

MagIC Net 4.2



Tutorial

8.0102.8018EN / v1 / 2023-06-30



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MagIC Net 4.2

Tutorial

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1 Introduction

1.1 Structure of the tutorial

This tutorial describes the first steps with the **MagIC Net** software. You will be introduced to the most important controls through the acquisition of a chromatogram. The introduction follows the determination of the concentration of the anions F^- , Cl^- , NO_2^- , Br^- , NO_3^- , PO_4^{3-} and SO_4^{2-} in tap water. A 940 Professional IC Vario and a Metrosep A Supp 19 - 100/4.0 column with integrated chip are used in the determinations.

The tutorial is arranged in 4 parts:

- Configuring the hardware that is managed with the system and used in the method
- Creating a method for performing a determination
- Carrying out the determination
- Analyzing the determination, reprocessing and report output

It will be demonstrated how the determination is carried out with a simple system with manual injection. In addition, a determination using an automated system with Sample Processor is described.

1.2 Program description

MagIC Net comprises the following program parts:

Workplace



- Opening/closing workplaces
- Entering sample data
- Starting single determinations and sample series
- Live representation of chromatograms and system parameters (Watch window)
- Report display

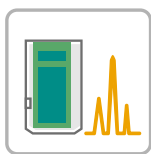
Database



- Opening/closing databases
- Managing determinations
- Reprocessing determinations
- Creating reports



Method



- Entering the device combination used and their parameters
- Defining the time program
- Entering integration parameters
- Entering the analytes
- Result definition
- Calibration parameters

Configuration



- Information on instruments, columns, eluents, accessories, solutions, amperometric cells, rotors, common variables and rack data
- User administration
- Security settings
- Program administration


Manual control



- Manual control of the instruments used in the method loaded in the workplace
- Manual control of all the connected instruments

1.3 Symbols and conventions

The following icons and formatting are used in this documentation:

1	Instruction step Carry out these steps in the sequence shown.
Method	Dialog text, parameter in the software
File ► New ►	Menu or menu item
[Continue]	Buttons or keys
	Note This symbol highlights additional information and tips.



2 Configuration

Metrohm devices that are switched on and connected to the computer via a USB connector are automatically recognized when the program is started, as are devices connected to MSB connectors of USB devices (Dosi-nos, stirrers, pumps, Remote Boxes). Certain devices need to be added to the device table manually. These include devices connected to the computer via RS-232 interface, the barcode reader and the 771 IC Compact Interface.

All the hardware components that are used in a method must be set up in the **Configuration** program part. This may include:

- Instruments (940 Professional IC Vario, 858 Professional Sample Processor etc.)
- Columns
- Eluents
- Accessories (pump tubing, pump tubing connectors etc.)
- Solutions
- Common variables
- Rack data
- Amperometric cells
- Rotors

2.1 Starting the software



NOTE

Devices and intelligent columns are recognized automatically. All elements can be monitored by the system.

Starting MagIC Net

- 1 Click on the **MagIC Net** icon on the desktop.
- 2 Enter a user name and password, if requested, and click on **[OK]**.
- 3 Click on the **[Configuration]** icon.



The dialog of the **Configuration** program part is opened.

A total of 9 subwindows can be displayed here:

Devices	Display of the automatically recognized and manually added devices.
Columns	Display of the automatically recognized and manually added columns.
Eluents	Display of the manually added eluents.
Accessories	Display of the manually added accessories.
Solutions	Display of the automatically recognized solutions in a dosing unit and of the solutions that have been added manually.
Rack data	Display of the automatically recognized and manually imported Metrohm sample racks.
Common variables	Display of all the common variables.
Amperometric cells	Display of the automatically recognized and manually added cells of the amperometric detector.
Rotors	Display of the manually added rotors with rotor type and serial number.

The subwindows to be displayed can be determined with the icon or via the **View ► Change layout...** menu item.

2.2 Configuring devices

Follow these steps to start up the **940 Professional IC Vario** for the first time:

Connecting the 940 Professional IC Vario

1 Connecting the device

Connect the **940 Professional IC Vario ONE/SeS/PP (2.940.1500)** device (example) to the computer with a USB cable.

2 Switching on the device

The device parameters of the **940 Professional IC Vario** are automatically recognized.

3 Saving the device in the table

Confirm the message that appears with **[Yes]**.

4 Checking the properties

Check the information in the **Properties** dialog and close with **[OK]**.

The **940 Professional IC Vario** is entered in the device list in the **Devices** subwindow.

5 Changing the device name (optional)

Follow these steps to give your device a different name:

- Double-click on the line with the entry **940 Professional IC Vario** in the device table.
- Select the **General** tab.
- Enter the new name in the **Device name** field.

Properties - 940.1500 Professional IC Vario ONE/SeS/PP - 940 Professional IC Vario 1

Conductivity detector 1 | MCS | Degasser | Connections | GLP

General | Pump

Device name: 940 Professional IC Vario 1

Device type: 940.1500 Professional IC Vario ONE/SeS/PP

Program version: 5.940.0102 [Update]

Device serial number: 99002

Set to work: 2023-03-29 14:40:37 UTC+2

Leak sensor: connected

☒ active

Remarks: [Text Area]

[OK] [Cancel]

- Close the dialog with **[OK]**.

If you are making your determinations with a Sample Processor, you must first connect the device.

Connecting the 858 Professional Sample Processor

1 Connecting the device

Connect the **858 Professional Sample Processor – Pump (2.858.0020)** device (example) to the computer with a USB cable.

2 Switching on the device

The device parameters of the **858 Professional Sample Processor** are automatically recognized.

3 Saving the device in the table

Confirm the message that appears with **[Yes]**.


4 Checking the properties

Check the information in the **Properties** dialog and close with **[OK]**.

The **858 Professional Sample Processor** is entered in the device list in the **Devices** subwindow.

5 Defining rack parameters

- Double-click on the line with the entry **858 Professional Sample Processor** in the device table.
- Select the **Rack** tab.
The mounted rack is displayed automatically. If the mounted rack is not displayed, click on **[Initialize rack]**.
- Click on the **[Rack data]** button.
- Select the **Lift positions** tab.
- Enter the value **125** in the **Work position** field.
- Select the **Special beakers** tab.
- Click **[Edit]** and open the **Special beaker 1** dialog.
- In the **Rack position** field, select the value **149**.
- Enter the value **125** in the **Work position Tower 1** field.
- Process the other special beakers in the same way.

 Rack data


Rack name

Rack code

Number of positions

Rack parameters | Lift positions | Special beakers

Special beaker	Rack position	Work position Tower 1	Work position Tower 2	Beaker radius	Beaker sensor
1	0	0	0	off	Tower
2	0			off	Tower
3	0			off	Tower
4	0			off	Tower
5	0			off	Tower
6	0			off	Tower
7	0			off	Tower
8	0			off	Tower
9	0			off	Tower
10	0			off	Tower
11	0			off	Tower

 Special beaker 1

Rack position

Work position Tow... ...

Work position Tow... ...

Beaker radius samples ...

Beaker sensor

- Close all dialogs with **[OK]**.

2.3 Configuring the column

Column with chip

An installed column with column chip is automatically detected when the IC device is connected and entered in the column table in the **Columns** subwindow. The parameters of Metrohm columns with integrated chip are entered in the corresponding tab.

1 Inserting the column into the holder

The column is recognized by **MagIC Net**.

2 Saving the column in the table

Confirm the message that appears with **[Yes]**.

The column is entered in the column table in the **Columns** subwindow.

3 Defining column properties

Define column properties according to *Column properties, page 8*.

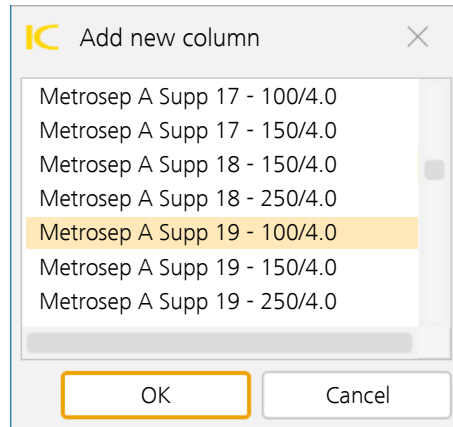
Then click on **[OK]** and close the **Column - Metrosep A Supp 19 - 100** dialog.

Column without chip

If a column without a chip is used, it must be configured first. Use the **[Edit]** menu in the **Columns** subwindow to do so. For known columns, some parameters are entered automatically and for unknown columns, these parameters can be found on the column leaflet and must be entered manually.

1 Adding a column

Use the **Edit ► New...** menu to open the **Add new column** dialog.



