



Microsoft Excel: Linking & Sharing Data

Learning Guide



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Tips, Timesavers & Takeaways

Bonus Resources

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[TheSoftwarePro.com/Excel](https://www.TheSoftwarePro.com/Excel)

Linking Excel Data

Some of the most useful and time-saving features in Excel are the options to link multiple worksheets together and linking to data in other workbooks and sources.

Linking Within a Workbook

Do you have a workbook with related data such as separate worksheets for individual months or different locations? How do you create a summary of these detailed worksheets? The most common type of link in Excel is also the easiest, that is, a reference to a value in a different worksheet in the same single workbook.

Creating a Simple Link

To create a link from one worksheet to another:

1. Move to the cell where you want to see the result or link.
2. Type =.
3. Move to the location with the value or text entry and click on the cell. You are using the *pointing method*.
4. If you want to build a formula with this value, such as adding it to another cell, type a math operator such as + or *.
5. Repeat steps 3 and 4 above until you have completed your formula.
6. Press **Enter** to complete the formula and link.

To simply reference a value in another location, such as the **Sales Summary** below, do steps 1, 2, 3, and 6.

	A	B	C	E	F	G	H	I
1	Sales Summary			Total Hrs	Drinks	Beans	Accessories	Total Sales
2	Texas	=Texas!I5		1250	\$ 10,000	\$ 3,000	\$ 7,000	\$ 20,000
3	Colorado			1350	\$ 8,000	\$ 2,500	\$ 4,500	\$ 15,000
4	New Mexico			1150	\$ 9,500	\$ 4,500	\$ 5,000	\$ 19,000
5	Oklahoma							\$ 54,000
6								
7								

The syntax for referring to cells in another worksheet is:

=SheetName!CellAddress

Here, **SheetName** refers to the name of the worksheet that provides the data, **CellAddress** is the name of the cell or range, and **!** is the divider between the worksheet reference and the cell reference. In the example above, this is **=Texas!I5**.



You can also use this same approach (previous page) to create a reference in the same worksheet to a different location. For example, for easy reference at the top of a worksheet, create a link to a total at the end of the worksheet.

3-D Formulas

A 3-D formula refers to the same cell or range in multiple worksheets. For example, the formula `=SUM(North:West!C15)` sums the data in the C15 cells in the range of North:West worksheets.



A 3-D formula requires that each worksheet contains the same type of data in the same location for each worksheet in the 3-D reference.

Inserting a 3-D Reference

To insert a 3-D reference into a formula:

1. Enter the formula until the point where you need a value from another worksheet to complete the formula.
2. Click on the first worksheet you want to refer to.
3. While pressing **Shift**, activate the last worksheet you want to refer to in the formula.
4. Select the cell or range containing the values you want the formula to refer to.
5. Complete the formula and **Enter**.

	Qtr1
=SUM(North:West!B5)	

Linking Across Workbooks

Just as you can link multiple worksheets within a workbook, you can also link multiple workbooks. You do this by creating a formula in one workbook that refers to a cell, range, or name in another workbook. References to other workbooks are called *external references*. A workbook with the data is called a *source workbook*; the workbook with the links is called the *destination workbook*. You can maintain workbook links even if the workbook that is referred to is renamed.

Why not just put all of the data into one workbook? In some cases, you can. But the real value of linking becomes apparent when the source workbook is being continually updated by another person or group. Creating a link in **Workbook ABC** to **Workbook XYZ** means that in **Workbook ABC**, you will always have access to the most recent information in **Workbook XYZ** because **Workbook ABC** is updated whenever **Workbook XYZ** changes.

External Links

Similar to creating links within one workbook, creating a link across multiple workbooks is much easier than you might think. Just as with any other formulas, start your formula in the cell where you want to see the end result.

The syntax for referring to a cell in another worksheet in another workbook is:

=[WorkbookName.xlsx]SheetName!CellAddress

Here, **WorkbookName** refers to the name of the workbook that provides the data, and **SheetName** refers to the name of the worksheet in the source workbook. At the end of the formula, reference is the name of the cell or range, and **!** is the divider between the worksheet reference and the cell reference.

Here's an example of a formula that uses cell **G6** in the **Sheet1** worksheet of a workbook named **Colorado.xlsx**:

=[Colorado.xlsx]Sheet1!G6

If the workbook name or sheet name in the reference includes one or more spaces, you must enclose the text in single quotation marks. For example, here's a formula that uses cell **H10** in the **Sheet1** worksheet of a workbook named **New Mexico.xlsx**:

='[New Mexico.xlsx]Sheet1'!H10

When you use the *pointing method* as described on the next page, Excel will automatically add the single quotation marks as needed.

