

Excel 2016

Linking Worksheets



Microsoft Excel 2016: Linking Worksheets

1.5 hour

In this workshop we will insert, delete and rename worksheets; change data and formatting on multiple sheets at the same time; link worksheets to create a Totals page; move sheets into different workbook (file); and change the view to see multiple books and sheets at the same time. This intermediate workshop assumes prior experience with Microsoft Excel.

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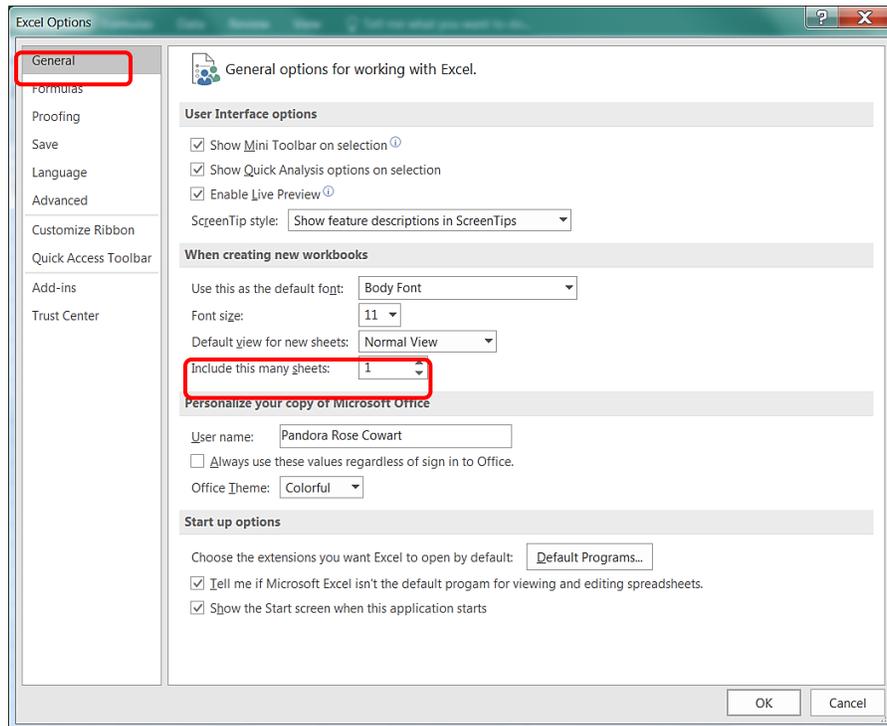
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Number of Worksheets

An Excel workbook used to have a limit of 255 worksheets, but the 2016 version is limited only by the available memory. By default, new workbooks begin with one worksheet.

You can change the default setting from the **Excel Options**. The **Options** button is at the bottom of the **File** menu. In the **General** group of the **Excel Options**, you can set the number of sheets to be opened in a new workbook.

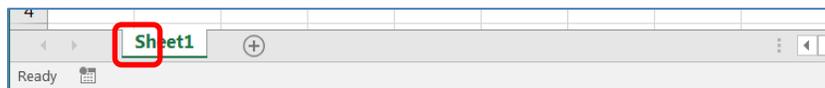


You can set new books to start between 1 and 255 sheets. Changing this setting will not modify the current workbook, only future new workbooks.

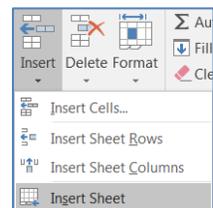
Inserting Worksheets

You can insert a worksheet by doing one of the following:

- ⇒ Click on the **Insert Sheet** button located at the bottom of the window. The new sheet will be inserted after the selected worksheet.



- ⇒ or Press Shift-F11 on the keyboard.
- ⇒ or from the **Home** tab, the **Cells** group, **Insert, Insert Sheet**.
- ⇒ or Right-click on the name of any sheet and choosing **Insert...** Excel will then ask what you want to insert. Choose **Worksheet** and click OK.

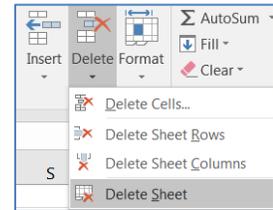


To insert multiple sheets at once, select the number of worksheets you would like to insert and follow the steps above. If three sheets are selected when you insert a worksheet, then three new sheets will be inserted. See *Selecting Multiple Worksheets* later in this handout.

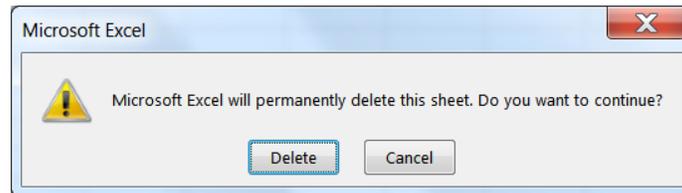
Deleting Worksheets

You can delete a worksheet by doing one of the following:

- ⇒ Right-click on the name of the worksheet and choose **Delete**.
- ⇒ or from the **Home** tab, **Cells** group, **Delete**, **Delete Sheet**



If the worksheet is empty it will be deleted, otherwise Excel will ask you to confirm the deletion.



Note that the message says, "**To permanently delete...**" Once you confirm this deletion there is No Undo. The sheet and all the data are gone.

