, the handwriting is converted to data as if you had typed it.

Figure 1.17 shows the numbers “123” written using a mouse.

A few seconds later, Excel converts the handwritten text to data, as shown in Figure 1.18.

A screenshot of a computer

Description automatically generated

**Figure 1.17** Using the touchscreen or a mouse to write some data.

A screenshot of a computer

Description automatically generated

**Figure 1.18** Excel recognizes your handwriting and converts it to data.

**New features introduced tomorrow**

Twenty years ago, it was easy to write about Excel. Changes were made every three years with a 120-day beta before things went live. Today, changes can happen any day of the year.

For the past few editions of this book, I always write Chapter 1 last and include the latest features in this chapter. Inevitably, a few days after we go to print, Microsoft will introduce a new feature, and I can’t help thinking, I wish that was in the book.

In this case, I know that there are some new functions coming. I’ve seen them in action. I would love for them to be in this book. But I am bound by an NDA agreement that says I can’t talk about them until they come out in beta.

Between this edition of this book and the next edition, subscribe to my [MrExcel.com](http://mrexcel.com/) channel on YouTube. I strive to document any new features with a day or two of them reaching beta.

**Other new features**

In August 2021, Microsoft added the ability for shapes to look like they were hand-drawn. A new Sketch Style drop-down menu is available in the Format Shape task pane, as shown in Figure 1.19.

A screenshot of a computer

Description automatically generated

**Figure 1.19** New in the summer of 2021, you can make any shape look like it is hand-drawn.

In November 2021, the Excel team added 10 new functions that are used for text manipulation and array shaping. To learn about TEXTSPLIT, TEXTBEFORE,

TEXTAFTER, VSTACK, HSTACK, CHOOSEROWS, CHOOSECOLS, TOCOL, TOROW, and VECTORWRAP, see “Introducing TEXTSPLIT and other text manipulation functions” at the end of Chapter 8.

In case you are upgrading from Excel 2016, these new features debuted in the previous edition of this book and are now covered in their respective chapters:

Unselecting a cell with Ctrl+Click is in Chapter 2, “Using the Excel interface.”

How Excel does not nag you about CSV files is covered in Chapter 2, “Using the Excel interface.”

A formula can now spill to adjacent cells. This is covered in Chapter 5, “Understanding formulas.”

A new @ operator is used for implicit intersection. See Chapter 6, “Controlling formulas.”

The ARRAYTOTEXT function is covered in Chapter 8, “Using everyday functions: math, date and time, and text functions.”

XLOOKUP and XMATCH are covered in Chapter 9, “Using powerful functions: logical, lookup, and database functions.”

New functions like LET, LAMBDA, and STOCKHISTORY as well as new data types are covered in Chapter 10, “Using names, LET, LAMBDA, and Data Types in Excel.”

Dynamic Array formulas are covered in Chapter 12, “Dynamic array formulas and names in Excel.”

Topics about co-authoring such as Sheet View, threaded comments, and Show Changes are covered in Chapter 28, “Collaborating in Excel.”

**Chapter 2**

**Using the Excel interface**

Using the ribbon

Using the Quick Access Toolbar

Using the full-screen File menu

Using the new Home screen

Using the New Sheet icon to add worksheets

Navigating through many worksheets using the controls in the lower left

Using the mini toolbar to format selected text

Expanding the formula bar

Zooming in and out on a worksheet

Using the status bar to add numbers

Switching between Normal view, Page Break preview, and Page Layout view modes

Cleaning data with Flash Fill

Sorting data

**Using the ribbon**

The ribbon is Excel’s main user interface. It is comprised of tabs: Home, Insert, and so on. Each tab has several groups with a variety of icons, dropdown menus, and galleries.

After a very unpopular introduction in 2007, the ribbon is now a part of our lives, and the concept has even been embraced by other software such as Techsmith’s SnagIt.

After Excel 2019, Microsoft refreshed the ribbon for Microsoft 365 customers. Old two-line contextual ribbon names such as “Chart Tools Design” is shortened to “Chart Design” on a single line. The selected ribbon is shown with a single thick line underneath, as shown on the Page Layout tab in Figure 2.1. In the summer of 2021, they added rounded corners for the formula bar and the ribbon, as well as labels for the Quick Access Toolbar when it is displayed below the ribbon.

A screenshot of a computer

Description automatically generated

**Figure 2.1** In the summer of 2021, the Office 365 ribbon switched to this style.

**Using flyout menus and galleries**

One element in the ribbon is the gallery control. Galleries are used when there are dozens of options from which you can choose. The gallery shows you a visual thumbnail of each choice. A gallery starts out showing a row or two of choices in the ribbon. (For an example, look at the Data Types gallery on the Excel Data tab.) The right side of the gallery offers icons for Up, Down, and Open. If you click Up or Down, you scroll one row at a time through the choices.

If you click the Open control at the bottom-right side of the gallery, the gallery opens to reveal all choices at once.

**Rolling through the ribbon tabs**

With Excel as the active application, move the mouse anywhere over the ribbon and roll the scroll wheel on top of the mouse. Excel quickly flips from tab to tab on the ribbon. Scroll away from you to roll toward the Home tab on the left. Scroll toward you to move to the right.

**Revealing more commands using dialog box launchers, task panes, and “More” commands**

The ribbon holds perhaps 20 percent of the available commands. The set of commands and options available in the ribbon will be enough 80 percent of the time, but you will sometimes have to go beyond the commands in the ribbon. You can do this with dialog box launchers, More commands, and the task pane.

A *dialog box launcher* is a special symbol in the lower-right corner of many ribbon groups. Click the dialog box launcher to open a related dialog box with many more choices than those offered in the ribbon.

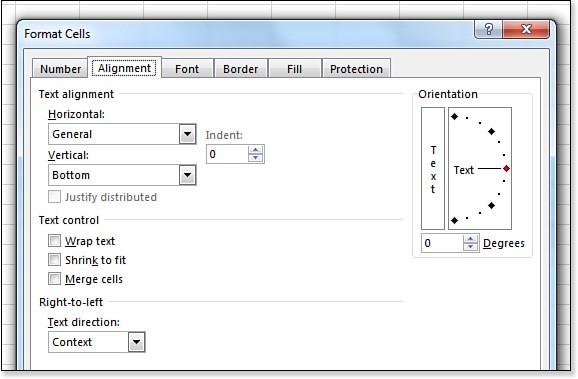
Figure 2.2 shows details of the Alignment group of the Home tab. In the lower-right corner of the group is the dialog box launcher. It looks like the top-left corner of a dialog box, with an arrow pointing downward and to the right.

A screenshot of a computer

Description automatically generated

**Figure 2.2** The dialog box launcher takes you to additional options.

When you click the dialog box launcher, you go to a dialog box that often offers many more choices than those available in the ribbon. In Figure 2.3, you see the Alignment tab of the Format Cells dialog box.



**Figure 2.3** After clicking the dialog box launcher, you get access to many more choices.

Many menus in the ribbon end with an entry for finding more rules and option; these entries end with an ellipsis (...). Clicking a More item takes you to a dialog box or task pane with more choices than those available in the ribbon.

**Using collapsing task panes**

Many newer elements in Excel are formatted using a task pane that appears on the right side of the Excel screen. In the past, you would sometimes have two, three, or four task panes open at one time. Today, Excel collapses the task panes so you only see one task pane. The other task panes are collapsed to a small strip on the right side of Excel, as shown in Figure 2.4.

A screenshot of a computer

Description automatically generated

**Figure 2.4** When Excel has two task panes open, the extra task panes are collapsed to a strip on the right side of the Excel screen.

You can switch between task panes by clicking any of the icons in the collapsed task pane strip.

What if you liked seeing all of the task panes? Click the title of the task pane and drag it off the left side of the screen. When you dock task panes on the left side of the screen, they will not collapse.

**Resizing Excel changes the ribbon**

The ribbon modifies as the size of the Excel application window changes. You should be aware of this when you are coaching a coworker over the phone. You might be looking at your screen and telling them to “look for the big Insert drop-down menu to the right of the orange word ‘Calculation.’” Although this makes perfect sense on your widescreen monitor, it might not make sense on their monitor. Figure 2.5 shows some detail of the Home tab on a widescreen monitor. The Cell Styles gallery shows ten thumbnails, and Insert, Delete, and Format appear side-by-side.

A screenshot of a cell phone

Description automatically generated

**Figure 2.5** On a widescreen monitor, you see ten choices in the Cell Styles gallery.

Figure 2.6 shows the typical view on a laptop. The Cell Styles gallery is collapsed to a single drop-down menu. The Insert, Delete, and Format icons are now arranged vertically.

A screenshot of a computer

Description automatically generated

**Figure 2.6** On a normal monitor, the Cell Styles gallery is collapsed.

**Activating the Developer tab**

If you regularly record or write macros, you might be looking for the VBA tools in the ribbon. They are all located on the Developer tab, which is hidden by default. However, it is easy to make the Developer tab visible. Follow these steps:

**1.** Right-click the ribbon and choose Customize The Ribbon. Excel displays the Customize Ribbon category of the Excel Options dialog box. **2.** A long list box of ribbon tabs is shown on the right side of the screen. Every one of them is checked except for Developer. Check the box next to Developer.

**3.** Click OK. The Developer tab displays.

**Activating contextual ribbon tabs**

The ribbon tabs you see all the time are called the *main tabs*. Another 23 tabs come and go, depending on what is selected in Excel. In Figure 2.7, you can see two contextual tabs that appear only when a chart is selected.

A screenshot of a computer

Description automatically generated

**Figure 2.7** Two chart tools tabs appear temporarily while a chart is selected.

**Troubleshooting**

**Your worksheet often has a pivot table or a chart, yet you cannot see the contextual tabs in the ribbon.**

When you insert a new pivot table using the default settings, the pivot table will be the only data on a newly inserted worksheet.

