Metrohm IC Driver for Empower™ Instructions for Use

Manual

8.102.8050EN / 2013-12-06

Metrohm

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Although all the information given in this documentation has been checked with great care, errors cannot be entirely excluded. Should you notice any mistakes please send us your comments using the address given above.

Change Control

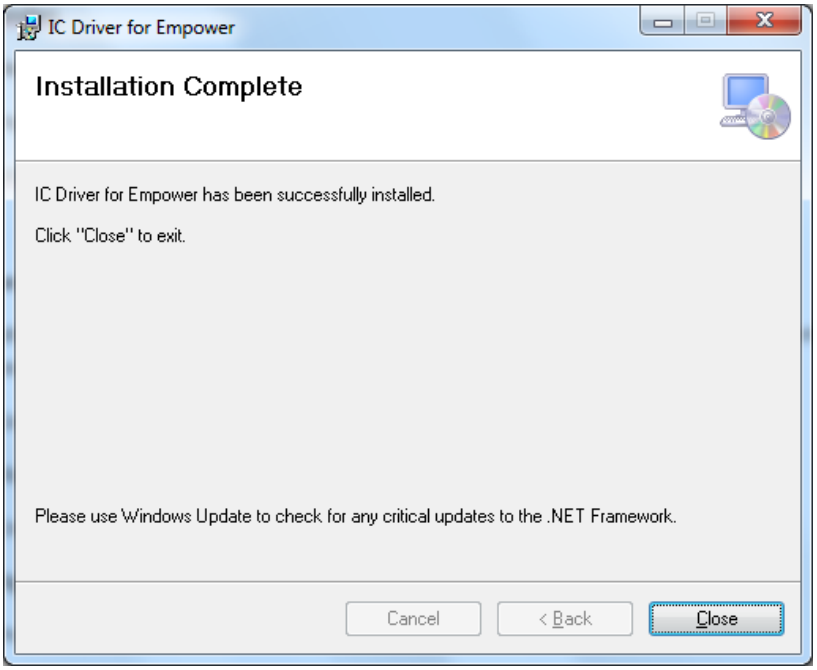
Version	Date	Summary of Changes
1.0	July 2013	First Edition
1.1	December 2013	Addition of new IC devices 930 / 940

Contents

1 Preconditions

The following preconditions must be met to ensure proper functioning:

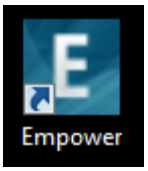
- Empower™ is installed according to the Waters instructions.
- The Metrohm driver is installed according to the instructions.



2 Starting Empower™ and creating a node

2.1 Starting Empower™

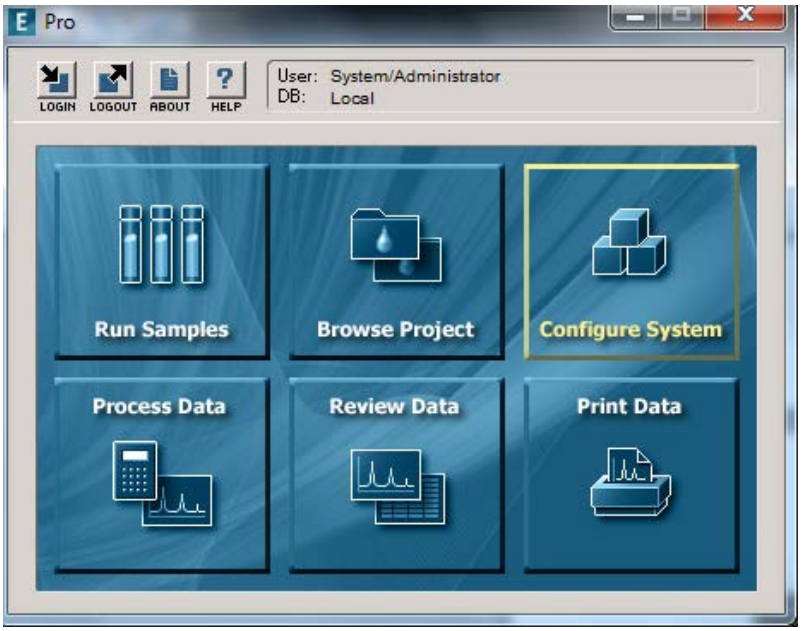
1. Connect the Metrohm instruments to the PC (via USB) and the power supply.
2. Switch the Metrohm instruments on.
3. Start Empower™.



4. Log in with your Empower™ password and click on **OK**.

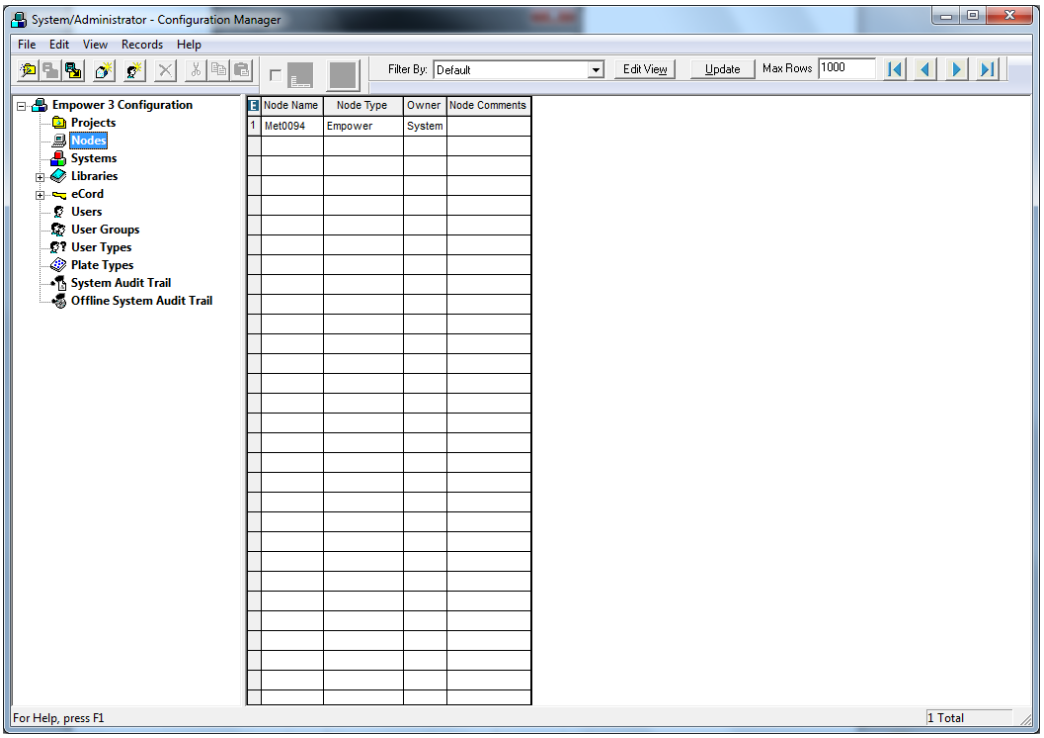
2.2 Configuring the system

1. Click on **Configure System**.



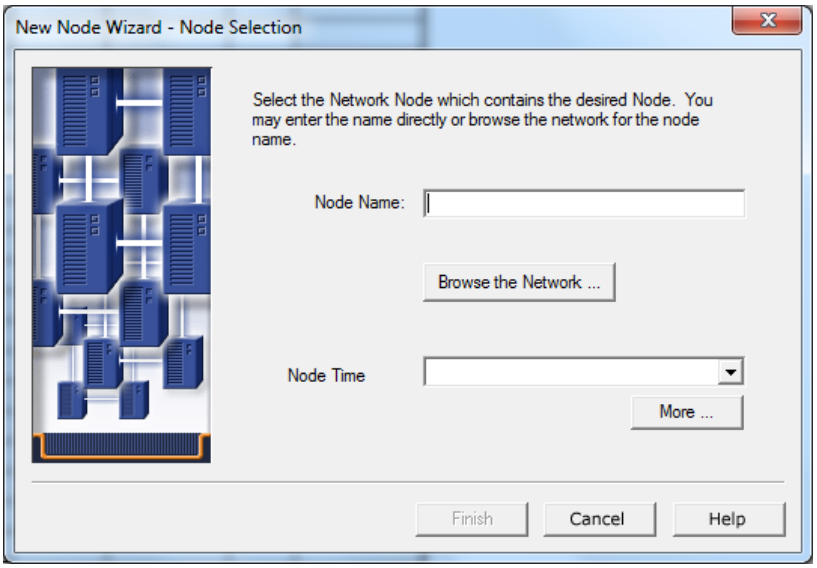
2. The Configuration Manager opens. Its icon will appear and blink in the lower task bar of your screen.

3. Go to **Nodes**.

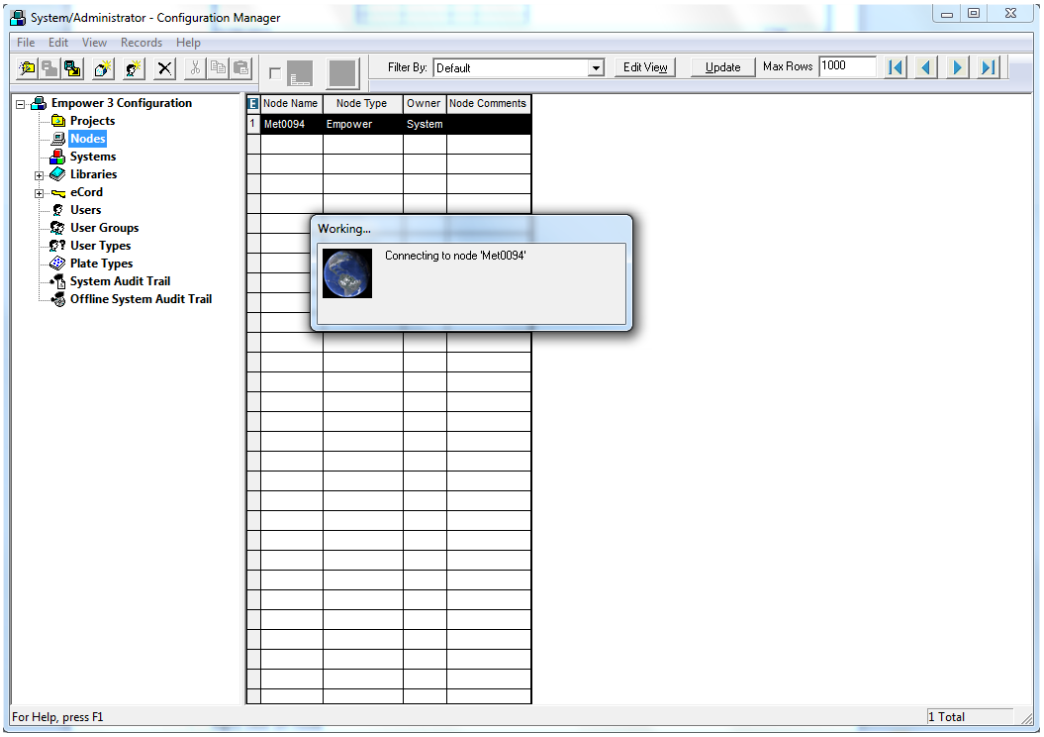


4. Create a new **node** (i.e. where your instruments are connected to the PC).

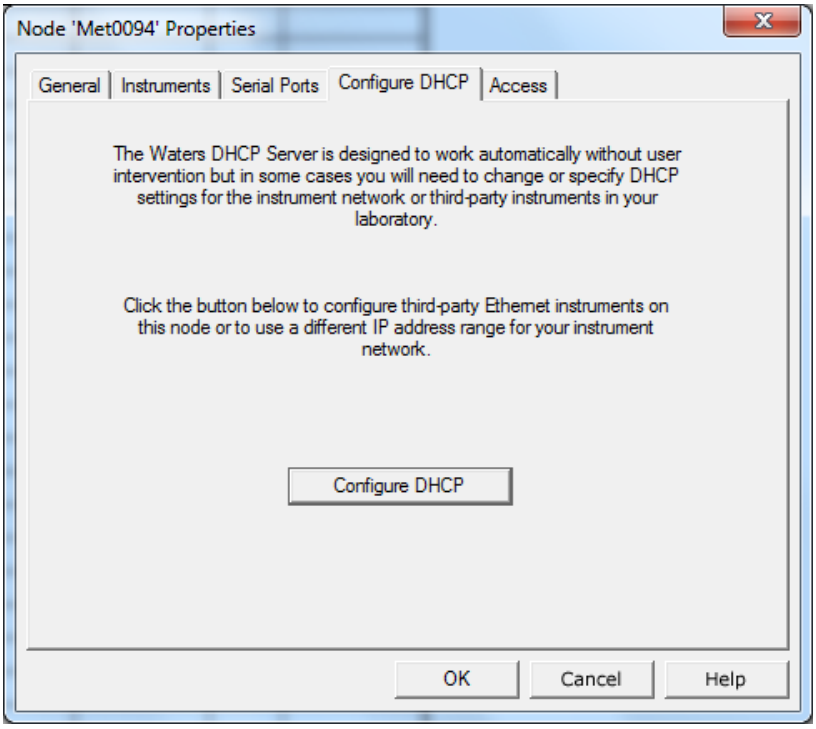
5. Follow the instructions of the wizard.



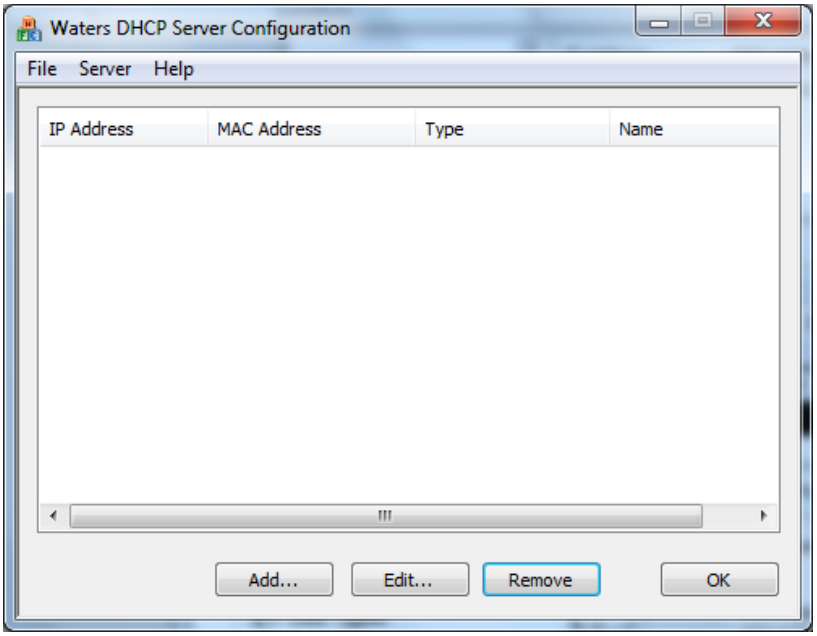
6. Right-click on the new node and open the **Properties** menu item. The connection to the **node** will be established.



7. Click on **Configure DHCP** on the **Configure DHCP** tab.



8. Click on **Add…**.



Note: If several systems are added, both the **IP address** and the **MAC address** have to differ.

9. Enter the following parameters:

- IP address: 000.000.000.xxx, (where x = 001-255)

  e.g. start with 000.000.000.001

- MAC address: 00-00-00-00-00-xx, (where xx = 00-FF)

  e.g. start with 00-00-00-00-00-01

- Instrument type: Select "Metrohm IC"
  This includes all implemented Metrohm instruments, also Sample Processors and Dosinos.

- Serial Number / Unique Name: These are the actual settings used to detect the instrument on the USB bus and must meet the following requirements:

- The serial number must be the last five characters (including leading 0s) printed on the serial number sticker found on the back of the instrument.

- The IC serial number must be prefixed with "IC="; the Sample Processor must be prefixed with "SP=" (excluding double quotes).

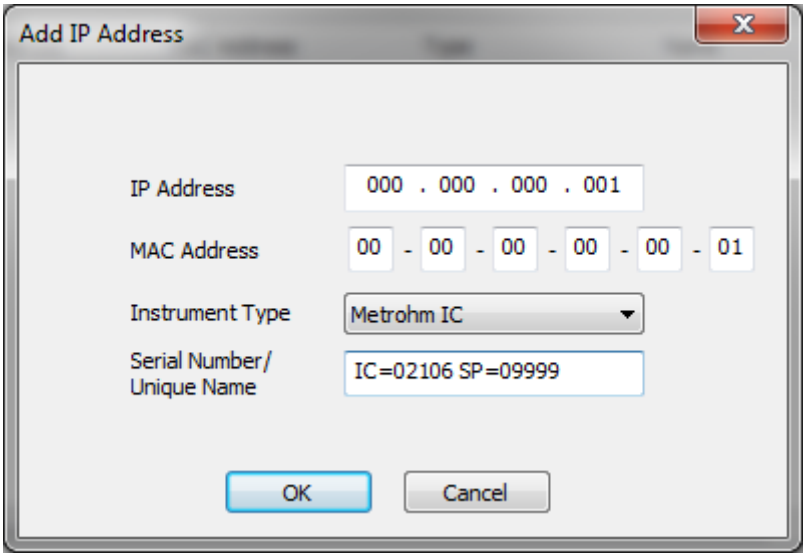
- The IC and SP serial numbers must be separated by a space.

Examples (excluding double quotes):

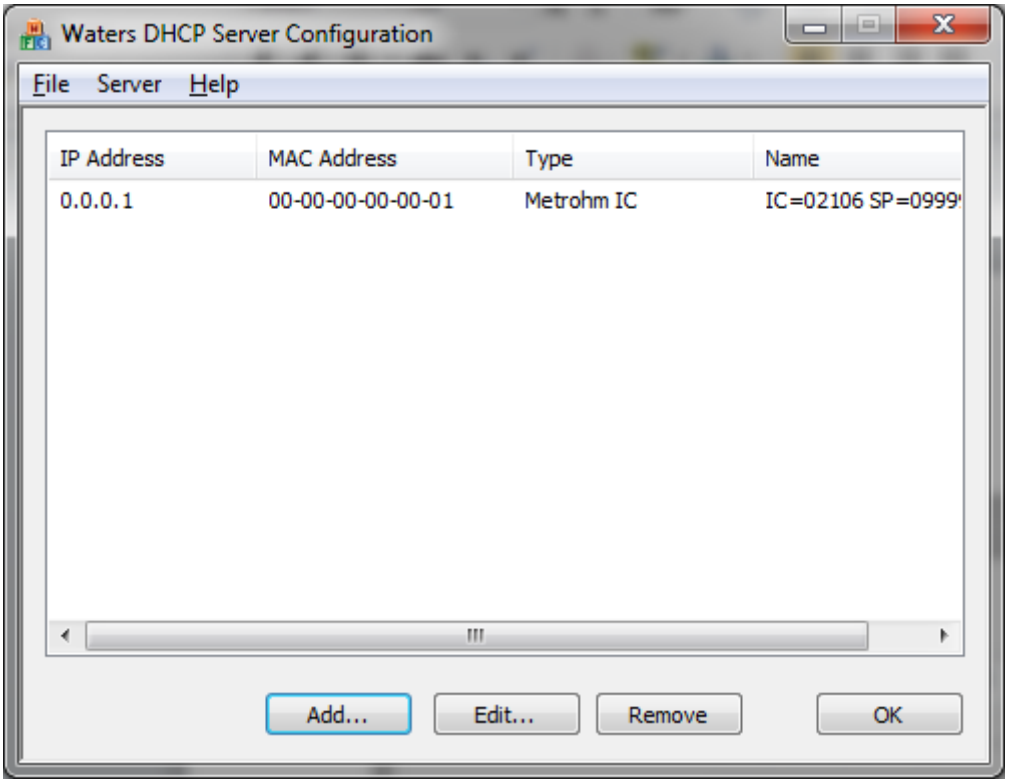
- IC only: "IC=21124"
- SP only: "SP=03534"
- Both: "IC=21124 SP=03534"

10. Click on **OK**.

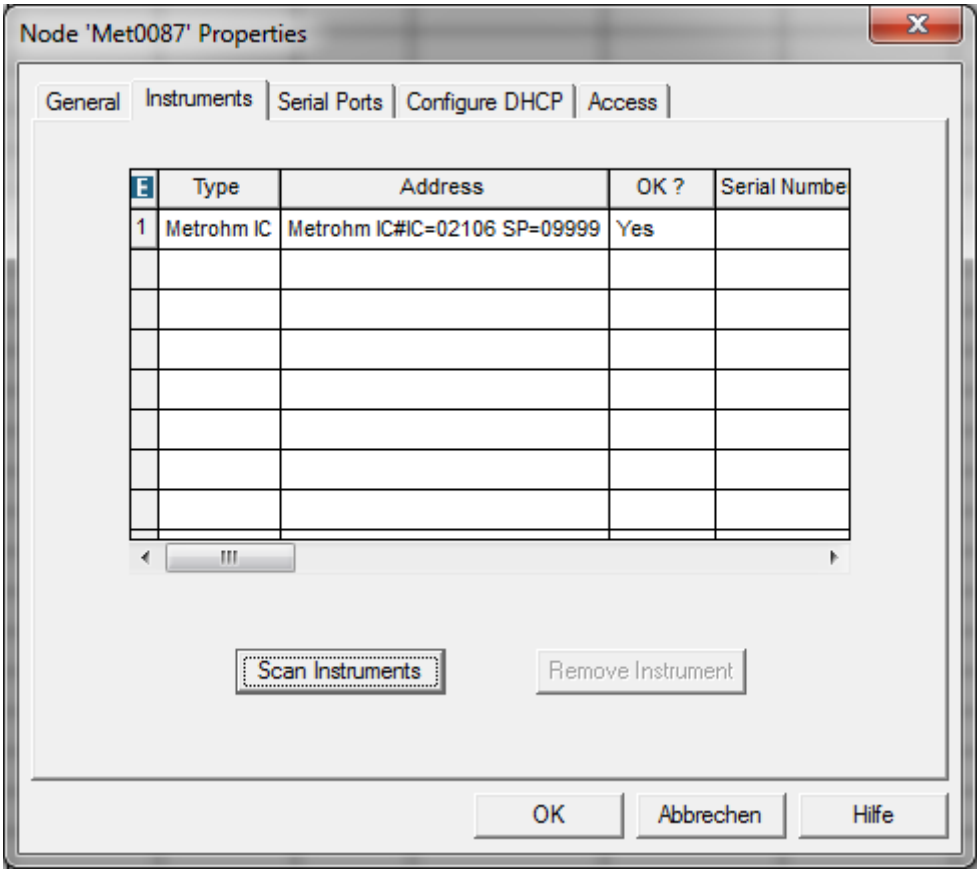
    Example:



11. Click on **OK**.



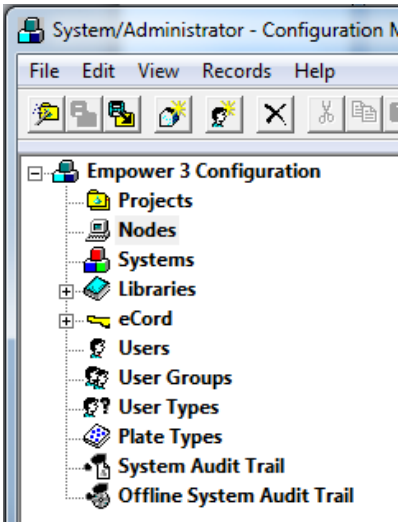
12. Click on **OK**.



