SHIMADZU

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LabSolutions

GC Getting Started Guide

NOTICES

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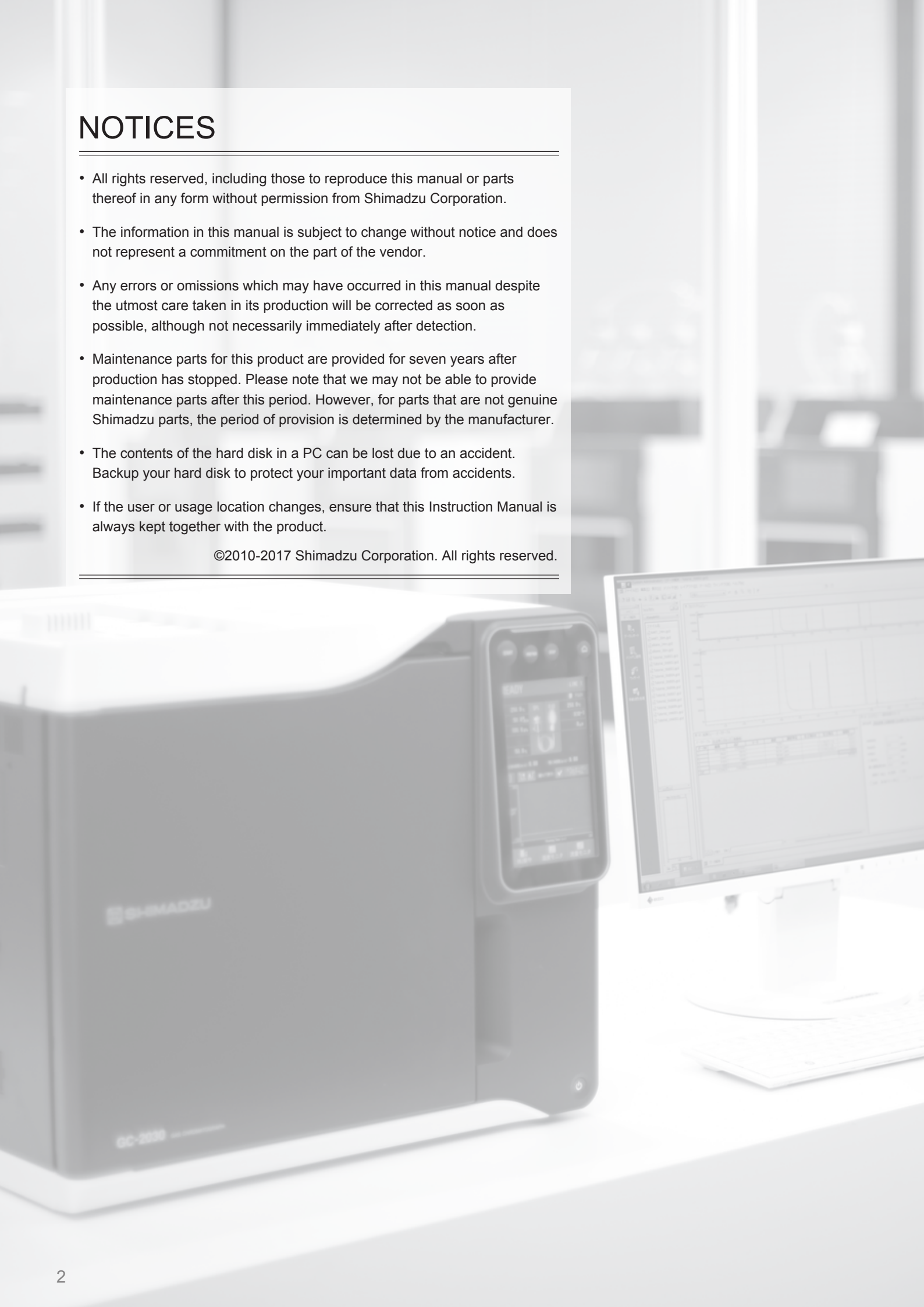
- Any errors or omissions which may have occurred in this manual despite the utmost care taken in its production will be corrected as soon as possible, although not necessarily immediately after detection.
- Maintenance parts for this product are provided for seven years after production has stopped. Please note that we may not be able to provide maintenance parts after this period. However, for parts that are not genuine Shimadzu parts, the period of provision is determined by the manufacturer.
- The contents of the hard disk in a PC can be lost due to an accident. Backup your hard disk to protect your important data from accidents.
- If the user or usage location changes, ensure that this Instruction Manual is always kept together with the product.



Types of Manuals

Five Instruction Manuals are provided with LabSolutions.
You can also display the [Help] menu to confirm the meanings and setting ranges of parameters.
The following shows how to make full use of the manuals.

Getting Started Guide

This manual is for first-time users.
Follow the sequence of procedures in this guide to gain an understanding of basic LabSolutions operations.

Operators Guide

This manual gives comprehensive information about overall data acquisition operations in LabSolutions, such as system configuration, data analysis, batch processing, and report functions.

System Users Guide

This manual is for system administrators.
This manual describes system administration and data management.

Data Acquisition & Processing Theory Guide

This manual describes peak detection and quantitation of sample components (for advanced users).

Installation & Maintenance Guide

This manual describes installation and maintenance of the LabSolutions software.

Help

Refer to [Help] to learn more about the displayed sub-window.
Click the on-screen [Help] button or the [F1] key on the keyboard to display [Help].

The meanings of symbols used in this manual are as follows.

	Useful advice for convenient instrument operation
	Shows where to refer to in the *Operators Guide*

What LabSolutions Can Do

LabSolutions software is very easy to use, while incorporating high-grade functions. It provides powerful support for automating and improving the efficiency of sequential data acquisition and analysis operations.
Use LabSolutions to perform the following functions.

- Control of analytical instruments and data acquisition
- Data analysis and viewing of data
- Creation and printing of various customizable reports
- Data management

System Structure

This Getting Started Guide describes data acquisition operations with the assumption that the system includes the following instruments.

Gas Chromatograph GC-2030 / GC-2010

• **Autosampler**	**AOC-20i**
• **Split/Splitless**	**Injection unit (SPL)**
• **Capillary column:**	**Stabilwax 30 m × 0.32 mm I.D, 0.5 µm-thick film**
• **Flame ionization detector (FID)**	

File Types

Data file (.gcd)

This file contains all analysis results and acquisition information from the following files.

Method file (.gcm)

Acquisition conditions, analysis conditions, calibration curve information, and etc.

Batch file (.gcb)

This file is used for continuous data acquisition of sequential samples.

Report format file (.lsr)

This file is used to print data acquisition results.

-Checks Before Operation-

Data Acquisition Flow

STEP 1

Set Up the Conditions

Set up the data acquisition conditions to suit the component to be measured.

Before starting data acquisition, set up the data acquisition conditions on LabSolutions.
For the data analysis operations described in this manual, set as follows:

Column oven temperature	50 °C (3 min retention) → 150 °C (2 min retention) (temperature rise speed 10 °C/min)
Injection unit temperature	250 °C
Carrier gas	He, linear velocity 40 cm/sec, linear velocity mode
Sample injection method	Split method
Split ratio	1:25
Detector temperature	250 °C
Sample	Alcohol mixed samples, 100, 500 and 1000 ppm standard samples, and 2 unknown samples

STEP 2

Data Acquisition

When you have finished setting up the data acquisition conditions,

start off by acquiring the data.

On LabSolutions, the operation of analysis samples one at a time is called **"single run"**.

To evaluate the data acquisition conditions, change the data acquisition conditions, measure standard samples and unknown samples, and check the separation state of the target component.

Perform data acquisition on other samples using the data acquisition conditions that provided the optimum separation state.

Reference *3* **Single Run** P.27

Setting up the data acquisition conditions and optimizing the data processing parameters are important for obtaining better data acquisition results. This section describes the basic flow of data analysis.

STEP 3 Analysis

Process the acquired data, and
apply the analysis conditions.

Normally, multiple data is analyzed to determine peak integration conditions so that consistent results (e.g. repeatability of retention time and peak area, detection limits of target components, and linearity) can be acquired.

When the data analysis conditions have been fixed, quantitative calculation (i.e. investigation as to how much of the target component is contained in the sample) is performed on the unknown sample based on the data analysis results of the acquired standard sample.

To perform quantitation, a calibration curve must be made from the known concentrations and peak area values of the standard samples. This calibration curve is used to calculate the concentration of the unknown sample.

Reference *4* **Data Analysis** P.29

STEP 4 Realtime Batch

Perform data acquisition on sequential samples together.

Realtime batch is performed to measure sequential samples continuously when the data acquisition conditions have been fixed by performing a single run.

Reference *5* **Realtime Batch** P.35

Reference *6* **Multiple Data Analysis** P.44

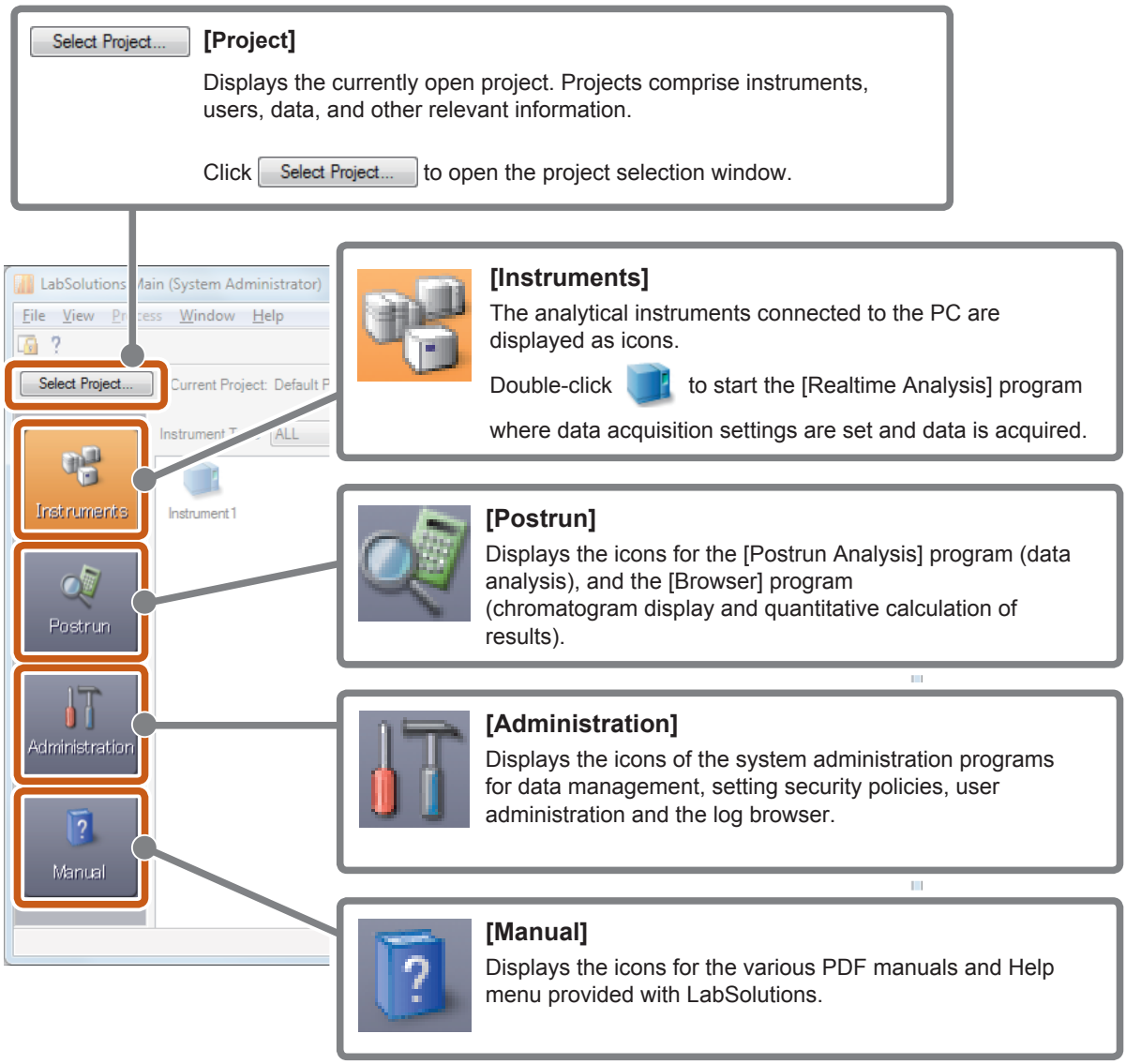
STEP 5 Data Management

Display the data files acquired using realtime batch in step ④ by specifying filtering conditions in the Data Manager.

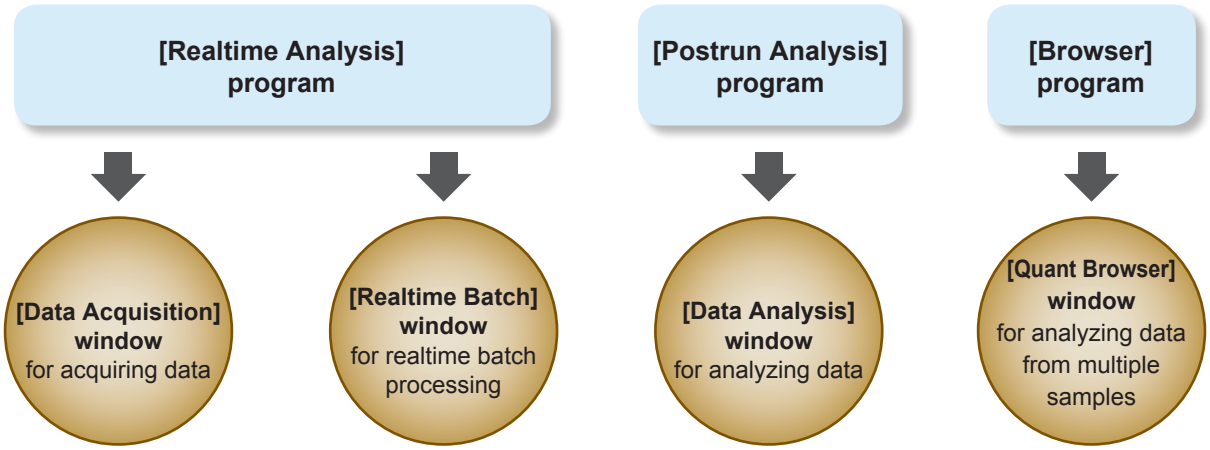
The Data Manager can display PDF files created during data acquisition.

Reference *7* **Data Management** P.52

LabSolutions Main Window

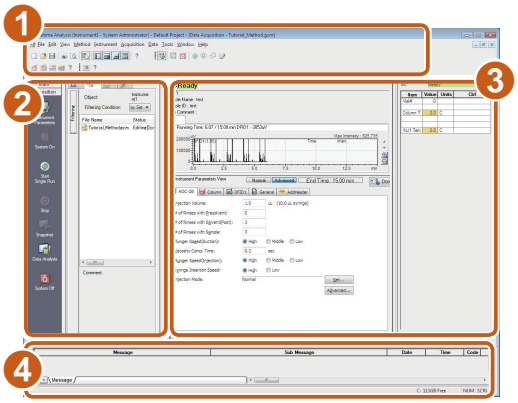


LabSolutions Main Programs and Main Windows



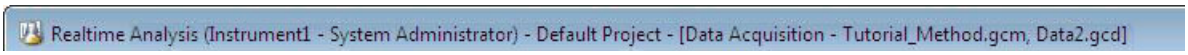
LabSolutions Windows

The following example describes the [Realtime Analysis] program window.



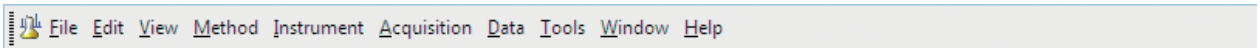
1 Title Bar

This bar displays the names of the current program, window, loaded file, and other information.



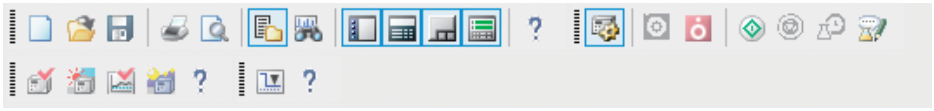
Menu Bar

This bar displays the current window and menus that are available based on the operating rights of the current user.



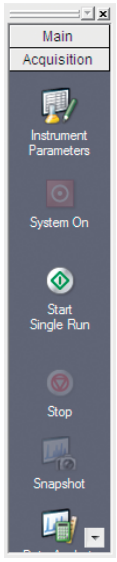
Toolbar

This bar displays icons of frequently used menu items and icons for operating analytical instruments.



2 Assistant Bar

This bar displays icons for frequently used data acquisition operations.



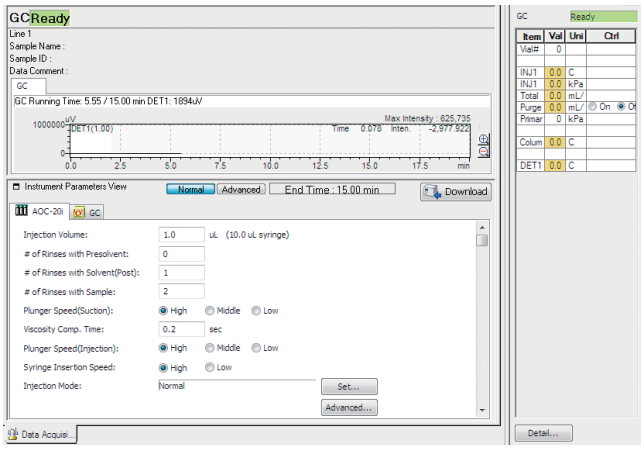
Data Explorer

This sub-window displays files for the selected project and instruments.

3 Window

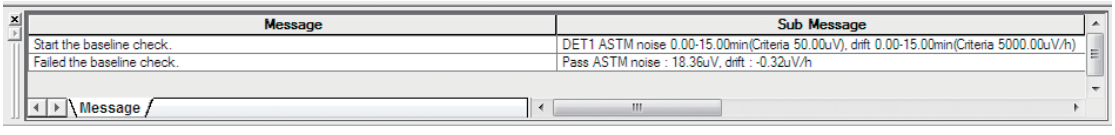
In the [Realtime Analysis] program, [Data Acquisition], [Realtime Batch] and other windows are displayed as icons on the assistant bar.

In the [Postrun Analysis] program, [Data Analysis], [Calibration Curve], [Report Format] and other windows are displayed. Switch the windows by clicking the icons on the assistant bar. Instrument Monitor (right side of the window) check the acquisition conditions and connections.



4 Output Window

This window displays an operation history and error messages that occur.



How to Open Windows

Note that a project must be selected in order to open windows.

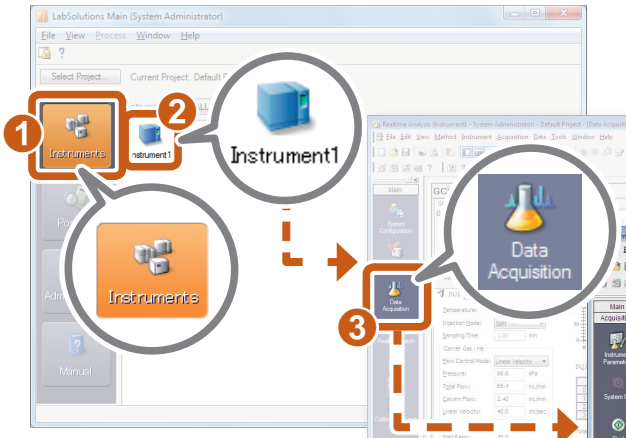
Reference *1* **Start Up** P.12

Set the Data Acquisition Parameters and Execute a Single Run:

Open the [Data Acquisition] window from the main window.

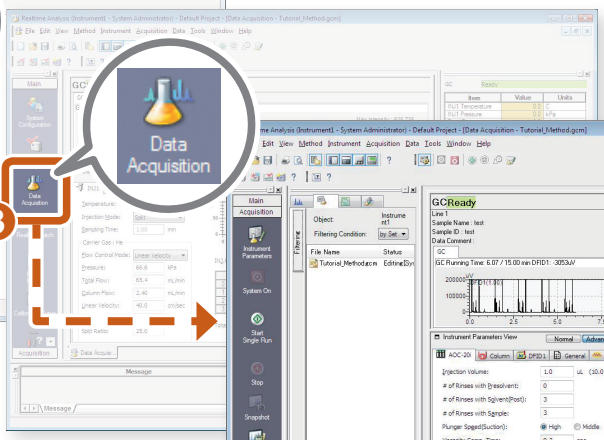
Reference *2* **Set the Instrument Parameters** P.20

Reference *3* **Single Run** P.27

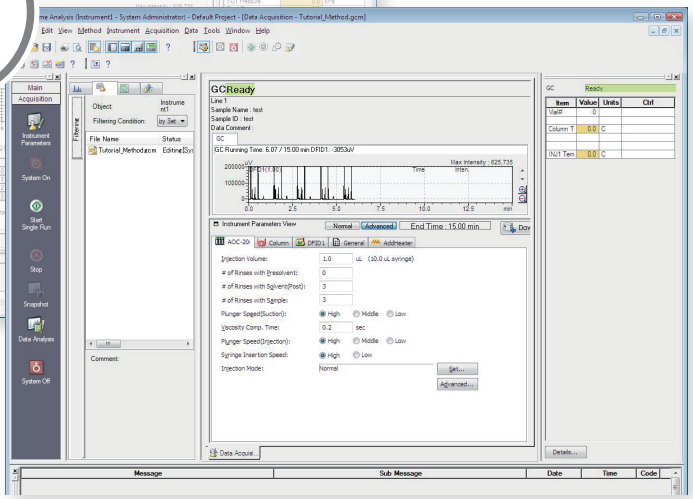


▲Main Window

▼[Realtime Analysis] program



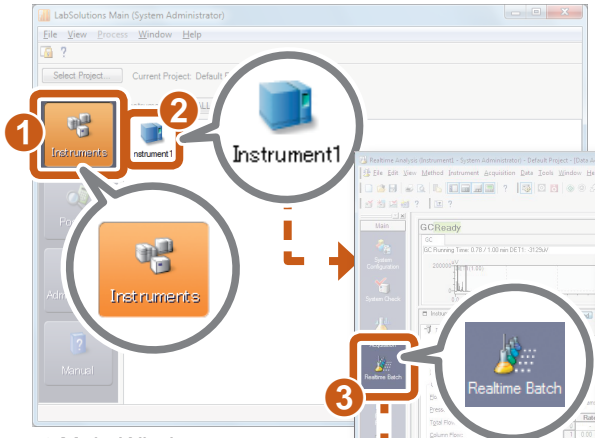
▼[Data Acquisition] window



Continuous Data Acquisition of Sequential Samples:

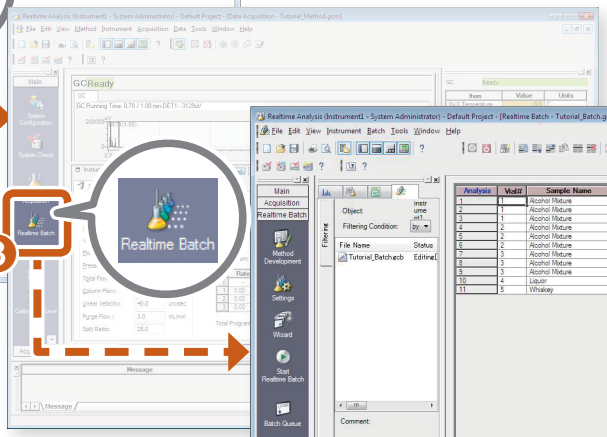
Open the [Realtime Batch] window from the main window.

Reference *5* **Realtime Batch** P.35

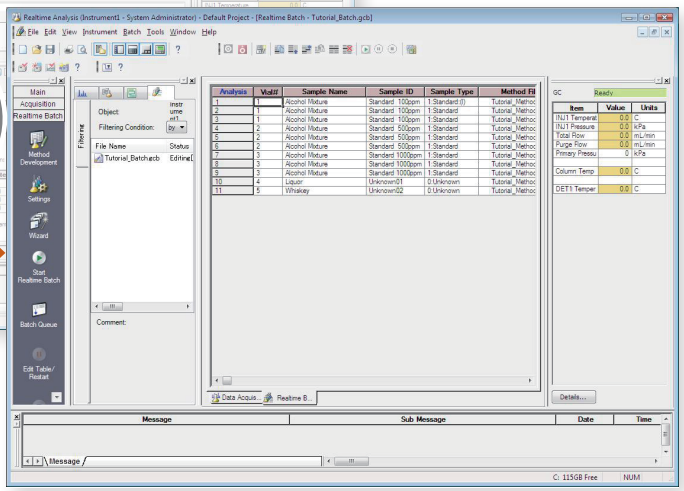


▲Main Window

▼[Realtime Analysis] program



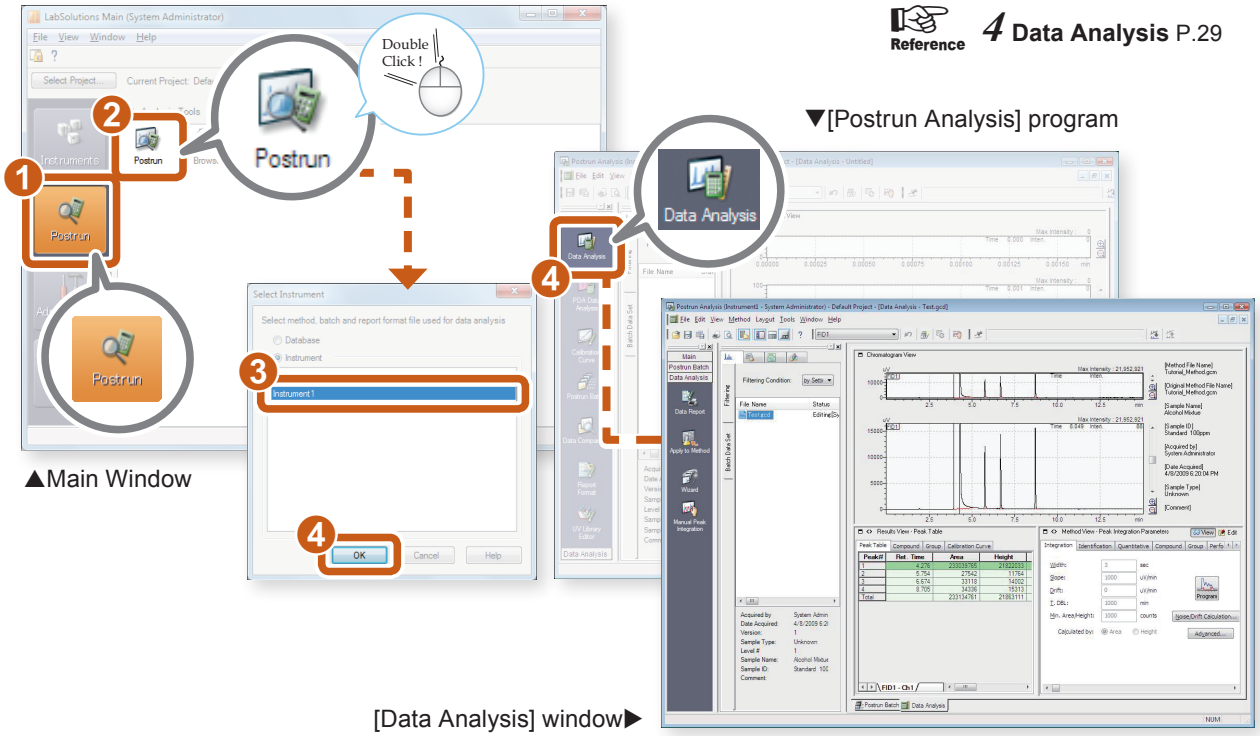
▼[Realtime Batch] window



Data Analysis and Quantitative Calculations:

Open the [Data Analysis] window from the main window.

