

RESULT Operation Software User Guide



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Chapter 1 Overview

This section describes RESULT Operation software, including:

- **Getting Started**, which includes information about starting RESULT Operation software, the main screen components, accessibility information, and quitting RESULT Operation software.
- **Running Workflows**, which describes how to select and run a workflow, both in production mode and off-line, along with how to view instructions attached to workflows and how to run instrument qualification workflows.
- **Working with Standards**, which describes how to configure and run standards for a particular measurement item in a workflow.
- **Working with the Audit Log**, which includes information about configuring report settings and creating audit log reports related to user access, workflow changes, data archiving, instrument qualification, service log changes, administrative changes, and measurement trends.
- **Maintaining the System**, which contains information about collecting test samples, backgrounds, and measurements; creating and viewing the instrument status report; aligning the instrument; and updating the service log.
- **Servicing the Analyzer**, which contains information about entering instrument serial numbers when replacing parts and viewing on-line help and videos related to parts replacement, maintenance, and service.
- **Troubleshooting**, which describes some of the possible problems you may encounter when using RESULT Operation software and offers suggestions that may resolve the problems.

Chapter 2 Getting Started

Welcome to RESULT Operation software. RESULT Operation software is an intuitive, easy-to-use graphical interface software package that runs your analyzer. This chapter includes information you will need to open RESULT Operation software and become familiar with the software's features. Subsequent chapters discuss the software's features in more detail.

Starting RESULT Operation

Before you can log on to the workstation, you must receive a Windows® user name and password from your Windows administrator. If you are not a RESULT administrator, then the RESULT software administrator must also add your logon information to the RESULT user list.

After you log on to the workstation, depending on how your workstation has been configured, RESULT Operation software may start automatically. If the software has not been configured to start automatically, to start the software:



1. **Double-click the RESULT Operation shortcut on your workstation desktop.**

Depending on how the software has been configured, RESULT may open a dialog box asking for your password, as shown below.



2. **Enter your Windows password, and then choose OK.**

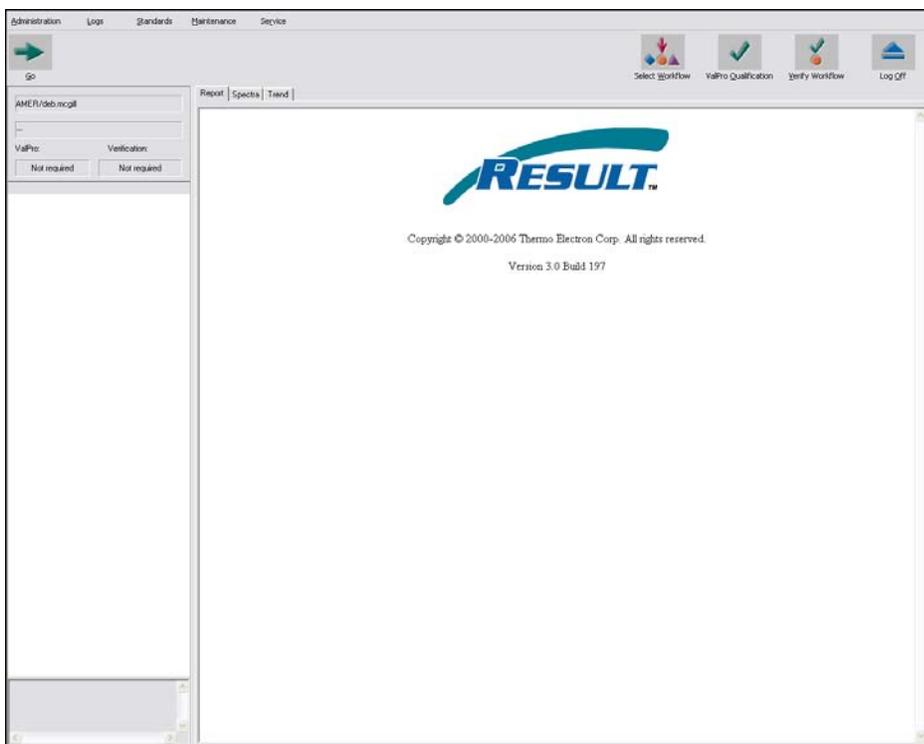
The password you entered must match your Windows password exactly, including matching letter case.

Note You are given three attempts to enter your Windows password correctly. If, after the third attempt, the software cannot verify your Windows password, the software displays the following message:



See your RESULT software administrator if you are unable to start the software. ▲

If RESULT was able to verify that your password matches your Windows password, then the software starts and the RESULT Operation main window displays.