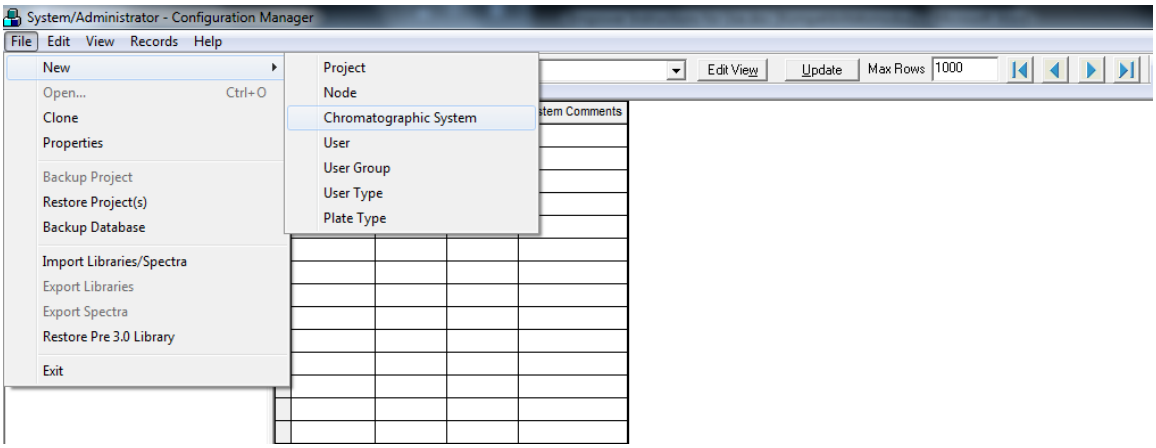
3 Setting up a chromatographic system

3.1 Generating a system

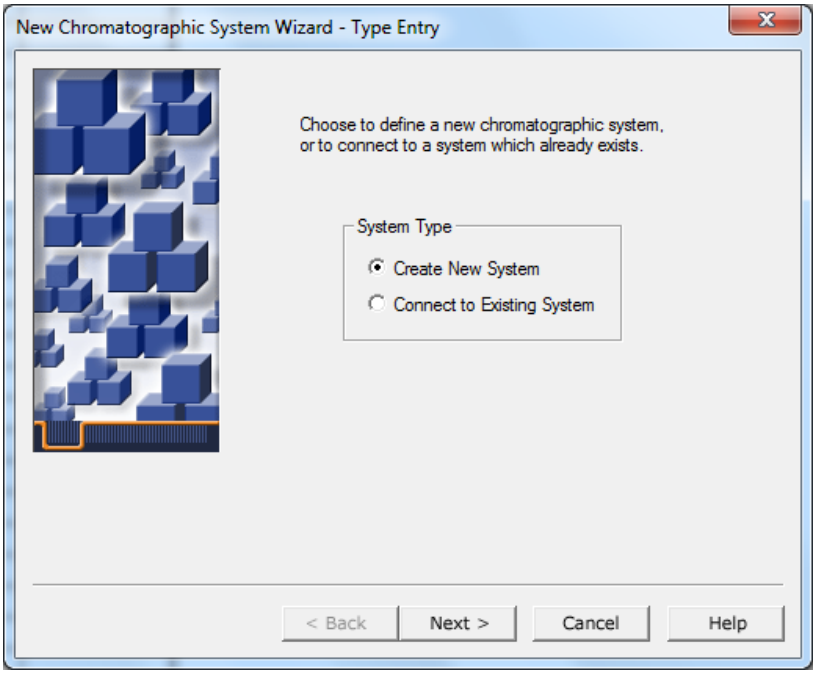
1. Go to **Systems**.



2. Create a new system by selecting the **New > Chromatographic System** menu item.



3. Select **Create New System** and click on **Next**.



Create New System

Specifies that you create a new chromatographic system using available instruments connected to an **acquisition server**. It is not necessary that the system is directly connected to your Empower™ workstation.

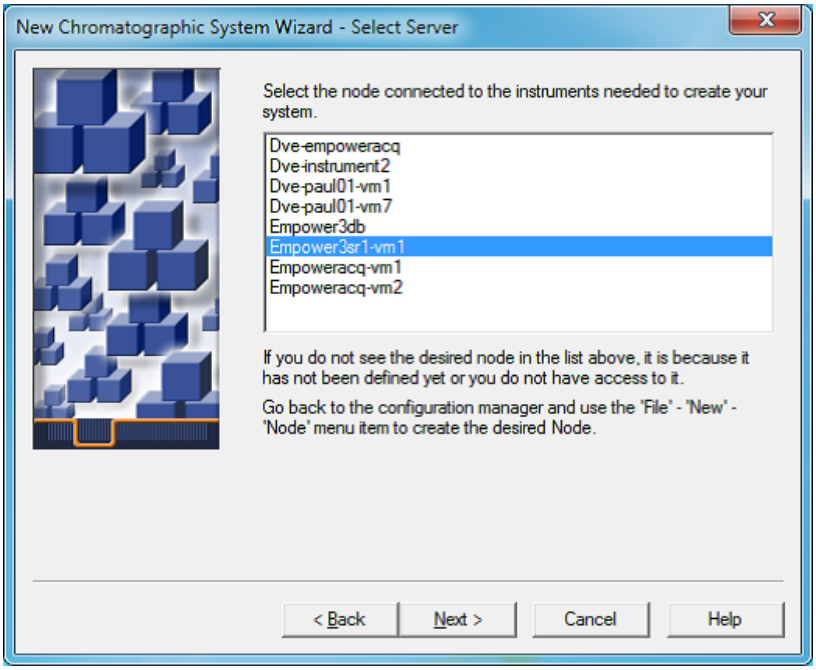
Connect to Existing System

Specifies that the current user can access the selected chromatographic system. If the system is password-protected, you need the password to access the system. Then you can use the chromatographic system to acquire and process data and to generate reports.

4. Click on **Next**.

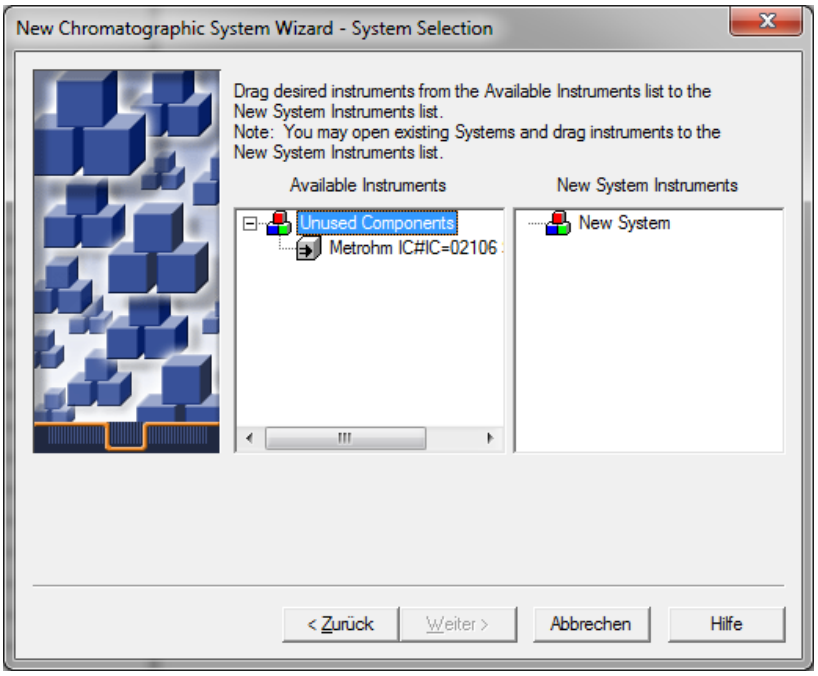
   Choose (client/server) acquisition server.

5. In case of a client/Server installation, the **node** must be selected on which the **Metrohm IC Driver for Empower™** was installed.



3.2 System selection

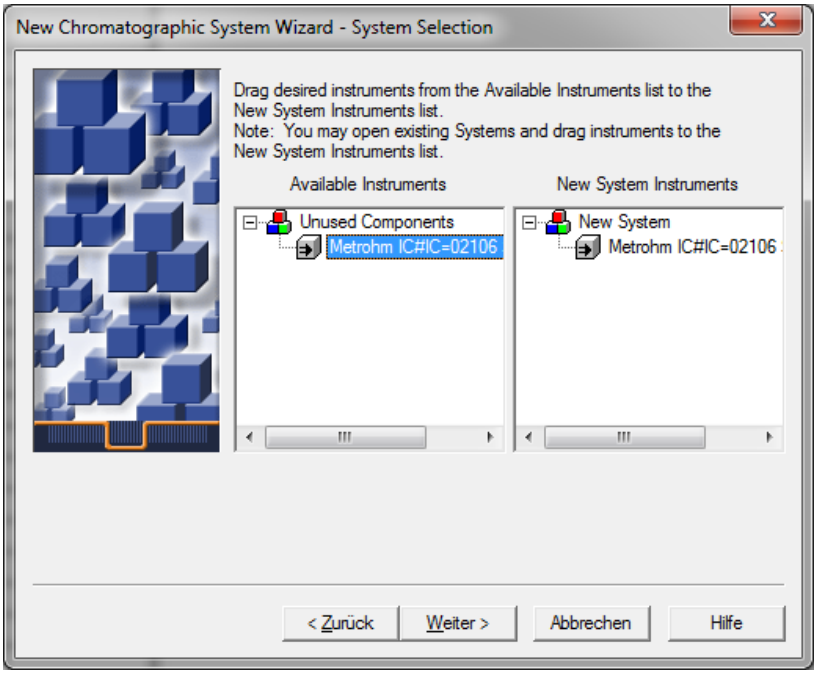
1. Select an instrument from the **Available Instruments** list and drag it to the list beneath **New System Instruments**. You can use instruments from the **Unused Components** and an existing system. If the instrument is not in the **Available Instruments** list, click on **Cancel** and check the properties of the **acquisition server**.



Note: Several IC systems cannot be controlled with one chromatographic system; two different systems are required for this (see Chapter 11).

2. Click on **Next**.

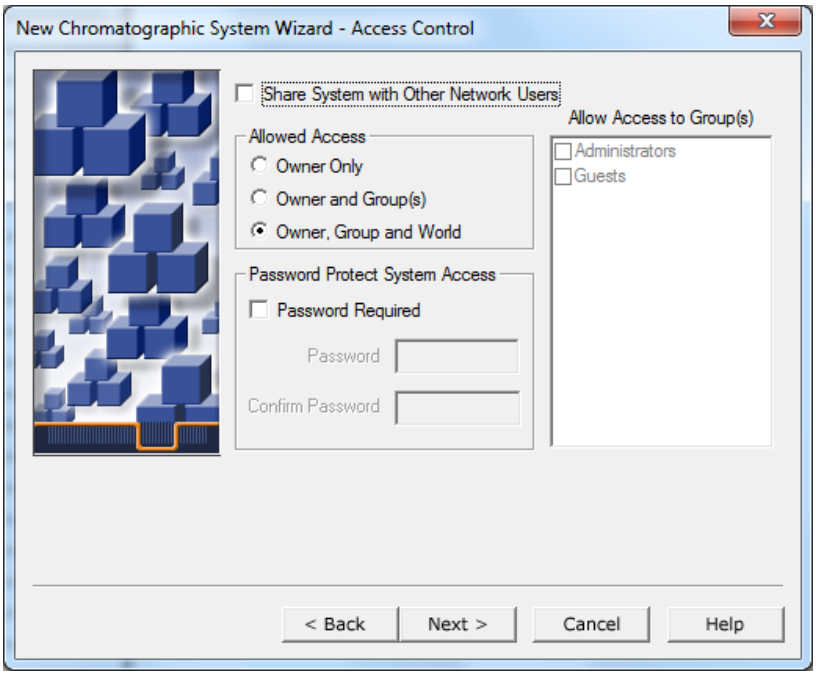
Note: You cannot drag the last instrument from an existing system. To free up the last instrument, delete the system.



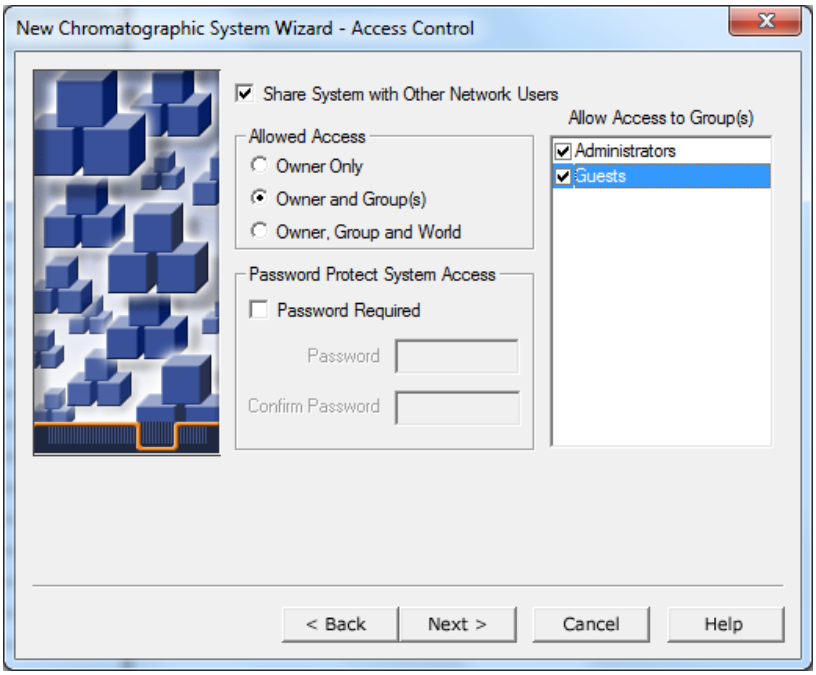
3.3 Access Control

Use this window to control how other users access the new system you are creating. You can share the system with other network users and password-protect it.

Note: If you have access to a chromatographic system, you do not need to enter the password unless you are crossing databases.



1. If required, enable the fields under **Allow Access to Group(s)**.



2. Click on **Next**.

Detailed explanations

Share System with Other Network Users

Specifies that other network users (determined by the access option you select; see below) can use the system. If you select this option, consider password-protecting the system to limit its use to authorized users.

Allowed Access

Owner Only

Specifies that the owner of the chromatographic system and users with administrator rights can access the selected chromatographic system.

Owner and Group(s)

Specifies that the owner of the chromatographic system, group members as specified in the **Allow Access to Group(s)** list and administrators can access the selected system. Group access only allows a user to operate a chromatographic system.

Note: To modify a chromatographic system, you need access to the chromatographic system and its **acquisition server**.

Owner, Group and World

Specifies that all users in the database can operate the selected chromatographic system.

Password Required

Specifies that users enter a password before they can access the selected chromatographic system across databases.

Password

Specifies that a password (up to 30 alphanumeric characters) is needed to access the selected chromatographic system across databases.

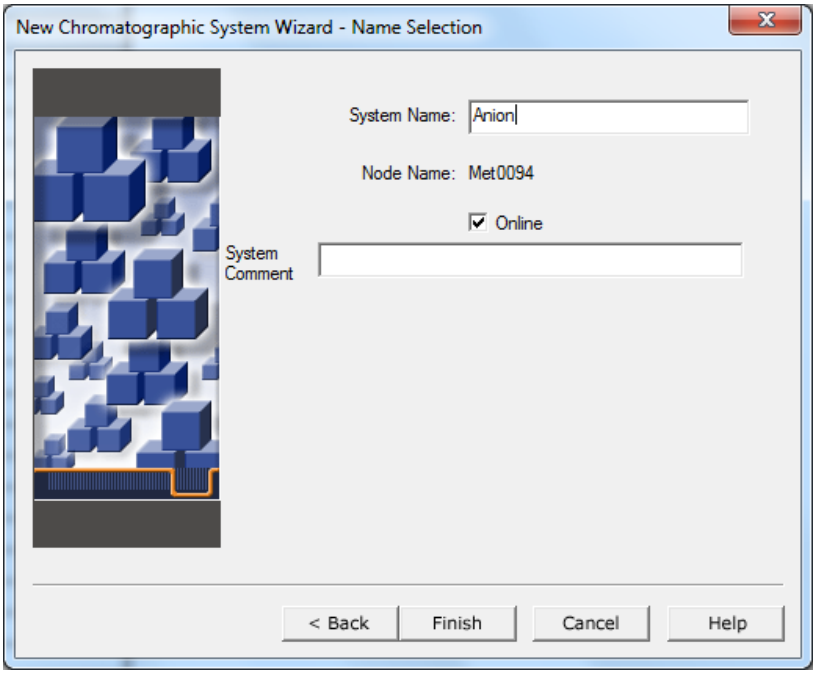
Confirm Password

Requires reentry of the password to confirm that it was spelled correctly.

Allow Access to Group(s)

Select the user group(s) that you want to give access to the selected chromatographic system. Access rights of these user groups override access rights of the selected World user type. If you select **Owner, Group and World**, groups that were not selected in the **Allow Access to Group(s)** list are assigned the **World** user type access.

3. Enter a system name and click on **Finish** to complete the creation of a new chromatographic system and to close the wizard.



Detailed explanations

System Name

Identifies the chromatographic system in the Empower™ database and in the **Configuration Manager**. Up to 30 alphanumeric characters are allowed for the system name. Use a meaningful system name in case other users have access to the system.

Acquisition Server Name

Name of the acquisition server to which the selected system is connected. This field is not editable.

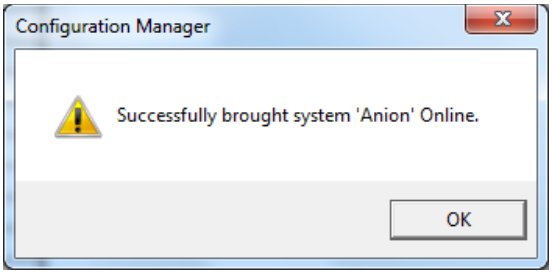
Online

If all configured system instruments are available (not configured in another online system), this brings the new system online. Default: selected.

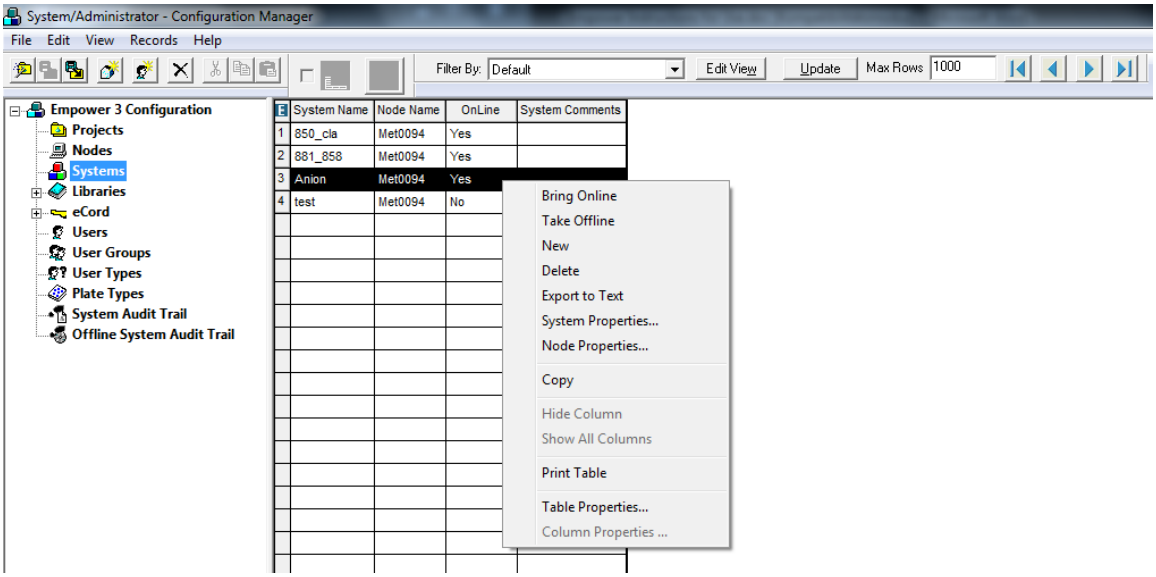
System Comment

Displays optional remarks (up to 250 characters). Comments that describe the chromatographic system, its components and its intended use can help others if they have access to the system.

4. Then the following window appears, and:
   - the IC instrument's LED stops blinking.
   - the Sample Processor initializes the sample rack.