I’ve suggested to the Excel team that if the person using Excel is looking at a new worksheet that only contains a pivot table, then clearly, the customer is looking at the pivot table. However, if you accidentally click outside of the pivot table, both of the pivot table contextual tabs are deleted. To get them back, click any cell inside the pivot table.

Here is the frustrating thing: As soon as you click outside of the object (that is, the chart, or the pivot table), it is no longer selected, and the contextual tabs disappear.

If you need to format an object and you cannot find the icons for formatting it, try clicking the object to see if the contextual tabs appear.

Two other tabs occasionally appear, although Excel classifies them as main tabs instead of contextual tabs. If you add the Print Preview Full Screen icon to the interface, you arrive at a Print Preview tab. Also, from the Picture Format tab, you can click Remove Background to end up at the Background Removal tab.

**Finding lost commands on the ribbon**

Often, the command you need is front and center on the Home tab, and everything is fine. However, there are times when you cannot find an obscure command that you know is somewhere in Excel.

Microsoft offers a Microsoft Search box above the ribbon. The search is designed to find commands in Excel.

Type **Validation** in the box. The results are shown in Figure 2.8. They offer the Data Validation command. There is a fly-out menu with other validation choices. They offer to search for the word “validation” in the workbook.

And, they offer recently opened files that have validation in the title.

A screenshot of a computer

Description automatically generated

**Figure 2.8** The new Search box works great.

Search for “Select from a list” and the results do not find Data Validation.

They offer Select Objects, Lasso Select, Save As, Select Element, Show

Field List, Get Help On Select From A List, and Smart Lookup On “Select From A List.”

**Shrinking the ribbon**

The ribbon takes up four vertical rows of space. This won’t be an issue on a big monitor, but it could be an issue on a tiny laptop.

To shrink the ribbon, you can right-click it and choose Collapse The Ribbon. Or, use the carat (^) icon on the far-right side of the ribbon. The ribbon collapses to show only the ribbon tabs. When you click a tab, the ribbon temporarily expands. To close the ribbon, choose a command or press Esc.

**Tip**

The ribbon often stays open after certain commands. For example, I frequently click the Increase Decimal icon three times in a row. When the ribbon is minimized, you can click Home and then click Increase Decimal three times without having the ribbon close.

To permanently bring the ribbon back to full size, right-click a ribbon tab and uncheck Collapse The Ribbon. Or, click any tab and then click the pushpin icon in the lower-right corner of the ribbon. You can also toggle between minimized and full size by double-clicking any ribbon tab.

**Using the Quick Access Toolbar**

A problem with the ribbon is that only one-tenth of the commands are visible at any given time. You will find yourself moving from one tab to another. The alternative is to use the Quick Access Toolbar (QAT) to store your favorite commands.

The QAT starts out as a tiny toolbar with AutoSave, Save, Undo, and Redo. It is initially located above the File tab in the ribbon.

If you start using the QAT frequently, you can right-click the toolbar and choose Show Quick Access Toolbar Below The Ribbon to move the QAT closer to the grid.

**Adding icons to the QAT**

The drop-down menu at the right side of the QAT, shown on the right side in Figure 2.9, offers 12 popular commands you might choose to add to the Quick Access Toolbar. Choose a command from this list to add it to the QAT.

A screenshot of a computer

Description automatically generated

**Figure 2.9** Use the drop-down menu at the right side of the QAT to add 13 popular commands.

When you find a command in the ribbon you are likely to use often, you can easily add the command to the QAT. To do so, right-click any command in the ribbon and select Add To Quick Access Toolbar. Items added to the Quick Access Toolbar using the right-click method are added to the right side of the QAT.

The right-click method works for many commands, but not with individual items within commands. For example, you can put the Font Size drop-down menu on the QAT, but you cannot specifically put size 16 font in the QAT.

**Removing commands from the QAT**

You can remove an icon from the QAT by right-clicking the icon and selecting Remove From Quick Access Toolbar.

**Customizing the QAT**

You can make minor changes to the QAT by using the context menus, but you can have far more control over the QAT if you use the Customize command. Right-click the QAT and select Customize Quick Access Toolbar to display the Quick Access Toolbar section of the Excel Options dialog box, as shown in Figure 2.10.

Note that the dialog starts out with a small list of Popular Commands. Open the top-left drop-down and choose All Commmands for more choices.

A screenshot of a computer

Description automatically generated

**Figure 2.10** The supersript and subscript icons add functionality to Excel that is only available through these icons.

The Excel Options dialog box offers many features for customizing the Quick Access Toolbar:

1. You can choose to customize the QAT for all documents on your computer or just for the current workbook by using the top-right dropdown menu.
2. You can add separators between icons to group the icons logically. A separator icon is available at the top of the left menu. Click the separator icon in the left list box and then click the Add icon in the center of the screen.
3. You can resequence the order of the icons on the toolbar. Select an icon in the right list box, and then click the up/down arrow icons on the right side of the dialog box.
4. You can access 2,000+ commands, including the commands from every tab and commands that are not available in the ribbon. Although the dialog box starts with just 53 popular commands in the left list box, use the left drop-down menu to choose All Commands or Commands Not In The Ribbon. When you find a command in the left list box, select the command and then click Add in the center of the dialog box to add that command to the QAT.
5. You can reset the QAT to its original default state using the Reset button in the lower right.
6. You can export your custom QAT icons from your computer and import it on another computer.
7. You can move the QAT to appear above or below the ribbon using the check box in the lower left.
8. When the QAT is below the ribbon, you can choose to Show Command Labels. This feature is currently in beta and there is some hope that Microsoft will add Command Labels when the QAT is above the ribbon as well.

**Formatting superscripts and subscripts**

It was previously possible to format characters in a cell as superscript or subscript, but it required a trip to the Format Cells dialog box while you were in Edit mode. You can now format superscripts and subscripts by adding two buttons to the QAT.

To actually format a character in a cell, you can do it while you are typing in the cell. In Figure 2.11, type **You should drink H**. Click the Subscript icon to toggle to Subscript mode. Type a **2**. Click the Subscript icon again to leave Subscript mode. Type **O per day**. Click the Superscript icon. Type **citation needed**. When you press Enter to accept the cell, you automatically exit Superscript mode.

What if you need to format part of an existing cell? Select those characters in the formula bar, and then click either the Subscript or Superscript icon. You will not see the results in the formula bar, but they will appear in the cell.

A screenshot of a computer

Description automatically generated

**Figure 2.11** Add Superscript and Subscript icons to the Quick Access Toolbar to apply the formatting as you type.

**Using the full-screen File menu**

Open the File menu to see the Backstage view. Here is the logic: When you are working on most ribbon tabs, you are working *in* your document. When you are about to change the font or something like that, you want to see the results of the change *in* your document. Hence, Microsoft calls those the “in” commands. However, the Excel team thinks that after you move to the File menu, you are done working **in** your document, and you are about to do something with the whole document, such as send the workbook, print the workbook, export to PDF, and so on. Microsoft calls these the “out” commands. The theory is that you don’t need to see the worksheet for the “out” commands, so Microsoft fills the entire screen with the File menu.

To open the Backstage view, click the File menu. The Backstage view fills the screen, as shown in Figure 2.12. Backstage is split into three sections:

the narrow left navigation panel and two wider sections that provide information.

A screenshot of a computer

Description automatically generated

**Figure 2.12** The Backstage view fills the entire screen.

The left navigation panel includes these commands:

**Home**: A recent addition to the File menu, Home combines elements of New and Open. At the top, you can see tutorials from Microsoft and popular templates. In the middle, recent, pinned files, and files that others have shared with you. Both sections have a link to “Find More In New” or “Find More In Open.”

**Info**: Provides information about the current workbook. This is discussed later in the “Getting Information About the Current Workbook” section.

**New**: Used to create a new workbook or start from a template.

**Open**: Used to access a file stored on your computer or the OneDrive. See Chapter 1.

**Save**: Saves the file in the same folder as it was previously stored. Note that Save is a command instead of a panel in Backstage.

**Save As**: Stores the file on your computer or in OneDrive. See Chapter 1.

**Print**: Used to choose print settings and print. Includes Print Preview. See Chapter 27, “Printing.”

**Share**: Now the entry point for sharing a workbook with your coworkers. See Chapter 28.

**Export**: Used to create a PDF or change the file type.

**Publish**: Used to upload your workbook to Power BI.

**Close**: Closes the current workbook. Like Save, this entry is a pure command.

**Account**: Sign in to Office. Choose a color theme and a background. See if updates are available. Learn your version of Excel. This and the next two items have been moved to the bottom left of the screen, below the area shown shown in Figure 2.13.

**Feedback**: Send a smile or send a frown to the Excel team. Also contains a link to the [Excel.UserVoice.com](http://excel.uservoice.com/) website where you can suggest new ideas for Excel.

**Options**: Contains pages of Excel settings. See Chapter 3, “Customizing Excel,” for details.

**Recent File List**: This list appears only if you’ve changed a default setting in Excel Options. Visit File, Options, Advanced Display and choose Quickly Access This Number Of Recent Workbooks.

**Pressing the Esc key to close Backstage view**

To get out of Backstage and return to your worksheet, you can either press the Esc key or click the back arrow in the top-left corner of Backstage.

**Using the new Home screen**

A new Home screen appears when you start Excel or open the File menu.

The first three commands in the left navigation bar are Home, New, and

Open. Without clicking anything, you will be on the Home screen of the File menu. The Home screen combines a few elements from both the New screen and the Open screen.

At the top of the Home screen, you will notice a message that reads, “Good Morning,” “Good Afternoon,” or “Good Evening.”

Below that message are tiles normally shown when you select New. The first tile is Blank Workbook. Next are a few tiles offering Excel tutorials and then some tiles of popular templates. A hyperlink at the far right offers more templates in the New screen.

The next section is Recommended For You. This will be six large tiles of files you have recently edited or files that others shared with you or files where someone mentioned you in a comment.

