

Rainbow 12.0 Update Guide

Mike Shallcross, 24 May 2020

Update procedure

Individual users

Individual users can update to version 12 either by using the Check For Updates function in Rainbow, or by manually downloading and executing the installer file RainbowPro.exe, which is available for download at <https://www.themodelanswer.com> or from:

<https://www.themodelanswer.com/downloads/RainbowPro.exe>

Remote deployment

In corporate environments using SCCM or other remote configuration management systems, the update can be deployed by overwriting the previous (version 11.4) add-in file RainbowPro.xlam in the user's add-ins folder (normally C:\Users\[user name]\AppData\Roaming\Microsoft\AddIns). There is no need to change or re-initialise any of the registry keys that have already been set. The current (version 12.0) add-in file is available to download from:

<https://www.themodelanswer.com/downloads/RainbowPro.xlam>

Alternatively, if there is a need to retain the previous version of Rainbow alongside version 12.0, then the existing add-in file in the user's add-ins folder should first be renamed, e.g. as RainbowPro11.xlam. The current add-in file RainbowPro.xlam can then be deployed to the user's add-ins folder as described above.

Saved preferences

If the user has saved preferences, and particularly if they have saved favourite analysis options (in the Risk Map and Logic Analysis functions), then these saved preferences will be applied automatically to the new version of Rainbow. However, because the order of analysis options has changed, the saved favourites may no longer be the same as before.

The user can of course correct any differences manually, or alternatively they can restore the standard default preferences. To do this, they will need to click under Preferences (on the Rainbow tab), then click Restore Defaults, and click No when asked if they wish to remove the existing Rainbow licence.

New features overview

Although version 12 includes some major new features, great care has been taken to ensure that there is backward compatibility and minimum disturbance for existing users. The main new features in version 12 are summarised below:

- The number of analysis options (in Risk Map and Logic Analysis) has been expanded from 36 to 48, by adding two new tabs in Logic Analysis and moving some items across from Risk Map to the new Logic Analysis tabs. This has enabled the addition of some powerful new analysis options to Risk Map, and re-positioning of Logic Analysis as primarily a visual

mapping function. We have provided below (as an appendix) a comparative table of the analysis options in version 11 and version 12.

- Version 12 recognises the important new features introduced in recent versions of Excel (in Office 365). The new Hidden operators option in Risk Map reports instances of the “implicit intersection operator” @, and the Array formulas option in Risk Map (and in the Summary Report) lists occurrences of the new dynamic arrays, and also the Error values option includes the new #SPILL! error. In addition, the new “threaded comments” are now included in the Comments Report and the Delete Comments function (and in the Summary Report).
- Version 12 offers much-expanded functionality for analysing Visual Basic macro code. Specifically in Risk Map there is now an option to analyse macros and report any macros designed to run automatically (potentially a major security risk) and any which appear to have been generated using Excel’s “Record Macro” function (which often produces poor-quality code). And the Comparison Toolbox can now compare macros in two workbooks and generate a detailed list of differences, including lines inserted and deleted.
- There is a completely new Deep Clean menu item in version 12, with subsidiary Deep Compare and Temp Files functions. Whereas all other Rainbow functions operate on Excel workbooks as loaded into memory (in a similar way to the normal Excel menu), these new functions operate on the workbook files as saved to disk, and this enables them to clean up some file corruption issues that cannot be resolved through the normal Excel interface. These functions are explained further below.

Deep Clean functions

Since the introduction of Excel 2007, Excel workbooks have been saved in a format known as Open XML, which consists of a set of text files and folders with a defined (XML - eXtensible Markup Language) structure, compressed into a single file using the ZIP algorithm. This means that it is possible to de-compress, analyse, and in some instances edit these XML text files, to resolve issues or provide information which is not accessible through the normal Excel interface. Version 12 offers the following new functions for working with these XML files:

- Deep Clean can resolve problems with excess cell styles (excess formats) that are caused by file corruption and cannot be fixed with Rainbow’s Clean Up Formats function. It can also list, and often remove, the “phantom links” that sometimes appear in Excel workbooks, when you are prompted to update certain links on opening the workbook, but the links are not listed by Excel (in the Edit Links function) or in Rainbow’s Data Links function.
- There can be many differences between different versions of an Excel workbook, for instance in drawing objects or external data sources, which cannot be detected in the usual comparisons of cell contents or even macro code. The Deep Compare function compares all the underlying XML files and provides a graphical view of the differences, to show all the main areas of change between different versions of a workbook.
- The Temp Files function simply opens a File Explorer window on the temporary folder that Rainbow uses to store the unzipped XML files that are the basis for the Deep Clean and Deep Compare functions. This allows easy access to examine these files in detail if needed.

