

Excel Formula Analysis Tool

Introduction

This is written in Visual Basic for Applications (VBA), an Object Oriented Programming (OOP) environment available with Microsoft Office suite. Beside VB code (macros), this tool is built on Forms (popup windows) showing some info (formula, location, value, ...) and makes use of buttons and toggles to determine user's desired actions.

If you some time struggle with Excel formulas, don't know/understand how a formula works, you probably know (or should know) the "Evaluate Formula" tool, made to debug it (in the Ribbon, under FORMULAS tab, Formula auditing section if you didn't already added it to the Quick Access Toolbar).

This is very usefully, but sometimes, I don't want to evaluate a formula, but rather see where the referenced cells inside that formula come from.

As example, in below .xlsx file, what does compose a price element in "E5" cell from "WITO Pricing" sheet ?

Formulas refer to cells in other sheet, then in other, ... and not always obvious to follow up, go back up the thread. Other said, from cells inside a formula, navigate in Excel workbook to see where this comes from, what impact / modify as formula, its value.

This is the purpose of this small tool : analyze / navigate inside a formula, and go down to any referenced cell or range of cells, and so on recursively (up to 10 levels down). And of course you may go back to where you initiated your journey, ... or just escape where you landed.

Inspect Cell/Range [1]	
Cell '[Project_OK_Consult_Template_v25_Final_110714.xlsx]4. WITO Pricing'!	
<code>=IF('Opportunity Overview'!\$C\$44="Mgm't & Maint", '4. WITO-Supported HW'!I32, IF('Opportunity Overview'!\$C\$44="Mgm't Only", '4. WITO-Supported HW'!J32))</code>	
Formula value	0
Cell / Range selected in [E5]	
Full Address	'[Project_OK_Consult_Template_v25_Final_110714.xlsx]4. WITO-Supported HW'!E5
First cell Value	0
First cell Formula	=I31+K31

Excel configuration

Same as for any file with macro inside :

In File / Options / Trust Center / Trust Center Settings... / Macro Settings : click "Disable macros with notification" and "Trust access to VBA project object model".

How it works ?

In few words :

- **Title bar** (in blue) show the level, between square brackets. Will increase each time you go down (starting at 0), here [1]
- **Yellow header** is the cell being viewed, with full reference : [filename]tab!celladdress (you can have only the cell address by pressing Ctrl-Ins or just clicking on it)
- **Main formula area** (first white area) : current cell formula, and inside it, highlighted, one cell / range reference. You move from cell to cell (range) with :
 - **Left / Right** arrows or **(Shift-)Tab** : move to previous / next cell reference
 - **Home** : move to start of formula (on “=” sign, no cell reference selected)
 - **End** : move to last reference cell
 - **Page Up / Down** : move 10 references left or right
 - You can also **double-click on a cell** (range) inside a formula to select itExcel window should move up/down/right/left so that the selected cell (range) of the formula is visible somewhere on your screen.
- Then, next field show current cell **Formula value**.
- Next section in the **Cell / Range frame** is relative to the above highlighted cell / range (with its reference / short address between square brackets in frame title)
 - Its **full address** (with path, ...)
 - Its **value** (the one of first cell if selected reference is a range)
 - Its **formula** (or value if no formula)
- Pressing **DOWN** arrow (or **Enter**) will go one level down to that cell / range, and eventually move to it :
 - Select its sheet, ask to unhide if hidden, and try to move inside the sheet so the cell will be visible on the screen (scroll), and click the first main area (the formula).
 - Will move to / activate other workbook (file) if already open, but you'll have to manually (Alt-TAB, ...) come back to calling file.
 - If referenced cell is from closed external file, Value field will show “#INVALID/UNAVAILABLE_REF#” error message.
- **UP** will go back up
- **ESC** to exit, back from where you initially call it
- **Pause/Break** to exit where you are
- **F1** for a very quick help
- **Shift-arrows** : When you have a range selected (from an upper formula), you can move inside the range with Shift-arrows. When a range is selected, you'll see the range address with “:” inside, but also the relative active/selected cell position inside the range is shown between square brackets at start of yellow header : **Cell[m,n]**.
- **Crtl-arrows** will scroll inside current view (window)
- **Insert** or click “**Show / Hide navigation buttons**” at top right : Toggle the “mouse buttons”, to use it with the mouse (but keys are more effective, as usual)
- **Crtl-Insert** or **click yellow header** : toggles the full / short cell address in yellow header. Full cell address includes file and sheet (tab) names.
- If you're outside the tool (window title bar not highlighted), or don't seem to work properly (focus set to other field/area), **click on main formula area** to activate it back. Arrows keys to navigate work only if main area has the focus (is the selected one, this is where the cursor is).

