

# Riqas-To-MultiQC, user manual

Riqas-To-MultiQC is a program primarily designed to work in conjunction with MultiQC, the QC software by the same author ([www.multiqc.com](http://www.multiqc.com)). One of the innovations of MultiQC is to associate EQA and IQC on the same charts to provide the technical staff of the laboratory with a very powerful tool to monitor the quality of analytical methods. Laboratories who subscribed to the RIQAS (Randox International Quality Assurance Scheme) can take advantage of the electronic reports to easily copy their EQA returns to the QC software without having to re-type data. Riqas-To-MultiQC can

- Read the Riqas files.
- Display the results of the laboratory and the target values.
- Select a target value between the **peer** group, the **same method** group or the **all methods** group and calculate the relevant score.
- Copy the laboratory EQA results and the target values to MultiQC.

Riqas-To-MultiQC can also be used alone as a simple “Riqas returns viewer”. The present version of the Riqas client software (1.3) suffers from a poor visual interface. Browsing through the different returned files is rather tedious. Riqas-To-MultiQC is a much better alternative for that purpose.

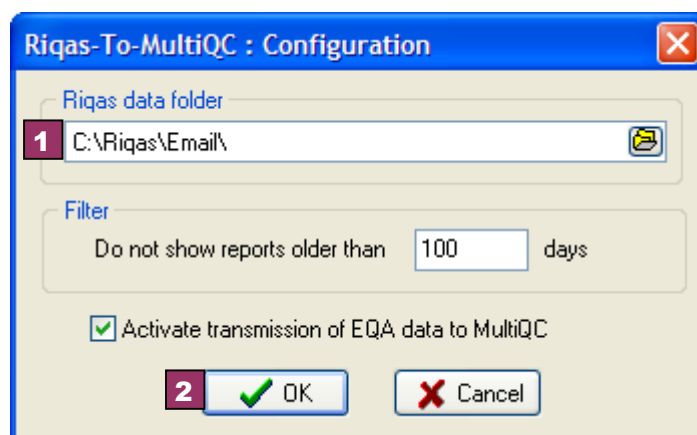
## 1. Connecting to files returned by Randox

RIQAS reports are returned by email in attachments with the extension `<*.dnl>`. You are asked by Randox to save these attachments to the folder `C:\Riqas\email`. The RIQAS client software will thereby be able to process the EQA returns. The files are then renamed with the extension `<*.dat>`.

Riqas-To-MultiQC can equally read the `<*.dnl>` and `<*.dat>` files. So the program can work with Riqas files either before or after processing by the Randox client software.

The first time you will launch Riqas-To-MultiQC, the treeview of the laboratory work areas will immediately show all of the available EQA reports if you have not changed the default Riqas folder defined by Randox `C:\Riqas\Email`). If you selected another folder, your treeview will stay blank and it will be necessary to browse to your actual Riqas folder

- Click the menu **Configuration** of the main window to open the dialog shown below



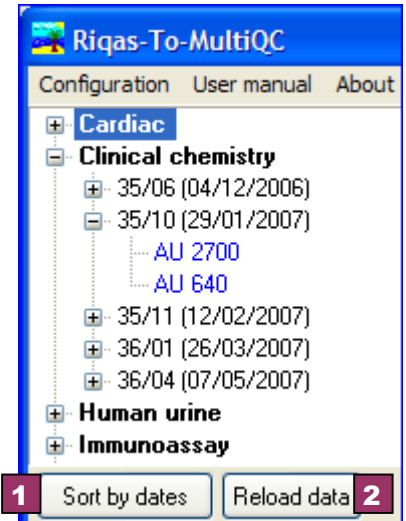
- Browse to your actual Riqas folder (1)
- Validate with **OK** (2).

## 2. The treeview on the left of the main window

### ➤ Description

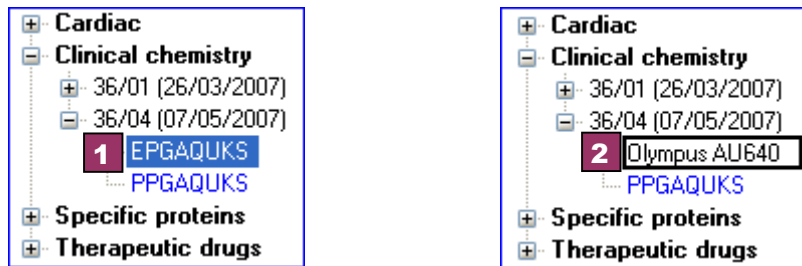
The treeview on the left of the main window is used to browse to any Riqas return you want to display. Two buttons are available at the bottom of the treeview :

- **Sort by programs/dates (1)** : To change the nodes of level 1 in the treeview.
- **Reload data (2)**: To read again the Riqas files. This is useful to update the main window when a new file has been copied to the Riqas folder.