2 Selecting the column

Select the **Metrosep A Supp 19 - 100/4.0** column in the list and click on **[OK]**.

The **Column** dialog opens.

3 Defining column properties

Define column properties according to *Column properties, page 8*.

Then click on **[OK]** and close the **Column - Metrosep A Supp 19 - 100** dialog.

The column is entered in the column table in the **Columns** sub-window.

Column properties

Column	
Column name	Metrosep A Supp 19 - 100
Column type	For columns with chip as well as for known columns without chip, the parameter is entered automatically. Metrosep A Supp 19 - 100/4.0
Order number	For columns with chip as well as for known columns without chip, the parameter is entered automatically. 601034410
Serial number	Optional
Batch number	Optional
Start-up	For columns with chip, the parameter is entered automatically.

9

Guard column	<p>For columns with chip as well as for known columns without chip, the parameters are entered automatically.</p> <p>For unknown columns, take the values from the column leaflet and enter them.</p>
Use guard column check box ►	<p>Active</p> <p>Activation defines that the guard column is monitored together with the column.</p>
Guard column type	Metrosep A Supp 19 Guard/4.0
Order number guard column	601034500
Serial number guard column	Optional
Batch number	Optional
Start-up	For columns without chip, click on and select the date. Confirm with [OK].
Technical specifications ►	
Inner diameter guard column	4.0 mm
Length of guard column	5.0 mm

Monitoring	<p>This tab is only available for automatically recognized columns with chip.</p>
Column ►	
Determinations ►	<p>The limit value and the current value are displayed.</p> <p>Limit value 1,000 determinations (example)</p>
Monitoring	Active
Operating hours ►	<p>The limit value and the current value are displayed.</p> <p>Limit value optional</p>
Monitoring	Active

Guard column ►	Metrohm recommends replacing the guard column regularly to protect the column.
Determinations ►	The limit value and the current value are displayed. Limit value 500 determinations (example)
Monitoring	Active
Operating hours ►	The limit value and the current value are displayed. Limit value optional
Monitoring	Active
Message ►	
Message by e-mail	Inactive
Acoustic signal	Inactive
Action	Display message

GLP	Optional
GLP test date	Click on <input type="text"/> and select the date. Confirm with [OK] .
Monitor GLP validity ►	Active
GLP test interval	100 days (example)
Next GLP test	The date is entered automatically.
Message ►	
Message by e-mail	Inactive
Acoustic signal	Inactive
Action	Display message


2.4 Defining the eluent

Eluents are defined in the **Eluent** subwindow.

- 1 Use the **Edit ► New...** menu to open the **Eluent** dialog.
- 2 Define the eluent properties according to *Eluent properties, page 12*.

Then click on **[OK]** and close the **Eluent - Std ASUPP19** dialog.

Eluent properties

Eluent	
Eluent name	Std-ASUPP19
Order number	Optional
Manufacturer	Optional
Batch number	Optional
Composition	8.0 mmol/L sodium carbonate, 0.25 mmol/L sodium hydrogen carbonate
Comment	Optional
Monitoring	
Manufacturing date	If the manufacturing date does not correspond to the current date, click on  and select the date. Confirm with [OK] .
Eluent monitoring check box ►	Active
Working life	30 days The working life depends on the eluent.
Expiry date	The date is entered automatically.
Message ►	
Message by e-mail	Inactive
Acoustic signal	Inactive

Action	Display message
GLP	Optional

2.5 Setting up solutions


Solutions that are connected to a 800 Dosino with a 807 Dosing Unit are automatically recognized when they are connected. The parameters of the integrated chip are entered in the corresponding tabs in the **Solutions** subwindow. For unknown solutions, these parameters must be entered manually.

Solutions for the suppressor are defined in the **Solutions** subwindow.

- 1 Use the **Edit ► New** menu to open the **Solution** dialog.
- 2 Define the solution properties according to *Solution properties*, page 13.

Then click on **[OK]** and close the **Solution - MSM regeneration solution H₂SO₄** dialog.

Solution properties

Solution	
Solution names	MSM regeneration solution H ₂ SO ₄
Concentration ►	
Value	100
Unit	mmol/L
Manufacturing date	If the manufacturing date does not correspond to the current date, click on  and select the date. Confirm with [OK] .
Monitoring the solution ►	
Working life	100 days
Expiry date	The date is entered automatically.
Message ►	

Message by e-mail	Inactive
Acoustic signal	Inactive
Action	Display message

GLP	Optional
------------	----------

2.6 Setting up accessories

Accessories always have to be set up and configured manually. The individual steps are carried out in the **Accessories** subwindow.

A pump tubing and a pump tubing connection with security lock and filter is added. The pump tubing connection with inline filter is used to protect the suppressor from possible contamination from the regeneration solution.

Setting up new accessories

- 1 Use the **Edit ► New** menu to open the **Accessories** dialog.

2 Defining accessories properties

Define the accessories properties for the pump tubing according to *Accessories properties, page 14*.

Then click on **[OK]** and close the **Accessories - Pump tubing** **H₂SO₄** dialog.

The pump tubing is entered in the Accessories table in the **Accessories** subwindow.

Repeat the step for the pump tubing connection with security lock and filter (order number 6.2744.180). The order number of the Filter is 6.2821.130.

Accessories properties

Accessories	
Accessory name	Pump tubing H ₂ SO ₄
Order number	6.1826.420

Manufacturer	Optional
Comment	Optional
<hr/>	
Monitoring	
Start-up	If the start-up does not correspond to the current date, click on <input type="text"/> and select the date. Confirm with [OK] .
Monitoring accessories ►	Active
Working life	30 days (example)
Expiry date	The date is entered automatically.
Message ►	
Message by e-mail	Inactive
Acoustic signal	Inactive
Action	Display message

2.7 Setting up a rotor

The rotor is set up in the **Rotors** subwindow.

Setting up a new rotor

1 Adding a rotor

Use the **Edit ► New** menu to open the **Add new rotor** dialog.

2 Selecting a rotor

Select the rotor **MSM A**.

The **Rotor** dialog opens.

3 Defining rotor properties


Define the rotor properties according to *Rotor properties, page 16*.

Then click on **[OK]** and close the **Rotor - MSM Rotor** dialog.

The rotor is entered in the **Rotor** subwindow.

Rotor properties

Rotor	
Rotor name	MSM A Rotor
Rotor type	MSM A The rotor type is entered automatically.
Order number	6.2832.000 The order number is automatically entered for known rotors.
Serial number	Optional, recommended for better traceability and for troubleshooting in the event of an error.
Comment	Optional, recommended for better traceability and for troubleshooting in the event of an error.

Monitor rotor	
	Optional
Start-up	If the start-up does not correspond to the current date, click on  and select the date. Confirm with [OK] .
Monitor rotor ►	Active
Working life	365 days (example)
Expiry date	The date is entered automatically.
Message ►	
Message by e-mail	Inactive
Acoustic signal	Inactive
Action	Display message

GLP	
	Optional

3 Creating a method

A method is a run instruction for processing a sample. It contains all the components that are necessary to record a chromatogram. These include:

- Devices and their start parameters
- Time program
- Parameters for the evaluation of the chromatograms
- Result definitions

The method described in this tutorial is created using a method template that is predefined in **MagIC Net**. A method template contains the most common component names, their retention times, the measured quantity (surface or height) for the evaluation of the peaks and the way in which the calibration curve is to be fitted.

The **MagIC Net** installation contains some sample methods. The sample methods are stored in the following folder by default: C:\Program Files (x86)\Metrohm\MagIC Net\examples\methods. The sample methods can be imported and adapted to the application to be carried out (*see Quick guide MagIC Net How to adapt a method - 8.0102.8019EN*).

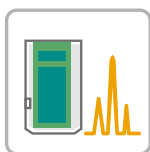
To use methods that were created in an older version of **MagIC Net**, see the following document: *Quick guide MagIC Net How to adapt a method - 8.0102.8019EN*

3.1 Method for manual injection

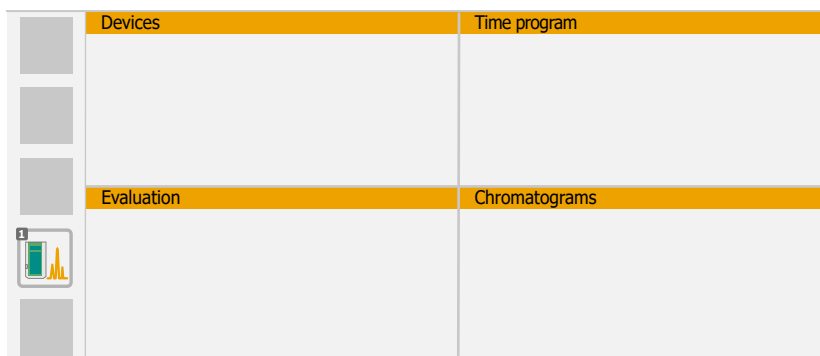
3.1.1 Creating a new method

Creating a method

- 1 Click on the icon for the **Method** program part.