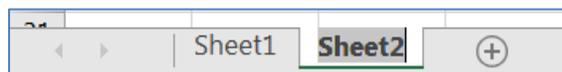
To delete multiple sheets at once, select the worksheets and follow the steps above. See *Selecting Multiple Worksheets* later in this handout.

Renaming Worksheets

You can rename a worksheet by doing one of the following:

- ⇒ Double-click on the name of the worksheet.
- ⇒ or Right-click on the name of the worksheet and choosing **Rename**
- ⇒ or from the **Home** tab, **Cells** group, **Format**, **Rename Sheet**.

However, you choose to rename, the worksheet name will be selected.



Type the new name and press **Enter** on the keyboard to accept it. Press **Esc** on the keyboard to cancel renaming the sheet.

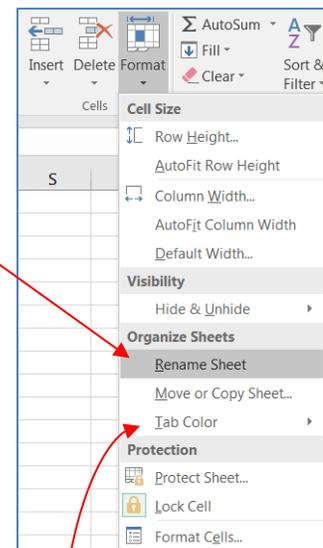
Your worksheet name can contain up to 31 characters. There are a few characters that Excel won't let use in the sheet name.

Examples: Asterisk (*), Backslash (\), Colon (:), and Brackets ([])

Color Coding Worksheets

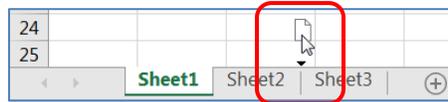
You can change the color a worksheet:

- ⇒ Right-click on the name of the worksheet and choosing **Tab Color**.
- ⇒ or from the **Home** tab, **Cells** group, **Format**, **Tab Color**.



Moving and Copying Worksheets

A worksheet can be moved by dragging it to a new location. Click on the worksheet name, don't let go, and drag the worksheet left or right to the new location. When you are holding onto a worksheet, your mouse cursor will show a sheet of paper and a little black arrow will appear above the sheets, this black arrow will show you where the new worksheet will be when you let go of the mouse.



If you hold down the control (**Ctrl**) key while moving the worksheet, you can create a duplicate, a copy of the worksheet. This copies everything, all the contents and formatting. (Remember to let go of the mouse before letting go of the keyboard.)

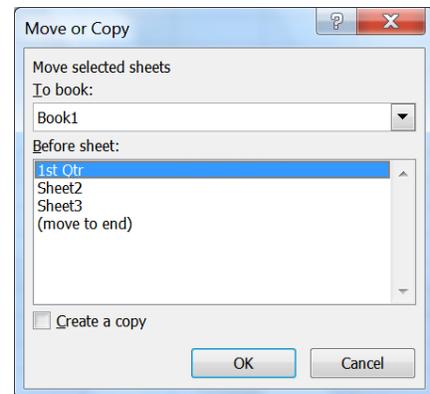


For more options do one of the following:

- ⇒ Right-click on the sheet name and choose **Move or Copy...**
- ⇒ or from the **Home** tab, in the **Cells** group, choose **Format**, and choose **Move or Copy Sheet**

The window that comes up allows you to choose a where you would like to place the sheet in the current workbook, or any open book (under the **To Book:** menu). This includes an option to create a new Excel workbook (**new book**).

By default, this window will move the worksheet; click the check box at the bottom of this window if you would prefer to create a copy.



Hiding Worksheets

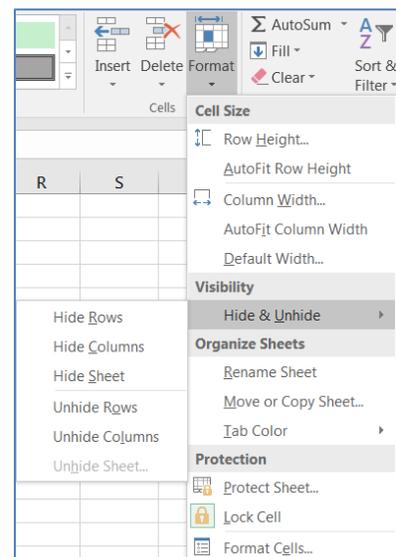
For some templates and lookup files you may wish to hide a worksheet.

- ⇒ Right-click on the name of the worksheet and choosing **Hide**.
- ⇒ or from the **Home** tab, in the **Cells** group, choose **Format**, choose **Hide & Unhide**, and choose **Hide Sheet**.

Unhiding Worksheets

Unhide a worksheet:

- ⇒ Right-click on the name of any worksheet and choosing **Unhide....**
- ⇒ or from the **Home** tab, in the **Cells** group, choose **Format**, choose **Hide & Unhide**, and choose **Unhide Sheet...**



Selecting Multiple Worksheets

The **Shift** and **Ctrl** keys on the keyboard allow you to work with multiple selections. You can use them to select multiple shapes, multiple cells, and multiple worksheets.