Creating a Link By Pointing

Entering external reference formulas manually is usually not the best approach because you can easily make an error. Instead, have Excel build the formula for you.

To create an external link:

1. From the destination worksheet, select the cell where you want to enter the formula. In the example below, the destination worksheet is **Sales Summary.xlsx**.
2. Select the cell where you want to enter the formula.
3. Type the equals sign (=).
4. Activate the source workbook and click on the cell in the source worksheet which contains the value you want to link to and reference in the formula. In the example below, the source worksheet is **Colorado.xlsx**. The worksheet name is **Sheet1**.
5. Add other references from the source workbook and/or destination workbook to complete the formula.
6. Press **Enter** to complete the link.

Sales Summary	
Colorado	=[Colorado.xlsx]Sheet1!\$I\$7
New Mexico	
Texas	

As long as the source workbook remains open, the external reference doesn't include the path to the workbook. If you close the source workbook, the external reference formulas change to include the full path.

If you plan to copy the formula to create additional link formulas, you need to change the absolute reference to a relative reference by removing the dollar signs for the cell address.

Pasting Links

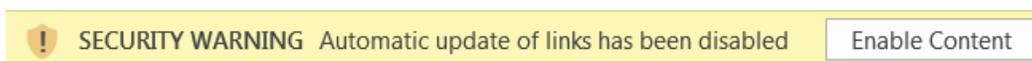
Pasting links is another way to create external reference formulas. This method works when you want to create formulas that simply reference other cells.

To create an external link by pasting:

1. Open the source workbook.
2. Select the cell or range you want to link and then copy it.
3. Choose the dependent workbook and select the cell where you want the link to appear.
4. Pick **Home > Clipboard > Paste > Paste Link**.

Security Warnings

By default, Microsoft Excel is configured to prompt you when a workbook that has external links requires those links to be updated. This is a security consideration that is intended to protect your workbooks from viruses and other malicious code. When you open a workbook containing external links that need updating, Excel displays a security warning, below the Ribbon.



To enable the updating of links between workbooks:

1. Click **Enable Content** in the security warning.
2. Select Enable this content. Click OK.

These are one-time actions which you will need to repeat every time the workbook is open.



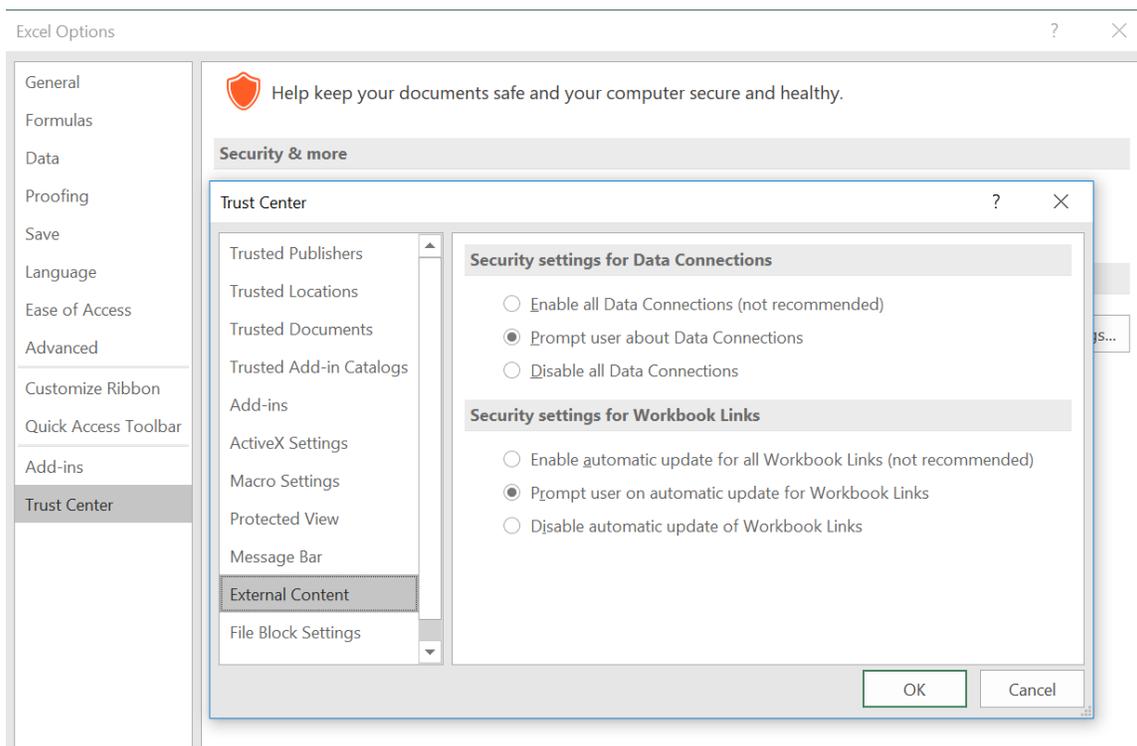
This default in Excel is to prevent automatic updating which could launch programs or install malicious viruses in linked files. In most work environments, virus scanning programs and other security measures are designed to protect against dangerous files.

