CS200
Chromatographic Data Workstation

Brief Tutorial for DEMO

Contents

A. Introduction

The CS200 Photographic Data Workstation is a software package, to install which on your personal computer will allow you to control your chromatography and analyze the data received from it. Your personal computer then becomes a sophisticated chromatography integrator and a data storage device.

This Software allows you to:

- ✧ Setup, modify, catalog, recall, and print data processing Methods.
- ✧ Catalog and recall chromatographic data.
- ✧ Analyze data by integrating to find, identify, and graph peaks.
- ✧ Setup and run automated batches.
- ✧ Graphically manipulate the displays via capabilities to zoom in / zoom out, split / unsplit screen, scroll, position relative cursors, track time and amplitude, and display baseline.
- ✧ Graphically specify Timed Events.
- ✧ Calculate, display, and print different kind of Reports, namely: the Area, Normalization, External Standard, and Internal Standard.
- ✧ Create Customized Reports.
- ✧ Export stored data through other data formats such that they can be used in other software packages such as Excel, Lotus 123, and dBase III /IV.
- ✧ Dynamically link with other Windows applications such as Microsoft Excel or Microsoft Word to exchange data.

A1. Specifications of CS200 Workstation

General

Number of Channels:	2
Input Voltage:	-5 mV ~ 1.7 V
Input Resistance:	> 10 MΩ
Sensitivity of Integration:	1 μV-sec
Dynamic Range:	10^7
Linearity:	~ 0.1 %

Peak Processing

Number of peaks:	> 1000
Width of peak:	0.1 sec

Automatic Time Programming
Manual Integration enabled
Automatic identification of complex peaks and precise partition of overlapped peak
Automatic tracing and correcting base line
Automatically eliminate the affect of negative peak

Methods for Identifying Peak

Conservative time method
Components table method

Parameters for Integration

Peak area
Peak height

Method for Quantitative Calculation

1. Normalized Method,
2. Normalized Method with Proportional Factor,
3. Internal Standard Method,
4. Grouping Method,
5. Multiple Internal Standard Method,
6. External Standard Method,
7. Logarithmic Method.

A2. System Requirements

Hardware Computer

IBM or 100% compatible (P-1 or higher)

CPU: 166 MHz or faster

Memory: 32M Bytes or more

Disk Drive: 1 hard disk, 1 CD-ROM drive, 1 or 2 floppy disk drives

Monitor: VGA display and graphics card
256 colors, 1024 by 768 pixels

Mouse: Bus or serial mouse

Printer (optional): Any printer that works with Microsoft Windows

Software Windows

Microsoft Windows XP or Window-7 32 bit along with 9 Pin RS-232 connector.

Internet Explorer 4.0 or later

Others Misc. Hardware

22-bit high performance ADC card

Terminal panel and cover

B. Installation

The installation consists of the Hardware and the Software.

Before installing the Hardware, be sure that your monitor is ready for displaying 1024 by 768 pixels (800 by 600 pixels will be OK, but is not recommended).

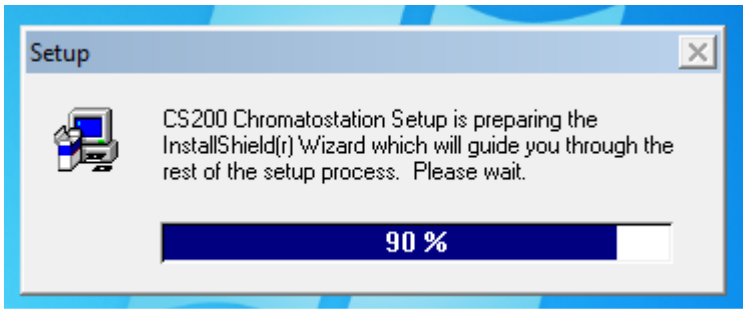
Before installing the 'Workstation' software, be sure that Microsoft Windows (Version 9x or higher) is installed on your computer.

B1. Hardware Installation

1. Plug on the CS-200 IF Module and connect the serial cable to RS-232 port of the PC.

B2. Software Installation through Floppy Disk

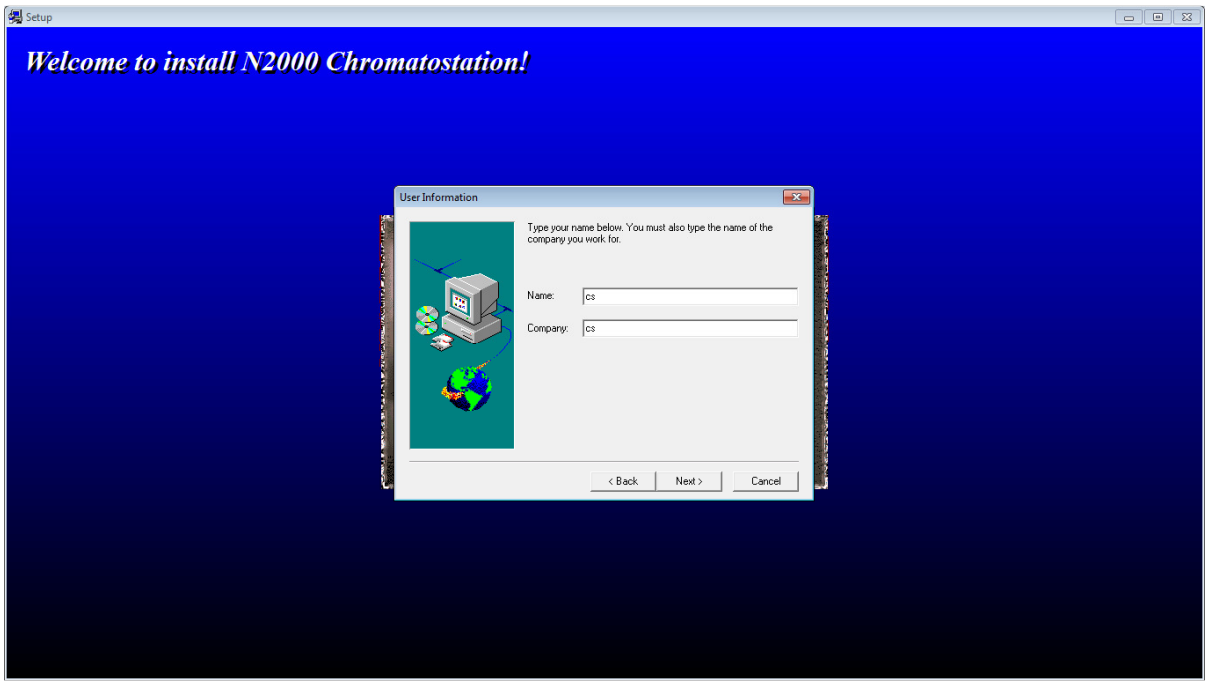
1. Turn on your computer.
2. Start the Windows
3. Open 'Disk 1' of software from cd.
4. Click the file 'setup.exe'
5. Double click 'setup.exe' to start the setup wizard as shown in Figures



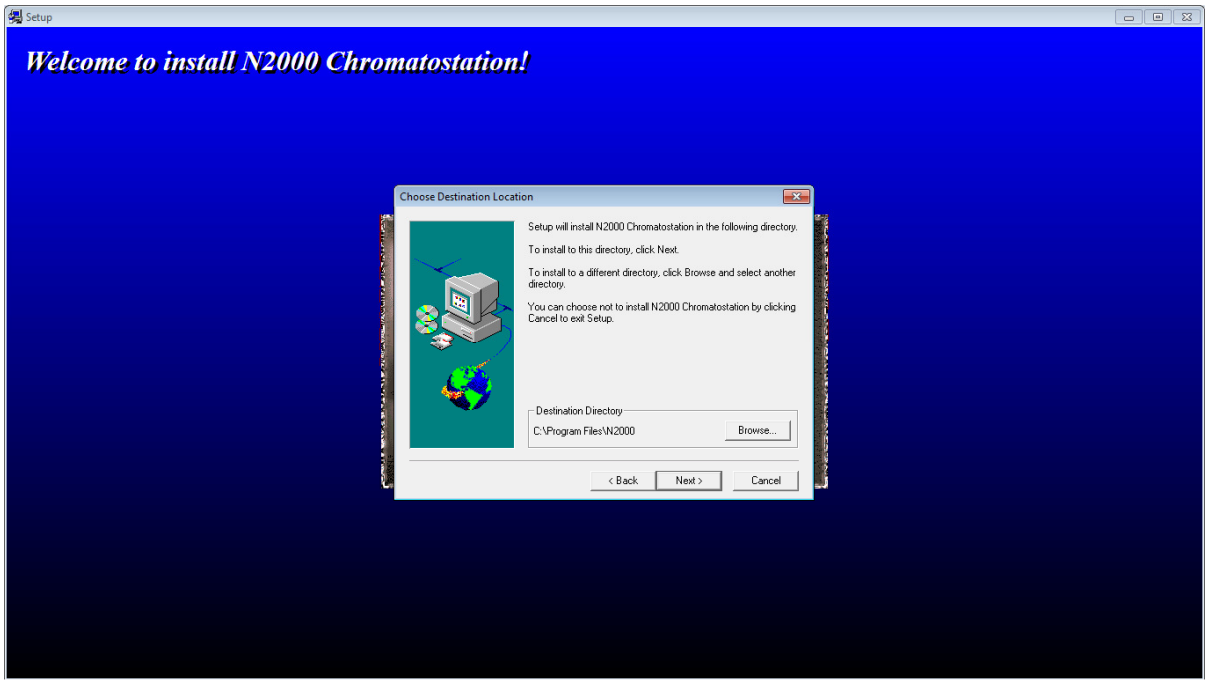
6. Follow the instructions of setup wizard.

7. Click NEXT.

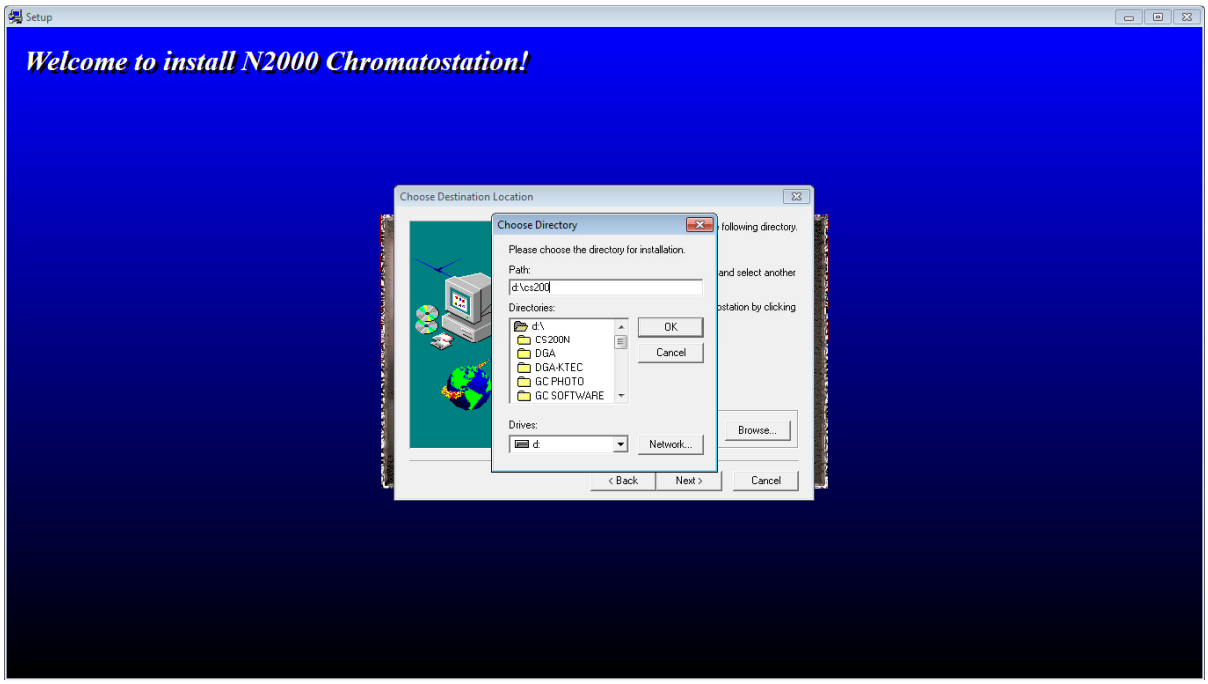
8. Type the Name of Company and click Next.