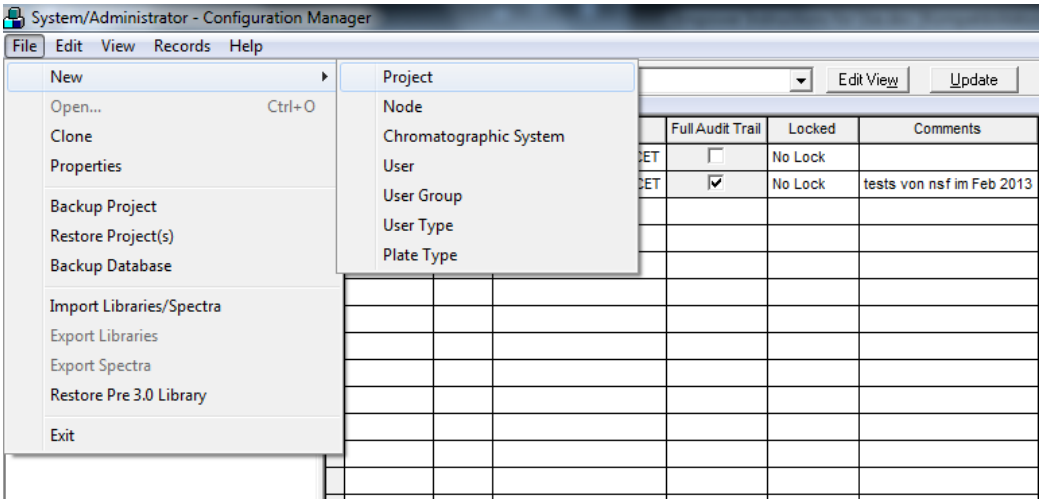


5. Right-click on the system to check whether it is online (with **Bring Online**).

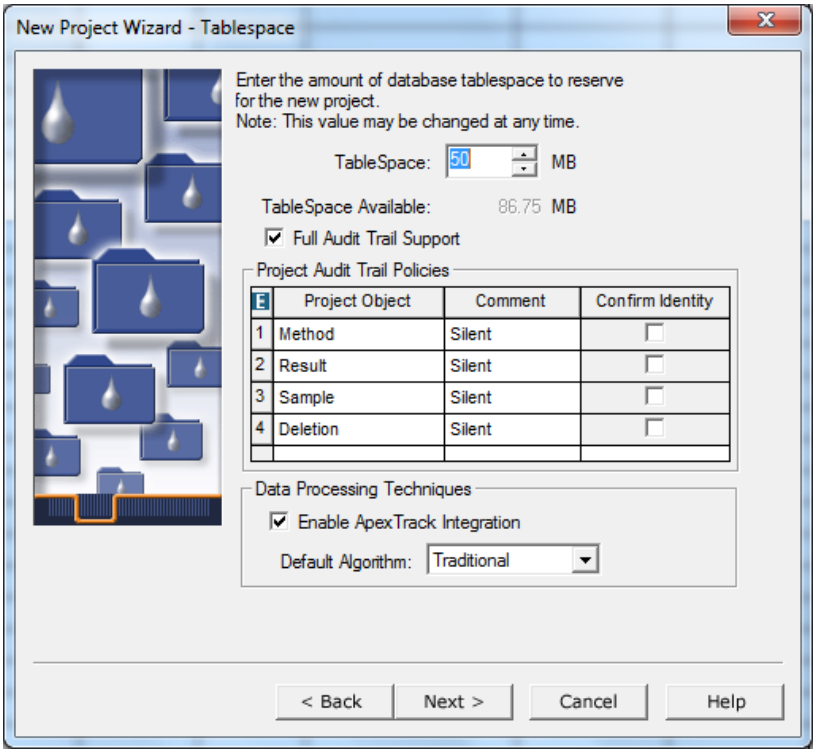


4 Creating a project

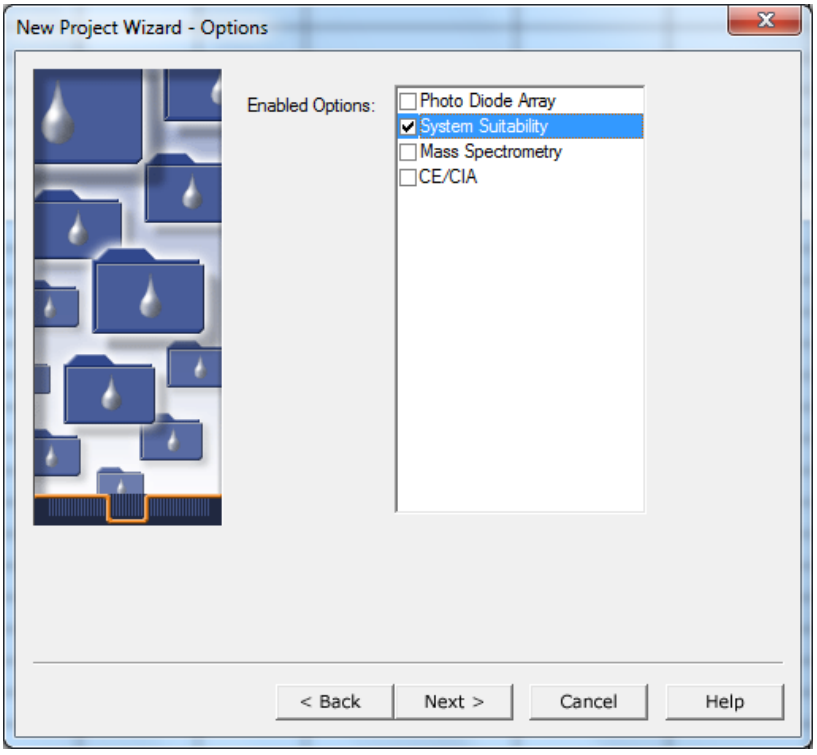
1. Create a new project by selecting the **New > Project** menu item.



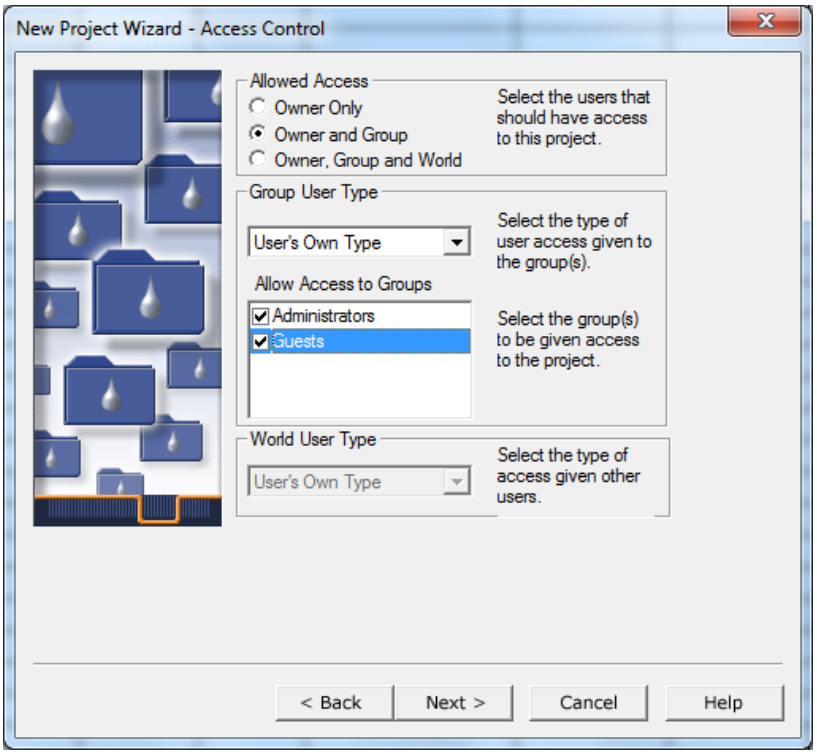
2. The **Tablespace** form appears.



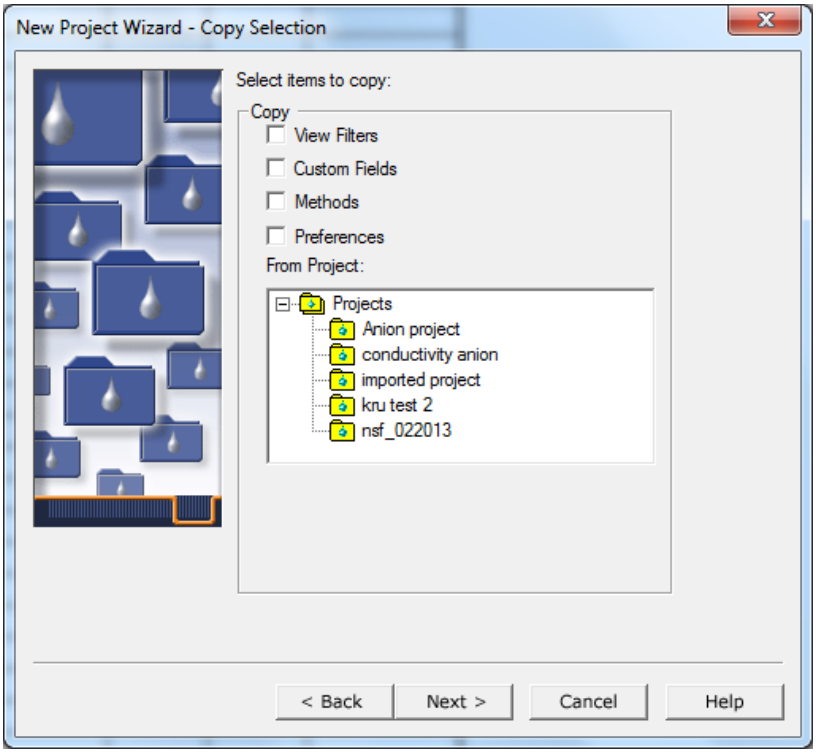
3. Click on **Next**.



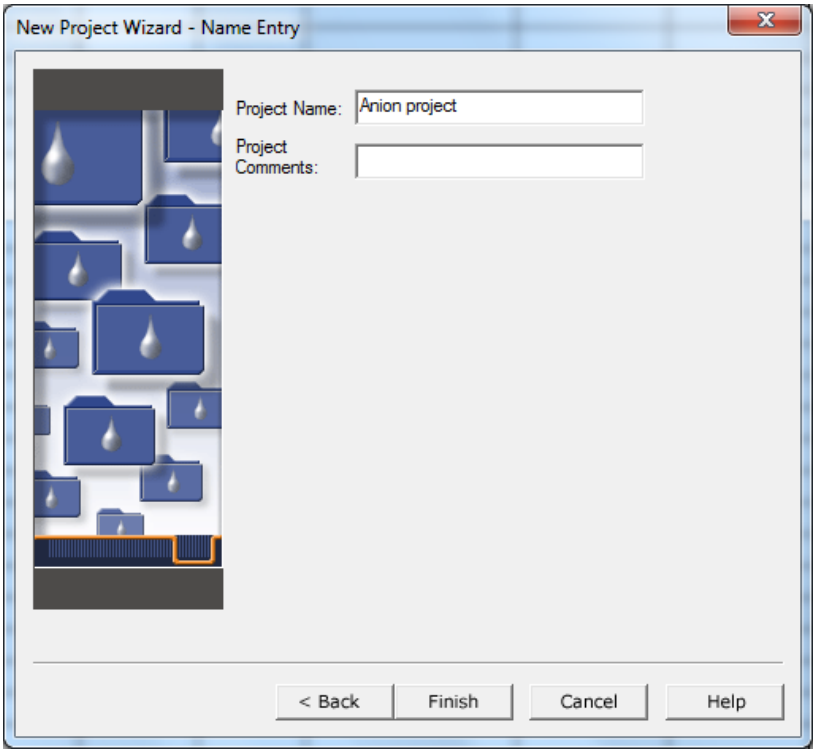
4. Click on **Next**.



5. In the **Projects** tree view, select an appropriate project for already existing settings.
6. Click on **Next**.



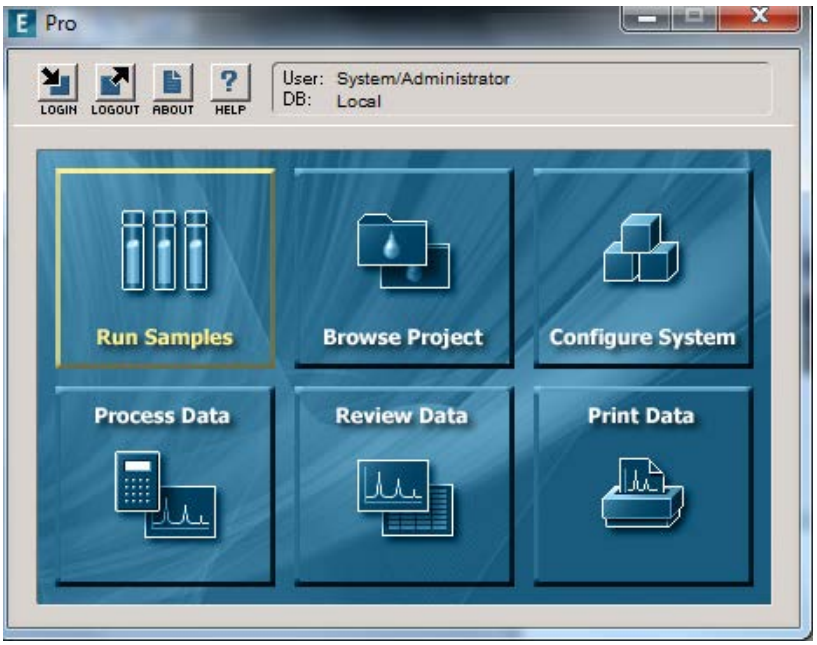
7. Click on **Finish**.



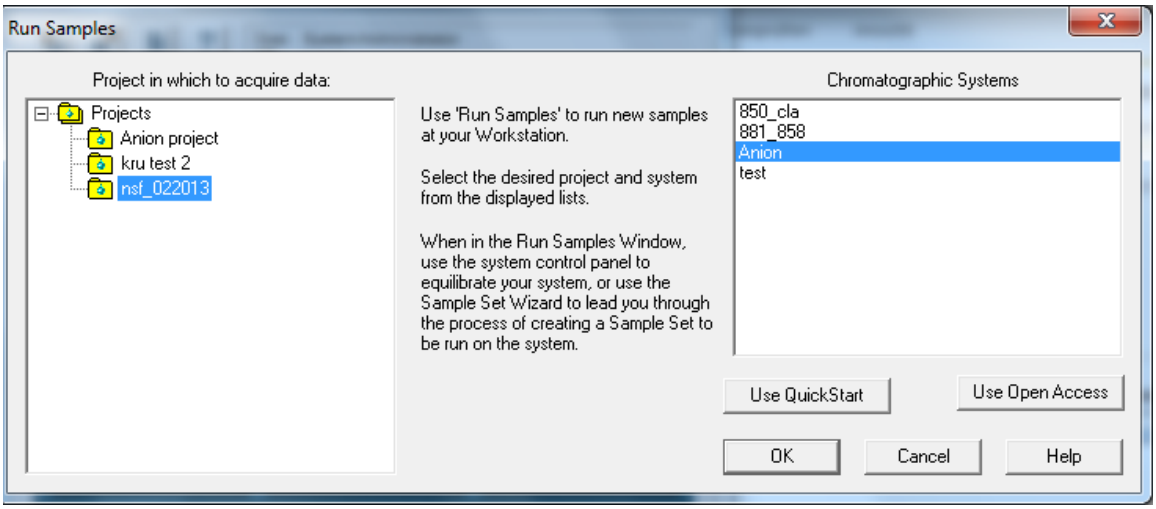
5 Creating an instrument method

5.1 Opening the QuickStart interface

1. In the Empower™ start window, go to **Run Samples**.

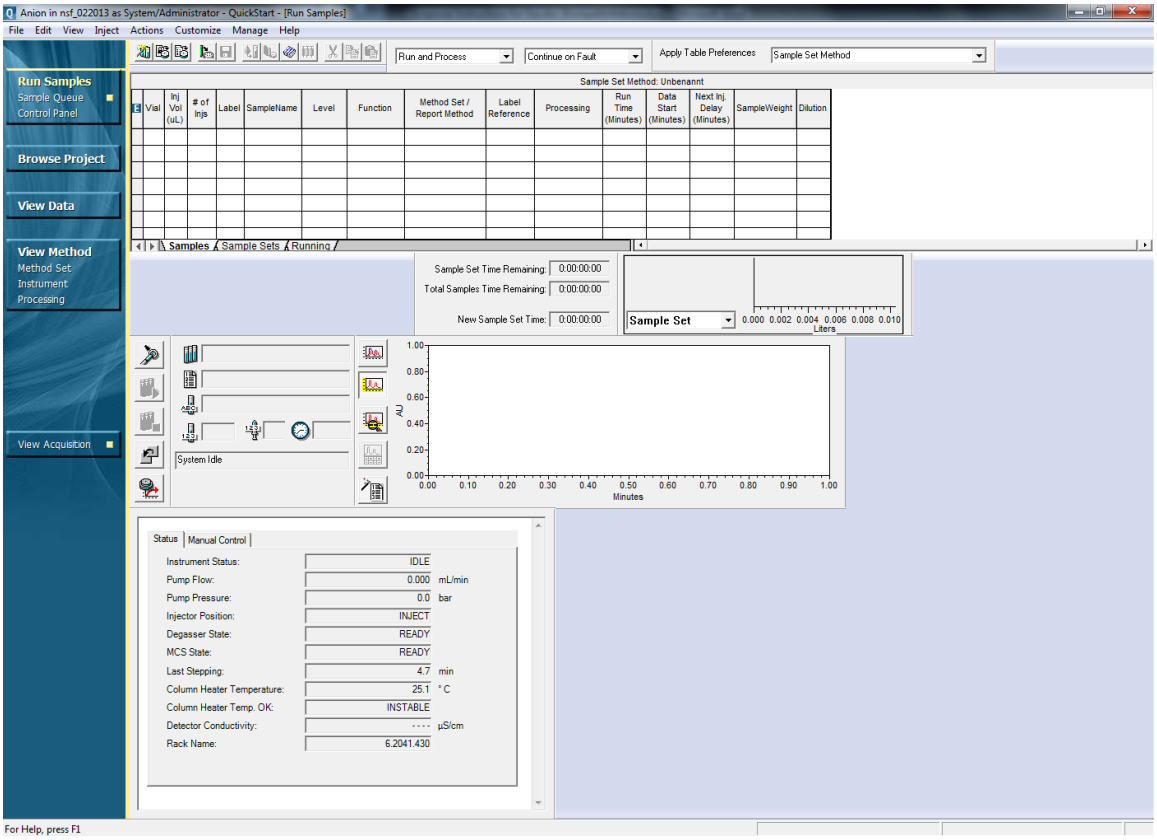


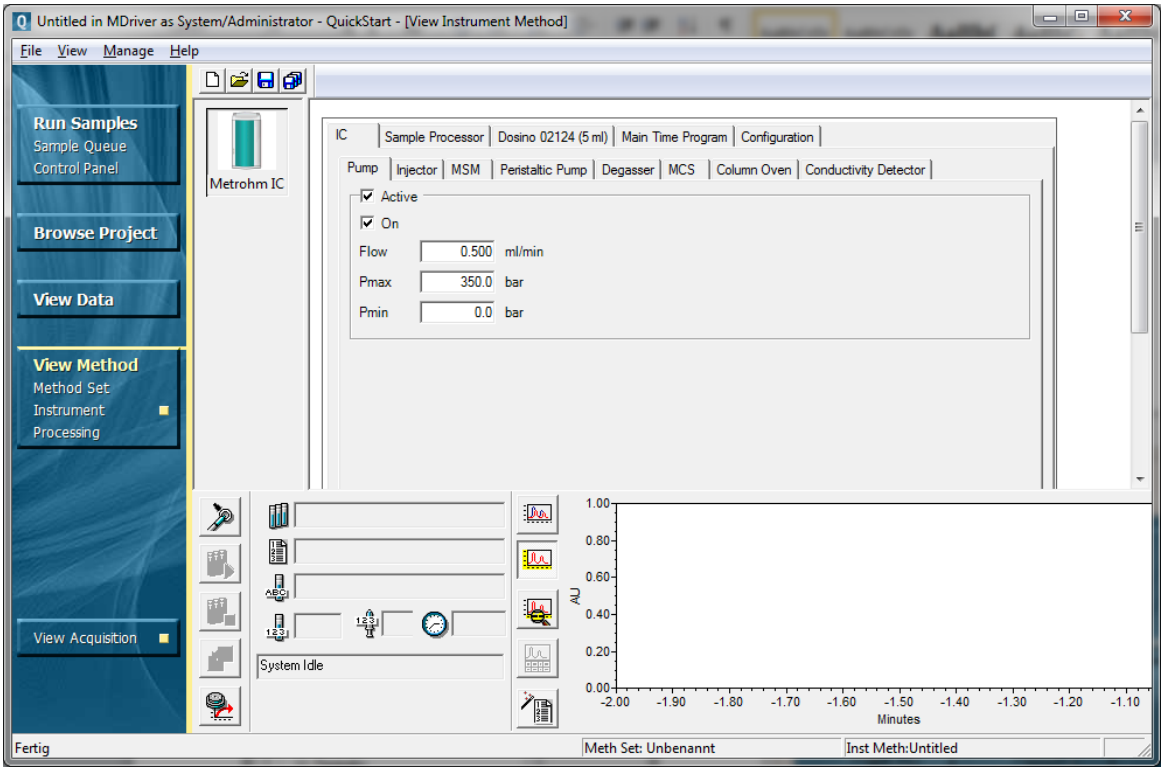
2. Choose your chromatographic system and click on **Use QuickStart**.



3. It will open in your task list.

4. The status of the system should be **IDLE**. If this is the case, Select **View Method > Instrument**.





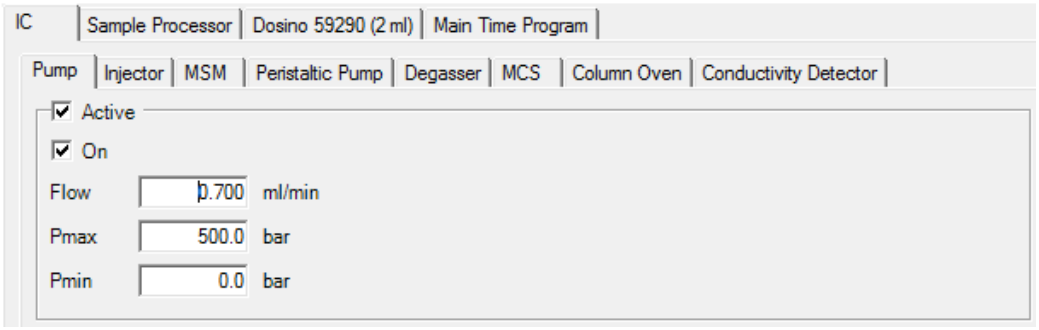
All modules of your setup should be visible. Enter the desired parameters. The following screenshots show parameters for a typical anion setup.