The **Method** program part has a total of 4 subwindows:



Devices

Visualization of the devices that are assigned to the method and the analysis.

Time program

Representation of the time program.

Evaluation

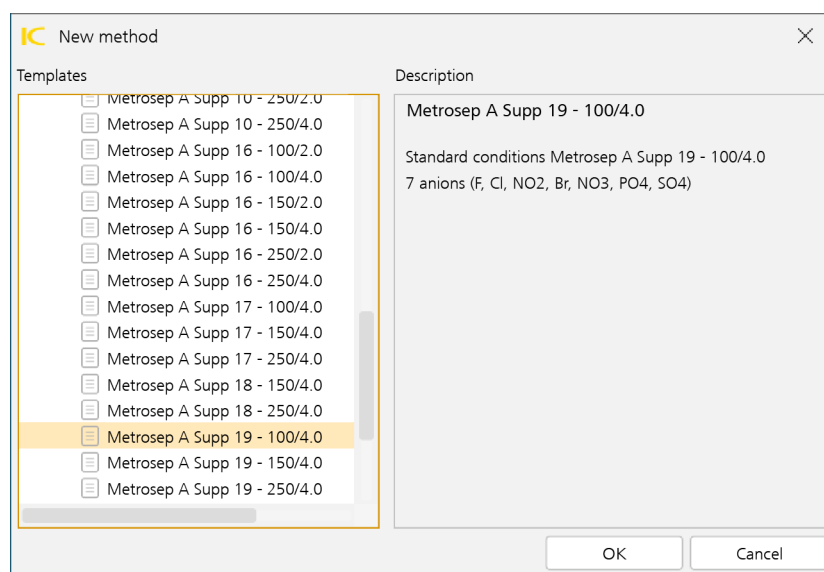
The subwindow contains the areas **Integration**, **Components**, **Standards**, **Calibration** and **Results**. For a method with UV/VIS detector, the **UV / VIS** area is also available.

Chromatograms

Display of the chromatograms of the last determination that was recorded with this method, the chromatograms of the standards that are used for the calibration of the samples and the calibration curves.

- 2 Use the **File ► New..** menu to open the **New method** dialog.
- 3 Under **Templates**, in the left section of the window, select **Anions ► Metrosep A Supp 19 - 100/4.0** and confirm with **[OK]**.

The method template opens.



The symbol of the **Anions** analysis method is displayed in the **Devices** subwindow. The **Evaluation - Components** subwindow shows the component table with the ions of the method template and their retention times.

3.1.2 Defining devices and start parameters

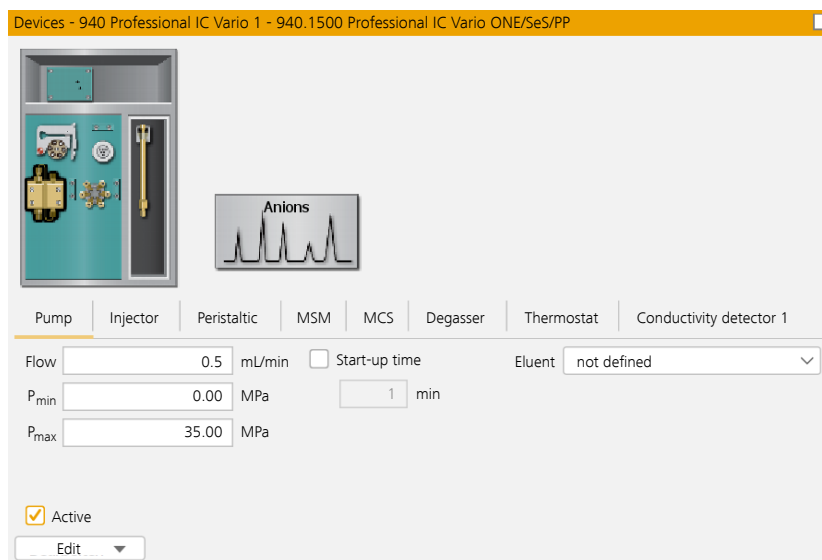
Assembling devices

- 1 In the **Devices** subwindow, click on the menu **Edit ► Add ► Devices**.
- 2 In the **Add devices** dialog, select the **From device table** option.
- 3 Select the **940 Professional IC Vario 1** device in the **Name** field and click on **[OK]**.

The screenshot shows the 'Add device' dialog box with the following details:

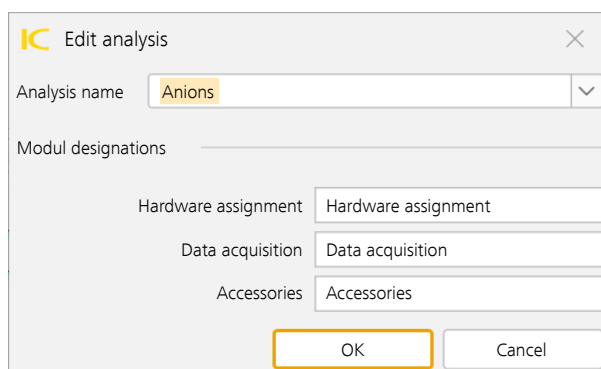
- Title:** Add device
- Options:**
 - ☒ From device table
 - ☐ New device
- Name:** 940 Professional IC Vario 1 (dropdown menu)
- Device type:** 940 Professional IC Vario 1 (dropdown menu)
- Connections:**
 - Detector 1: Conductivity detector
- Buttons:** OK, Cancel

The image of the **940 Professional IC Vario** appears in the upper part of the **Devices** subwindow.



Changing the analysis name (optional)

- 1 Click on the icon of the **Anions** analysis in the upper part of the **Devices** subwindow.
- 2 Use the **Edit ► Edit** menu to open the **Change analysis** dialog.



- 3** In the **Analysis name** field, optionally enter the new name **Tap water** and confirm with **[OK]**.





In the example shown here, the analysis name is not changed. The analysis is still called **Anions**.

Defining the parameters for the analysis

- 1** Click on the **Anions** icon.

2 Define the parameters according to *Parameter analysis, page 21*.

Parameter analysis

Hardware assignment	
Data source	<p>LF Detector 1 (940 Professional IC Vario 1)</p> <p>Click on . Select 940 Professional IC Vario 1 ► LF Detector 1 ► Conductivity and click on [OK].</p>
Channel	<p>Conductivity</p> <p>The channel is entered automatically.</p>
Injection valve	<p>Injector (940 Professional IC Vario 1)</p> <p>Click on . Select 940 Professional IC Vario 1 ► Injector and click on [OK].</p>
Pump	<p>Pump (940 Professional IC Vario 1)</p> <p>Click on . Select 940 Professional IC Vario 1 ► Pump and click on [OK]. The New high-pressure pump message appears:</p> <p>New high pressure pump - You have assigned a new high-pressure pump to the 'Analysis name' analysis. - Do you want to enter the standard values of the 'Column name' column as the start parameter of the high pressure pump?</p> <p>Confirm the message with [Yes].</p> <p>By confirming the message, the default parameters of the column (flow, Pmin, Pmax, etc.) are entered as start parameters for the high-pressure pump.</p>
Column	<p>Metrosep A Supp 19 - 100</p> <p>Click on . Select Column table ► Metrosep A Supp 19 - 100 and click on [OK]. The Column message appears:</p> <p>New column - You have assigned a new column to the 'Analysis name' analysis. - Do you want to enter the standard values of the column as the start parameter of the high pressure pump 'pump name'?</p> <p>Confirm the message with [Yes].</p> <p>By confirming the message, the default parameters of the column (flow, Pmin, Pmax, etc.) are entered as start parameters for the high-pressure pump.</p>
Monitor maximum values of the column ►	
Maximum flow	Active
Maximum pressure	Active

Start-up time	Active, 2 min The default value of the column is read in automatically.
Eluent	Std-ASUPP19
Injector	
Position	Maintain current position
Peristaltic	
Status	On
Speed	3 (example) There are 7 speed levels with 6 revolutions/min per level.
Solution 1	MSM regeneration solution H ₂ SO ₄
Solution 2	not defined
MSM - Regeneration with peristaltic pump	
Automatically stepping during equilibration	Active
Interval	10.0 min
Dosing device	not defined The suppressor is regenerated with a peristaltic pump. The parameters for Dosino regeneration do not need to be defined. For Dosino regeneration, see <i>MSM - Dosino regeneration, page 24</i> .
Connector	----
Solution 1	not defined, inactive
Solution 2	not defined, inactive
Dosing device check box	Inactive
Rotor	MSM A Rotor