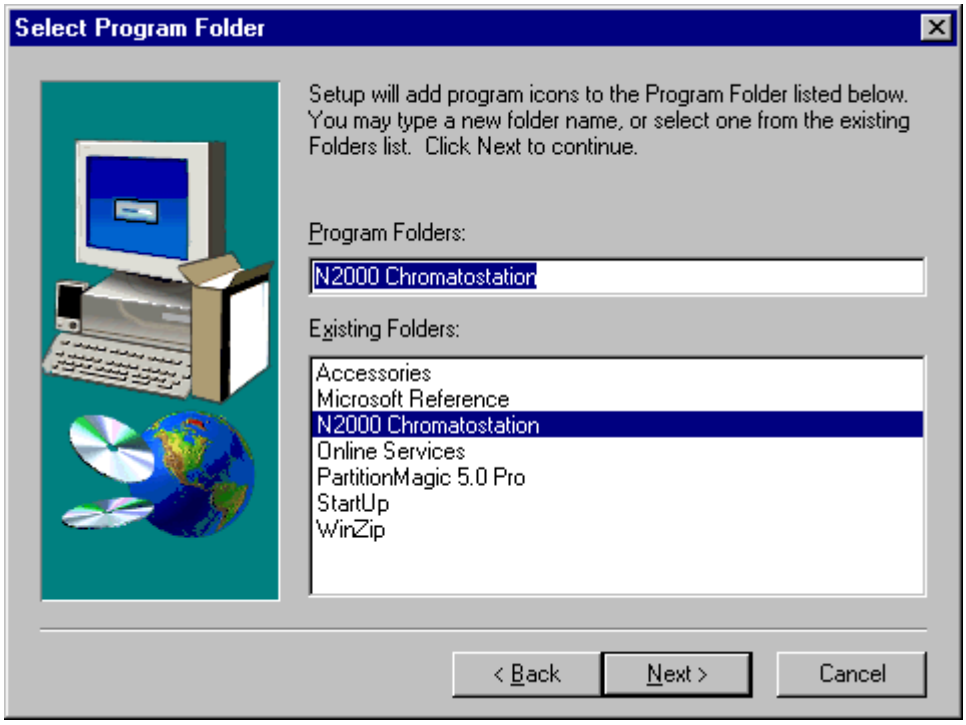
9. Now select the Directory where you want to install the software for that



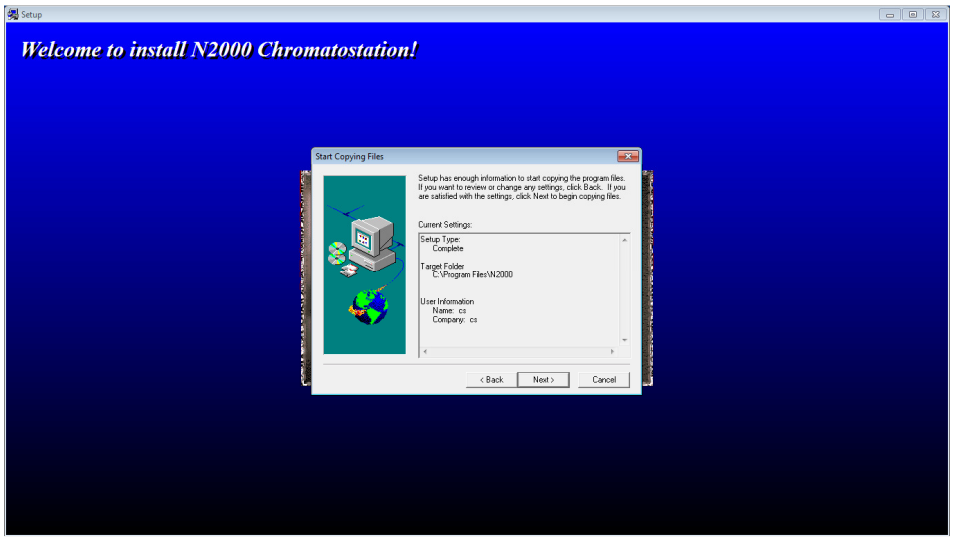
Click on Browse and select D:
And type in front of D:\CS200 and click ok and then Click Next it will create folder CS200 in D drive.



Click Next.

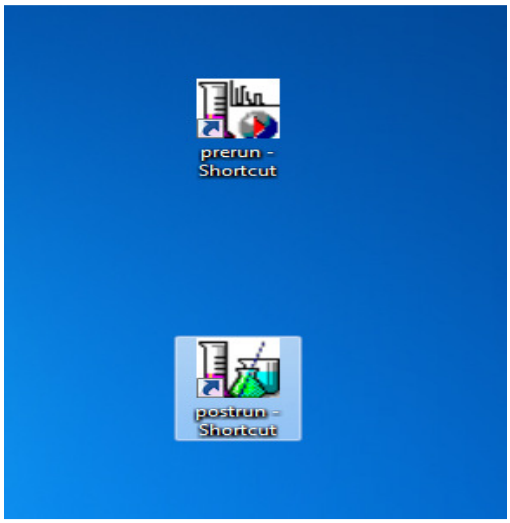


Click Next.



File start copying in PC

Now open the Folder of **Service Pack1** copy all the 4 files and paste it in the folder D:\CS200 click on replace.
Now send the PRERUN(Online) and POSTRUN(Offline) icon on desktop.

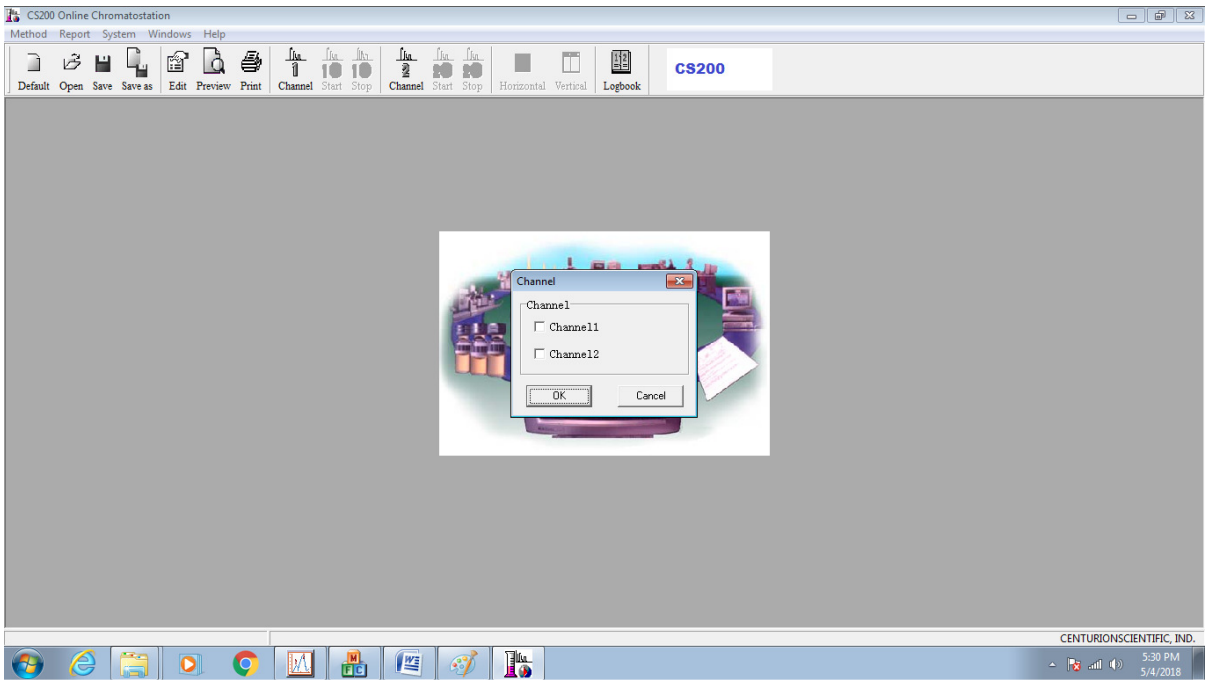


C. Online Workstation

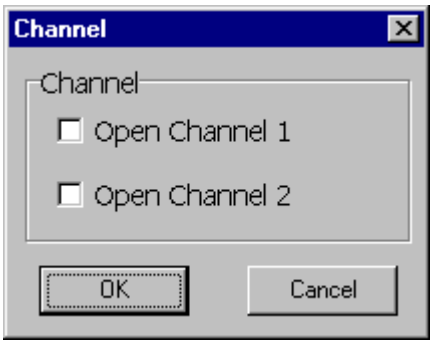
C1. Startup

Take the following procedure to startup the PRERUN (Online) Workstation.

1. Double Click the ‘PRERUN’ icon at the desktop.



Now enabled the desired Channels i.e.
Channel 1 or
Channel 2 or
Both.



The Dialog box ‘Channel’

Procedure to startup the Prerun (Online) Workstation

C2. Open the Main Interface

As soon as the Online Workstation is started, the dialog box 'Channel' appears as shown in Figure C-002.

Please take the following procedure:

1. Point to the channel you want to open and click.
2. Click the 'OK' button.

Then the main interface of Online Workstation pops up. The Online Workstation can open 2 channels consecutively, and the main interface appears as shown in Figure C-003.

The main interface consists of:

1. The main Menu Bar (MB),
2. The Tool Bar (TB),
3. The Dialog Box for Channel 1 (DB1), and
4. Dialog Box for Channel 2 (DB2).

Of course, there will be only one Dialog Box in case only one Channel is opened.

The Interface shown in Figure C-003 is obtained when the screen area of your computer monitor was set at 1024 by 768 pixels.

If the screen area of your computer monitor was set at 800 by 600 pixels, the width of screen cannot accommodate the whole Tool Bar. The Tool Bar will be split into two lines as shown in Figure C-005, while this does not change the function of the interface.

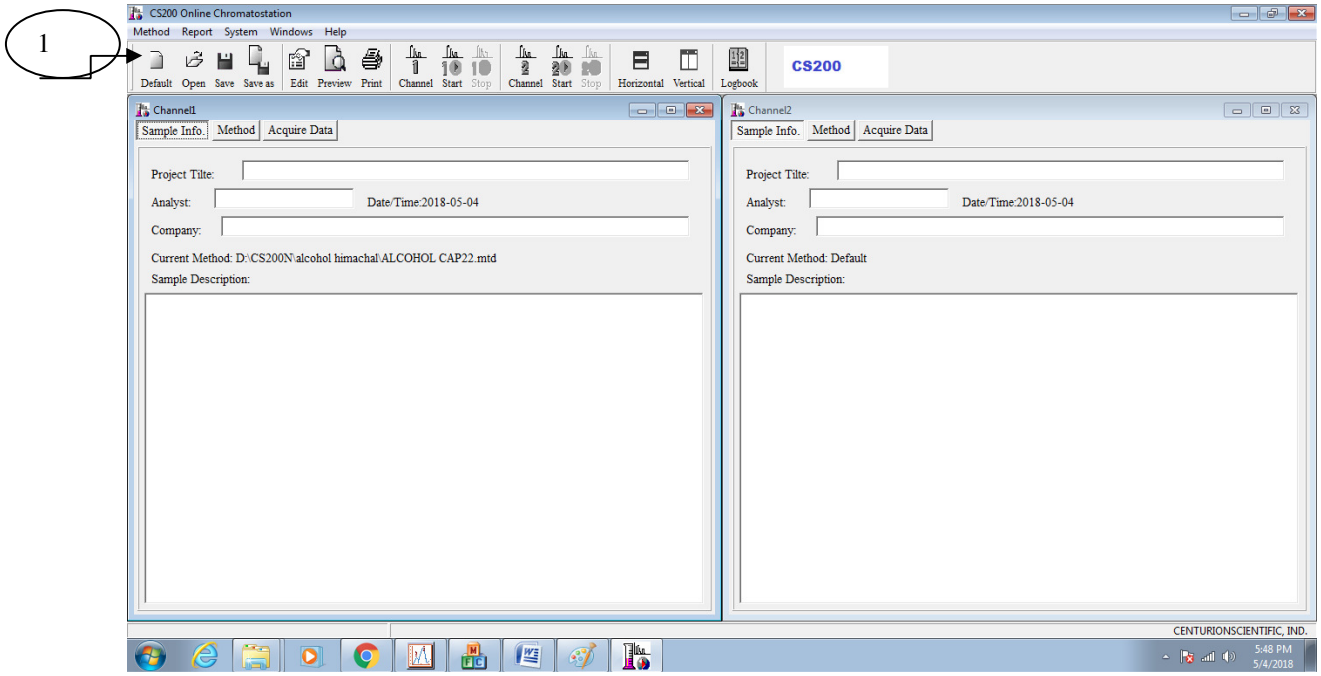


Figure C-003. Main Interface of Online Workstation (1024 by 768 screen)

The head of the main interface is shown in Figure C-004.