Reference *4* **Data Analysis** P.29



▼[Postrun Analysis] program

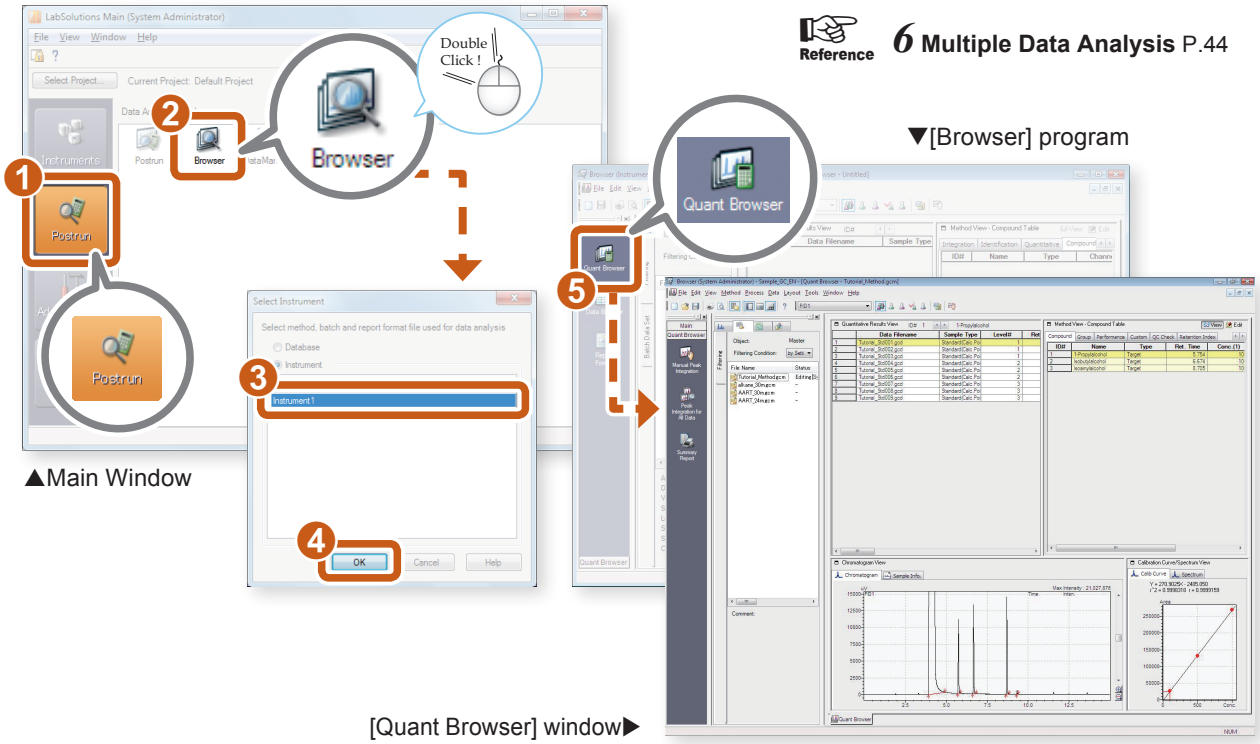
▲Main Window

[Data Analysis] window▶

Multiple Data Analysis and Quantitative Calculations:

Open the [Quant Browser] window from the main window.

Reference *6* **Multiple Data Analysis** P.44



▼[Browser] program

▲Main Window

[Quant Browser] window▶

Chapter 1

Start Up

This chapter describes how to start up LabSolutions.

Reference Refer to "GC Data Acquisition" in *Operators Guide* for details on the "Data Acquisition" window.

1 Supply gas to the GC.

Open the main valve of the carrier gas and other gases to supply gas to the GC.

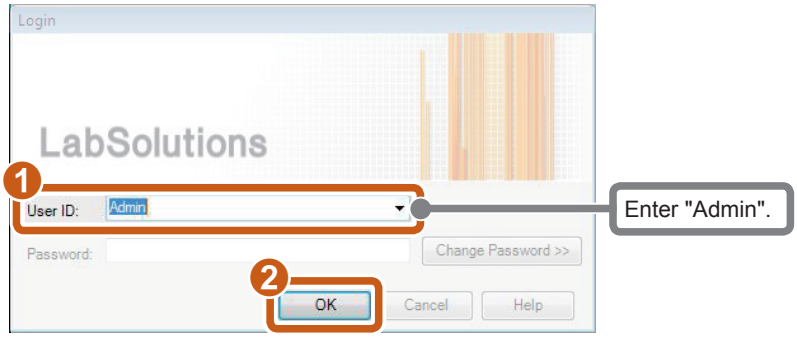
2 Turn the GC and peripheral devices on.

3 Turn the PC and printer on.

4 Double-click on the desktop.

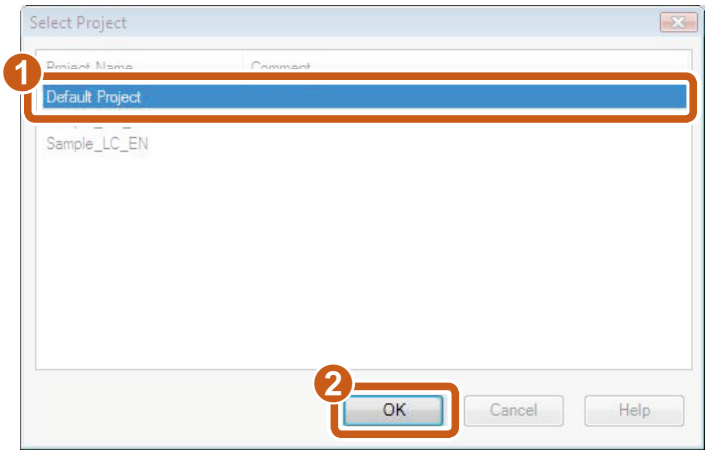
The [Login] sub-window opens.

5 Log in.



6 Select a project.

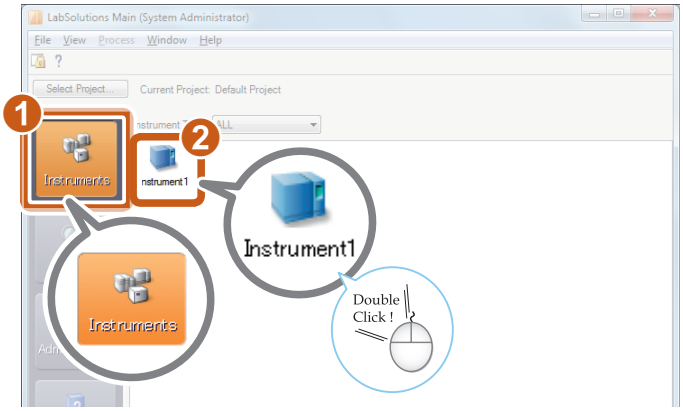
Upon initial startup, the project selection window is displayed after logging in. In this case, select the desired project. For subsequent startups, the [Realtime Analysis] program opens using the project selected when the previous session was closed.



Hint The [Select Project] window is also displayed when logging in for the first time using a newly created user.

Reference Refer to "System Management" in the *Operators Guide* for details on creating users.

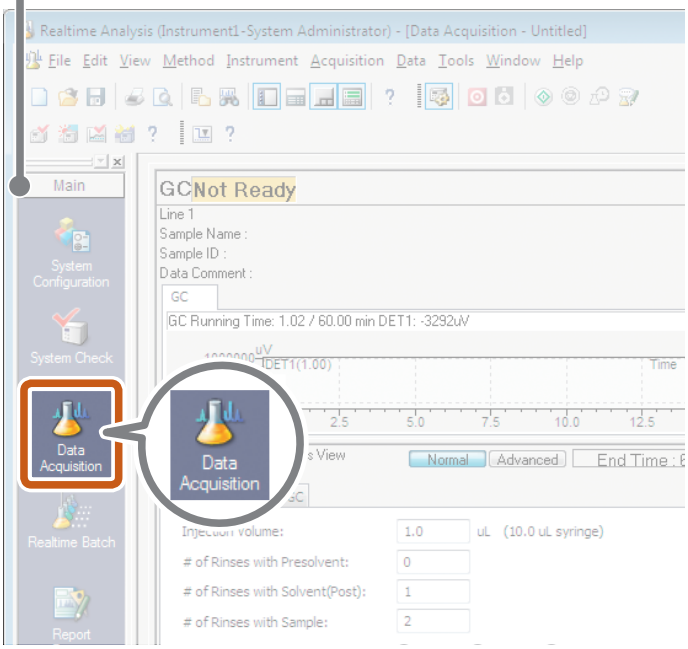
7 Open the [Realtime Analysis] program.



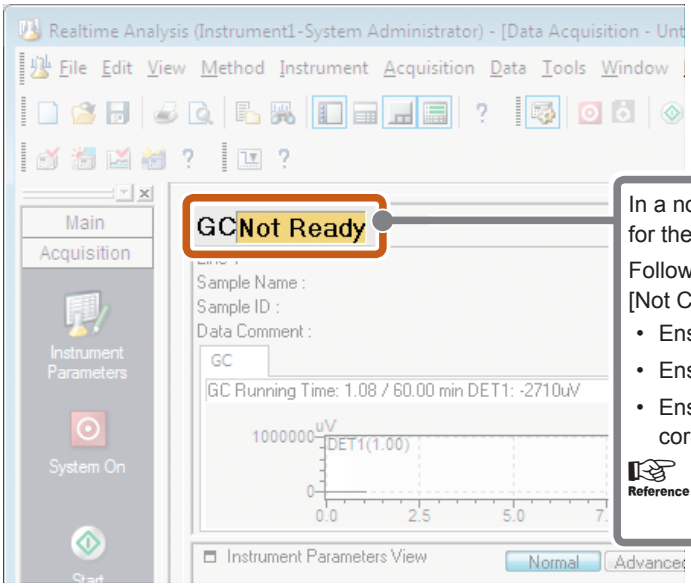
Continued on the following page

8 Open the [Data Acquisition] window.

Hint Click here if the [Main] assistant bar is not displayed.



9 Comfirm the status.



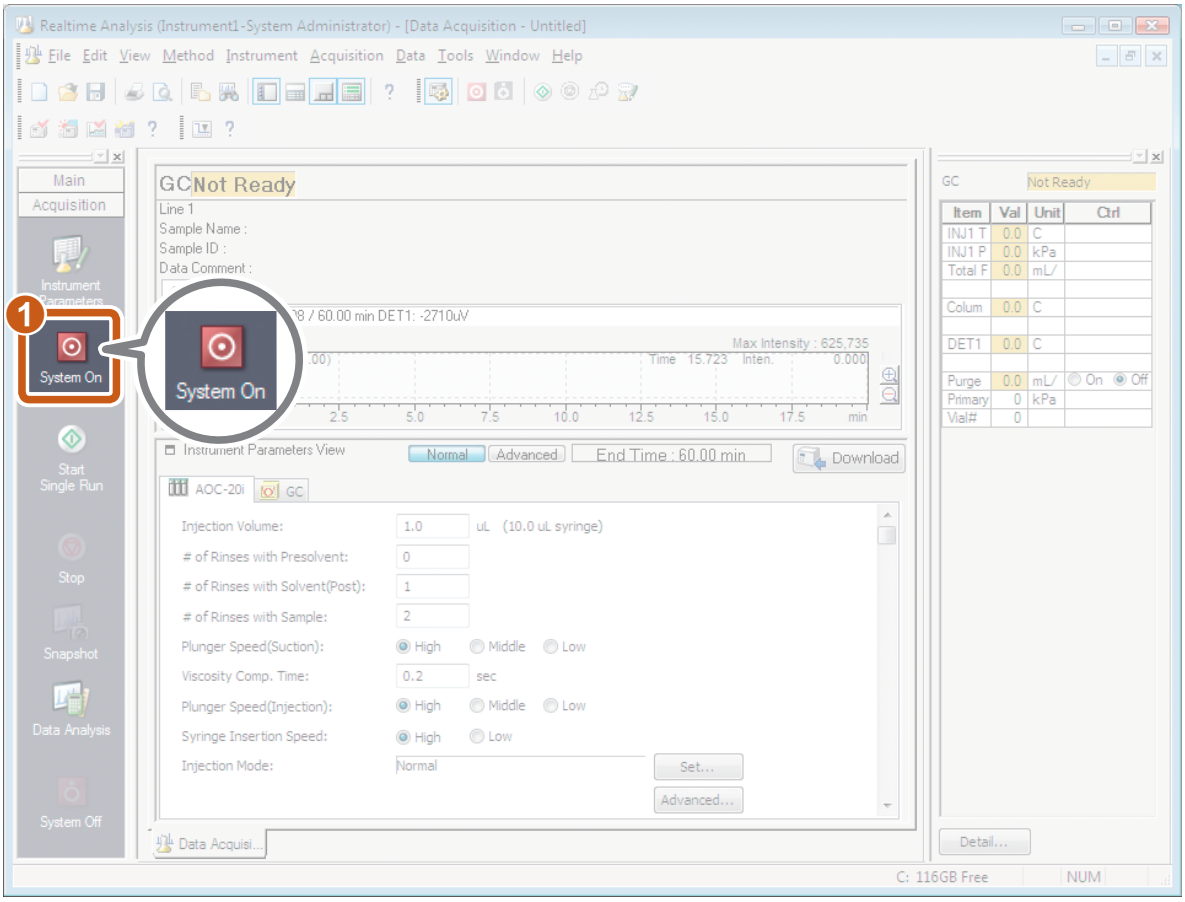
In a normal state, [Not Ready] or [Ready] is displayed for the status.

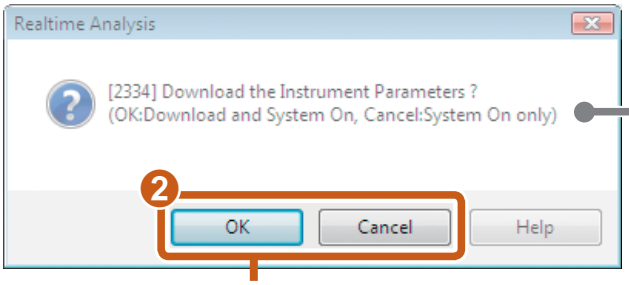
Follow the recommendations below if [Not Connected] is displayed.

- Ensure that the power is ON.
- Ensure that instruments are connected correctly.
- Ensure that the system configuration settings are correct.

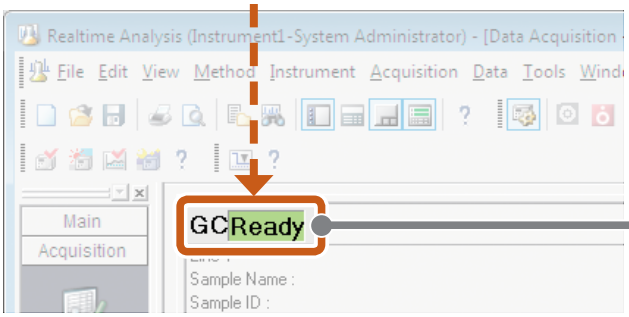
Reference [Re-Set the System Configuration] P.16 for details.

10 Start the GC.





This message sometimes is not displayed.



Make sure that [Ready] is displayed for the status after the GC temperature and other preset values are reached.

LabSolutions

SUPPLEMENT

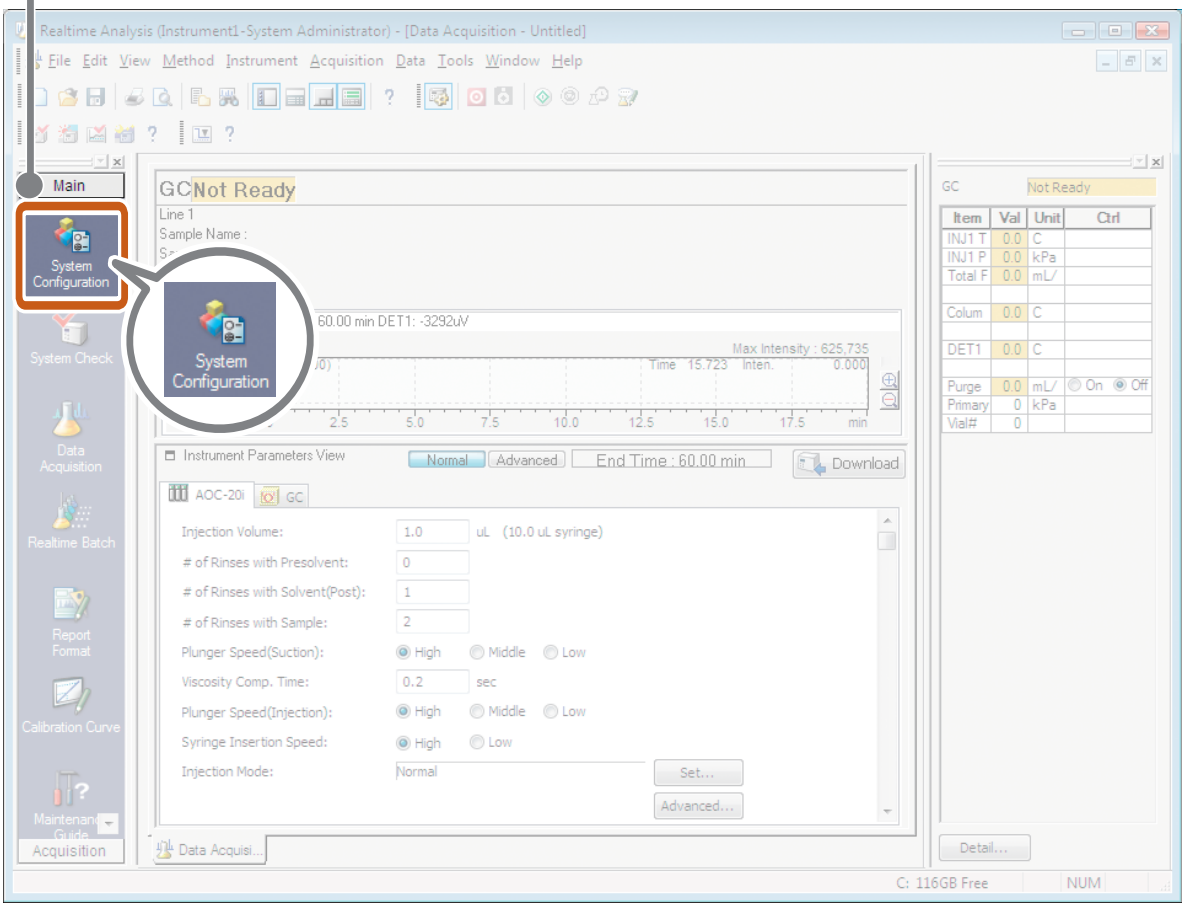
"I want to connect to the system."
"I want to change the system configuration."

In such cases

Re-Set the System Configuration.

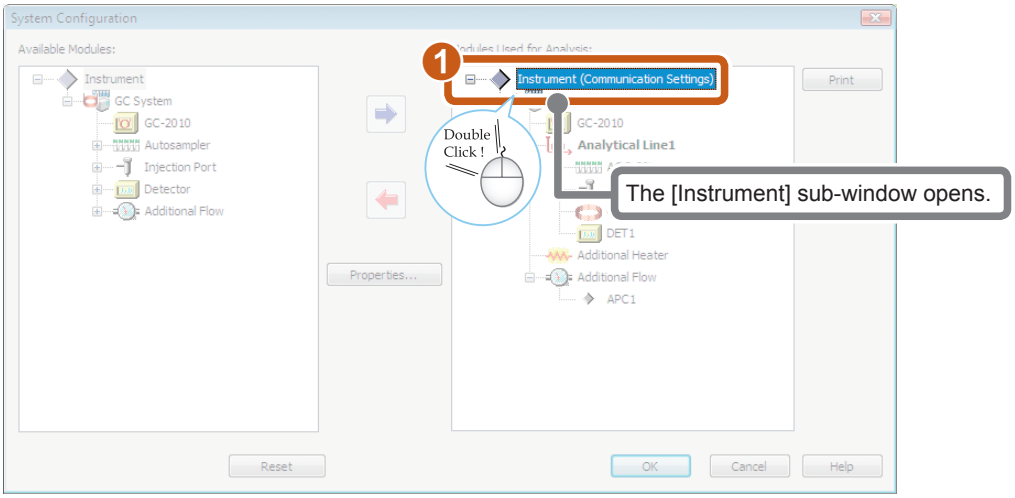
1 Open the [System Configuration] sub-window.

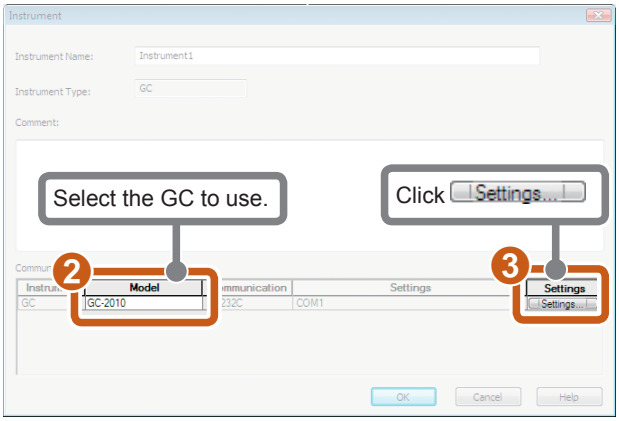
Hint Click here if the [Main] assistant bar is not displayed.

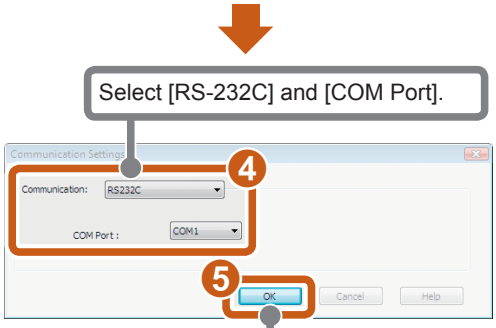


The [System Configuration] sub-window opens.

2 Open the [Data Acquisition] window.







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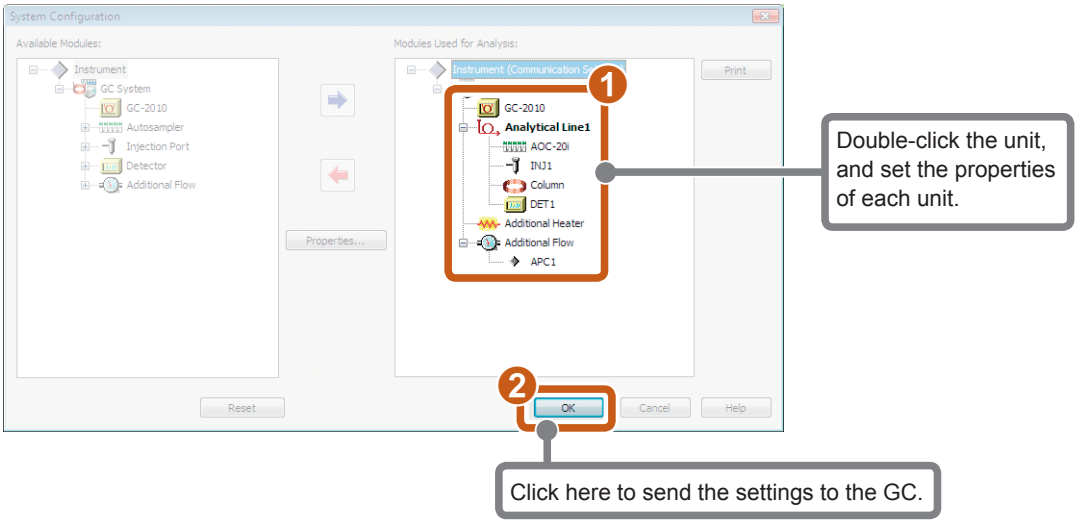
3 Check that the system configuration is correct.



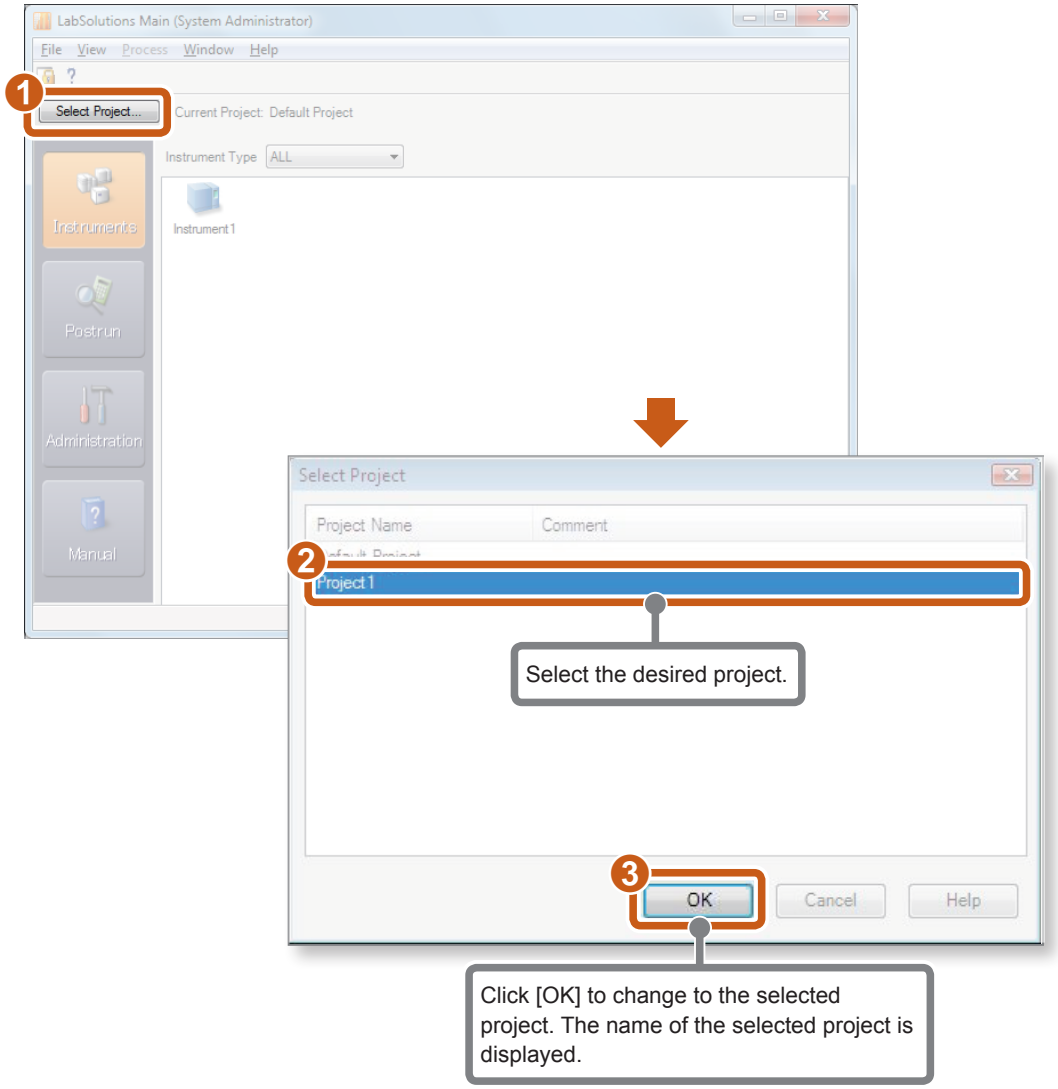
LabSolutions

SUPPLEMENT

"I want to change to another project."

