



Astute Excel: Office 365

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About the speaker:

David H. Ringstrom, CPA, is an author and nationally recognized instructor who teaches scores of webinars each year. His Excel courses are based on over 25 years of consulting and teaching experience. His mantra is “Either you work Excel, or it works you.” David offers spreadsheet and database consulting services nationwide.

Excel Versions

I'll be teaching from the Office 365 version of Excel, and noting any differences or limitations in the legacy versions of Excel.

<u>The Future of Excel</u>	<u>Legacy Versions</u>
<p style="text-align: center;">Office 365</p> <p>Subscription-based version of Microsoft Office, which includes Excel. Use the software on multiple devices, new calculation engine, services and more features are rolling out that will dramatically set this version apart from past Excel versions.</p> <p style="text-align: center;">www.office365.com</p>	<p style="text-align: center;">Perpetual Licenses</p> <p>Pay once for the software to use on a single computer. No new features added until you buy a new license.</p> <p style="text-align: center;">Includes</p> <ul style="list-style-type: none"> Excel 2019 Excel 2016 Excel 2013 Excel 2010 Excel 2007 and earlier

7 [Excel Tip: Data Entry Shortcut](#)

I demonstrate each technique at least twice, first by way of numbered steps in PowerPoint, and then in Excel.

Handouts include PDF of today's presentation along with an example workbook that contains most examples I'll teach from as well as related articles.

Email ask@davidringstrom.com if you haven't received the handouts.

Related Articles Car Payme



Determine If You Have Microsoft 365

The screenshot shows the Microsoft Excel interface. The 'File' tab is selected in the ribbon, and the 'Account' option is highlighted in the left-hand menu. A yellow callout box with a blue border and a yellow background contains the following text:

3 If the words **Subscription Product** and **Microsoft Office 365** appear here, then your version of Excel is evolving much faster than previous versions of Excel. Perpetual licensed versions of Excel still only see new features when a new year version of Excel is released, typically every 3 years.

The 'Account' section in the Office window displays the following information:

- Subscription Product** (circled in red)
- Microsoft Office 365** (circled in red)
- Version 1710 (Build 8625.2055 Click-to-Run)
- Office Insider
- Belongs to:
- This product contains: [Word, Excel, PowerPoint, Outlook, OneDrive, OneNote, Teams icons]
- Manage Account button
- Office Updates section: Updates are automatically downloaded and installed.

Numbered callouts in the image indicate: 1. File tab selected; 2. Account menu item selected; 3. The callout box text.

Deselect a Selection (Excel 2019+)

The image consists of three sequential screenshots of the Microsoft Excel interface, illustrating the process of deselecting a selection in Excel 2019 or Office 365. Each screenshot shows a portion of the Excel ribbon (File, Home, Insert, Page Layout, Font) and a grid of cells (A-D, 1-15).

- Step 1:** A yellow callout box with a red circle containing the number '1' says: "In most versions of Excel once you select a range of cells, you must start all over if you selected more than intended." The screenshot shows a large blue selection box covering the range A1:D12.
- Step 2:** A yellow callout box with a red circle containing the number '2' says: "When you select a range of cells in Excel 2019 or Office 365...". The screenshot shows the same blue selection box, but a green selection box is now visible, indicating a new selection is being made.
- Step 3:** A yellow callout box with a red circle containing the number '3' says: "...hold down the Ctrl key to deselect one or more cells." The screenshot shows the green selection box, and the cells A1:D12 are now greyed out, indicating they have been deselected.



Microsoft 365 Clipboard Refinements

1 In most versions of Excel once you copy data, such as by selecting cells and pressing Ctrl-C...

2 ...if you carry out any other action, such as typing a value in a cell before pasting you have to copy the data again.

3 Conversely, in Office 365 when you copy data...

4 ...you can carry out actions that don't cause the area you copied to change without losing your selection...

5 ...and then paste the data with the Paste command or via Ctrl-V.

6 ...and then paste the data with the Paste command or via Ctrl-V.