You can choose to enable links each time you open linked files or change your Excel options for handling linked content. When you are working with files you trust, your daily work will be much easier if links are automatically updated.

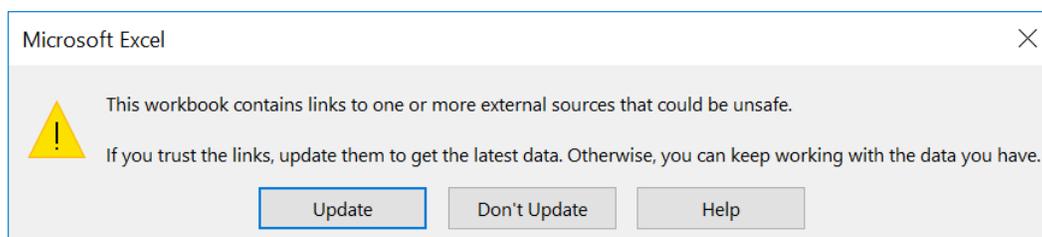
Your agency security policies may prevent you from changing these options in Excel.

To enable the updating of links for all workbooks without prompts:

1. Choose **File > Options**.
2. Select **Trust Center** and then **Trust Center Settings**.
3. Choose **External Content** and then check the option, **Enable automatic update for all Workbook Links**. Press **OK** until all dialog boxes are closed.

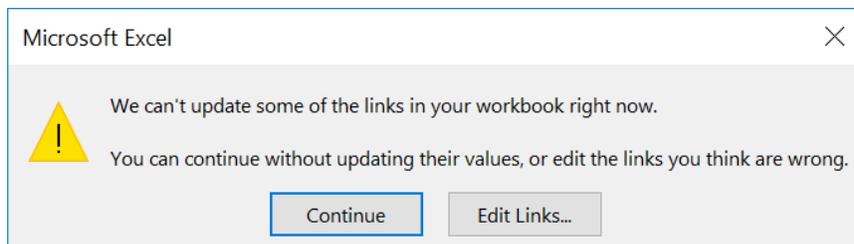


When you open a workbook with external links, Excel will also prompt you to update the links. Choose **Update** if you trust the source and you want to see the most recent data. Choose **Don't Update** if you want to see the previous information or you want to verify the external links.



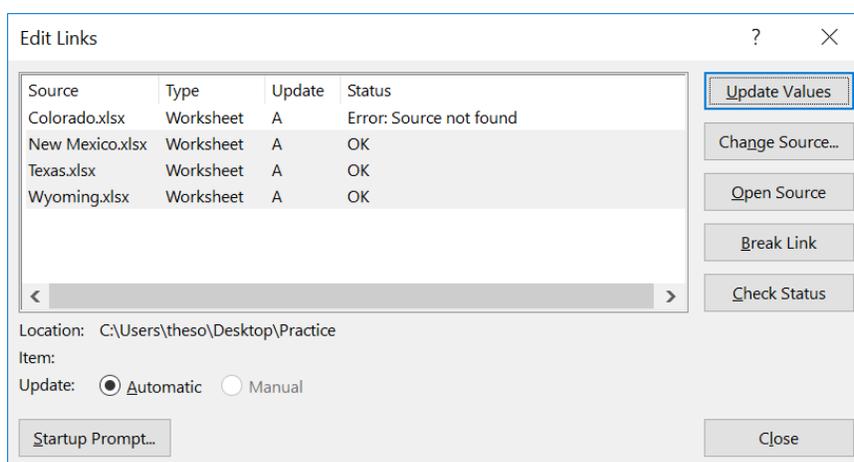
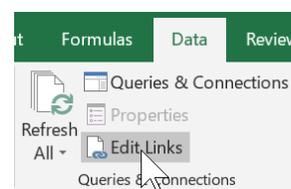
Maintaining Workbook Links

You can change the name of a workbook even if it is linked to another workbook. If both the source and destination workbooks are open, the link gets updated automatically. If you don't have the destination workbook open, you can still redirect the links. You might also need to update links if a source workbook is moved or renamed.