In such cases

Click [Select Project].

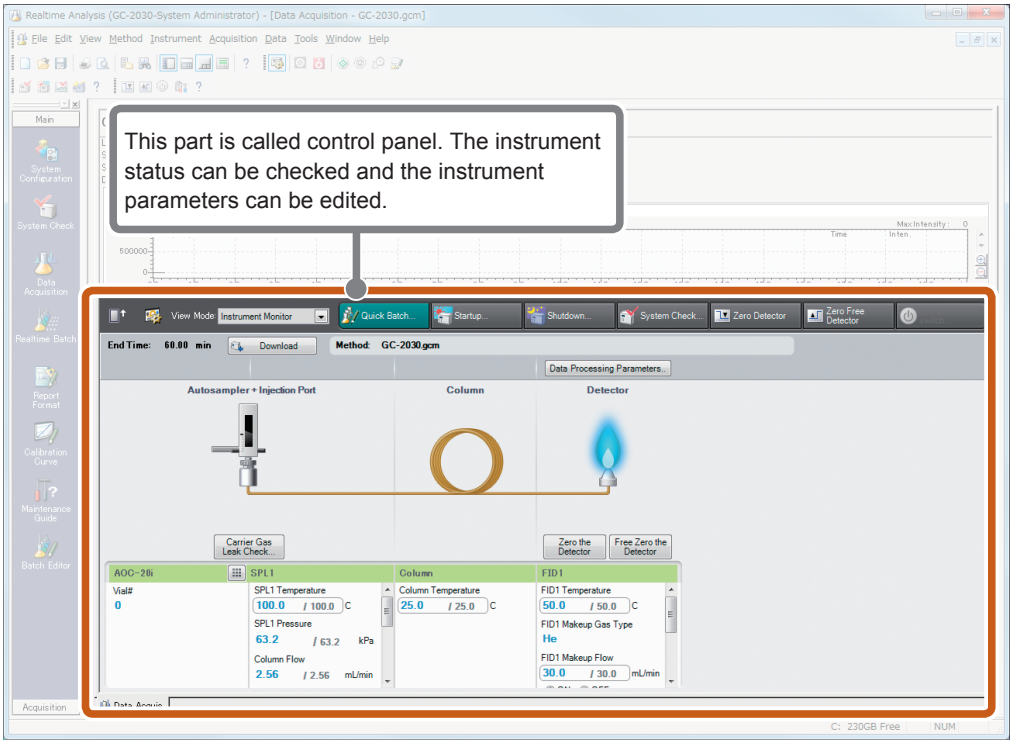


Chapter 2

Set the Instrument Parameters

The data acquisition method (instrument parameters) are saved to the method file after they have been set in [Control Panel] in the [Data Acquisition] window.
This chapter explains how to set the instrument parameters.

1 Open the [Data Acquisition] window.

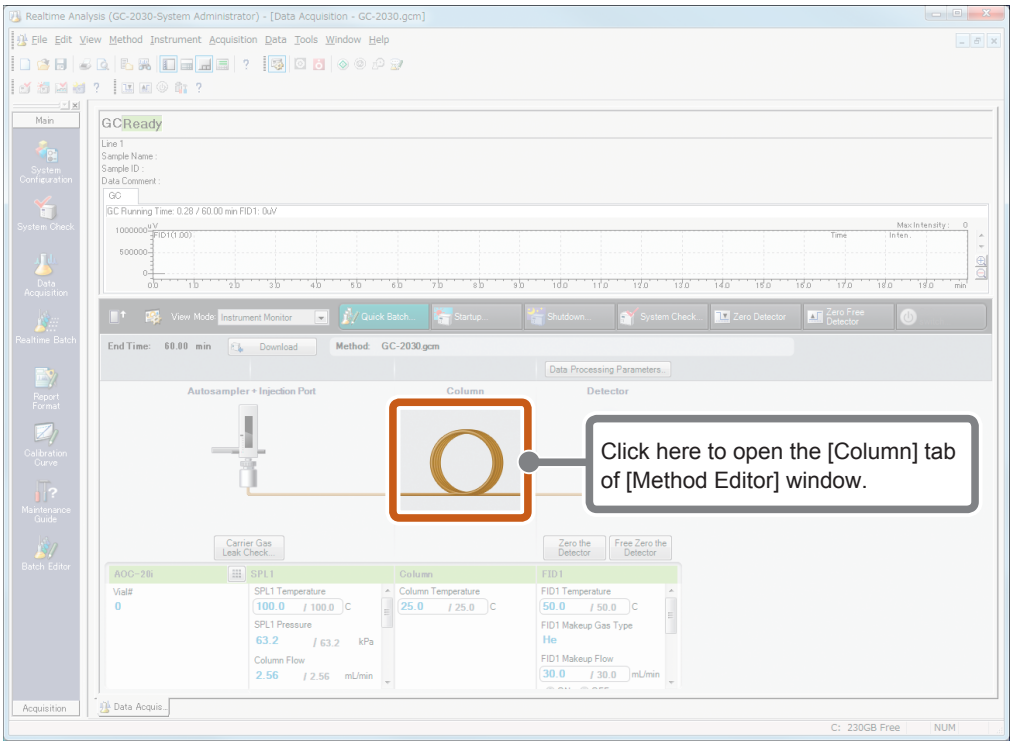


Switching Display Settings

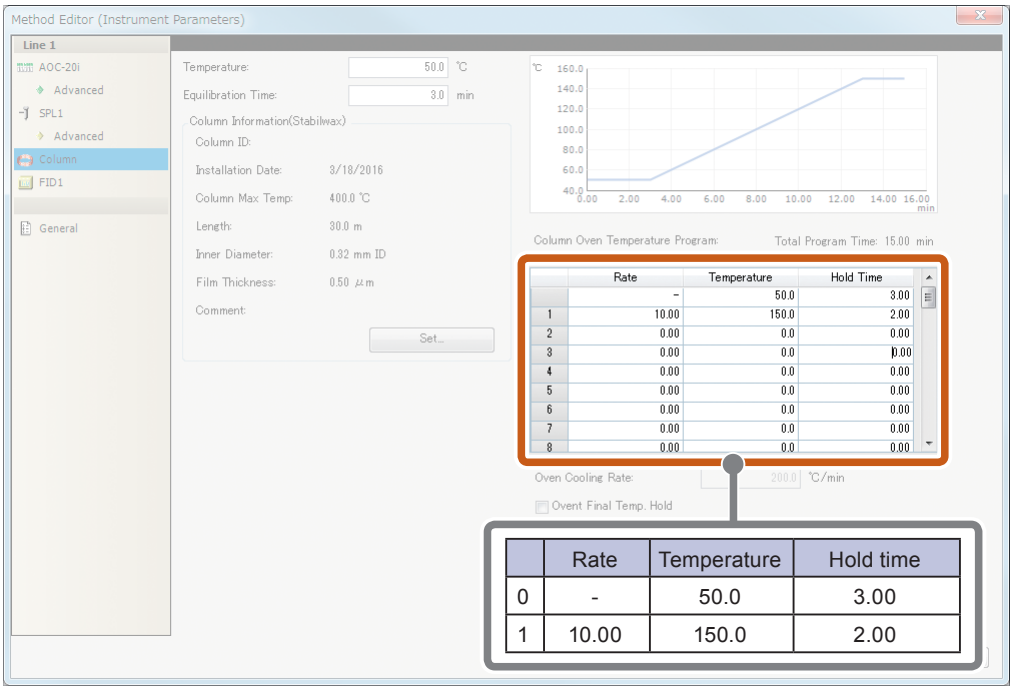
In the [Display Settings of Instrument Parameter View] sub-window, you can select displaying either the control panel or the instrument parameter view.

In case of GC-2030, you can switch [View Mode] ([Instrument Monitor] or [Instrument Parameter]) on the [Control Panel].

2 Click [Column] image on the [Control Panel].



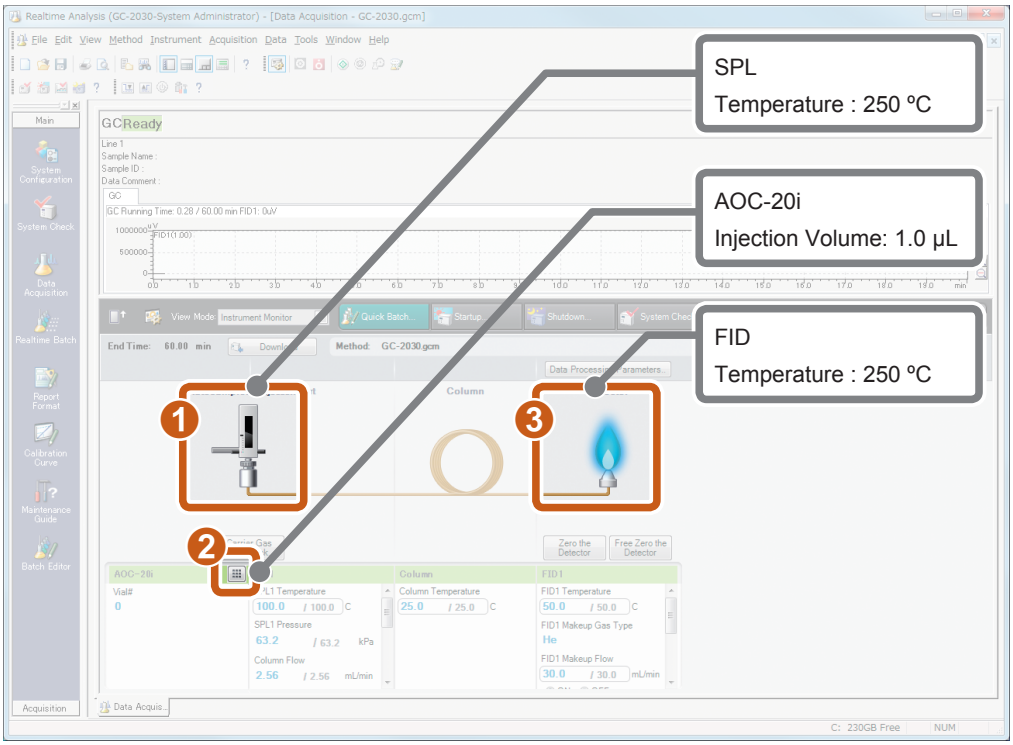
3 Edit the time table for the column temperature program.



	Rate	Temperature	Hold time
0	-	50.0	3.00
1	10.00	150.0	2.00

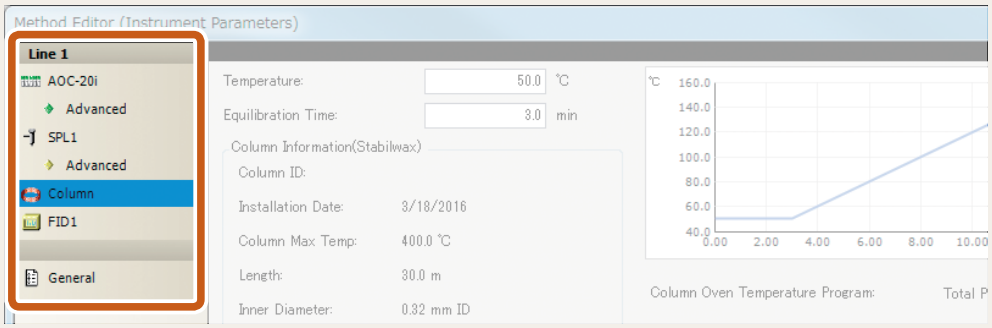
Continued on the following page

4 Click other unit image and edit parameters.

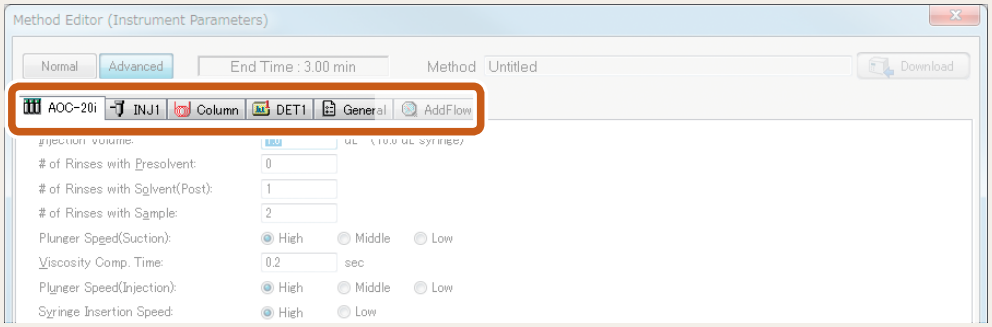


Hint

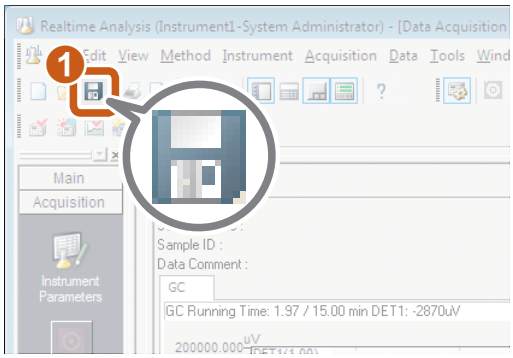
In case of GC-2030, you can select unit from the explorer bar at the left side of [Method Editor]window

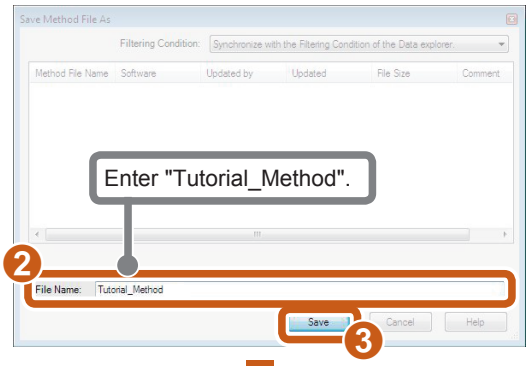


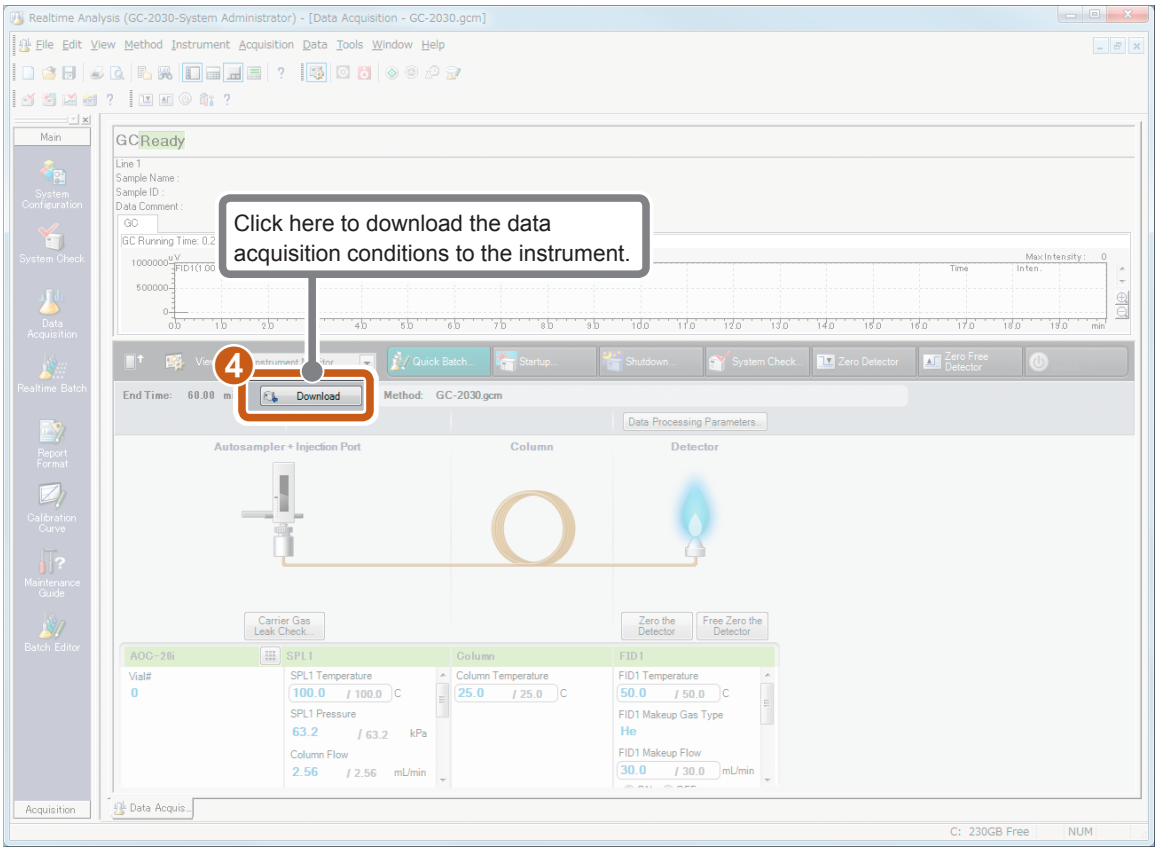
In case of GC-2010, you can select unit by clicking tab on the [Method editor]window.



5 Save the data acquisition conditions.







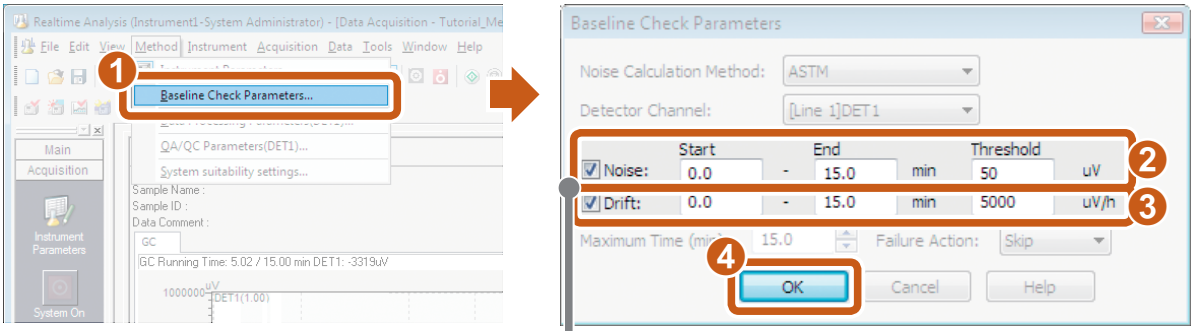
LabSolutions

SUPPLEMENT

Baseline Check

By the baseline check, you can check whether or not noise and drift values on the baseline are within the preset time and at the threshold or below.
Baseline check parameters are saved in the method file.

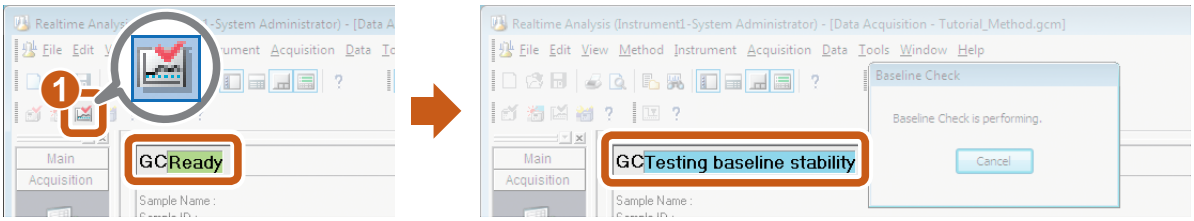
1 Set [Baseline Check Parameters].



Set both [Noise] and [Drift] to ☑, and enter [Start], [End] and [Threshold].

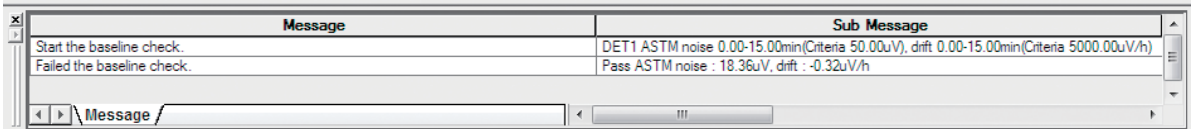
Hint In the [Baseline Check] sub-window, the noise calculation method can be changed, and the maximum delay time when the result of the baseline check is [Fail] within the preset time. Reference Help for details.

2 Perform the baseline check.

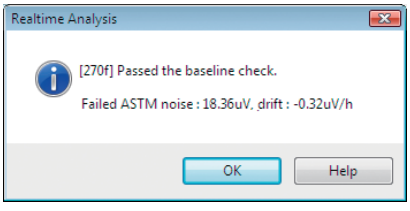


After measurement ends, the check results are displayed in [Baseline Check Results] sub-window and [Output Window].

[Output Window]



Baseline Check Results



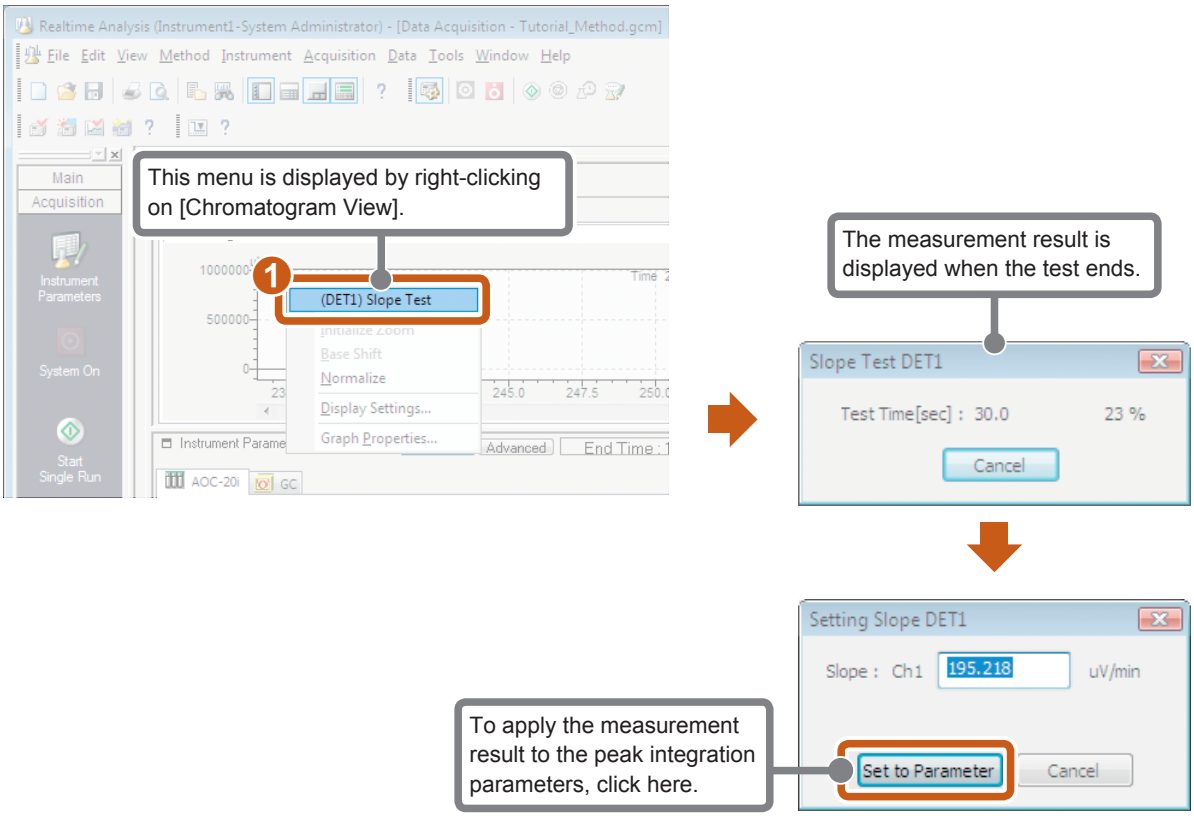
LabSolutions SUPPLEMENT

Slope Test

By performing the Slope Test, the peak detection sensitivity (Slope value) of peak integration parameters can be automatically set from the status of the noise and drift appearing on the chromatogram before data acquisition.
The slope value obtained by the slope test is effective when performing isothermal analysis. This section describes the Slope Test.

Hint

- Slope values refer to the numerical values for determining the peak start and end points. To be more precise, the peak start point is judged when a ascent slope exceeds the preset value, and, alternatively, the peak end point is judged when a descent slope falls below the preset value.
- Optimum Slope values can be obtained from the data by the Slope Test.



Hint

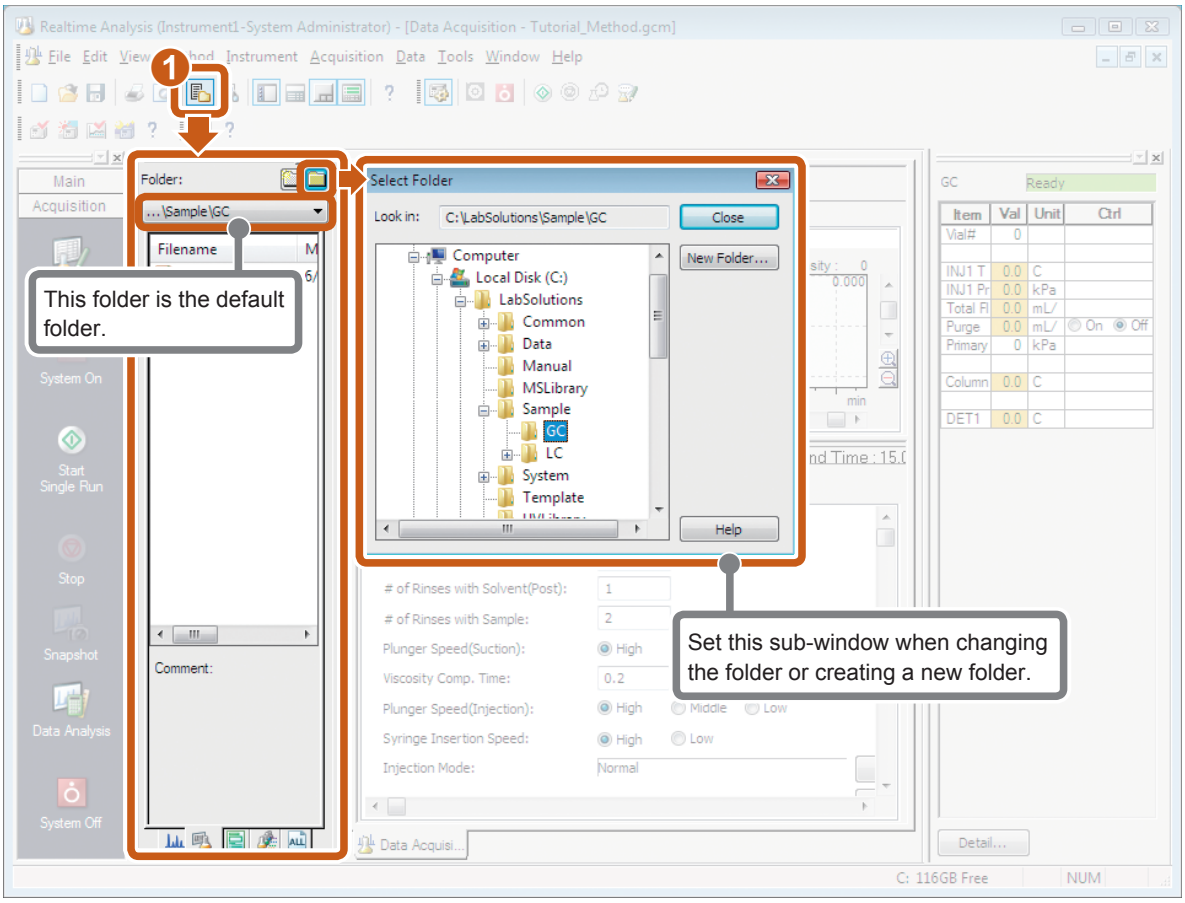
To make preset values clearer, set a value rounded up to the nearest integer larger than the displayed slope value.