Next, three tabs offer Recent Files, Pinned, and Shared With Me. This is a subset of the options on the Open screen. Note that if you recently opened a pinned file, it will be in both the Recent and Pinned tabs. If you scroll all the way to the bottom of this section, a hyperlink for “Find More In Open” appears (although it would be easier to click Open in the left navigation bar).

**Recovering unsaved workbooks**

As in previous versions of Excel, the AutoRecover feature can create copies of your workbook every *n* minutes. If you close the workbook without saving, you might be able to get the file back, provided it was open long enough to go through an AutoRecover.

If the workbook was new and never saved, scroll to the bottom of the Recent Workbooks List and choose Recover Unsaved Workbooks.

If the workbook had previously been saved, open the last saved version of the workbook. Go to the File menu, and the last AutoSave version from before you closed the file will be available.

**Clearing the Recent Workbooks list**

If you need to clear out the Recent Workbooks list, you should visit File,

Options, Advanced, Display. Set the Show This Number Of Recent Documents list to zero. You can then set it back to a positive number, such as 10.

**Getting information about the current workbook**

When a workbook is open, and you go to the File, Info, you see the Info gallery for that workbook. The Info pane lists all sorts of information about the current workbook:

1. The workbook path is shown at the top of the center panel.
2. You can see the file size.
3. You can see when the document was last modified and who modified it.
4. If any special states exist, these will be reported at the top of the middle pane. Special states might include the following:

Macros Not Enabled

Links Not Updated

Checked Out From SharePoint

1. You can see if the file has been AutoRecovered and recover those versions.
2. You can mark the document as final, which will cause others opening the file to initially have a read-only version of the file.
3. You can edit links to other documents.
4. You can add tags or categories to the file.
5. Using the Check For Issues drop-down menu, you can run a compatibility checker to see if the workbook is compatible with legacy versions of Excel. You can run an accessibility checker to see if any parts of the document will be difficult for people with disabilities. You can run a Document Inspector to see if any private information is hidden in the file.

**Marking a workbook as final to prevent editing**

Open the Protect Workbook icon in the Info gallery to access a setting called Mark As Final. This marks the workbook as read-only. It prevents someone else from making changes to your final workbook.

*However*, if the other person visits the Info gallery, that person can reenable editing. This feature is designed to warn the other people that you’ve marked it as final and no further changes should happen.

If you can convince everyone in your workgroup to sign up for a Windows Live ID, you can use the Restrict Permission By People setting. This layer of security enables you to define who can read, edit, and/or print the document.

**Finding hidden content using the Document Inspector**

The Document Inspector can find a lot of hidden content, but it is not perfect. Still, finding 95 percent of the types of hidden content can protect you a lot of the time.

**Caution**

The Document Inspector is not foolproof. Do you frequently hide settings by changing the font color to white or by using the ;;; custom number format? These types of things won’t be found by the Document Inspector. The Document Inspector also won’t note that you scrolled over outside the print area and jotted your afterwork grocery list in column X.

To run the Document Inspector, select File, Info, Check For Issues, Inspect Document, and click OK. The results of the Document Inspector show that the document has personal information stored in the file properties (author’s name) and perhaps a hidden worksheet.

**Avoiding nagging about CSV files**

Using Comma Separated Values (CSV) is a very common way to move data between systems. Excel natively opens CSV files. CSV files are great for storing values and text, but they don’t handle storing formulas or formatting or charts or pivot tables.

If you open a CSV file, the Excel team is afraid you might add some formulas and formatting and then forget to save as an Excel file. When you save as CSV, Excel would routinely nag you that you were about to lose formulas and formatting. Even if you acknowledged that warning and that you want to save as CSV, Excel would nag you again when you closed the file.

One passionate request at [Excel.UserVoice.Com](http://excel.uservoice.com/) was from someone who had to deal with CSV files all day. This person pointed out that she understood CSV files don’t support formulas, but her job was to produce CSV files all day, every day, and she did not appreciate the constant nagging. There were 1,196 votes for this idea. Excel now makes nagging optional.

The first time you try to save as a CSV file, this message appears in the information bar above the formula bar:

POSSIBLE DATA LOSS: Some features might be lost if you save this workbook in the comma-delimited (\*.csv) format. To preserve these features, save it in an Excel file format.

Because the message appears in the information bar instead of a dialog box, you can simply ignore it. The information bar still offers the Save As button, but it also offers the Don’t Show Again button, which when clicked, means you will never be nagged about CSV files again.

If you choose Don’t Show Again and decide that you would like to be reminded about CSV files, choose File, Options, Save, and select Show Data Loss Warning When Editing Comma Delimited Files (\*.csv).

**Adding whitespace around icons using Touch mode**

If you are trying to use Excel on a tablet or a touchscreen, you want to try Touch mode. Follow these steps:

1. Go to the right side of the QAT and open the drop-down menu that appears there.
2. The twelfth command is called Touch/Mouse Mode. The icon is a blue dot with a ring of whitespace and then dashed lines around the whitespace. Choose this command to add it to the QAT.
3. Click the icon on the QAT. You see whitespace added around all the icons.

**Using the new Sheet icon to add worksheets**

The Insert Worksheet icon is a circle with a plus sign that appears to the right of the last sheet tab.

When you click this icon, a new worksheet is added to the right of the active sheet. This is better than Excel 2010, where the new worksheet was added as the last worksheet in the workbook and then had to be dragged to the correct position.

**Navigating through many worksheets using the controls in the lower left**

Older versions of Excel had four controls for moving through the list of worksheet tabs. The worksheet navigation icons are now a left and right arrowhead in the lower left.

The controls are active only when you have more tabs than are visible across the bottom of the Excel window. Click the left or right icon to scroll the tabs one at a time. Ctrl+click either arrow to scroll to the first or last tab. Note that scrolling the tabs does not change the active sheet. It just brings more tabs into view, so you can then click the selected tab.

Just as in prior versions of Excel, you can right-click the worksheet navigation arrows to see a complete list of worksheets. Click any item in the list to move to that worksheet. Pressing Shift-click will scroll the tabs one “page” of tabs at a time.

In certain circumstances, an ellipsis (...) icon appears to the left of the worksheet navigation arrows. This icon selects the worksheet to the left of the active sheet.

**Using the mini toolbar to format selected text**

When you select some text in a chart title or within a cell, the mini toolbar appears above the selected text. If you move away from the mini toolbar, it fades away. However, if you move the mouse toward the mini toolbar, you see several text formatting options.

To use the mini toolbar, follow these steps:

1. Select some text. If you select text in a cell, you must select a portion of the text in the cell by using Cell Edit mode. In a chart, SmartArt diagram, or text box, you can select any text. As soon as you release the mouse button, the mini toolbar appears above and to the right of the selection.
2. Move the mouse pointer toward the mini toolbar. The mini toolbar stays visible if your mouse is above it. If you move the mouse away from the mini toolbar, it fades away.
3. Make changes in the mini toolbar to affect the text you selected in step 1.
4. When you are done formatting the selected text, you can move the mouse away from the mini toolbar to dismiss it.

**Expanding the formula bar**

Formulas range from very simple to very complex. As people started writing longer and longer formulas in Excel, an annoying problem began to appear: If the formula for a selected cell was longer than the formula bar, the formula bar would wrap and extend over the worksheet. In many cases, the formula would obscure the first few rows of the worksheet. This was frustrating, especially if the selected cell was in the top few rows of the spreadsheet.

Excel now includes a formula bar that prevents the formula from obscuring the spreadsheet. For example, in Figure 2.13, cell F1 contains a formula that is longer than the formula bar. Notice the down-arrow icon at the right end of the formula bar. This icon expands the formula bar.

A screenshot of a computer

Description automatically generated

**Figure 2.13** Initially, Excel shows only the first row of the formula.

Press Ctrl+Shift+U or click the down-arrow icon at the right side of the formula bar to expand the formula bar. The formula bar expands to the last manually resized height, and the entire worksheet moves down to accommodate the larger formula bar.

The formula in this example is too long for the default larger formula bar. You must hover your mouse near the bottom of the formula bar until you see the up/down white arrow cursor. Click and drag down until you can see the entire formula (see Figure 2.14).

A screenshot of a computer

Description automatically generated

**Figure 2.14** The worksheet moves down to accommodate the formula.

**Note**

Excel guru Bob Umlas keeps suggesting that the formula bar should change color when you are not seeing the entire formula. That is a great suggestion that perhaps the Excel team will one day add to Excel.

**Zooming in and out on a worksheet**

In the lower-right corner of the Excel window, a zoom slider enables you to zoom from 400 percent to 10 percent with lightning speed. You simply drag the slider to the right to zoom in and to the left to zoom out. The Zoom Out and Zoom In buttons on either end of the slider enable you to adjust the zoom in 10 percent increments.

Clicking the % indicator to the right of the zoom slider opens the legacy Zoom dialog box.

**Inside OUT**

***If you decrease the zoom below 40%, Microsoft assumes that you are***

***looking for an overview of the entire spreadsheet.***

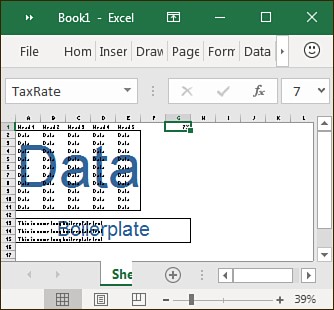
An interesting feature appears when you decrease the zoom to 39% or

less. Any regions that have been assigned a name will appear as boxes

with the name super-imposed. This is great for getting an overview of

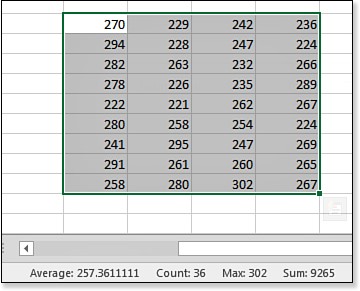
the named ranges created by someone else. Names reflecting only one

cell will not show the name of that cell.