To redirect or update links:

1. Activate the **Data** tab.
2. From the **Connections** group, click **Edit Links** to open the **Edit Links** dialog box.
3. Pick the source workbook whose links you want to update from the Source file list.
4. Click the **Change Source** button to open the **Change Source** dialog box.
5. Select the name of the new destination workbook which will be linked back to source workbook; this workbook will replace the previous workbook. Click OK to return to the **Edit Links** dialog box.
6. Click **Close** to close the dialog box.



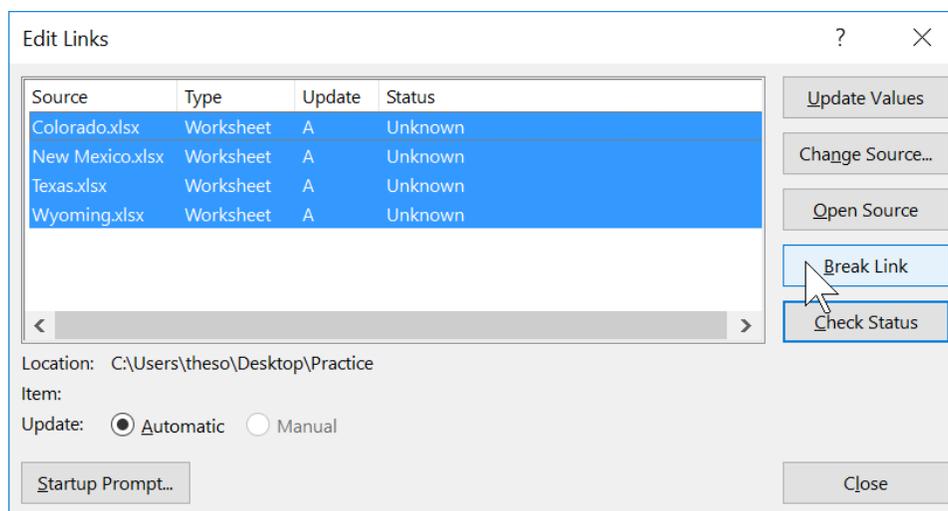
Click on **Startup Prompt** to specify how Excel handles links when the workbook is opened.

Breaking Links

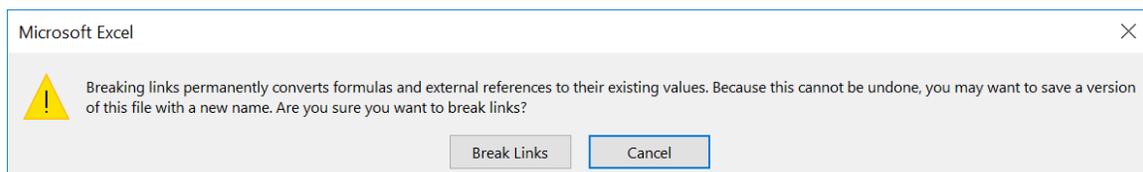
There are a number of reasons why you might want to remove or break the links in a workbook including: the project is finished, you want to preserve the data at a specific point in time, or you need to distribute the workbook via e-mail to people who are outside of your organization and do not have access to the source files. When you break links, the data values currently displayed in the destination workbook are retained but no further updating occurs from the original source workbook(s).

To redirect or update links:

1. If you want to keep the original workbook with its links intact, save the workbook to a new name which you can then distribute.
2. Activate the **Data** tab.
3. From the **Connections** group, click **Edit Links** to open the **Edit Links** dialog box.
4. Select the first source workbook whose links you want to break or remove.
5. Hold **[Shift]** and click on the last workbook in the list whose links you want to break. Or hold down **[Ctrl]** and click on each workbook individually.



6. Click on **Break Link**.



7. Confirm you want to **Break Links** and click **Close** to close the dialog box.

Creating Hyperlinks

Every time you click on a link in a web page or from an e-mail message, you are using a *hyperlink*. Like most Microsoft Office applications, Excel lets you create links. These links can take you to a place in the same worksheet or workbook, to a document created by another Office program, or even to a web page. You can even create e-mail address links so others can click a link to e-mail you or others listed in a worksheet.