Worksheet Function AutoComplete

1 Formulas

2 fx Insert Function

3 Search for a function: IFS

4 Go

Or select a category: Recommended

Select a function: IFS, SWITCH

5 In all versions of Excel the Insert Function dialog box is an ineffective means for searching for partial matches on function names.

IFS(logical_test,value_if_true,...)
Checks whether one or more conditions are met and returns a value corresponding to the first TRUE condition.

6 OK Cancel

7 =if

- IF
- IFERROR
- IFNA
- IFS

In most versions of Excel a list appears showing functions that begin with the letters you typed, such as IF in this case.

8 =ifs

- IFS
- AVERAGEIFS
- COUNTIFS
- MAXIFS
- MINIFS
- SUMIFS

In Excel 2019/Office 365 the list typically (but not always) shows functions with those letters anywhere in the function name.



Worksheet Function Evolution

Excel 2007

IFERROR
SUMIFS
COUNTIFS
AVERAGEIF
AVERAGEIFS
SQL.REQUEST

Excel 2010

AGGREGATE
NETWORKDAYS.INTL
WORKDAY.INTL
CHISQ.DIST
CHISQ.DIS.RT
CHISQ.INV
CHISQ.INV.RT
CHISQ.TEST

These functions will return #NAME? in Excel 2007 and earlier.

Excel 2013

DAYS
FORMULATEXT
IFNA
ISFORMULA
SHEET
SHEETS
XOR

These functions will return #NAME? in Excel 2010 and earlier

Excel 2016

Nothing for the average user.

Excel 2019

CONCAT
IFS
MAXIFS
MINIFS
SWITCH
TEXTJOIN

These functions will return #NAME? in Excel 2016 as well as all earlier versions of Excel.

Coming to Office 365

SORT
SORTBY
FILTER
UNIQUE
SEQUENCE
RANDARRAY

A new calculation engine
Dynamic array formulas

These functions will return #NAME? in Excel 2019 as well as all earlier versions of Excel.

These are not comprehensive lists. Dozens of engineering, statistical, and mathematical functions have also been added over the years.





CONCAT Function (Excel 2019+)

	A	B	C	D	E	F	G
1	First	Last	Combined				
2	George	Washington	George Washington	=CONCAT(A2," ",B2)			
3	George	Washington	George Washington	=CONCATENATE(A3," ",B3)			
4	George	Washington	George Washington	=A4&" "&B4			
5	George	Washington	GeorgeWashington	=CONCAT(A5:B5)			
6	George	Washington	#VALUE!	=CONCATENATE(A6:B6)			
7							

Excel 2019/O365 Only - returns #NAME? otherwise

=CONCAT(A2," ",B2)

All Excel Versions (or use & to combine text)

=CONCATENATE(A3," ",B3)

<div style="background-color: #e6f2ff; padding: 5px; text-align: center;"> <p>text1</p> <p>A2</p> </div> <p style="font-size: small;">CONCAT: One or more cells or text in quotes CONCATENATE: A single cell or text in quotes</p>	<div style="background-color: #ffe6e6; padding: 5px; text-align: center;"> <p>text2</p> <p>" "</p> </div> <p style="font-size: small;">For both functions each argument can be a cell reference, text, number or formula.</p>	<div style="background-color: #e6e6ff; padding: 5px; text-align: center;"> <p>text3</p> <p>B2</p> </div> <p style="font-size: small;">CONCAT: Offers 253 arguments, up to 32,767 characters CONCATENATE: Offers 255 arguments, up to 8,192 characters.</p>
---	---	---

CONCAT Function



TEXTJOIN Function (Excel 2019+)

	A	B	C	D	E	F
1	<u>First</u>	<u>Middle</u>	<u>Last</u>			
2	George		Washington	George Washington		
3	George	Washington	Carver	George Washington Carver		
4						
5				=TEXTJOIN(" ",TRUE,A2:C2)		
6				=TEXTJOIN(" ",TRUE,A3:C3)		
7						
8	Excel 2019/Office 365 Only - returns #NAME? in most versions					
9	=TEXTJOIN(" ",TRUE,A2:B2)					
10						
11	delimiter " "		ignore_empty TRUE		text1 A2:B2	
12	A character enclosed in quotes such as a space or comma that you wish to		TRUE - skip empty cells		One or more cells, text, numbers, or a	
13	between the contents of each cell,		FALSE - add a space		formula. TEXTJOIN supports up to	
14	string of text, number, or formula.		character for empty cells		252 text arguments.	
15						