5.2 Setting the start parameters

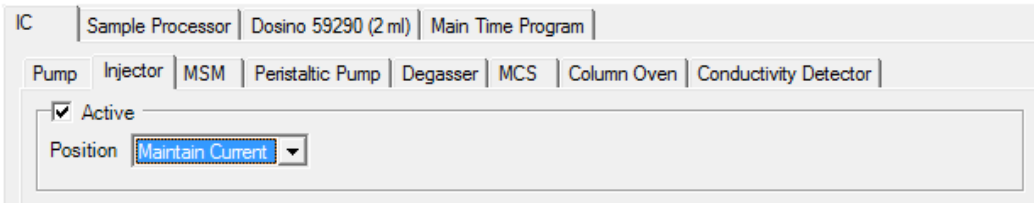
5.2.1 Setting the parameters for the ion chromatograph

Note: The selection option with the tabs depends on the instrument types.

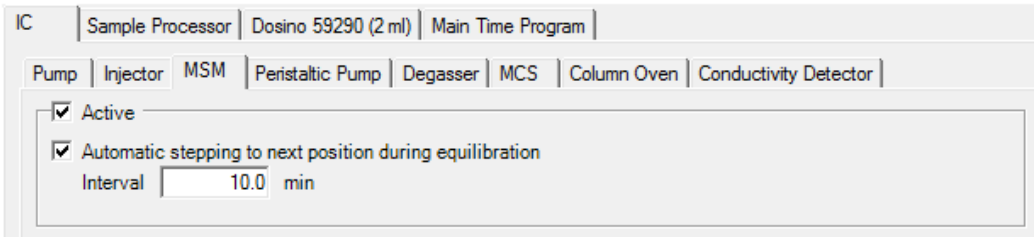
IC – Pump



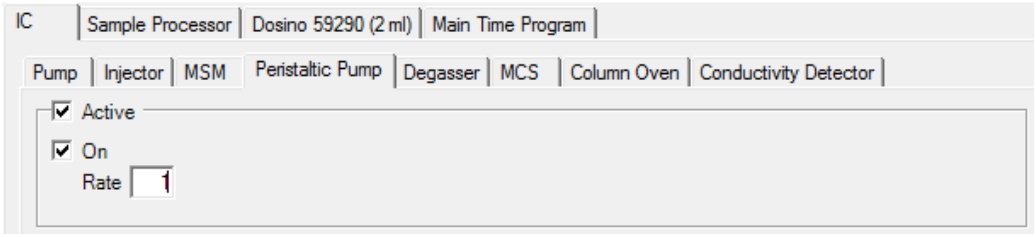
IC – Injector



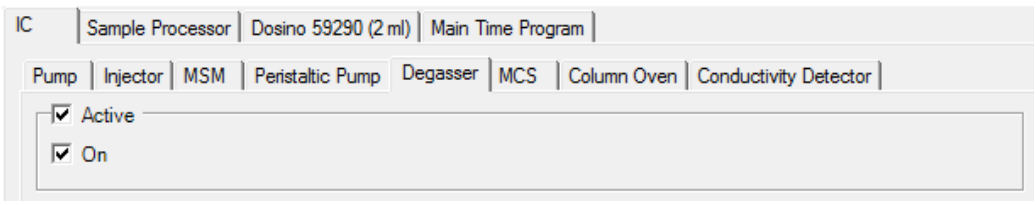
IC – MSM



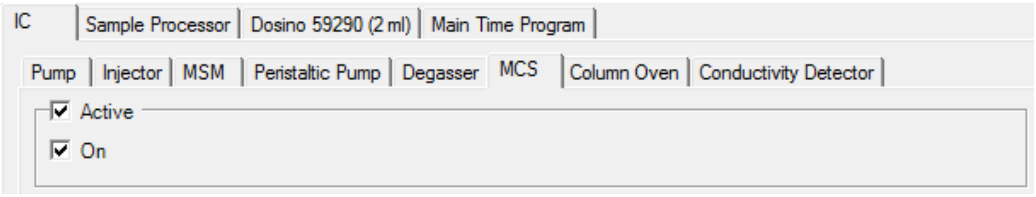
IC – Peristaltic Pump



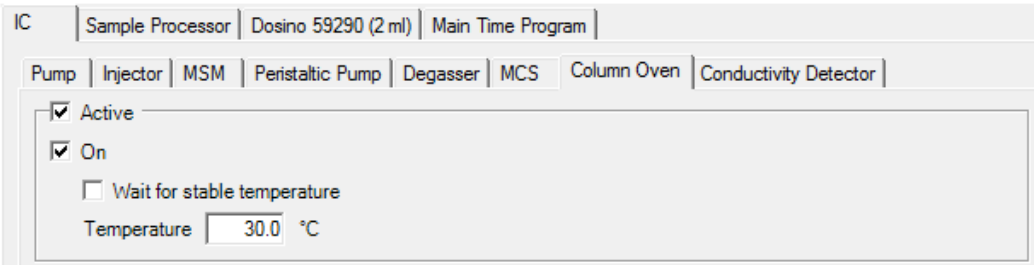
IC – Degasser



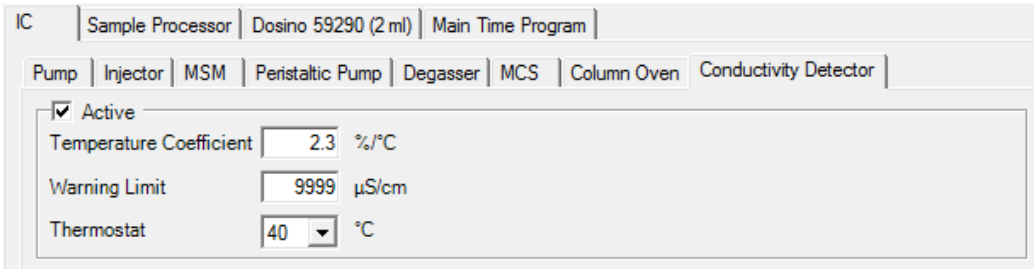
IC – MCS



IC – Column Oven



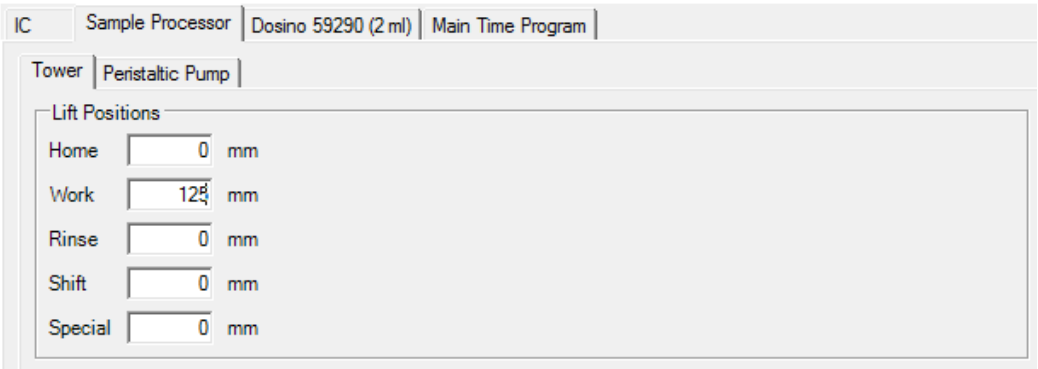
IC – Detector



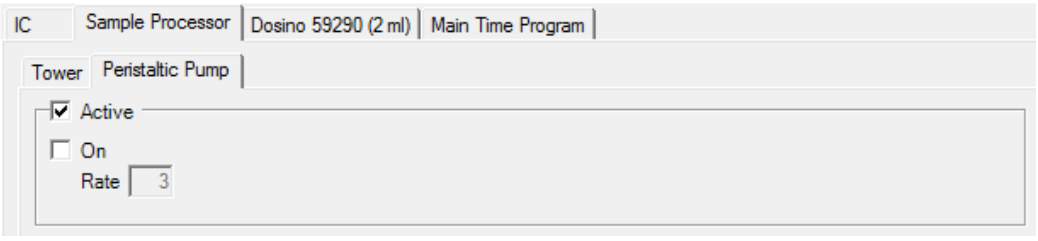
5.2.2 Setting the parameters for the Sample Processor

Sample Processor – Tower

Note: These values are dependent on the racks and sample vessels used.



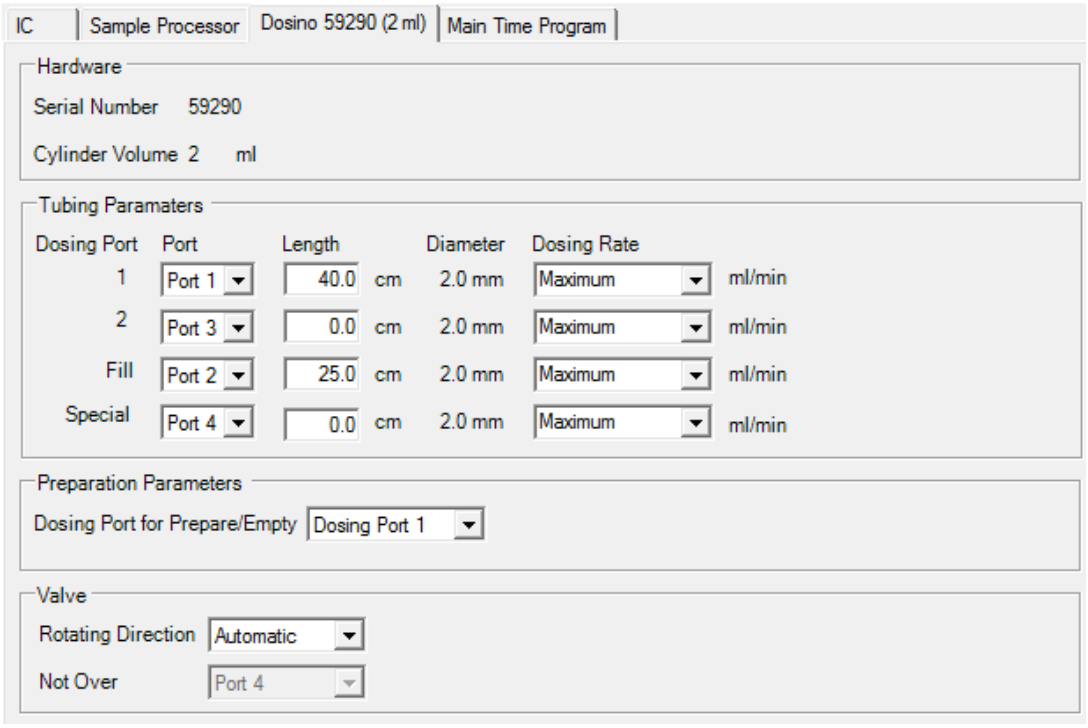
Sample Processor – Peristaltic Pump



5.2.3 Setting the parameters for the Dosino

Note: The dosing devices (Dosinos) have to be connected to the instrument before the system is set up, because they are not plug-and-play devices.

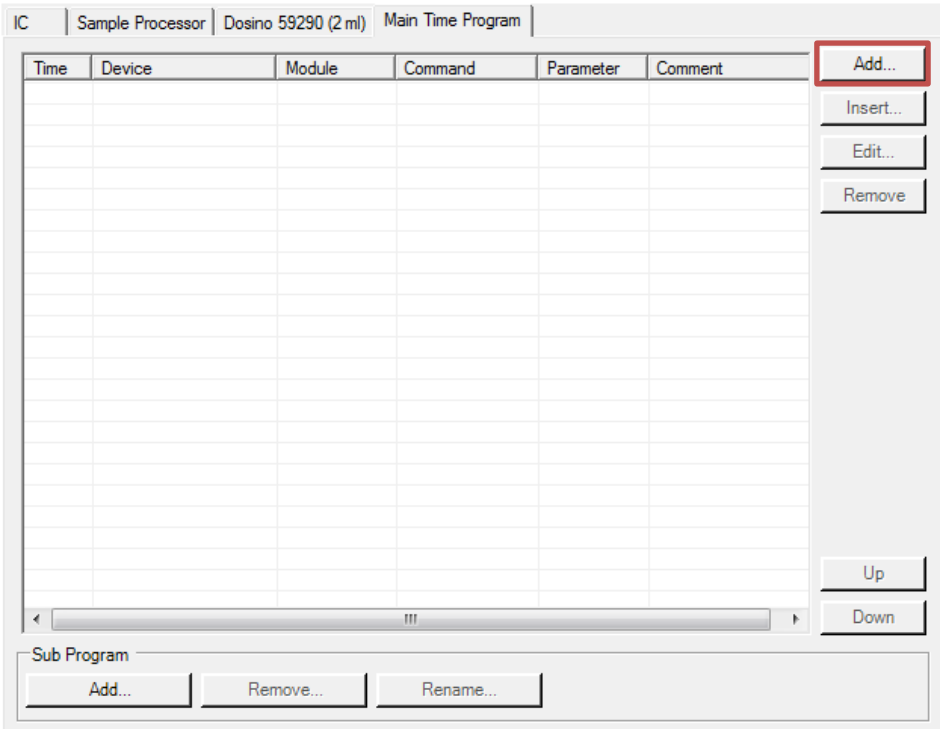
Dosino default settings normally do not require any modification.



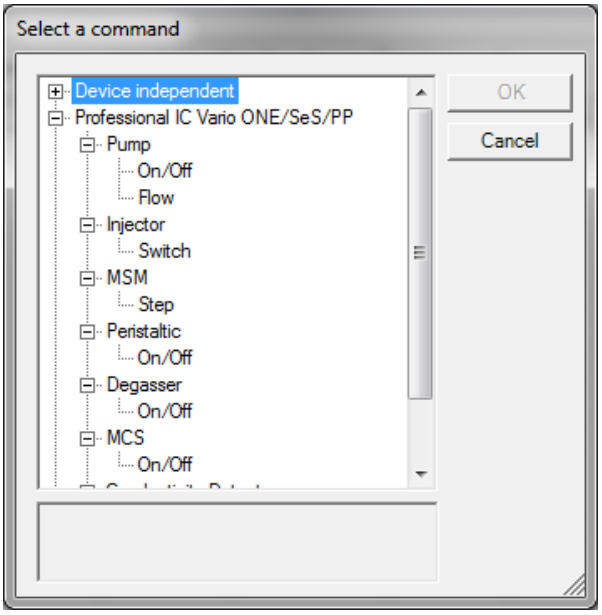
5.3 Creating the time program of the method

Write a time program to set the chronological order of the action of your measurement.

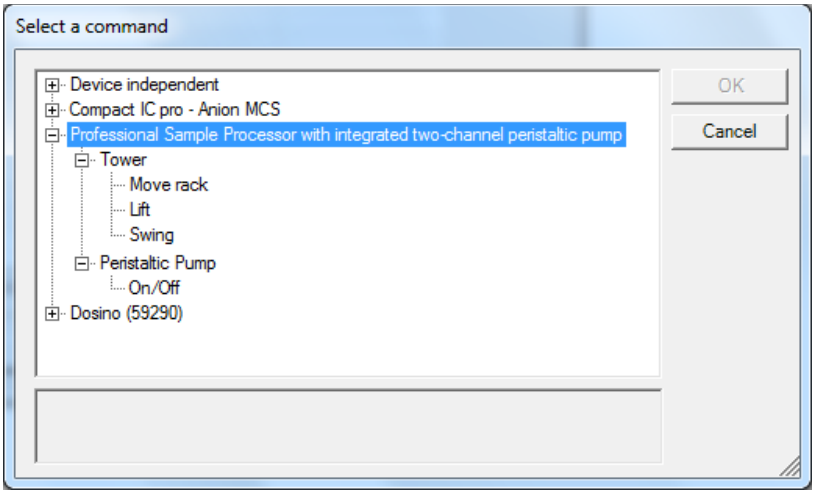
Commands can be selected with **Add…**.



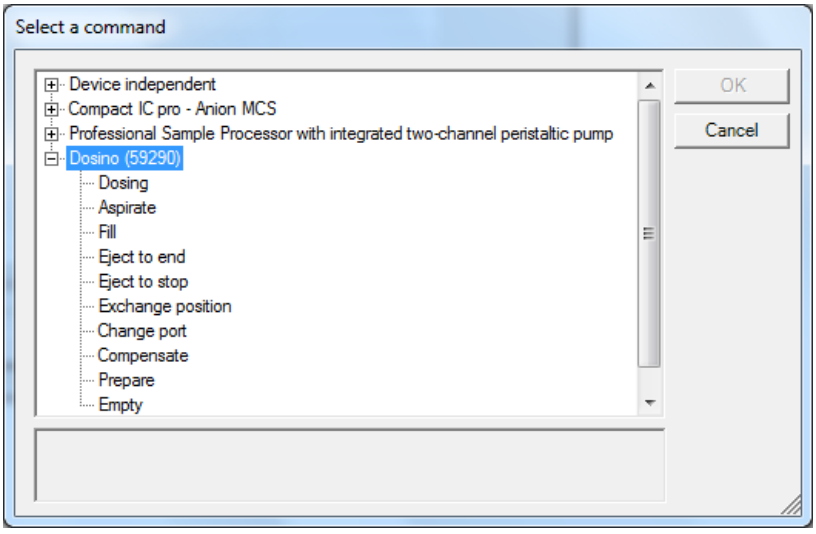
Depending on the instrument type, an IC instrument can perform the following actions:



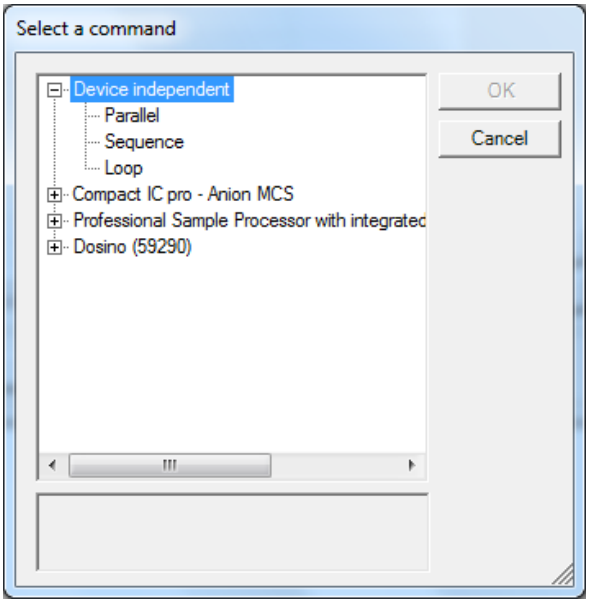
Actions that can be performed by a Sample Processor:



Commands for the Dosino:



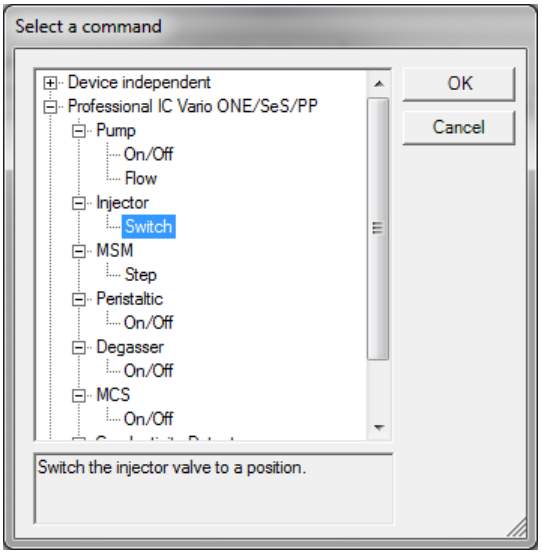
Device-independent commands are commonly used for the execution of subprograms. Subprograms can be used to create more complex time programs.



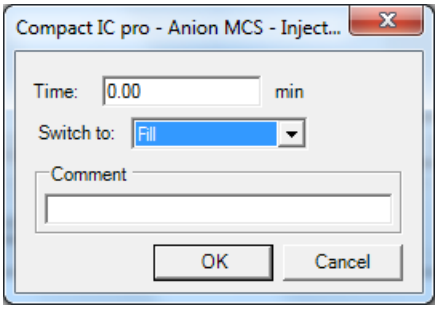
5.3.1 Time program – Example

To start a simple time program, you can proceed as follows:

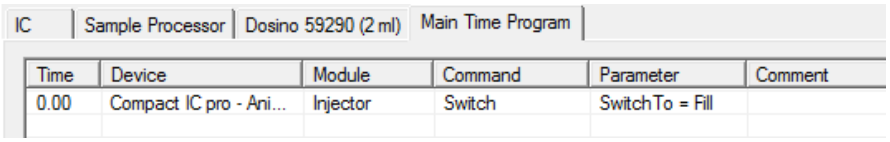
1. Double-click on **Switch**.



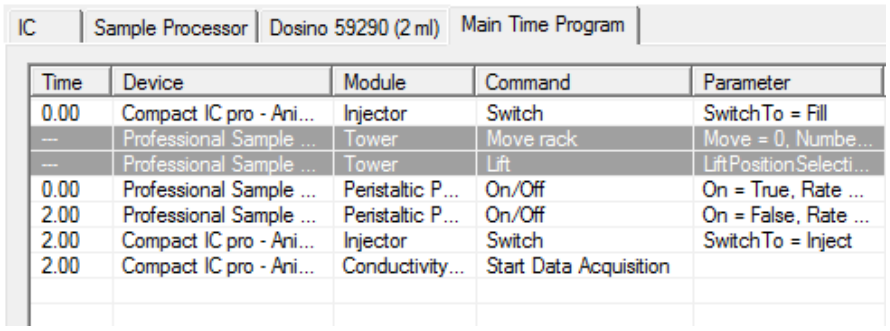
2. Switch to **Fill**.



3. The first line in the time program looks as follows:



4. With **Add…** more lines can be added, e.g.:

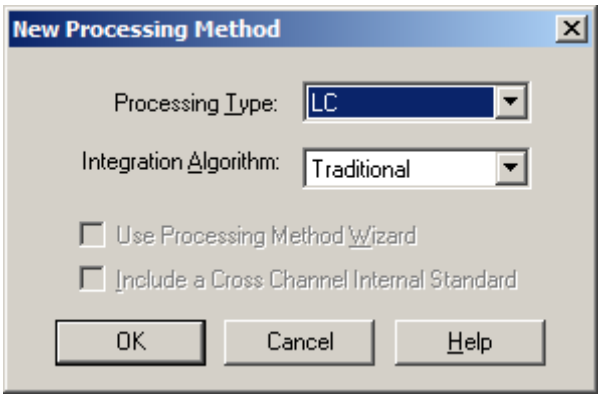


Actions of indefinite time are highlighted in **gray** in the time program. The time counter restarts at zero after such a command.

