EXCEL ‹‹‹‹‹‹

By Bill Jelen

Counting Workdays in Nonstandard Workweeks

Excel has always been able to do arithmetic with dates. A new feature quietly introduced in Excel 2010 will make it easier to count workdays when you have nonstandard workweeks.

Counting Days

If you have two dates entered in cells in Excel, you can count the number of days between them by subtracting the earlier date from the later date. In Figure 1, a formula in cell G2 calculates 182 days using the formula =F2-E2. This is fine, but the result includes weekends and holidays.

If you work a traditional Monday through Friday workweek, the NET-WORKDAYS function can calculate the number of workdays. The function was available in the Analysis ToolPak in Excel 2003 and earlier and then rolled into the core Excel product starting in Excel 2007. The formula in cell G3 of Figure 1 calculates 131 days that fall on a Monday through Friday.

The NETWORKDAYS function optionally allows you to specify a final argument that shows a list of holidays. Any dates that appear in the holiday list are excluded from the count of workdays. In the figure, the orange range in A2:A12 lists federal holidays. The formula in cell G4 is =NETWORKDAYS(E4,F4,$A$2: $A$12) and calculates 123 workdays be-

tween the two dates.

Handling the Subsidiary in Dubai

Most people in my Power Excel seminars for various IMA® chapters work Monday through Friday, and NETWORK-DAYS is sufficient. But there are a number of situations where you have to account for foreign subsidiaries, and the work week is different. For example, in Dubai, the workweek begins on Sunday, and the weekend typically offers Friday and Saturday as the off days. Or perhaps a manufacturing plant has a large contract to fulfill and moves to a six-day workweek with only Sunday counting

Figure 1

▲	A	B	C	D	E	F	G	H
1	Holidays			Note	Start	End	Result	Formula
2	10/14/2013		Days		10/15/2013	4/15/2014	182	=F2-E2
3	11/11/2013		Workdays (M-F)		10/15/2013	4/15/2014	131	=NETWORKDAYS(E3,F3)
4	11/28/2013		Workdays (M-F)	no holidays	10/15/2013	4/15/2014	123	=NETWORKDAYS(E4,F4,$A$2:$A$12)
5	11/29/2013		Workdays (Mon-Sat)	no holidays	10/15/2013	4/15/2014	149	=NETWORKDAYS.INTL(E5,F5,11,$A$2:$A$12)
6	12/24/2013		Workdays (MWF)	no holidays	10/15/2013	4/15/2014	72	=NETWORKDAYS.INTL(E6,F6,"0101011",$A$2:$A$12)
7	12/25/2013		Tuesdays	no holidays	10/15/2013	4/15/2014	26	=NETWORKDAYS.INTL(E7,F7,"1011111",$A$2:$A$12)
8	1/1/2014		Mondays	no holidays	10/15/2013	4/15/2014	23	=NETWORKDAYS.INTL(E8,F8,"0111111",$A$2:$A$12)
9	1/20/2014							
10	2/17/2014							
11	5/26/2014							
12	7/4/2014							

as the weekend.

Beginning with Excel 2007, Microsoft included the NETWORKDAYS.INTL function (see the March 2012 column). With this function, you can specify which day or two days count as the weekend. Table 1 shows the codes that were available in Excel 2007. Cell G5 calculates the workdays for a six-day workweek.

With this new function, the common situations such as foreign subsidiaries or six-day workweeks are easily handled. But there are many businesses that might work unusual workweeks. Barber shops traditionally used to be closed on Sundays and Wednesdays. My local farmer's market operates on Monday, Thursday, Friday, and Saturday. All of these wouldn't work with the NETWORKDAYS.INTL function in Excel 2007.

The Seven-Digit Weekend Argument

If you have upgraded to Excel 2010, the tooltip for NETWORKDAYS.INTL continues to list the 14 codes shown in the table. If you click through to Excel Help, however, you'll find that the function now accepts an alternate syntax for the weekend argument.

Starting in Excel 2010, the weekend argument can also be a string of seven digits. The digits will be either 1 or 0. The first digit corresponds to Monday. The second digit is Tuesday, and so on, up through the seventh digit representing Sunday. If the digit for a particular

Table 1. NETWORKDAYS.INTL Weekend Values	
Value	**Weekend Days**
1	Saturday, Sunday
2	Sunday, Monday
3	Monday, Tuesday
4	Tuesday, Wednesday
5	Wednesday, Thursday
6	Thursday, Friday
7	Friday, Saturday
11	Sunday
12	Monday
13	Tuesday
14	Wednesday
15	Thursday
16	Friday
17	Saturday

day is 0, the business is open on that day. If the digit is 1, then the business is closed on that day.

For example, a business open on Monday, Wednesday, and Friday would use "0101011," as shown in cell H6 in the figure. The code for a barber shop would be "0010001." This new style code also can be useful for calculating how many Mondays (or Tuesdays, etc.) fall between two dates. If you specify "0111111" as the weekend, the formula will only count Mondays. Rows 7-8 in Figure 1 show how to calculate the number of Mondays or Tuesdays between two dates. In all, there are 128 different valid weekend codes using this argument.

As an aside, the Excel team never really promoted this change. By burying it

in Excel Help and not mentioning it in the function's tooltip, it has remained one of the great secrets in Excel.

WORKDAY.INTL

The new syntax also works with the WORKDAY.INTL function. This function allows you to specify a start date and then calculate a date that is N workdays away. For example, to calculate 25 workdays from today, you would use =WORKDAY(TODAY(),25,A$2:A$12). Excel 2007 introduced a WORKDAY.INTL function that allowed the same weekend arguments shown in the table. Excel 2010 now allows you to specify the weekend using the seven-digit syntax. To find the workday that is 17 Fridays from today, use =WORKDAY.INTL (TODAY(),"1111011",$A$2:$A:12).

Not Backwards Compatible

Normally, if a workbook using a new function is opened in an older version of Excel, the function returns a #NAME? error. If the workbook uses the new seven-digit weekend argument for either NETWORKDAYS.INTL or WORKDAY.INTL, however, Excel 2007 will treat the text as a weekend code of 0, which will return a #NUM! error. **SF**

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