

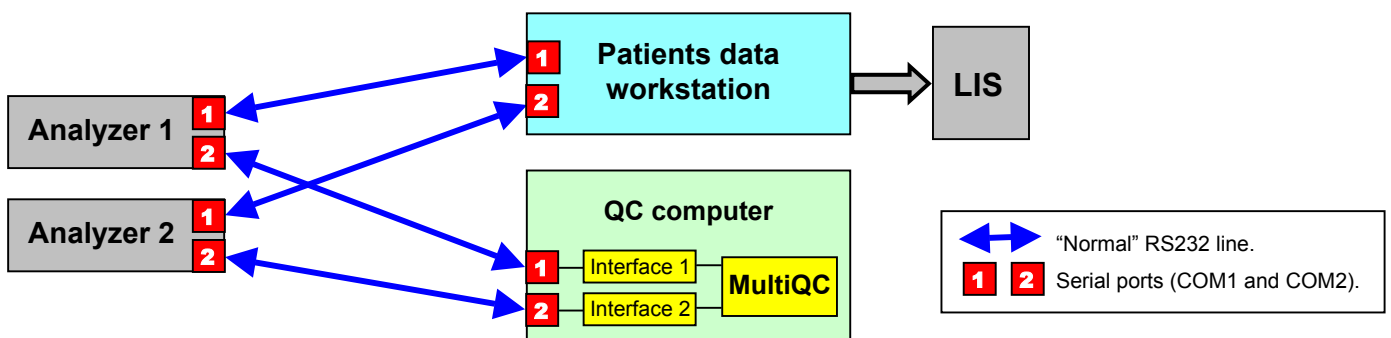
# Connecting MultiQC to RS232 lines

Home page of MultiQC, quality control software for clinical chemistry laboratories : [www.multiqc.com](http://www.multiqc.com)

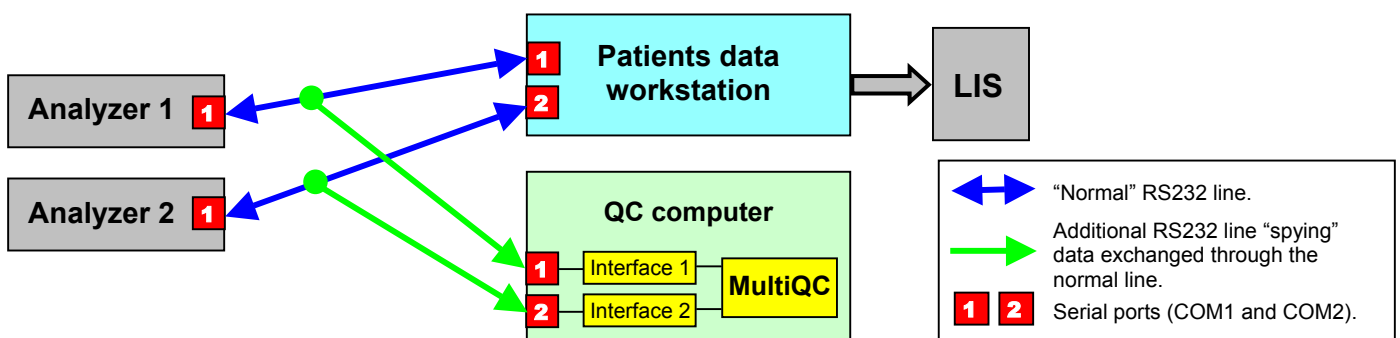
## 1) Architectures with a specialized QC computer

A computer can be reserved to QC in every section of the laboratory, as well as to other minor tasks like scientific computation and office automation. This QC computer must be connected to the different analyzers surrounding it. Installing an additional RS232 card is often necessary because most computers are nowadays delivered with only one serial port.

- Ordinary RS232 connexions can be wired up between the analysers and the QC computer if the analysers have free serial ports (COM2 in the picture below). The connexion cable is easy to buy anywhere : choose a straight or a cross cable according to the type of RS-232 socket of the analyzer (DTE or DCE).