MSM - Dosino regeneration	
Automatically stepping during equilibration	Active
Interval	10.0 min
Dosing device	Suppressor Dosino (prerequisite: the Dosino has been configured in MagIC Net as a suppressor Dosino.) Metrohm recommends using a 2 mL dosing unit for the Dosino regeneration (pressure stability).
Connector	940 Professional IC Vario 1 - MSB 'number of the MSB connector used'
Solution 1	MSM regeneration solution H ₂ SO ₄ , active
Edit ►	
Dosing ►	
Port	1
Volume	0.9000 mL
Time	9 min
Dosing rate	Is automatically calculated from the values of Volume and Time .
Fill ►	
Port	2
Comment	Optional
Solution 2	not defined, inactive
Rotor	MSM A Rotor

MCS	
Status	On

Degasser	
Status	On

Thermostat	
Status	On
Temperature	30.0 °C
Monitor temperature stability	Active
LF detector 1	
Temperature coefficient	2.3%/°C
Warning limit	9,999 µS/cm

3.1.3 Time program

The time program is part of every method. It is a step by step description of how a sample is processed. The time program is created in the **Time program** subwindow of the **Method** program part.

Defining the time program

1 Setting the injection valve to fill

- Use the **Edit ► New** menu to open the **Insert new line** dialog.
- Select **940 Professional IC Vario ► Injector ► Fill** in the left part of the window under Commands.

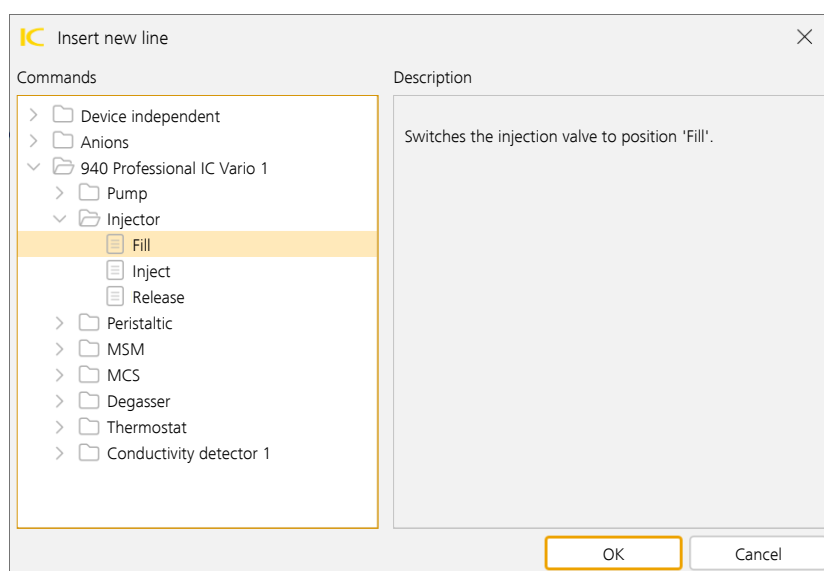


Table 1 Time program – Manual injection

Time	Device	Module	Command	Parameters	Comment	No.
0.0	940 Professional IC Vario 1	Injector	Fill			1
			Maintenance	Continue manual		2
0.0	940 Professional IC Vario 1	Injector	Inject			3
0.0	Anions		Starting data acquisition			4

3.1.4 Evaluation

The parameters for the evaluation of the chromatograms are defined under **Evaluation**. Each analysis has its own set of evaluation parameters.

Integration



The integration parameters are defined in the method template.

Analysis	Anions
Settings	
Smoothing	30
Sensitivity	50
Peak detection	
Minimum height	0.01 µS/cm
Minimum area	0.001 (µS/cm) x min
Integration start	1.0 min
Polarity	+
Negative peaks	Inactive
Drift compensation	Inactive
Subtract blank	Inactive
Ignore overflow	Inactive

Track retention time off

Standards



The concentrations of the components in the standard solutions are displayed in the Standards area.

Concentration unit ppm

Standards

All the components that are defined in the method template are listed in the standards table. Define standards according to the procedure *Defining standards*, page 29.

Defining standards

- 1 On the **Standards** tab, use the **Edit ► New** menu to open the **New standard** dialog.

Standard	1
Fluoride	0 ppm
Chloride	0 ppm
Nitrite	0 ppm
Bromide	0 ppm
Nitrate	0 ppm
Phosphate	0 ppm
Sulfate	0 ppm

Filling

< < 1 > > >* of 1 OK Close

- 2 Enter the concentration value **0.5** in the **Fluoride** field. Enter the value **1** in the **Chloride** and **Nitrite** fields and the value **2** in the **Bromide**, **Nitrate**, **Phosphate** and **Sulfate** fields.
- 3 Click on to open the next standard.
- 4 Repeat the steps **3** to **5** to enter the concentrations of standard 2 and standard 3. The number of the next standard is automatically entered in the **Standard** field. The concentration of the components in standard 2 and standard 3 are displayed in the following table:

Table 4 Calibration curve table

Component	Measured quantity	Curve type	Weighting
Fluoride	Area	Linear	1
Chloride	Area	Linear	1
Nitrite	Area	Linear	1
Bromide	Area	Linear	1
Nitrate	Area	Linear	1
Phosphate	Area	Linear	1
Sulfate	Area	Linear	1

Properties calibration	
Calibration method	External standard
Calibration mode	Replacing
Function type	Response = f(concentration)
Add point of origin to calibration curve	Inactive
Blank correction for inline calibration	Inactive
Monitoring	
Validity of calibration	Unlimited
Message	No message
Action	Document message

Results




The results of the determinations are stored in the standard **MagIC Net** database.

Database	
Database name	MagIC Net (standard)

Reports can also be printed later from the database with
File ► Print ► Report...

You also have the possibility to create your own report template .

3.1.5 Saving a method

Saving a method

After you have entered all relevant parameters for the method, save the method as follows:

- 1 Use the **File ► Save as...** menu to open the **Save method** dialog.
- 2 Enter **Tap water** as the name for the method in the **Method name** field.
- 3 Click on **[Save]**.

3.2 Method with Sample Processor

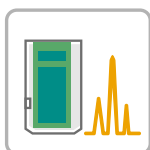
Creating a method for a determination with a Sample Processor differs from the method for a manual injection only in the following points:


- Defining devices and start parameters
- Time program

3.2.1 Copying and adapting a method

Copying a tap water method

- 1 Click on the icon for the **Method** program part.



- 2 In the toolbar, click on the **Open method management**  icon.
The **Method manager** dialog opens.
- 3 Copy the **Tap water** method with **Edit ► Copy**.
The **Copy of tap water** method is created.

The image of the **858 Professional Sample Processor** appears in the upper part of the **Devices** subwindow.

1 Click on the figure of the **858 Professional Sample Processor**.

To edit the parameters of the modules, select the corresponding tab or click on the corresponding icon in the figure.

Define the parameters according to *Parameters for the Sample Processor*, page 35.

Rack	
Rack name	6.2041.440 (example)
Injector	
Only the 2.858.0030 product version contains an injector.	
Active check box	Inactive The injector is not used.

Peristaltic ►	
Status	Off
Speed	3
Solution 1 and 2	not defined
Active check box	Active

Peripherals tower	
Apply the default settings.	
Tower stirrer ►	
Status	Off
Speed	8
Pump 1 and 2 ►	
Status	Off
Solution	not defined

3.2.3 Time program

The time program is part of every method. It is a step by step description of how a sample is processed. The time program is created in the **Time program** subwindow of the **Method** program part. In contrast to a manual method, the time program for an automated process of determinations contains additional commands for the Sample Processor.