RESULT Operation Software Main Window

Main window components

The RESULT main window consists of the menu bar, toolbar, display area, display boxes, instructions drop-down list, report navigation frame, and status indicator.

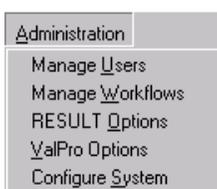
Menu bar

The menu bar appears at the top of the RESULT Operation main window. When you choose one of the items in the menu bar, that menu appears on the screen. Choose an item from the menu to open a dialog box relating to a feature in the software.

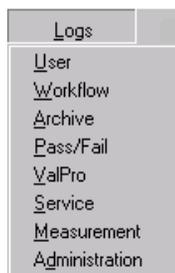


RESULT Operation Software Menu Bar

Depending on the privileges you have in RESULT, some or all of the following menus may appear in the menu bar:



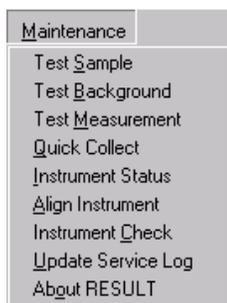
Administration. Users with the administrative-level privilege can access administrative functions including managing users, managing workflows, setting RESULT options, setting ValPro options (if your system has the ValPro System Qualification package), and configuring the system.



Logs. Users with the privilege to work with logs can query the audit log and create reports of user privilege changes, workflow changes, archive changes, instrument qualification runs, workflow pass/fail results, workflow verification runs, service log changes, concentration trends, and administrative changes to the software.



Standards. Users with the privilege to configure and run standards can configure and run standards for a particular measurement item in a workflow through the Standards menu.



Maintenance. Users with the privilege to maintain the system can use the Quick Collect feature, check the instrument's status, perform an instrument check, align the instrument, update the service log, and run test samples, backgrounds, and measurements in workflows through the Maintenance menu.



Service. Users with the privilege to access the Service menu can update on-line information about replacing instrument components and view on-line help for maintaining, servicing, and replacing parts in the analyzer.

If some of the above menus do not appear on the Menu bar, then you do not have the privilege to access those items. See your RESULT administrator if you believe you should have access to any of the menus that do not appear on the menu bar.

RESULT Operation toolbar

The RESULT Operation toolbar appears just below the menu bar and contains the following buttons:



Go. Choose the Go button to start a workflow.



Pause. While a workflow is running, this button appears. Choose this button if you need to pause a workflow without stopping it. The workflow will pause when the software completes its current task.



Stop. While a workflow is running or paused, the Stop button appears. Choose this button to stop and end the workflow. The workflow will stop when the software completes its current task.



Resume. While a workflow is paused, the Resume button appears. Choose this button to resume running the workflow.



Select Workflow. Choose this button to open the Workflow Selection window. From the Workflow Selection window, you can select and load a workflow that you have permission to run.



ValPro Qualification. If your system has the ValPro System Qualification package, choose this button to run instrument qualification.



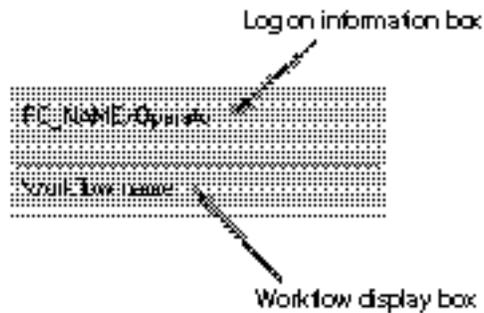
Verify Workflow. Choose this button to run a verification workflow for the workflow that is currently loaded.



Log Off. Choose this button to log off and close the software.

Display boxes

There are two display boxes that appear on the left side of the RESULT Operation main window.



Display Boxes in RESULT Operation Software

The top box is the Logon Information box. This box contains the computer name (if you are logged on to a local computer workstation only) or the domain name (if you are logged on to a network), along with your logon name.

The middle box is the Workflow Display box. This box contains the name of the workflow that is currently loaded. If no workflow is loaded, then this box will contain three dashes (---).

ValPro and Verification indicators

The ValPro and Verification indicators appear below the display boxes.