With multiple worksheets selected you can:

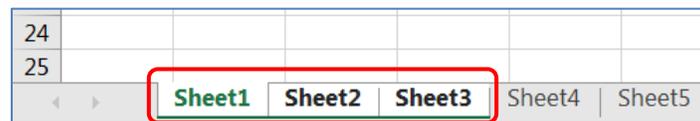
- Enter data on the current sheet and it will be entered on the selected worksheets
- Enter formulas on the current sheet and it will be entered on the selected worksheets
- Change formats on the current sheet and it will change on the selected worksheets
- Insert multiple worksheets
- Delete selected worksheets
- Color selected worksheets tabs
- Move selected worksheets
- Change the Page Setup for selected worksheets
- Print selected worksheets

Range of Worksheets

To select a range of worksheets, use the **Shift** key.

1. Click on the first worksheet
2. Hold down the **Shift** key on the keyboard and click on the last worksheet

If we click on 1st Qtr and **Shift**-click on 3rd Qtr, we will have all three sheets selected.

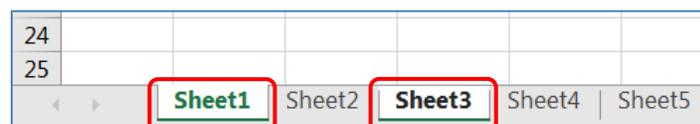


Selecting Specific Worksheets

To select specific worksheets, use the control key.

1. Click on the first worksheet
2. Hold down the **Ctrl** key on the keyboard, and click on the second worksheet
3. Keeping the **Ctrl** key pressed, click on each worksheet you would like to select

If we click on 1st Qtr and **Ctrl**-click on 3rd Qtr, we will have only those two sheets selected.



Selecting All the worksheets

- ⇒ To select all the worksheets, click on the first sheet and shift-click on the last sheet.
- ⇒ Or right-click on any worksheet name and choose **Select All Sheets**.

Unselecting Worksheets

To drop the selection, click on a worksheet that is not part of the current selection. Or right-click on any worksheet name and choose **Ungroup Sheets**.

Linking Cells

Linking cells is one of the operations in Excel that is so simple, it's hard to believe. When you create the link, Excel will enter the path and keep track of the moments of the original cell.

Create a Link

Click inside the cell where we want the answer, press the **Equal** (=) key on the keyboard, as if we were going to build an equation, and then click on the cell we want to link to, putting Excel into a "Point" mode. Click on any cell on the worksheet, on another worksheet, and even in another workbook.

Link to cell A1

Press the equal button on the keyboard. Click in cell A1. Press Enter on the keyboard.

=A1

Link to Cell A1 in Sheet2

Press the equal button on the keyboard. Click on Sheet 2, click in cell A1. Press Enter on the keyboard.

=Sheet2!A1

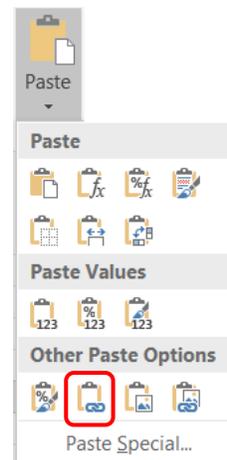
Link to Cell A1 in Sheet1 of Book2

Press the equal button on the keyboard. Click on Book2, Sheet1, cell A1. Press Enter on the keyboard.

=[Book2]Sheet1!\$A\$1

Using the Clipboard

Another way to create a link is to copy the original data, move to where you would like the linked value to appear and choose "Paste Link". **Paste Link** can be found on the **Paste** drop-down list, the right-click menu, and as an option in the **Paste Special** window. The icon looks like a small chain link.



Remove a Link

To break the link, delete the contents of the cell. To keep the values, copy and Paste values. To remove all the links and keep the values, see the **Edit Link Window** section of this handout.

Absolute vs. Relative Links

When you link to a cell in the same workbook Excel creates a "relative" link. When the link is to another workbook it creates an "absolute" link. You can see this by the dollar signs (\$) around the cell address.

You can type in or remove the dollar signs to change between the two options. F4 is the keyboard shortcut to toggle between the absolute/relative options.

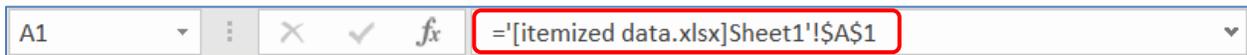
Excel will follow the address of the original data whether we are set to Relative or Absolute. However, if we are using different workbooks, Excel can only follow the data while the other book is still open. If data moves in another book, and the linked file is not open, the cell links will **not** follow.

The Absolute and Relative settings will matter when you try to copy or fill the link. With the Absolute (\$), the copy/fill will contain the same cell addresses (i.e. \$A\$1-\$A\$1-\$A\$1...); with the Relative (no \$), the copy/fill will contain the series (i.e. A1-A2-A3...)

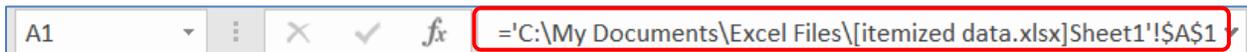
Linking Workbooks

As stated on the previous page linking workbooks is as simple as linking worksheets, with the added step of choosing the file first. Click in the cell where you want the result to be, press the equal sign (=) on the keyboard and then use your mouse to *select the workbook*, click on the worksheet, click on the cell you want to link to and press **Enter** to accept.