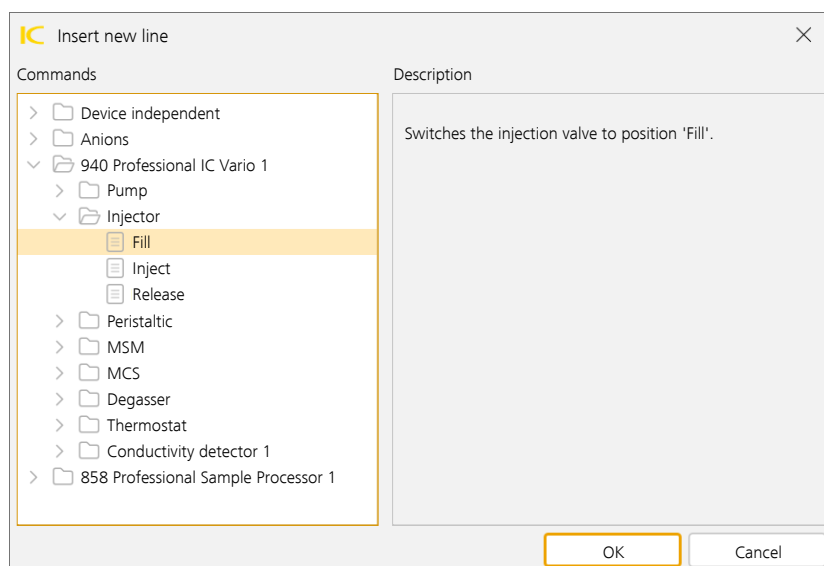
Defining the time program

1 Deleting existing time program commands

- Select all time program commands.
- Delete all time program commands using the **Edit ► Delete** menu.

2 Setting the injection valve to fill

- Use the **Edit ► New** menu to open the **Insert new line** dialog.
- Select **940 Professional IC Vario ► Injector ► Fill** in the left part of the window under Commands.



- Confirm with **[OK]**.
The **940 Professional IC Vario - Injector - Fill** dialog is opened.
- Apply the time indication **0** min.
- Confirm with **[OK]**.

3 Move to sample position

- Select the bottom line of the time program. Use the **Edit ► New** menu to open the **Insert new line** dialog.
- Select **858 Professional Sample Processor ► Tower ► Rotate (Rack)** in the left part of the window under Commands.
- Confirm with **[OK]**.
The **858 Professional Sample Processor - Tower - Rotate (rack)** dialog is opened.
- Apply the values in the fields.
- Confirm with **[OK]**.

4 Immersing the aspiration needle into the sample

- Select the bottom line of the time program. Use the **Edit ► New** menu to open the **Insert new line** dialog.
- Select **858 Professional Sample Processor ► Tower ► Lift** in the left part of the window under Commands.
- Confirm with **[OK]**.
The **858 Professional Sample Processor - Tower - Lift** dialog is opened.
- Select the **Work position** entry in the **Lift position** selection list.
- Confirm with **[OK]**.

9 Move to special beaker position

Special beakers have a large volume (e.g. 250 mL) and usually contain the rinsing solution. It is preferable to set these beakers at high rack positions in order to be able to begin sample series at position 1. The lift positions have to be assigned to the special beakers separately.

- Use the **Edit ► New** menu to open the **Insert new line** dialog.
- Select **858 Professional Sample Processor ► Tower ► Rotate (Rack)** in the left part of the window under Commands.
- Confirm with **[OK]**.
The **858 Professional Sample Processor - Tower - Rotate (rack)** dialog is opened.
- Select the **Special beaker** entry in the **Rotate** selection list and enter the value **1** in the **Number** field.
- Confirm with **[OK]**.

10 Immersing the aspiration needle into the special beaker

- Use the **Edit ► New** menu to open the **Insert new line** dialog.
- Select **858 Professional Sample Processor ► Tower ► Lift** in the left part of the window under Commands.
- Confirm with **[OK]**.
The **858 Professional Sample Processor - Tower - Lift** dialog is opened.
- Select the **Work position** entry in the **Lift position** selection list.
- Confirm with **[OK]**.

11 Switching on rinsing

- Use the **Edit ► New** menu to open the **Insert new line** dialog.
- Select **858 Professional Sample Processor ► Peristaltic ► On/Off** in the left part of the window under Commands.
- Confirm with **[OK]**.
The **858 Professional Sample Processor - Peristalsis - On/Off** dialog is opened.
- Apply the time indication **0** min in the **Time** field.
- Accept the values in the other fields, too.
- Confirm with **[OK]**.

12 Switching off rinsing

- Use the **Edit ► New** menu to open the **Insert new line** dialog.

- Select **858 Professional Sample Processor ► Peristaltic ► On/Off** in the left part of the window under Commands.
 - Confirm with **[OK]**.
- The **858 Professional Sample Processor - Peristalsis - On/Off** dialog is opened.
- Enter the value **1.5** in the **Time** field.
 - Select the option **Off** in the **Rate** area.
 - Confirm with **[OK]**.

The complete time program looks as follows:

Table 5 Time program – Injection with Sample Processor

Time	Device	Module	Command	Parameters	Comment	No.
0.0	940 Professional IC Vario 1	Injector	Fill			1
	858 Professional Sample Processor	Tower	Rotate (rack)	Sample position		2
	858 Professional Sample Processor	Tower	Lift	Work position		3
0.0	858 Professional Sample Processor	Peristaltic	On/Off	On, speed = 3		4
2.5	858 Professional Sample Processor	Peristaltic	On/Off	Off		5
2.5	940 Professional IC Vario 1	Injector	Inject			6
2.5	Anions		Starting data acquisition			7
	858 Professional Sample Processor	Tower	Rotate (rack)	Special beaker 1		8
	858 Professional Sample Processor	Tower	Lift	Work position		9
						10
0.0	940 Professional IC Vario 1	Peristaltic	On/Off	On, speed = 1		11
1.5	940 Professional IC Vario 1	Peristaltic	On/Off	Off		12

3.2.4 Evaluation

(see chapter 3.1.4, page 27)

Saving a method

method. To do this, click on the **Save current method**

If several method groups already exist, the group to which the method was saved must first be selected in the **Method group** list box.

- 5 Click on **[Start HW]**.

Use **[Start HW]** to start the IC device with the parameters defined in the method. The recording of the baseline starts. Once the baseline is stable, the measurement can be started (after about 30 minutes).

4.2 Adjusting retention times by means of single determination of a standard

To check and possibly edit the retention times for the 7 components fluoride, chloride, nitrite, bromide, nitrate, phosphate, and sulfate which are specified in the method, the mean standard is measured in a single measurement.

Single measurement of a standard

- 1 Switch to the **Workplace** program part.
- 2 In the **Run** subwindow, select the **Single determination** tab.
- 3 In the **Method** field, select the **Tap water** or **Tap water (auto)** method.
- 4 Select **Standard 2** in the **Sample type** selection list.
- 5 Enter the following values in the fields:
 - **Ident:** standard 2
 - **Position:** 1
 - **Volume:** 20 µL
 - **Dilution:** 1
 - **Sample amount:** 1
 - **Batch name:** Batch 1
- 6 Click on the **[Start]** button.
The determination is started and the time program is worked through.
- 7 If a method with manual injection is used:




- Fill the injector manually as soon as the fill message appears.
- Confirm the message with **[Continue]**.

Correction of the retention times

Compare the retention times from the chromatogram with the times in the method template. If there are discrepancies, enter the new retention times from the chromatogram into the component table of the method. There are 2 options to do this:

- Adjust the retention times in the **Workplace** program part under **Live display ► Analysis name ► Evaluation parameters ► Live modifications - Evaluation** (see *MagIC Net online help - Live display - Adjusting evaluation parameters*).
- Adjust the retention times in the **Method** program part. This procedure is described in the following steps.

- 1 Switch to the **Method** program part.
- 2 In the **Evaluation** subwindow, click on the **[Components]** button and select the **Component table** tab.
- 3 Click on the row with the component of which the retention time is to be corrected.
- 4 Drag the blue line to the relevant peak in the **Chromatograms** subwindow.
- 5 In the **Evaluation** subwindow, click on the **[Update retention time]** button.

The retention time from the chromatogram is transferred to the component table.
- 6 Repeat steps **4** to **6** for all the components that need adjusting.
- 7 Save the method via the **File ► Save...** menu item or by clicking on the  icon.

4.3 Measuring standards and samples manually

Standards

- 1 Switch to the **Workplace** program part.
- 2 In the **Run** subwindow, select the **Single determination** tab.
- 3 Check that the **Tap water** method is selected in the **Method** field.
- 4 Select **Standard 1** in the **Sample type** selection list.

- 5 Enter the following values in the fields:

- **Ident:** standard 1
- **Position:** 1
- **Volume:** 20 µL
- **Dilution:** 1
- **Sample amount:** 1
- **Batch name:** Batch 1

- 6 Click on the **[Start]** button.

The determination is started and the time program is worked through.

Rows highlighted in red show the current program step, rows in gray show the completed program steps.

- 7 If a method with manual injection is used:

- Fill the injector manually with a syringe as soon as the fill message appears.
- Confirm the message with **[Continue]**.

The data acquisition is started and the determination runs until the end.