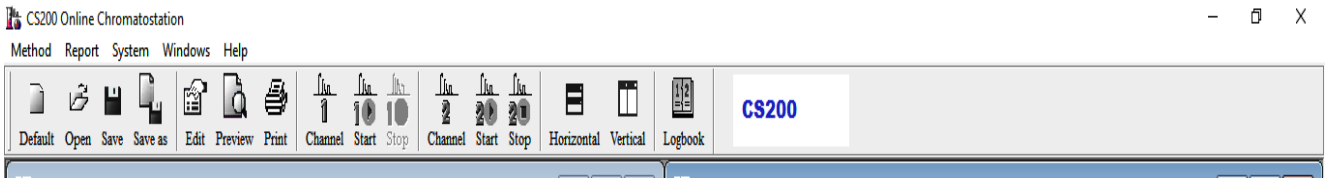


Figure C-004. The Head of Main Interface (1024 by 768 screen)

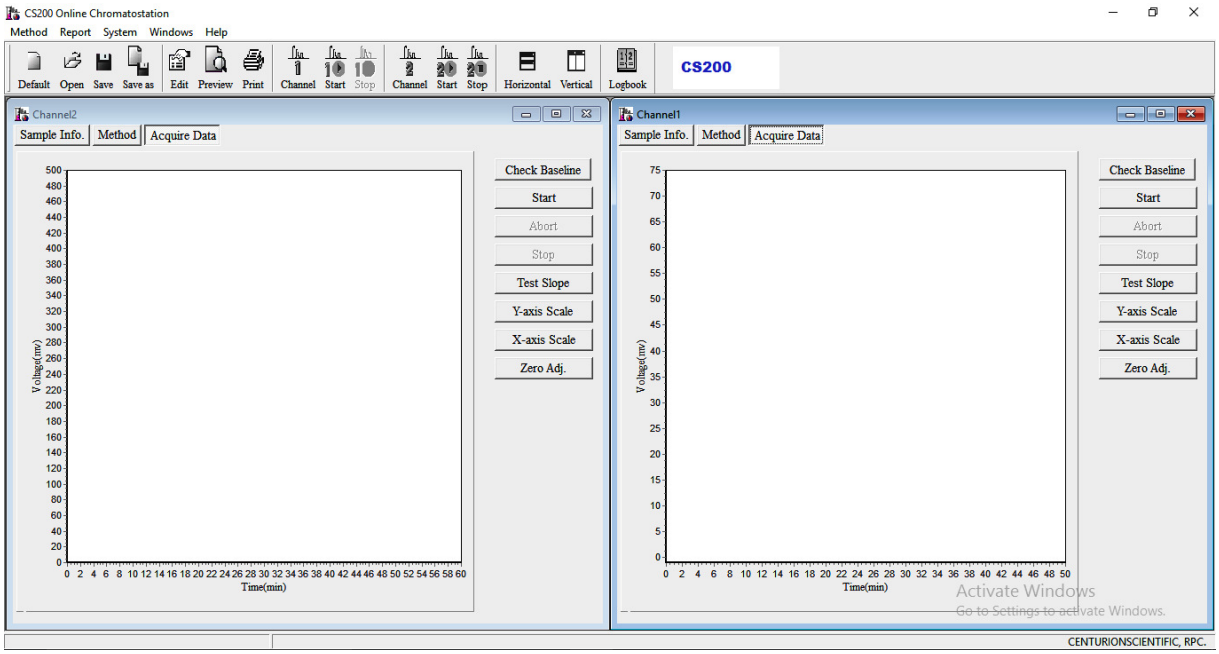


Figure C-005. Main Interface of Online Workstation (800 by 600 screen)

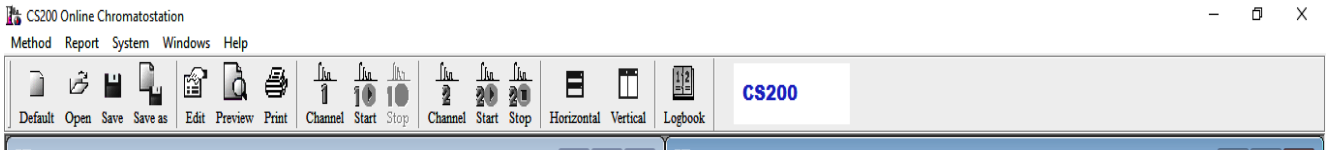


Figure C-006. The Head of Main Interface (800 by 600 screen)

C3. The Main Menu Bar (MB)

The main Menu Bar 1s shown in Figure C-007, which includes:

1. ‘Method’, for selecting the operating method of acquiring your sample;
2. ‘Report’, for editing and modifying your experiment report;
3. ‘System’, for setting the frequency of data acquisition and others;
4. ‘Windows’, for opening and regulating the sampling channel; and
5. ‘Help’, for explaining the software package.

C4. The Tool Bar (TB)

The Tool Bar is shown in Figure C-008, which includes:

1. ‘Default’, to use the default methods;
2. ‘Open’, to open the existing method of operation;
3. ‘Save’, to save the modified method of operation;
4. ‘Save as’, to save the newly compiled method of operation.

5. ‘Edit’, to edit your experiment report;
6. ‘Preview’, to preview your experiment report after compiling or modification;
7. ‘Print’, to print your experiment report.

8. ‘Channel 1’, to open the channel 1;
9. ‘Start’, to start the data acquisition through channel 1;
10. ‘Stop’, to stop the data acquisition through channel 1.

11. ‘Channel 2’, to open the channel 2;
12. ‘Start’, to start the data acquisition through channel 2;
13. ‘Stop’, to stop the data acquisition through channel 1.

14. ‘Horizontal’, to arrange the two opened dialog boxes horizontally;
15. ‘Vertical’, to arrange the two opened dialog boxes vertically; and

16. ‘Logbook’, to store the experiments you have done.

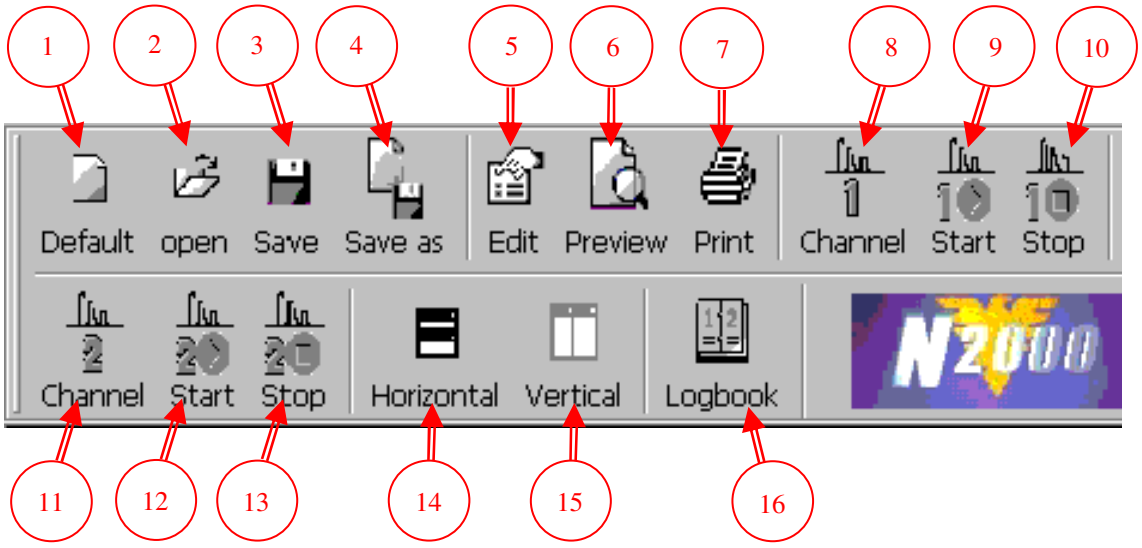


Figure C-008. The Tool Bar (800 by 600 screen)

C5. The Dialog Box

There are three major buttons on the Dialog Box as shown in Figure C-009. They are:
1. 'Sample Info', to input the sample information;
2. 'Method', to select the method for implementing the experiment, and
3. 'Acquire Data', to acquire data.

Their usage will be illustrated in the following sections.

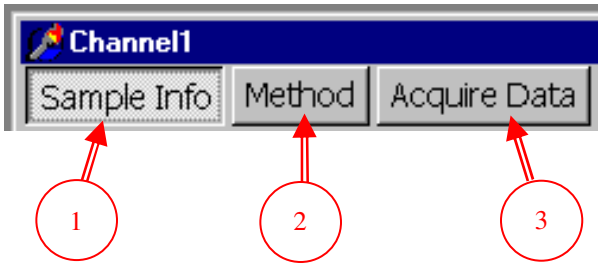


Figure C-009. The Major Buttons on the Dialog Box

C6. Enter the Information of Experiment

1. Point to the button ‘Sample Info’ and click.
2. The dialog box for Sample Information will appear as shown in Figure C-100.
3. Type in the ‘Project Title’, ‘Analyst’, ‘Company’ and ‘Sample Description’ in appropriate blank space according to your requirements.

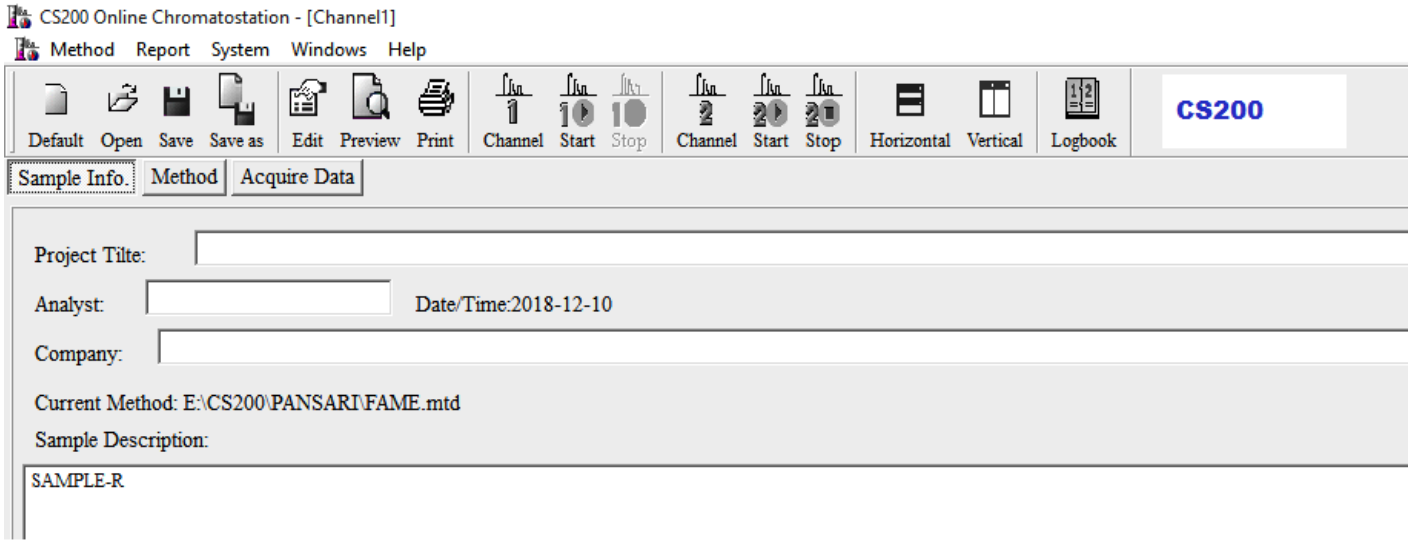


Figure C-100. Dialog box for Sample Information

C7. Define the Method for Experiment

1. Point to the button 'Method' and click.
2. The dialog box for editing the method for experiment appears.
3. At the bottom of this dialog box please find the bar for further choices as shown in Figure C-200.