The formula bar will show the full path of the linked cell. If the file is open you will see just the file name, worksheet name and cell address.



If the linked file is not open, you will see the location of the file as well:



Opening Linked Files

The safest way to work with linked files is to have the original data and the linked files open when you move things around. However, that's not always feasible.

Case 1: Open the original file and then Linked file

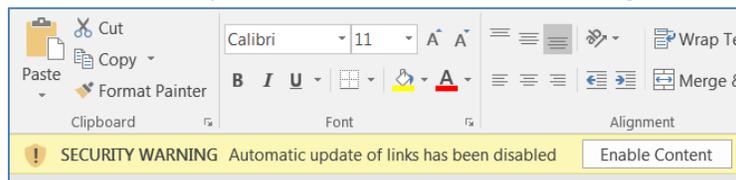
Result – Excel sees the links and updates all changes and will continue to update you go.

Case 2: Open Linked file by itself (or before the original)

Result – Excel prompts for permission to update links. Depending on your security settings you may see the subtle yellow security message between the ribbon and the formula bar, or the warning message box forcing you to choose.

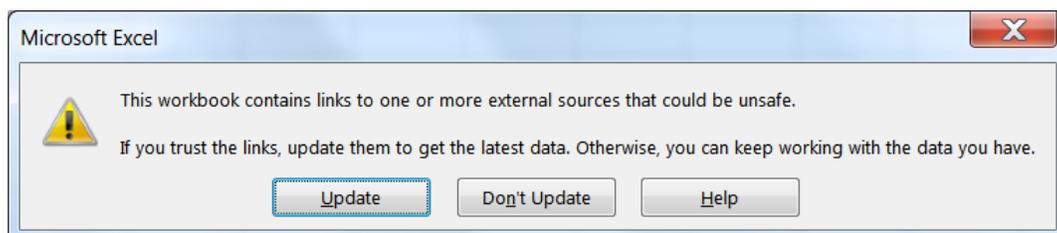
If you ignore the message you can continue to work in Excel with the 'old' data.

If you click **Enable Content** Excel will update the links, if it can find the original file.



If you click **Don't Update** you can continue to work in Excel with the 'old' data.

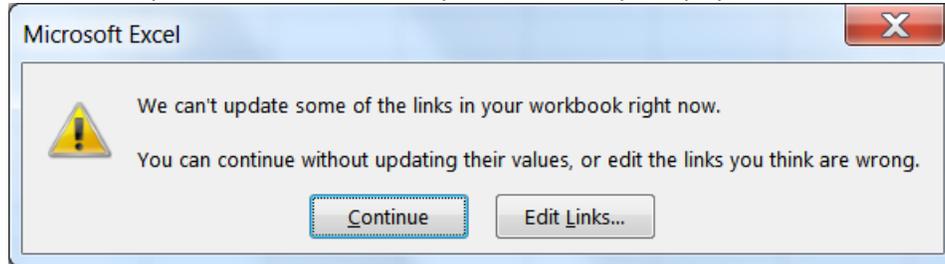
If you click **Update** Excel will update the links, if it can find the original file.



Handling Broken Links

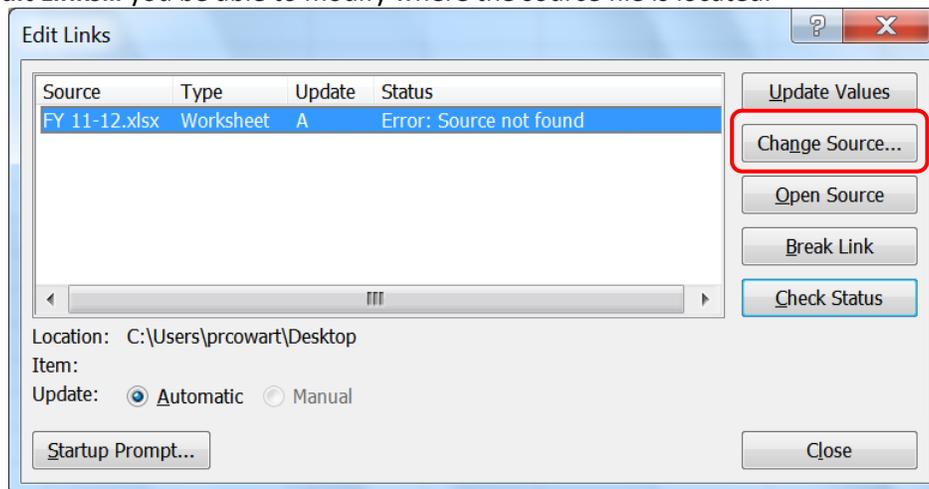
Excel does a wonderful job updating the links, **IF** it can find the cell you are referring to in your dataset. If the filename or sheet name has changed while the linked file is open, the links will be able to follow along, however, if they are changed while the linked file is closed Excel will lose its way.

When you ask Excel to update the link, if it has a problem it will prompt you:



If you **Continue**, you can work with the "old" data.

If you click **Edit Links...** you be able to modify where the source file is located.