**Using the status bar to add numbers**

If you select several cells that contain numeric data and then look at the status bar, at the bottom of the Excel window, you can see that the status bar reports the average, count, and sum of the selected cells (see Figure 2.15).



**Figure 2.15** The status bar shows the sum, average, and count of the selected cells.

If you need to quickly add the contents of several cells, you can select the cells and look for the total in the status bar. This feature has been in Excel for a decade, yet very few people realized it was there. In legacy versions of Excel, only the sum would appear, but you could right-click the sum to see other values, such as the average, count, minimum, and maximum.

You can customize which statistics are shown in the status bar. Right-click the status bar and choose any or all of Min, Max, Numerical Count, Count, Sum, and Average.

**Switching between Normal view, Page Break preview, and Page Layout view modes**

Three shortcut icons to the left of the zoom slider enable you to quickly switch between three view modes:

1. **Normal view**: This mode shows worksheet cells as normal.
2. **Page Break preview** : This mode draws the page breaks in blue. You can actually drag the page breaks to new locations in Page Break preview. This mode has been available in several versions of Excel. **3. Page Layout view**: This view was introduced in Excel 2007. It combines the best of Page Break preview and Print Preview modes.

In Page Layout view mode, each page is shown, along with the margins, header, and footer. A ruler appears above the pages and to the left of the pages. You can make changes in this mode in the following ways:

1. To change the margins, drag the gray boxes in the ruler.
2. To change column widths, drag the borders of the column headers.
3. To add a header, select Click To Add Header.

**Unselecting a cell with Ctrl+click**

You can select multiple ranges in Excel by using the Ctrl key. In Figure 2.16, click and drag the mouse to select the first six cells. Hold the Ctrl key while dragging the mouse to select the eight Yes cells in columns C and D. In real life, you might have many more regions to select, and if you accidentally selected an extra cell, such as the “No” cell, there was no way to remove one cell from the selection in Excel 2016.

To remove the cell from the selection, you had to start all over again, carefully selecting one region at a time.

An improvement in Excel allows you to Ctrl+click a cell to remove it from the selection. This feature is new since Excel 2016, thanks to 327 votes at [Excel.UserVoice.com.](http://excel.uservoice.com/)

A screenshot of a spreadsheet

Description automatically generated

**Figure 2.16** Ctrl+click the No in column C to remove it from the selection.

**Cleaning data with Flash Fill**

Suppose that you have data with first names in column A and last names in column B. The names are in uppercase. You would like to reshape the data, so you have the full names in proper case.

Add a heading in column C. Type the first and last name from A2 and B2 in cell C2. As soon as you type the first letter in the second cell, Excel springs into action and offers to fill the rest of the column for you (see Figure 2.17).

Provided the preview looks right or even close, press Enter.

A screenshot of a computer

Description automatically generated

**Figure 2.17** Type W in C3 and Excel offers to fill in the rest of the column.

In addition to filling the column, Excel provides two pieces of feedback. First, the status bar in the lower-left corner of the screen indicates that Flash Fill changed a certain number of cells.

Second, a tiny on-grid Flash Fill drop-down menu icon appears next to the first changed cell. The drop-down menu offers choices such as Undo and Accept. You can also choose to select all changed cells or all unchanged cells.

**Coaching Flash Fill with a second example**

After Flash Fill operates, look for any cells that don’t fit the pattern. You might have a person with two first names (Mary Ellen Walton) or no last name (Pele). Type a new value in column C, and Flash Fill looks for other cells that match that pattern, correcting as it goes.

**Flash Fill will not automatically fill in numbers**

With only 10 digits (in contrast to 26 letters), it is too likely that Excel could detect other patterns that are not the pattern you are intending. When Flash Fill sees a potential pattern, it temporarily “grays in” the suggestion but then removes the suggestion. Press Ctrl+E or click the Flash Fill icon on the Data tab to allow Flash Fill to work.

Flash Fill does not understand mathematical transformations. If the original number is 477 and you type 479 (add 2 to each cell) or 500 (round to the nearest hundred), Excel does not know how to Flash Fill the remaining cells.

**Using formatting with dates**

Dates are particularly troublesome. Suppose that you have a date of birth in column E with the format of YYYYMMDD. If you type 3/5/1970 in G2 and then press the Flash Fill icon, Excel does not correctly recognize the pattern. You get 3/5/ and the first four digits from E in each row, which is an interesting result. You can sort of understand how Excel was tricked into seeing the wrong pattern.

You can solve the date problem by formatting the column to show MM/DD/YYYY first.

**Troubleshooting Flash Fill**

The following are some tips for making Flash Fill work correctly: **1.** There can be no blank columns. It is not necessary to be in the column immediately to the right of the data, but you can’t have any completely blank columns between where you want to Flash Fill and the source data.

1. For the automatic Flash Fill to work, you should type the first value and then immediately type the second value. Do not perform any other commands between the first and second values. Don’t type G2, go to

Sheet 3, and then come back and type G3. By then, Flash Fill has stopped watching for patterns. The only exception is sorting. You could type G2, sort, type G3, and Flash Fill will work.

1. Type a heading in the column that you are filling to prevent Flash Fill from filling your heading. Also, you could use bold for the other headings. Flash Fill follows the same rules that the Sort dialog box and the Ctrl+T Table dialog box use to detect whether there are headings. If Ctrl+T opens with the My Data Has Headings box checked, then Flash Fill does not overwrite your headings. This matters more than you might think because the headings don’t usually follow the pattern of the data and they confuse Flash Fill if it is trying to find a pattern.
2. Pressing Esc makes the Flash Fill preview go away. More than once, I’ve pressed Esc by mistake and lost the Flash Fill. Don’t worry. Type the first one or two cells and then use Ctrl+E or click the Flash Fill icon on the Data tab to force Excel to run Flash Fill again.
3. Flash Fill looks only for patterns. Flash Fill does not understand that AZ is the abbreviation for Arizona. It does not understand that Jan 23 is another way to write 1-23. Flash Fill doesn’t have any opinions. Typing Awesome next to Bruce Springsteen does not cue Flash Fill that you are trying to classify musical acts.

Flash Fill provides an easy way to solve many data problems. Even in the cases where an Excel pro knows a formula that can solve the problem, it is still easier to use Flash Fill.

**Troubleshooting**

**Flash Fill can be fooled by ambiguous examples. It has an uncanny ability to see ambiguity where you could not detect it.**

In the following example, you might type **Brian Alberts** in D2 and invoke Flash Fill from D3. Most rational human beings would assume that you wanted first name, a space, and last name.

Flash Fill, however, assumes that you want the first name from column A, the middle initial from column B, and then everything after the first letter of column C.

This leads to Flash Fill changing David Bradley to David Mradley. Always carefully examine the Flash Fill results to see if they make sense.

A screenshot of a computer

Description automatically generated

**Sorting data**

Sorting in Excel is handled in the Sort dialog box or by using the AZ and ZA buttons on the Data tab. In all, there are six entry points for sorting:

1. Select the Home tab and then select Editing, Sort & Filter, Custom Sort.
2. Right-click any cell and choose Sort.
3. Select Sort from any filter drop-down menu.
4. Select the Data tab and then select Sort & Filter, AZ or Sort & Filter,

ZA.

1. Open the Sort dialog box by going to the Data tab and selecting Sort & Filter, Sort.

The Sort dialog box in Excel offers up to 64 different sorting levels. If you get into sorting by color, you often have to specify several rules for one column, so the theoretical number of columns you can sort by is probably fewer than 64.

**Sorting by color or icon**

Excel can sort data by fill color, font color, or icon set. This also works with color applied through conditional formatting or color that you applied by using the cell format icons.

Because color is subjective, there is not a default color sequence. If one column contains 17 colors, you need to set up 17 rules in the Sort dialog box just to sort by that one column.

To sort by color, follow these steps:

1. Select a cell within your data.
2. Select the Sort icon on the Data tab. The Sort dialog box appears.
3. Select the desired field from the Sort By drop-down menu.
4. Change the Sort On drop-down menu to Cell Color.
5. In the Order drop-down menu, choose the color that should appear first.
6. In the final drop-down menu, select On Top.
7. To specify the next color, click the Copy Level button at the top of the Sort dialog box.
8. Choose the next color in the Order drop-down menu for the copied rule.
9. Repeat steps 7 and 8 for each additional color.
10. If you want to specify that values in another column should be used to break ties in the color column, select the Add Level button and specify the additional columns.
11. Click OK to sort the data.

**Factoring case into a sort**

Typically, an Excel sort ignores the case of the text. Values that are lowercase, uppercase, or any combination of the two are treated equally in a sort.

You can instead use a case-sensitive sort in Excel to sort lowercase values before uppercase values. For example, **abc** sorts before **ABC**. Similarly, **ABc** sorts before **ABC**.

If you want Excel to consider case when sorting, follow these steps:

1. Select a cell within your data.
2. Select the Sort icon on the Data tab. The Sort dialog box appears.
3. Choose the column from the Sort By drop-down menu.
4. Click the Options button. The Sort Options dialog box appears.
5. Select the Case Sensitive check box.
6. Click OK to close the Sort Options dialog box.
7. Click OK to sort.

**Reordering columns with a left-to-right sort**

If you receive a data set from a colleague and the columns are in the wrong sequence, you could cut and paste them into the right sequence, or you could fix them all in one pass by using a left-to-right sort. To do this, follow these steps:

1. Insert a new blank row above the headings.
2. In the new row, type numbers corresponding to the correct sequence of the columns.
3. Make sure that one cell in the range is selected.
4. Select the Sort icon on the Data tab. The Sort dialog box appears.
5. Click the Options button. The Sort Options dialog box appears.
6. Select Sort Left to Right. Click OK to close the Sort Options dialog box. **7.** The Sort By drop-down menu now contains a list of row numbers. Choose the first row. **8.** The remaining drop-down menus should already include Values and Smallest To Largest.
7. Click OK to perform the sort.
8. Delete your temporary extra row at the top of the data set. The columns are then resequenced into the desired order.