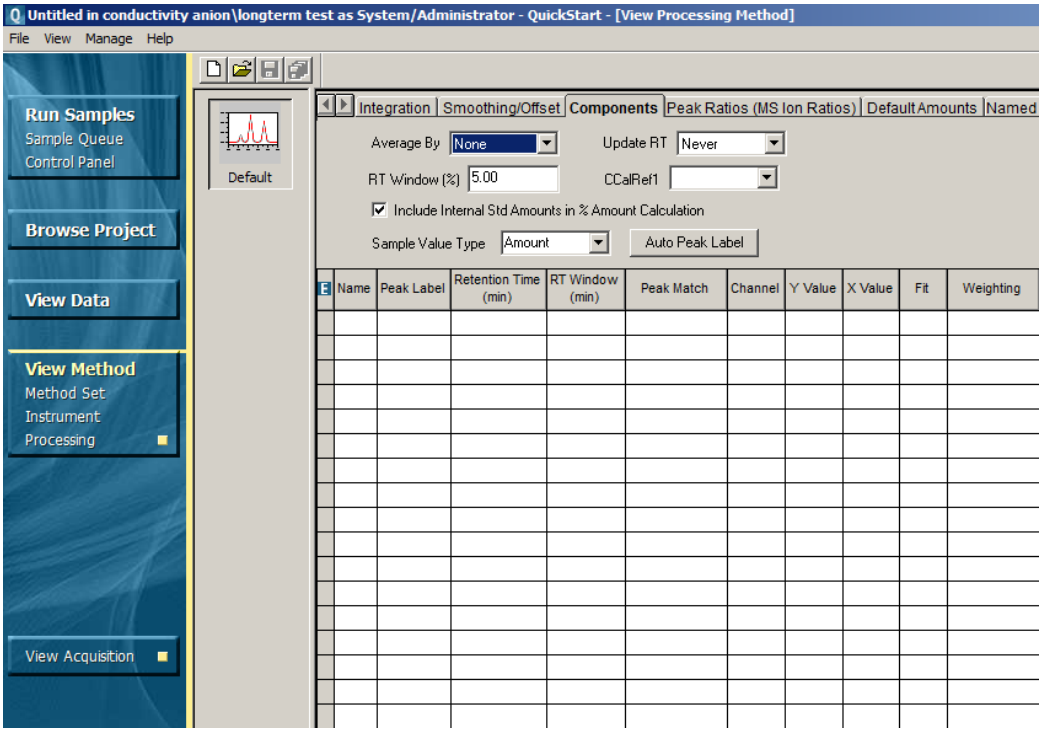
5. Save your instrument method (e.g. as "**AnionInstrument**" to make clear that this is an instrument method).

6 Creating a processing method

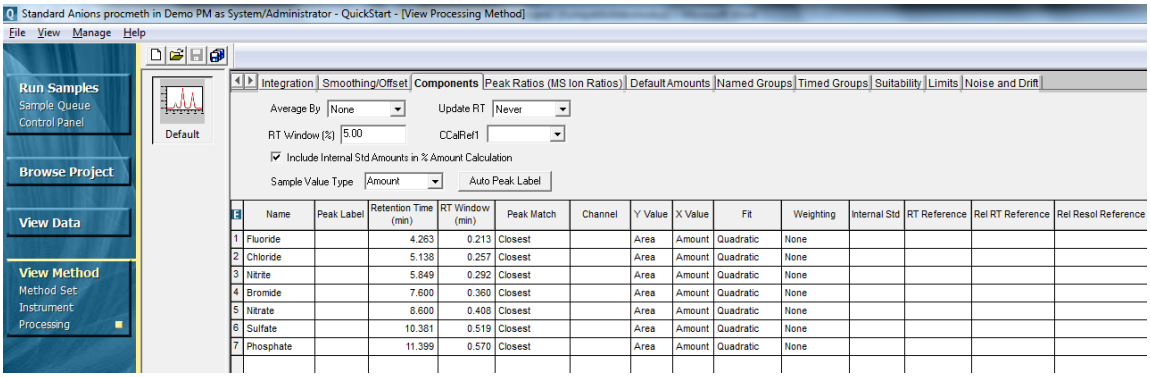
1. Click on **File > New > New Processing Method** and open a new processing method.
2. The following window appears.



3. Click on **OK**.
4. Make a list of the analytes and their retention time under **Components**.

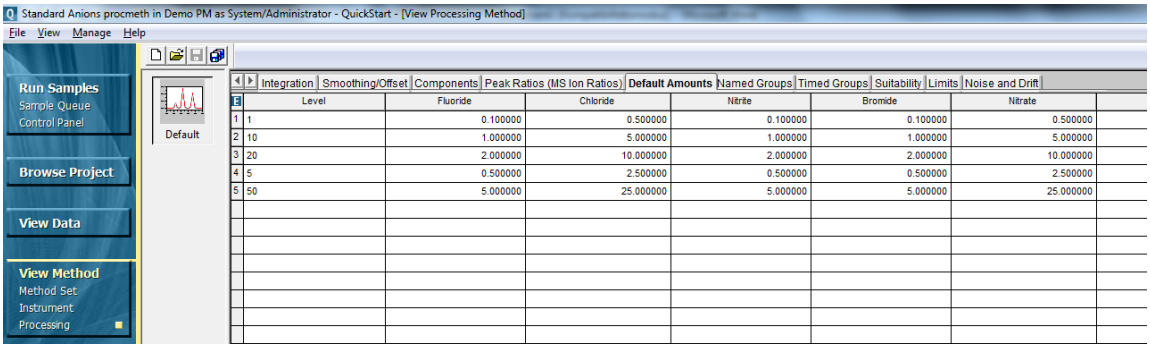


5. Click on **Components** to define the retention times of the analytes and the desired calibration parameters.

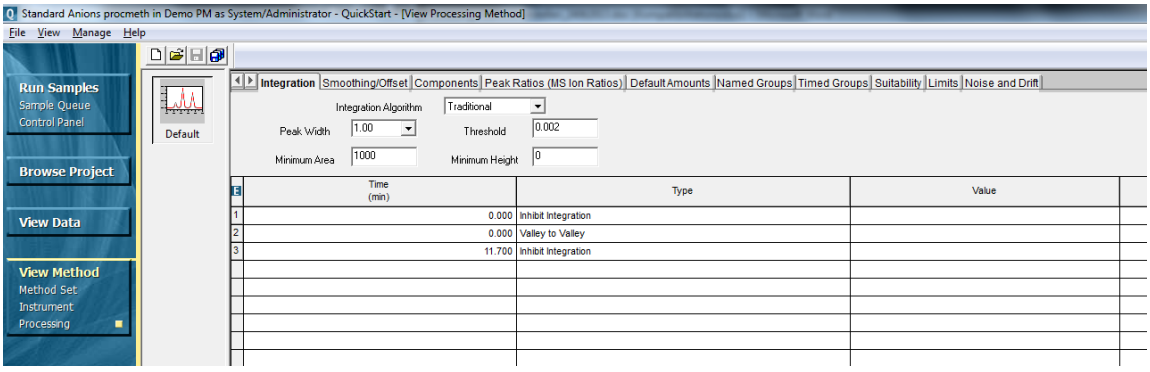


The processing method can be adjusted later. It is not necessary to fill in all parameters. It is possible to start with the default settings.

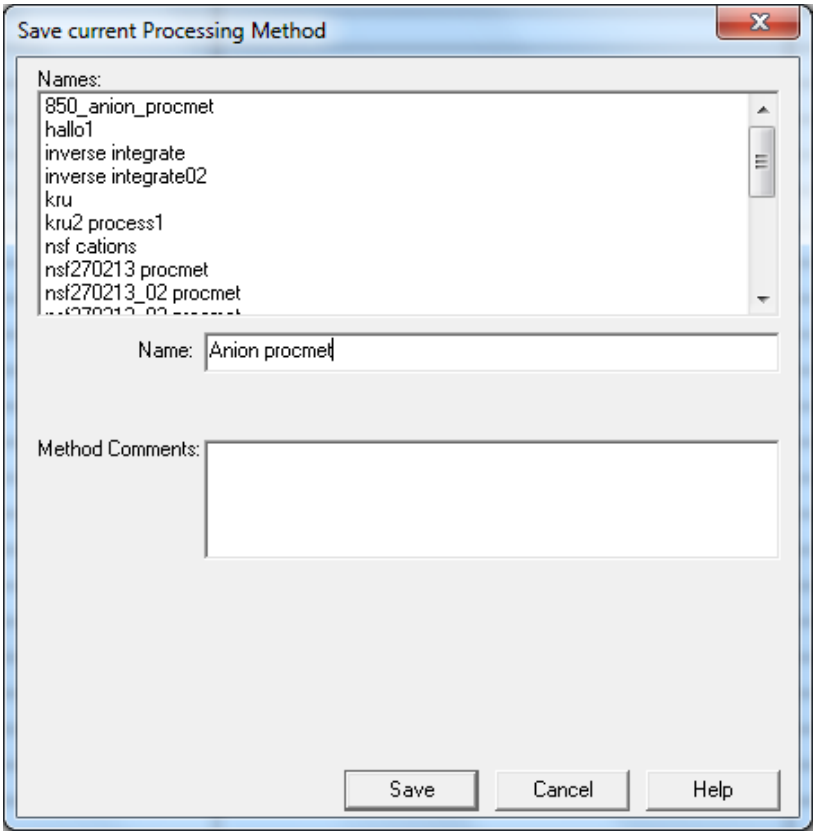
6. Enter the levels of your standard solutions under **Default Amounts**.



7. The integration parameters can be set on the **Integration** tab.

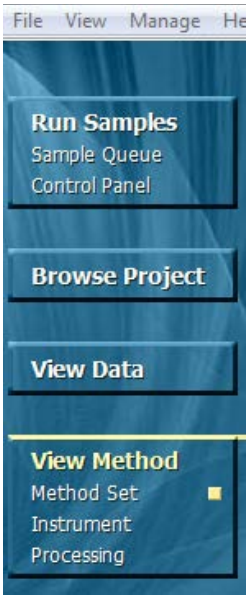


8. Save the processing method.



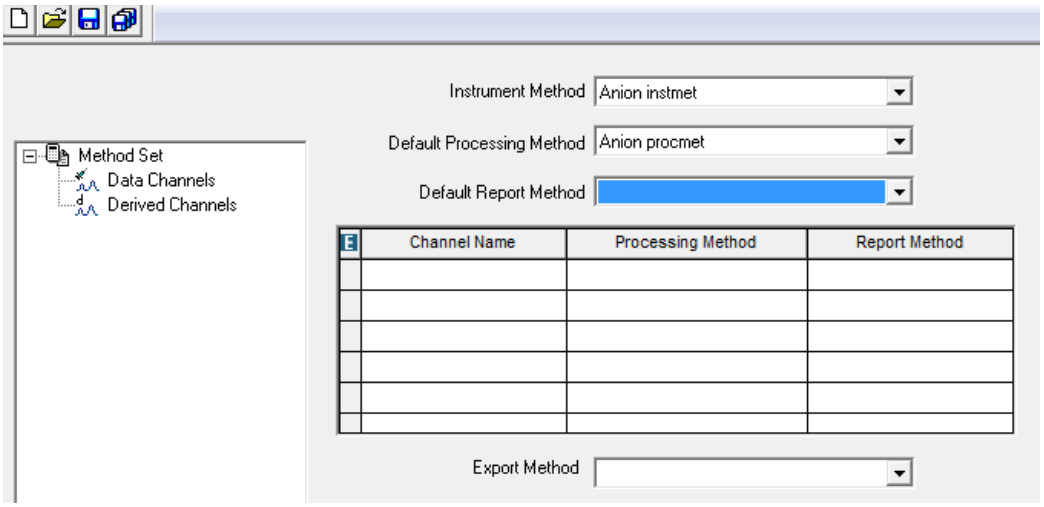
7 Forming a method set

1. Go to **Method Set**.

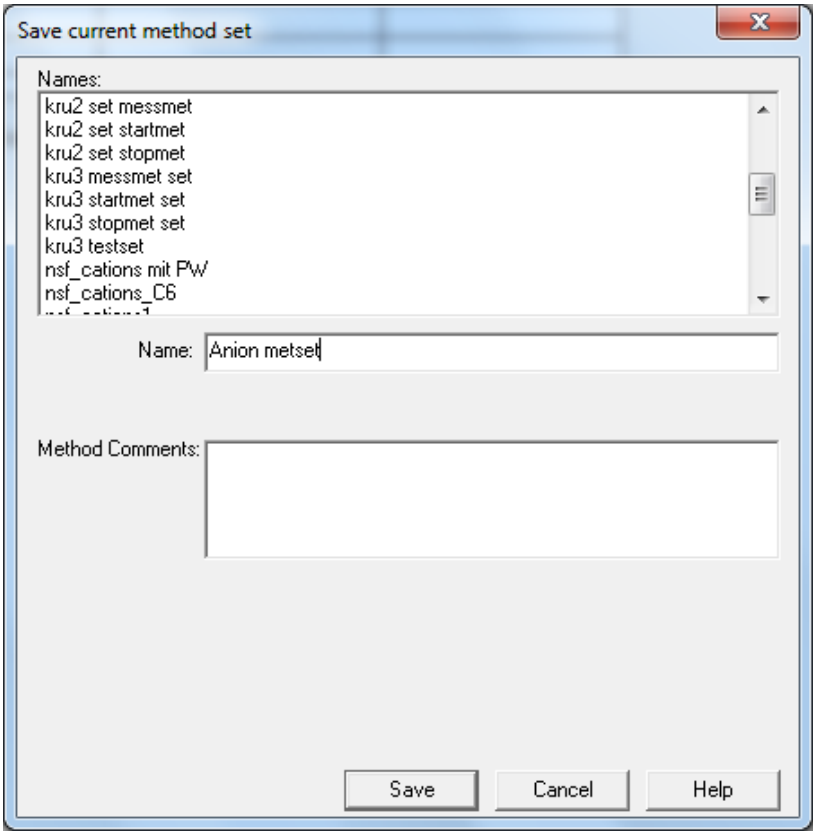


2. Group your **Instrument Method** and your **Default Processing Method** to a **Method Set**.

   Default Report Method and **Export Method** are optional.



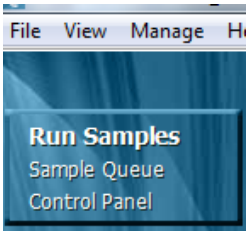
3. Save your **Method Set**.



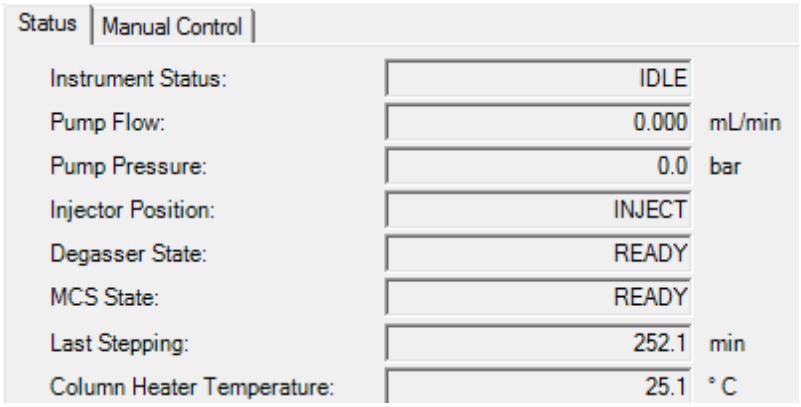
8 Running samples

8.1 Creating a sample table and starting the analysis

1. Under **Run Samples**, go to **Sample Queue**.

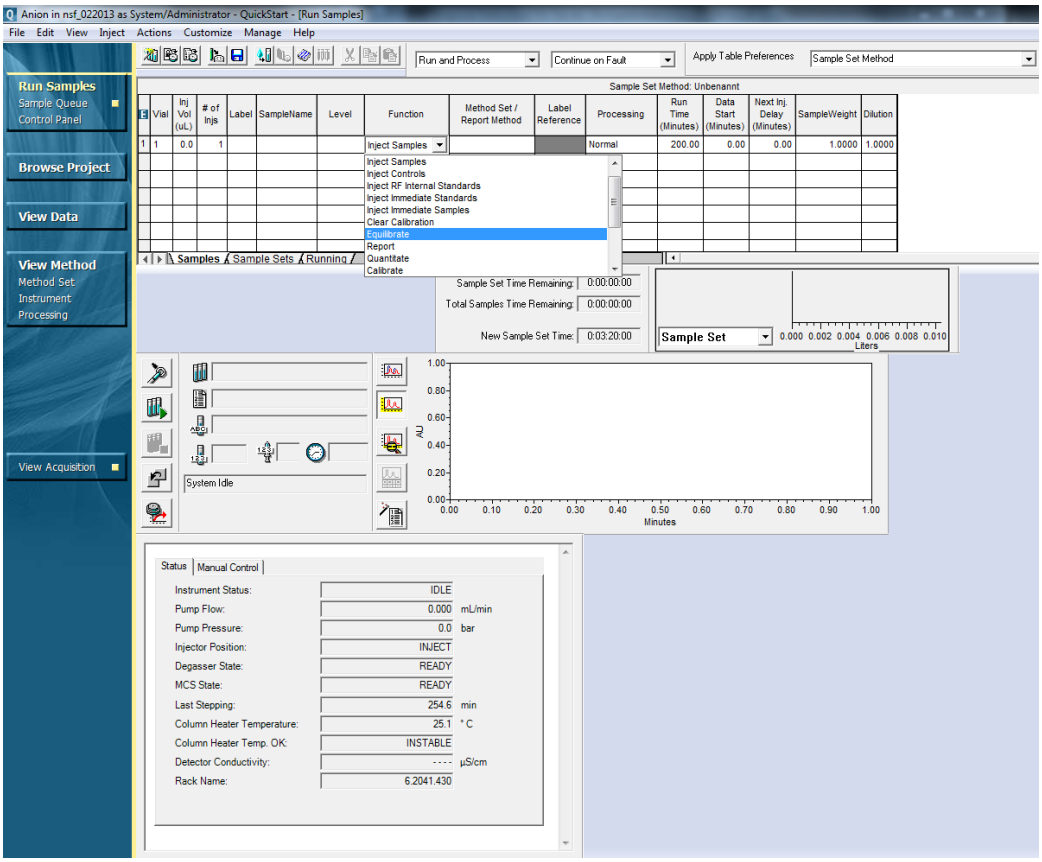


The instrument status must be **IDLE** before starting a measuring series.



2. Start filling in the sample table.

   - Start with a line for equilibration of the system.
     Use the **Equilibrate** function for this.
   - Enter a long run time (e.g. 60 min).
     This makes sure that the system has a stable baseline before moving on to the next line.
     If the baseline was stable before reaching the total run time, it would still be possible to move to the next line immediately (with **Abort > Move to Next Line**).

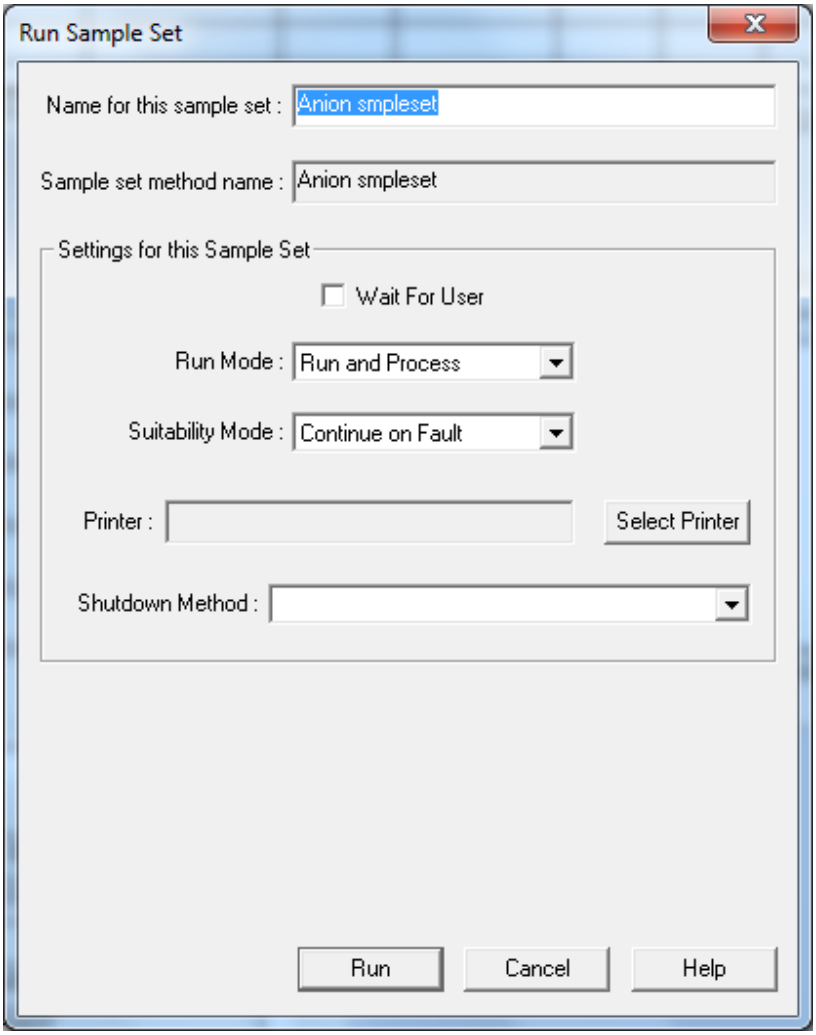


3. Create a sample table according to your needs.

E	Vial	Inj Vol (uL)	# of Injs	Label	SampleName	Level	Function	Method Set / Report Method	Label Reference	Processing	Run Time (Minutes)	Data Start (Minutes)	Next Inj. Delay (Minutes)	SampleWeight	Dilution
1							Equilibrate	Anion metset			30.00	0.00	0.00		
2	1	20.0	1		Standard1	Level 1	Inject Standards	Anion metset		Normal	5.00	0.00	0.00	1.0000	1.0000
3	2	20.0	1		Standard2	Level 2	Inject Standards	Anion metset		Normal	5.00	0.00	0.00	1.0000	1.0000
4	3	20.0	1		Standard3	Level 3	Inject Standards	Anion metset		Normal	5.00	0.00	0.00	1.0000	1.0000
5	4	20.0	1		tap		Inject Samples	Anion metset		Normal	5.00	0.00	0.00	1.0000	1.0000

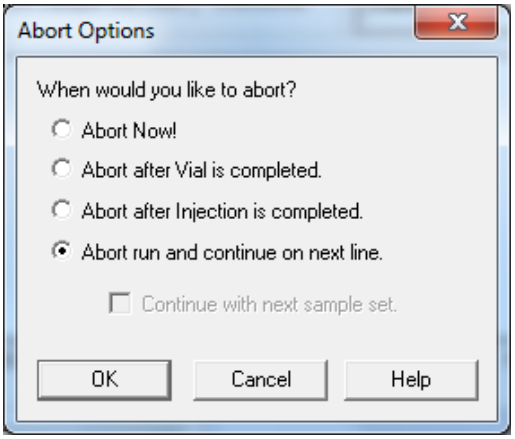
4. Click on **Start** to start the series (only if system is idle). 