PC_NAME\Operator

Workflow name

ValPro: Verification:

Required Not required

ValPro and Verification Indicators in RESULT Operation Software

The following table shows the display messages, and their meanings for each indicator:

Display	ValPro Indicator	Verification Indicator
Not Required	Your system does not have the ValPro System Qualification package	No workflow is selected
	-or-	-or-
	An instrument qualification frequency has not been specified	The currently-loaded workflow does not require verification
Required	The software will not allow you to run production workflows until successful instrument qualification has been run	The selected workflow cannot be run in a production mode until a verification workflow has been run successfully
Satisfied	Instrument qualification has been run successfully and is not required at this time	Workflow verification has been run successfully and is not required at this time

Instrument status indicator

If the instrument status indicator is enabled, it appears below the ValPro and Verification indicators.

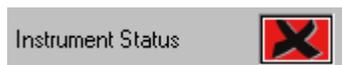


Instrument Status Indicator in RESULT Operation Software

This box appears only when the Check Instrument Status Every (Sec) option is selected in the RESULT Options dialog box. See “Chapter 5 Setting RESULT Operation Options” in the “RESULT Software Administration” manual for more information.

If the indicator is a green check mark, the instrument is running and properly connected to the computer and the key components (laser, source, power supply and electronics) are operating within specifications.

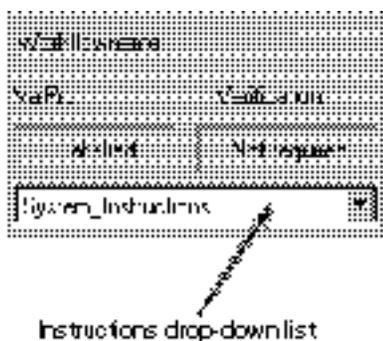
If the indicator is a red X, one of the above conditions has failed.



Run an Instrument Status check to determine the source of the problem. See “Instrument Status” in “Chapter 6 System Maintenance” of this manual for more information.

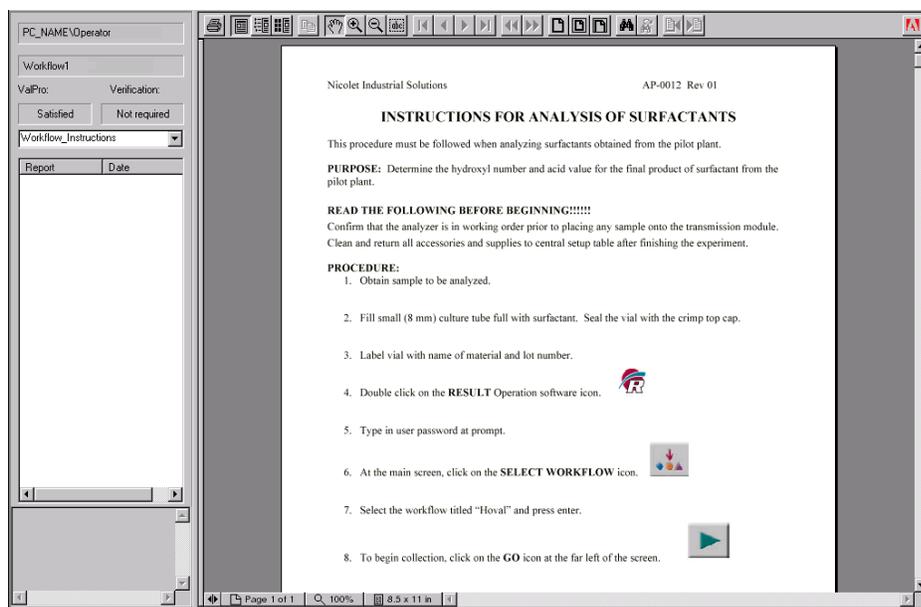
Instructions drop-down list box

Instructions or standard operating procedures (SOPs) can be attached to the software and also to specific workflows. These documents are saved as portable document format (*.PDF) files, and can be opened using Adobe® Reader®. If the software and/or a workflow has instructions or SOPs, the Instructions drop-down list box appears in the software’s main window, below the display boxes.



Instructions Drop-down List Box

To display a document, select it from the drop-down list. The software opens Adobe Reader in the display area and the document appears in Adobe Reader.



Instructions Document Viewed in RESULT Operation Software Main Window



To navigate through the instructions, use the scroll bar on the right side of the display area or choose the Hand Tool button on the Adobe Reader toolbar. The cursor turns into a hand when it is over the document. Hold the left mouse button down to “grab” the document and move it up or down in the display area.



To print the instructions, choose the Print button on the Adobe Reader toolbar.

Tip

For more information about using Adobe Reader, see your Adobe Reader documentation or the Help files in the Adobe Reader software. ▲

Note

The Instructions drop-down list box only appears if there is an instructions document attached to the software and/or to the selected workflow.