**Tip**

Excel does not change the original column widths. Select all cells with Ctrl+A and then use Home, Format, AutoFit Column Width to resize all the columns.

**Sorting into a unique sequence by using custom**

**lists**

Sometimes company tradition dictates that regions or products should be presented in an order that is not alphabetic. For example, the sequence East, Central, West makes more sense geographically than the alphabetic sequence Central, East, West.

It is possible to set up a custom list to tell Excel that the region sequence is East, Central, West. You can then sort your data based on this sequence. You need to set up the custom list only once per computer. Follow these steps to do so:

1. Go to a blank section of any worksheet. Type the correct sequence for the values in a column.
2. Select this range.
3. Select File, Options. The Options dialog box appears.
4. Click the Advanced Group. Scroll down to the General section and then select Edit Custom Lists. The Custom Lists dialog box appears. **5.** In the Custom Lists dialog box, the bottom section shows the range of cells you selected in step 2. If it is correct, click the Import button. Your new list, with the correct sequence, is added to the default custom lists.
5. Click OK to close the Custom Lists dialog box. Click OK to close the Options dialog box.
6. Clear your temporary data range from step 1.

To use the list with custom sorting, follow these steps:

1. Select one cell in your data.
2. Select the Sort icon on the Data tab. The Sort dialog box appears.
3. In the Sort By drop-down menu, choose the region with the custom sort sequence.
4. From the Order drop-down menu, select Custom List. You should now be back in the Custom Lists dialog box. **5.** Click your custom list and then click OK. The Sort dialog box shows that the order is based on your custom list.

**6.** Click OK to sort into the custom sequence.

**One-click sorting**

All the examples discussed so far in this chapter have used the Sort dialog box, which is required for left-to-right sorting, custom sorting, and casesensitive sorting. It also makes color sorting easier. You can accomplish all other sorts by using the AZ buttons on the various tabs.

It is important to select a single cell in the column to be sorted. When you select a single cell, Excel extends the selection to encompass the entire current region. If you select two cells or even the whole column, Excel warns you that it is about to sort part of your data and ignore the adjacent data. This is rarely what you want.

You can find the one-click sorting options on the Home and Data tabs. On the Home tab, they are buried in the Sort & Filter drop-down menu. On the Data tab, they are clearly visible as AZ and ZA buttons.

You can also find sorting options by right-clicking a cell in the column you want to sort and selecting Sort. Options in this menu enable you to sort in ascending or descending order. You can also put the cell color, font color, or icon on top.

Additional quick-sorting options are located in the Filter drop-down menus. You can use these options to sort in ascending order, in descending order, and by color.

**Fixing sort problems**

If it appears that a sort did not work correctly, check this list of troubleshooting tips:

1. If the headers were sorted into the data, it usually means that one or more columns had a blank heading. Every column should have a nonblank heading. If you want the heading to appear blank, use an underscore in a white font to fool Excel. If you cannot insert a heading, you will have to use the Sort dialog box.
2. Unhide rows and columns before sorting. Hidden rows are not resequenced in a sort.
3. Use only one row for headings. If you need the headings to appear as if they are taking up several rows, put the headings in one row and wrap the text. To have control over where the text wraps, type the first line, press Alt+Enter, and then type the second line.
4. Data in a column should be a similar type. For example, if you have a column of ZIP Codes, you might have numeric cells for ZIP Codes of 10001 through 99999 and text cells for ZIP Codes of 00001 through 09999. This is one common way to keep leading zeroes. Because text cells are sorted sequentially after numeric cells, sorting the ZIP Codes, in this case, will appear not to work. To fix this problem, convert the entire column to one data type to achieve the expected results.
5. If your data has volatile formulas or formulas that point to cells outside the sort range, Excel calculates the range after sorting. If your sort sequence is based on this column, Excel accurately sorts the data, based on the information before the recalculation. If the values change after calculation, it will appear that the sort did not work.
6. If your data must have blank columns or rows, be sure to select the entire sort range before starting the sort process.

**Chapter 3**

**Customizing Excel**

Performing a simple ribbon modification

Adding a new ribbon tab

Sharing customizations with others

Questions about ribbon customization

Using the Excel Options dialog box

Options to consider

Five Excel oddities

The Excel Options dialog box offers hundreds of changes you can make in Excel. This chapter walks you through examples of customizing the ribbon and discusses some of the important option settings available in Excel.

**Performing a simple ribbon modification**

Suppose that you generally like the ribbon, but there is one icon that seems to be missing. You can add icons to the ribbon to make it customized to your preference. If you feel the Data tab would be perfect with the addition of a pivot table icon, you can add it (see Figure 3.1).

A screenshot of a computer

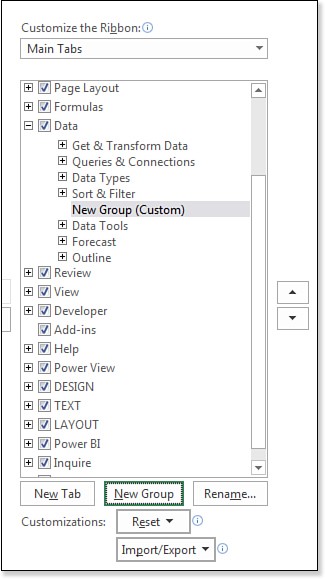
Description automatically generated

**Figure 3.1** Decide where the new command should go on the ribbon.

To add the pivot table command to the Data tab, follow these steps:

1. Right-click the ribbon and select Customize The Ribbon.
2. In the right list box, expand the Data tab by clicking the + sign next to Data.
3. Click the Sort & Filter entry in the right list box. The new group will go after this entry.
4. Click the New Group button at the bottom of the right list box. A New

Group (Custom) item appears after Sort & Filter, as shown in Figure 3.2.

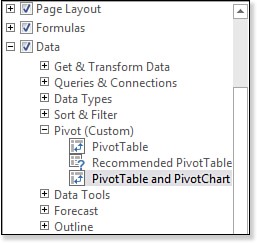


**Figure 3.2** Commands must be added to a new group.

1. While the New Group is selected, click the Rename button at the bottom of the list box. The Rename dialog box appears.
2. The Rename dialog box offers to let you choose an icon and specify a name for the group. The icon is shown only when the Excel window is too small to display the whole group. Choose any icon and type a display name of Pivot. Click OK.
3. The left list box shows the popular commands. You could change Popular Commands to All Commands and scroll through 2,400 commands. However, in this case, the commands you want are on the Insert tab. Choose All Tabs from the top-left drop-down menu. **8.** Expand the Insert tab, and then expand Tables. Click PivotTable in the left list box.

**9.** Click the Add button in the center of the dialog box to add PivotTable to the new custom Pivot group on the ribbon. Excel automatically advances to the next icon of Recommended PivotTables. Click Add again. **10.** In the drop-down menu above the left list box, select All Commands.

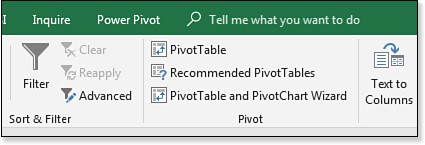
The left list box changes to show an alphabetical list of all commands. **11.** Scroll through the left list box until you find PivotTable And PivotChart Wizard. This is the obscure entry point to create Multiple Consolidation Range pivot tables. Select that item in the left list box. Click Add. At this point, the right side of the dialog box should look like Figure 3.3.



**Figure 3.3** Three new icons have been added to a new custom group on the Data tab.

**12.** Click OK.

Figure 3.4 shows the new group in the Data tab of the ribbon.



**Figure 3.4** The results appear in the ribbon.

**Adding a new ribbon tab**

To add a new ribbon tab, follow these basic steps:

1. Right-click the ribbon and select Customize The Ribbon.
2. Click New Tab and rename the tab.
3. Add New Group(s) to the new tab.
4. Add commands to the new groups.

As you go through the steps to add a new ribbon tab, you will discover how absolutely limiting the ribbon customizations are. You have no control over which items appear with large icons and which appear with small icons. This applies even to galleries. If you add the Cell Styles gallery to a group on the ribbon, it always appears as an icon instead of a gallery, even if it is the only thing on the entire ribbon tab (see the left icon in Figure 3.5). The workaround is to add an entire built-in group to the tab. On the right of Figure 3.5, the entire Styles group was added. The Cell Styles gallery is now allowed to appear as a gallery.

A screenshot of a computer

Description automatically generated

**Figure 3.5** When added to a custom group, a gallery is reduced to a single icon with a drop-down menu.

**Troubleshooting**

**When customizing the ribbon using this interface, you cannot control which icons appear large and which appear small in the ribbon.**

The Excel ribbon contains a logical mix of large icons for important features and small icons for minor features. If you would like to create a new group, you cannot control which icons will be small and which will be large.

You can either learn RibbonML or use a third-party tool such as Ribbon Commander to create custom ribbon tabs. Try a free trial of Ribbon Commander at [*https://mrx.cl/ribboncommander*](https://mrx.cl/ribboncommander).

**Sharing customizations with others**

If you have developed the perfect ribbon customization and you want everyone in your department to have the same customization, you can export all the ribbon customizations.

To export the changes, follow these steps:

1. Right-click the ribbon and select Customize The Ribbon.
2. Below the right list box, select Import/Export, Export All Customizations.
3. Browse to a folder and provide a name for the customization file. The file type will be .exportedUI. Click OK.
4. In Windows Explorer, find the .exportedUI file. Copy it to a coworker’s computer.
5. On the coworker’s computer, repeat step 1. In step 2, select Import Customization File. Find the file and click OK.