For example, set "200" for "195.218".

LabSolutions

SUPPLEMENT

Default Folder and Change the Default Folder



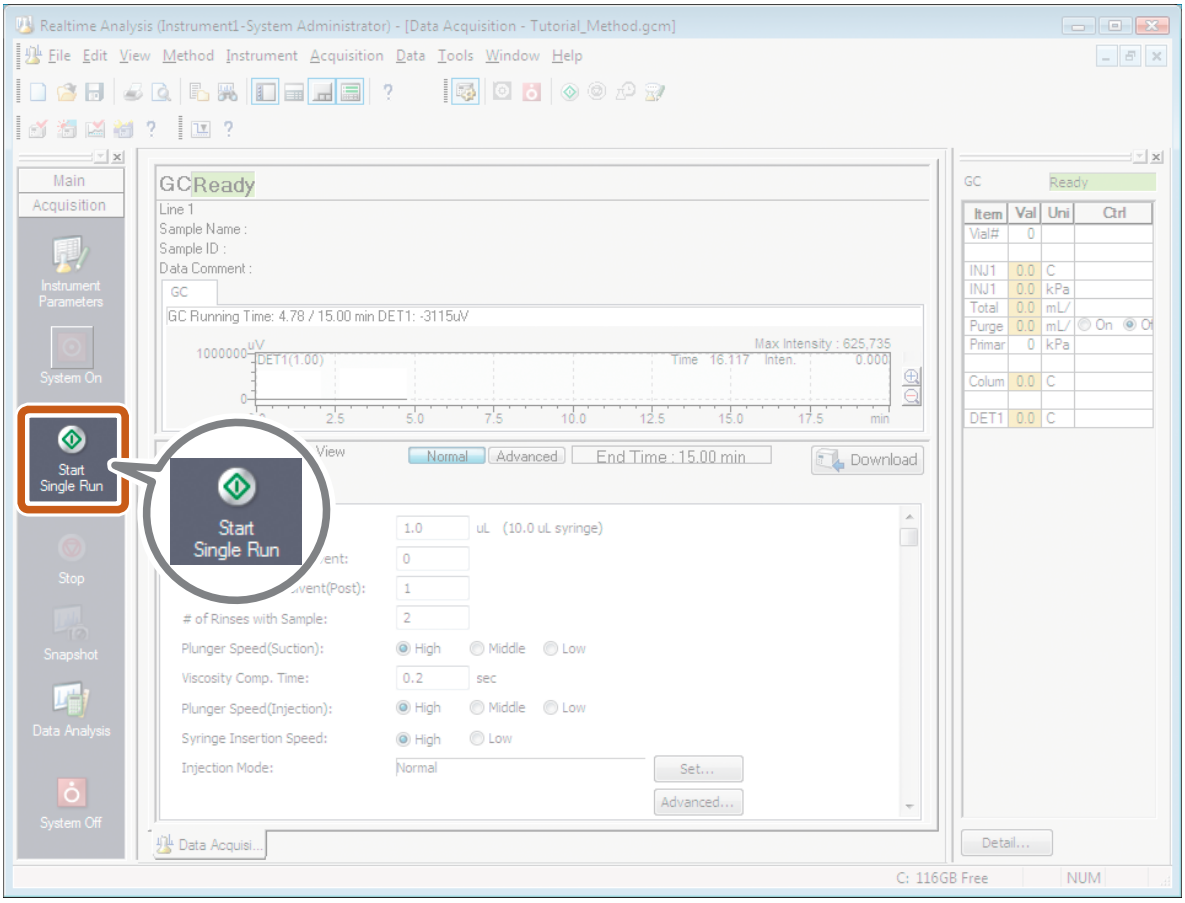
Chapter 3

Single Run

This chapter describes the operation of measuring a standard sample once only (single run) using a saved method file "Tutorial_Method.gcm".
First, perform single run using a standard sample.

1 Open the [Data Acquisition] window.

2 Open the [Single Run] sub-window.

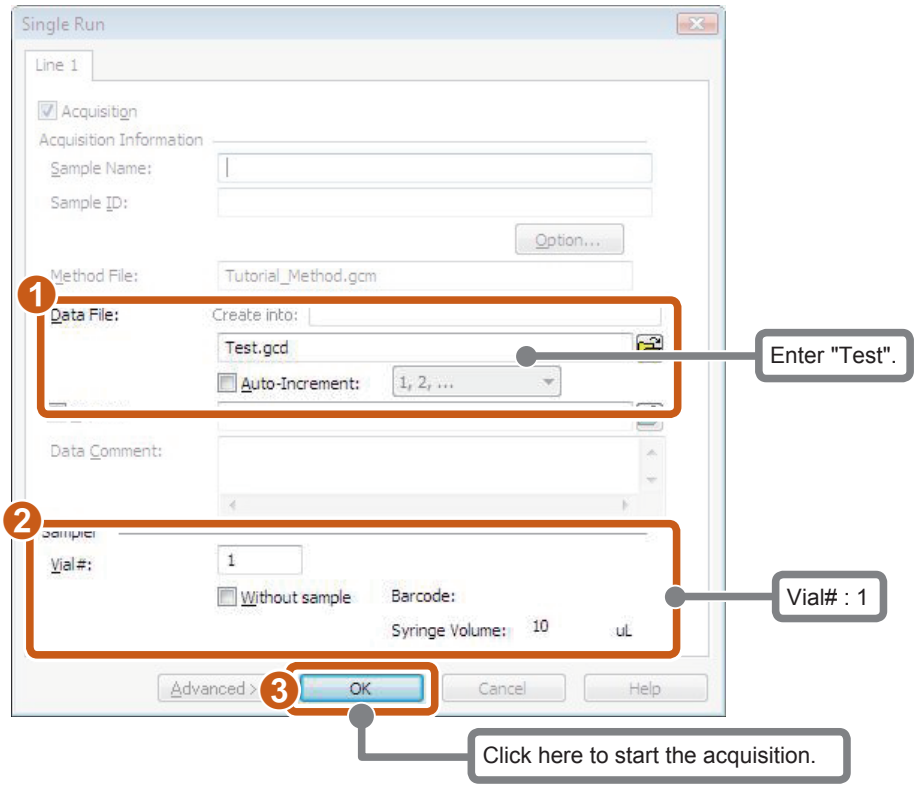


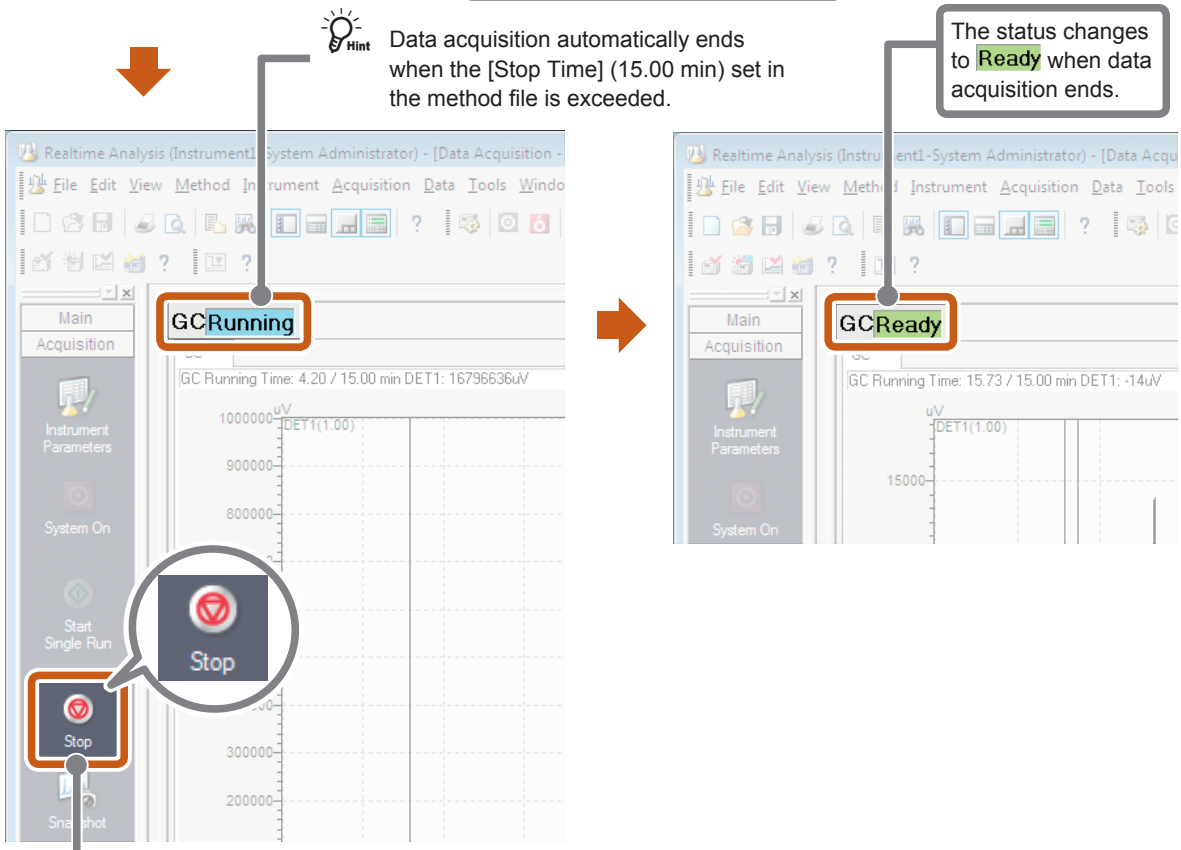
The [Single Run] sub-window opens.

Continued on the following page

3 Set the conditions for a single run.

In this example, set the conditions for pouring 100 ppm of alcohol mixed sample into vial No. 1 on the auto-sampler, and injecting that sample.



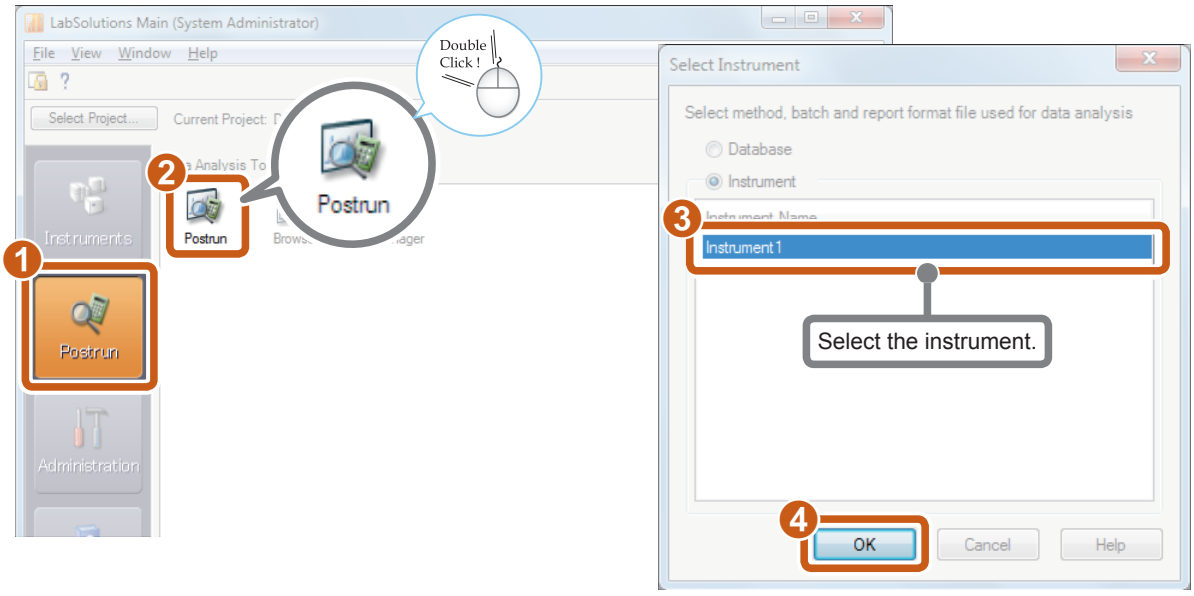


Chapter 4

Data Analysis

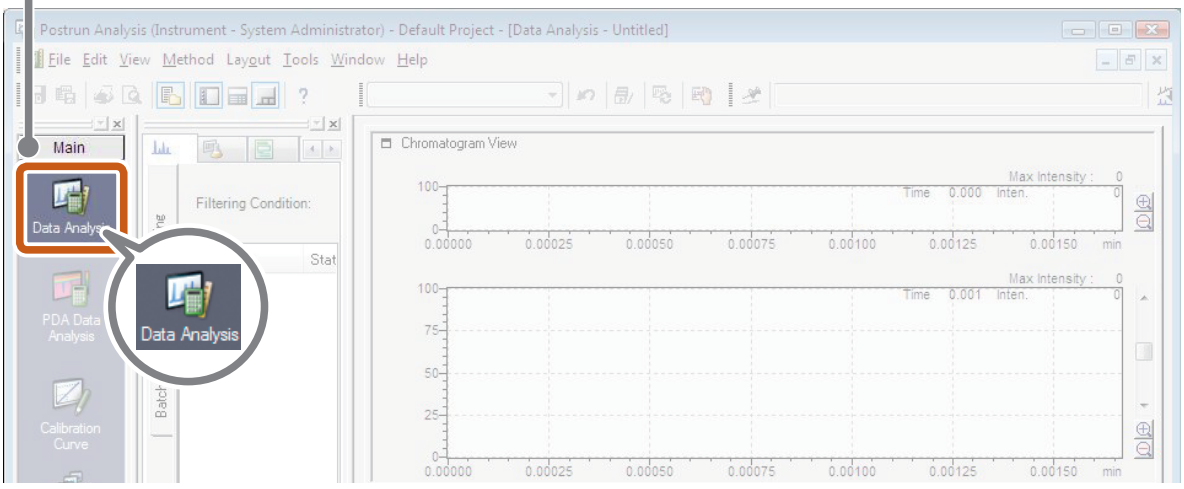
After single run ends, check the data to see if the peaks have been detected correctly. This chapter describes how to change the peak integration conditions of the data file "Test.gcd" obtained by performing single run to optimize the peak integration parameters.

1 Open the [Postrun Analysis] program.



2 Open the [Data Analysis] window.

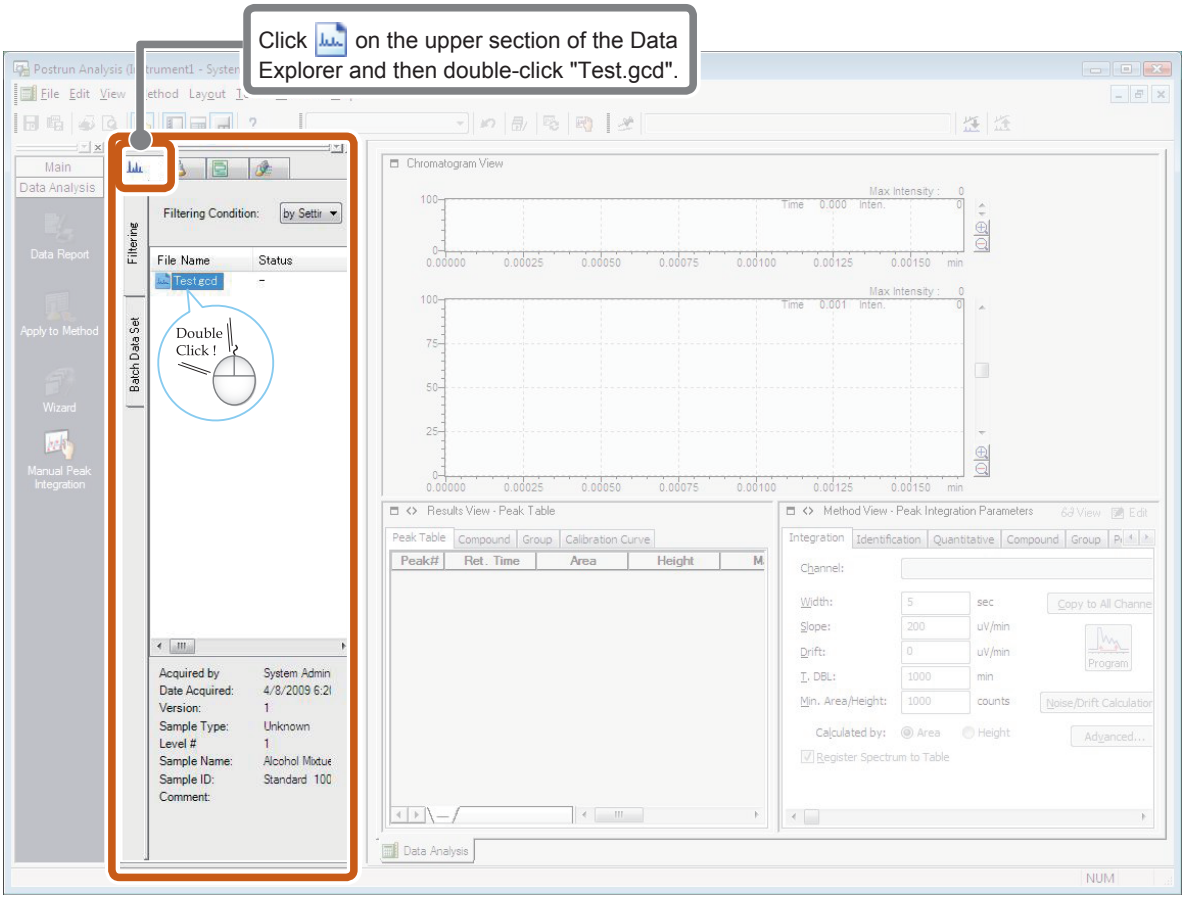
Hint Click here if the [Main] assistant bar is not displayed.



The [Data Analysis] window opens.

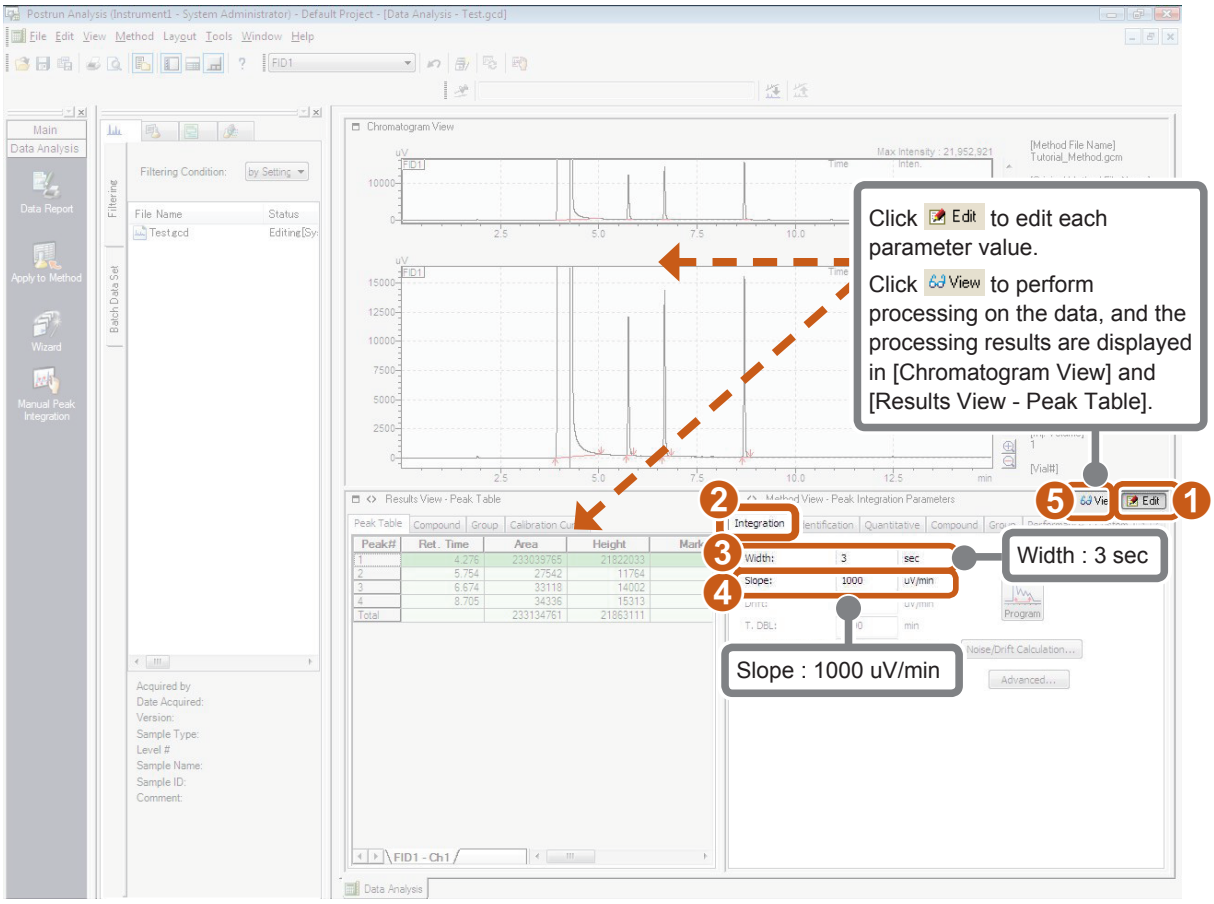
Continued on the following page

3 Display "Test.gcd".



Reference Refer to "Data Analysis" chapter in *Operators Guide* for details on the "Data Analysis" window.

4 Enter the peak integration parameters.



Hint

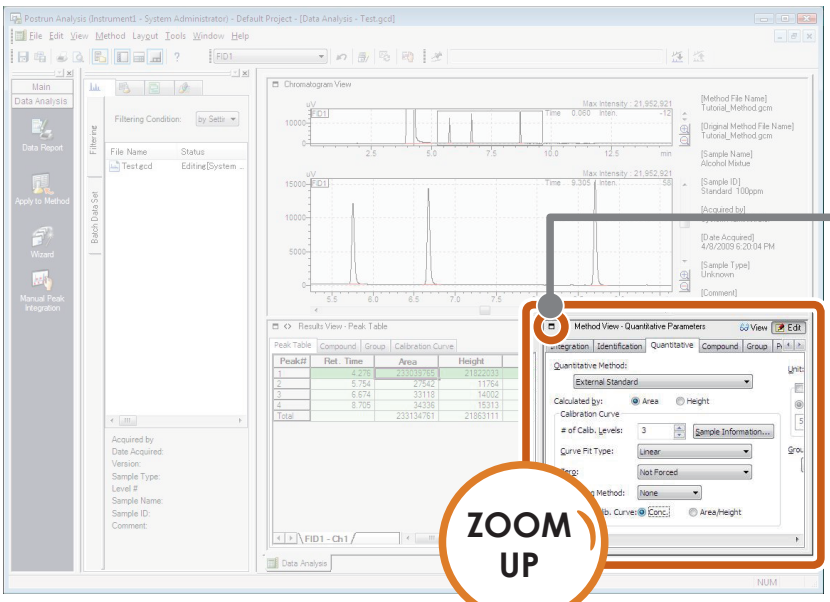
Width values refer to the minimum half-width value (height 1/2 width) of the peak to detect.
Noise peaks are removed by optimizing the Width value.
Determine the start and end points of the peak by the Slope value.
The positions where the absolute values of the baseline slope become these values are the start and end points of the peak.

Reference

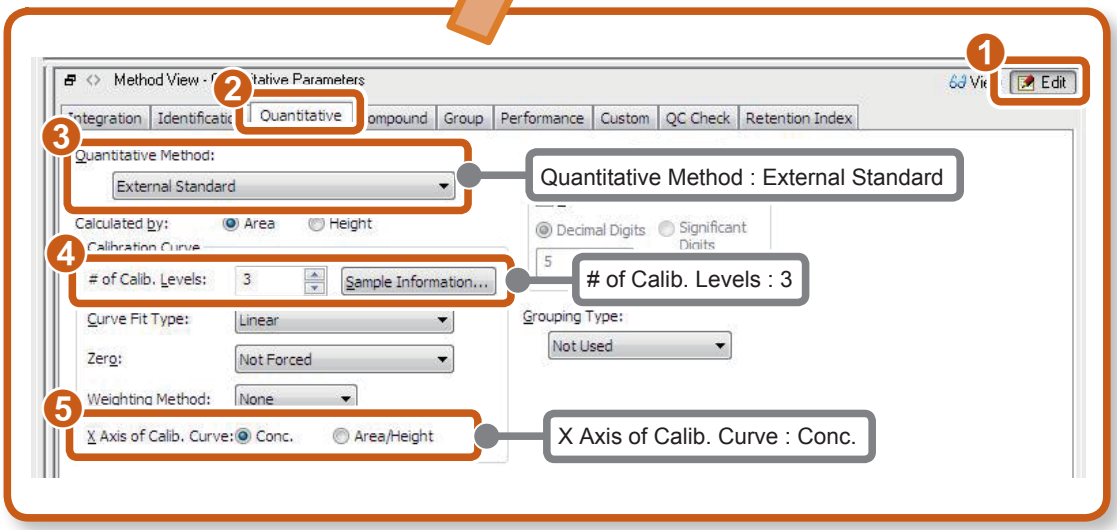
Refer to "Peak Integration Parameters" of the "Data Analysis" chapter in *Operators Guide* for details on the Peak Integration Parameters.

