

Using the CELL & INDIRECT Functions

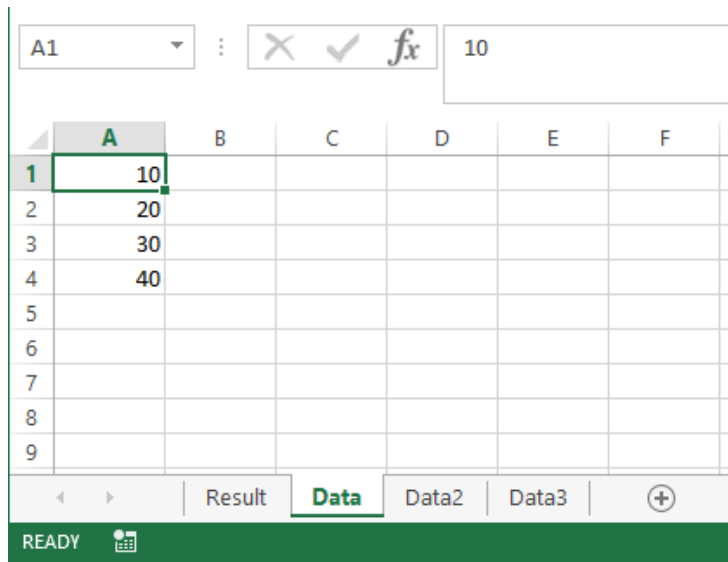
Here is a question put to us last month:

“In Worksheet One I have created a formula to identify the cell address I require in Worksheet Two. The result is C31. I now want to return the Value in the Cell C31 from Worksheet Two into another cell in Worksheet One. How can I dynamically reference the Cell Value?”

To tackle this requirement and extend it a little further I have created a workbook with several worksheets in it, Data (worksheet Two) and Result (Worksheet One) plus some other Data worksheets.

The workbook used for these examples can be downloaded from here:

<https://www.ptr.co.uk/excel/indirect-cell-functions.xlsx>.




	A	B	C	D	E	F
1				Input Value	Cell To Use based on D2 Input	Value Based on D5 Input
2	Value from Cell A1 on Data Worksheet:	10		Second	'[Excel INDIRECT & CELL Reference functions.xlsx]Data'!\$A\$2	20
3						
4	Result of CELL Function:					
5	'[Excel INDIRECT & CELL Reference functions.xlsx]Data'!\$A\$1			Value in Cell E2		20
6						
7					Cell & Worksheet to use based on Cell D2	
8						110
9						

Data2 contains the following:

	A	B	C	D	E
1	110				
2	120				
3	130				
4	140				
5					
6					
7					
8					
9					


Navigation: < > | Result | Data | **Data2** | Data3

READY 

Data3 contains the following:

	A	B	C	D	E
1	210				
2	220				
3	230				
4	240				
5					
6					
7					
8					
9					

Navigation: < > | Result | Data | Data2 | **Data3**

READY 

The Results Worksheet

In this example the value that is entered into cell **D2** is inspected and determines which cell value from the Data worksheet will be displayed in cell **E5**.

The cell address in **E2** is derived from a formula. In this example the formula is as follows:

```
=IF(D2="First",CELL("address",Data!A1),IF(D2="Second",CELL("address",Data!A2),IF(D2="Third",CELL("address",Data!A3),CELL("address",Data!A4))))
```

```
=IF(D2="First",CELL("address",Data!A1),IF(D2="Second",CELL("address",Data!A2),IF(D2="Third",CELL("address",Data!A3),CELL("address",Data!A4))))
```

The formula is rearranged below to show the logic a little more easily.

```
=IF (
  D2="First",
  CELL("address",Data!A1),
  IF (
    D2="Second",
    CELL("address",Data!A2),
    IF (D2="Third",
      CELL("address",Data!A3),
      CELL("address",Data!A4)
    )
  )
)
```

The behaviour of this formula is explained here:

1. If cell D2 contains the string "First" then return the address of cell A1 on worksheet "Data".
2. If Cell D2 contains the string "Second" then return the address of cell A2 on worksheet "Data".
3. If Cell D2 contains the string "Third" then return the cell address of cell A3 on worksheet "Data".

Cell E5 contains the following formula to use the value of cell E2 as an actual cell address and retrieve the value contained within that cell.

```
=INDIRECT(E2)
```

The IF Function

The IF Function enables conditional actions to be taken.

We can carry out a test and if that test is true then return one value and if it is false return an alternative value.

The general format for the IF function is as follows:

```
IF(logical_test, value_if_true, [value_if_false])
```

The logical test can be any test that evaluates to TRUE or FALSE.

The [value_if_false] argument is optional.

For example:

```
=IF(D2 = "First", "A", "B")
```

This formula will place an "A" in the current cell if the value in D2 is "First", and will place a "B" in the current cell if D2 does not contain the value "First".