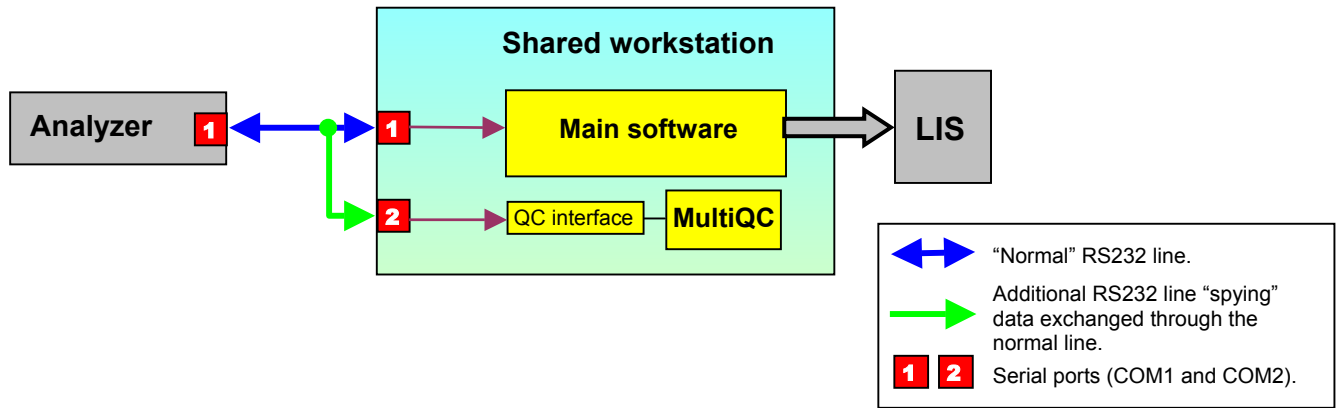
- When the analysers have only one serial port which is already taken up by a workstation, the QC computer can listen to the flow of data leaving the analyzers thanks to a "spy" RS232 connexion. The connexion cable is easy to build if you are not frightened by manipulating a soldering iron. Cabling diagrams are shown in the user manual of each QC receiver interface.



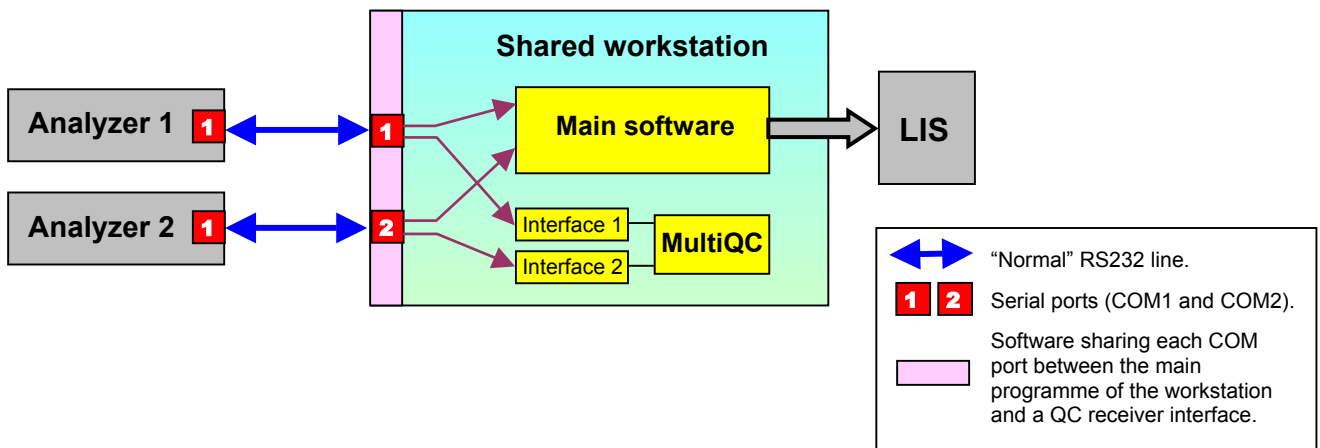
## 2) Architecture with a workstation shared between patients and QC

MultiQC is installed on the workstation which processes patients results. This kind of architecture is only feasible if the main software of the workstation respects the normal multitasking philosophy of Windows. The operator must have an easy access to the taskbar of Windows to be able to instantaneously switch between patients and QC softwares. Each connexion to an analyser must be shared between two applications : the main software of the workstation and the QC receiver interface.

- If the workstation has a free serial port, a “hard spying” connexion is easy to implement according to the diagram below. This is only a variant of the previous diagram.