Liking to another file is different from paste linking. Instead of pulling Excel data into another program, a link lets you move from a worksheet to a related document, e-mail address, or web page.

Automatic Hyperlinks

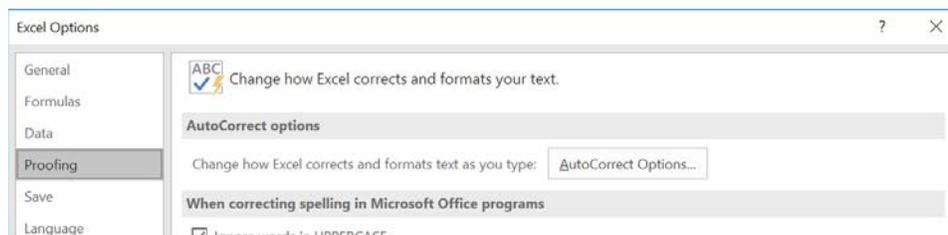
Have you ever typed an e-mail address or a website address into an Excel list? Did it change to a blue link, often with a different font or size? If so, you created an automatic link using one of Excel's **AutoFormat as You Type** features. If you are creating a long list of e-mail addresses, this is a handy feature because the links can easily be used to launch an Outlook (or other) message. If you don't need the link and want the entries to look the same as everything else in a list, you may find this "feature" to be annoying.

REP LAST	REP FIRST	E-MAIL ADDRESS
Arman	Simon	simon.arman@greenwoodcafe.com
Armel	Bonny	bonny.armel@greenwoodcafe.com
Bartholomew	Barbara	

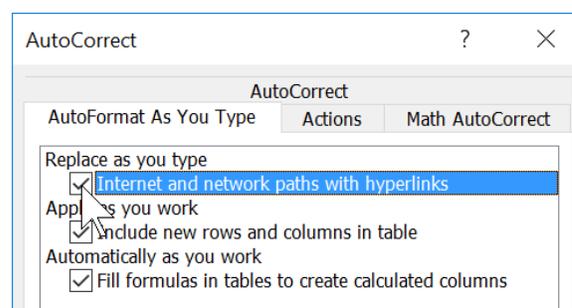
Examples of automatic hyperlinks enabled or disabled

To enable or disable automatic hyperlinks:

1. Click **File > Options**.
2. Pick the **Proofing** category at the left and then choose the **AutoCorrect Options** button.



3. Next, click the **AutoFormat As You Type** tab and check or un-check the option for **Internet and network paths with hyperlinks**. **OK** twice.

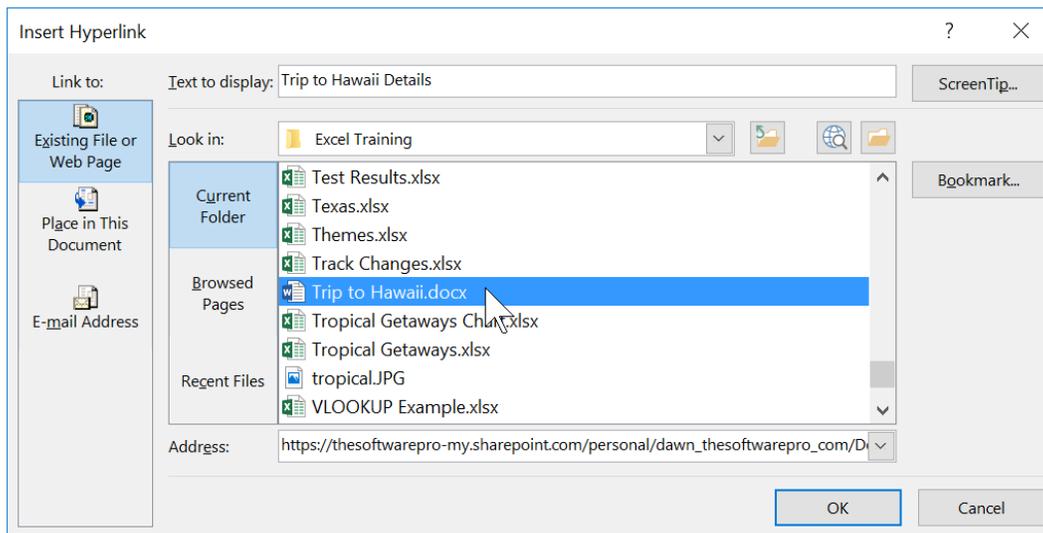
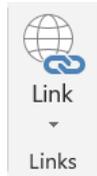


Inserting a Hyperlink

To create a link to another source, you can also insert a hyperlink into an Excel worksheet. In addition to text, you can create links from workbook graphics such as shapes, pictures, clip art, and WordArt.