5. Give the sample set a name and click on **Run**.



6. When your baseline is stable, you can click on **Stop** and select the **Abort run and continue on next line** option.

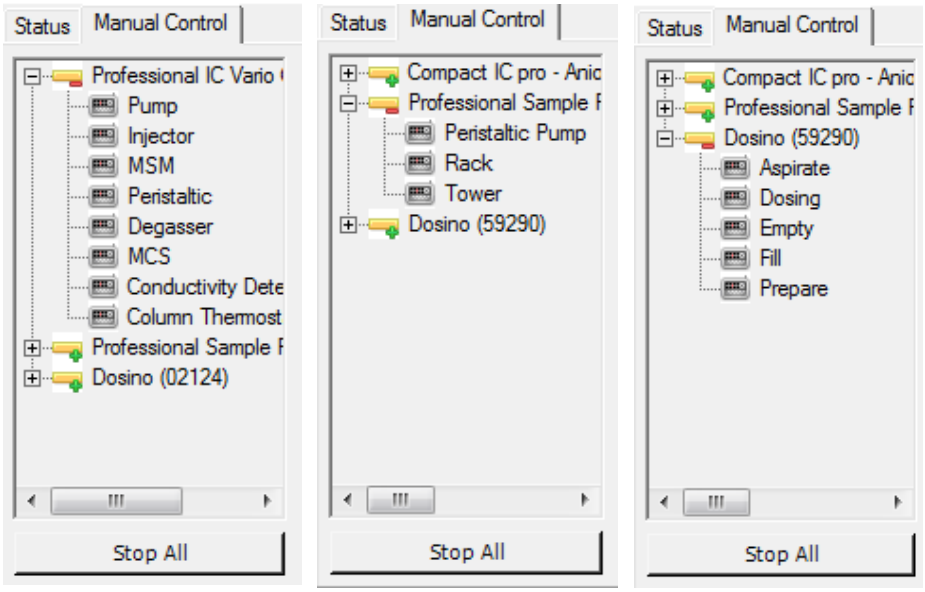
This will result in a short stop of all modules.



8.2 Manual control

More options

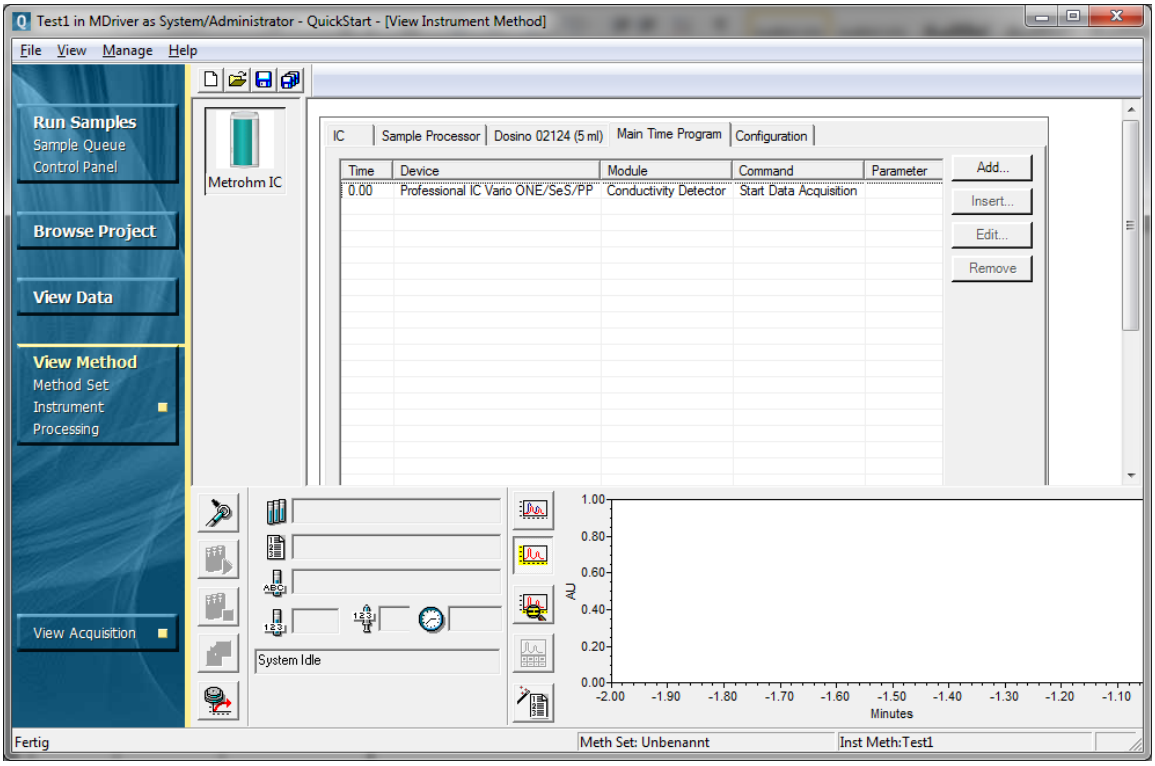
Under **Manual Control**, all hardware components can be operated individually (only when no measurement is running). The manual control is located next to the status parameters.



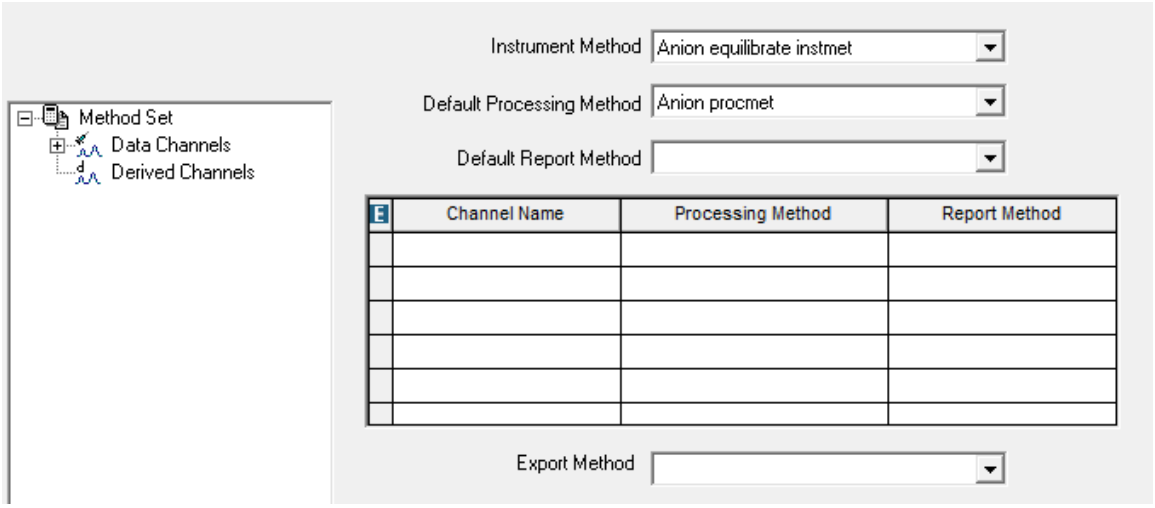
8.3 Equilibrating the system

In order to equilibrate the system, it might be useful to create an “Equilibration” method.

Create an instrument method named "Equilibration" (all parameters as desired, e.g. pump flow 0.7 mL/min, MSM autostep all 10 min, etc.). In the time program enter just one line to start data acquisition to be able to monitor the baseline during equilibration.

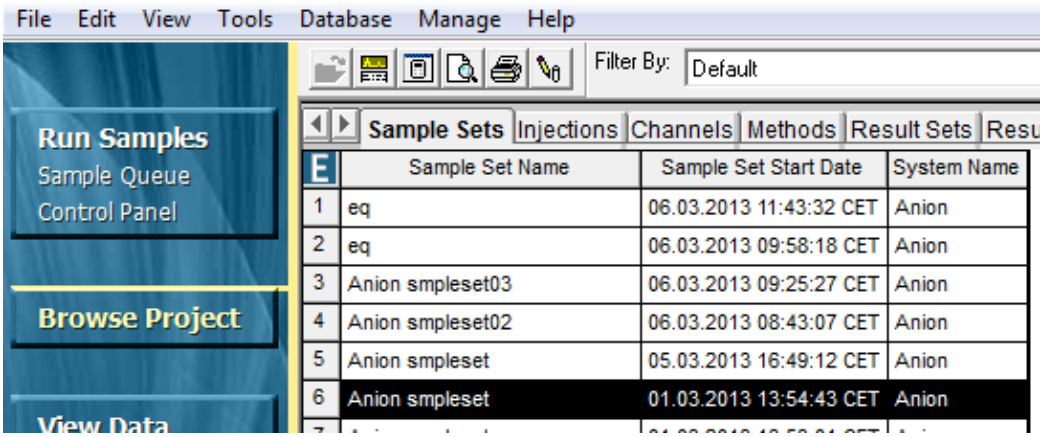


Create also a method set “Equilibration”. This method set can be run in the first line of each sample table.

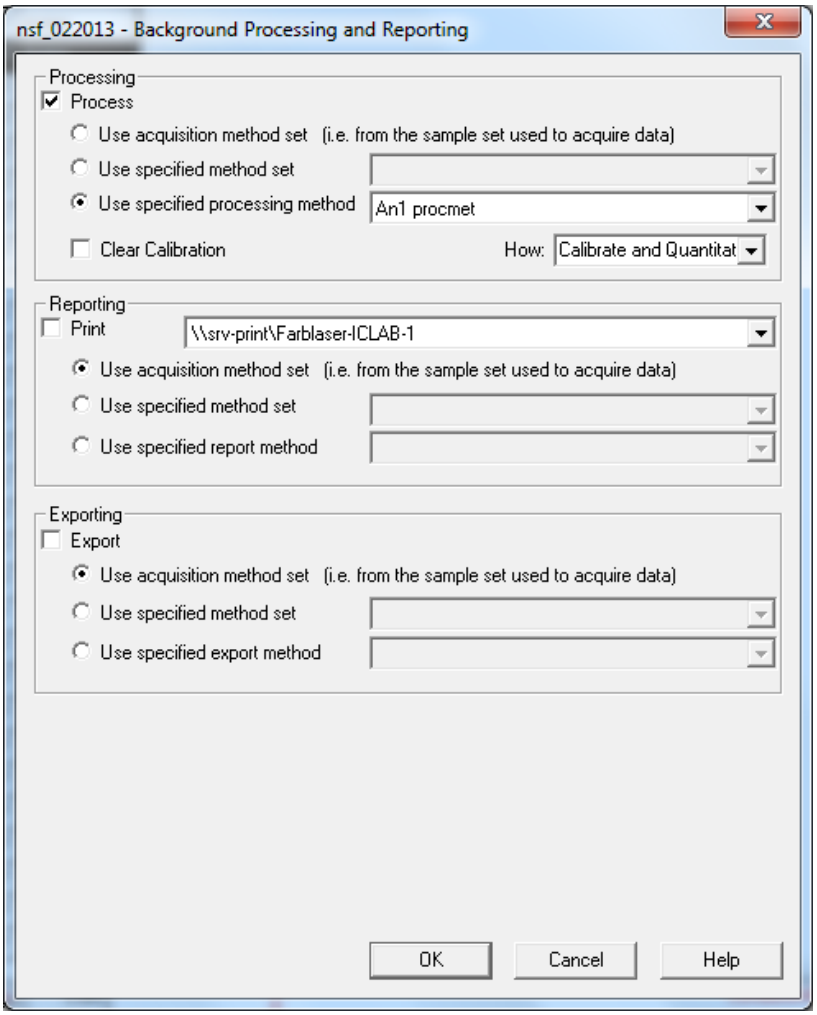


9 Evaluating recorded data

1. To review recorded data, go to **Browse Project** and select the desired sample set.



2. Right-click on the name of the **sample set** and choose **process...**.

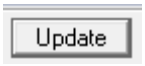


3. With **OK**, a result set is created out of the sample set. To view the results (e.g. calibration curve, amount of components in analyzed samples) go to the desired result set.

Sample Sets | Injections | Channels | Methods | **Result Sets** | Results | Fractions | Sign Offs | Curves

	Result Set Name	Result Set Date	System Name
1	Anion smpleset03	06.03.2013 13:21:05 CET	Anion
2	Anion smpleset03	06.03.2013 13:18:27 CET	Anion
3	Anion smpleset03	06.03.2013 12:59:53 CET	Anion
4	Anion smpleset03	06.03.2013 09:32:54 CET	Anion
5	Anion smpleset02	06.03.2013 08:50:31 CET	Anion
6	Anion smpleset	05.03.2013 16:56:37 CET	Anion

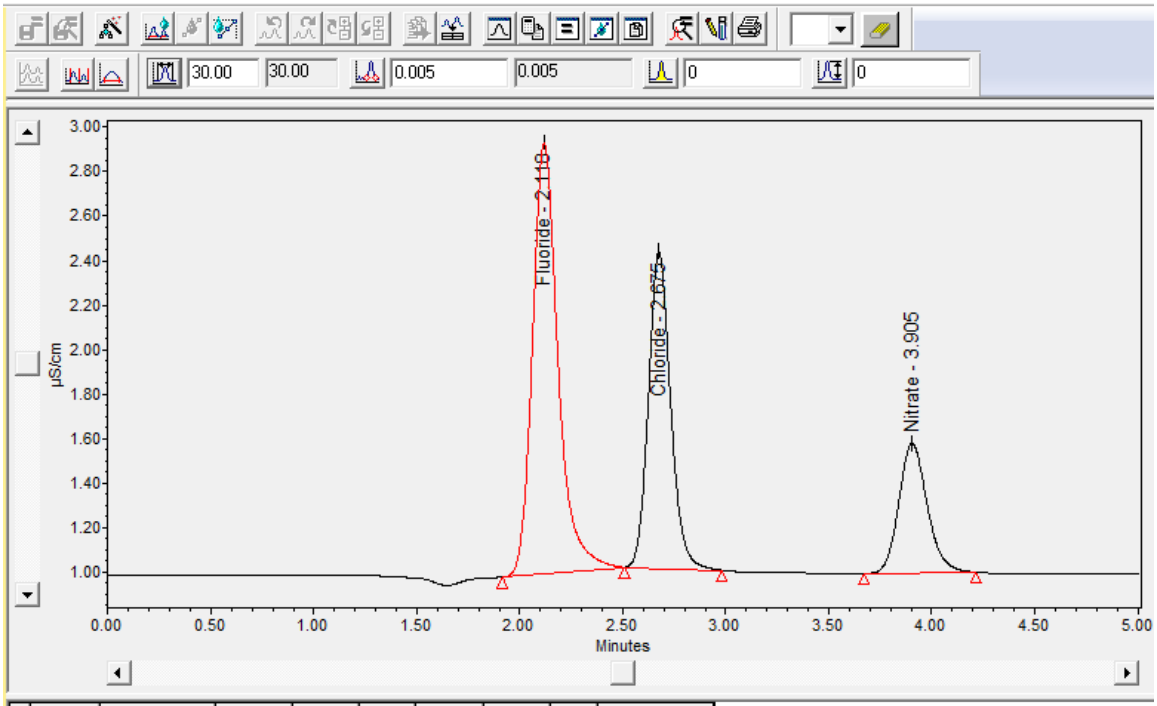
4. Click on **Update** to see also the latest recalculations.



5. Double-click on a **result set** to open a review window and to see a single result.

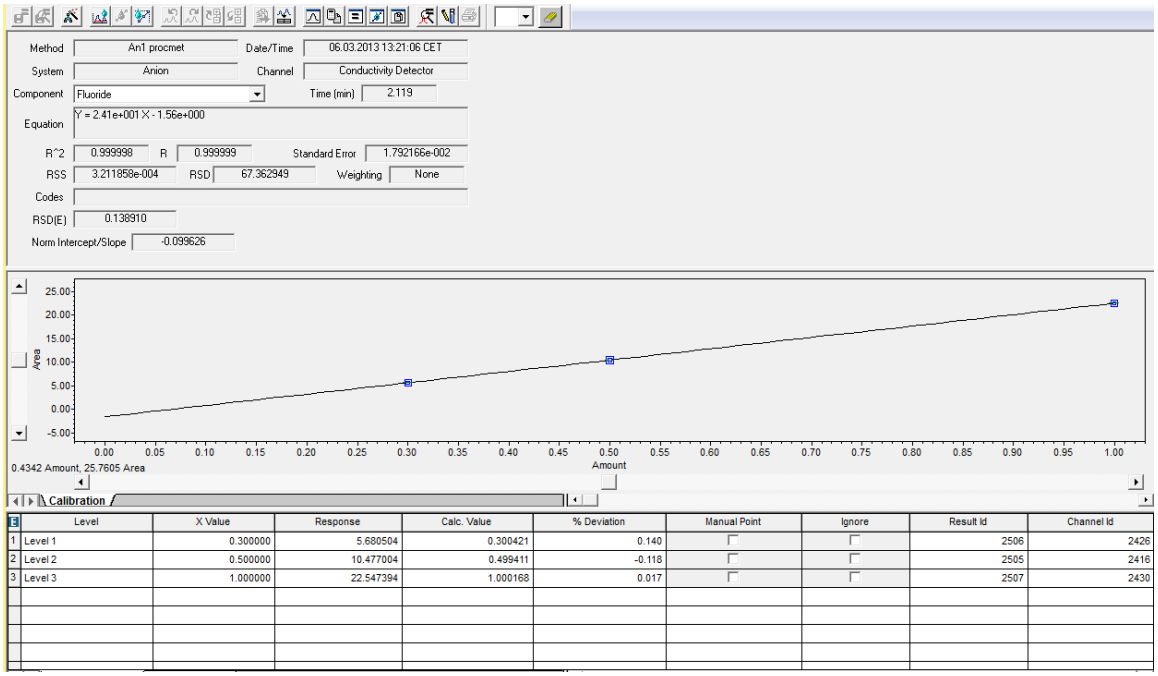
Sample Sets | Injections | Channels | Methods | Result Sets | **Results** | Fractions | Sign Offs | Curves

	SampleName	Vial	Injection	Sample Type	Processed Channel Descr.	Date Acquired	Date Processed	Processing Method	Result Id
1	Standard2	24	1	Standard	Conductivity Detector	06.03.2013 09:25:34 CET	06.03.2013 13:21:06 CET	An1 procmet	2505
2	Standard1	25	1	Standard	Conductivity Detector	06.03.2013 09:33:02 CET	06.03.2013 13:21:06 CET	An1 procmet	2506
3	Standard3	26	1	Standard	Conductivity Detector	06.03.2013 09:40:28 CET	06.03.2013 13:21:06 CET	An1 procmet	2507
4	Check 0.8mg/L	27	1	Unknown	Conductivity Detector	06.03.2013 09:47:54 CET	06.03.2013 13:21:06 CET	An1 procmet	2508



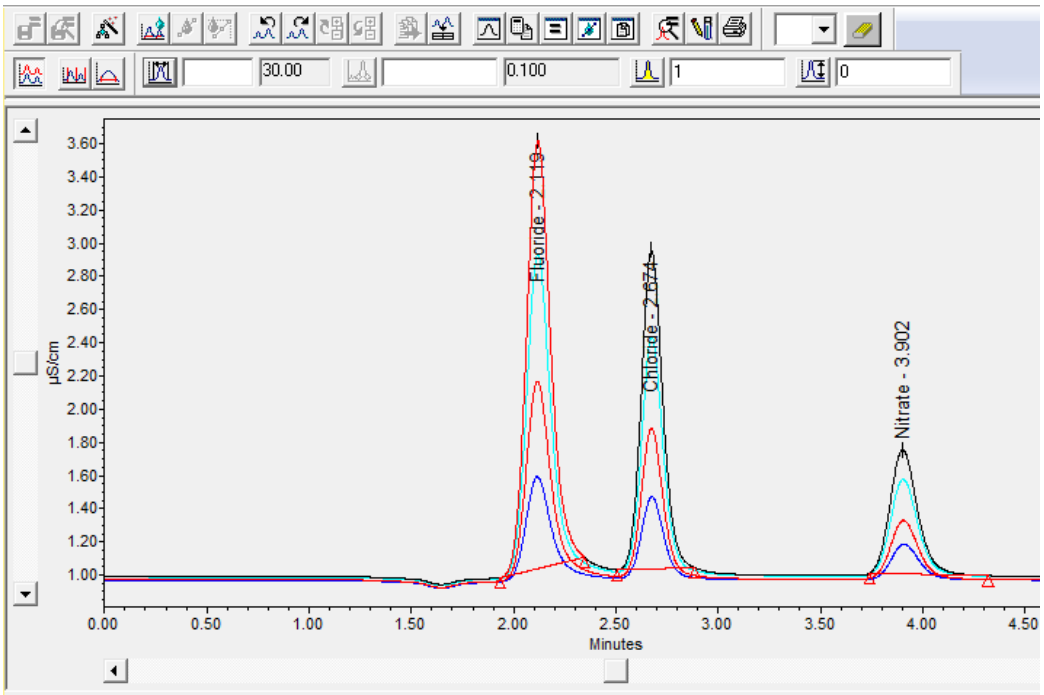
	Name	Retention Time (min)	Area (µV*sec)	% Area	Height (µV)	Int Type	Amount	Units	Peak Type
1	Fluoride	2.118	17	50.85	2	BB	0.759	mg/L	Found
2	Chloride	2.675	11	32.27	1	BB	0.755	mg/L	Found
3	Nitrate	3.905	6	16.88	1	BB	0.785	mg/L	Found