TEXTJOIN Function



SWITCH Function (Excel 2019+)

	A	B	C	D	E	F	G	H	I	J	K
1	Number	Result	=SWITCH(A2,10,"Apples",20,"Oranges","Invalid")								
2	10	Apples	=SWITCH(A3,10,"Apples",20,"Oranges","Invalid")								
3	11	Invalid	=VLOOKUP(A4,{10,"Apples";20,"Oranges"},2,TRUE)								
4	11	Apples	=VLOOKUP(A5,{10,"Apples";20,"Oranges"},2,FALSE)								
5	11	#N/A									
6	Excel 2019 and Office 365 Only - returns #NAME in other versions										
7	=SWITCH(A2,10,"Apples",20,"Oranges","Invalid")										
8											
	expression	value1 (to 126)	result1 (to 126)	default							
	A2	10	"Apples"	"Invalid"							
	numbers or text	value to match against expression	result to return	what to return instead of #N/A							
	All Excel Versions										
	=VLOOKUP(A4,{10,"Apples";20,"Oranges"},2,TRUE)										
15	lookup_value	table_array	col_index_num	[range_lookup]							
16	A4	{10,"Apples";20,"Oranges"}	2	TRUE							
17	what to look for	Value, Result; Value, Result	Return result	0 or FALSE: exact match							
18	(in this case 11)	Enclose in curly brackets	from array	1 or TRUE: approximate match							
	SWITCH Function (+)										



IFS Function (Excel 2019+)

	A	B	C	D	E	F
1	Grade	Pass/Fail				
7	58	F				
8	78	C				
9	78	C				

Office 365 sometimes adds the extraneous SINGLE function to IFS.

IFS is available in Excel 2019 and Office 365, as well as the mobile/web versions of Excel. IFS returns #NAME? in all other Excel versions.

IFS supports up to 127 logical tests.

`=IF(A7>=90,"A",IF(A7>=80,"B",IF(A7>=70,"C",IF(A7>=60,"D","F"))))`

`=IFS(A8>=90,"A",A8>=80,"B",A8>=70,"C",A8>=60,"D",TRUE,"F")`

`=SINGLE(IFS(A9>=90,"A",A9>=80,"B",A9>=70,"C",A9>=60,"D",TRUE,"F"))`

`=IFS(A3>=90,"A",A3>=80,"B",A3>=70,"C",A3>=60,"D",TRUE,"F")`

logical_test1 A3>=90 1st TRUE/FALSE test	value_if_true1 "A" value to return if 1st test returns TRUE	logical_test2 A3>=80 2nd TRUE/FALSE test	value_if_true2 "B" value to return if 2nd test returns TRUE	logical_test3 A3>=70 3rd TRUE/FALSE test	value_if_true3 "C" value to return if 3rd test returns TRUE
	logical_test4 A3>=60 4th TRUE/FALSE test	value_if_true4 "D" value to return if 4th test returns TRUE	logical_test5 TRUE Catch-all for all other conditions	value_if_true5 "F" catch-all value to return	

Introdu...





MAXIFS Function (Excel 2019+)

	A	B	C	D	E	F	G	H	I	J
1	Region	Product	Amount		MAX	499	=MAX(C2:C9)			
2	South	Oranges	104							
3	South	Apples	172	North		436	=MAXIFS(C2:C9,A2:A9,E3)			
4	North	Apples	243							
5	North	Pears	325			Apples				
6	North	Apples	373	North		373	=MAXIFS(C2:C9,A2:A9,E6,B2:B9,F5)			
7	South	Pears	399							
8	North	Oranges	436							
9	South	Oranges	499							
10	<p>Excel 2019 and Office 365 Only - returns #NAME? in other versions</p> <p>=MAXIFS(C2:C9,A2:A9,E6,B2:B9,F5)</p>									
13	max_range	criteria_range1	criteria1	criteria_range2	criteria2					
14	C2:C9	A2:A9	E6	B2:B9	F5					
15	where to look for a maximum	where to look for first of 127 criteria	first of 127 criteria	where to look for second of 127 criteria	second of 127 criteria					
16	<p>MAXIFS Function (Office 365)</p>									