Repeat steps **4** to **7** for the measurements of standard 2 and standard 3. In the **Sample type** selection list, select **Standard 2** or **Standard 3**. In the **Ident** field, enter the name **Standard 2** or **Standard 3**.

The recording of the current chromatogram can be viewed in the **Live display** subwindow.

Information on the method and the associated instruments are displayed in the **Watch window** subwindow. This display can be personalized. To do so, right-click in the **Watch window**. Select the **Properties Watch window** menu item. Personalize the display according to your preferences and confirm the settings with **[OK]**.

Sample

- 1 Select the **Sample** entry in the **Sample type** selection list.
- 2 Enter the following values in the fields:
 - **Ident:** Tap water
 - **Position:** 1
 - **Volume:** 20 µL
 - **Dilution:** 1
 - **Sample amount:** 1
 - **Batch name:** Batch 1
- 3 Click on the **[Start]** button.

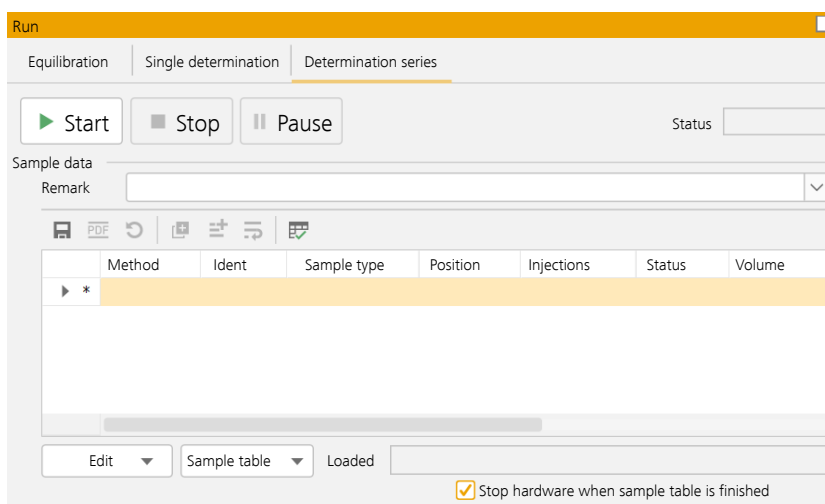
The determination is started and the time program is worked through.
- 4 If a method with manual injection is used:
 - Fill the injector manually with tap water as soon as the fill message appears.
 - Confirm the message with **[Continue]**.
- 5 After measuring all the samples and standards, switch off the instrument. To do so, select the **Equilibration** tab and click on **[Stop HW]**.

4.4 Measuring standards and samples automatically


Like with a manual measurement, the IC instrument is first equilibrated (see "Starting the equilibration", page 42) and the retention times are adjusted (see chapter 4.2, page 43). Then the sample table is created and the standards and the sample are measured.

Creating a sample table

- 1 Switch to the **Workplace** program part.
- 2 In the **Run** subwindow, select the **Determination series** tab.



- 3 Using the **Edit ► Edit line** menu, open the **Edit line - Workplace sample table** dialog.
- 4 Select the **Tap water (auto)** method.

If several method groups already exist, click on the  button first. In the **Method group** list box, select the group to which the method belongs.

5 Entering values for standard 1

Enter the following values in the fields:

- **Ident:** standard 1
- **Sample type:** Standard 1
- **Position:** 1
- **Injections:** 1



- **Volume:** 20 µL
- **Dilution:** 1
- **Sample amount:** 1
- **Batch name:** Batch 1

Click on **[Apply]**.

The values are written into the first line of the sample table.

6 Entering values for standard 2

- Click on the button in the **Line** field.

The next higher value is automatically entered in the **Position** field. The values for standard 1 are also automatically applied in the fields **Injection**, **Volume**, **Dilution**, **Sample amount** and **Batch name**.

- In the **Ident** field, enter the name **Standard 2**.
- Select **Standard 2** in the **Sample type** selection list.
- Click on **[Apply]**.

7 Entering values for standard 3

Follow step **6** as described above to enter standard 3:

- In the **Ident** field, enter the name **Standard 3**.
- Select **Standard 3** in the **Sample type** selection list.
- Click on **[Apply]**.

8 Entering the values for the sample

Follow step **6** as described above to enter the sample data:

- In the **Ident** field, enter the name **Tap water**.
- Select the **Sample** entry in the **Sample type** selection list.
- Click on **[Apply]**.
- Once all the data for the standards and the sample have been entered, click the **[Close]** button and return to the **Determination series** tab.

9 Stopping the hardware

- Activate the **Stop hardware when sample table is finished** check box.

**NOTE**

The **Stop hardware when sample table is finished** check box must be activated if the instruments are to be automatically switched off after the measurements are completed (e.g. if measurements take place over night).

10 Saving the sample table



- Using the **Sample table ► Save as...** menu, open the **Save sample table** dialog.
- In the **Name** field, enter the name **Tap water sample**.
- Click on **[Save]**.

The complete table with standards and sample looks as follows:

Table 6 Sample table

Method	Ident	Sample type	Position	Injections	Status	Volume	Dilution	Sample amount	Info 1	Batch name
Tap water (auto)	Standard 1	Standard 1	1	1	READY 0/1	20	1	1		Batch 1
Tap water (auto)	Standard 2	Standard 2	2	1	READY 0/1	20	1	1		Batch 1
Tap water (auto)	Standard 3	Standard 3	3	1	READY 0/1	20	1	1		Batch 1
Tap water (auto)	Tap water	Sample	4	1	READY 0/1	20	1	1		Batch 1

11 Checking the determination series

- Carry out the **run test** for the method with the **Tools ► Run test** menu item or the  icon. This checks the sample table as well as the necessary hardware.
Alternatively, in case only the sample data was adjusted, the sample table test can be carried out with the **[Sample table] ► Sample table test...** menu item or the  icon. This only checks if all the sample data is correct.

Measuring standards and samples

- Fill the samples in sample vials and place them on the rack according to the sample table that you created. Fill the rinsing beaker with ultrapure water and place it on the rack.

2 Click on the **[Start]** button on the **Determination series** tab.

First, the chromatograms of the 3 standards are measured and then the chromatogram of the sample. The recording of a chromatogram can be viewed in the **Live display** subwindow.

The current rack position and various IC parameters such as conductivity, pressure, flow, degasser are displayed in the **Watch window** subwindow. This display can be personalized. To do so, right-click in the **Watch window**. Select the **Properties Watch window** menu item. Personalize the display according to your preferences and confirm the settings with **[OK]**.

Samples that are being processed at the time are highlighted in red, completed samples are gray.

5 Actions in the database

The **Database** program part contains the following subwindows:

Determination overview	Determinations are displayed in the Determination overview subwindow where they can also be viewed.
Results	A table with the components and their concentrations, retention times etc. is displayed in the Results subwindow.
Curves 1 - 5	In the Curves 1 - 5 subwindows, either the chromatogram and the calibration curve, the flow or the pressure are displayed.
Information	The Information subwindow is used to display data on the sample, the devices, etc. in their respective tabs.

5.1 Viewing determinations

You have multiple options for selecting and viewing your determinations:

- Sorting according to column
- Finding via a quick filter
- Finding with a special filter
- Via the **Search** menu
- Select via a batch (user-defined filter)

Sorting

- 1 Click on the icon for the **Database** program part.



- 2 Open the database in which your data is saved.
- 3 First click in the table with all the data sets on the column heading according to which the table is to be sorted.

The table is sorted according to the selected column in ascending order.
- 4 Click again on the same column title.

The table is sorted according to the selected column in descending order.


Quick filter

- 1 Click on the  icon or use the **Determinations** ► **Filter** ► **Quick filter** menu.

The cursor turns into a special filter symbol. When navigating within the table, the cells in which the cursor is located will have a yellow background.

- 2 Place the cursor in a cell that is to serve as a filter criterion and double-click with the left mouse button.

The datasets are filtered according to the content of the selected table field. The quick filter can be applied again within the filtered table.

- 3** To remove the filter once again, click on the **Determinations ► Filter ► Remove filter** menu or click on the  icon.

Special filter

The special filter allows you to specify the filter conditions in detail.

- 1 Use the **Determinations** ► **Filter** ► **Special filter** menu to open the corresponding dialog.

- 2 Use the **Edit ► Edit line** menu, to open the **Edit new filter criterion** dialog.

- 3** Enter the filter conditions according to *Edit filter criterion 'New filter'*, page 53 and click on **[OK]**.

- 4** In the **Special filter** dialog, click on the **[Apply filter]** button and close the window.

A table containing all of the datasets for the **Tap water** method appears in the **Determination overview** subwindow.

The data of a highlighted dataset appears in the other subwindows.