If your RESULT administrator has attached system or ValPro instructions to your software, then those instructions can always be accessed by selecting the document from the Instructions drop-down list box. ▲

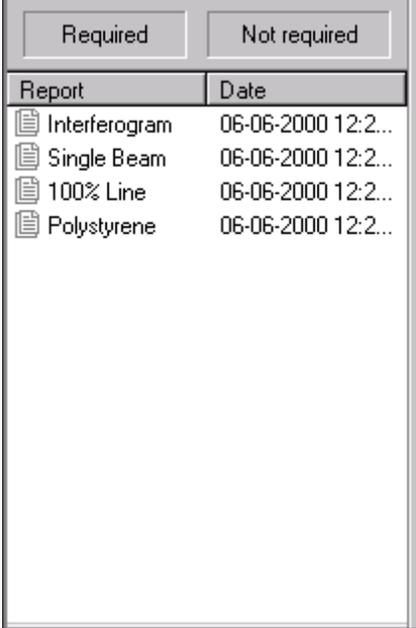
Report navigation frame

The report navigation frame appears on the left side of the software's main window below the ValPro and Verification indicators.

The name of the report appears on the left side of the frame, and the date and time the report was created appears on the right side of the frame.

If more reports appear than can be displayed, a scroll bar appears on the right side of the Report Navigation frame. Use the scroll bar to navigate up and down the list of reports.

You can adjust the proportionate widths of the Report and Date columns by placing the cursor on the line between the Report and Date headings. When the cursor appears as a two-way arrow (↔), hold the left mouse button down and move the cursor to the left or right to adjust the sizes.



Required		Not required	
Report	Date		
Interferogram	06-06-2000 12:2...		
Single Beam	06-06-2000 12:2...		
100% Line	06-06-2000 12:2...		
Polystyrene	06-06-2000 12:2...		

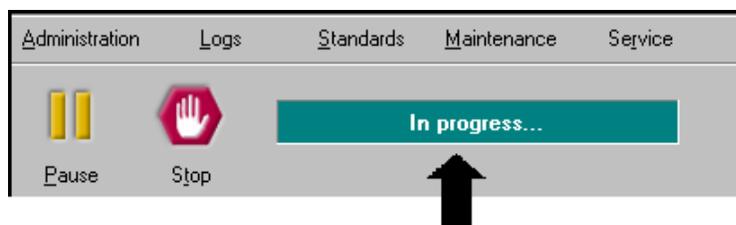
Report Navigation Frame

Reports are created when running workflows, performing an instrument check, running operational qualification, or querying the audit log. A list of those reports may appear in the report navigation frame. You can select one of the reports in the frame to display that report in the display area.

Software status indicators

RESULT Operation provides two software status indicators that display the status of workflows or tests while they are running.

When a workflow or test is running, a large green status indicator bar appears at the top left of the RESULT Operation software main window. This status indicator allows the operator to tell from a distance that an operation is in progress.

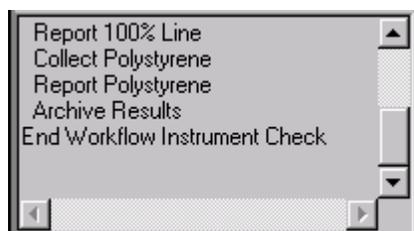


Software status indicator bar in RESULT Operation software

When a workflow or other process is running, the status indicator reads “In progress.” After the workflow or other process is completed, the status indicator disappears.

A status indicator frame also appears at the bottom left side of the RESULT Operation main window.

You can use the scroll bars on the right side and bottom of the status indicator to move up, down, and across the status indicator frame.