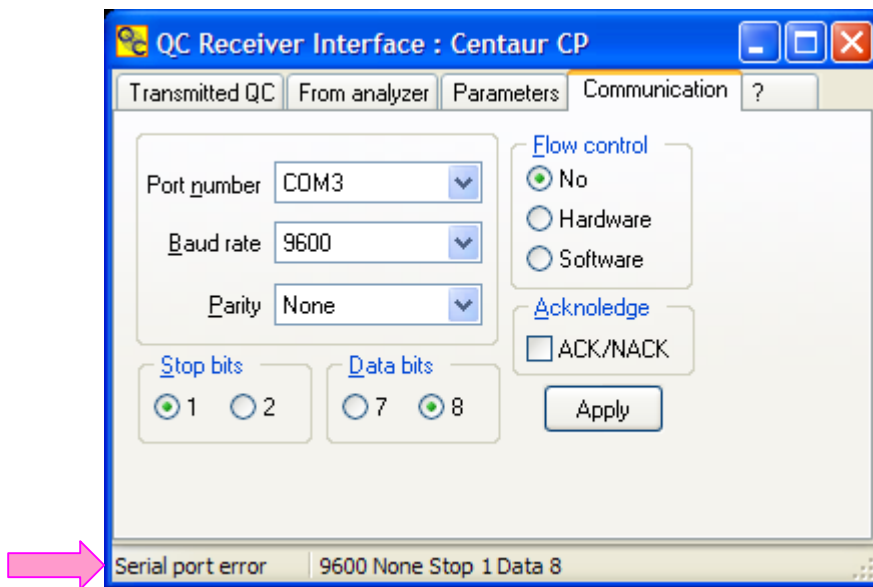


- A “soft spying” solution is also possible : programmes are commercially available to share COM ports between several applications. Unfortunately, these programmes are more expensive than an additional serial card. However you might prefer the “soft” solution if you feel more comfortable installing a new software than handling a screwdriver.

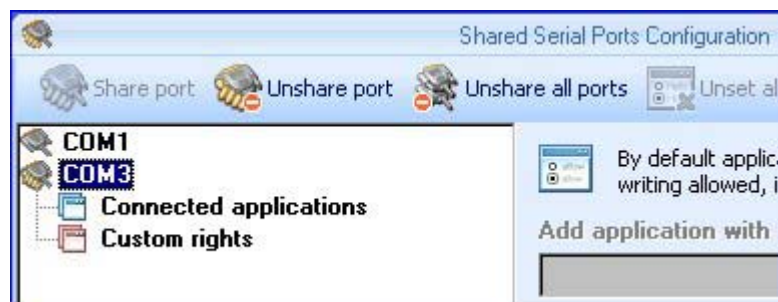


The following example describes the installation of a product named *Shared Serial Ports* by [www.eltima.com](http://www.eltima.com) (this is only a suitable programme, not a recommended one).