**Note**

This is an all-or-nothing proposition. You cannot export your changes to one custom tab without exporting your changes to the Data and Home tabs.

**Questions about ribbon customization**

**Can the customizations apply only to a certain workbook?**

No. The Customize the Ribbon command in Excel applies to all workbooks. **Can I reset my customizations and go back to the original ribbon?**

Right-click the ribbon and select Customize The Ribbon. Below the right list box, select Reset > Reset All Customizations.

**How can I get complete control over the ribbon?**

Learn RibbonX and write some VBA to build your own ribbon.

 For more information on building your own ribbon, see *RibbonX: Customizing the Office 2007 Ribbon*, by Robert Martin, Ken Puls, and Teresa Hennig (Wiley, ISBN 0470191112).

**These ribbon customizations are really lacking. Is there another option that doesn’t require me to write a program?**

Yes, some third-party ribbon customization programs are available. For example, check out a free one from Excel MVP Andy Pope at [*https://andypope.info/vba/ribboneditor\_2010.htm*](https://andypope.info/vba/ribboneditor_2010.htm).

**Using the Excel Options dialog box**

Open the File menu and select Options from the left navigation pane to open the Excel Options dialog box. The dialog box has categories for General, Formulas, Data, Proofing, Save, Language, Ease Of Access, Advanced, Customize Ribbon, Quick Access Toolbar, Add-Ins, and Trust Center. The Trust Center leads to another 13 categories.

To the Excel team’s credit, they tried to move the top options to the General category. Beyond those 19 settings, though, are hundreds of settings spread throughout 24 categories in the Excel Options and Trust Center. Table 3.1 gives you a top-level view of where to start looking for settings.

**Table 3.1** Excel Options dialog box settings

|  |  |
| --- | --- |
| **Ca teg or y** | **Types of Settings** |
| Ge ner al | The most commonly used settings, such as user interface settings, the default font for new workbooks, number of sheets in a new workbook, customer name, and Start screen. |
| For  mu  las | All options for controlling calculation, error-checking rules, and formula settings. Note that options for multithreaded calculations are currently considered obscure enough to be on the Advanced tab rather than on the Formulas Tab. |

**Ca Types of Settings**

**teg or y**

Dat The data category is new in 2017. It offers the new Edit Default a Layout for pivot tables, several other pivot table options, and then a series of checkboxes to bring back the legacy Get Data categories. When Power Query replaced Get Data on the Data tab of the ribbon, the old legacy icons were removed.

Pro Spell-check options and a link to the AutoCorrect dialog box.

ofi ng

Sav The default method for saving, AutoRecovery settings, legacy e colors, and web server options.

La Choose the editing language, ToolTip language, and Help ngu language.

age

Eas Options available are Provide Feedback With Sound, Provide e Feedback With Animation, Screen Tip Style, and the default of document font size. Ac ces s

Ad All options that Microsoft considers advanced, spread among 15 van headings. ced

Cu Icons to customize the ribbon.

sto

miz

e

Rib bon

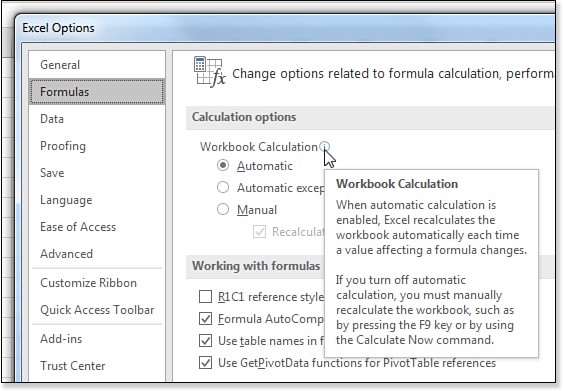
**Ca Types of Settings**

**teg or y**

|  |  |
| --- | --- |
| Qui ck  Ac ces  s  To  olb ar | Icons to customize the Quick Access Toolbar (QAT). |
| Ad  dIns | A list of available and installed add-ins. New add-ins can be installed from the button at the bottom of this category. |
| Tru  st  Ce nte r | Links to the Microsoft Trust Center, with 13 additional categories. |

**Getting help with a setting**

Many settings appear with a small *i* icon. If you hover the mouse near this icon, Excel displays a super ToolTip for the setting. The ToolTip explains what happens when you choose the setting. It also provides some tips about what you need to be aware of when you turn on the setting. For example, the ToolTip in Figure 3.6 shows information about the calculation settings. It also explains that you should use the F9 key to invoke a manual calculation.



**Figure 3.6** The i button explains many settings.

**Inside OUT**

***The Excel team is actively listening to ideas suggested by their customers. Several of the settings in the following section were suggested by customers.***

If you have a great idea that would make Excel easier, post your idea to [Excel.UserVoice.com](http://excel.uservoice.com/). Create a good title and use a slightly humorous tone when writing up how your idea would make the work life of millions of people easier.

After posting your idea, others can vote for your idea. As others browsing [*https://msfeedbackprod.powerappsportals.com/feedback/*](https://msfeedbackprod.powerappsportals.com/feedback/) read your idea, they can vote. If you get above the 200-vote level, it is likely that your idea will be added to a future release of Office 365.

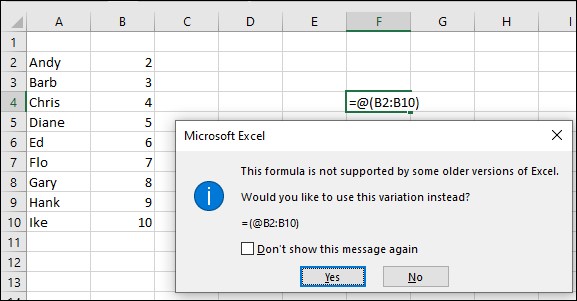
**Recent new options in Excel**

Excel today offers several new settings:

**1.** When Using Multiple Displays is found in the General category. Excel now supports newer High DPI displays, but many people might have two-monitor setups with one High DPI display and one older display. If you have problems when moving Excel between displays, choose Optimize For Compatibility from this setting. **2.** Excel introduced data types for stocks, currency, geography, and more. In an effort to make the feature discoverable, if you enter city names into a few cells, Excel can offer to convert those cells to a Geography Data Type. This is great at first, but if it becomes bothersome, unselect Show Convert To Data Types When Typing from the General category. **3.** Excel offers a Search box in the title bar. This is designed for finding commands when you can’t find them on the ribbon. If you think the Search box is taking up too much space, select Collapse The Microsoft Search Box By Default. It is found in the General category.

1. Microsoft added a dark mode to Excel. Use the Office Theme drop-down menu in the General category.
2. Near the bottom of the General category, you can assign which file extensions will open in Excel and ask Excel to notify you if it is not the default program for .XLSX and .XLSM files.
3. With the introduction of Dynamic Arrays, the Implicit Intersection behavior is different. If you attempt to write a formula with @ in the wrong places, Excel can warn you that the formula is not compatible with older versions of Excel. It offers to change the formula so it is backward compatible, as shown in Figure 3.7. To check any random formula, enter =@(the formula) and see if Excel shows a dialog box. To turn off this behavior, on the Formulas category, unselect Suggest

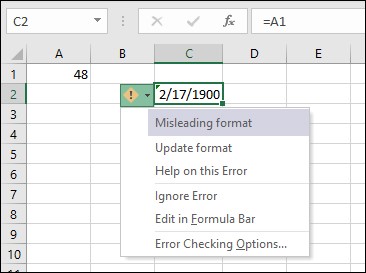
Formula Variations That Are Supported By Older Versions of Excel.



**Figure 3.7** The @ will make sure that a formula designed to return a single value won’t return an array in earlier versions of Excel.

1. There are two new error-checking options in the Formulas category. A warning about a Misleading Number Format appears if your formula points to a numeric cell, but the formula is formatted as a date, as shown in Figure 3.8. By choosing Update Format, the number format from the source cell will be copied to the formula cell. Another new errorchecking option is Cells Containing Data Types That Couldn’t Refresh.

This alerts you if the linked data type cell could not be refreshed.



**Figure 3.8** If a cell formatted as a date is pointing to cells formatted as a number, the Misleading Number Format warning displays.

1. Default PivotTable Layout is found in the new Data category. Change the default layout for all future pivot tables. Several items in the new Data category were moved to the Data category from the Advanced category.
2. Show Legacy Data Import Wizards is a series of seven choices in the new Data category. The Power Query tools debuted in Excel 2016 on the Data tab of the ribbon. These tools became so popular, Microsoft decided to remove the old Get External Data group from the ribbon, but some people had specific reasons why they liked the old icons. You can now add those old icons back by choosing From Access, From Web, From Text, From SQL Server, From OData Data Feed, From XML Data Import, or From Data Connection. If you choose something from this area, it will appear hidden on the ribbon. Look in Data, Get Data, Legacy Wizards.
3. Show Data Loss Warning when Editing Comma Delimited Files (\*.csv) is found in the Save category. Excel used to nag you whenever you opened a file in CSV format. If you did not save the file as XLSX, it would warn you that you are about to lose formulas and formatting. A lot of people were tired of the nagging, and Microsoft turned off the nagging by default. If you need to be nagged, you can turn it back on here.
4. A new Cache Settings in the Save category controls how many days to keep files in the Office document cache and lets you empty the cache. **12.** The Ease Of Access category is new in Excel 2019. You can choose to Provide Feedback With Sound and choose a Modern or Classic sound scheme. The new part is the Modern sound scheme. The annoying Classic Sound Scheme was previously the only choice in the Advanced category. You can turn off Animations. The choice to control whether Screen Tips are shown is repeated here from the General category. You can set the Default Font Size used in the document, and you can choose to turn off the calculation Function Screen Tips.