Continued on the following page

5 Enter the quantitative parameters.



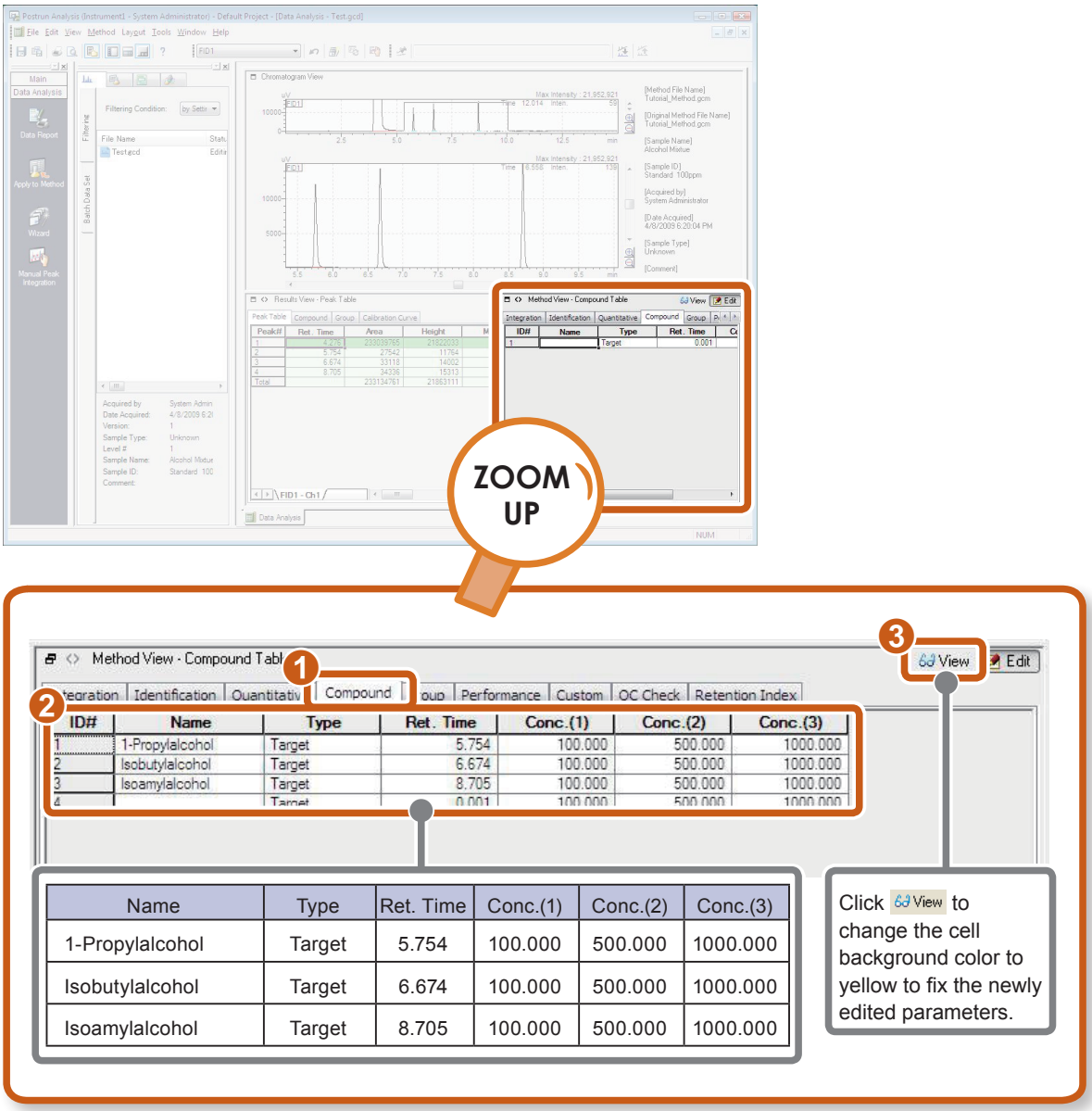
Hint Click ▭ to enlarge the window.



Hint

- The [External Standard] method involves calculating concentrations from the peak area (height) of unknown samples using a calibration curve made based on a standard sample.
- At [# of Calib. Levels], set the number of concentration points for the standard sample required for creating the calibration curve.
- When creating calibration curves with the least squares method, set [X Axis of Calib. Curve] to [Conc.].

6 Fill in the Compound Table.



Name	Type	Ret. Time	Conc.(1)	Conc.(2)	Conc.(3)
1-Propylalcohol	Target	5.754	100.000	500.000	1000.000
Isobutylalcohol	Target	6.674	100.000	500.000	1000.000
Isoamylalcohol	Target	8.705	100.000	500.000	1000.000

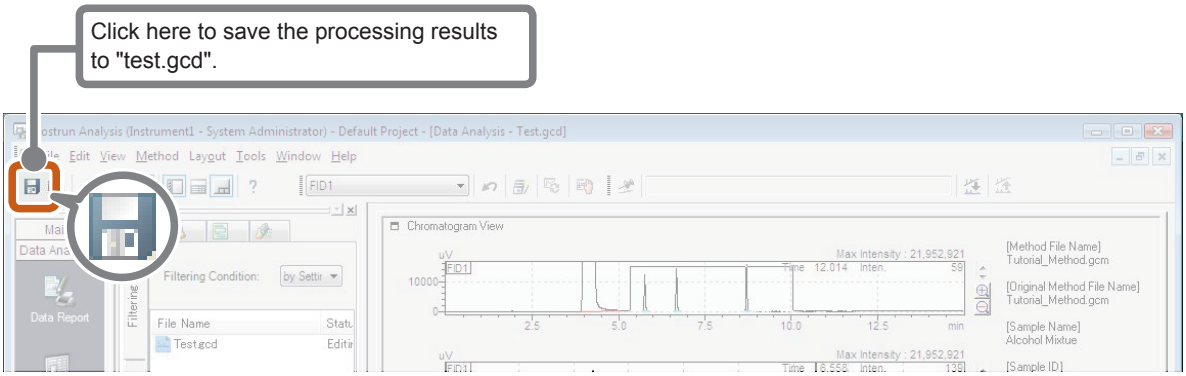
Hint

- The result obtained by performing data acquisition is used for [Ret. Time].
- Selecting the [Ret. Time] cell, and clicking the peak in [Chromatogram View] automatically enters the retention time of that peak to the currently selected [Ret. Time] cell. The retention time can be set by simply clicking the mouse.

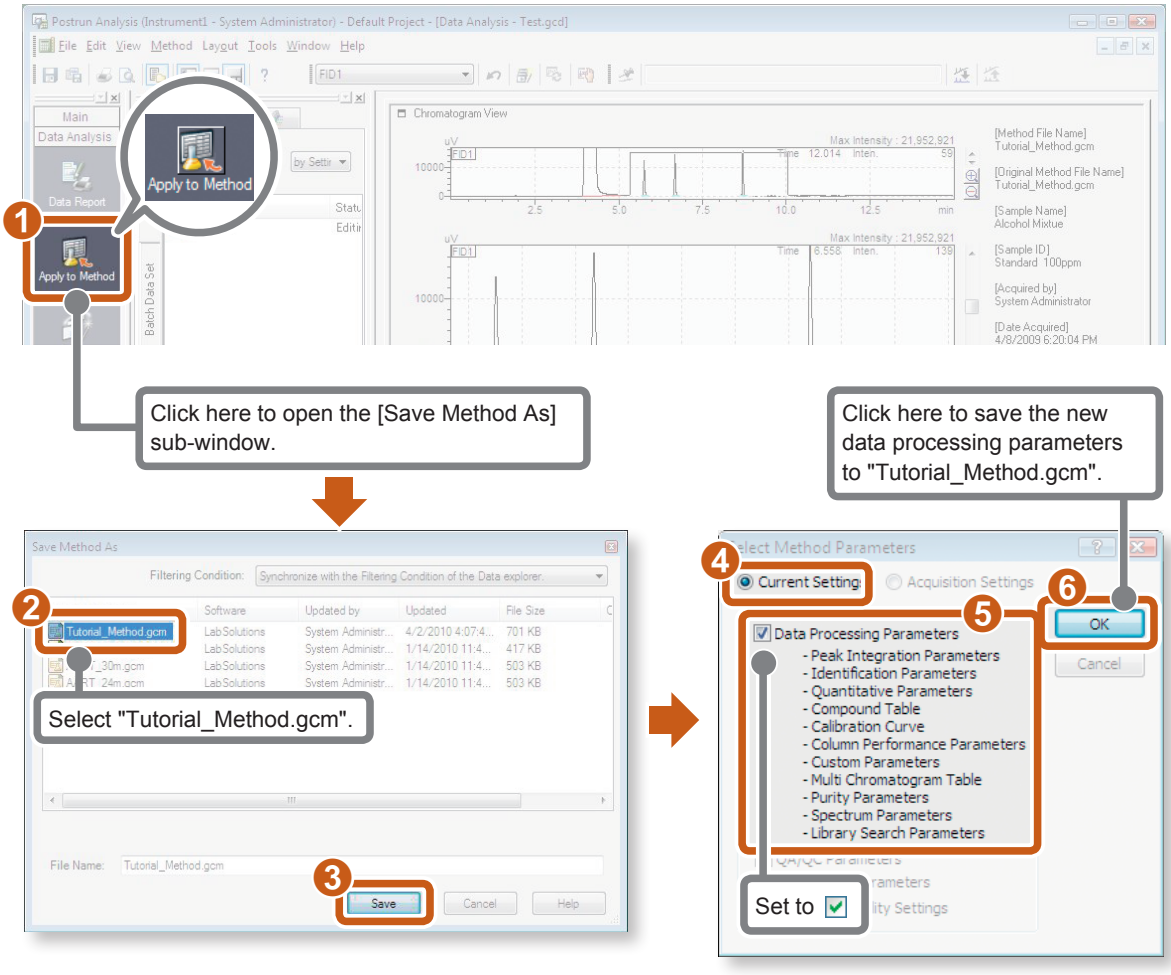
Reference Refer to "Compound Table Retention Times Using the Mouse" of the "Data Analysis" chapter in *Operators Guide* for details on setting retention times.

Continued on the following page

7 Save the processing results to a data file.



8 Save the method file.



Hint

To use saved data processing parameters for other data, perform either of the following operations to save the new data processing parameters to the method file (in this example, "Tutorial_Method.gcm").

- Click [Save Data and Method File] on the [File] menu.
- Click  (Apply to Method) on the [Data Analysis] assistant bar (operation in step *8* above).

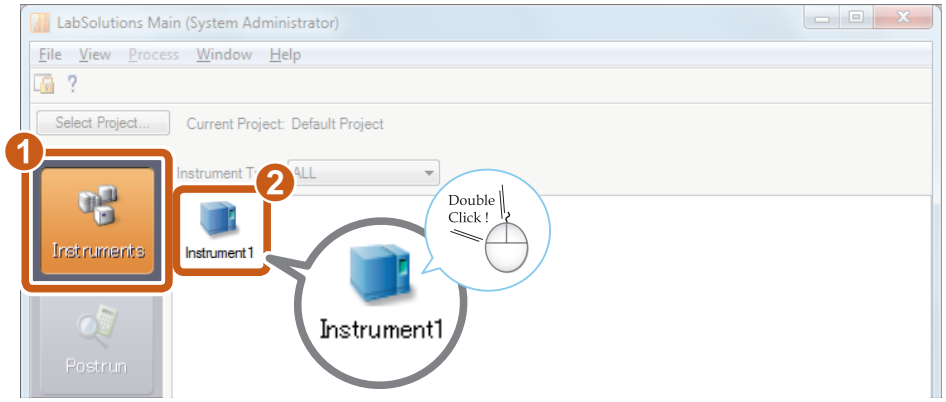
Chapter 5 Realtime Batch

To perform data acquisition continuously on multiple samples (realtime batch), a Batch Table must first be created. Batch Tables can be easily created by using the table easy setting feature of LabSolutions.

5.1 Create a Batch Table

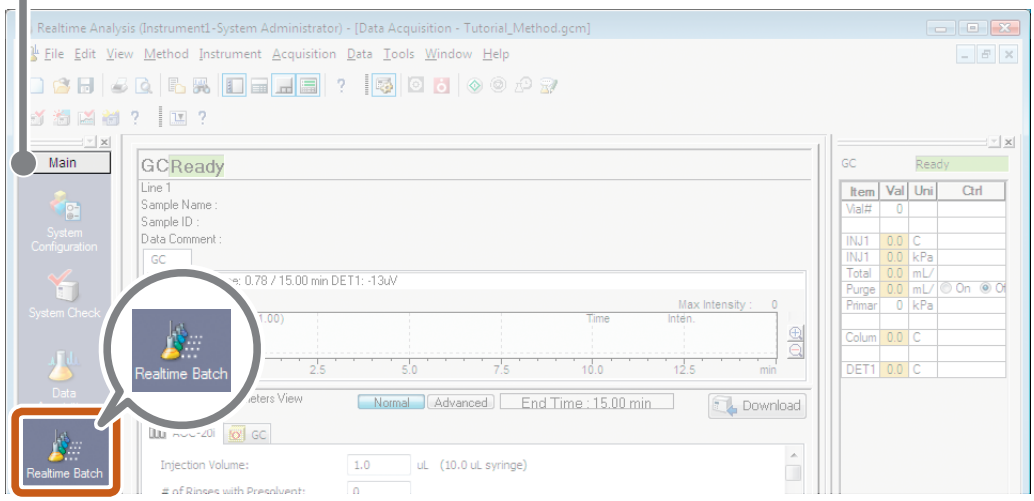
In the following example, create a Batch Table with standard samples set to 1st to 9th rows, and unknown samples set to the 10th and 11th rows.

1 Open the [Realtime Analysis] program.



2 Open the [Realtime Batch] window.

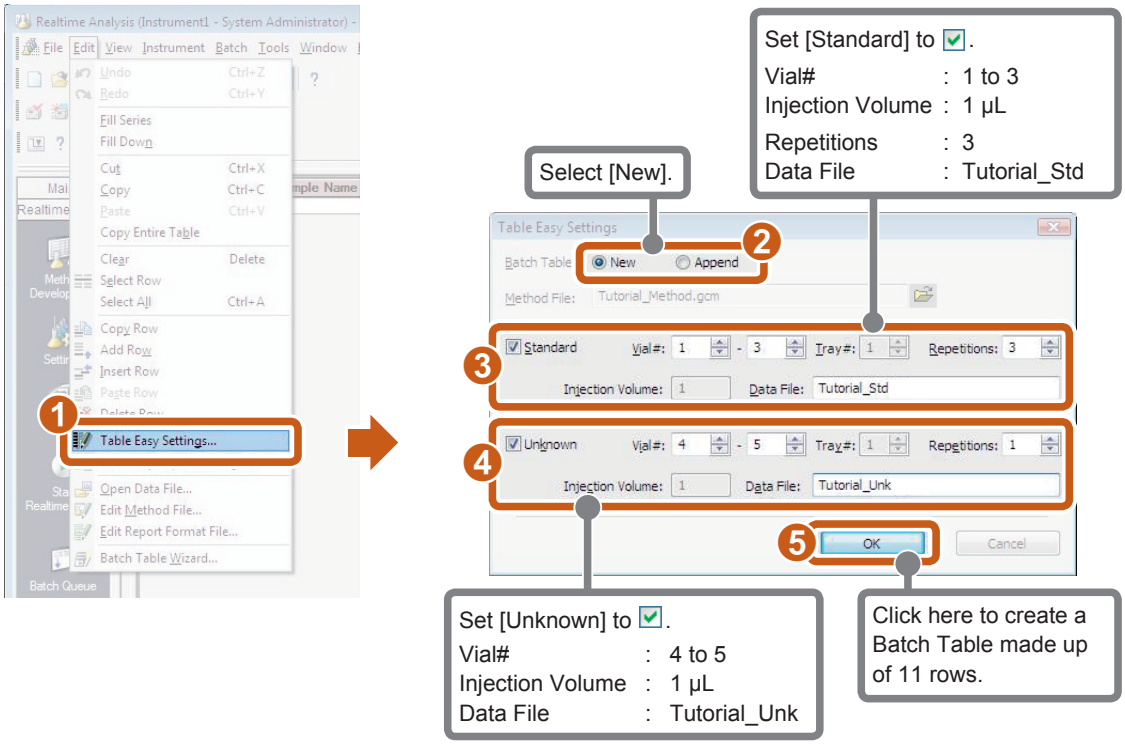
Hint Click here if the [Main] assistant bar is not displayed.

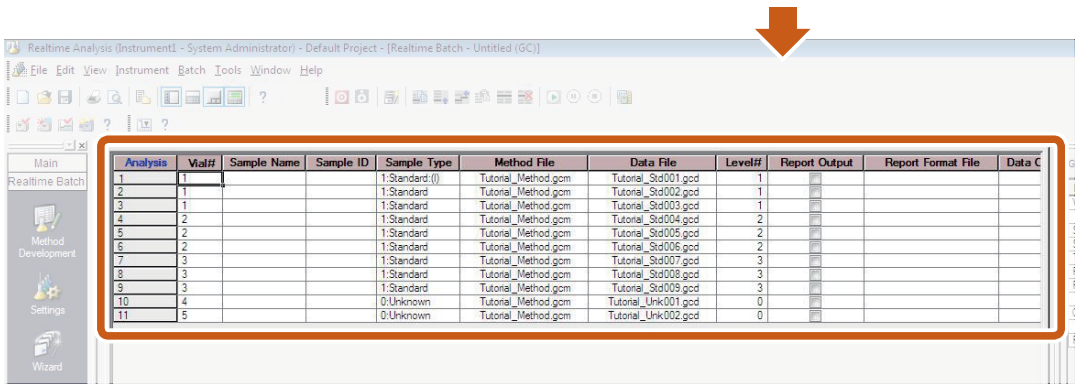


The [Realtime Batch] window opens.

Continued on the following page

3 Edit the Batch Table.





Hint

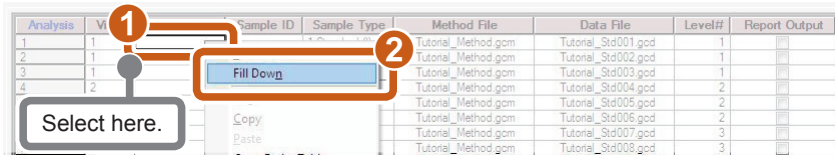
- In Batch Tables, you can set the sample information of each sample and output of reports.

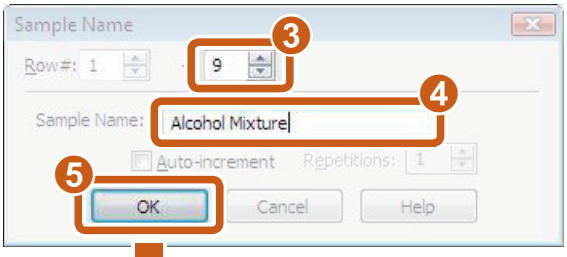
Reference

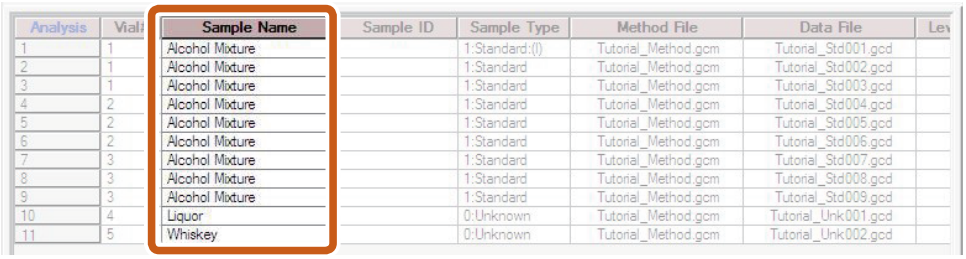
Refer to "Edit Batch Tables" of the "Realtime Batch" chapter, "Edit Batch Tables" of the "Calibration Curves" chapter in *Operators Guide* for details on the editing batch tables.

- When performing cleanup, enter "-1" in [Vial#] if the autosampler is used.

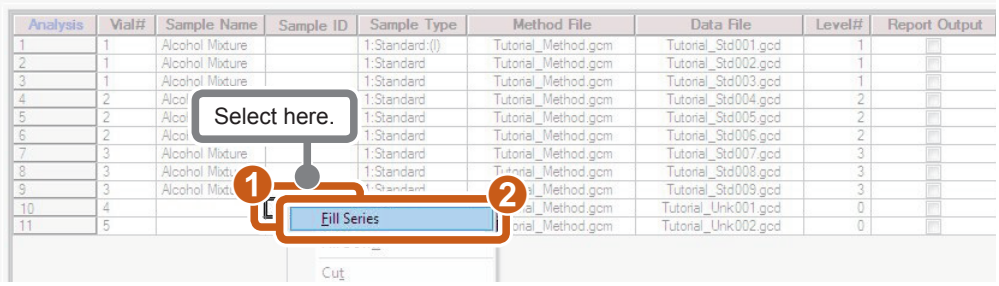
4 Copy a cell.

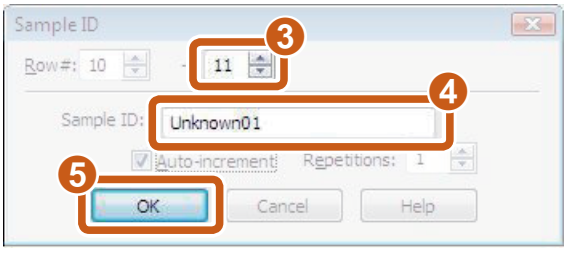


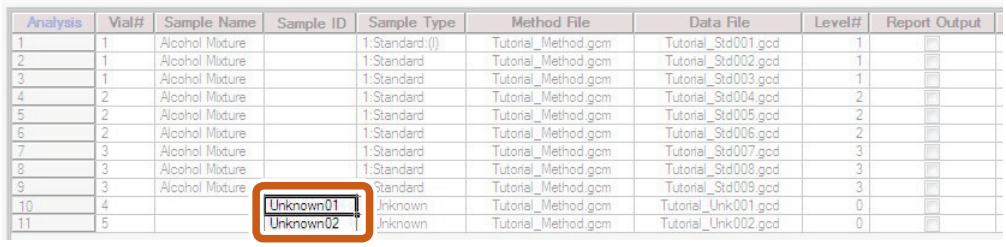




5 Enter a numbered series.





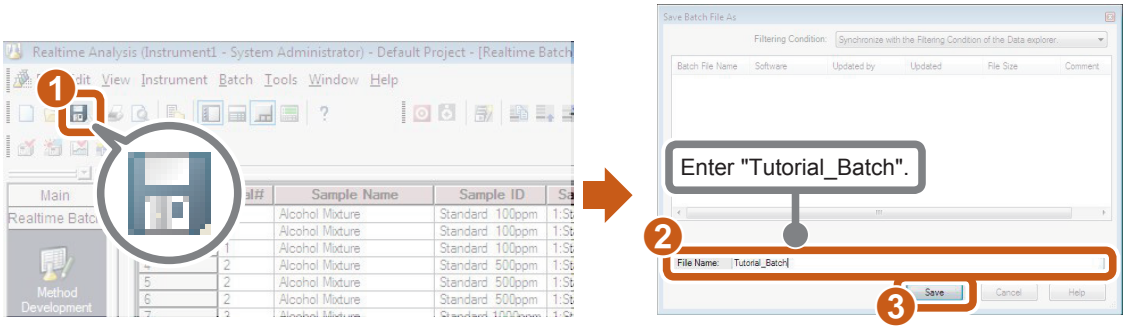


Continued on the following page

6 Directly enter remaining items to the Batch Table to create the Batch Table shown below.

Analysis	Vial#	Sample Name	Sample ID	Sample Type	Method File	Data File	Level#	Report Output	Report Format File	Data Comment
1	1	Alcohol Mixture	Standard_100ppm	1:Standard:(I)	Tutorial_Method.gcm	Tutorial_Std001.gcd	1	☑	PeakReport_1.lsr	
2	1	Alcohol Mixture	Standard_100ppm	1:Standard	Tutorial_Method.gcm	Tutorial_Std002.gcd	1	☑	PeakReport_1.lsr	
3	1	Alcohol Mixture	Standard_100ppm	1:Standard	Tutorial_Method.gcm	Tutorial_Std003.gcd	1	☑	PeakReport_1.lsr	
4	2	Alcohol Mixture	Standard_500ppm	1:Standard	Tutorial_Method.gcm	Tutorial_Std004.gcd	2	☑	PeakReport_1.lsr	
5	2	Alcohol Mixture	Standard_500ppm	1:Standard	Tutorial_Method.gcm	Tutorial_Std005.gcd	2	☑	PeakReport_1.lsr	
6	2	Alcohol Mixture	Standard_500ppm	1:Standard	Tutorial_Method.gcm	Tutorial_Std006.gcd	2	☑	PeakReport_1.lsr	
7	3	Alcohol Mixture	Standard_1000ppm	1:Standard	Tutorial_Method.gcm	Tutorial_Std007.gcd	3	☑	PeakReport_1.lsr	
8	3	Alcohol Mixture	Standard_1000ppm	1:Standard	Tutorial_Method.gcm	Tutorial_Std008.gcd	3	☑	PeakReport_1.lsr	
9	3	Alcohol Mixture	Standard_1000ppm	1:Standard	Tutorial_Method.gcm	Tutorial_Std009.gcd	3	☑	PeakReport_1.lsr	
10	4	Liquor	Unknown01	0:Unknown	Tutorial_Method.gcm	Tutorial_Unk001.gcd	0	☑	PeakReport_1.lsr	
11	5	Whiskey	Unknown02	0:Unknown	Tutorial_Method.gcm	Tutorial_Unk002.gcd	0	☑	PeakReport_1.lsr	

7 Save the batch file.

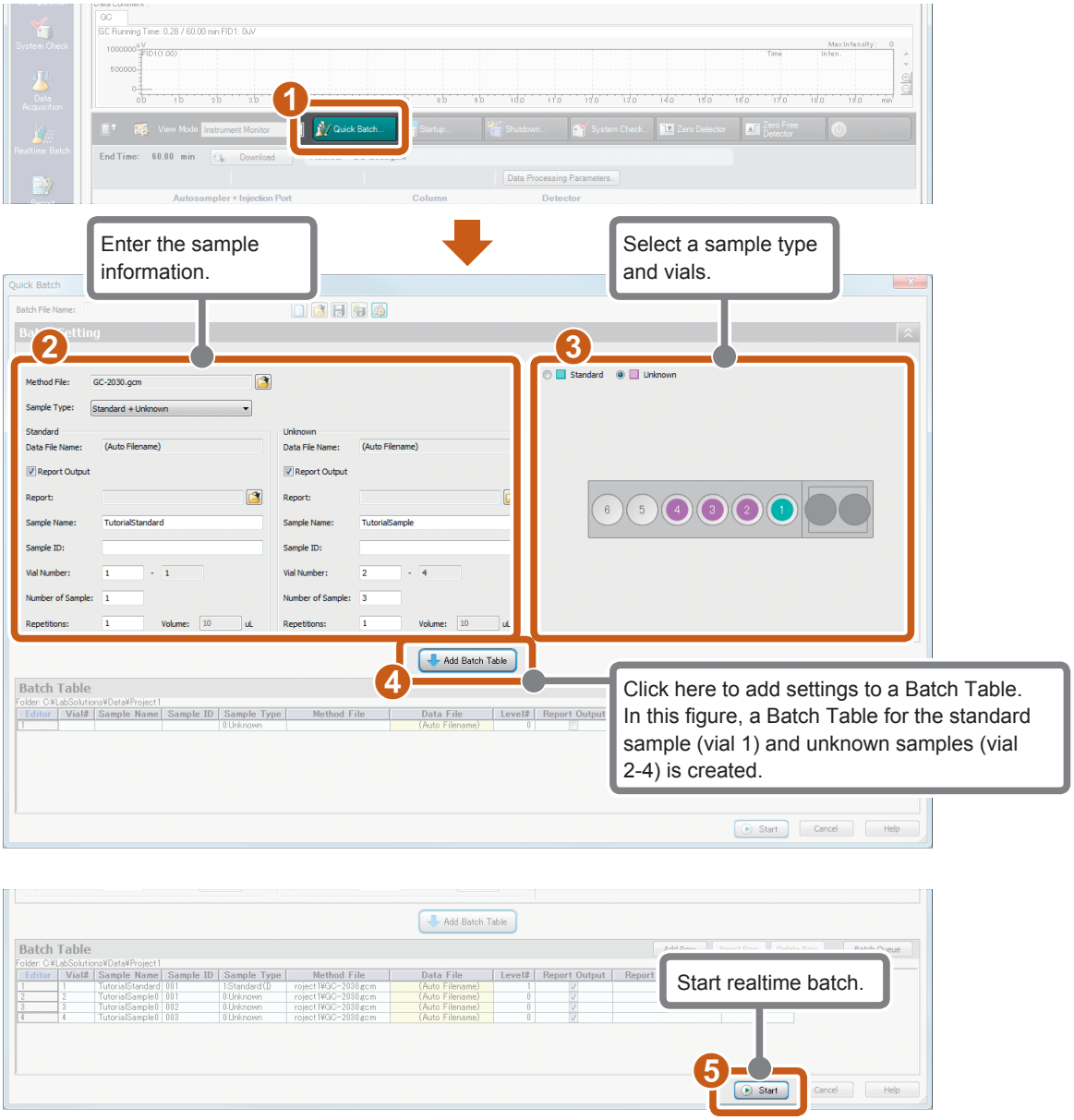


LabSolutions

SUPPLEMENT

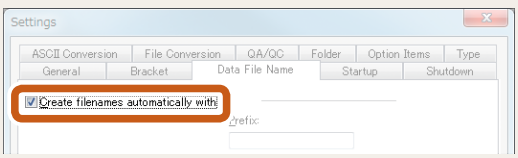
Create Batch Table Using Quick Batch

You can also create a Batch Table using quick batch.