MINIFS Function (Excel 2019+)

	A	B	C	D	E	F	G	H	I	J
1	Region	Product	Amount		MIN	104	=MIN(C2:C9)			
2	South	Oranges	104							
3	South	Apples	172		North	243	=MINIFS(C2:C9,A2:A9,E3)			
4	North	Apples	243							
5	North	Pears	325		Pears					
6	North	Apples	373		North	325	=MINIFS(C2:C9,A2:A9,E6,B2:B9,F5)			
7	South	Pears	399							
8	North	Oranges	436		Pears					
9	South	Oranges	499		North	325	=MIN(IF(A2:A9=E6,IF(B2:B9=F5,C2:C9)))			
10										
11										
12										
13										
14										
15										
16										

Excel 2019 and Office 365 Only - returns #NAME? in other versions

=MINIFS(C2:C9,A2:A9,E6,B2:B9,F5)

All Versions of Excel - press Ctrl-Shift-Enter after typing the array formula

=MIN(IF(A2:A9=E6,IF(B2:B9=F5,C2:C9)))

MINIFS Function (Office 365)



Recommended Pivot Tables (Excel 2013+)

1 Click on any cell within your list of data.

Region	City	Vendor	Product
North GA	Atlanta	Fruit R Us	Oranges
North GA	Atlanta	Fruit R Us	Apples
North GA	Atlanta	Fruit R Us	Kiwi
North GA	Atlanta	Fruit R Us	Bananas
North GA	Atlanta	Fruit R Us	Mixed Berry
North GA	Atlanta	Bob's Fruit	Oranges
North GA	Atlanta	Bob's Fruit	Apples
North GA	Atlanta	Bob's Fruit	Kiwi
North GA	Atlanta	Bob's Fruit	Bananas

2

3

4 Double-click on your selection to skip the OK button.

5 The Pivot Table is created.

Recommended Pivot Tables is available in Excel 2013 and later.

Recommended PivotTables

Count of Total Sales, S...

Row Labels	Count of Total Sales	Sum of Cases \$
Apples	10	48
Bananas	10	63
Kiwi	10	53
Mixed Berries	10	43
Oranges	10	58
Grand Total	50	267

Sum of Total Sales by R...

Row Labels	Sum of Total Sales
Mid GA	691787
North GA	2108437
South GA	449414
Grand Total	3249638

Sum of C... Sold by Pr...

Row Labels	Sum of C...
Mixed Berries	43733
Oranges	58854
Grand Total	267587

Sum of Total Sales

Row Labels	Sum of Total Sales
Mid GA	691787
North GA	2108437
South GA	449414
Grand Total	3249638

Row Labels

Row Labels	Sum of Total Sales
Mid GA	691787
North GA	2108437
South GA	449414
Grand Total	3249638

Mid GA

Row Labels	Sum of Total Sales
Macon	691787
Mid GA Total	691787
North GA	2108437
Atlanta	1416079
Blue Ridge	383506
Clarkesville	308852
North GA Total	2108437
South GA	449414
Brunswick	235373
Valdosta	214041
South GA Total	449414
Grand Total	3249638

Sheet1



Ideas Feature (Microsoft 365 Only)

1 Select any cell within a list of data.

2 Insert

3 Insights

4 The Insights task pane appears and offers perspectives and analysis of your data. Insights is an artificial intelligence feature that does require you sharing your data with Microsoft. It's also a harbinger of similar features to come in Excel.

Insights (Preview)

'City': Atlanta has noticeably higher 'Total Sales'.