To insert a hyperlink:

1. Select the cell or graphic object where you want the link to appear. A link can be stored in a cell, a text box, or even a shape.
2. Choose the **Insert** tab and pick **Link** to open the **Insert Hyperlink** dialog box or press **(Ctrl) + K**.
3. Click a **Link To** location. This example uses **Existing File or Web Page**.

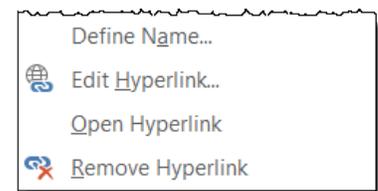


4. At **Text to display**, type the text you want to display in the worksheet field.
5. Pick the **Look in** location and select the location with the file you want the link to go to. Pick the file you want to link.
6. Or enter or copy a web page address in the **Address** area. Click **OK** to finish.

The cell or graphic content appears as a link. You can pass your mouse over the link without clicking to see the name of the linked-to file.

To test a hyperlink:

1. Left-click a link or right-click a link and pick **Open Hyperlink** from the shortcut menu. The linked-to document or web page appears.
2. Close the linked document or page to return to your original worksheet.



To edit a hyperlink:

1. Right-click the link, and then pick **Edit Hyperlink** from the shortcut menu.

To remove a hyperlink:

1. Right-click the link, and then pick **Remove Hyperlink** from the shortcut menu.

Protecting Your Work

By protecting a worksheet or workbook, you can prevent unauthorized users from modifying it. You can protect an entire worksheet or protect only a part of it, permitting users to alter the other parts. Although optional, applying password protection prevents other users from turning off the protection. Another option is to protect a workbook from changes to the structure or windows layout.



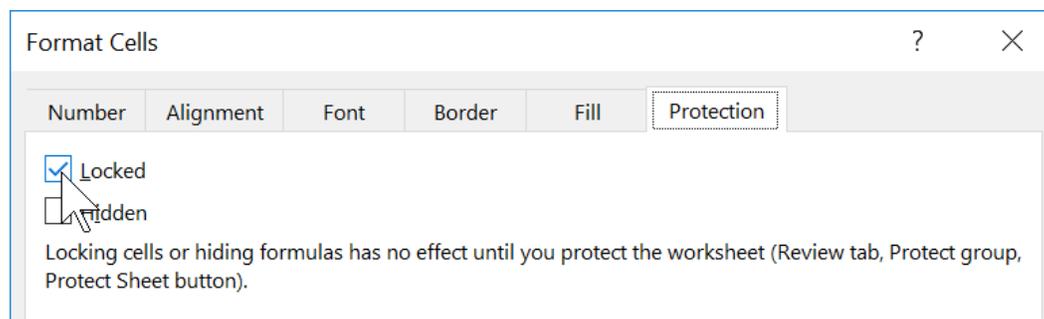
Protecting a Worksheet

When you protect an entire worksheet, all cells in that worksheet are locked by default. This means that users cannot change any of the cells when protection is enabled. To permit users to change some specific cells, you must unlock the cells manually before protecting the rest of the worksheet. Users can then change data in only the unlocked cells. The rest of the worksheet remains protected. For example, a worksheet might have unlocked cells to allow for data entry of values while locked cells contain formulas.

Locked Cells Protection

To protect only a part of a worksheet:

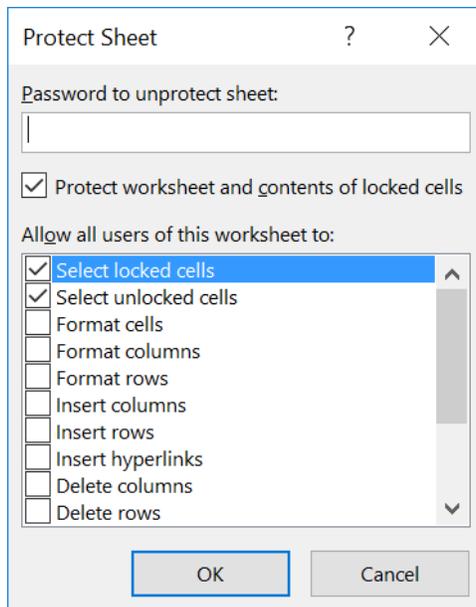
1. Select the range of cells you want users to be able to modify.
2. Right-click and choose **Format Cells** to open the **Format Cells** dialog box.
3. Activate the **Protection** tab.