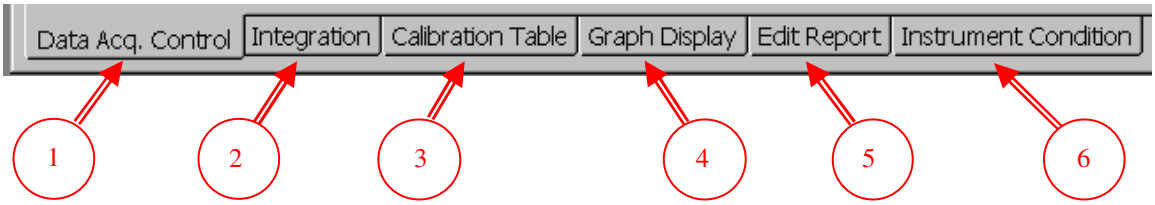


Figure C-200. Tool bar for editing the method for experiment

The further Choices available are:
1. 'Data acq control', to control the data acquisition process;
2. 'Integration', to set the parameters, variables, and method for integration;
3. 'Calibration table', to edit the calibration table;
4. 'Graph display', to set the parameters for displaying the graph in report;
5. 'Edit report', to determining the contents of your experiment report; and
6. 'Instrument condition', to input the characters of your instrument.

The function of each choice will be illustrated in the following.

C8. Data Acquisition Control

1. Point to the button ‘Method’ and click.
2. Point to the Choice ‘Data Acq. Control’ and click.
3. The Dialog Box for acquiring the data appears as shown in Figure C-210.
4. Setup the options you need.

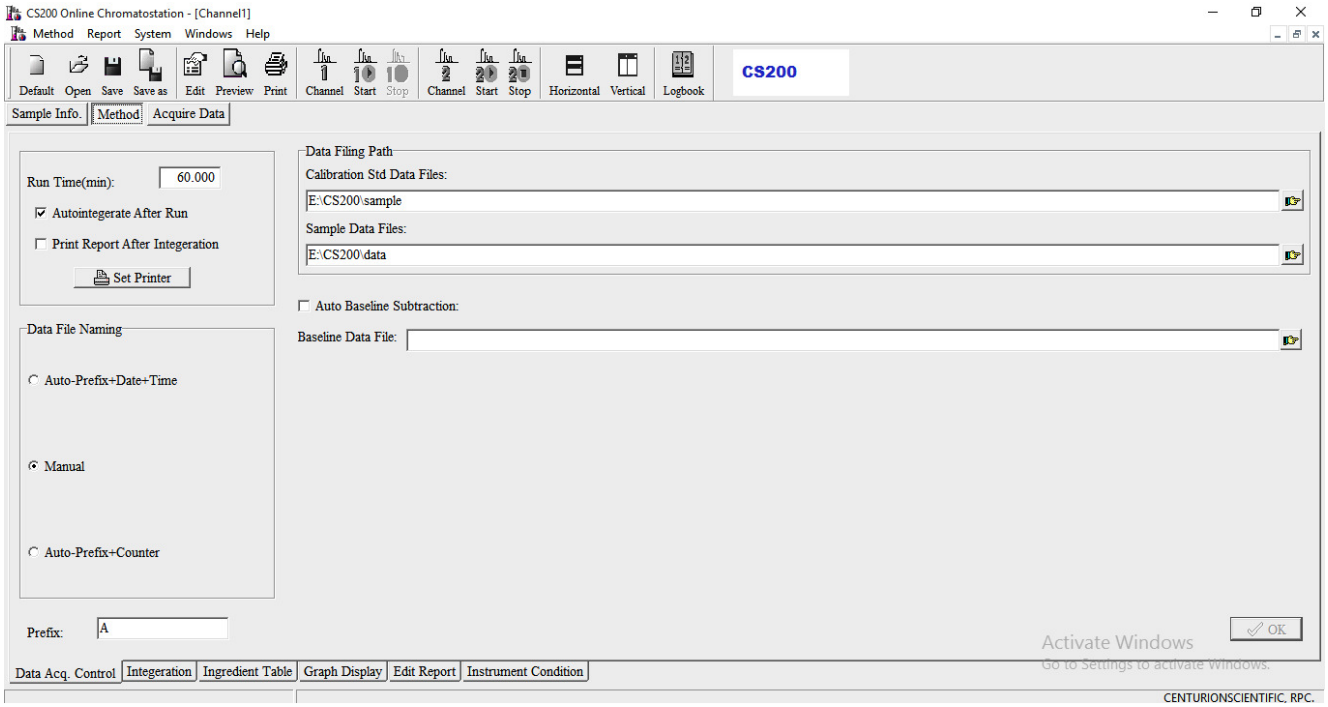


Figure C-210. Dialog box for Data Acquisition Control

C9. Edit the Integration Process

1. Point to the button ‘Method’ and click.
2. Point to the Choice ‘Integration’ and click.
3. The Dialog box for controlling the integration process appears as shown in Figure C-220.
4. Setup the options you need.

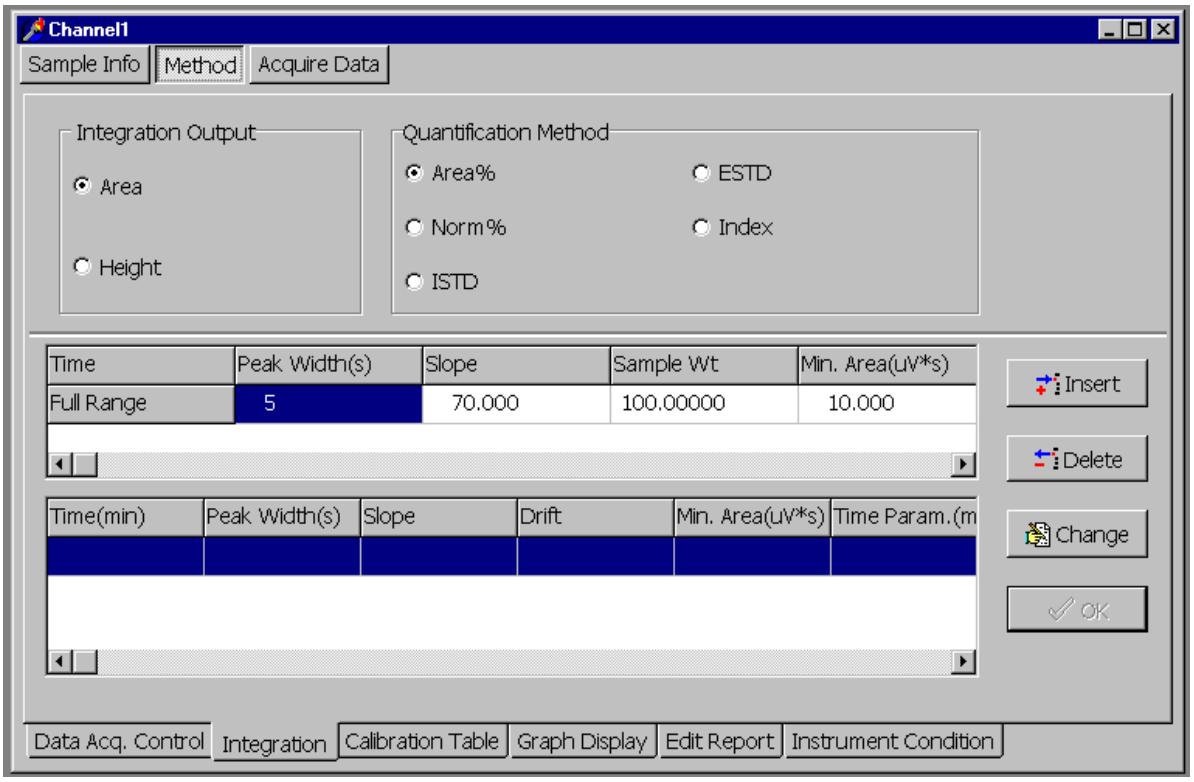


Figure C-220. Dialog box for the Integration Process Control

C10. Edit the Calibration Table

1. Point to the button ‘Method’ and click.
2. Point to the Choice ‘Calibration Table’ and click.
3. The Dialog Box for editing the calibration table appears as shown in Figure C-230.
4. Setup the options you need.

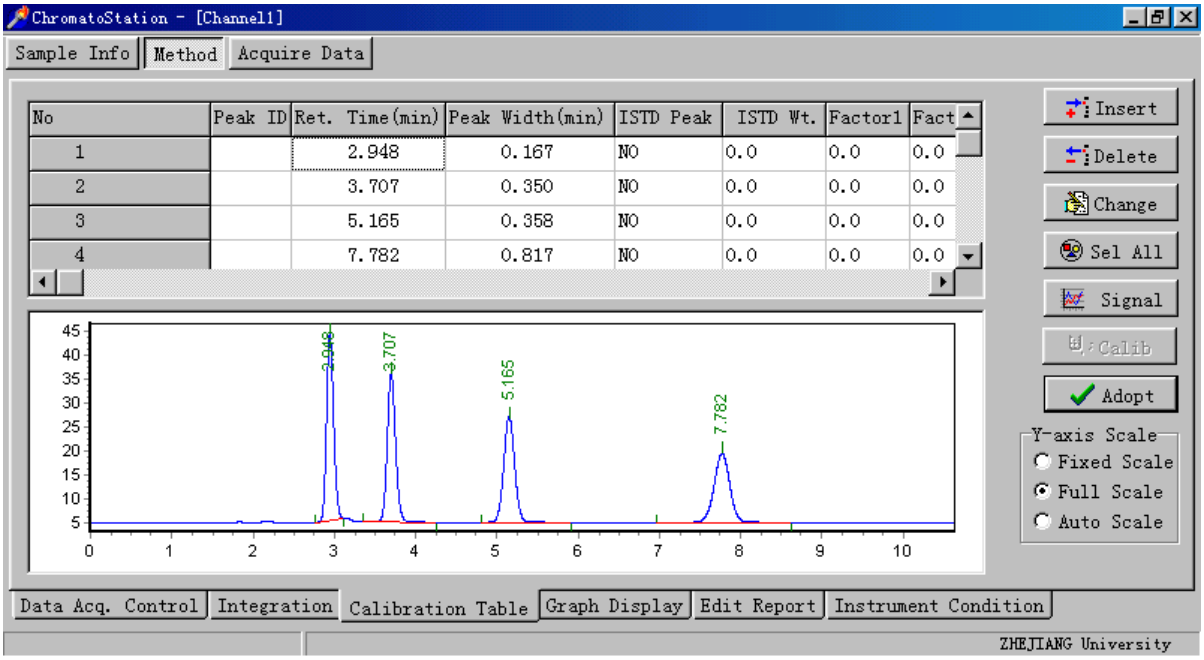


Figure C-230. Dialog Box for Editing the Calibration Table

C11. Edit the Graph Display

1. Point to the button ‘Method’ and click.
2. Point to the Choice ‘Graph Display’ and click.
3. The Dialog Box for editing the graph display appears as shown in Figure C-240.
4. Setup the options you need.