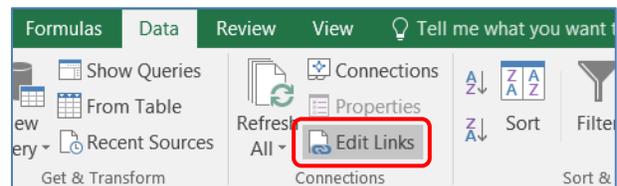
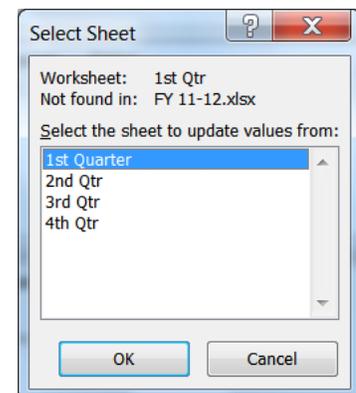
Click on the **Change Source...** button to find the original file. If the worksheet names have changed, the Status error will read "**Error: Worksheet not found**". For missing worksheets, it will prompt to find the sheet name.

Removing all links

If the original files or sheets have been deleted, you may need to use the **Break Link** option. This will convert all the linked cells to values. This option cannot be undone.

Edit Link Window

You can open the above **Edit Link** window at any time from the **Data** tab, in the **Connections** group.



Working with Multiple Files/Windows

Ungrouping Taskbar Buttons

Your copy of Windows may try to lump all of the files into the same icon across the task bar at the bottom of the window.



But you may prefer to see them split out into individual buttons.

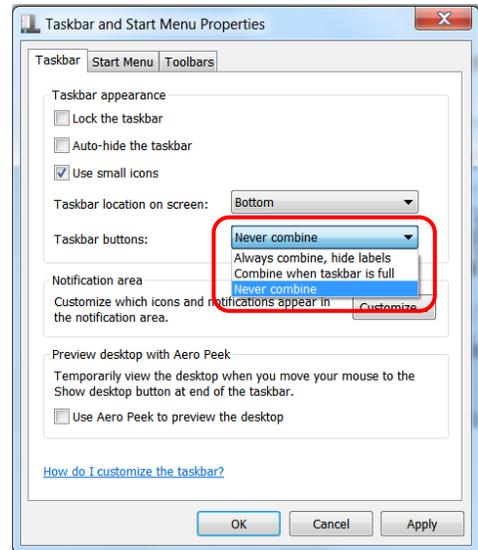


To do this, right-click in an empty space on the Windows Taskbar and choose Properties.

Change the option **Task Bar Buttons** from "Always combine" to either of the other options.

Combine when taskbar is full will lump the buttons together when the taskbar is crowded, the other will keep them separate even if there's almost no room for them.

Keep in mind this is not an Excel feature, this is a Windows setting.



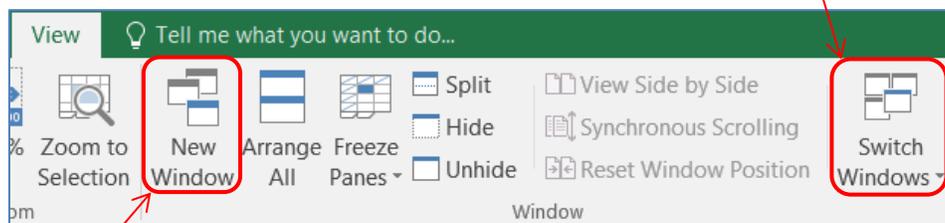
Moving Between Windows

We can use the Task Bar to move between our files, or we can use the keyboard shortcuts.

Alt - Tab Moves between Applications

Ctrl - Tab Moves between Open Files in Excel (*This works for Internet Browser Tabs as well*)

These can be tedious if there are a lot of files open. To see a list of all the open Excel files, turn to the **View** tab. In the **Windows** group you will find a list of the open files under **Switch Windows**.



View Different Sheets of the Same Book

The **New Window** option on the View tab will open another window of the same Excel file. This allows you to look at two different worksheets of the same Excel file!

Excel 2016 no longer allows you to open multiple files in the same instance of Excel, each Excel window will open with its own ribbon. Excel's Arrange All button should work with all the open Excel windows, but you can right-click in the Windows Taskbar to find window arranging options.

Class Exercise

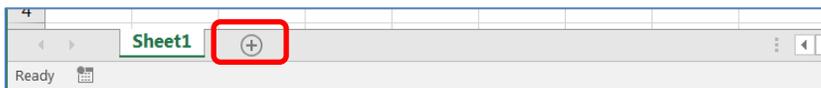
Review

- Open Excel
- File->Options
 - o Default # of sheets

Rename Sheets

- Double-click on Sheet1
 - o Rename to 1st Qtr
 - o Press enter to accept
- Insert three more sheets and Rename

Keyboard Shortcut:
Shift-F11 = New Sheet



- o Sheet2 -> 2nd Qtr
- o Sheet3 -> 3rd Qtr
- o Sheet4 -> 4th Qtr

Label the sheets

- For each sheet, In Cell D1 Type name of worksheet
 - o Click on 1st Qtr sheet, click in Cell D1, type 1st Qtr
 - o Repeat for each sheet, 2nd Qtr, 3rd Qtr, 4th Qtr

Modify multiple sheets

- Click on 1st Qtr sheet, Shift-Click on 4th Qtr sheet
- Zoom 150%
- View each worksheet

Modify specific sheets

- Click on the 1st Qtr sheet
- Ctrl-Click on the 3rd Qtr sheet
 - o Click in Cell D1
 - o Use the Fill bucket to change the color
- Click on the 2nd Qtr sheet
- Ctrl-Click on the 4th Qtr sheet
 - o Click in Cell D1
 - o Use the Fill bucket to change the color
- View each sheet

Keyboard shortcut:
Use Ctrl-Page Up and
Ctrl-Page Down to move
between the worksheets.