Edit filter criterion 'New filter'	
Link	AND
Field	Method name Select the entry using More... ► Method ► Identification .
Type	Text
Operator	=
Comparative value	Tap water

Searching

This function enables you to search for determinations with a specific user.

- 1 Using the **Determinations ► Search** menu, open the **Search - Database 'MagIC Net'** dialog.
- 2 In the **Search in** section, click on the **[More...]** button and in the dialog under **Determination ► Acquisition**, select the **User (short name)** entry.
- 3 Enter your short name in the **Search term** field.
- 4 Click on **[Search next]**.

The first line corresponding to the search term is highlighted.

Batch (user-defined filter)

- 1 **Creating a new batch**
 - Using the **Determinations ► Batch ► New batch** menu, open the **New batch** dialog.

IC New batch

Batch name ▼

OK Cancel

- Enter the name **Anions** in the **Batch name** field.
- Click on **[OK]**.

2 Adding determinations to batch

- Select the datasets in the table which are to be added to the batch.
- Using the **Determinations ► Batch ► Attach to batch** menu, open the **Attach to batch** dialog.
- Select the name **Batch tap water** in the **Batch name** list box. Data sets can also be added to a batch that was created in the **Workplace**. To do this, select the name of the corresponding batch in the **Batch name** list box.
- Enable the **Selected determinations** option.
- Click on **[OK]**.

The data sets selected in the determination overview are added to the batch and can be selected again at any given time.

A maximum of 500 data sets can be added to a batch.

3 Opening a batch

Select the required batch in the **Batch** selection window in the **Determination overview** subwindow.

All the data sets that were appended to the batch are displayed.

4 Deleting a batch

- Using the **Determinations ► Batch ► Delete batch** menu, open the **Delete batch** dialog.
- Select the name **Batch tap water** in the **Batch name** list box.
- Click on **[OK]**.

The batch is deleted from the database.

5 Removing the applied filter

Special filters or quick filters that are currently used and a selected batch can be removed via the **Determinations ► Filter ► Remove filter** menu. All data sets are displayed again.

5.2 Viewing results

There are several possibilities to view and display the results, chromatograms and curves. The following options are described in this chapter:

- Displaying Results.
- Zooming into areas on the chromatogram with the mouse or via a dialog.
- Changing the display of the chromatograms.
- Displaying the calibration curve.
- Displaying the detail overview for several determinations.
- Overlaying curves.

Displaying the results


Various parameters are displayed in the **Results** subwindow.

- 1 Click on the required data set in the **Determination overview** subwindow.

The parameters of the selected dataset are displayed in the **Results** subwindow.

- 2 The parameters of the table can be combined in the **Properties result window** dialog.

Open the **Properties result window** dialog by double-clicking the field of the result view or via the **View ► Properties ► Results properties** menu.

- 3 Click on the desired parameter in the **Available columns** selection list. Move the selected parameter to the **Displayed columns** list using the  button.

- 4 Repeat step 3 for each desired parameter.

- 5 Click on **[OK]** to close the **Result window properties**.

The selected parameters are displayed in the **Results** subwindow.

- The chromatogram is displayed in its original size.

Changing the display of the chromatograms

You have the option to edit the properties of a chromatogram. You can change the display of the chromatogram, the axis labeling or the labeling in the chromatograms. Below you will change the labeling for the peaks and the axes in the chromatogram. Proceed as follows:

1 Changing the labeling for the peaks

- Right-click on the chromatogram. Select **Properties ► Curve**.
- Disable the **Retention time** check box and enable the **Concentration** check box.
- Click on **[OK]**.

2 Changing the axis label

- Right-click on the chromatogram. Select **Properties ► Axes**.
- Click in the **X-axis** area in the **Axis label** field and enter the **retention time**.
- Click in the **Y Axis** area in the **Axis label** field and enter the **Conductivity**.
- Click on **[OK]**.

Displaying a calibration curve

- 1 Highlight a data set in the overview table.
- 2 In **Subwindow Curves 1**, select the **Calibration curve** option.
- 3 In the **Components** selection list, select for example the **Nitrite** entry.

The calibration curve of **Nitrite** and the calibration function are displayed.

Displaying details

- 1 Select the desired determinations in the **Determination overview** subwindow.

Click on **[OK]** to close the **Print result overview (PDF)** dialog.
A PDF file is created.

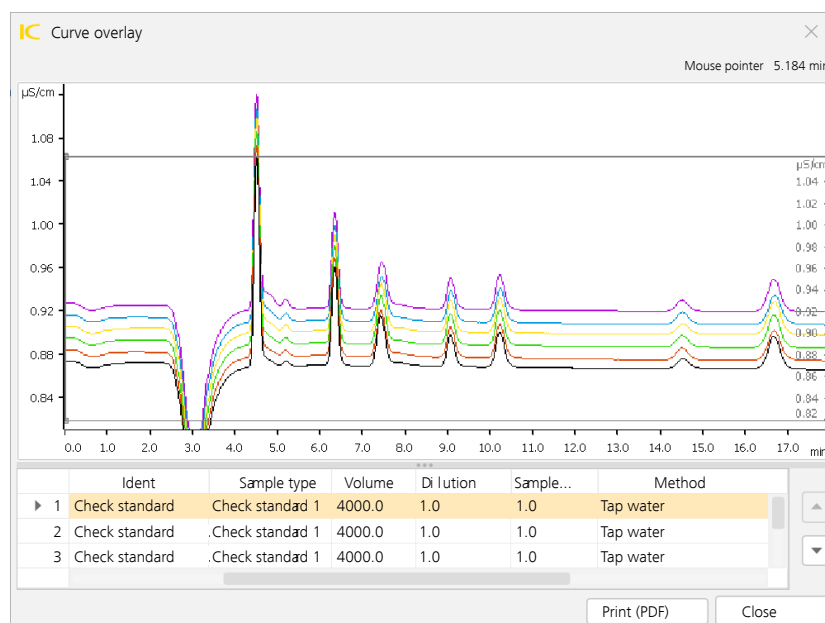
- 8 Click on **[Close]** to close the **Detail view - Results** dialog.

Overlaying curves

- 1 Select the desired determinations in the **Determination overview** subwindow.
- 2 Use the **Determinations ► Overlay curves...** menu to open the **Overlay curves** dialog.
- 3 Select the **Selected determinations** option.
- 4 Click on **[OK]** to close the **Overlay curves** dialog.

The **Overlay of curves** dialog shows the curve overlay of the selected determinations.

Example:



- 5 Create a PDF file of the curve overlay if needed. Click on **[Print (PDF)]** to do so.

The **Print curves overview (PDF)** dialog opens.

- 6** In the **Print curves overview (PDF)** dialog, select the desired format.

Click on **[OK]** to close the **Print curves overview (PDF)** dialog.

A PDF file is created.

- 7** Click on **[Close]** to close the **Overlay of curves** dialog.

5.3 Reprocessing determinations

When reprocessing determinations, sample data, evaluation parameters and the curve evaluation can be changed and the results recalculated.

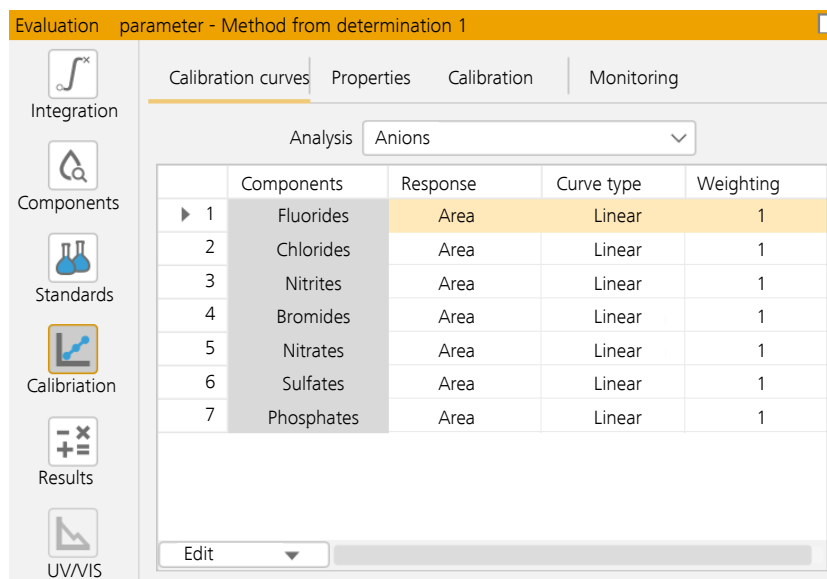
Example 1 describes the evaluation of the peak height instead of the evaluation of the peak area, which is defined in the method template. The calibration curves are recalculated.