**13.** Use Pen To Select and Interact By Default is new in the Advanced category. If you prefer using a touchscreen, you can change the default behavior of touch. **14.** Hyperlinks to Excel files stored in the cloud might open in Excel Online. If you prefer them to open in the desktop version of Excel, there is a new setting. The Link Handling subcategory is the third subcategory in the Advanced category. Choose Open Supported Hyperlinks To Office Files In Desktop Apps.

**15.** Excel lets you control how many recent files appear when you choose File > Open. The new Find Show This Number Of Recent Unpinned settings controls how many recent folders will be shown.

**Using AutoRecover options**

For many versions, Excel periodically saves a copy of your work every 10 minutes. If your computer crashes, the recovery pane offers to let you open the last AutoRecovered version of the file. This feature is sure to save you from retyping data that might have otherwise been lost.

Another painful situation occurs when you do not save changes and then close Excel. Yes, Excel asks if you want to save changes for each open document, but this question usually pops up at 5:00 p.m. when you are in a hurry to get out of the office. If you are thinking about what you need to do after work and not paying attention to which files are still open, you might click No to the first document and then click No again and again without noticing that the fifth open document was one that should have been saved.

Another scenario involves leaving an Excel file open overnight only to discover that Windows Update decided to restart the computer at 3 AM.

After being burned a dozen times, you can change the behavior of Windows Update to stop doing this. However, if Windows Update closed Excel without saving your documents, you can lose those AutoRecovered documents.

A setting introduced in Excel 2010 has Excel save the last AutoRecovered version of each open file when you close without saving. This setting is on

the Save category of Excel Options and is called Keep The Last AutoRecovered Version If I Close Without Saving.

**Controlling image sizes**

An Image Size & Quality section appears in the Advanced category. Most people add a photo to dress up the cover page of a document. However, you probably don’t need an 8-megapixel image being saved in the workbook. By default, Excel compresses the image before saving the file. You can control the target output size using the drop-down menu in Excel options. Choices include 96ppi, 150ppi, and 220ppi. The 96ppi setting will look fine on your display. Use 220ppi for images you will print. If you want to keep your images at the original size, you can select the Do Not Compress Images In File setting.

You should also understand the Discard Editing Data check box. Suppose that you insert an image in your workbook and then crop out part of the photograph. If you do not enable Discard Editing Data, someone else can come along and uncrop your photo. This can be an embarrassing situation —just ask the former TechTV co-host who discovered certain bits of photographs were still hanging around after she cropped them out.

**Working with protected view for files originating from the Internet**

Starting in Excel 2010, files from the Internet or Outlook initially open in protected mode. This mode gives you a chance to look at the workbook and formulas without having anything malicious happen. Unfortunately, you cannot view the macro code while the workbook is in protected view.

If you only want to view or print the workbook, protected mode works great. One statistic says that 40% of the time, people simply open a document and never make changes to it.

After you click Enable Editing, Excel will skip protected mode the next time you open the file.

**Working with Trusted Document settings**

By default, Excel warns you about all sorts of things. If you open a workbook with macros, links, external data connections, or even the new WEBSERVICE function, a message bar appears above the worksheet to let you know that Excel disabled those “threats.”

If you declare a folder on your hard drive to be a trusted folder, you can open those documents without Excel warning you about the items. Visit File, Options, Trust Center, Trust Center Settings, Trusted Locations to set up a trusted folder.

Starting in Excel 2010, if you open a file from your hard drive and enable the content, Excel automatically enables that content the next time. The inherent problem here is that if you open a file and discover the macros are bad, you will not want those macros to open the next time automatically. There is no way to untrust a single document other than deleting, renaming, or moving it. Instead, you have to go to the Trusted Documents category of the Trust Center where you can choose to clear the entire list of trusted documents.

**Options to consider**

Although hundreds of Excel options exist, this section provides a quick review of options that might be helpful to you:

1. Save Files In This Format in the Save category. If you regularly create macros, choose the Excel Macro-Enabled Workbook as the default format type.
2. Update your Default Local File Location on the Save tab. Excel always wants to save new documents in your My Documents folder. However, if you always work in the C:\AccountingFiles\ folder, update the default folder to match your preferred location.
3. Show This Number Of Recent Workbooks has been enhanced dramatically since Excel 2003. Whereas legacy versions of Excel showed up to nine recent workbooks at the bottom of the File menu, Excel allows you to see up to 50 recent workbooks in the Open category of the File menu. You can change this setting by visiting the Display section of the Advanced category.
4. Edit Custom Lists has been moved to the General section of the Advanced category. Custom lists add functionality to the fill handle, allow custom sort orders, and control how fields are displayed in the label area of a pivot table. Type a list in the correct sequence in a worksheet. Edit Custom Lists and click Import. Excel can now automatically extend items from that list, the same as it can extend January into February, March, and so on.
5. Make Excel look less like Excel by hiding interface elements in the three Display sections of the Advanced category. You can turn off the formula bar, scrollbars, sheet tabs, row and column headers, and gridlines. You can customize the ribbon to remove all main tabs except the File menu. The point is that if you design a model to be used by someone who never uses Excel, the person can open the model, plug in a few numbers, and get the result without having to see the entire Excel interface. **6.** Show A Zero In Cells That Have Zero Value is in the Display Options For This Worksheet section of the Advanced category. Occasionally people want zeros to be displayed as blanks. Although a custom number format of 0;-0;; will do this, you can change the setting globally by clearing this option.
6. Group Dates in the AutoFilter Menu is in the Display Options For This Workbook section of the Advanced category. Starting with Excel 2007, date columns show a hierarchical view of years, months, and days in the AutoFilter drop-down menu. If you like the old behavior of showing each date, turn off this setting.
7. Add a folder on your local hard drive as a trusted location. Files stored in a trusted location automatically have macros enabled and external links updated. If you can trust that you will not write malicious code, then define a folder on your hard drive as a trusted location. From Excel Options, select the Trust Center category and then Trust Center Settings. In the Trust Center, select Trusted Locations, Add New Location.

**Five Excel oddities**

You might rarely need any of the features presented in this section. However, in the right circumstance, they can be time-savers. **1.** Adjust the gridline color in the Display section of the Advanced category. If you are tired of gray gridlines, you can get a new outlook with bright red gridlines. I’ve met people who have changed the gridline color and can attest that nothing annoys an old accountant more than seeing bright red gridlines.

**2.** Allow negative time by switching to the 1904 date system in the General section of the Advanced category. Excel never allows a time to return a negative time. However, if you are tracking comp time and you allow people to borrow against future comp time, it might be nice to allow negative time. In this case, switch to the 1904 date system to have up to four years of negative time. Use caution when changing this setting. All existing dates in the workbook will shift by approximately four years. **3.** Put an end to the green triangles on your account numbers stored as text. Most of the green triangle indicators are useful. However, if you have a column of text account numbers in which most values are numbers, seeing thousands of green triangles can be annoying. Also, the green triangles can hide other, more serious problems. Clear the Numbers Formatted As Text or Preceded By An Apostrophe in the Error Checking Rules check box in the Formulas category.

1. Automatically Insert A Decimal Point replicates the antique adding machines that were office fixtures in the 1970s. When working with a manual adding machine, it was frustrating to type decimal points. You could type 123456, and the adding machine would interpret the entry as 1,234.56. If you find that you are doing massive data entry of numbers in dollars and cents, you can have Excel replicate the old adding machine functionality. After enabling this setting, you can indicate how many digits of the number should be interpreted as being after the decimal point. The only hassle is that you need to enter $5 as 500. The old adding machines actually had a 00 key, but those are long since gone.
2. Change Dwight to Diapers using AutoCorrect Options. If you were a fan of the NBC sitcom *The Office*, you might remember the 2007 episode in which Jim allegedly put a macro on Dwight’s computer that automatically changed the typed word Dwight to Diapers. However, this doesn’t require a macro. From Excel Options, choose the Proofing

Category and then click the AutoCorrect Options button. On the AutoCorrect tab, you can type new correction pairs. In this example, you would type Dwight into the Replace box and Diapers into the With box. The next time someone types Dwight and then a space, the word will automatically change to Diapers. You can also remove correction pairs by selecting the pairs and then pressing Delete. For example, if you hate that Microsoft converts (c) to ©, you can delete that entry from the list.

**Chapter 4**

**Keyboard shortcuts**

Using keyboard accelerators

Using the shortcut keys

Using my favorite shortcut keys

Using Excel 2003 keyboard accelerators

If you do a lot of typing, being able to access commands from the keyboard is faster than moving your hand to the mouse. Excel still uses many of the old Alt keyboard shortcuts from Excel 2003. All the old Ctrl shortcut keys are still functional. For instance, Ctrl+C still copies a selection, Ctrl+X cuts a selection, and Ctrl+V pastes a selection.

This chapter points out which of the old Excel 2003 keyboard shortcuts still work, shows you some new shortcuts, and introduces you to the keyboard accelerators.

Learning the right ten shortcuts from this chapter can make you twice as fast in Excel.

**Using keyboard accelerators**

The goal of the Excel keyboard accelerators is to enable you to access every command by using only the keyboard. In legacy versions of Excel, many popular commands had keyboard accelerators, but other commands did not. Today, Excel tries to ensure that every command can be invoked from the keyboard.

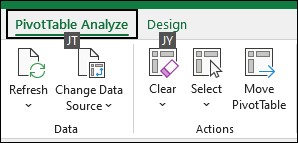
To access the new accelerators, press and release the Alt key or a forward slash (/). Notice that Excel places a KeyTip above each command. Also, numeric KeyTips appear over each icon in the Quick Access Toolbar (QAT; see Figure 4.1). Press the F10 key to display or hide the KeyTips.

A screenshot of a computer

Description automatically generated

**Figure 4.1** Type the letters in the KeyTips along the top to open various tabs.

It is possible to memorize the KeyTips for the ribbon tabs. Pressing Alt+F accesses the File menu in all Office applications. Alt+H accesses the Home tab in all Office applications. Alt+Q puts the cursor inside the Tell Me What You Want To Do box. The accelerator definitions for each tab remain constant even if new ribbon tabs are displayed. When you activate a pivot table, the original KeyTip letters remain, and two new KeyTips appear for the contextual tabs: JT for PivotTable Analyze and JY for Design (see Figure 4.2).