Reference Refer to Helb for details on operations ando the applicable mobile.

Hint When [(Auto Filename)] is displayed in the [Data File Name] field, you cannot directly enter a data file name. To enter a data file name directly, click [Settings] in the [Quick Batch] sub-window. On the [Data File Name] tab page in the displayed [Settings] sub-window, clear the [Create filenames automatically with] checkbox.



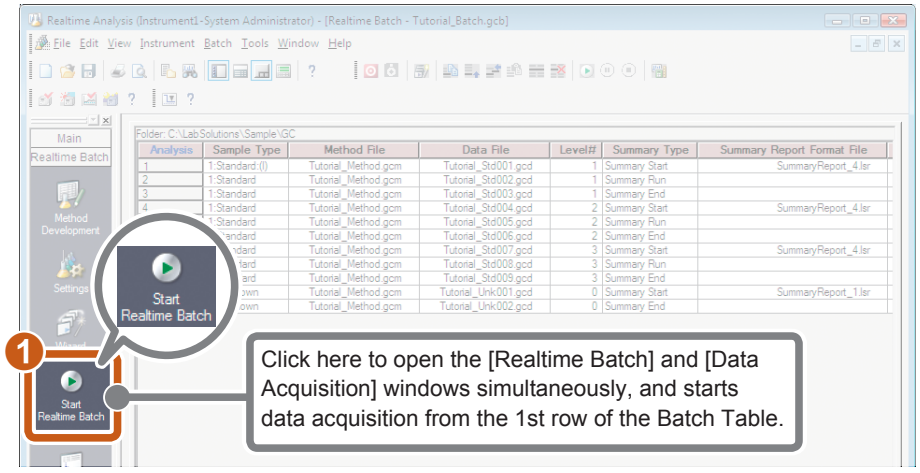
5.2 Realtime Batch Processing

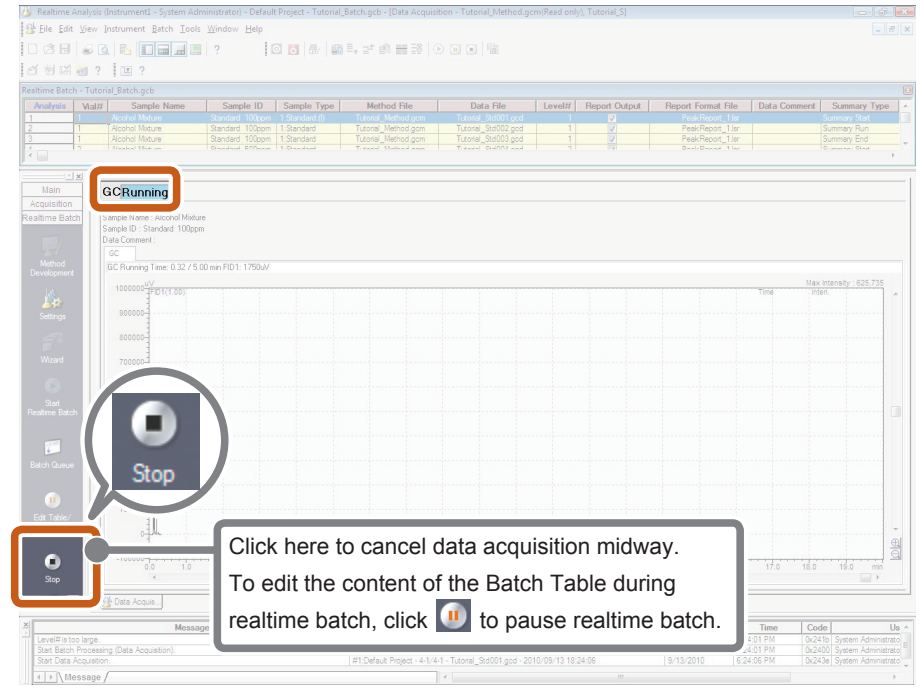
Execute realtime batch using the Batch Table you created.

1 Place the samples in the autosampler.

Vial 1 (level 1)	Alcohol mixed sample	100 ppm solution (standard solution)
Vial 2 (level 2)	Alcohol mixed sample	500 ppm solution (standard solution)
Vial 3 (level 3)	Alcohol mixed sample	1000 ppm solution (standard solution)
Vial 4	Liquor (unknown sample)	
Vial 5	Whiskey (unknown sample)	

2 Start realtime batch processing.

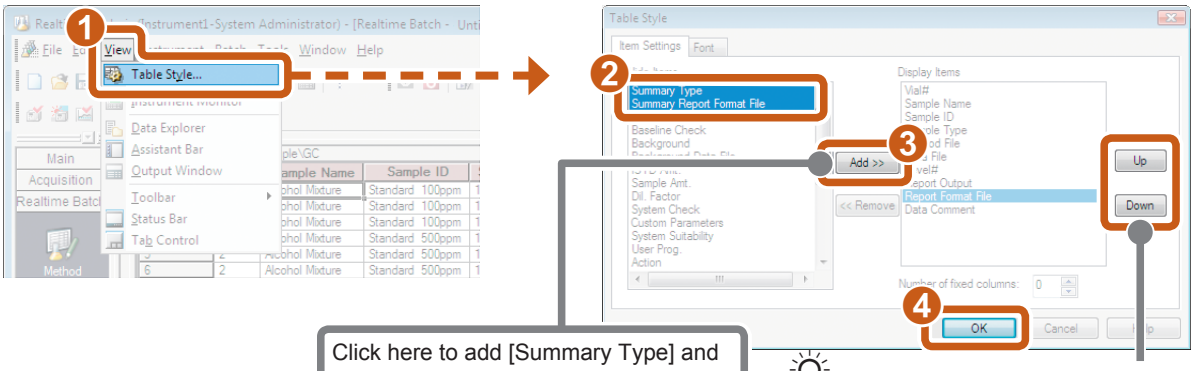




LabSolutions SUPPLEMENT

Print a Summary Report

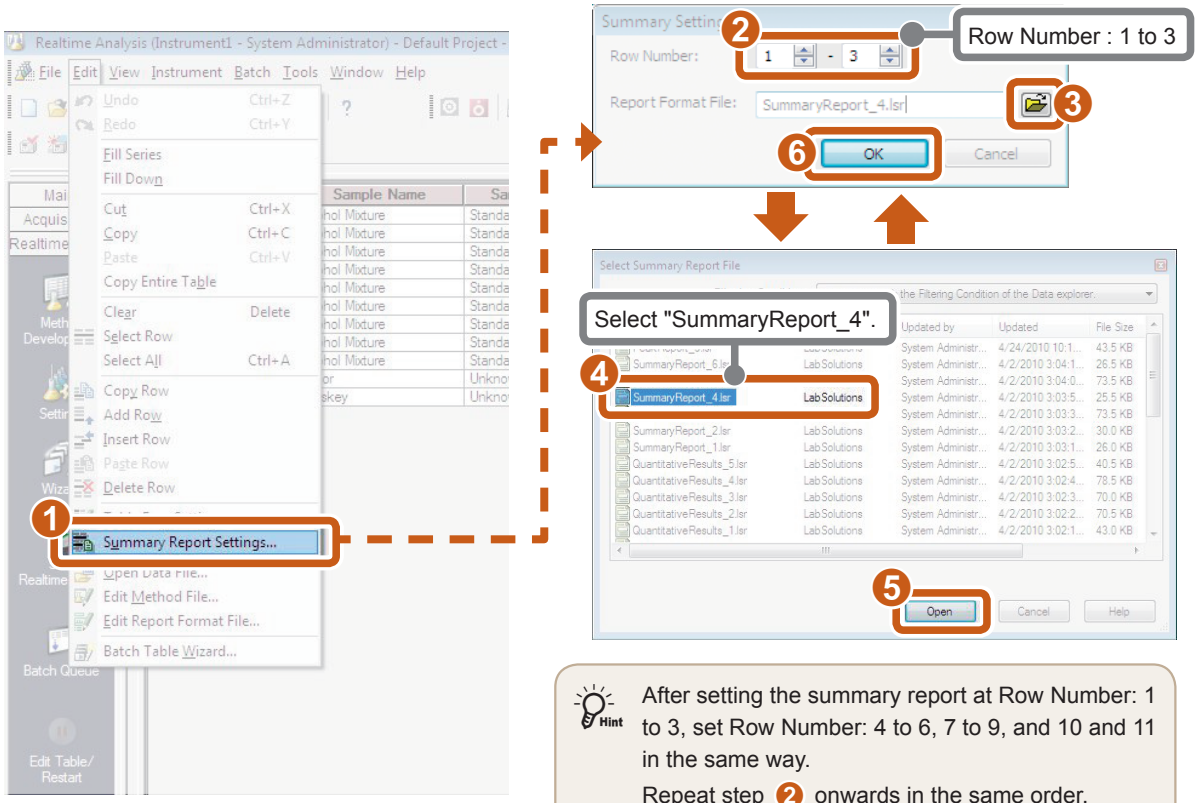
1 Add items to display in the Batch Table.



Click here to add [Summary Type] and [Summary Report Format File] to the items to display in the Batch Table.

Hint The order of display items in the Batch Table can be changed by clicking [Up] or [Down].

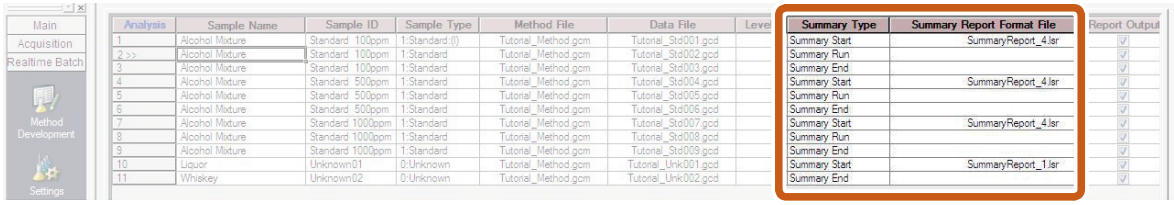
2 Set up the summary report.



Hint After setting the summary report at Row Number: 1 to 3, set Row Number: 4 to 6, 7 to 9, and 10 and 11 in the same way.
Repeat step 2 onwards in the same order.

Continued on the following page

3 Check the output configuration of the summary report.



When you have finished the output configuration of the summary report, execute realtime batch to print the summary report.

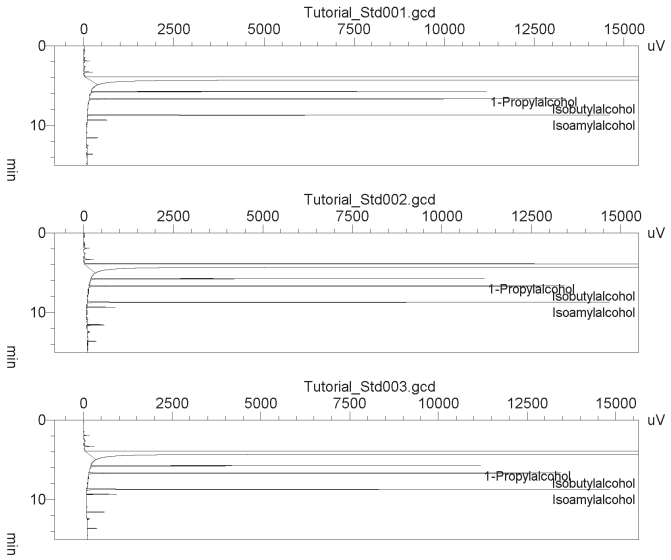
Reference Refer to "5.2 Realtime Batch Processing" P.40 for details on executing realtime batch.

[Printout Example]

Standard samples

==== Shimadzu LabSolutions Summary Report ====

<Summary Report>



<< FID1 >>

ID#1 Compound Name: 1-Propylalcohol

Data File Name	Sample Name	Sample ID	Ret. Time	Area	Height	Conc.
Tutorial_Std001.gcd	Alcohol Mixture	Standard_100ppm	5.743	25526	10934	100.000
Tutorial_Std002.gcd	Alcohol Mixture	Standard_100ppm	5.751	25804	10923	100.542
Tutorial_Std003.gcd	Alcohol Mixture	Standard_100ppm	5.750	25768	10810	100.268
Average			5.748	25700	10889	100.270
%RSD			0.075	0.589	0.630	0.271

ID#2 Compound Name: Isobutylalcohol

Data File Name	Sample Name	Sample ID	Ret. Time	Area	Height	Conc.
Tutorial_Std001.gcd	Alcohol Mixture	Standard_100ppm	6.664	31725	13122	100.000
Tutorial_Std002.gcd	Alcohol Mixture	Standard_100ppm	6.673	32067	13194	100.536
Tutorial_Std003.gcd	Alcohol Mixture	Standard_100ppm	6.671	32162	13252	100.555
Average			6.669	31985	13189	100.364
%RSD			0.068	0.719	0.493	0.314

ID#3 Compound Name: Isoamylalcohol

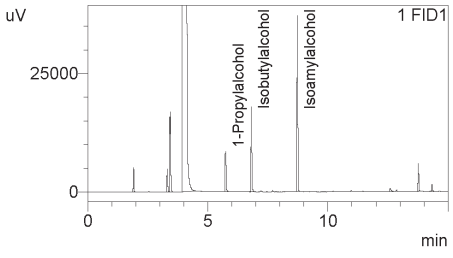
Data File Name	Sample Name	Sample ID	Ret. Time	Area	Height	Conc.
Tutorial_Std001.gcd	Alcohol Mixture	Standard_100ppm	8.696	31972	14335	100.000
Tutorial_Std002.gcd	Alcohol Mixture	Standard_100ppm	8.704	32338	14359	100.568
Tutorial_Std003.gcd	Alcohol Mixture	Standard_100ppm	8.702	32270	14653	100.239
Average			8.701	32193	14449	100.269
%RSD			0.048	0.604	1.228	0.284

Unknown samples

==== Shimadzu LabSolutions Summary Report ====

Sample Name : Liquor
Sample ID : Unknown01
Data Filename : Tutorial_Unk001.gcd
Method Filename : Tutorial_Method.gcm
Batch Filename : Tutorial_Batch.gcb
Vial # : 1-4
Injection Volume : 1 uL
Date Acquired : 4/9/2009 2:33:04 AM
Date Processed : 7/13/2010 2:24:41 PM

Sample Type : Unknown
Acquired by : System Administrator
Processed by : System Administrator



FID1

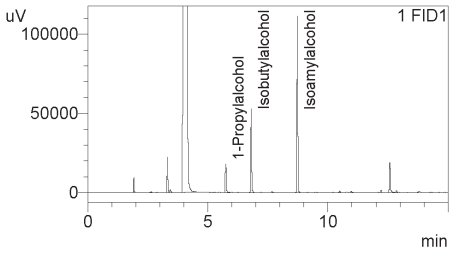
Peak#	Ret. Time	Area	Height	ID#
1	1.900	7737	5018	
2	3.299	10799	4830	
3	3.426	41993	16732	
4	4.080	42735188	8790611	
5	5.733	20659	8448	1
6	6.802	45081	17880	2
7	8.722	90812	36867	3
8	12.596	2747	680	
9	13.766	14329	5873	
10	14.336	3850	1453	
Total		42973196	8888393	

FID1

ID#	Name	Conc.	Unit
1	1-Propylalcohol	85.137	ppm
2	Isobutylalcohol	143.676	ppm
3	Isoamylalcohol	277.442	ppm

Sample Name : Whiskey
Sample ID : Unknown02
Data Filename : Tutorial_Unk002.gcd
Method Filename : Tutorial_Method.gcm
Batch Filename : Tutorial_Batch.gcb
Vial # : 1-5
Injection Volume : 1 uL
Date Acquired : 4/9/2009 2:54:45 AM
Date Processed : 7/13/2010 2:24:42 PM

Sample Type : Unknown
Acquired by : System Administrator
Processed by : System Administrator



FID1

Peak#	Ret. Time	Area	Height	ID#
1	1.908	16371	9651	
2	2.632	1945	989	
3	3.305	49735	22059	
4	3.438	5679	1993	
5	4.118	64884225	11137946	
6	5.742	43193	17713	1
7	6.798	126351	52765	2
8	7.684	1424	666	
9	8.726	263828	110858	3
10	10.489	2765	1054	
11	10.983	2300	893	
12	12.223	2935	1336	
13	12.585	47370	18734	
14	12.869	2493	1116	
15	13.773	1625	623	
Total		65452236	11378396	

FID1

ID#	Name	Conc.	Unit
1	1-Propylalcohol	168.318	ppm
2	Isobutylalcohol	394.559	ppm

ID#	Name	Conc.	Unit
3	Isoamylalcohol	791.143	ppm

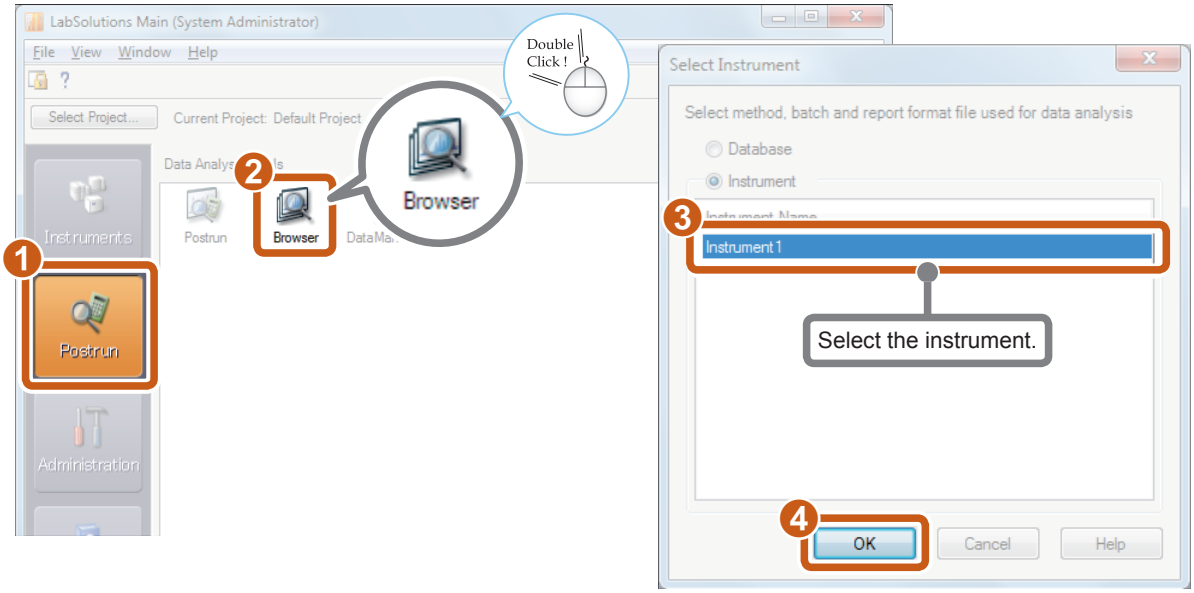
Chapter 6

Multiple Data Analysis

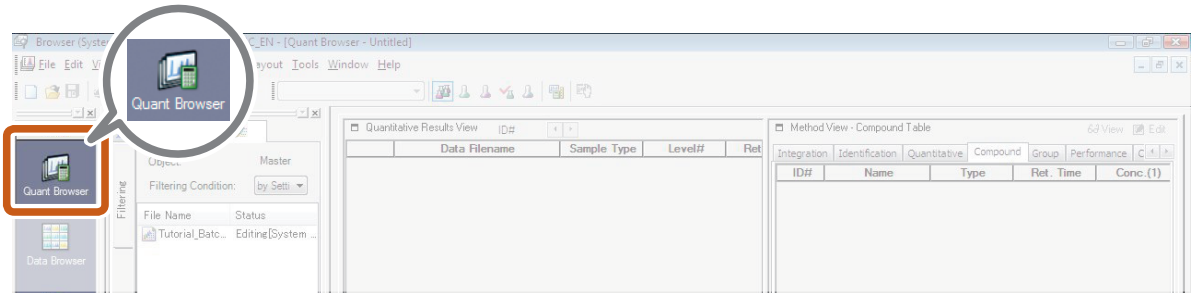
The LabSolutions [Browser] program is handy for checking the quantitative calculation results and chromatograms of multiple data.
In the [Quant Browser] window of the [Browser] program, you can check multiple data, and change the data processing parameters of the currently displayed method file to modify calibration curves and perform postrun batch on multiple data.

Reference Refer to "Quant Browser" chapter in *Operators Guide* for details on the "Quant Browser" window.

1 Open the [Browser] program.

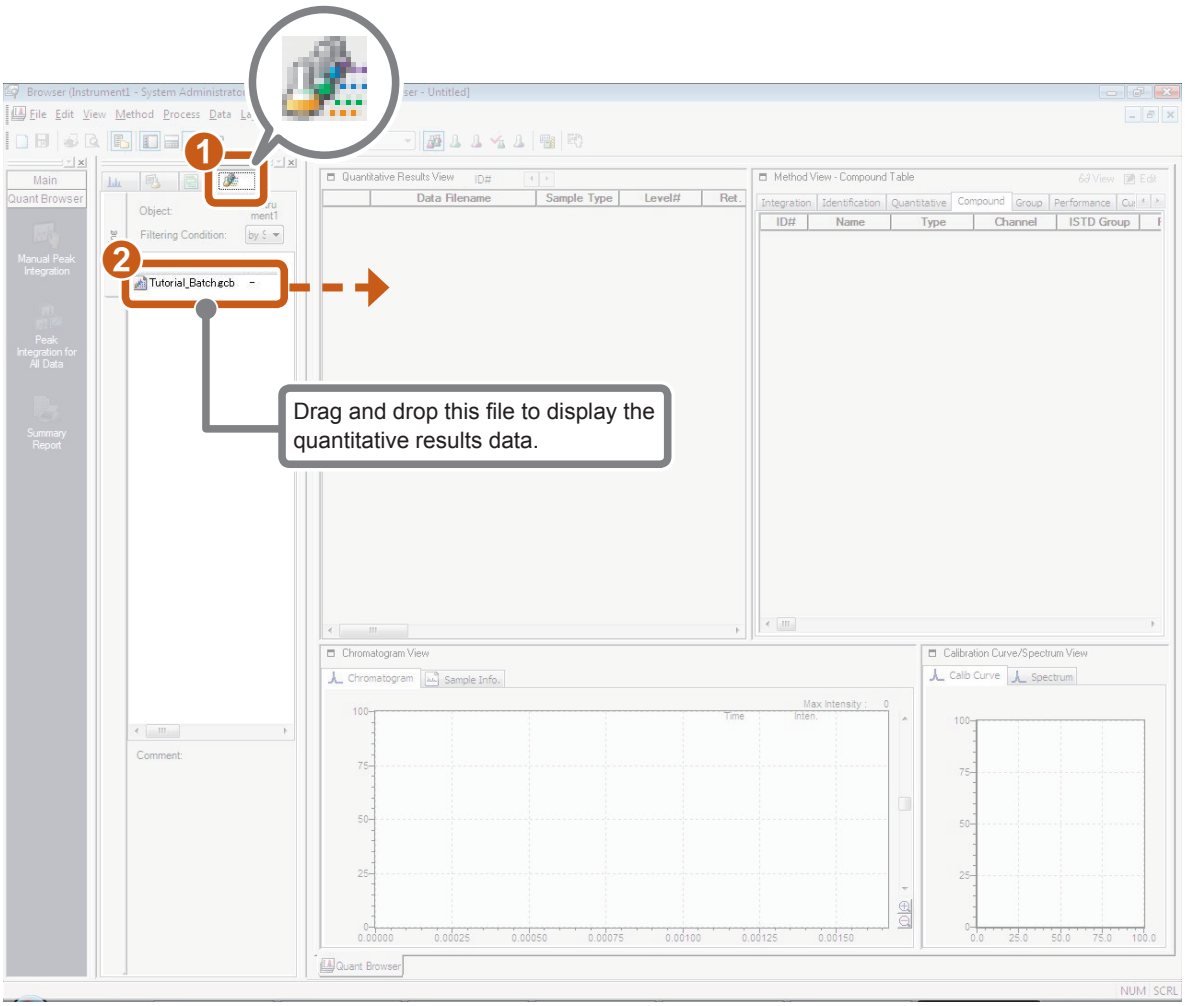


2 Open the [Quant Browser] window.



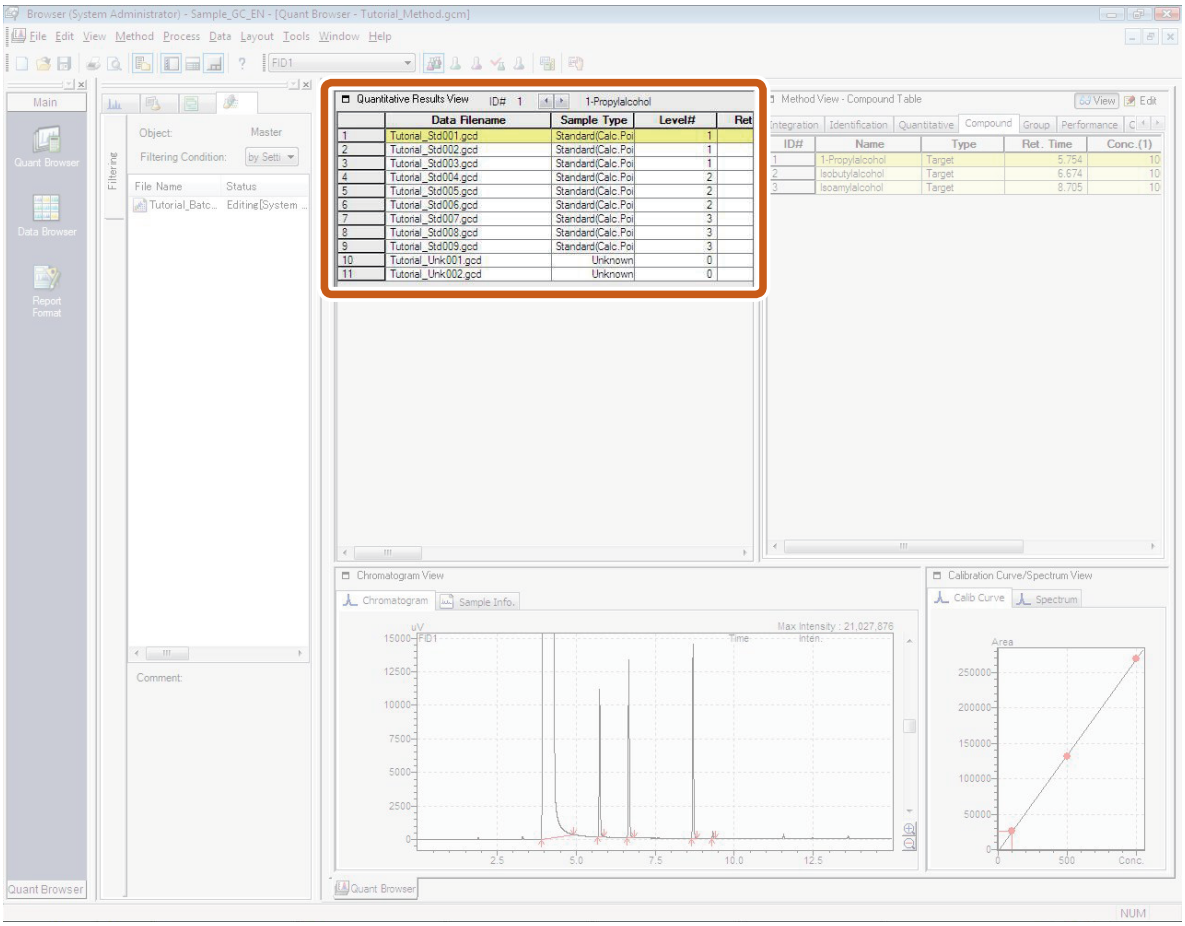
Open the [Quant Browser] window.