6. The  icon shows the calibration.



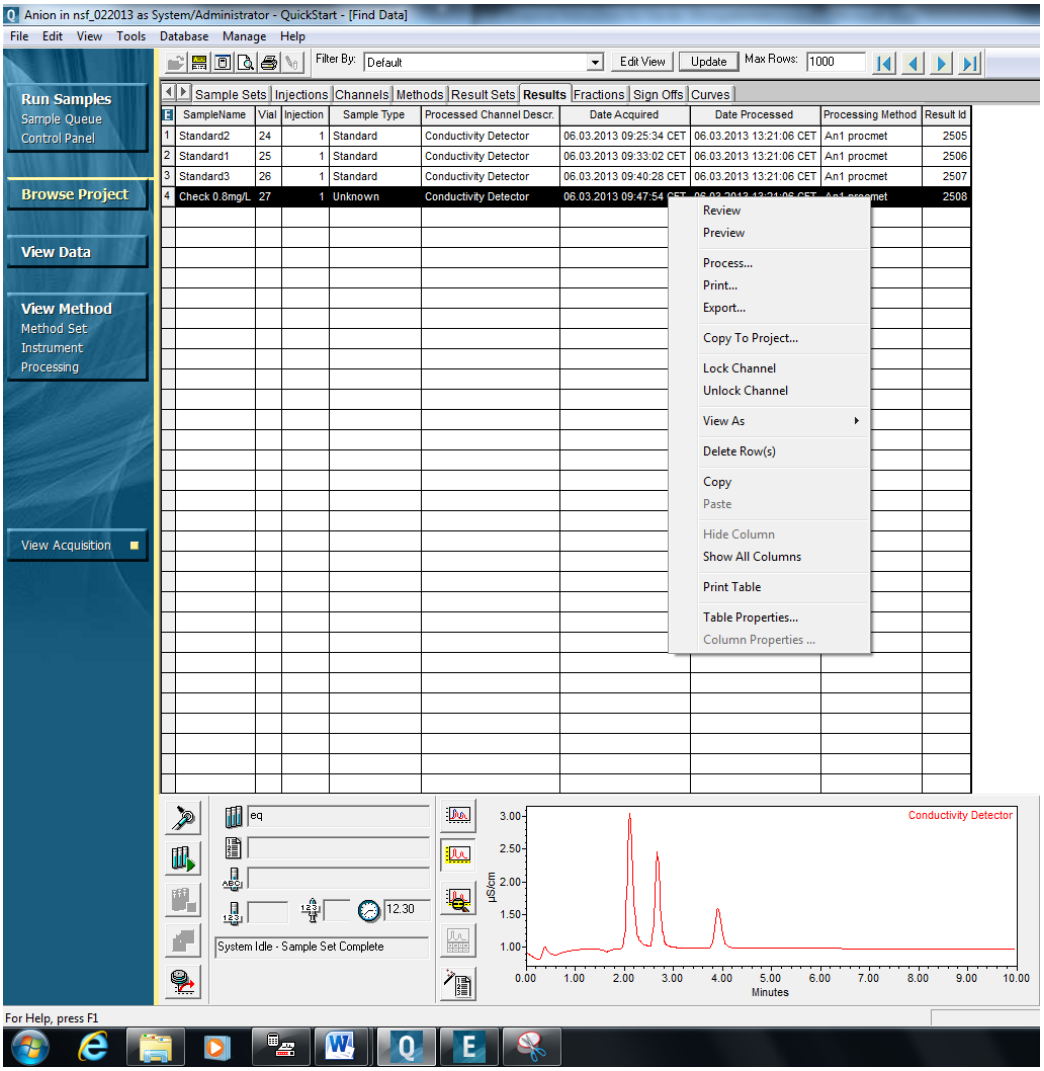
	Level	X Value	Response	Calc. Value	% Deviation	Manual Point	Ignore	Result Id	Channel Id
1	Level 1	0.300000	5.680504	0.300421	0.140			2506	2426
2	Level 2	0.500000	10.477004	0.499411	-0.118			2505	2416
3	Level 3	1.000000	22.547394	1.000168	0.017			2507	2430

7. Several results can be loaded into the review by highlighting them and then opening the review window. Use the icon  to overlay curves.

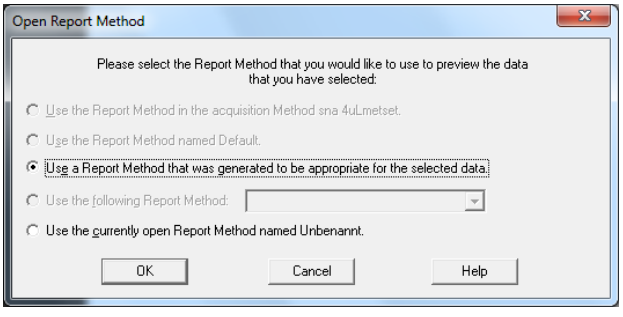


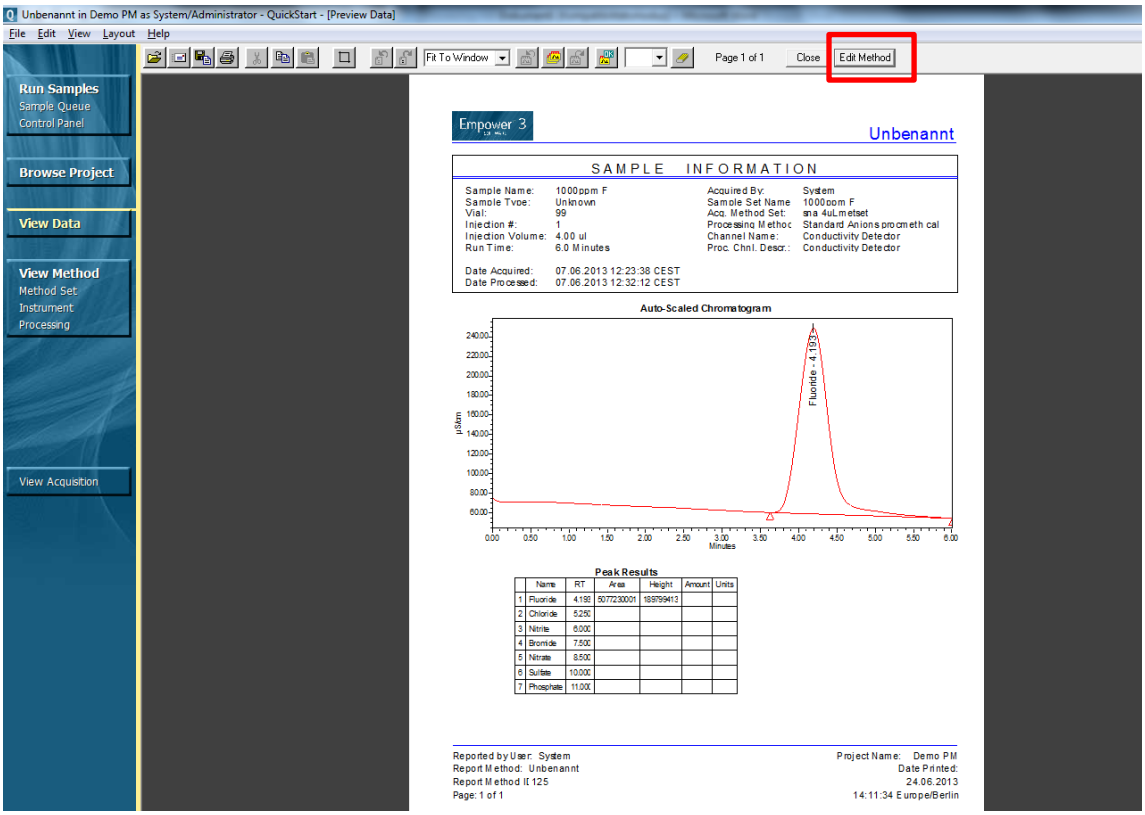
	Name	Retention Time (min)	Area (µV*sec)	% Area	Height (µV)	Int Type	Amount	Units	Peak Type
1	Fluoride	2.119	21	50.15	3	BB	1.000	mg/L	Found
2	Chloride	2.674	14	33.20	2	BB	1.000	mg/L	Found
3	Nitrate	3.902	7	16.65	1	BB	1.000	mg/L	Found

8. For a report, right-click on the desired **sample** and select **Preview**.

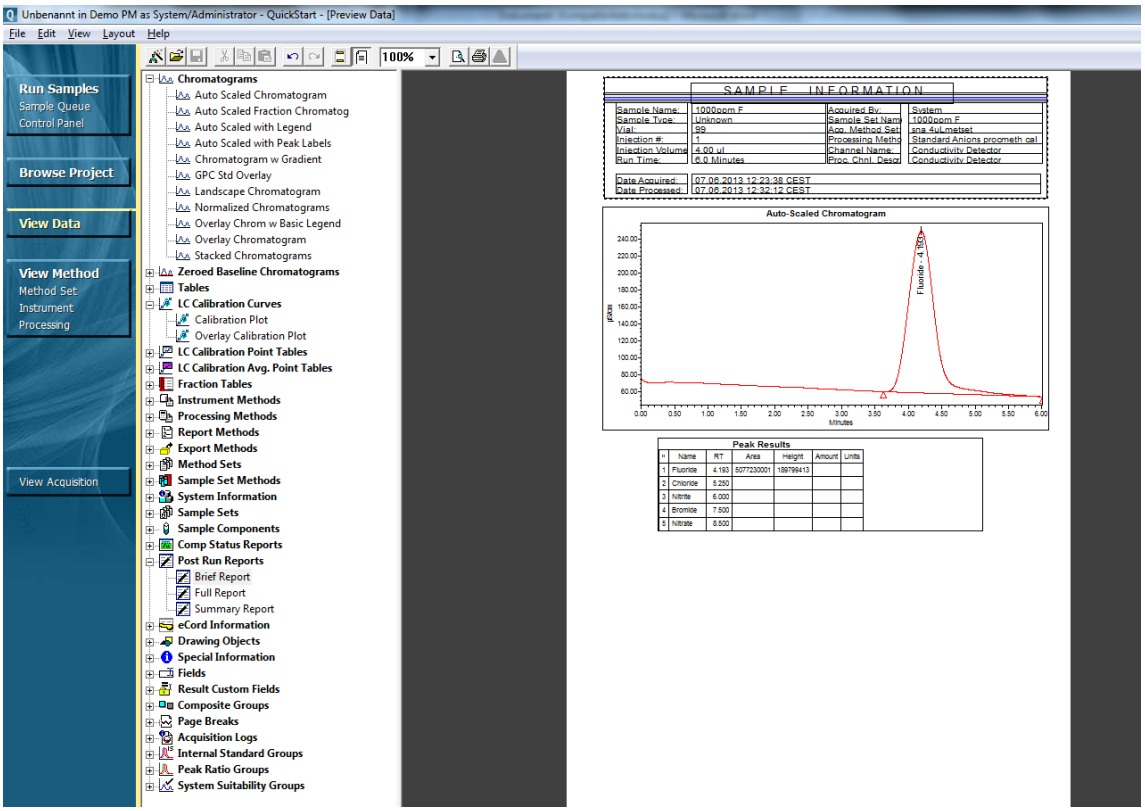


9. A selection window appears in which you can select an appropriate **Report Method**:





10. The report can be modified as required using the **Edit Method** button.

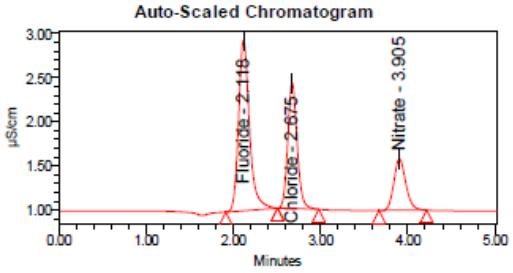


11. The information can be applied directly to the report by double-clicking on the corresponding fields.

9.1 Example

Among many other things, the report can contain the chromatogram, the calibration curve, instrument parameters as well as the time program. A rudimentary example is shown below:

	SampleName	Sample Type	Vial	Inj #	Run Time (Minutes)	Injection Volume (ul)	Acquistion Method Set	Sample Weight	Processed Channel Descr.	Dilution
1	Check 0.8mg/L	Unknown	27	1	5.00	20.00	Anion metset	1.00000	Conductivity Detector	1.00000



Peak Results

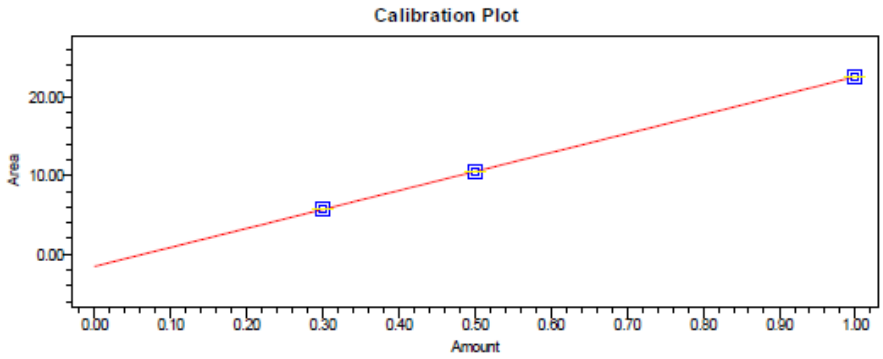
	Name	RT	Area	Height	Amount	Units
1	Fluoride	2.118	17	2	0.759	mg/L
2	Chloride	2.675	11	1	0.755	mg/L
3	Nitrate	3.905	6	1	0.785	mg/L

Metrohm IC Post Run Report

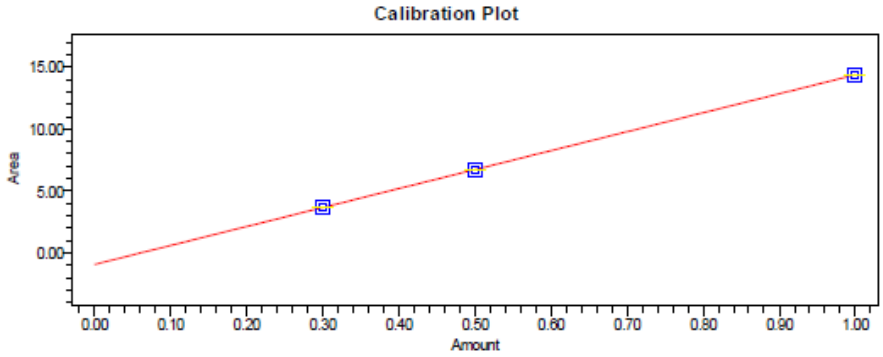
Sample: Anionen Vial: 1 Inj: 1

IC Properties

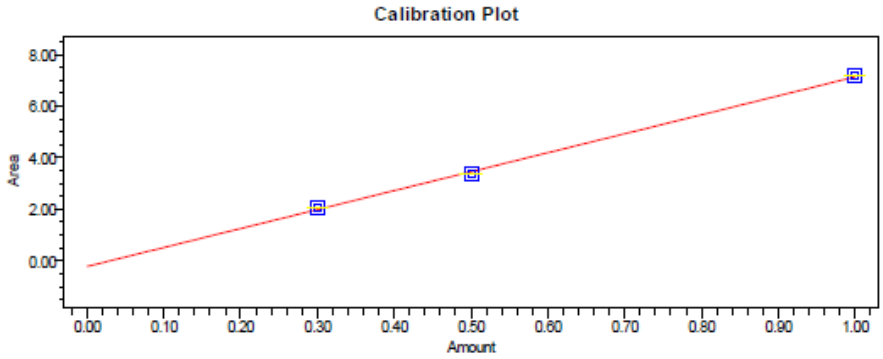
Device Type	0940.1500
Program Version	5.940.0100
Serial Number	2106



Name: Fluoride; Processing Method: An1 procmet; Fit Type: Linear (1st Order); Cal Curve Id: 2502; A: -1.560918e+000; B: 2.410425e+001; C: 0.000000e+000; D: 0.000000e+000; R^2: 0.999998



Name: Chloride; Processing Method: An1 procmet; Fit Type: Linear (1st Order); Cal Curve Id: 2503; A: -9.351727e-001; B: 1.531650e+001; C: 0.000000e+000; D: 0.000000e+000; R^2: 0.999899

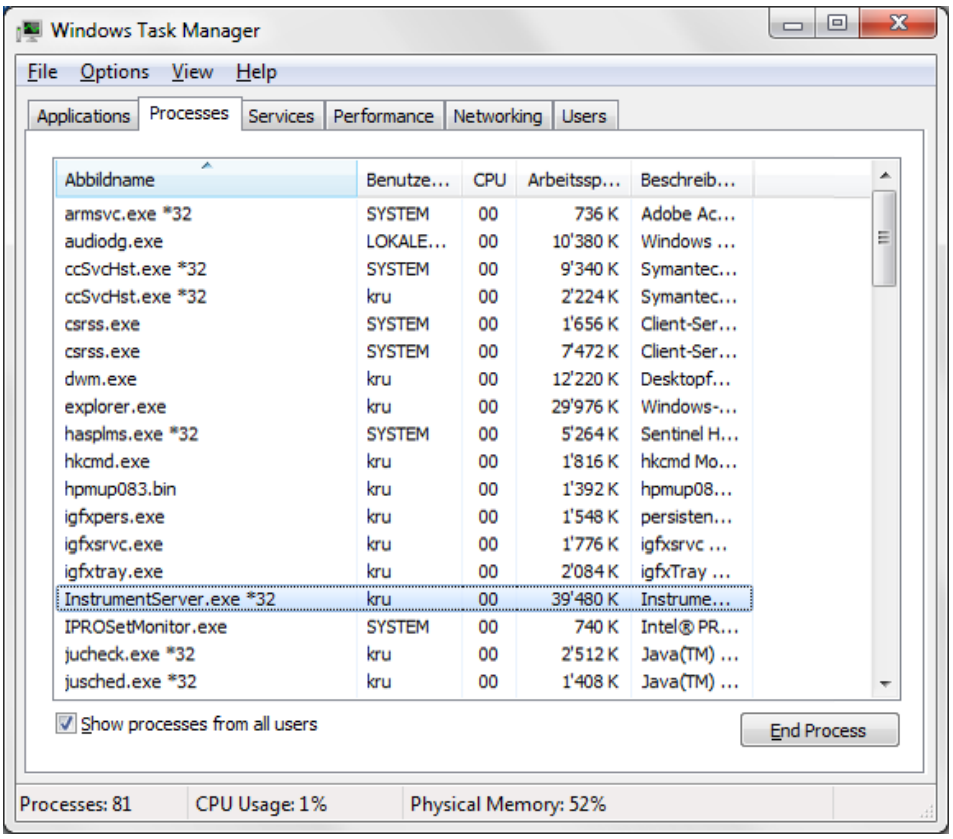


Name: Nitrate; Processing Method: An1 procmet; Fit Type: Linear (1st Order); Cal Curve Id: 2504; A: -2.167631e-001; B: 7.348928e+000; C: 0.000000e+000; D: 0.000000e+000; R^2: 0.998786

10 Troubleshooting

10.1 Stopping the process

1. If there is a system failure or if the connection is lost, it is recommended to close the software and also stop **InstrumentServer.exe** (with Task Manager/Processes).