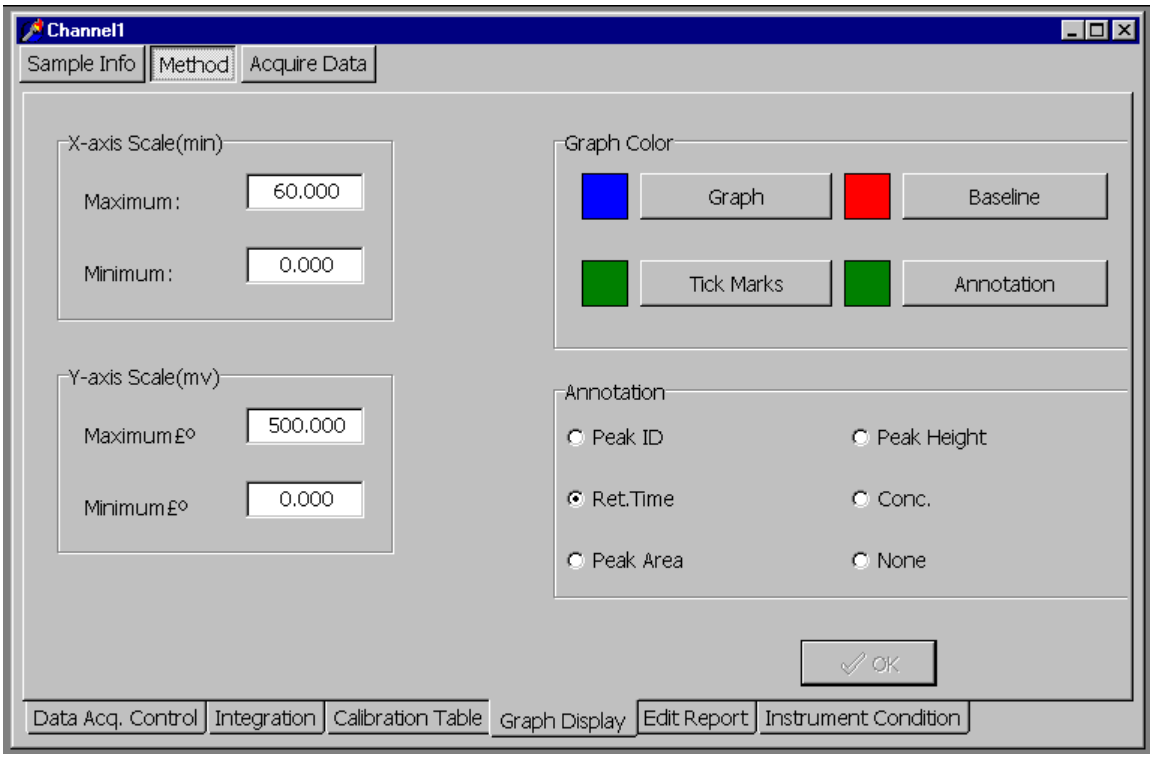


Figure C-240. Dialog Box for Editing the Graph Display

C12. Edit the Experiment Report

1. Point to the button ‘Method’ and click.
2. Point to the Choice ‘Edit Report’ and click.
3. The Dialog Box for editing the experiment report appears as shown in Figure C-250.
4. Setup the options you need.

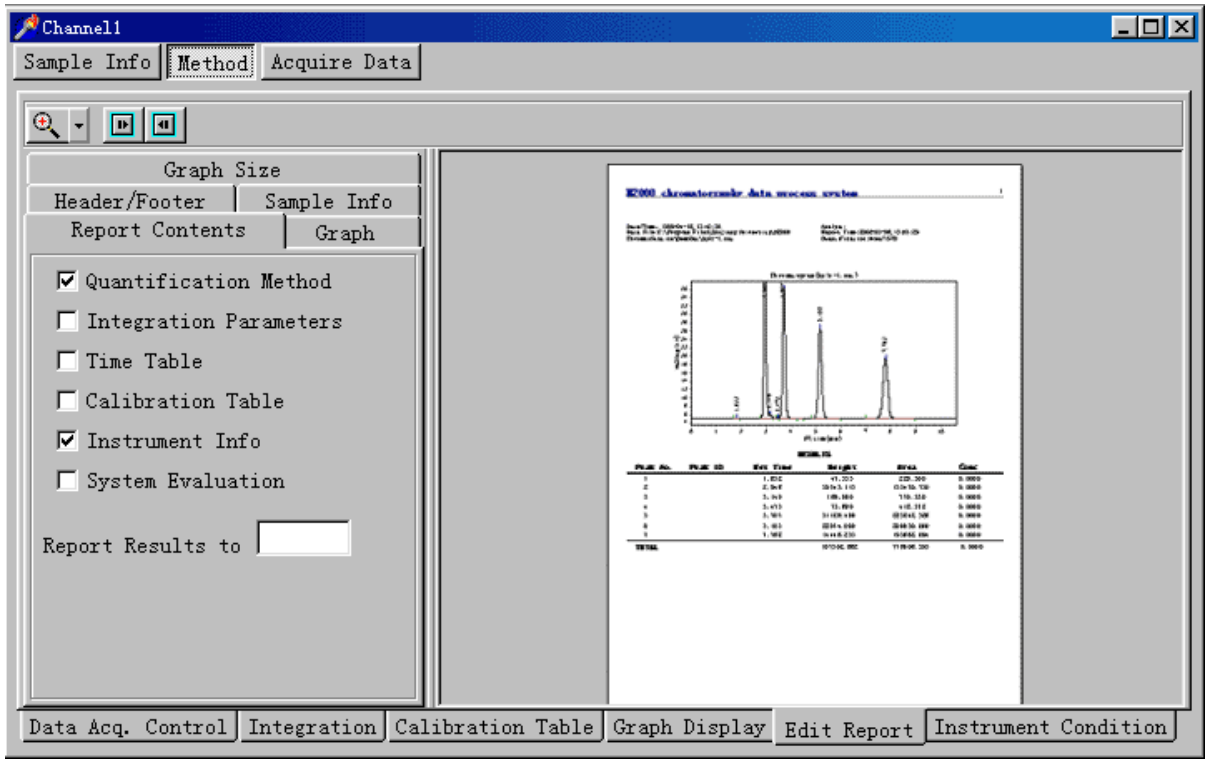


Figure C-250. Dialog Box for Editing the Experiment Report

C13. Set the Instrument Condition

1. Point to the button ‘Method’ and click.
2. Point to the Choice ‘Instrument Condition’ and click.
3. The Dialog Box for editing the instrument condition appears as shown in Figure C-260.
4. Setup the options you need.

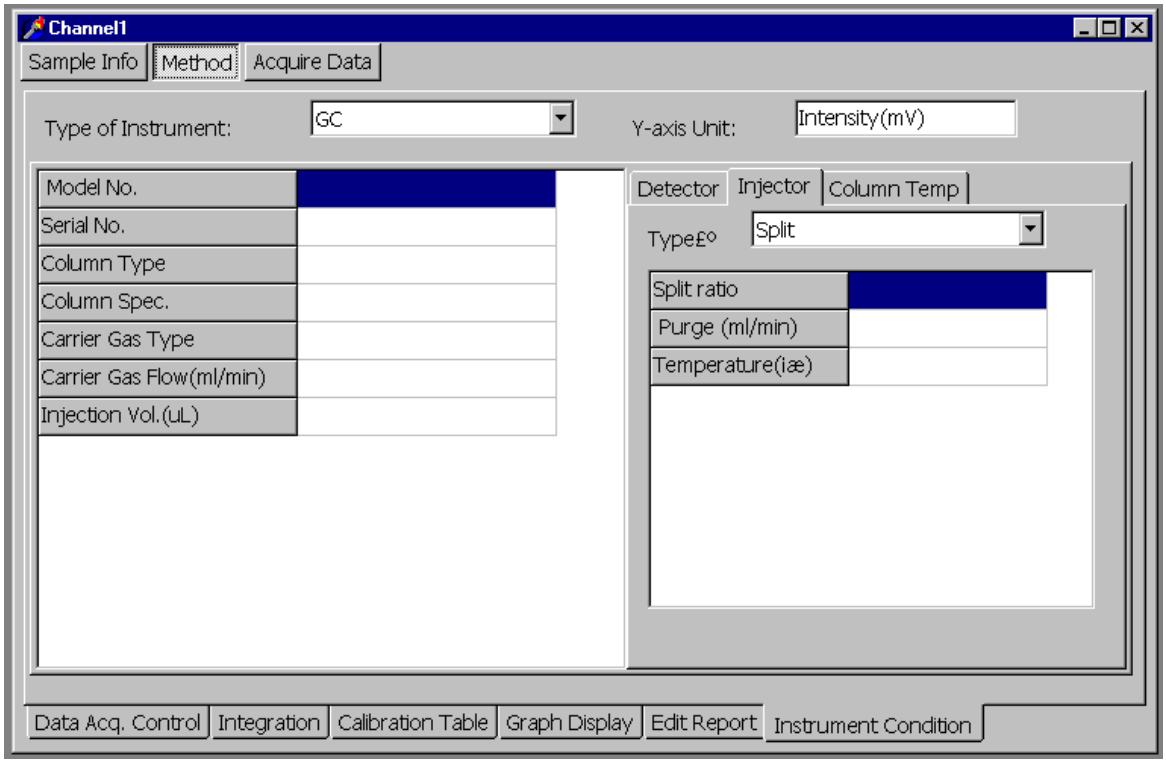


Figure C-260. Dialog Box for Editing the Instrument Condition

C14. Acquiring Experiment Data

1. Point to the button ‘Acquire Data’ and click.
2. The Dialog Box for acquiring data appears as shown in Figure C-300.
3. Enter the parameters according to your requirements.