### ➤ Renaming the work areas

The work areas declared in the Riqas enrolment document are displayed in the treeview on the left of the main window. Their names are encrypted by Randox in a sequence of 8 characters. This is not very practical for the users of Riqas-To-MultiQC. It is therefore recommended to replace these codes by clearer names:



- Left-click once on the code to replace (1) to select it (white characters on a blue background).
- Left-click a second time on the code (2) to activate the in-place editor (Black rectangle around the field).
- Enter the actual name of the work area. You will surely recognize which area is concerned looking at the list of the tests in this area
- Type the key **Enter** to validate the name. The whole treeview is updated with the new name.

## 3. The Riqas returns

The Riqas returns are displayed in a the right panel of the main window

Test name	Lab result	Peer group	Same method	All methods	Unit	Specif.	Bias	Score
Alkaline Phospha...	✓ 138.000	47 <b>132.503</b>	288 118.454	1517 121.801	U/l	10	4,1	↑ 88
ALT (GPT)	✓ 32.400	125 33.128	1143 <b>33.035</b>	1650 34.059	U/l	10.9	-1,9	● 120
Amylase, Total	✓ 71.000	62 <b>70.407</b>	176 73.986	1189 77.549	U/l	10	0,8	● 120
AST (GOT)	✓ 25.600	121 25.498	1095 <b>25.429</b>	1588 27.182	U/l	10	0,7	● 120
Bicarbonate	✓ 8.900	34 <b>9.742</b>	232 10.329	505 10.369	mmol/l	10	-8,6	↓ 56
Bilirubin, Direct	✓ 9.800	109 <b>9.253</b>	147 9.294	1192 8.459	mg/l	25	5,9	● 113

↔ You can resize the width of each column.

➤ **Columns of the grid**

- 1- Test names as defined by Randox
- 2- Results sent by your laboratory to Randox. If the leading checkbox is unticked, the relevant result will not be transmitted to MultiQC.
- 3-4-5- Target values calculated by Randox thanks to the results of Riqas participants. The first number in each column (small blue characters) is the number of participants and the second one is the mean of the group.
- 7- Specifications defined by Randox (%).
- 8- Relative bias (%) between the laboratory and the target value.
- 9- Score according to Randox :

Score	Comment	Bias/Specifications	Icon
101 - 120	Excellent	<32%	●
71 – 100	Good	<63%	↕↕
51 – 70	Acceptable	<100%	↕↕
41- 50	Poor	<126%	↕↕
0 - 40	Unacceptable	>126%	↕↕

➤ **Changing the target values**

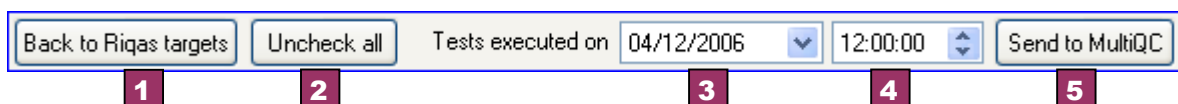
Target values adopted by Randox are the means of **peer** groups when the number of participants is high enough in these peer groups. You may change to the **same method** group or to the **all methods** group by clicking on a cell of the column 4 or 5. Actual target values are denoted by bold characters on a blue background. Scores are updated according to the selected target value.

Click on a cell to change the target group

Test name	Lab result	Peer group	Same method	All methods	Unit	Specif.	Bias	Score
Alkaline Phos...	<input checked="" type="checkbox"/> 194.000	41 208.805	255 <b>191.565</b>	875 198.006	U/l	10	1,3	● 120
ALT (GPT)	<input checked="" type="checkbox"/> 37.800	78 36.597	606 <b>36.021</b>	917 37.838	U/l	10.9	4,9	↕ 84
Amylase, Total	<input checked="" type="checkbox"/> 107.000	38 106.939	66 109.749	725 <b>110.0...</b>	U/l	10	-2,7	● 106
AST (GOT)	<input checked="" type="checkbox"/> 36.700	76 35.907	575 36.000	882 <b>38.762</b>	U/l	10	-5,3	↕ 77

You can also highlight a cell by moving the caret with the **arrow** keys and by then pressing the **space** bar.