(Millions)

City	Total Sales (Millions)
Atlanta	1.4
Macon	0.7
Blue Ridge	0.4
Clarksville	0.3
Brunswick	0.2
Valdosta	0.2

+ Insert PivotChart Is this helpful? Total results: 34

Pivot Table Options (Excel 2019+)

1 File

2 Options

3 Data

4 Edit Default Layout

5 Unlike all earlier versions of Excel, Excel 2019 and Office 365 users can now manage default options related to future pivot tables. Changes here won't affect existing pivot tables.

6 PivotTable Options

7 OK

8 OK

Excel Options

Change options related to data import and data analysis.

Data options

Make changes to the default layout of PivotTables. **Edit Default Layout**

Edit Default Layout

Layout Import

A1 **Import**

Subtotals

Show all Subtotals at Top of Group Include Filtered Items in Totals

Grand Totals

On for Rows and Columns

Report Layout

Show in Compact Form Repeat All Item Labels

Blank Rows

Insert Blank Line after Each Item **PivotTable Options**

Reset to Excel Default **OK** **Cancel**



Funnel Charts (Excel 2019+)

1 Select any cell within a list sorted in ascending or descending order.

4 The Funnel Chart appears.

2 Choose Insert Waterfall or Stock Chart from the Insert menu, or choose Recommended Charts.

3 Funnel

5 All other versions of Excel, including perpetual licenses of Excel 2016 display this prompt. You can use the free browser-based Excel Online to view such spreadsheets: <https://office.live.com/start/Excel.aspx>

Fruit	Sales
Kiwi	462
Pears	454
Bananas	191
Oranges	132
Apples	124



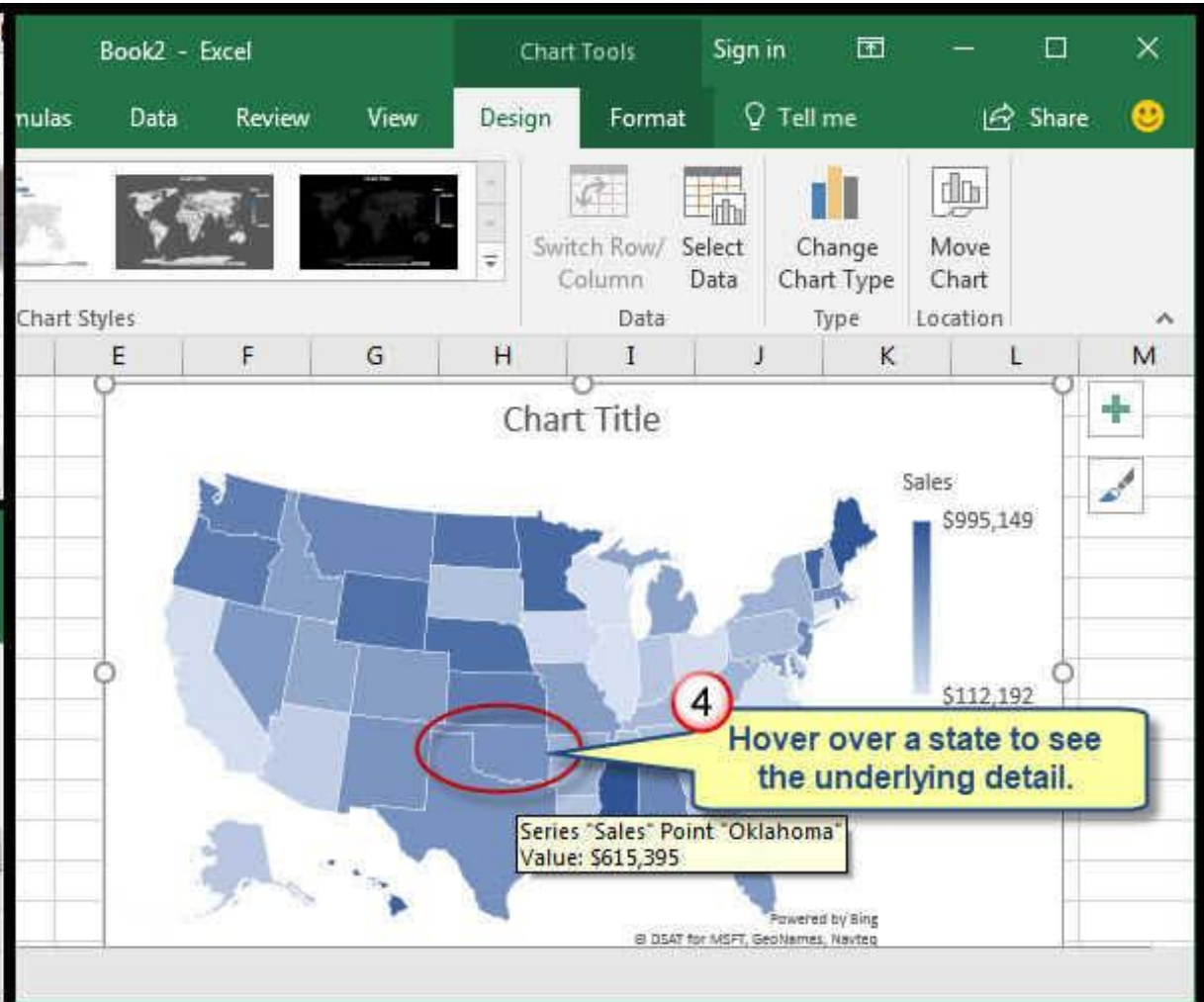
Map Charts (Excel 2019+)