Appendix: Comparative Risk Map and Logic Analysis tables

Table of Risk Map items

Old tab	Old item	Comments	New tab	New item	Comments
Patterns (tab 1)	Lone cell types		Patterns (tab 1)	Lone cell types	
2	Lone formulas		2	Lone formulas	
3	Hard-coded numbers	To item 4	3	Different formats	From tab 2 item 2
4	Hidden error values		4	Hard-coded numbers	From item 3
5	Outlier numbers		5	Outlier numbers	
6	Variant text values		6	Variant text values	
Formats (tab 2)	Error values		Checks (tab 2)	Error values	
2	Different formats	To tab 1 item 3	2	Hidden error values	From tab 1 item 4
3	Numbers formatted as text	To tab 4 item 3	3	Excel error checks	New item
4	Same font and background colour	To tab 4 item 5	4	Conditional formatting	From item 5
5	Conditional formatting	To item 4	5	Data validation	From item 6
6	Data validation	To item 5	6	SUM containing subtotals	New item
Formulas (tab 3)	Complex conditions		Formulas (tab 3)	Complex conditions	
2	Multiple operations		2	Multiple operations	
3	Multiple references		3	Multiple references	
4	Lookup and related functions		4	LOOKUP functions	Combines items 4 and 5
5	Lookup requiring ordered list	Combined with above item	5	Volatile functions	New item
6	Array formulas		6	Array formulas	With new functionality
Other (tab 4)	Constant numbers	To Logic Analysis tab 1 item 1	Hidden (tab 4)	Cells in hidden row or column	New item

2	Calculated numbers	To Logic Analysis tab 1 item 2	2	Hidden-format formulas	New item
3	Constant text values	To Logic Analysis tab 2 item 1	3	Numbers formatted as text	From tab 2 item 3
4	Calculated text values	To Logic Analysis tab 2 item 2	4	Formulas formatted as text	New item
5	Unlocked cells (all)	To Logic Analysis tab 2 item 5	5	Invisible cell contents	From tab 2 item 4 plus new functionality
6	Unlocked formula cells	Combined with above item, also in tab 2 item 3	6	Hidden operators	New item

Table of Logic Analysis items

Old tab	Old item	Comments	New tab	New item	Comments
			Cells (tab 1)	Constant numbers	From Risk Map tab 4 item 1
			2	Calculated numbers	From Risk Map tab 4 item 2
			3	Constant date values	New item
			4	Calculated date values	New item
			5	Constant logical values	New item
			6	Calculated logical values	New item
			Data (tab 2)	Constant text values	From Risk Map tab 4 item 3
			2	Calculated text values	From Risk Map tab 4 item 4
			3	Defined scenarios	New item
			4	Formulas without cell references	New item
			5	Unlocked cells	From Risk Map tab 4 item 5
			6	Hidden-formula cells	New item
Precedents (tab 1)	Inconsistent precedent copies	To tab 4	Dependents (tab 3)	Blank input cells	From tab 2
2	Precedent block inconsistencies	To tab 4	2	Non-blank input cells	From tab 2

3	Precedents only part of block	To tab 4	3	Intermediate workings	From tab 2
4	Precedents referring forwards	To tab 4	4	Circular references	From tab 2
5	Precedents of different cell type	To tab 4	5	Output calculations	From tab 2
6	Cells with blank precedents	To tab 4	6	Labels	From tab 2
Dependents (tab 2)	Blank input cells	To tab 3	Precedents (tab 4)	Inconsistent precedent copies	From tab 1
2	Non-blank input cells	To tab 3	2	Precedent block inconsistencies	From tab 1
3	Intermediate workings	To tab 3	3	Precedents only part of block	From tab 1
4	Circular references	To tab 3	4	Precedents referring forwards	From tab 1
5	Output calculations	To tab 3	5	Precedents of different cell type	From tab 1
6	Labels	To tab 3	6	Cells with blank precedents	From tab 1