➤ **Buttons**



- **Back to Riqas targets (1)**: To undo the custom targets and return to the initial Randox target values.
- **Check/Uncheck all (2)**: To simultaneously tick/untick all of the boxes in the second column.


- **Send to MultiQC (5)**: Before pressing this button fill in the fields **Tests executed on (3 and 4)** and check that the right checkboxes in the column **2** of the grid are ticked.

Before sending EQA data to MultiQC it is very important to enter the actual date when tests were performed. The default date is the “Final date for return” fixed by Randox. Usually Riqas tests are performed the week before. Do not forget to enter the real date and time else the “EQA target flags” will be ill-positioned on the charts of MultiQC.

#### 4. Translating Riqas test names to MultiQC test names

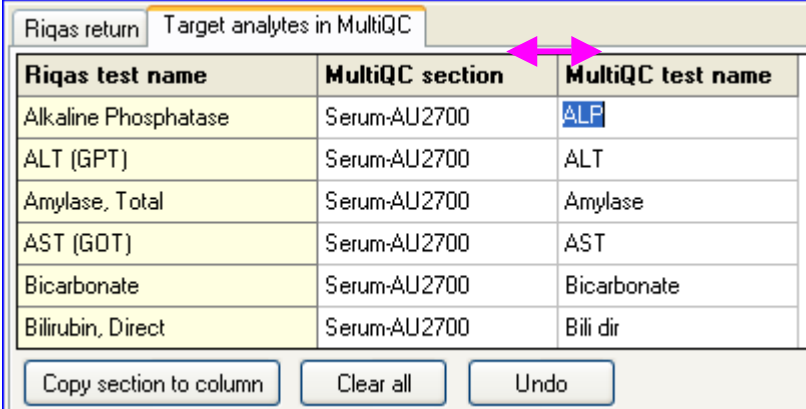
The names used by Randox for tests are generally not the same as the names that you defined in MultiQC. It is therefore necessary to create a translation table to send each Riqas result to the corresponding analyte of MultiQC.

- Select the tab **Target analytes of MultiQC** in the right panel of the main window.

-  You can resize the width of each column.

- The grid shows the list of the names of analytes used by Randox in the Riqas return selected in the treeview.

- For each Riqas test name you have to enter the corresponding section name and test name of MultiQC (case sensitive).



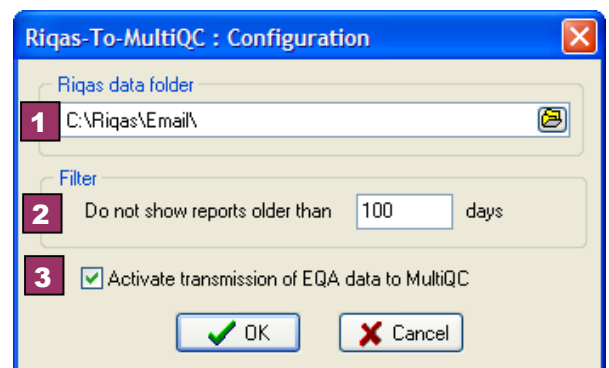
Riqas test name	MultiQC section	MultiQC test name
Alkaline Phosphatase	Serum-AU2700	ALP
ALT (GPT)	Serum-AU2700	ALT
Amylase, Total	Serum-AU2700	Amylase
AST (GOT)	Serum-AU2700	AST
Bicarbonate	Serum-AU2700	Bicarbonate
Bilirubin, Direct	Serum-AU2700	Bili dir

- Most often all of the tests of a Riqas work area are stored in the same section of MultiQC. Therefore a button **Copy section to column** is provided to copy the same section name to all of the cells of the column 2 after typing in it only once.

#### 5. Configuration dialog

The configuration dialog is opened by the menu **Configuration**

- **Riqas data folder (1)** : To change the folder where the program searches for Riqas files.
- **Filter (2)** : To limit the number of reports displayed in the treeview of Riqas-To-MultiQC. The date taken into account is the “final date for return” of Randox.
- **Activate transmission (3)** : The box is unticked by default when you install Riqas-To-MultiQC. Thus the program does not try to start the COM server and works as a stand-alone “Riqas returns viewer”. You must tick this box as soon as you want to work in conjunction with MultiQC.