State	Sales
Alabama	\$685,126
Alaska	\$283,695
California	\$152,016
Colorado	\$545,004
Connecticut	\$112,192
Delaware	\$244,098
Florida	\$572,401

Select any cell within any list that contains geographic data.

2 Choose Maps from the Insert menu.

3 You'll be prompted to accept that your data will be sent to Bing.





3D Models (Excel 2019+)

AutoSave

File Home **1** Insert Page Layout Formulas **2** Data Review View Tell me

PivotTable Recommended Table Online Pictures **3** 3D Models Store
PivotTables Tables Shapes Icons Illustrations Add-ins

Online 3D Models

Remix 3D **4** |

Choose a category, and then a picture.

You are responsible for respecting others' rights, including copyright. [Learn more here.](#)

5 Insert

	A	B	C	D
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				

3D images can be rotated as you wish in Office 365.

	A	B	C	D
1				
2				
3				
4				
5				
6				
7				
8				
9				

3D objects appear as static images on other Excel versions.



Spreadsheet Emojis (Excel 2019+)

The image is a composite of three screenshots from Microsoft Excel 2019+ illustrating the steps to insert and format a spreadsheet emoji.

- Step 1:** The **Insert** tab is selected in the ribbon.
- Step 2:** The **Icons** button in the **Images** group is highlighted.
- Step 3:** The **Insert Icon** task pane is open, and the **Animals** category is selected.
- Step 4:** A selection box is drawn around the bug emoji in the **Animals** gallery.
- Step 5:** The **Insert** button at the bottom of the task pane is clicked.
- Step 6:** The bug emoji is placed in a spreadsheet cell and is shown floating above the grid with a selection handle, indicating it can be moved or resized.
- Step 7:** The **Format** menu is visible in the **Graphics Tools** ribbon, which appears when the emoji is selected.



Background Removal (Microsoft 365 Only)

1 Click cell A1 of a blank worksheet, or choose the cell where you'd like to import a picture.

2 Click the **Insert** tab.

3 Click **Pictures**.

4 Choose an image when prompted.

5 Choose **Remove Background** from the **Format** menu.

6 Click **Keep Changes**.

7 The background is removed.



Excel Online

1 <http://office.live.com/start/excel.aspx>

2 Email, phone, or Skype

3 Next

No account? [Create one!](#)

4 Presently files can only be opened from OneDrive or Dropbox. You cannot open files directly from your computer.

Open from OneDrive

Open from Dropbox

Add a place

Change language

5 Excel Online is free, but limited in functionality. It does support most Office 365 features.

6 Be aware of this limitation.

Couldn't Open the Workbook

Sorry, we can't open your workbook in Excel Online because it exceeds the 5 MB file size limit.

[Learn more](#)

[Give Feedback](#)

OK

Excel online requires a free Microsoft account.