Enter data on multiple sheets

- Click on 1st Qtr sheet
- Right-click on the sheet name and choose Select All Sheets
 - o Check title bar for **[Group]**
- Type:
 - o A1: Big City Store
 - o A2: Quarterly Sales Report
- View each sheet
- **Select All Sheets again**
- Create the table show here:

	A	B	C	D
1	Big City Store			
2	Quarterly Sales Report			
3				
4	Item	Price	Qty	Total
5	A	123		
6	B	456		
7	C	789		

Format multiple sheets

- Bold Titles and place a bottom border
- Accounting (\$) format Price & blank Total cells
- Center Qty
- Create formula for Total for Item A
 - o =B5*C5
- Use Fill handle to create equations for Items B & C
- In cell C8: "Quarterly Total:"
 - o Right Align
- In Cell D8: Use AutoSum button to total
- View Other sheets
 - o Make sure all the sheets are now unselected (no [Group] in title bar)

Shortcut: Click on Column B (Price) and use the Ctrl key to select Column D (Total). Format them at the same time.

	A	B	C	D
1	Big City Store			1st Qtr
2	Quarterly Sales Report			
3				
4	Item	Price	Qty	Total
5	A	\$ 123.00		\$ -
6	B	\$ 456.00		\$ -
7	C	\$ 789.00		\$ -
8		Quarterly Total:		\$ -

Adjusting formatting

- On the 1st Qtr sheet:
 - o Type in Cell C5: 987
 - o Notice the Column is too Narrow #####
- Select all sheets
- Expand Column D
- Type in Cell C6: 654
- Turn to 2nd Qtr sheet

Fix multiple sheets

- Click on 2nd Qtr Sheet, shift-click on 4th Qtr Sheet
- Click in cell C6 (the 654), press delete to remove unwanted data
- Click on 1st Qtr Sheet, Confirm lack of [Group] in title bar
- Type in Cell C7: 321

Create a Total's Page

- Insert a worksheet
- Move it to Beginning
 - o Drag Sheet5 to the beginning of the worksheets
- Name it **Totals**
- Increase the Zoom to 150%
- Type data in cells –
 - o In Cell D1 type: Totals
 - o In Cell B2 type: 1st Qtr
 - Drag fill handle to B5
 - This creates 2nd, 3rd & 4th Qtr

	A	B	C	D
1				Grand
2		1st Qtr	= '1st Qtr'!D8	
3		2nd Qtr		
4		3rd Qtr		
5		4th Qtr		
6		Grand Total		

Link to another cell

- Link cell B6 to D1
 - o In Cell B6, press equal (=)
 - o click on Cell D1
 - o press **Enter**
- Change D1: Grand Total
 - o See B6 change

	A	B	C	D
1				Totals
2		1st Qtr		
3		2nd Qtr		
4		3rd Qtr		
5		4th Qtr		
6		=D1		

Link to another sheet

- Link cell C2 to total on 1st Qtr sheet
 - o In Cell C2, press equal (=)
 - o Click on 1st Qtr sheet
 - o Click in D8
 - o Press **Enter**
- View Link in formula bar
- Link Cells C3 to 2nd QTR, C4 to 3rd QTR, C5 to 4th QTR
- Calculate Grand Total in C6 using the AutoSum
- Right Align Column B

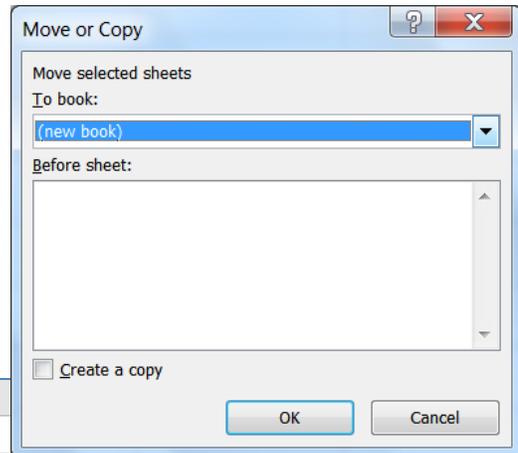
Test Links

- Turn to 2nd Qtr sheet
 - o In Cell C5 type: 951
 - o In Cell C6 type: 624
 - o In Cell C7 type: 357
- View Totals sheet

Move Totals Sheet to another book

- Right-click Totals sheet
- Choose **Move or Copy Sheet...**
- From Book menu choose (new book)
- View Links in the Totals sheet
 - o View formulas (Ctrl-~)
 - o View Answers (Ctrl-~)

	A	B	C
1			
2		1st Qtr	='[Book1]1st Qtr'!D8
3		2nd Qtr	='[Book1]2nd Qtr'!D8
4		3rd Qtr	='[Book1]3rd Qtr'!D8
5		4th Qtr	='[Book1]4th Qtr'!D8
6		=D1	=SUM(C2:C5)