That's it !

No, it is not too complex to use, just give it a try.

The only issue is that you get shortly lost in *your* workbook maze ...

Installation and use

1. Import Forms and Macro in Excel Visual Basic :

Extract the joined ZIP file in a directory of your choice.

Then from Excel, press [**Alt-F11**] and enlarge the new 'Microsoft Visual Basic' window.

Select **VBAProject(PERSONAL.XLSB)** in Project window, so that the tool will be part of your Excel *profile*, be available from any file.

If you don't have yet a PERSONAL.XLSB file (to hold your macros, ...), open a new workbook and save it as : C:\Users\<<yourID>\AppData\Roaming\Microsoft\Excel\XLSTART\PERSONAL.XLSB (select Excel Binary Workbook (.xlsb) in "Save as type:" field).*

Right-click on **VBAProject(PERSONAL.XLSB)**, select "Import File ...", then **XL_FormulaFormV1.frm** and **XL_FormulaInspectV1.bas** successively (from where you unzipped it).

Or any other way you prefer.

First is the form (actually two files `.frm` and `.frx`, but need to / can only select one), second contains main / calling macro (and some other I wrote, but not needed).

Save personal file.

You have it installed.

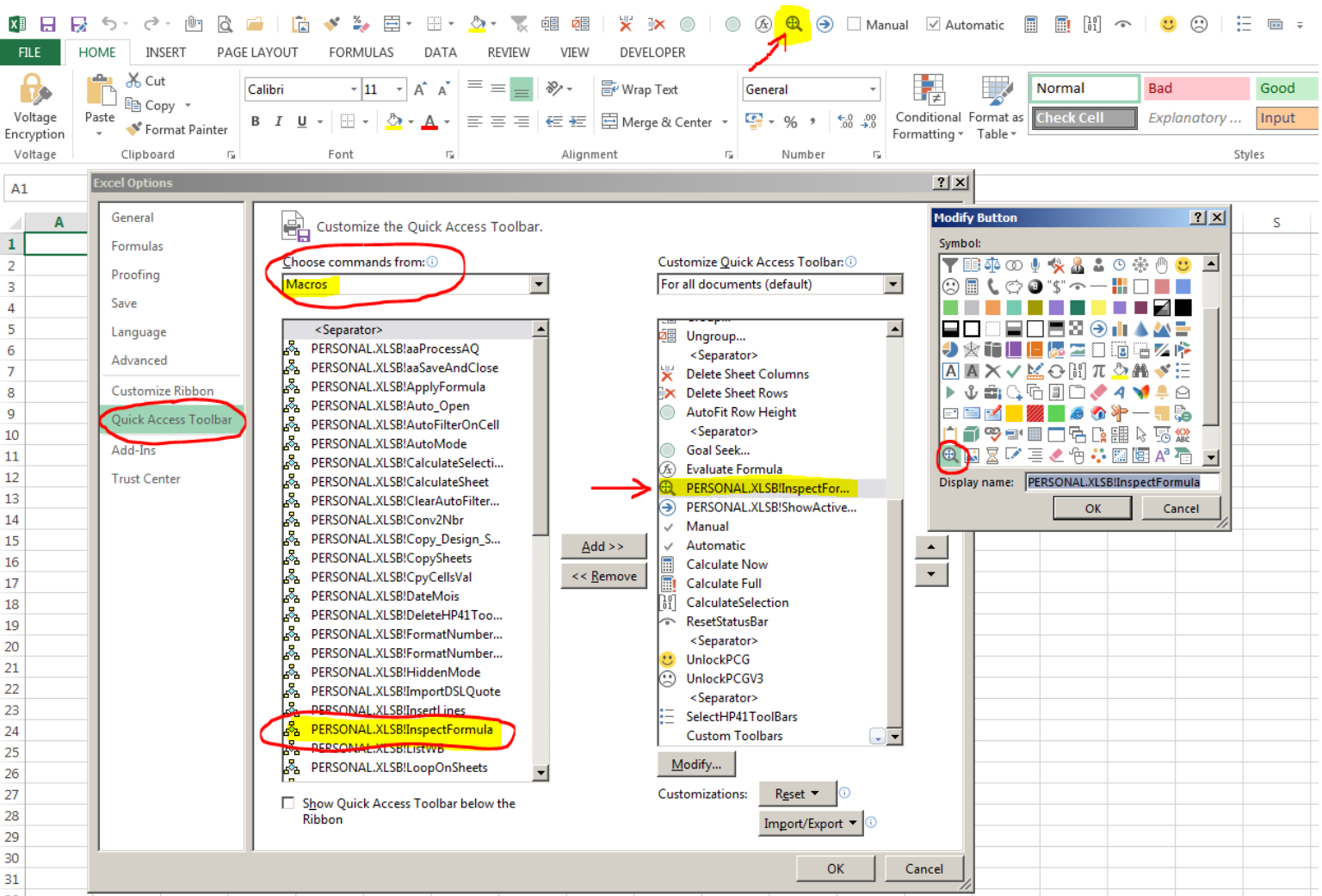
2. How to use it ?

You need to access macros available in your Personal or other files. You have multiple ways to access / run those. Here, from any cell, you need to run the `InspectFormula` macro through :

- a. VIEW tab on Ribbon / Macros (/ View Macros) / Select `PERSONAL.XLSB!`
`InspectFormula` and click Run
- b. Add DEVELOPER tab in your Ribbon, and same from there