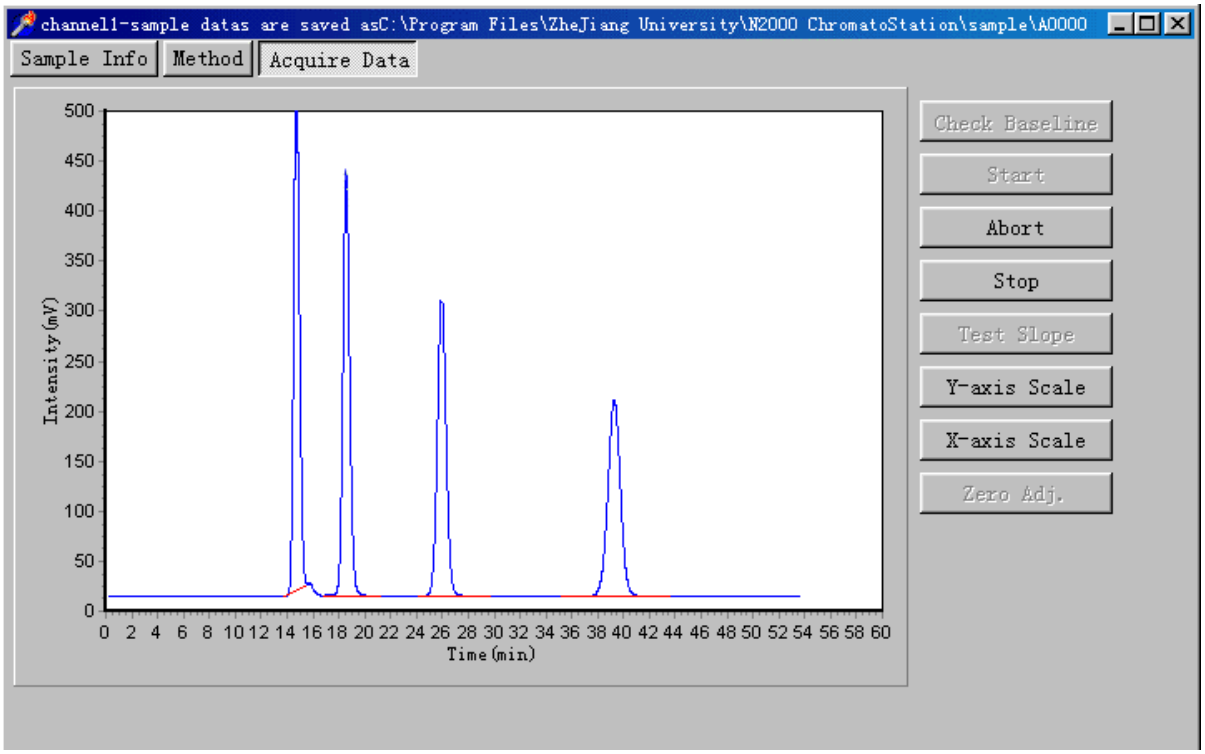


Figure C-300. Dialog Box for Editing the Instrument Condition

D. Offline Workstation

D1. Startup

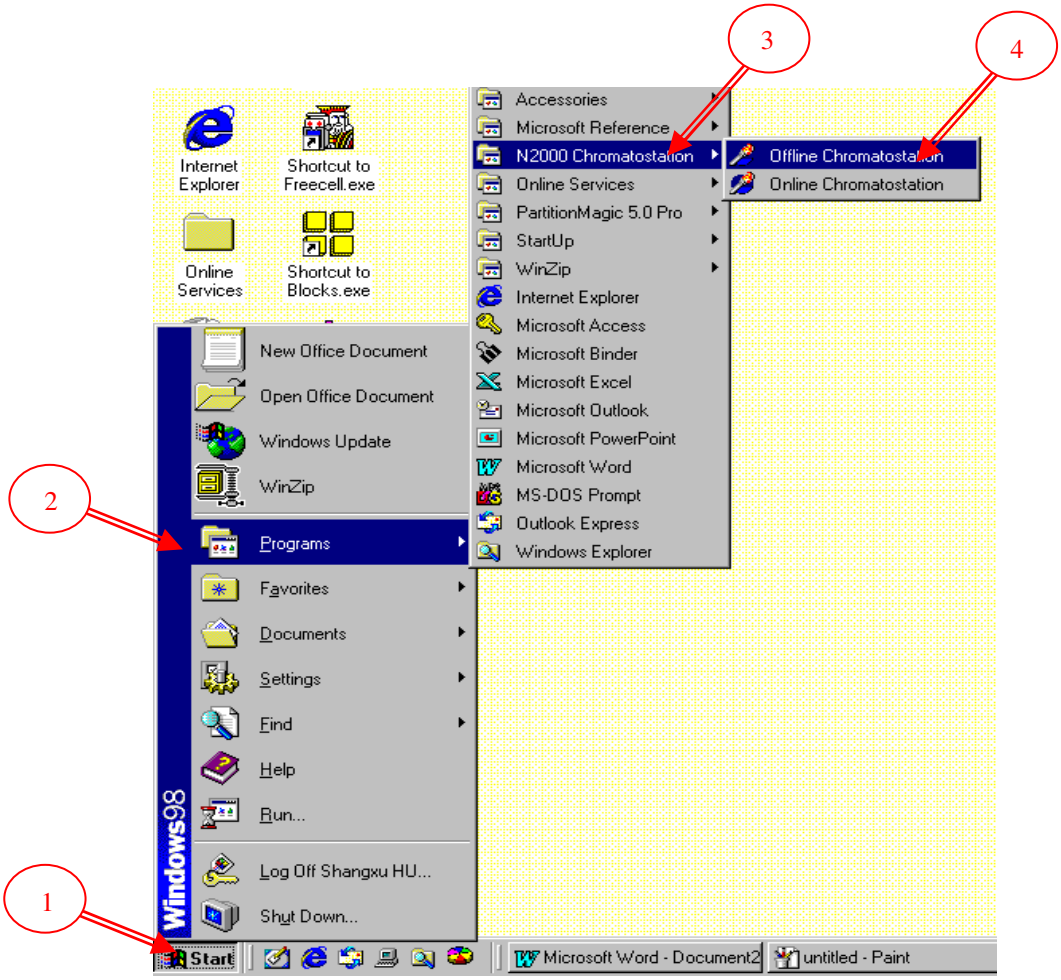


Figure D-001. Procedure to startup the Offline Workstation

Take the following procedure to startup the Offline Workstation.

1. Click the ‘Start’ icon at the tool bar of ‘Windows’ desktop to draw the menu.
2. Point to ‘Program’ to draw the secondary menu,
3. Point to ‘N2000 Chromatostation’ to draw the subsidiary menu,
4. Click ‘Offline chromatostation’ to startup.

This procedure is illustrated in Figure D-001, then the main interface of Offline Workstation appears.

D2. The Main Interface

The main interface of Offline Workstation appears after taking the above procedure. The head of the main interface is shown in Figure D-002.

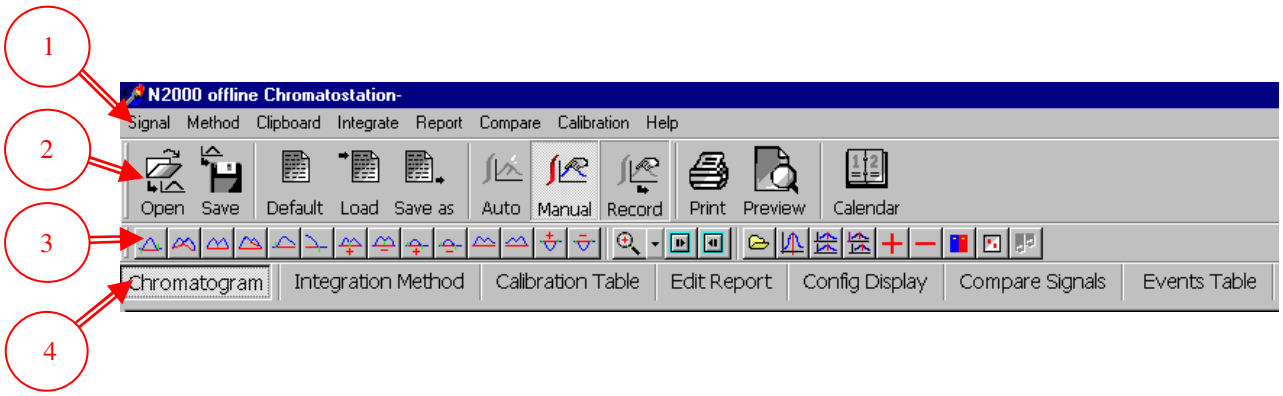


Figure D-002. Head of the Main Interface of the Offline Workstation

The head of main interface of Offline Workstation consists of:

1. The main Menu Bar (MB),
2. The Primary Tool Bar (PT),
3. The Secondary Tool Bar (ST), and
4. The Dialog Box Bar (DB).

The main Menu Bar is shown in Figure D-003, which includes:

1. ‘Signal’, to manipulate the chromatography signal,
2. ‘Method’, to select the method,
3. ‘Clipboard’, to send your results to the place you need,
4. ‘Integrate’, to implement the integration operation,

5. ‘Report’, to preview or print your experiment report,
6. Compare, to manipulate signals,
7. Calibration, to save or print calibration curve, and
8. Help.

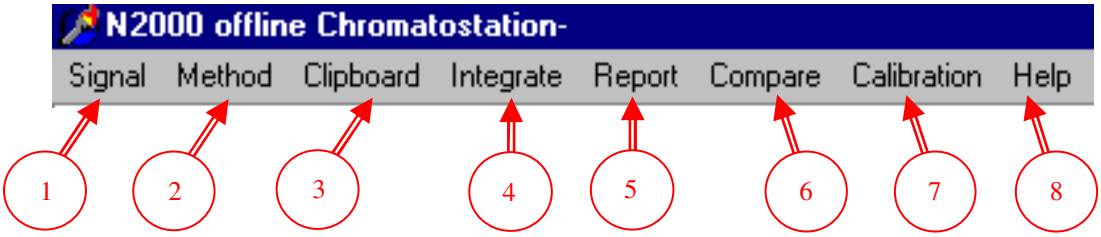


Figure D-003. The Main Menu Bar of the Offline Workstation

The main Primary Tool Bar is shown in Figure D-004, which includes the following buttons:

1. ‘Open’, to open or load the data file,
2. ‘Save’, to save the data file,
3. ‘Default’, to use the default method,
4. ‘Load’, to load a method from the method subdirectory,
5. ‘Save as’, to save the current method according to your appointment,
6. ‘Auto’, to integrate automatically using the current parameters,
7. ‘Manual’, to integrate manually,
8. ‘Record’, to record the manual integration events,
9. ‘Print’, to print your experiment report,
10. ‘Preview’, to preview your experiment report, and
11. ‘Calendar’, to check calendar.

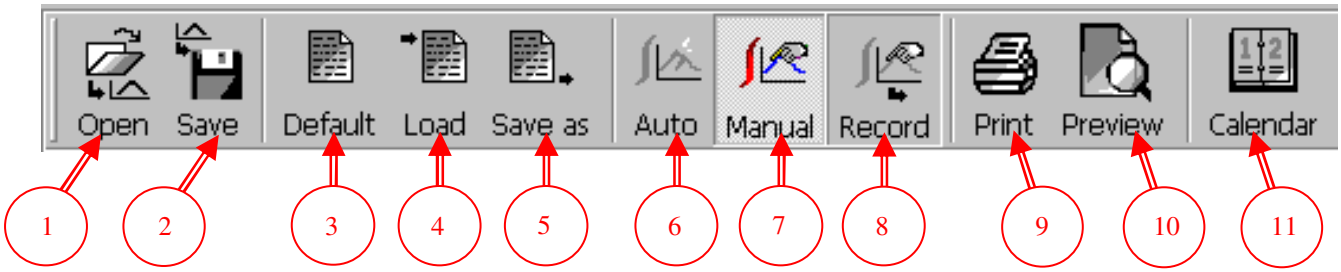


Figure D-004. The Primary Tool Bar of the Offline Workstation

The main Secondary Tool Bar is shown in Figure D-005, which consists of the following sections of buttons:

I. In the Section I the following buttons are included:

I-1. Draw baseline manually,
I-2. Integrate a single peak,
I-3. Integrate merged / overlapping peaks,
I-4. Integrate a tailing peak,
I-5. Change start time,
I-6. Change end time,
I-7. Separate peaks,
I-8. Merge peaks,
I-9. Add peak,
I-10. Delete peak,
I-11. Extend baseline backward,
I-12. Extend baseline forward,

I-13. Add negative peak, and
I-14. Delete negative peak.

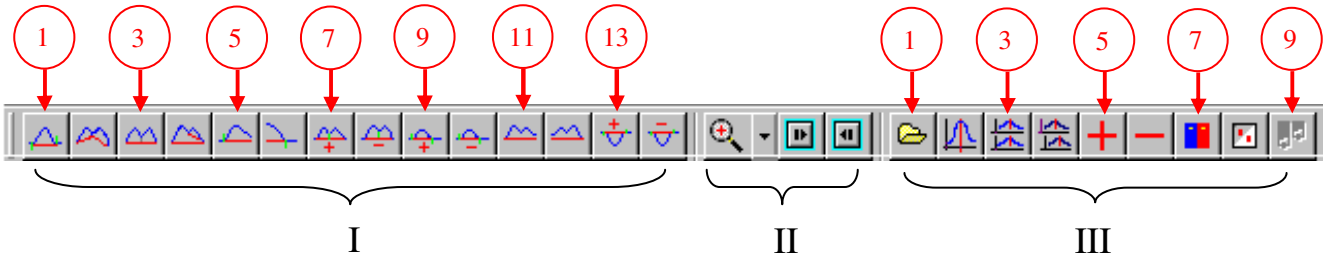


Figure D-005. The Secondary Tool Bar of the Offline Workstation

II. In the Section II the following buttons are included:

II-1. Zoom in report view,

II-2. Next page, and
II-3. Previous page.
III. In the Section III the following buttons are included:
III-1. Open a signal for comparison,
III-2. Set a time reference point as alignment marker,
III-3. Align the x-axis of multiple signals,
III-4. Reset the alignment for your signals,
III-5. Add chromatographic signals, and
III-6. Subtract chromatographic signals.
III-7. Append chromatographic signals,
III-8. Display signals overlaid, and
III-9. Display signals separately.

The further Choices regarding the Dialog Boxes available on the main interface are shown in Figure D-006, which includes the following Choices of Dialog Boxes:

7. To acquire Chromatogram stored,
8. To choose Integration Method,
9. To use Calibration Table,
10. To edit report,
11. To display Configuration,
12. To compare Signals, and
13. To use Events Table.