Excel Online

Recent

FILE HOME INSERT DATA REV

Undo Clipboard

Calibri 11

B I U D abc

Font

https://office.live.com/start/excel.aspx?



AutoSave Feature (Microsoft 365 Only)

1 AutoSave is disabled for documents saved to a local drive such as your computer or network.

2 File

3 Save
Save As

4 Choose your OneDrive Personal or Business account (required for Auto Save).

5 AutoSave Test
Excel Workbook (*.xlsx)
More options...

6 Save

7 AutoSave turns on automatically for documents saved to the cloud which includes OneDrive and SharePoint Online. AutoSave does not work with on-premises installations of SharePoint.

8 The Save and Save As commands are replaced with Save a Copy when AutoSave is enabled.

9 You can turn AutoSave off but must remember to do so on a document by document basis. It stays turned off for a given document until you turn it back on.



Historical Versions (Microsoft 365 Only)

1 There are pending changes that AutoSave has not changed yet...

2 ...so optionally click here or press Ctrl-S to force a save, or keep working and AutoSave will save after a brief period of time that seems to vary.

3 AutoSave confirms when the file is saved. Click here to display a version history menu...

4 ...or click here.

5 Previous versions are opened in a read-only state. Data can be copied and pasted into the live copy, or you can restore the previous version over the live file.

Version History

Today, May 21, 2018

DR	David Ringstrom saved the file	6:02 PM
DR	David Ringstrom saved the file	5:47 PM

Open version

Microsoft 365 Shared Workbooks

1 A new Share command enables you to share workbooks saved to your OneDrive account with others, or you can send attachments as before.

2 Two or more users can edit a shared workbook simultaneously. Accordingly a new AutoSave command turns on automatically. This only affects shared workbooks, but be sure to save a copy of workbooks that you may expect to purposefully close without saving.

3 File

4 Open

5 A new Shared With Me command enables you to easily locate files others have shared with you without having to search your email.

6 The Review menu in Office 365 has an Unshare Workbook command.

7 Circled features have vanished from the Review menu in Office 365.



Co-Authoring Workbooks (Microsoft 365 Only)

1 Workbooks you wish to share must already be uploaded to OneDrive. You'll be prompted to save the file there if needed.

2 This space requires you to use Outlook.

3 Choose Get Sharing Link to use any email software.

4 A notification appears when someone else opens the workbook.

5 You'll see the position of your cursor...

6 ...as well as others editing the file.

7 Cells actively edited by others change color. Changes others make appear in the spreadsheet after a slight delay.

8 Click the icon for another user to see where they are editing.

Restore Workbook Sharing/Track Changes

1

2

3

4

5

6

Double-click commands to skip the Add button.

Customize the Quick Access Toolbar.

Choose commands from:

Commands Not in the Ribbon

Track Changes (Legacy)

Track Changes (Legacy)

OK



Help Menu (Excel 2019+)

AutoSave On Book1 - Excel

File Home Insert Page Layout Formulas Data Review View **Help** Tell me what you want to do

Help Contact Feedback Show What's Community Blog Suggest
Support Training New Site a Feature

Help & Support

This Help menu is an example of a feature that appeared in Office 365, vanished for a few weeks, and then returned.

Office 365 very much marks a sea change in Excel. Previously Excel only changed every three years, when a new version was released. With Office 365 be prepared for feaures to appear and disappear without notice. Microsoft is purposefully making certain features only available to Office 365 subscribers,which in turn poses compatibility issues with perpetually licensed versions of Excel 2016.

Sheet1

Missing Folders Link on Recent Menu

1 File

2 Open

3 Recent

4 Folders

5 Account

6 Update Options

7 Update Now

Early builds of Excel 2016/Office 365 did not have the Folders link here for accessing and pinning recent folders. This has been added in recent builds. Some organizations are on semi-annual channels that delay Office 365 updates by 6 months or more.

In some cases you may have to uninstall and reinstall Office 365 to restore the link if Update Now doesn't restore the link.

Thank you for attending!

I'm happy to hear from you. In particular let me know if you did not receive the handouts for this presentation.

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Is there something you were hoping to learn today but didn't?
Please let me know. You can ask me anything about Excel.