Example 2 describes the adjustment of the integration parameters. The existing calibration is retained.

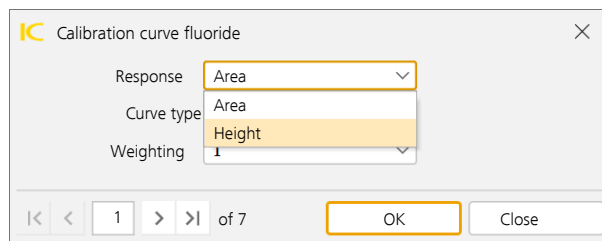
Detail view - Calibration

Example for the adjustment of the calibration.

- ## 1 Reprocessing the calibration curve
- Select the 3 standards in the **Determination overview** subwindow.
 - Use the **Determinations ► Reprocess...** menu to open the corresponding dialog.
 - Click on the **[Calibration]** button in the **Evaluation parameters** subwindow.
 - Select the **Calibration curves** tab.
 - Select the first component (fluoride) in the table.



- Use the **Edit ► Edit** menu to open the **Fluoride calibration curve** dialog:



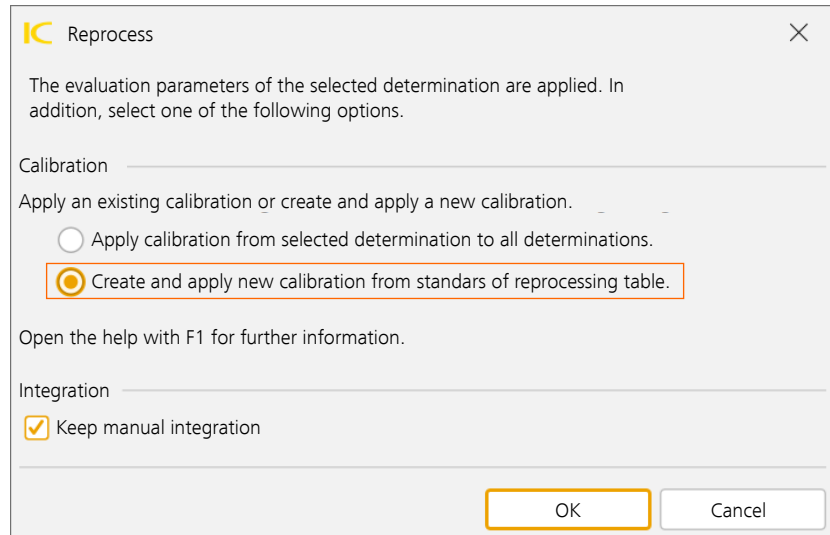
- Select **Height** as a new parameter in the **Response** field and click on **[OK]**.
- Accept the new measured quantity for all the components in the table via the **Edit ► Take over settings for all components** menu.
- Click on **[Update]**.

Use **[Update]** to update the highlighted determination.

To apply the change to all determinations, click on **[Reprocess]** (see the next step).

- Use the **[Reprocess]** button to open the **Reprocessing** dialog.

There are 2 options regarding calibration:



As the evaluation parameter was changed from **Area** to **Height**, recalculate the calibration. For this reason, select the **Create and apply new calibration from standards of reprocessing table** option.

During the reprocessing, new calibrations are created from the standards. To do this, the evaluation parameters of the highlighted determination are used. The reprocessing table is run through from top to bottom.

- 3** Click on **[OK]** to close the **Reprocessing** dialog.
The modified data is saved.

Detail view - Integration

Example for the adjustment of the integration parameters.

1 Reprocessing the integration parameters

- Select standard 3 and a sample in the **Determination overview** subwindow.
- Use the **Determinations ► Reprocess...** menu to open the corresponding dialog.
- Click on the **[Integration]** button in the **Evaluation parameters** subwindow.
- Select the **Peak detection** tab.
- The injection peak is not of interest. Therefore, set the **Integration start** to 5 min.

Evaluation parameters - Method from determination 1

Analysis: Anions

Settings | **Peak detection** | Events

Minimal height: 0.01 µS/cm

Minimal area: 0.001 (µS/cm) x min

Integration start: 5 min

Polarity: +

Filter

☐ Negative peaks ☐ Subtract blank

☐ Drift compensation ☐ Ignore overflow

The peak data of the standard is recalculated. Click on **[Update]** to view the effects that the adjusted integration start has.

2 Use the **[Reprocess]** button to open the **Reprocessing** dialog.

There are 2 options regarding calibration:

Reprocess

The evaluation parameters of the selected determination are applied. In addition, select one of the following options.

Calibration

Apply an existing calibration or create and apply a new calibration.

☒ Apply calibration from selected determination to all determinations.

☐ Create and apply new calibration from standards of reprocessing table.

Open the help with F1 for further information.

Integration

☒ Keep manual integration

OK Cancel

Select the **Apply calibration from selected determination to all determinations.** option.

The calibration (standard chromatograms, calibration points and calibration curves) of the highlighted determination is used during reprocessing for the calibration of all determinations in the table.


- 3 Check in the updated sample chromatogram if the change of the integration time is correct.
- 4 Click on **[OK]** to close the **Reprocessing** dialog.
The modified data is saved.

5.4 Creating a report template

To create a report with the analysis results, you can adjust an existing report template or define a new report template.

Below you adjust an existing report template with a calibration curve. In addition, you create a new report template with a result table and the chromatogram of the tap water sample.

Adjusting the report template for the calibration curve

- 1
 - Use the **Tools ► Report template ► Open...** menu to open the **Open report template** dialog.
 - Select the **Result and Calibration** report template.
 - Click on **[Open]**.
 - Click on the  button to switch to page 2.
 - Double-click on the **Calibration curve** field to open the **Properties - Calibration curve field** dialog.


If the properties are not changed, then the calibration curves of all the components in the report are displayed. To display individual calibration curves in the report, e.g. only of nitrate, continue with step 2.

- 2
 - Enter the component **Nitrate** (as an example) in the **Component** list box.
 - In the **Curve display** area of the **Properties - Calibration curve field** dialog, select the **From database** option.
 - Click on **[OK]**.
 - Open the **Report preview** window using the **File ► Page preview** menu. The **Report preview** window shows a preview of the report with the selected data.
- 3
 - When all settings are correct according to the **Report preview** window, use the **File ► Save as...** menu to open the **Save report template** dialog.
 - In the **Save report template** dialog, in the **Name** field, enter the **Calibration curve** name.


- Click on **[Save]**.

Creating a new report template for a result table/chromatogram

1 Creating a result table

- Use the **Tools ► Report template ► New ► Form report** menu to open the **Report template - New form report** dialog.
- In the toolbar, click on the **Curve + Result table**  icon.
- Place the cursor, which now has the shape of a cross, in the report template and create the desired area with the left mouse button held down.

The **Properties - Curve + result table field** dialog opens.

- 2
 - In the **Analysis** field, enter the **Anions** analysis name.
 - Click on the **Result** button.
 - Highlight the **Resolution** entry in the **Available results** list and move it to the **Displayed results** list with the  button.
 - Select **Resolution** and click on **[Decimal place]**.
 - In the **Decimal places - Resolution** dialog, select the value **1** auswählen.
 - Enter the value **2** for the decimal places of the **Concentration**.
 - Click on **[OK]**.
- 3
 - Close the **Report template - New form report** dialog and confirm the message **Save template** with **[Yes]**.
 - In the **Save report template** dialog, in the **Name** field, enter the **Results** name.
 - Click on **[Save]**.

5.5 Printing a report

Printing calibration curves


- 1 Select the line of standard 3 in the **Determination overview** sub-window.
- 2 Use the **File ► Print ► Report...** menu to open the **Report output** dialog.
- 3 Define the parameters for the report according to *Report output, page 66*. Select the **Calibration curve** report template and the **Calibration curves** file name.

Close the **Report output** dialog with **[OK]**.

Printing the result table/chromatogram


- 1 Select the line with the **Tap water** entry in the **Determination overview** subwindow.
- 2 Use the **File ► Print ► Report...** menu to open the **Report output** dialog.
- 3 Define the parameters for the report according to *Report output*, page 66. Select the **Results** report template and the **Sample** file name.

Close the **Report output** dialog with **[OK]**.

Report output	
Selection	Selected determinations
Report type	Report template: calibration curve/results Select the report template using the  button.
Output target ►	
Printer	Inactive
PDF file	Active

File name

Fixed file name: Calibration curve/sample

Use the  button to open the **Select file for report** dialog. In the **File name** field, enter the name and select a suitable path for the file. Confirm with **[OK]**.

Append time stamp