## 6. Transmission to MultiQC

### ➤ Installation of MultiQC

Riqas-To-MultiQC is the client of MultiQC which works as a COM server (Common Object Model). Both programs may be installed on the same computer or on different computers (Distributed COM technology)

Launch MultiQC and activate its COM server : Menu **Maintenance**→**Configuration**, tab **General**, tick the box **Automation server ON**.

If Riqas-To-MultiQC is run from a distant computer you must launch MultiQC at least once from this client computer :

- Open the file explorer of the client computer.
- Browse through the shared files of the network to find MultiQC4.exe.
- Launch MultiQC and close it.

This is necessary to create an entry in the registry of the client computer, essential for the client application (Riqas-To-MultiQC) to be able to locate the QC server among the disks of the network.

### ➤ Interaction between MultiQC and Riqas-To-MultiQC

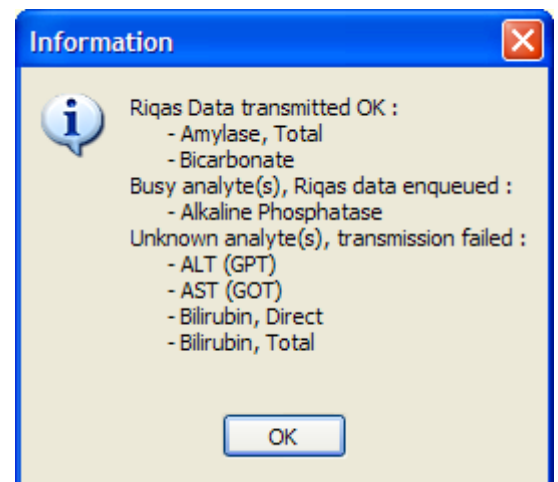
When you start Riqas-To-MultiQC, MultiQC is simultaneously started but remains iconized in the taskbar.

MultiQC cannot be closed as long as it contains a COM application. All of the actions which would stop MultiQC when running stand-alone, only iconize it when server : <Alt+F4> or click on the close-box of the system menu.

### ➤ Transmission report

A transmission report is displayed after sending the Riqas data to MultiQC. Four lists of analytes may be shown :

- Transmission OK : Tests accepted by MultiQC
- Busy analytes : An analyte may be “busy” in MultiQC during the Riqas transmission because it is being processed by another workstation of the network. Transmitted data are then enqueued by MultiQC in a file to be automatically included in the busy analyte as soon as free (one trial every minute, abort after 100 trials).
- Unknown tests : These tests have not been recognized by MultiQC because there is a mistake in the table of translation Riqas --> MultiQC. Notice that identification by test names is case sensitive in MultiQC.
- Translation not possible : you forgot to fill in one or two columns of the table of translation



A wrong transmission may be easily erased in MultiQC thanks to the menu **Across analytes**→**Erase across analytes** which can erase all of the entries on a given date/time.

### ➤ Analytes duplicated (cloned) in MultiQC

Some analytes may have been duplicated in MultiQC because a new lot of control material is about to be started. In this situation each Riqas return is also added to the duplicated analyte (~Analyte) provided there

is at least an IQC point older than the Riqas return. It must be remembered that the EQA target flags are positioned on the Shewhart's charts in comparison to the EWMA curve and that there is no EWMA curve without QC point (see section 2.5).

## 7. Comments

### ➤ Why are Riqas specifications not used in MultiQC ?

Specifications defined by Randox are not used in MultiQC because the Riqas system is too crude. A relative tolerable error unique for the whole reportable range is not satisfactory. An absolute tolerable error is essential for low concentrations of common chemistry analytes. In immunochemistry, it is often necessary to work with a relative tolerable error different for low, medium and high concentrations.

### ➤ Why is the word "specifications" used instead of "TCV" by Randox?

"TCV" (Target Coefficient of Variation) seems to be a misinterpretation by Randox. Reading word for word, an analytical method with a CV of 5% ought to just pass a Riqas with a target CV of 5% . This is obviously wrong. A CV of 5% will lead to an expanded analytical uncertainty of  $3 \times CV$  ( $\pm 15\%$ ). In these conditions numerous Riqas returns will turn out to be unacceptable with a score lower than 50 because of an error greater than 5%.

Meeting specifications of 5% is only possible with an analytical process whose CV does not exceed 1.7%. This value is the target CV in the strict sense. Practically a CV of 0.85% would even be desirable to get a robust six-sigma process with a capability of 2.

## 8. Internet links

[www.multiqc.com](http://www.multiqc.com) : to download the latest version of *MultiQC* and *Riqas-To-MultiQC*.

[www.randox.com](http://www.randox.com) : Randox