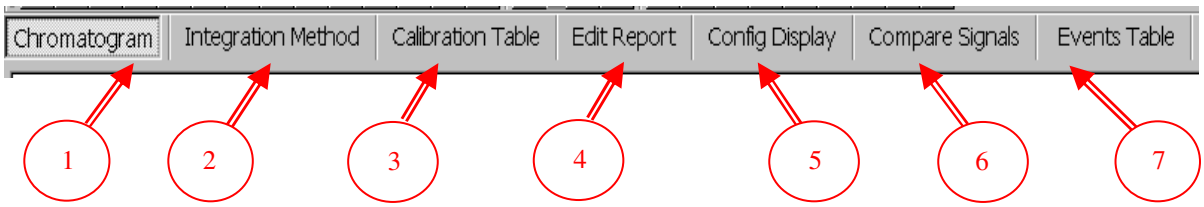


Figure D-006. The Dialog Box Bar of the Offline Workstation

The function of each choice will be illustrated in the following sections.

D3. Acquire the Chromatogram stored

1. Point to the button ‘Chromatogram’ and click.
2. Point to the button ‘Open’ and click.
3. Choose a data file and acquire it.
4. The selected Chromatogram will be loaded and displayed as shown in Figure D-100.

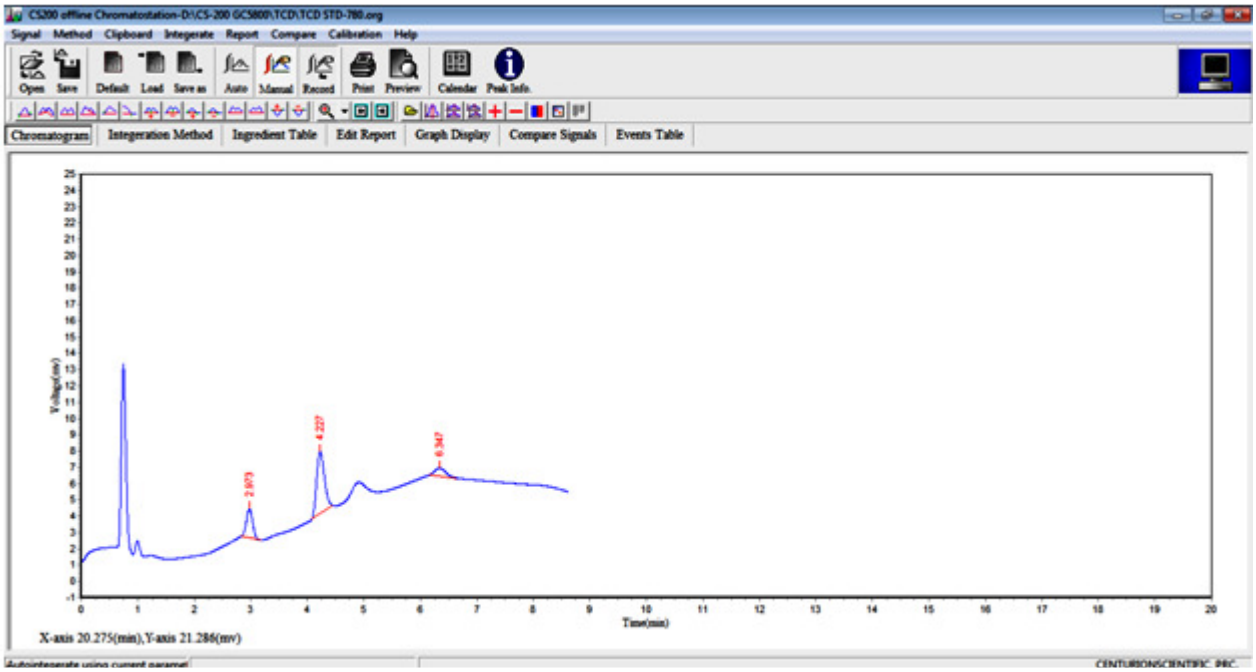


Figure D-100. A selected Chromatogram is displayed

D4. Select the Integration Method

1. Point to the button ‘Integration Method’ and click.
2. Point to the button ‘Open’ and click.
3. Choose a data file and acquire it.
4. The selected Chromatogram will be loaded and displayed as shown in Figure D-200.

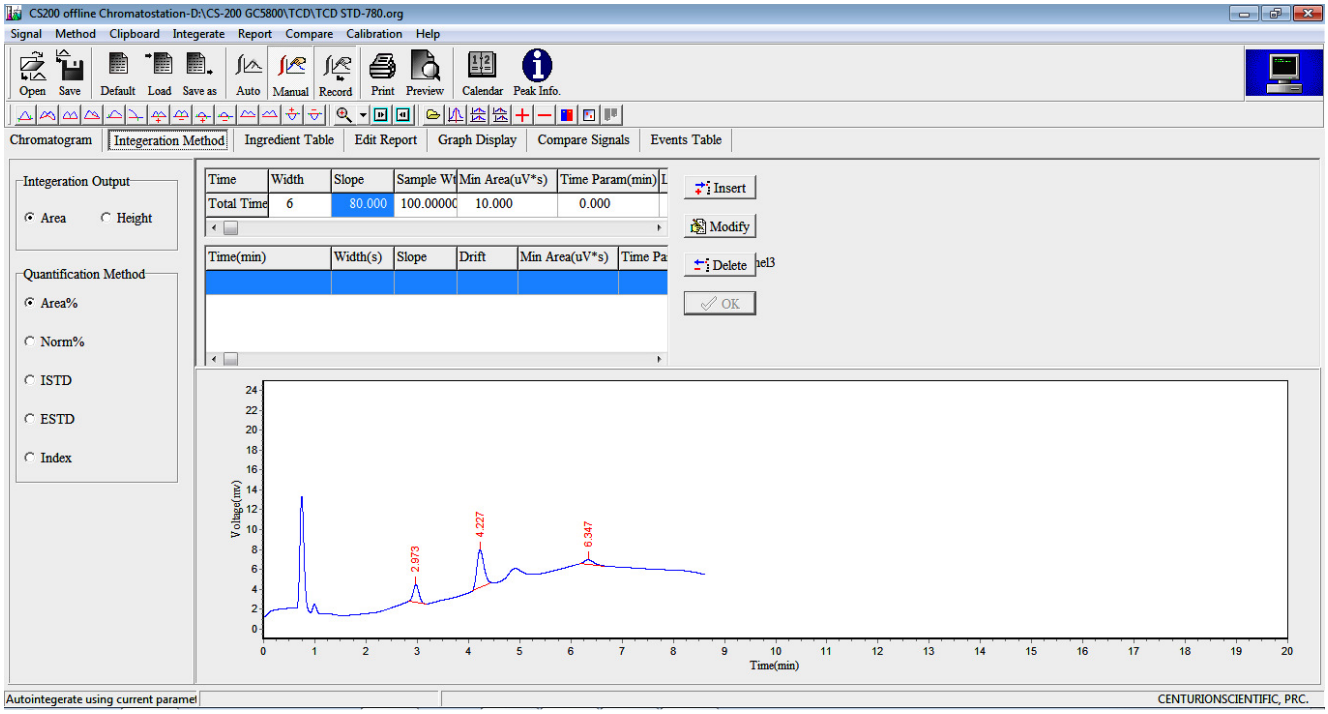


Figure D-200. The Dialog Box for Selecting Integration Method

D5. Set the Calibration Table

1. Point to the button ‘Calibration Table’ and click.
2. Point to the button ‘Open’ and click.
3. Choose a data file and acquire it.
4. The selected Chromatogram will be loaded and displayed as shown in Figure D-300.

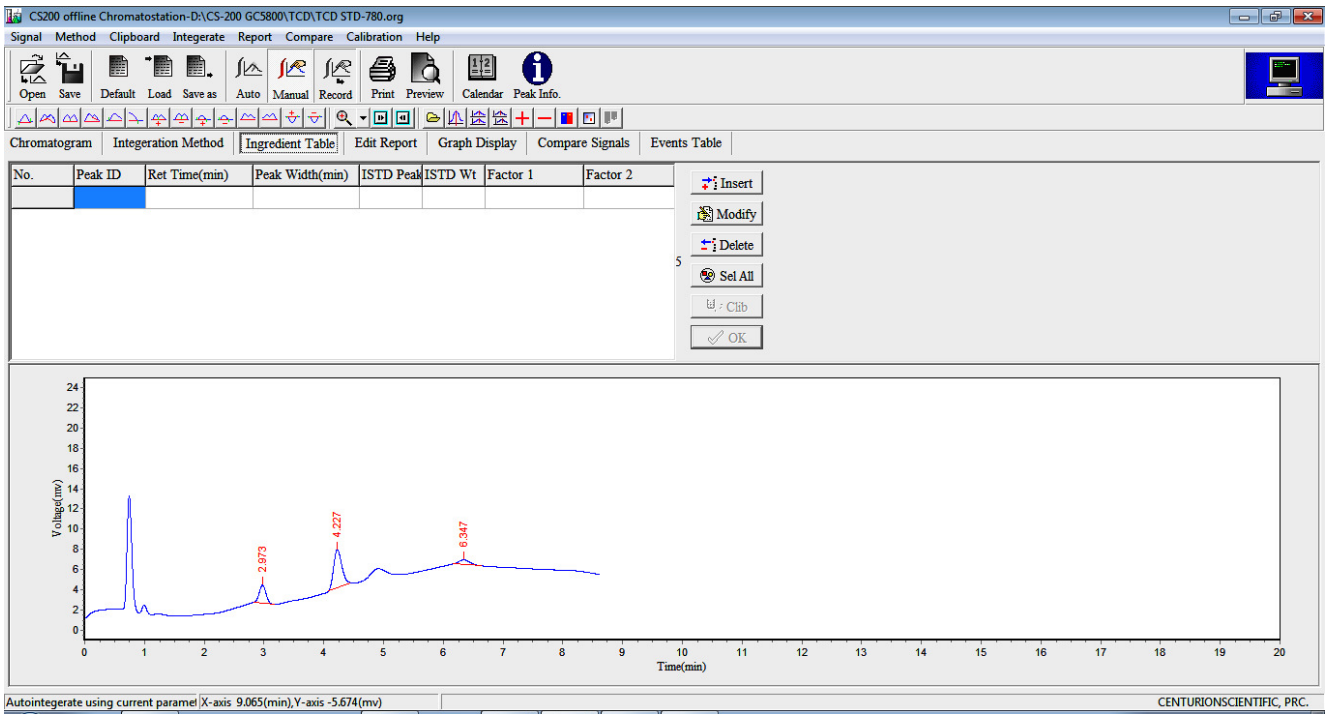


Figure D-300. The Dialog Box for Setting the Calibration Table

D6. Edit the Report

1. Point to the button ‘Edit Report’ and click.
2. Point to the button ‘Open’ and click.
3. Choose a data file and acquire it.
4. The selected Chromatogram will be loaded and displayed as shown in Figure D-400.