In the following example no false value is provided:

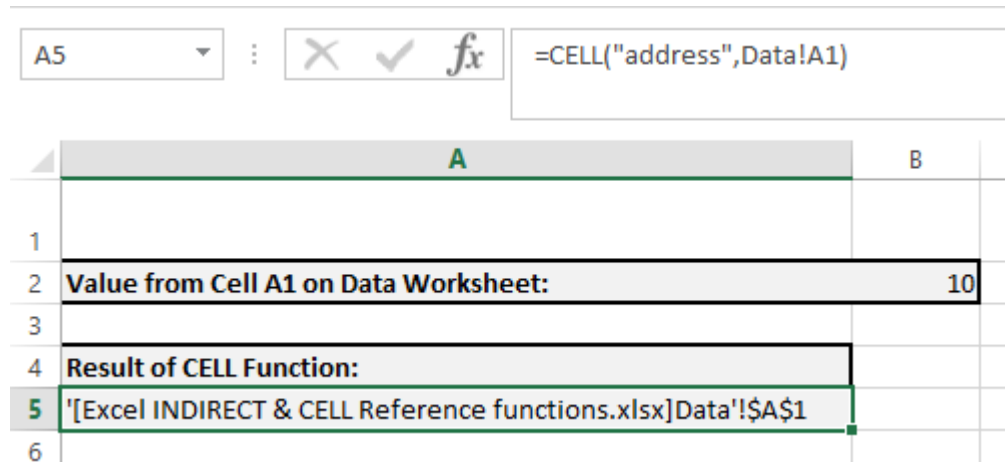
```
=IF(B2<=10,"LOW")
```

If the value on cell B2 is less than or equal to 10 then the string "LOW" is placed in the current cell. If it is not less than or equal to 10 then nothing is placed in the current cell.

A		B	C	D
1				Input Value
2	Value from Cell A1 on Data Worksheet:	10		Second
3				
4	Result of CELL Function:			
5	'[Excel INDIRECT & CELL Reference functions.xlsx]Data'!\$A\$1			Value in Cell E2
6				
7				
8	B			
9	LOW			
10				

The CELL Function

The following screen shot shows the behaviour of the CELL function.



The formula in cell A5 shown above requests the cell address of cell A1 on the worksheet called Data.

The CELL function is used as follows:

```
CELL(info_type, [reference])
```

Info_type is used to indicate what type of information is to be retrieved for the given cell reference. In this example we are asking for the absolute address of the given cell by specifying “**address**”.

- The info_type argument can take a number of values (see the following link for full details: <https://support.office.com/en-us/article/CELL-function-51bd39a5-f338-4dbe-a33f-955d67c2b2cf>).

[reference] should be replaced with a cell reference, **Data!A1** in this example.

Cell A5 shows the absolute cell reference for cell A1 on the Data Worksheet.

'[Excel INDIRECT & CELL Reference functions.xlsx]Data!\$A\$1

As the referenced cell was on a different worksheet the address includes the workbook name and worksheet name as a prefix to the absolute cell reference \$A\$1.

The formula in cell A5 can be seen to be:

```
=CELL("address",Data!A1)
```

The INDIRECT Function

The INDIRECT function returns the value of a given cell reference, where the cell reference is provided as a string.

In the following example cell E5 contains the value of the cell reference in cell E2:

		A	B	C	D	E	F
1					Input Value	Cell To Use based on D2 Input	Value Based on D5 Input
2	Value from Cell A1 on Data Worksheet:		10		Second	"[Excel INDIRECT & CELL Reference functions.xlsx]Data"!\$A\$2	20
3							
4	Result of CELL Function:				Value in Cell E2		
5						20	
6							
7						Cell & Worksheet to use based on Cell D2	
8	B						110

Cell E5 contains this formula:

```
=INDIRECT (E2)
```

The following example shows the INDIRECT function used in combination with an IF statement to determine which worksheet and cell to retrieve a value from:

```
=INDIRECT(IF(D2="First","Data!A1",IF(D2="Second","Data2!A1",IF(D2="Third","Data3!A1","Data4!A1"))))
```

In the following example the value 110 in cell E8 has come from cell A1 on Worksheet Data2.

		A	B	C	D	E	F
1					Input Value	Cell To Use based on D2 Input	Value Based on D5 Input
2	Value from Cell A1 on Data Worksheet:		10		Second	"[Excel INDIRECT & CELL Reference functions.xlsx]Data"!\$A\$2	20
3							
4	Result of CELL Function:				Value in Cell E2		
5						20	
6							
7						Cell & Worksheet to use based on Cell D2	
8	B						110
9	LOW						
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							

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<http://ptr.co.uk/microsoft-office-courses>.