

[ANNUAL CONFERENCE TOPIC]

EXCEL



By Bill Jelen

Reporting if All Records for a Department Are Complete

A reader sent in a question that provides a great example for this month's Excel article. Rod has a data set with a binary column at the end of the data set to indicate if the record is complete or incomplete. He would like to create a pivot table that would indicate if 100% of the records for each region, market, or model are complete. While pivot tables are excellent for summing or counting records, you might think this problem would be tough to solve with them because pivot tables don't support the ALL function. But there's an obscure calculation option that will allow you to solve this with a pivot table. And a formatting trick will even turn those binary values back into intuitive labels in the final pivot table.

Converting the Binary Column into Something Useful

Depending on the person who built the worksheet, the "binary column" might contain True/False values. It might contain text that says "Complete" or "Incomplete," or it might contain ones and zeroes. In order for the pivot table technique to work, the binary column

needs to contain a one to indicate a complete record and a zero to indicate an incomplete record.

If your binary column contains text as in Figure 1, a formula such as =IF(E2="Complete",1,0) would convert the Complete/Incomplete values to 1/0. If you happen to have TRUE/FALSE values in column E, then the formula =E2*1 will successfully convert TRUE to 1 and False to 0.

Figure 1

	B	C	D	E	F
1	Market	Model	Budget	Status	BinaryStatus
2	Raleigh	B	28591	Incomplete	0
3	Baltimore	E	45557	Complete	1

Creating the Pivot Table

Build a pivot table with the desired label fields in the row and column areas. Add the BinaryStatus field to the Data area of the pivot table. Initially, Excel will choose to sum the ones in the BinaryStatus field, as shown in Figure 2. While this might be mildly interesting, you can't tell if the cell is 100% complete because you don't know how many ones should be in each cell.

Using the Product Function

Most data fields in a pivot table are displayed as a sum or count, but there are a total of 11 calculation functions available: Average, Count, CountA, Max, Min, Product, StdDev, StdDevP, Sum, Var, VarP. I use Sum 98% of the time and Count 2% of the time. I've never used any of the other nine functions in 18 years of using pivot tables. To solve the current

problem, however, PRODUCT is the perfect function. The PRODUCT function will multiply all the ones and zeroes together. If 100% of the records are complete, the

result will be 1. If there's a single value that's a zero, the result will be 0.

Follow these steps to convert the SUM function to a PRODUCT function:

1. Choose a cell in the data area of the pivot table.
2. Click the Field Settings icon. (This is an icon with a white "i" in a blue circle. It is the second-to-last icon in the PivotTable toolbar in Excel 2003 and earlier. It is found in the Active Field group of the Options tab of the Excel

Figure 2

Region	Market	A	B	C
East	Baltimore	16	13	14
	Greensboro	7	11	19
	Islip	18	18	9
	Jacksonville	10	6	10
	Raleigh	10	7	14
	Tampa	13	7	11
East Total		74	62	77

Figure 3

Region	Market	A	B	C
East	Baltimore	1	1	1
	Greensboro	1	0	1
	Islip	1	1	0
	Jacksonville	1	0	1
	Raleigh	1	0	1
	Tampa	1	1	1
East Total		1	0	0

2007 ribbon.)

- In the Summarize By listbox, choose Product. Click OK.

The result is that a 1 will appear in the pivot table if every record for that cell is marked complete. If any records are incomplete, a 0 will appear, as shown in Figure 3. While this information is correct, most managers are going to want to see something more intuitive.

An Obscure Custom Number Format

Typically, custom number formats have a single formatting code:

- ◆ \$#,##0,K to display numbers in thousands
 - ◆ 0,,M to display numbers in millions
 - ◆ [h]:mm to display time in excess of 24 hours
- You can type multiple formats separat-

Figure 4

	A	B	C	D	E
1					
2					
3	Product o		Model		
4	Region	Market	A	B	C
5	East	Baltimore	Complete	Complete	Complete
6		Greensboro	Complete	Incomplete	Complete
7		Islip	Complete	Complete	Incomplete
8		Jacksonville	Complete	Incomplete	Complete
9		Raleigh	Complete	Incomplete	Complete
10		Tampa	Complete	Complete	Complete
11	East Total		Complete	Incomplete	Incomplete

The resulting pivot table will display “Complete” in blue and “In-

complete” in red for each cell in the pivot table (see Figure 4).

ed by semicolons. If you type two formats, the first format is used for positive numbers and zero, and the second number is used for negative numbers. If you type three or four formats, the first format is used for positive, the second format is used for negative, the third format is used for zero, and the optional fourth argument is used when the value is nonnumeric.

Since the results at this point will either be a 1 or a 0, you can define a custom number format to display one text if positive and another text if zero. You know that the result will never be negative, so that format code can be blank. You can also specify that the text should appear in one of eight colors: black, green, white, blue, magenta, yellow, cyan, or red.

Go back to the Field Settings dialog for the pivot table. In Excel 2003, click the Number... button. In Excel 2007, click the Number Format button. Choose Custom from the Category list box. In the Type box, enter:

[blue]“Complete”;;[red]“Incomplete”

complete” in red for each cell in the pivot table (see Figure 4).

The simple multiplication of the binary ones and zeroes means that the pivot table is accurate for all levels of subtotals. Cell E11 indicates that the model C information for the East is incomplete. You can scan through cells E5:E10 to see that the problem is in the Islip market.

While pivot tables are my favorite feature for summarizing numbers in Excel, the pivot table in this example uses some obscure techniques to accurately report completion toward a goal. **SF**

Bill Jelen is the host of MrExcel.com and will bring his Power Excel seminar to IMA's 90th Annual Conference & Exhibition. Send questions for future articles to IMA@MrExcel.com.

Excel is a topic at IMA's Annual Conference, June 6-10, 2009, in Denver, Colo. For information, visit www.imaconference.org.