Save Files

- Save file with the quarter sheets as **Quarters** (on the desktop)
- Save file with the total sheet as **Totals** (on the desktop)
- View Links in Totals
 - o ='[Quarters.xlsx]1st Qtr'!D8

Keyboard Shortcut:
F12 = Save As

Viewing multiple files

- Switching Windows
 - o Click on file names in the Windows Taskbar (bottom of window)
 - o From the **View** tab, use **Switch Windows**
 - o Press Ctrl-Tab
- From the **View** tab, choose **Arrange All**
- Maximize Quarters

Test Links

- In Quarters, turn to 3rd Qtr sheet
 - o In Cell C5 type: 967
 - o In Cell C6 type: 688
 - o In Cell C7 type: 384
- View Totals for result

Close files

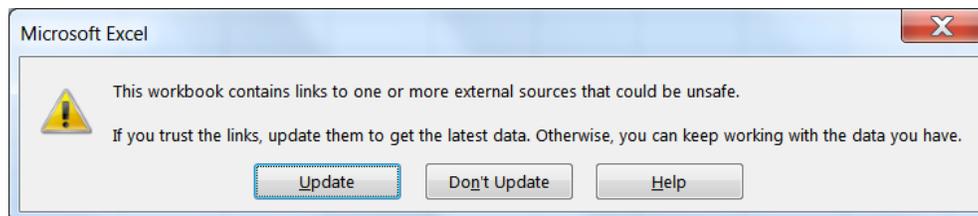
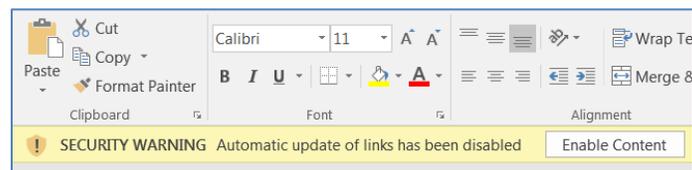
- Close and Save Quarters
- View Links in Totals (*your path will be different for your computer*)
 - o ='C:\Users\prcowart\Desktop\[Quarters.xlsx]1st Qtr'!D8
 - o Drive, folder, folder, ..., file, sheet, cell
- Save and Exit Microsoft Excel

Modify Quarters file

- From the Desktop, Open Quarters (only, don't open Totals)
- In Quarters file turn to 4th Qtr sheet
 - o In Cell C5 type: 900
 - o In Cell C6 type: 600
 - o In Cell C7 type: 300
- Close and Save

View Totals file

- Open Totals File
- See Security Warning
- Choose Enable Content (or "Update")

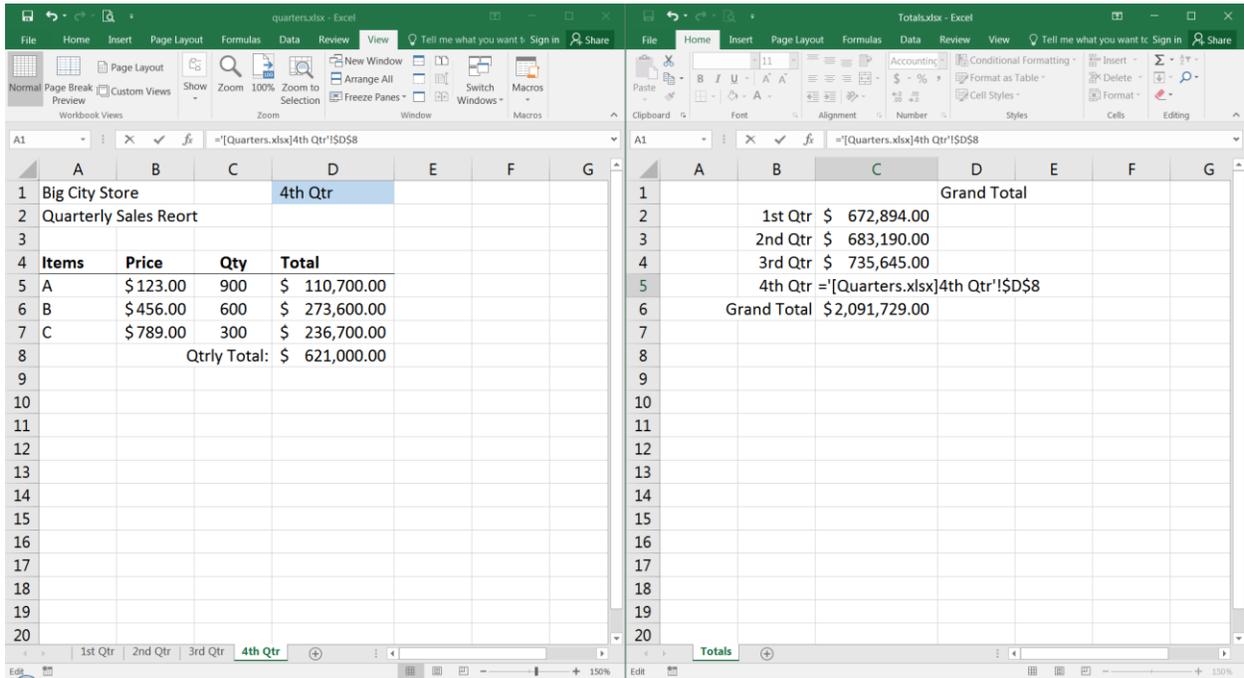


Set up File View

- Open Quarters File
 - o If needed, move to 4th Qtr sheet
- From the View Tab, choose Arrange All
 - o Tile the windows
- In Totals Delete the link for 4th Qtr Total (Cell C5)