- c. **Add the Macro to Excel Quick Access Toolbar** : Quick Access Toolbar is the window header (in blue), where you can add some buttons for quick function access:
 - i. Right-click the Ribbon (on empty area)
 - ii. Select "Customize Quick Access Toolbar ..."
 - iii. In left columns, select "Quick Access Toolbar ..."
 - iv. Choose commands from ... Macros
 - v. Select `PERSONAL.XLSB!InspectFormula` then click Add button

- vi. Move it up/down (= left/right on toolbar), click Modify to give it another icon (I've selected the magnifying glass with arrows inside, but choose what speak to you ...)
 - vii. And you're done (after OK, without forgetting to Save)
- See in figure below main steps (ok, my Quick Access Toolbar is quite filled other shortcuts and macros).

Suggest to close Excel completely and open (other) file to check.



Disclaimer

- First, I build this mainly for the fun of it, by curiosity, for the challenge. And I had a lot of fun spending some evenings, WEs, holidays on it over last year (from when the idea popped up, up to now). This is obviously not the first version of this tool, but my first release.
- This tool is not fully bug free. Either because I didn't programmed it deeply enough, or (mainly ? ;-) because of Excel bugs (Excel not doing things as (I would have) expected).
- Use it at your own risk. I don't remember it screw up my sheet (no changes to any content), but still suggest to save your file(s) before using it.
- Do not abuse, secondary effect could lead to some headache.

Uninstall - Inactivate

To remove this utility, just delete them from where you import it, or to inactivate them, set the Excel Security level to High (and restart).

Have fun,

Pierre Hardy.