3 Load the batch file.



Continued on the following page

4 Confirm quantitative results.

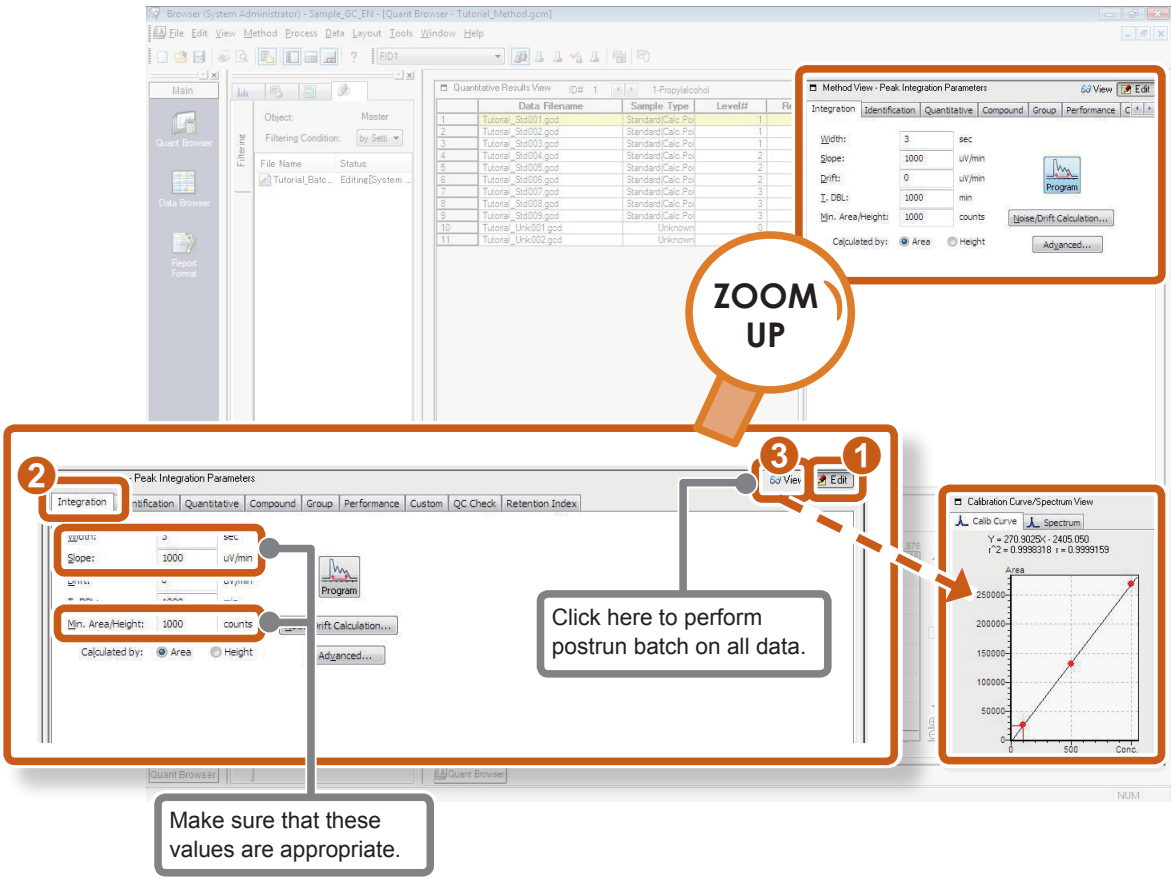


LabSolutions SUPPLEMENT

Modify Calibration Curves

1 Confirm peak integration parameters.

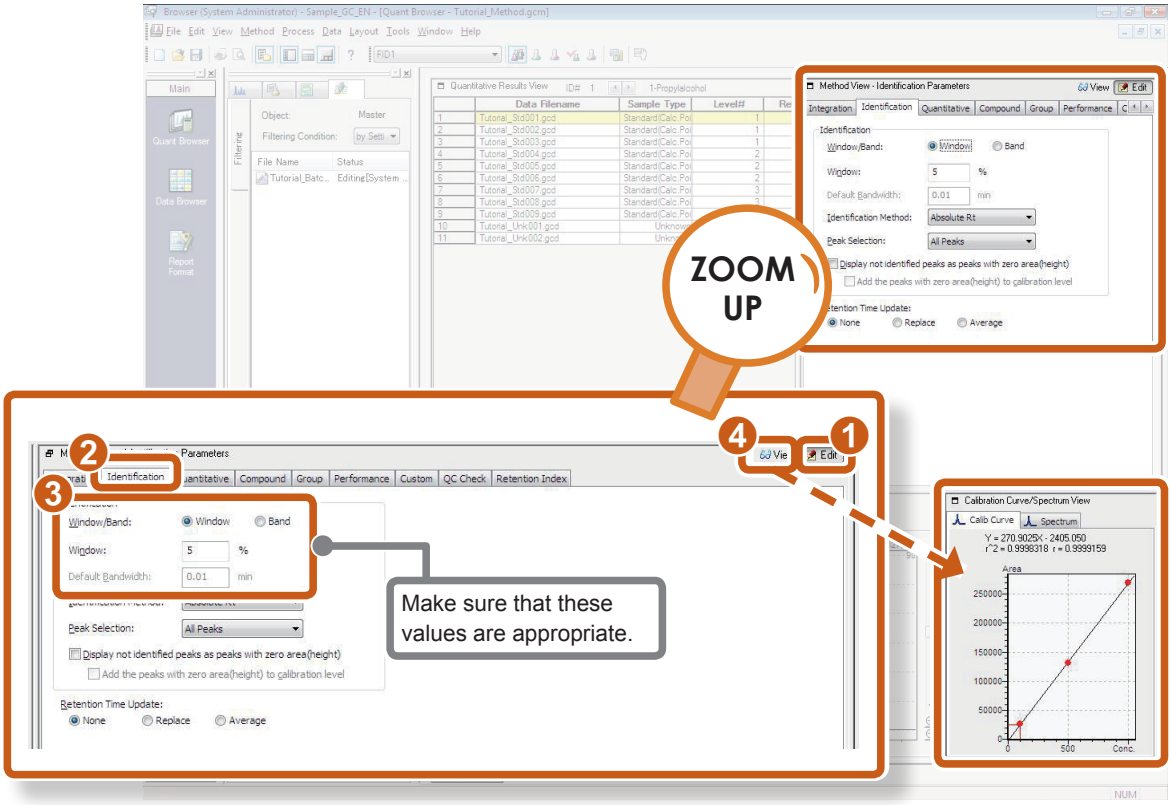
Confirm the peak integration parameters when peak detection is inappropriate.



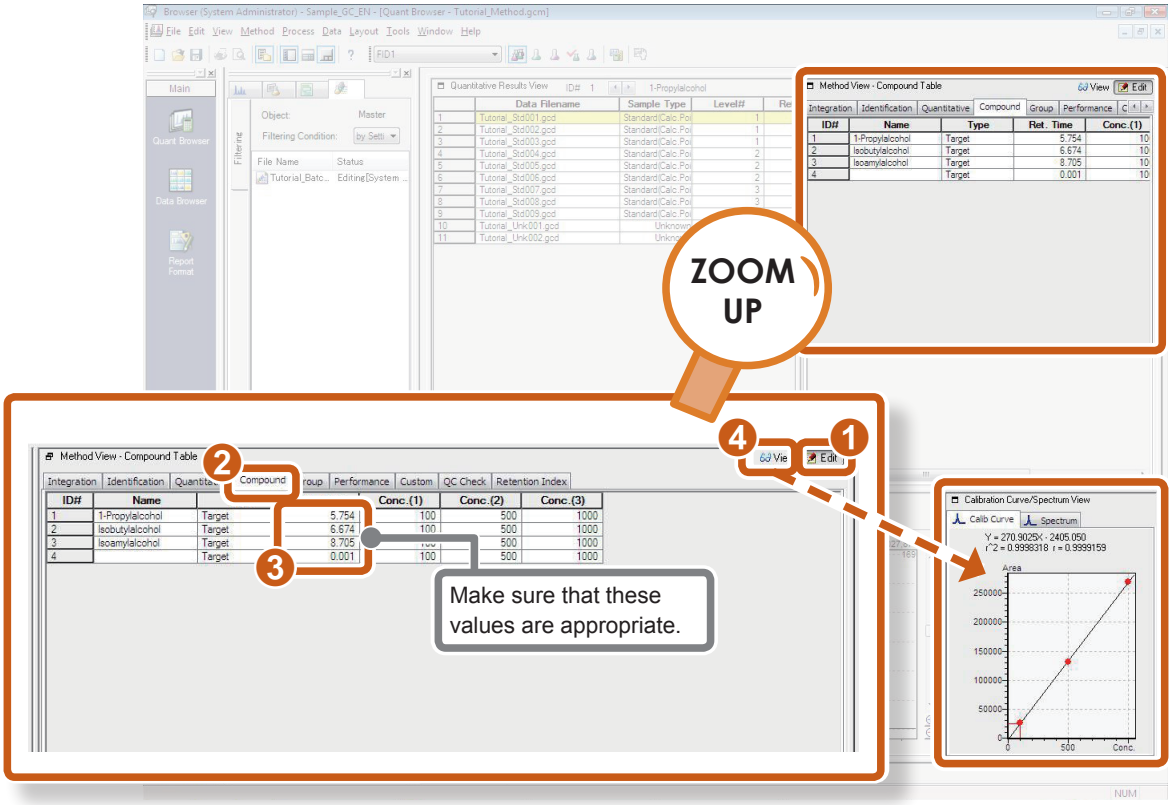
Continued on the following page

2 Confirm identification parameters.

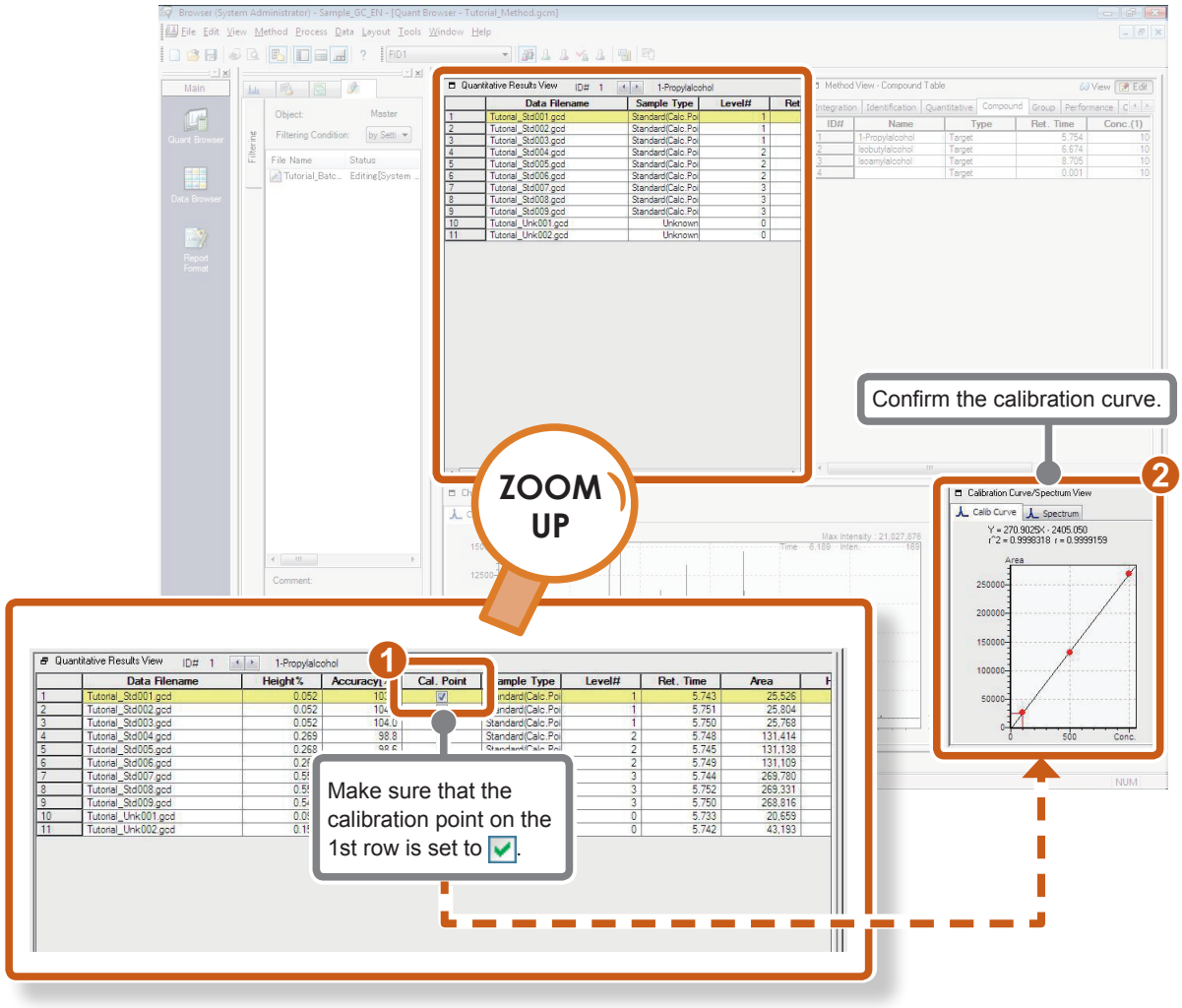
Confirm the identification parameters and Compound Table when peaks are not identified correctly.



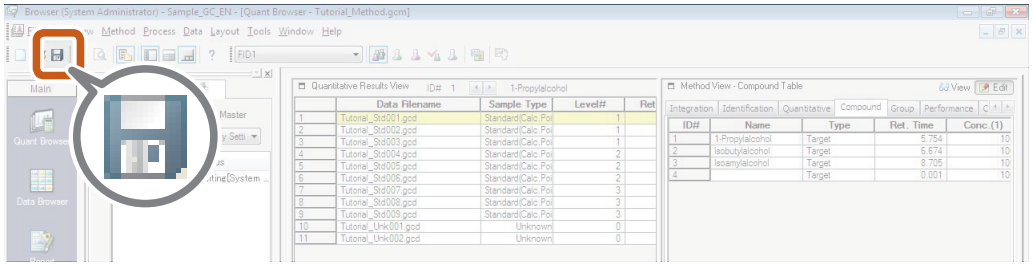
3 Confirm the Compound Table.



4 Confirm calibration points.



5 Save the method file and data file.

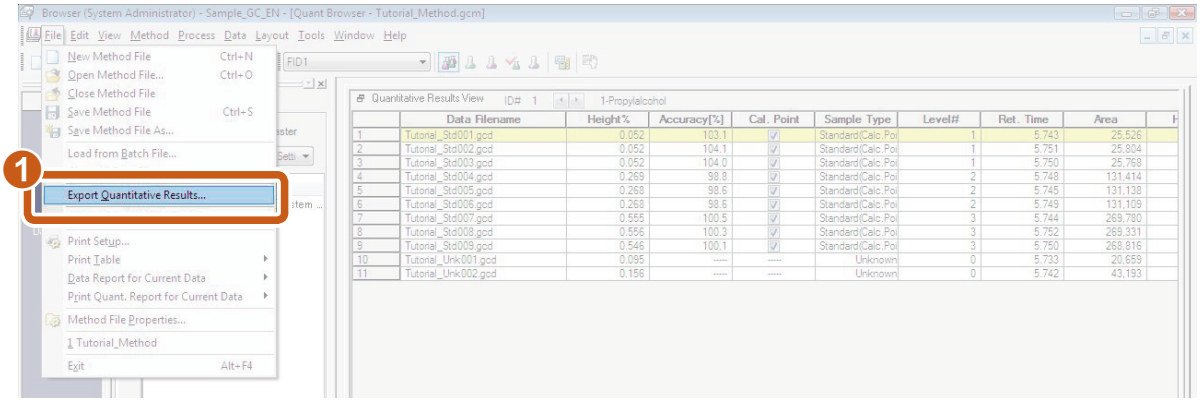


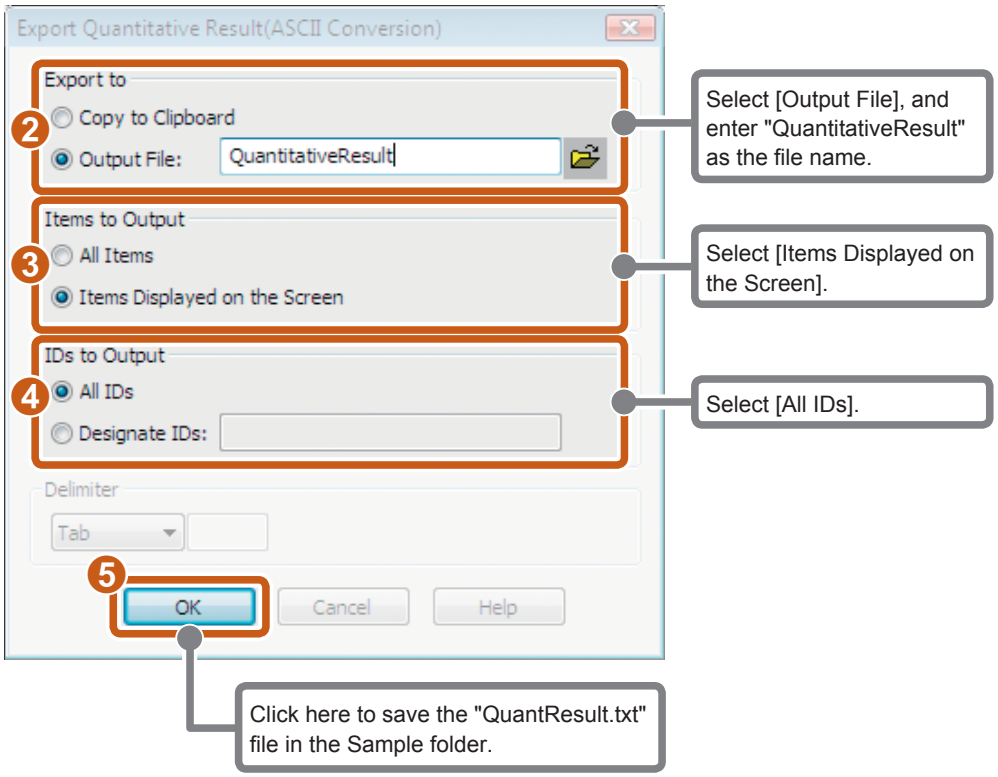
LabSolutions

SUPPLEMENT

Export Quantitative Calculation Results

This section describes how to save quantitative calculation results as a text file.





Select [Output File], and enter "QuantitativeResult" as the file name.

Select [Items Displayed on the Screen].

Select [All IDs].

Click here to save the "QuantResult.txt" file in the Sample folder.

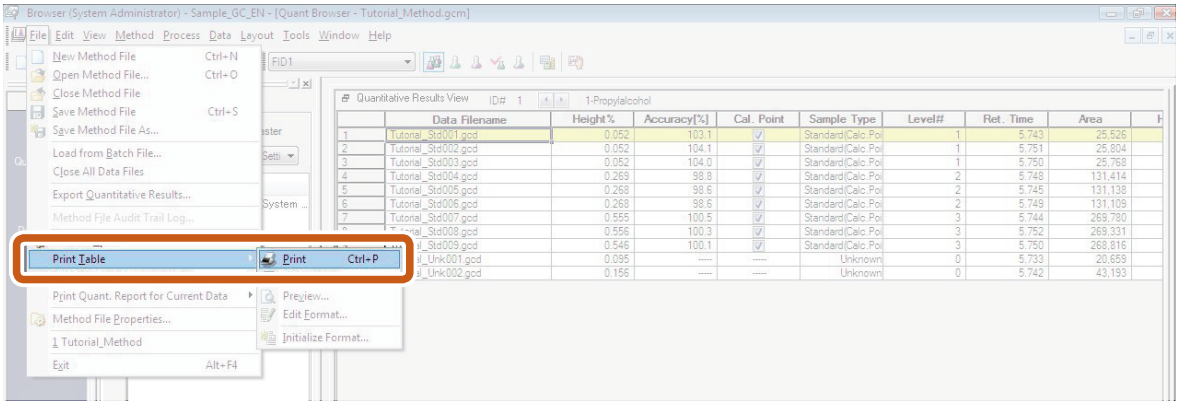
Reference Refer to "Export the Quantitative Results" of the "Quant Browser" chapter in *Operators Guide* for details on exporting quantitative results.

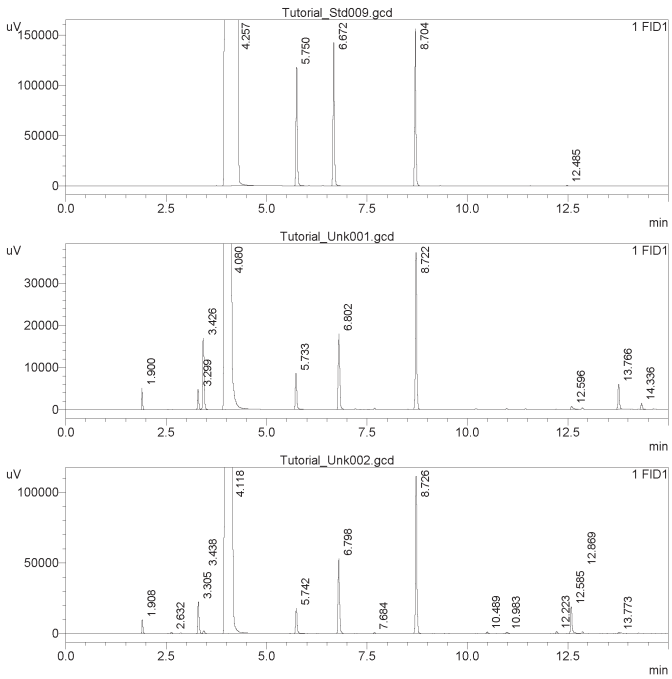
LabSolutions

SUPPLEMENT

Print the Quantitative Results Table

To print a browser report, select [Print] at [Print Table] on the [File] menu.





<< FID1 >>
ID#1 Compound Name: 1-Propylalcohol

Data File Name	Sample Name	Sample ID	Ret. Time	Area	Height	Conc.
Tutorial_Std001.gcd	Alcohol Mixture	Standard 100ppr	5.743	25526	10934	103.103
Tutorial_Std002.gcd	Alcohol Mixture	Standard 100ppr	5.751	25804	10923	104.131
Tutorial_Std003.gcd	Alcohol Mixture	Standard 100ppr	5.750	25768	10810	103.999
Tutorial_Std004.gcd	Alcohol Mixture	Standard 500ppr	5.748	131414	56785	493.976
Tutorial_Std005.gcd	Alcohol Mixture	Standard 500ppr	5.745	131138	56542	492.957
Tutorial_Std006.gcd	Alcohol Mixture	Standard 500ppr	5.749	131109	56645	492.848
Tutorial_Std007.gcd	Alcohol Mixture	Standard 1000pp	5.744	269780	118063	1004.735
Tutorial_Std008.gcd	Alcohol Mixture	Standard 1000pp	5.752	269331	117871	1003.076
Tutorial_Std009.gcd	Alcohol Mixture	Standard 1000pp	5.750	268816	116155	1001.176
Tutorial_Unk001.gcd	Liquor	Unknown01	5.733	20659	8448	85.137
Tutorial_Unk002.gcd	Whiskey	Unknown02	5.742	43193	17713	168.318
Average			5.746	122049	52808	459.405
%RSD			0.096	85.800	86.819	84.141
Maximum			5.752	269780	118063	1004.735
Minimum			5.733	20659	8448	85.137
Standard Deviation			0.006	104717	45847	386.550

Hint

Select [Edit Format] from [Print Table] on the [File] menu to edit the report format.

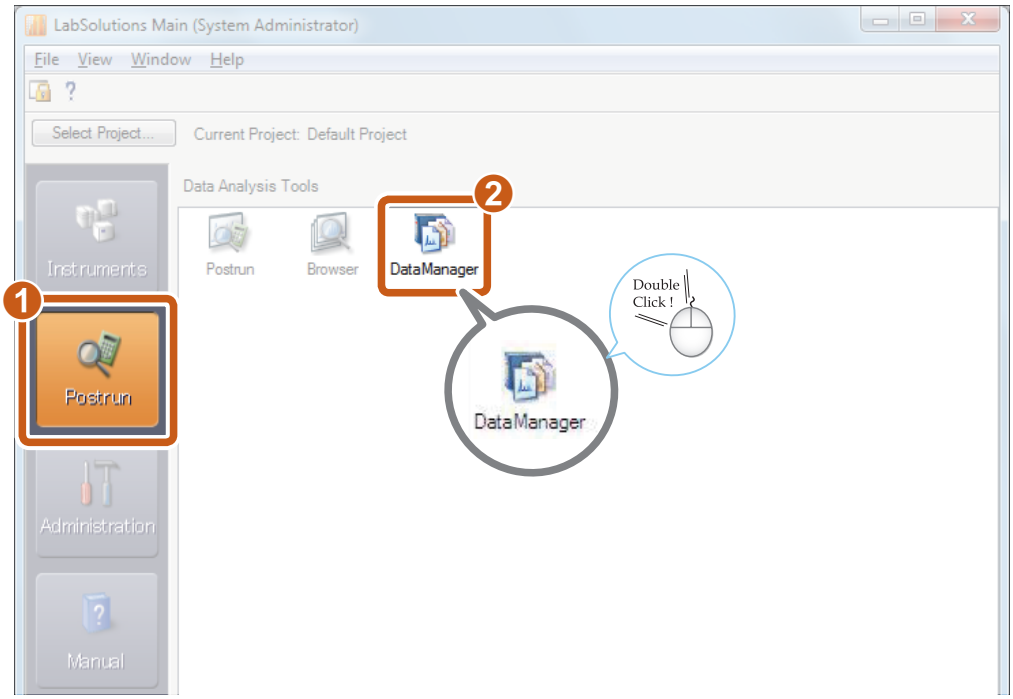
Chapter 7

Data Management

The [DataManager] program in LabSolutions provides a convenient way to filter and view the files used by LabSolutions, which include data files, method files, batch files, and report format files, by specifying filtering conditions, such as the instrument name.

Reference Refer to the *System Users Guide* for details on the [DataManager] window.