4. Clear the **Locked** check box and click **OK**.
5. Protect the worksheet with the steps on the following page.

To apply protection to a worksheet:

1. Pick the **Review** tab.
2. Click **Protect Sheet**.
3. From the **Protect Sheet** dialog box, check the options you want.



4. Type a password and click **OK**. When the **Confirm Password** dialog box appears, type the same password again.
5. Click **OK** to close all dialog boxes.

Password Warning: If you have set a password, using that password is the only way to remove protection from the sheet. Passwords can be up to 255 characters, can include special characters, and are case sensitive-you will be prompted to type the password twice to avoid errors.

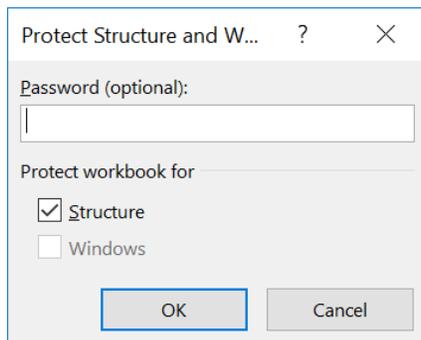
DON'T FORGET YOUR PASSWORD! If you forget the password, you will not be able to remove protection from the workbook.

Protecting a Workbook

Workbook protection prevents changes to a workbook structure and windows.

To protect a workbook:

1. Select the **Review** tab and click **Protect Workbook** in the **Changes** group.
2. From the **Protect Workbook** dialog box, you can protect a workbook's structure and window.



By selecting **Structure**, you protect a workbook from being moved, deleted, hidden, unhidden, or renamed, and new worksheets can't be inserted.

By selecting **Windows**, you ensure a workbook's windows are the same size and position each time the workbook is opened. To prevent other users from removing workbook protection, you can set a password.

3. After specifying settings in the **Protect Workbook** dialog box, click **OK**.

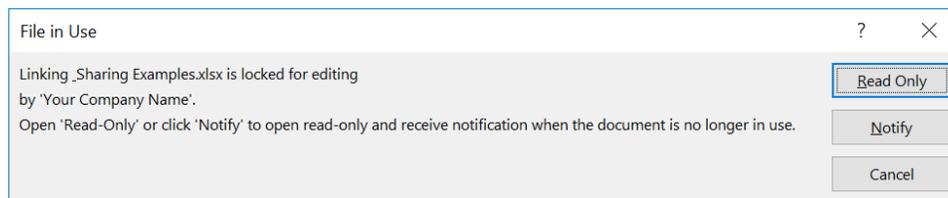
Adding Comments

Adding comments in Excel are helpful when you are reviewing a workbook, wish to add notations, or you send a file to someone else to review.

Changing Your User Name

Many Excel actions including creating a new workbook and comments also reference who performed the action. This identifier comes from the user name in Excel.

Have you ever seen this type of message when you have tried to open a file? Who the heck is **Your Company Name** and who do you call to see if they are done working with the file you need?



A typical installation of Microsoft Office in a large organization includes standard settings with a generic user name. To simplify sharing files and working with comments, revisions, and other features in Excel, personalize your computer user name and encourage everyone you work with to do the same.

To change your user name in Excel:

1. Click **File > Options**.
2. Pick the **General** category at the left and enter your name in the **Personalize your copy of Microsoft Office** area.



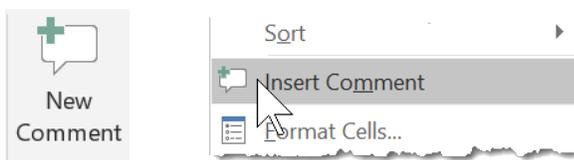
3. **OK** to apply the change. This new user name will also be changed in your other Microsoft Office programs.

Adding Comments

A *comment* is a note or annotation you can add to cells or workbooks to provide additional information. Adding comments to data makes your worksheet easier for other users to interpret and gives you a way to add review notes to the workbook.