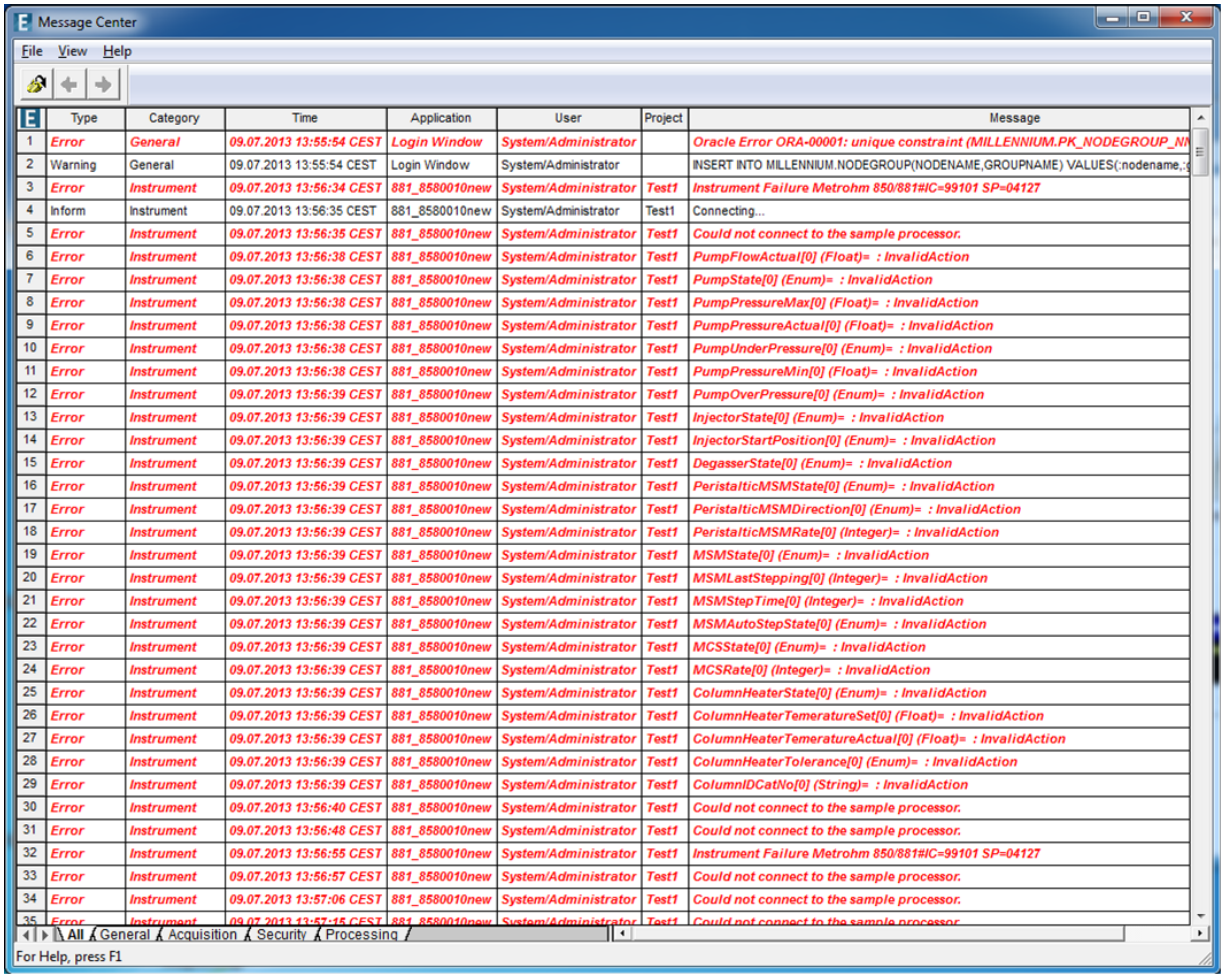


2. Then restart the software to continue working.

10.2 Message Center

1. Double-clicking on the "**E**" in the task bar opens the Message Center, in which error messages are documented.

2. A list of all current messages appears (example list).



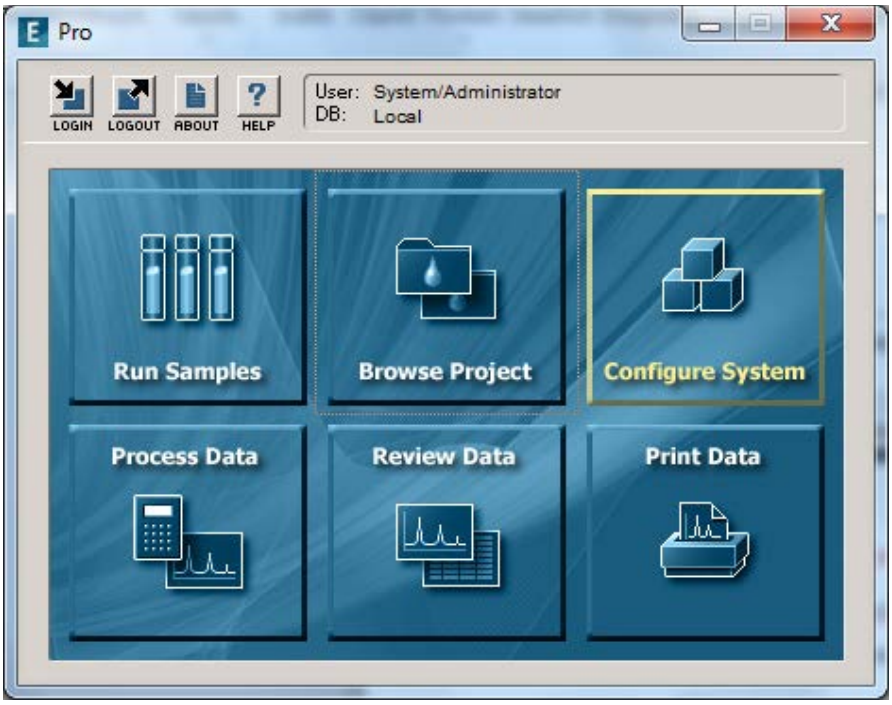
	Type	Category	Time	Application	User	Project	Message
1	Error	General	09.07.2013 13:55:54 CEST	Login Window	System/Administrator		Oracle Error ORA-00001: unique constraint (MILLENNIUM.PK_NODEGROUP_NA
2	Warning	General	09.07.2013 13:55:54 CEST	Login Window	System/Administrator		INSERT INTO MILLENNIUM.NODEGROUP(NODENAME,GROUPNAME) VALUES(:nodename,:g
3	Error	Instrument	09.07.2013 13:56:34 CEST	881_8580010new	System/Administrator	Test1	Instrument Failure Metrohm 850/881#IC=99101 SP=04127
4	Inform	Instrument	09.07.2013 13:56:35 CEST	881_8580010new	System/Administrator	Test1	Connecting...
5	Error	Instrument	09.07.2013 13:56:35 CEST	881_8580010new	System/Administrator	Test1	Could not connect to the sample processor.
6	Error	Instrument	09.07.2013 13:56:38 CEST	881_8580010new	System/Administrator	Test1	PumpFlowActual[0] (Float)= : InvalidAction
7	Error	Instrument	09.07.2013 13:56:38 CEST	881_8580010new	System/Administrator	Test1	PumpState[0] (Enum)= : InvalidAction
8	Error	Instrument	09.07.2013 13:56:38 CEST	881_8580010new	System/Administrator	Test1	PumpPressureMax[0] (Float)= : InvalidAction
9	Error	Instrument	09.07.2013 13:56:38 CEST	881_8580010new	System/Administrator	Test1	PumpPressureActual[0] (Float)= : InvalidAction
10	Error	Instrument	09.07.2013 13:56:38 CEST	881_8580010new	System/Administrator	Test1	PumpUnderPressure[0] (Enum)= : InvalidAction
11	Error	Instrument	09.07.2013 13:56:38 CEST	881_8580010new	System/Administrator	Test1	PumpPressureMin[0] (Float)= : InvalidAction
12	Error	Instrument	09.07.2013 13:56:39 CEST	881_8580010new	System/Administrator	Test1	PumpOverPressure[0] (Enum)= : InvalidAction
13	Error	Instrument	09.07.2013 13:56:39 CEST	881_8580010new	System/Administrator	Test1	InjectorState[0] (Enum)= : InvalidAction
14	Error	Instrument	09.07.2013 13:56:39 CEST	881_8580010new	System/Administrator	Test1	InjectorStartPosition[0] (Enum)= : InvalidAction
15	Error	Instrument	09.07.2013 13:56:39 CEST	881_8580010new	System/Administrator	Test1	DegasserState[0] (Enum)= : InvalidAction
16	Error	Instrument	09.07.2013 13:56:39 CEST	881_8580010new	System/Administrator	Test1	PeristalticMSMState[0] (Enum)= : InvalidAction
17	Error	Instrument	09.07.2013 13:56:39 CEST	881_8580010new	System/Administrator	Test1	PeristalticMSMDirection[0] (Enum)= : InvalidAction
18	Error	Instrument	09.07.2013 13:56:39 CEST	881_8580010new	System/Administrator	Test1	PeristalticMSMRate[0] (Integer)= : InvalidAction
19	Error	Instrument	09.07.2013 13:56:39 CEST	881_8580010new	System/Administrator	Test1	MSMState[0] (Enum)= : InvalidAction
20	Error	Instrument	09.07.2013 13:56:39 CEST	881_8580010new	System/Administrator	Test1	MSMLastStepping[0] (Integer)= : InvalidAction
21	Error	Instrument	09.07.2013 13:56:39 CEST	881_8580010new	System/Administrator	Test1	MSMStepTime[0] (Integer)= : InvalidAction
22	Error	Instrument	09.07.2013 13:56:39 CEST	881_8580010new	System/Administrator	Test1	MSMAutoStepState[0] (Enum)= : InvalidAction
23	Error	Instrument	09.07.2013 13:56:39 CEST	881_8580010new	System/Administrator	Test1	MCSState[0] (Enum)= : InvalidAction
24	Error	Instrument	09.07.2013 13:56:39 CEST	881_8580010new	System/Administrator	Test1	MCSRate[0] (Integer)= : InvalidAction
25	Error	Instrument	09.07.2013 13:56:39 CEST	881_8580010new	System/Administrator	Test1	ColumnHeaterState[0] (Enum)= : InvalidAction
26	Error	Instrument	09.07.2013 13:56:39 CEST	881_8580010new	System/Administrator	Test1	ColumnHeaterTemeratureSet[0] (Float)= : InvalidAction
27	Error	Instrument	09.07.2013 13:56:39 CEST	881_8580010new	System/Administrator	Test1	ColumnHeaterTemeratureActual[0] (Float)= : InvalidAction
28	Error	Instrument	09.07.2013 13:56:39 CEST	881_8580010new	System/Administrator	Test1	ColumnHeaterTolerance[0] (Enum)= : InvalidAction
29	Error	Instrument	09.07.2013 13:56:39 CEST	881_8580010new	System/Administrator	Test1	ColumnIDCatNo[0] (String)= : InvalidAction
30	Error	Instrument	09.07.2013 13:56:40 CEST	881_8580010new	System/Administrator	Test1	Could not connect to the sample processor.
31	Error	Instrument	09.07.2013 13:56:48 CEST	881_8580010new	System/Administrator	Test1	Could not connect to the sample processor.
32	Error	Instrument	09.07.2013 13:56:55 CEST	881_8580010new	System/Administrator	Test1	Instrument Failure Metrohm 850/881#IC=99101 SP=04127
33	Error	Instrument	09.07.2013 13:56:57 CEST	881_8580010new	System/Administrator	Test1	Could not connect to the sample processor.
34	Error	Instrument	09.07.2013 13:57:06 CEST	881_8580010new	System/Administrator	Test1	Could not connect to the sample processor.
35	Error	Instrument	09.07.2013 13:57:15 CEST	881_8580010new	System/Administrator	Test1	Could not connect to the sample processor.

11 Restrictions

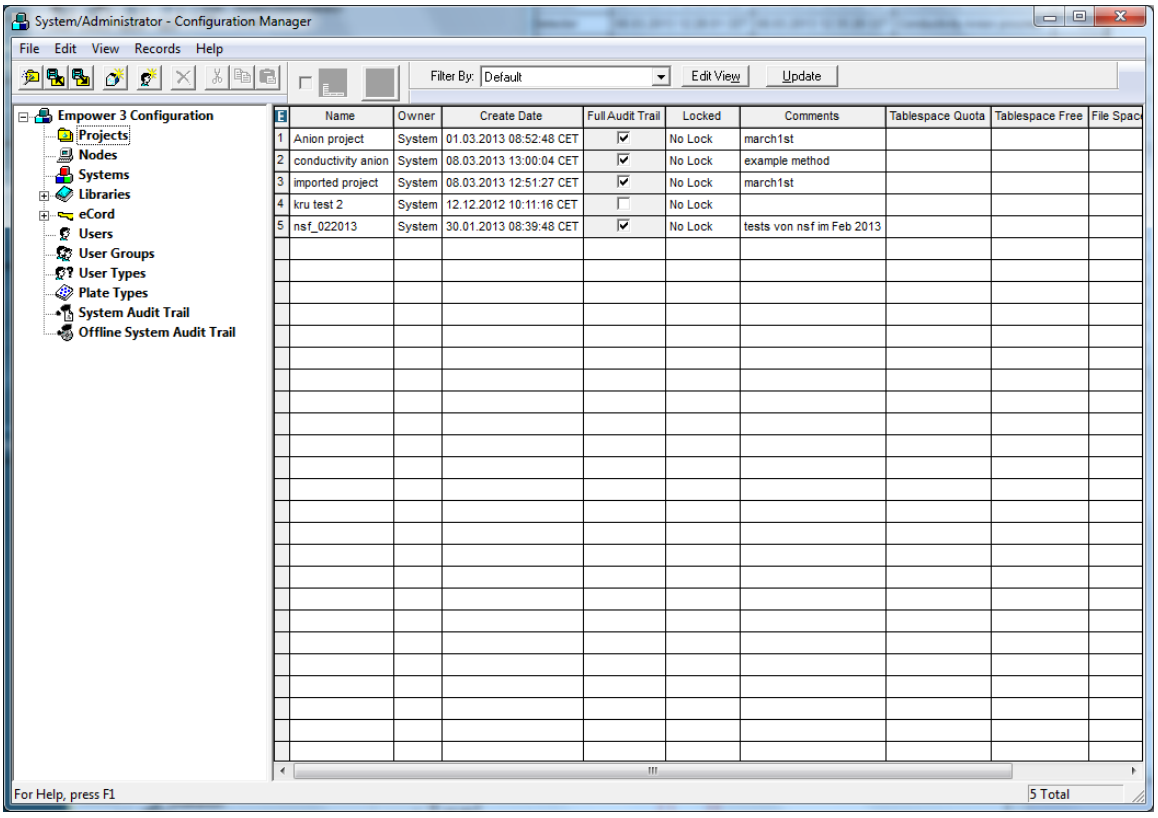
- This device driver allows you to operate one or several IC systems from one PC. One IC system may include a maximum of one changer, five Dosinos and one IC instrument with a conductivity detector.
- Two Metrohm IC instruments can be operated in parallel in two different systems.
- Two sample changers cannot be operated (with one PC) with this version.
- The **stop all** command does not only stop all components, but also the communication. As a result, the values are no longer updated in the status display.
- The column thermostat remains switched on with the **Abort Run** command.
- The MSM autostep is continued if the sample table is canceled with the **Abort after vial is completed** function. The column thermostat remains switched on as well. All other components are stopped.
- Information on the column used can be obtained via the **post run report**.
- The needle of the sample changer can only move to positions on the rack used (no external positions such as the rinsing station).
- If a Prep or Empty command is performed with the Dosino, then the "Dosing port 1" will always be used as the port for ejecting the solution (Port for Prep/Empty).
- For cation determination, the peaks in the live display are negative. In the analysis results, the chromatograms are displayed correctly (with positive peaks). For anion determination, the peaks are always positive.
- If the analytes are measured as negative peaks, the chromatogram has to be inverted by means of a **derived channel**. This means that the conductance measured is multiplied by "**-1**" (see chapter 13).

12 Importing example methods

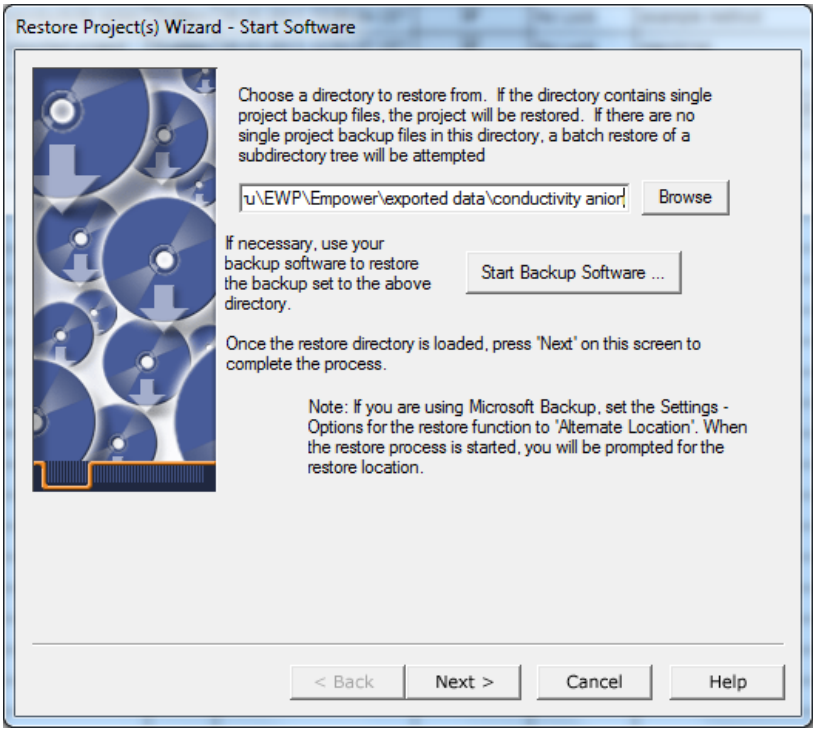
1. Go to **Configure System**.



2. Go to **File > Restore Projects**. 



3. **Browse** to find the desired project.



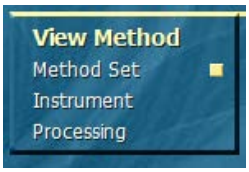
4. Click **Next** until finished.

   The imported project will not only contain exemplary chromatograms, but also all instrument methods and processing methods that were used to record them.

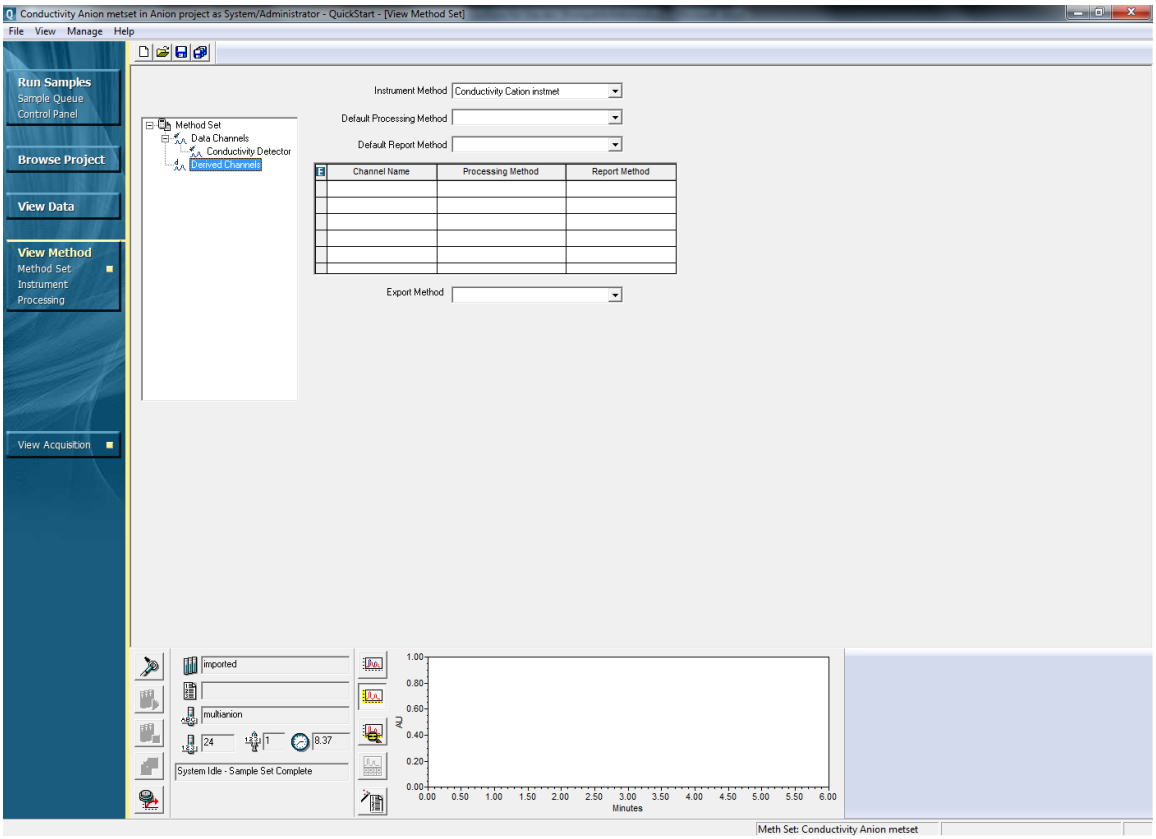
13 Measuring cations

For cations, the polarity needs to be changed because conductivity will show negative peaks for cations. In order to swap the chromatogram, the method set needs to be modified:

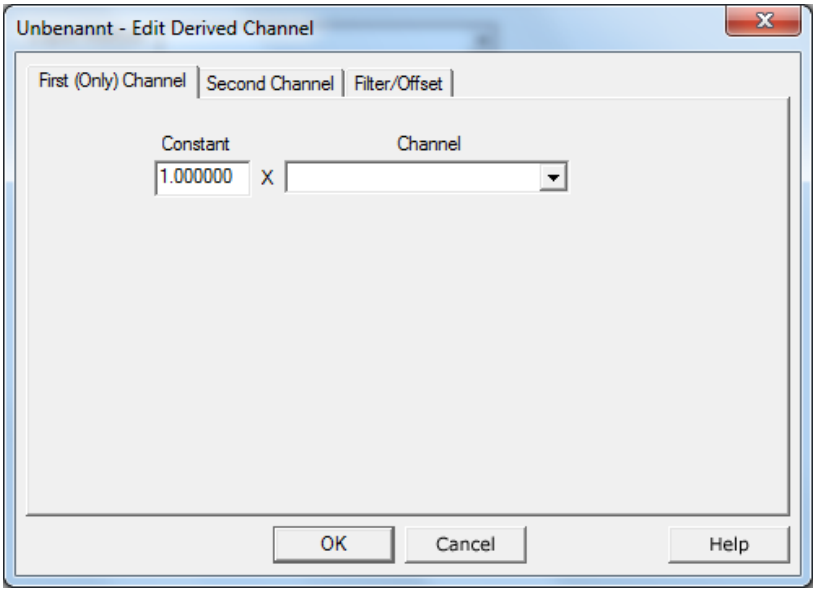
1. Go to **Method Set**.

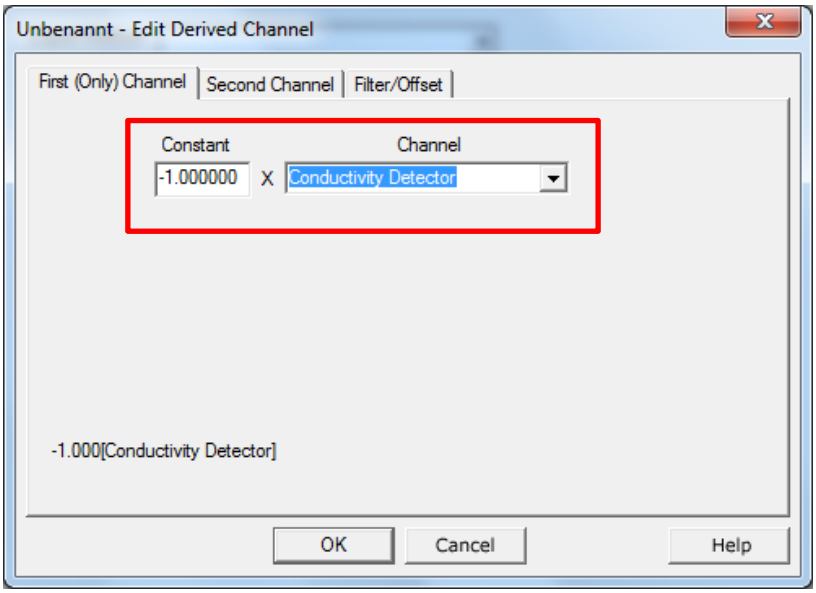


2. Create a derived channel by right-clicking on **Derived Channel > New > Derived channel**.



3. For the derived channel, the conductivity needs to be multiplied by "**-1**" to obtain the inverse:





4. Give the derived channel a name.

5. Choose a processing method for the cation channel.