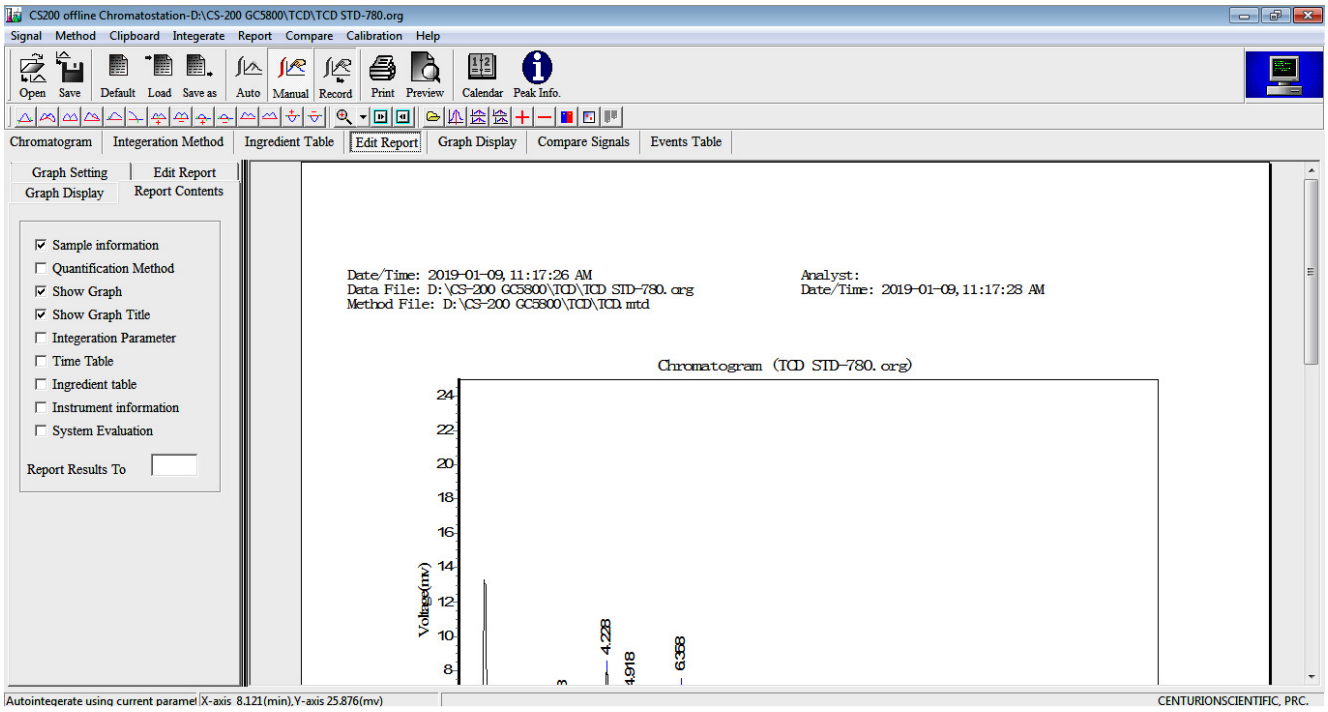


Figure D-400. The Dialog Box for Editing Report

D7. Display the Configuration

1. Point to the button ‘Config Display’ and click.
2. Point to the button ‘Open’ and click.
3. Choose a data file and acquire it.
4. The selected Chromatogram will be loaded and displayed as shown in Figure D-500.

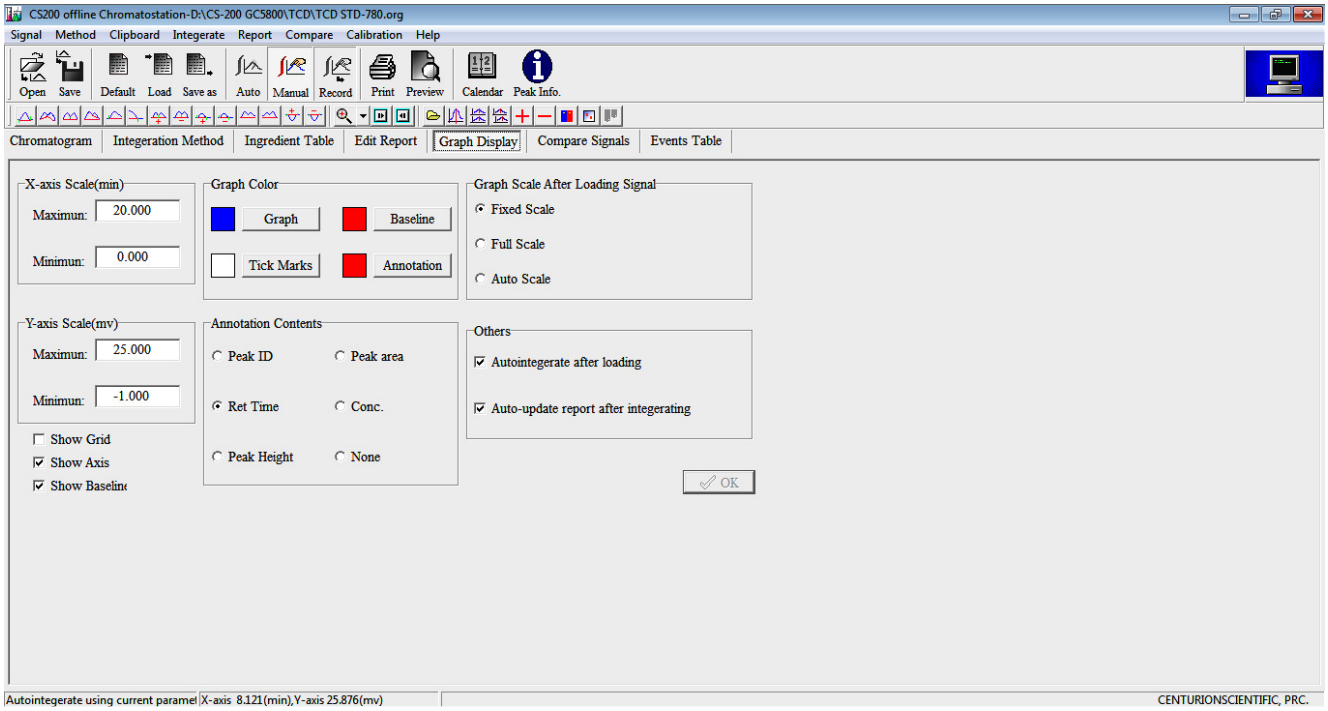


Figure D-500. The Dialog Box for Displaying Configuration

D8. Compare the Signals

1. Point to the button ‘Compare Signals’ and click.
2. Point to the button ‘Open’ and click.
3. Choose a data file and acquire it.
4. The selected Chromatogram will be loaded and displayed as shown in Figure D-600.

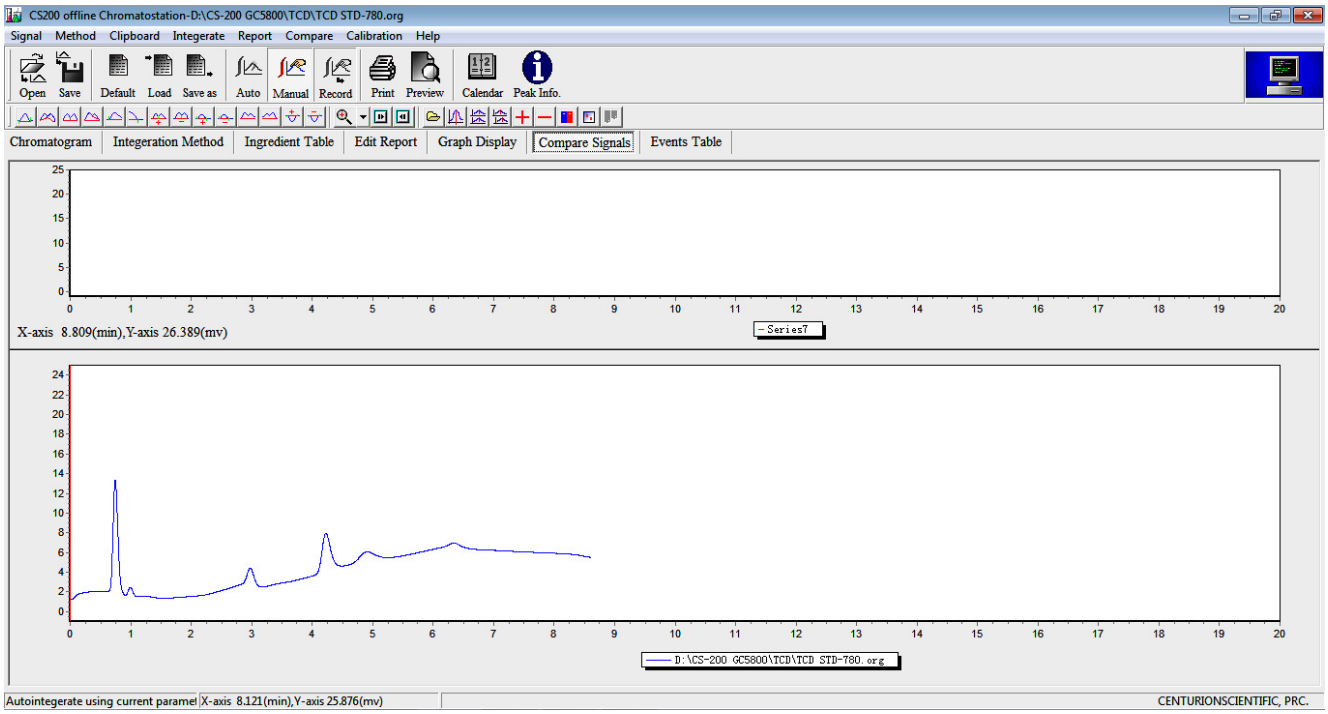


Figure D-600. The Dialog Box for Comparing Signals

D9. Edit the Event Table

1. Point to the button ‘Event Table’ and click.
2. Point to the button ‘Open’ and click.
3. Choose a data file and acquire it.
4. The selected Chromatogram will be loaded and displayed as shown in Figure D-700.

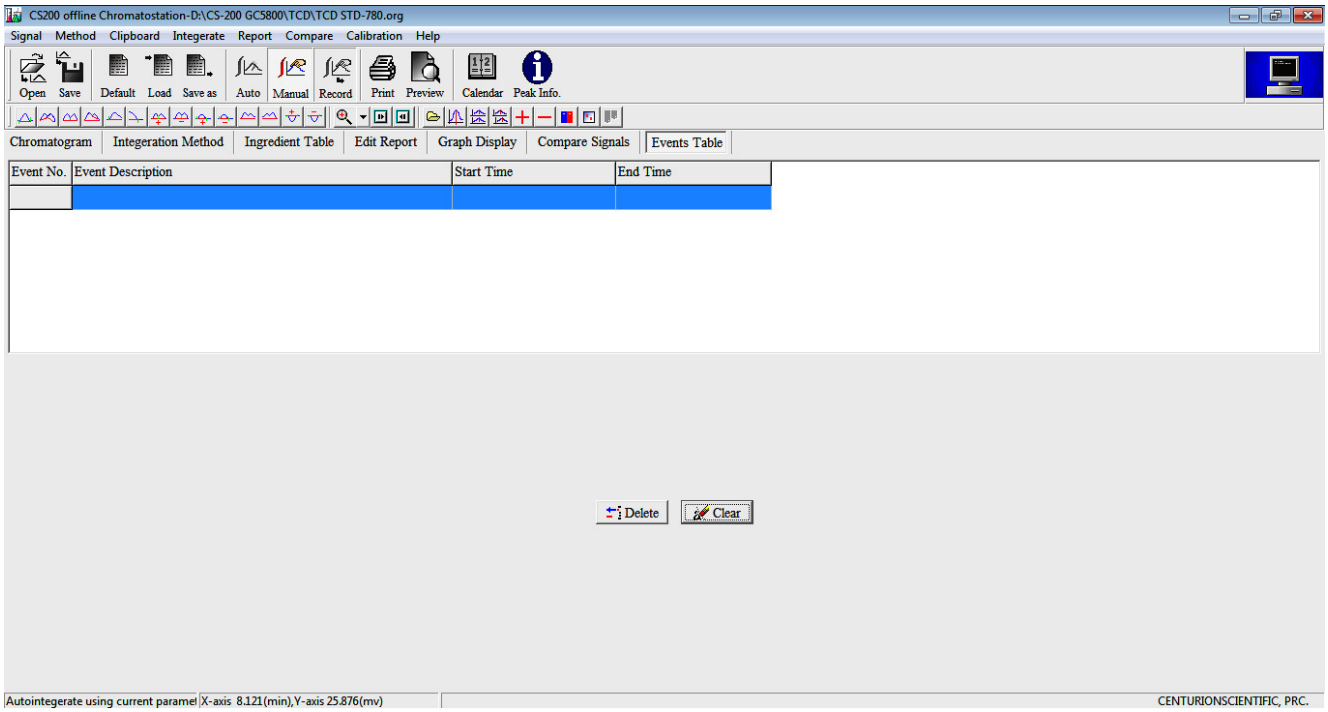


Figure D-700. The Dialog Box for Editing Event Table