To add a comment:

1. Select a cell where you want to add a comment.
2. Choose any of these actions to open the comment box:
 - Pick **New Comment** from the **Review** tab.
 - Press **Shift + F2**.
 - Right-click on the cell and choose **Insert Comment** from the shortcut menu.



3. Your user name appears in the comment box. The red comment indicator appears in the upper-right corner of the cell.
4. Enter the comment; you can delete the user name if you wish. As with other graphic objects, the comment box can be formatted and re-sized as you wish.
5. Click outside the comment box to close it. The comment box disappears, but the cell displays the red comment indicator.

1,980.00	\$	5,250.00	\$	22,505.00
945.00	\$			
,020.00	\$			
1,380.00	\$			
1,660.00	\$			
1,460.00	\$	6,050.00	\$	45,115.00

Training:
Dave was on temporary assignment in Atlanta.

These comments do not alter the data in the cell. Comments in cells are denoted by small, red triangles, called *comment indicators*, in the upper-right corner of the cells.

Viewing & Editing Comments

To view a comment:

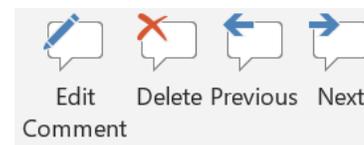
1. Move your mouse to any cell with the red comment indicator in the upper-right corner; you don't have to click on the cell. The comment will pop-up to display the contents.

To show all comments simultaneously, activate the **Review** tab. Then, in the **Comments** group, click **Show All Comments**. Click the button again to hide all comments.



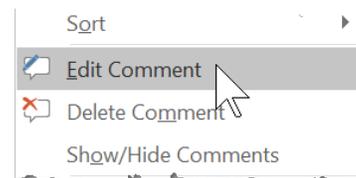
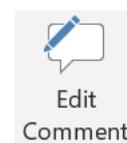
To navigate to a comment:

1. Choose **Next** or **Previous** from the **Review** tab.



To edit a comment:

1. Select the cell with a comment.
2. Choose any of these actions to edit a comment:
 - Pick **Edit Comment** from the **Review** tab.
 - Press **Shift + F2**.
 - Right-click on the comment and choose **Edit Comment** from the shortcut menu.



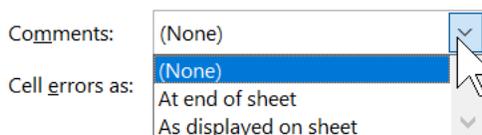
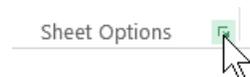
To delete a comment:

1. Select the cell with the comment you want to delete.
2. Pick any of these actions to delete the selected comment:
 - Pick **Delete** from the **Review** tab.
 - Right-click on the comment and choose **Delete Comment** from the shortcut menu.

Printing Comments

To print comments:

1. Click **Page Layout** tab and then click the dialog launcher button in the **Sheet Options** group. This opens the **Page Setup Sheet** tab.
2. Pick the drop-down for **Comments** and select how comments will be printed. For example, if you choose to **Show All Comments** (above) you might pick **As displayed on sheet**.
3. OK to apply.



Put these tips and techniques to practice and become more productive with Excel!



Tips, Timesavers & Takeaways

Bonus Resources

As an extra bonus, additional Microsoft Excel resources, a keyboard shortcuts handout, and other helpful tips are waiting for you at:

[TheSoftwarePro.com/Excel](https://www.TheSoftwarePro.com/Excel)

Meet Dawn

Dawn Bjork, MCT – The Software Pro®

Software Productivity is Only a Click Away™

Dawn Bjork, MCT, is The Software Pro® with 25+ years' experience as a *Software Navigator*.



A professional speaker, trainer, consultant, author, and business owner, Dawn simplifies complex processes with an informative and entertaining approach and delivers content that is immediately useful. Dawn has helped more than 100,000 individuals from Fortune 500 companies, government, education, and other organizations to learn smart, easy, and productive ways to use software and technology more effectively.

Microsoft has awarded Dawn with the certifications of Microsoft Certified Trainer (MCT), Microsoft Office Specialist Master (MOSM), and individual certifications in Microsoft Windows, Excel, Word, PowerPoint, Outlook, Access, OneNote, and Visio. In addition, The Software Pro is certified as a

Women's Business Enterprise (WBE) and Woman Owned Small Business (WOSB).

Dawn is the Immediate Past President of the National Speakers Association-Colorado, the largest chapter in the country. When she's not immersed in the world of software productivity, Dawn enjoys the Colorado mountains, hiking, biking, golf, yoga, playing poker, and spending time with her family.



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