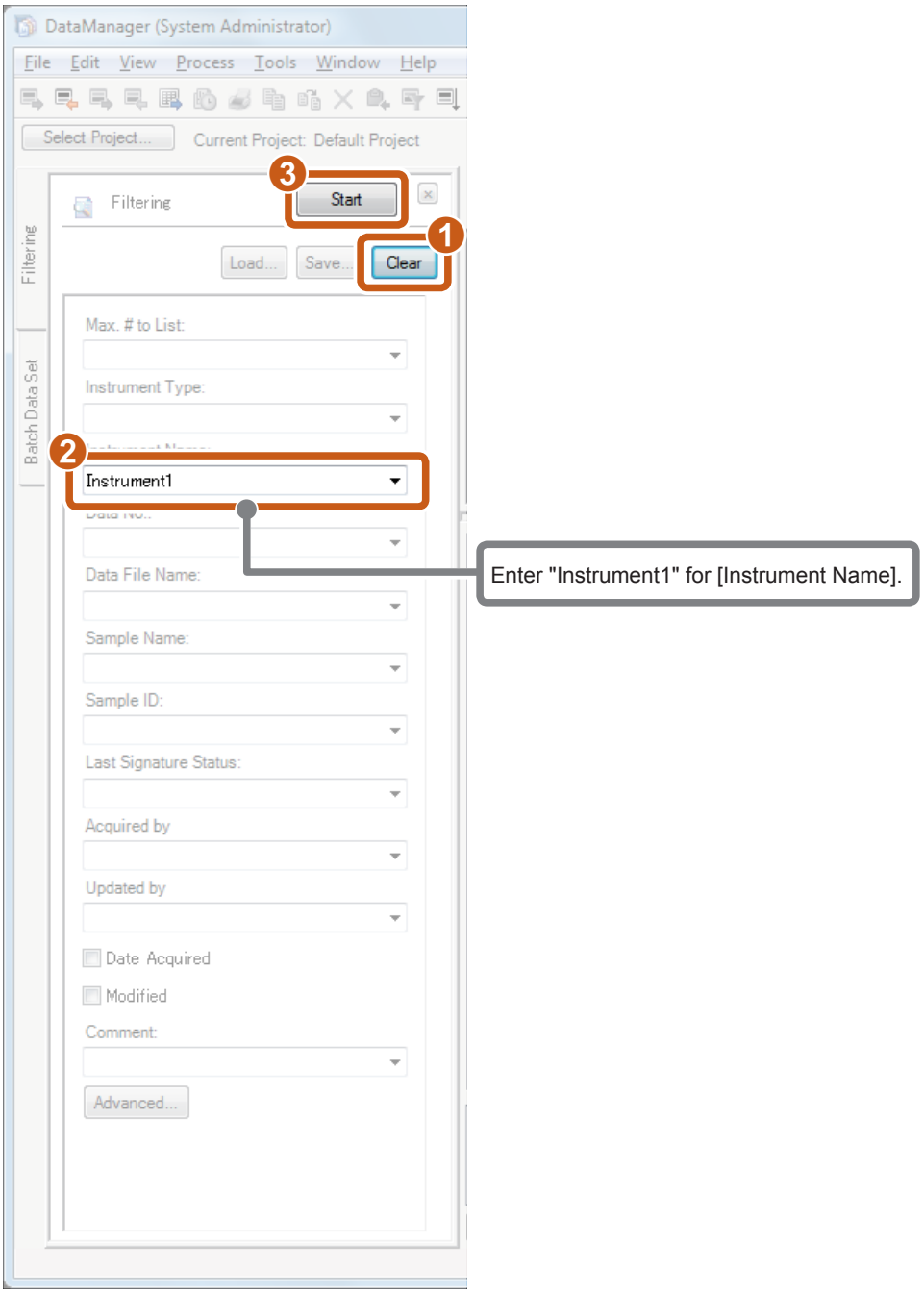
1 Open the [DataManager] program.



2 Select [Data] for [Files of type].

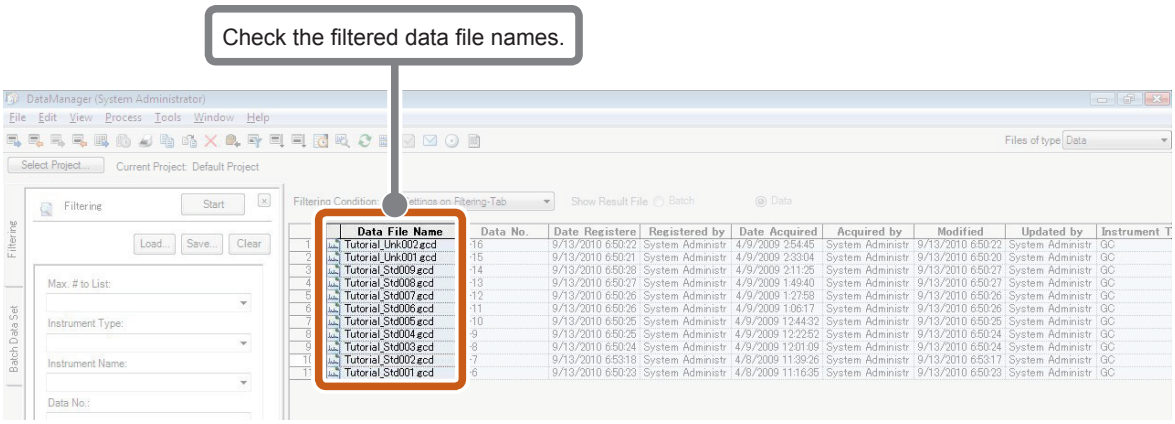
Hint The Data Manager can be used to view information on methods, batches, and report format files.
To view such information, clicking on [Show Method/Batch/Report Format in Database] in the [Tools] menu allows you to select method, batch, or report for [Files of type].

3 Filter the data using the [Instrument Name] condition.

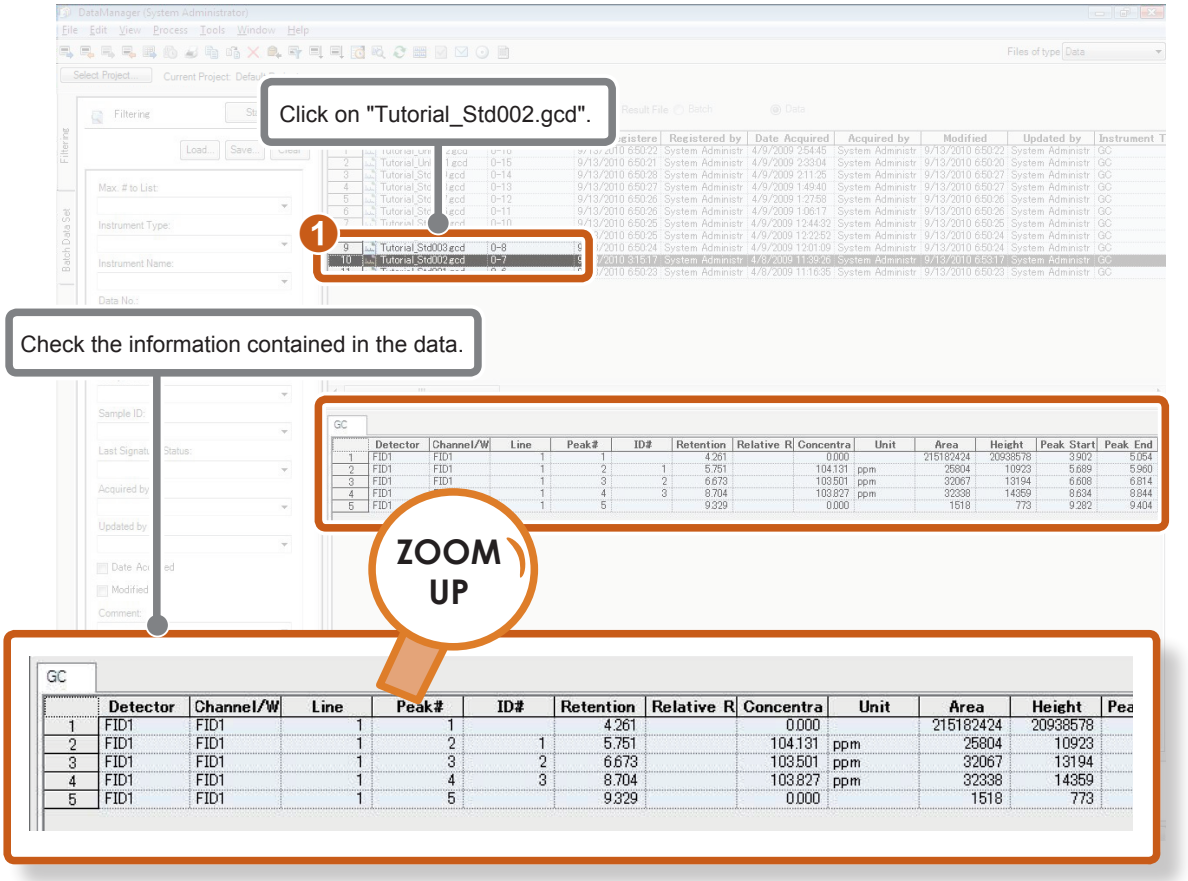


Continued on the following page

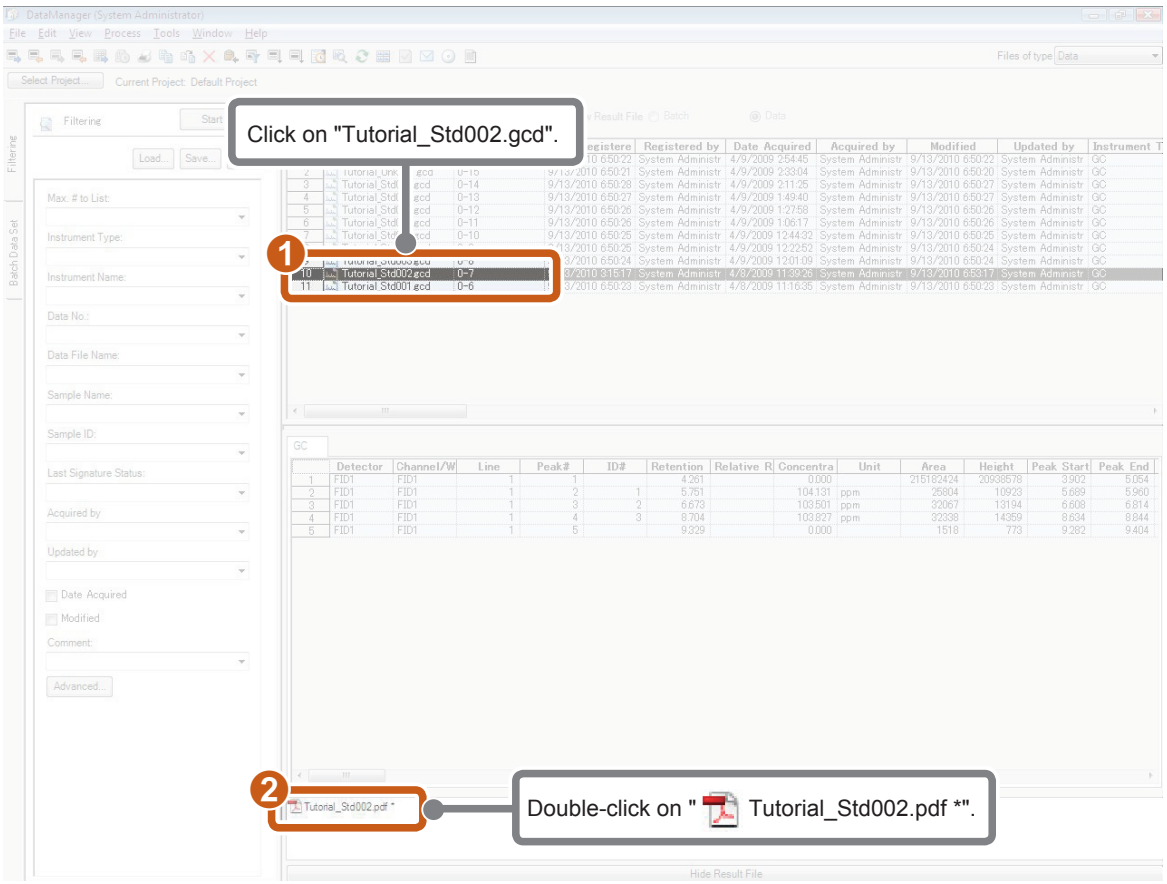
4 Check the filtered data.



5 Check the information of the selected data.



6 Display the PDF result file for the data file.



PDF Result File

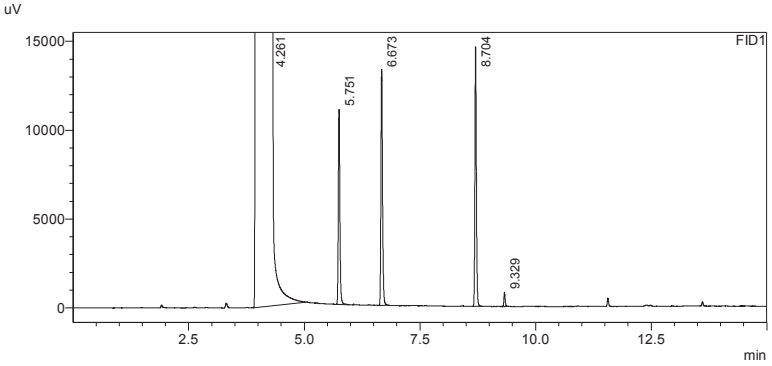
SHIMADZU LabSolutions

Analysis Report

<Sample Information>

Sample Name	: Alcohol Mixture		
Sample ID	: Standard 100ppm		
Data Filename	: Tutorial_Std002.gcd		
Method Filename	: Tutorial_Method.gcm		
Batch Filename	: Tutorial_Batch.gcb		
Vial #	: 1-1	Sample Type	: Standard
Injection Volume	: 1 uL	Level	: 1
Date Acquired	: 4/8/2009 11:39:26 PM	Acquired by	: System Administrator
Date Processed	: 9/13/2010 6:53:14 PM	Processed by	: System Administrator

<Chromatogram>



<Peak Table>

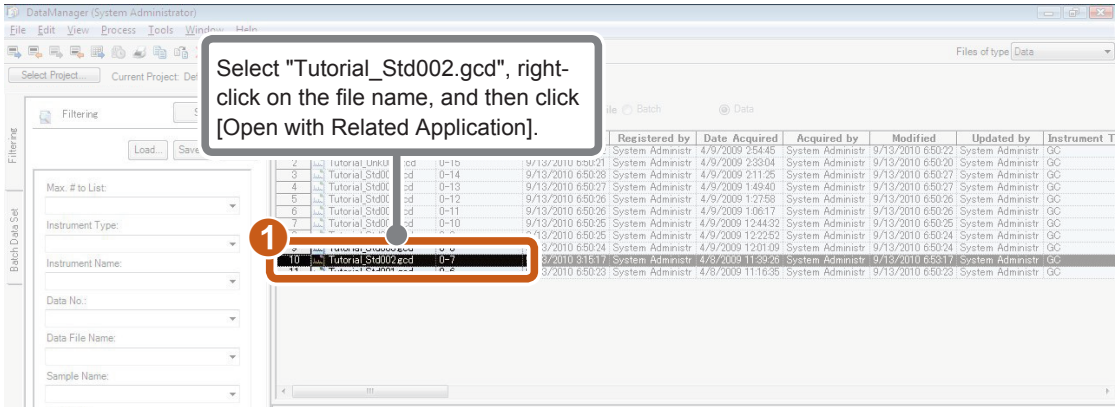
FID1

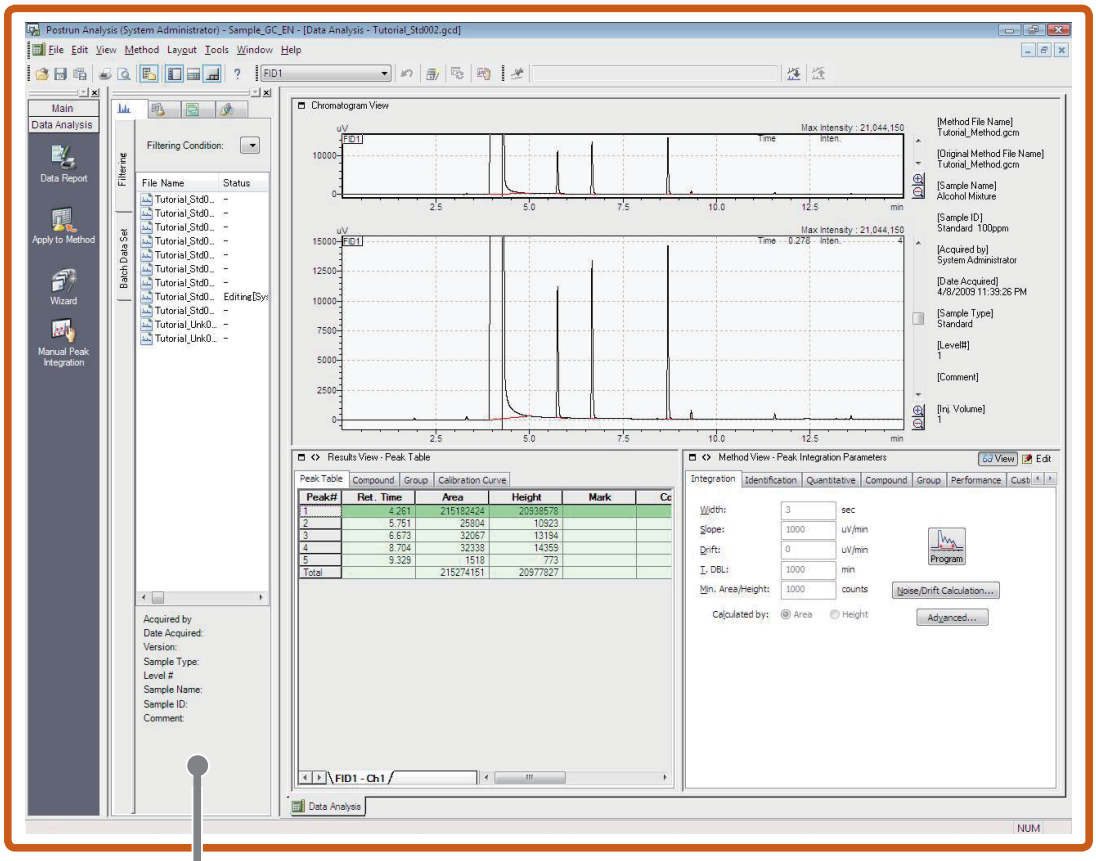
Peak#	Ret. Time	Area	Height	Conc.	Unit	Mark	Name
1	4.261	215182424	20938578	0.000			
2	5.751	25804	10923	104.131	ppm		1-Propylalcohol
3	6.673	32067	13194	103.501	ppm		Isobutylalcohol
4	8.704	32338	14359	103.827	ppm		Isoamylalcohol
5	9.329	1518	773	0.000			
Total		215274151	20977827				

LabSolutions SUPPLEMENT

Open the [Postrun Analysis] Program.

The procedure for opening the [Postrun Analysis] program from the Data Manager is described below.



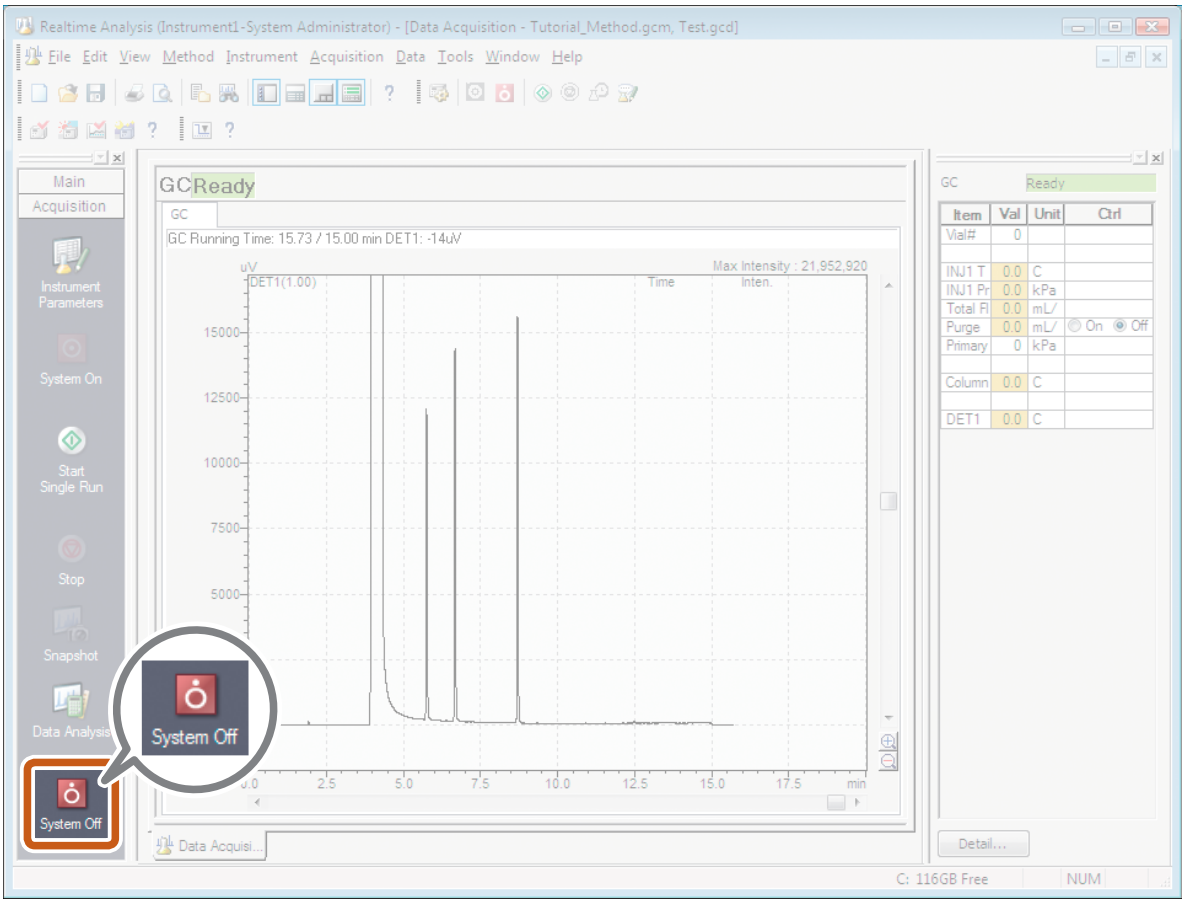


Chapter 8

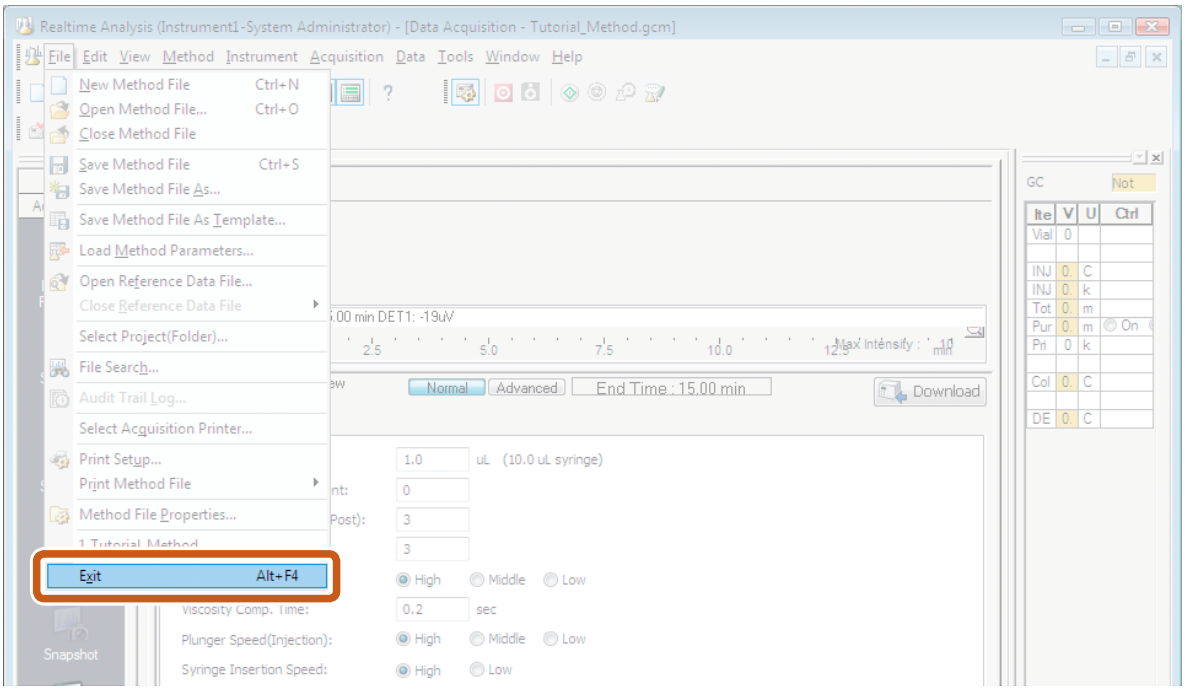
ShutDown

Last of all, this chapter describes how to exit LabSolutions.

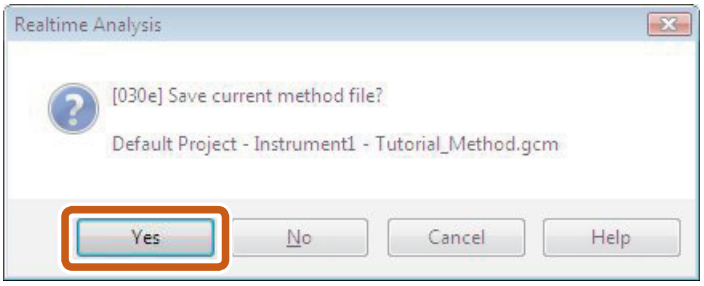
1 Stop the GC.



2 Select [Exit] when the oven has cooled down.



3 Click [Yes].

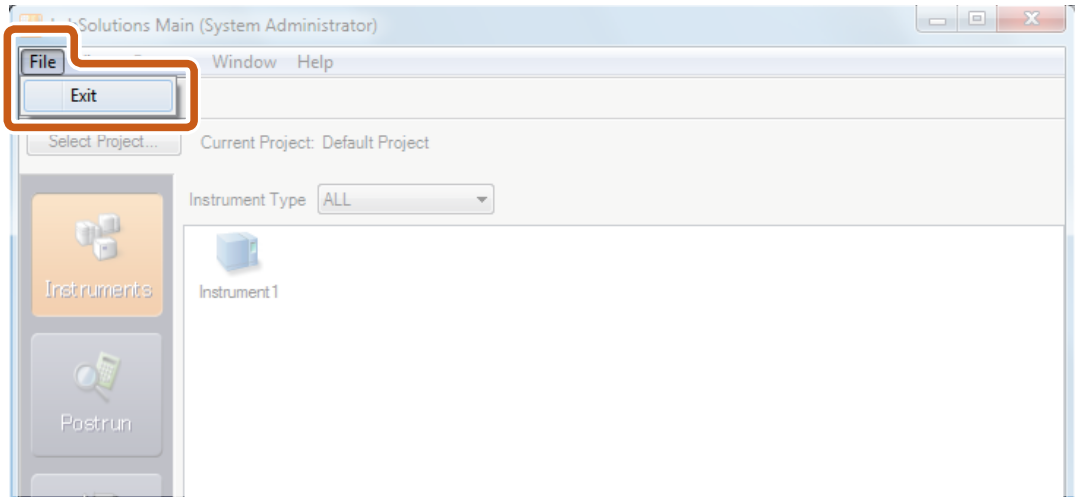


Hint When there is a file that has not yet been saved, a window to confirm whether or not to save the file when exiting the [Realtime Analysis] program opens.

Continued on the following page

4 Exit LabSolutions.

If the [Postrun Analysis] program or [Browser] program is open, click [Exit] on the [File] menu of each program to exit the respective program.



5 Shutdown Windows, and turn the PC and printer off.

6 Turn the GC and peripheral devices off.

7 Close the main valve of the carrier gas and other gases.