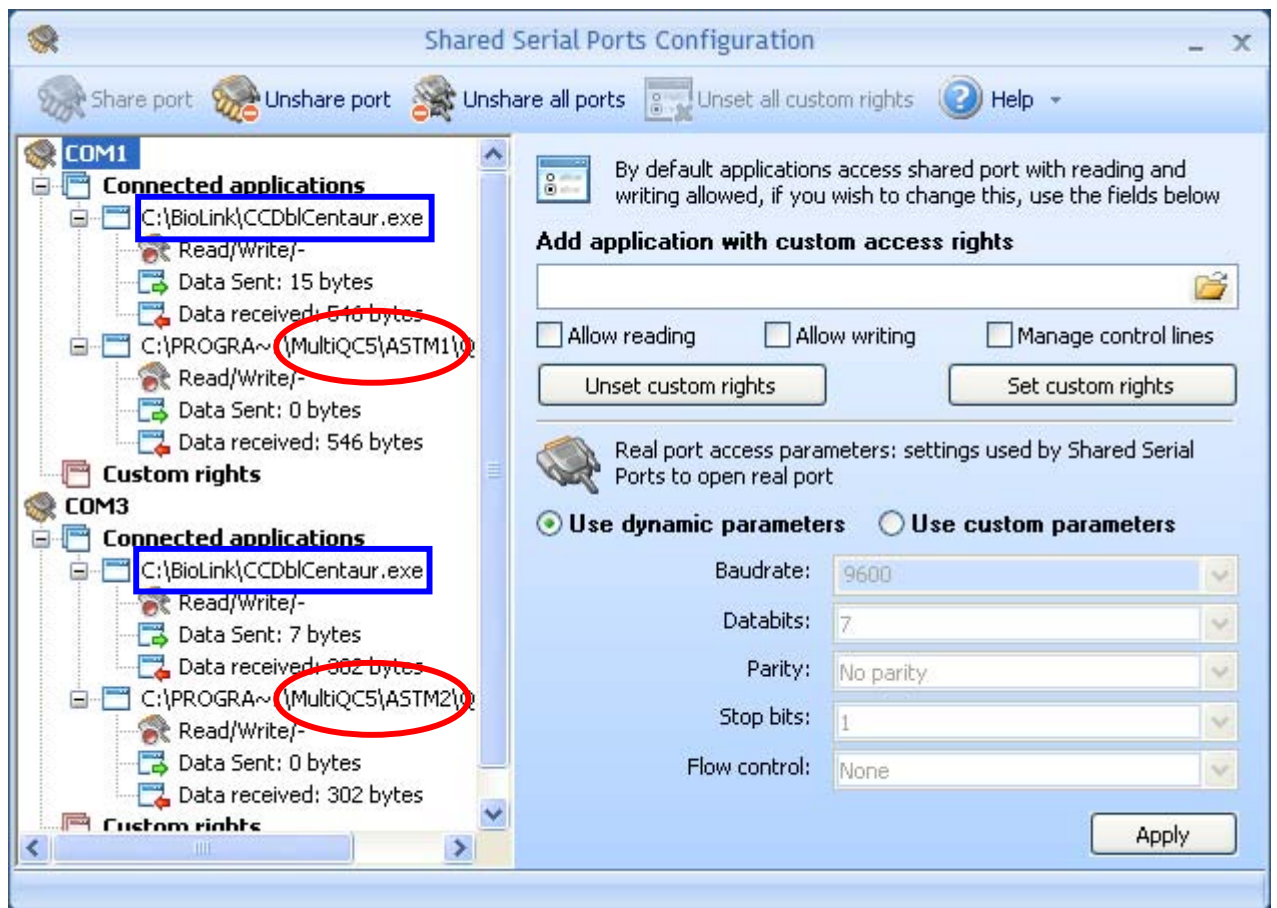
- 1) Search for the COM port number (say, for instance, COM3) and for the communication parameters used by the main software of the workstation to exchange data with the analyser. There is always a connexion screen where these parameters are set up.
- 2) Install MultiQC and the QC receiver interface adapted to your analyser. Launch MultiQC. This action will also start the QC receiver interface which stays iconized in the Windows taskbar.
- 3) Restore the QC interface by clicking its icon in the Windows taskbar, select the tab <Communication>, enter the parameters and press the button <Apply>.



- 4) It is normal to read 'Serial port error' in the status bar : the main software is running. Therefore the COM3 port is busy. The QC interface cannot access it because it is not yet shared.
- 5) Close MultiQC and close the main software of the workstation .
- 6) Download the demo installer of *Shared Serial Ports* with a 14-day trial period at <http://www.eltima.com/products/serialshare/> and proceed to installation. . The utility to set up the shared ports is started at the end of the installation.
- 7) Select the port COM3 and share it by clicking the menu <Share port>. There is not yet anything in the list <Connected applications> because MultiQC and the main software of the workstation must be closed before sharing the COM3 port.



- 8) Restart the main software and MultiQC. Two items will appear in the list <Connected applications> showing that the main software and the QC receiver interface are now simultaneously connected to COM3.
- 9) The picture below illustrates a more complex situation : a *Medasys Biolink* workstation is connected to two *Siemens-Bayer Centaur CP* analysers through COM1 and COM3. These two ports are shared with two QC receiver interfaces ASTM1 and ASTM2



- The main *Biolink* software of the workstation is connected to 2 Centaurs CP.
- The serial ports COM1 and COM3 are shared by two QC receiver interfaces : ASTM1 and ASTM2.

- 10) You can close *Shared Serial Ports*. The shared ports will remain shared if you switch off and on the computer, until you unshare the ports or uninstall *Shared Serial Ports*.
- 11) In case of hardware flow control, refer to the user manual of *Shared Serial Ports* for more details about how to set custom access rights.