Link Between books

- Recreate the link
 - o Press Equals (=)
 - o Click in the Quarters window
 - o Click in the Quarterly Total cell (D8)
 - o Press Enter



Pasting Link

- Delete link again from C5
- Recreate again using paste link
 - o Leave Cell C5 in Totals empty
 - o Click on cell D8 in Quarters (4th Qtr)
 - o Copy the cell
 - o Click in Cell C5 in Totals
 - o Right-click in Cell C5
 - o Choose Paste Link
- Exit and save Totals and Quarters



Rename Quarters file

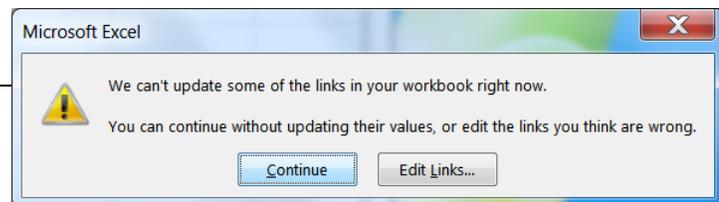
- On the desktop right-click on the Quarters file
- Choose Rename, Name the file "FY 17-18"

Modify FY 17-18 file

- Open FY 17-18
- If needed, turn to 4th Qtr sheet
 - o In Cell C5 type: 975
 - o In Cell C6 type: 684
 - o In Cell C7 type: 359
- Save and Exit

View Totals file with old data

- Open Totals File
- Choose **Enable Content**
- Click **Continue** to open the file with "Old" data
- Exit Microsoft Excel



View Totals file edit links

- Open Totals File
- Choose **Enable Content**
- Click **Edit Links...** to find the original file
- Click **Change Source** button
 - o Find FY17-18 file and click **Open**
- View new data
- Exit Microsoft Excel

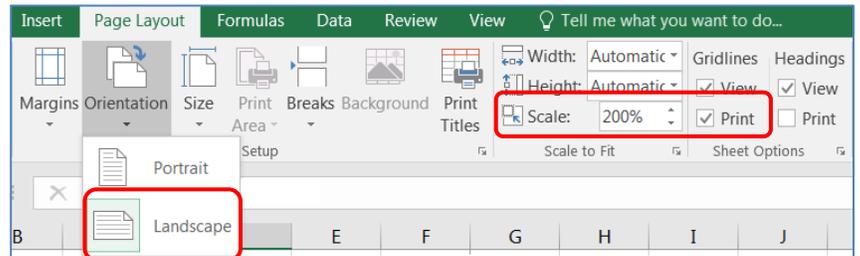
View Multiple Sheets of same Book

- Open FY17-18 File
- Select All Sheets
- Change zoom to 100%
- Drop Group of sheets and turn to 1st Qtr sheet
- From the View tab, choose New Window
- Arrange All, Tiled
- Type in one side of the window to see it happening live in the other window
- Choose New Window two more times
- Arrange All, Tiled
- Change each sheet to a different Qtr so you can see all four quarters at once
- Close three windows
- Maximize the last one

Keyboard shortcut:
Use the windows flag (🏠) button on the keyboard with the arrow keys to move the active window around the screen.

Printing Multiple Sheets

- Open Print Preview (ctrl-P or File->Print)
- From the Print Preview menu, change the Setting **Print Active Sheets**, to **Print Entire Workbook**
- You should have four pages
- Go back to Print Active Sheets
- Select Sheets 1st Qtr and 3rd Qtr
- Print Preview should have 2 pages
- Select all the sheets
- Turn to the Page Layout Tab
 - o Orientation: Landscape
 - o Scale: 200%
 - o Gridlines: Print
- Print Preview should have 4 pages
- Close Print Preview
- Ungroup sheets



Helpful Worksheet Tips

Moving

- Ctrl-Page up and Ctrl Page Down move between the worksheets.
- Ctrl-Tab moves between the workbooks.
- The scroll arrows for the sheets move one sheet at a time. Hold down the Ctrl key when you click to move to the beginning or end of all the sheets.
- Right-click on the scroll arrows to see a list of all the sheets, chose the one you want to "activate" and click OK.

Multiple sheets

- To see two worksheets from the same book at the same time, choose "New Window" from the View tab. Arrange the windows.
- Right-click on a worksheet name to SELECT ALL SHEETS and to UNGROUP SHEETS.
- Shift-Click to select a range of sheets.
- Ctrl-Click to select a group of individual sheets.

Printing

- You can print the worksheet name by building a custom header and footer in the Page Setup.
- The Print Preview menu has an option to Print Active Sheets and Print Entire Workbook.
- You can make a selection of sheets with your Shift and Ctrl keys, and then print them at the same time with the Print Active Sheets.

Cautions

- When you are working with multiple sheets, watch for the word GROUP in the title bar.
- If other files are linked to the one you are working with, be careful in rearranging and renaming the contents. If you keep both files open, Excel will follow your movements.
- You can always separate the linked files by breaking all the link, see Page 7.