**Figure 4.2** New ribbon tabs have new letters, so the old letters remain constant.

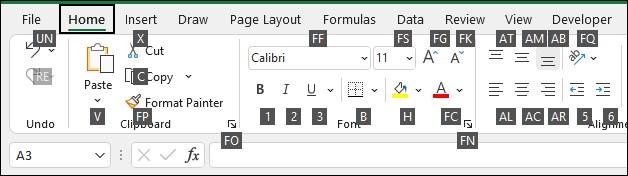
Unfortunately, the KeyTips for the Quick Access Toolbar change every time you add new buttons or rearrange buttons on the Quick Access Toolbar. If you want to memorize those KeyTips, you need to make sure you do not add a new Quick Access Toolbar icon at the beginning of the list.

**Selecting icons on the ribbon**

After you press the Alt key, you can press one of the KeyTip letters to bring up the appropriate tab. You now see that every icon on the ribbon has a KeyTip.

When you choose a Ribbon tab, the KeyTips on the Quick Access Toolbar disappear, so Microsoft is free to use the letters A through Z and the numbers 0 through 9.

On very busy ribbon tabs, some commands require two keystrokes: for example, A+C for Align Center in the Alignments group of the Home tab, as shown in Figure 4.3. Note that after you press Alt to display the accelerators in the ToolTips, you do not have to continue holding down the Alt key.



**Figure 4.3** After pressing the letter to switch to the ribbon, type the letter or letters to invoke a particular command.

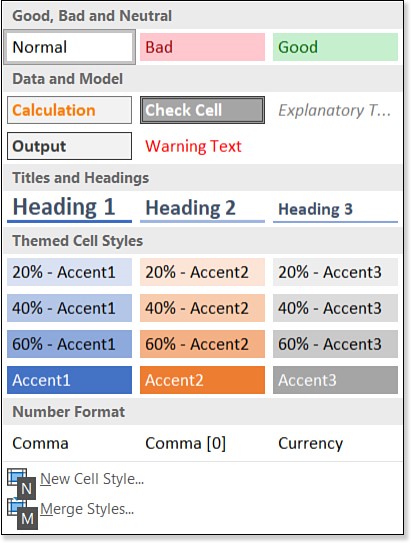
Some shortcut keys seem to make sense: AT for Align Top, AM for Align Middle, AB for Align Bottom, and AL for Align Left. Other shortcut keys seem to be assigned at random. Some take a little pondering: FN for the dialog box launcher in Figure 4.3 makes sense because it opens the legacy Format dialog box and moves to the Number tab. Others have a historical precedent. In Excel 2003, F was used for File, so O was used for Format.

Similarly, in the Home tab, O now opens the Format drop-down menu. However, because Microsoft no longer underlines the accelerator key in the menu name, O will never make sense to someone new to Excel. There might be some arcane, logical reason why 5 and 6 are used for increase and decrease indent, but it is unknown by most people.

**Selecting options from a gallery**

Figure 4.4 shows the results of pressing Alt+H+J, which is the equivalent of selecting Home, Cell Styles. This opens the gallery of cell styles. As you can see in Figure 4.4, you can invoke the New Cell Style and Merge Styles commands at the bottom of the gallery by pressing N and M, respectively.

However, there are no letters on the table style choices in the gallery.



**Figure 4.4** After opening a gallery, you use the arrow keys to navigate through the gallery and press Enter to select a style.

**Navigating within drop-down menu lists**

If you press Alt+H+F+S, which is the equivalent of selecting Home, Font Size, the font size in the drop-down menu is selected. You can either type a font size and press Enter or press the down-arrow key to open the dropdown menu. You can then use the down arrow, up arrow, Page Down, Page Up, Home, and End keys to navigate to a choice in the list. When you have the desired item highlighted, press Enter to select that item.

**Backing up one level through a menu**

Suppose you press Alt+H to access the Home tab and then realize you are in the wrong tab. You can press the Esc key to move back to display the ToolTips for the main menu choices. If you want to clear the ToolTips completely, press Alt again.

**Dealing with keyboard accelerator confusion**

If you want to select something on the Home tab (previously shown in Figure 4.2), you might be frustrated because you can see the menu choices but no ToolTips appear for most commands. For icons in the top of the ribbon, it appears that the main KeyTips apply to the menu items. For example, you might think that the H KeyTip applies to Cut. Even though you are already on the Home tab, you need to press the H key to force Excel to show the ToolTips for the individual menu items on the Home tab.

**Troubleshooting**

**There are some parts of the Excel window that seem impossible to access using keyboard shortcuts. For example, how can you jump to a task pane without using the mouse?**

It is extremely subtle, but there is something called the F6 Loop. When you press F6, the focus will move from the worksheet to the sheet tabs. Press F6 again to jump to any task pane, then to the zoom controls, and then back to the worksheet.

Once you use F6 to activate an area, you can use Tab or arrow keys to activate different controls within that area.

**Inside OUT**

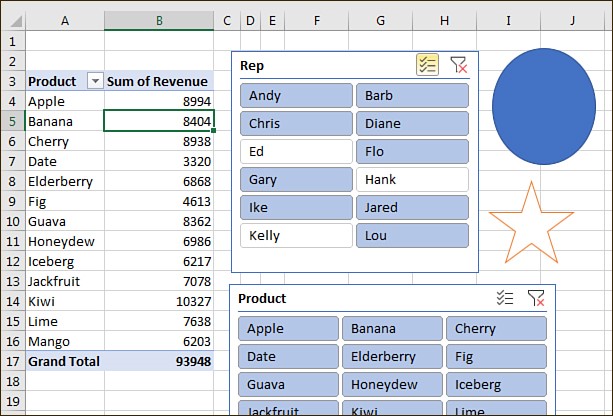
***It seems particularly tricky to use keyboard shortcuts to access a***

***slicer.***

A slicer is a visual filter that is used with pivot tables and tables

formatted with Ctrl+T. They are shown in the following figure—the

names below the Rep caption and the fruit below the Product caption.



The solution is not perfect, but you can select all objects using Alt, H,

FD, O. Once you have selected all objects, you can cycle between the

slicers, although the indicators are very subtle.

Refer to the preceding figure while reading these keyboard steps:

**1**

**.**

Starting from cell B5, press Alt, H, FD, O to begin Select Objects

mode.

**2**

**.**

Press Tab once to activate the Rep slicer. At this point, you can use

the arrow keys to reposition the slicer.

**3.** Press Tab a second time to move to the Multi-Select icon inside the Rep slicer. Press Spacebar to toggle multi-select on or off. **4.** Press Tab again to move to the Clear Filter icon. Press Spacebar to clear the filter.

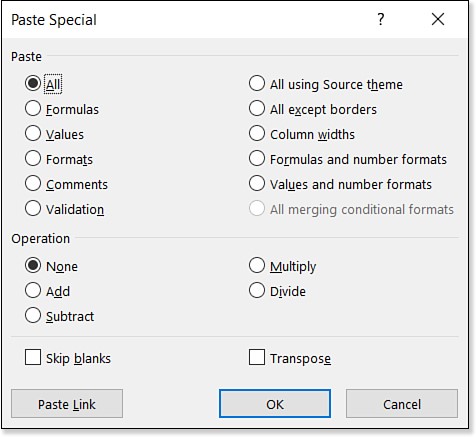
1. Press Tab again to move into the slicer items. This step is really subtle because exactly one slicer will have a dotted line. A black dotted line on a field of dark blue is really hard to see. Plus, while you would think that the selected slicer tile would always be Andy, it is not. Excel remembers your last selected slicer and starts there. Perhaps using arrows to move to the next slicer tile will allow your eye to see what is changing. Spacebar will toggle the slicer tile on or off if Multi-Select is enabled. If Multi-Select is off, then pressing Spacebar on one slicer tile will turn all the others off and turn that tile on. By the way, you can use Shift+Tab to move back to the Clear Filter and then Shift+Tab again to move back to MultiSelect.
2. Pressing Tab from the Slicer Items of the Rep slicer will move to the next object in the worksheet, the Oval.
3. Press Tab again to move to the Star. **8.** Press Tab again to move to the Product slicer. At this point, you are essentially at Step 2 for the next slicer.

**9.** When you are done accessing the slicers, use the Escape key to exit Select Objects mode and return to cell B5.

**Selecting from legacy dialog boxes**

Some commands lead to legacy dialog boxes like the ones in previous editions of Excel. These dialog boxes do not display the Excel KeyTips. However, most of the dialog boxes do use the convention of having one letter of each command underlined, which is called a *hotkey* in Microsoft parlance. In this case, you can press the underlined letter to select the command.

For example, press Alt+H+V+S instead of selecting Home, Paste, Paste Special. You are then presented with the Paste Special dialog box, as shown in Figure 4.5. To select Values and Transpose in this dialog box, press V for Values and E for Transpose, because those are the letters underlined in the dialog box. You can then press Enter instead of clicking the default OK button.



**Figure 4.5** In a legacy dialog box, type the underlined letters to select options.

**Using the shortcut keys**

The following five tables provide what I believe to be a comprehensive list of shortcut keys. I have collected these over the many versions of Excel. For some reason, Excel Help no longer lists all the shortcut keys. I count 75 shortcut keys in the following tables that are no longer documented in Excel Help. I realize this is a mind-numbingly long list, but I want to include it here because the Excel team no longer provides a complete list.

If you decide to learn and start using one new shortcut key every week, you will quickly become very fast at using Excel. After Table 4.5, I identify my favorite shortcut keys from this list.

Table 4.1 lists the common Windows Ctrl shortcut keys.