Software status indicator frame in RESULT Operation software

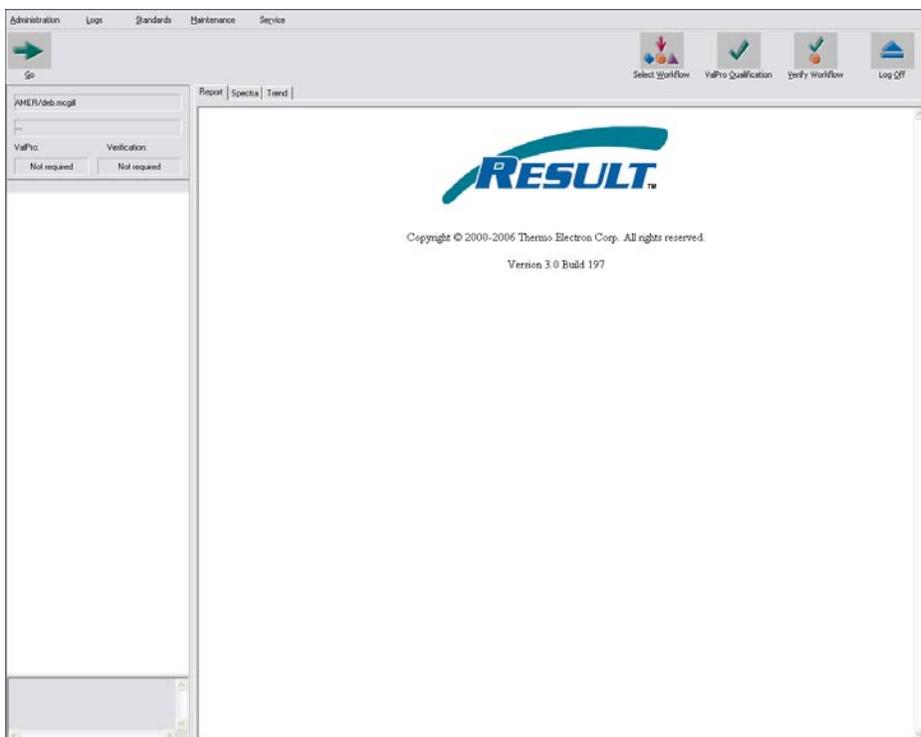
The status indicator frame provides details about the current workflow or test. For example, while running an instrument check, the status indicator displays the information it is currently gathering, as shown above.

Display area

The display area is at the right side of the RESULT main window.

If a report is longer or wider than can appear in the display area, scroll bar(s) appears on the right side and/or bottom of the display area, and you can use the scroll bar to view other areas of the report.

You can adjust the proportionate widths of the display area and the items in the left frame by placing the cursor on the line dividing the frames. When the cursor appears as a two-way arrow (\leftrightarrow), hold the left mouse key down and move the cursor to the left or right to adjust the sizes.



Display area in RESULT Operation Software

The display area shows selected reports from workflow runs, audit log queries, qualification results, and instrument status reports. If more than one report exists, you can select a particular report from the report navigation frame to display in the display area.

If your system is connected to a printer, you can print any item that appears in the display area by placing your cursor in the display area and right-clicking to open a shortcut menu. Choose Print from the shortcut menu and the software opens a standard Windows Print dialog box. From this dialog box, you can specify your printer settings and print the item in the display area.

Accessibility

RESULT Operation software has standard accessibility features, including hot keys and the ability to change display colors.

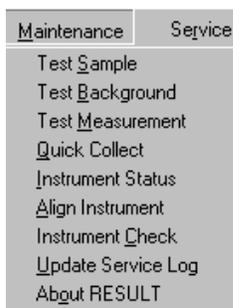
Hot keys

Each command can be accessed either by choosing a button or menu item with the mouse, or by typing Alt + a hot key. A hot key for a command is indicated by the underlined letter for that command. Some examples are:

- The hot keys for selecting a workflow are Alt + w, as indicated by the underlined letter below.



- The hot keys to choose the User Log command from the Logs menu are Alt + l, and then u, as shown below.



Display colors

Some of the display colors for RESULT can be modified by changing Windows system colors. See your Windows documentation or Windows® on-line help for information about changing display colors.

Note

If you are unable to change these settings or you are required to change the settings each time you log on to the workstation, then you have been assigned a mandatory profile or you do not have the Windows right to permanently change these settings. See your Windows administrator for more information. ▲

Quitting RESULT Operation

To quit RESULT Operation software, choose the Log Off button from the toolbar in the main menu. Depending on how RESULT has been configured, one of the following may occur:



- RESULT will close and you will remain logged on to Windows software.
- Both RESULT and Windows software will close. To open RESULT again, you will first need to log on to Windows.

RESULT may also be configured to close automatically if the software has been inactive for a specific period of time. See your RESULT administrator to find out whether this option is enabled. If RESULT does automatically close, you may be logged out of RESULT only or logged out of both RESULT and Windows software.

Chapter 3 Running Workflows

This chapter describes the information you will need for basic operation of workflows in RESULT Operation software. This chapter covers how to:

- Select a workflow
- Run a workflow
- View collected spectra, stored data, or sample reports while running a workflow
- View or print any instructions or standard operating procedures (SOPs) attached to the workflow
- View or print any reports attached to the workflow
- Run verification workflows
- Run instrument qualification.

Introduction to workflows

A workflow is a series of tasks developed in RESULT Integration software that controls the process of collecting data, measuring items, archiving data, and creating reports in RESULT Operation software. Workflows can control production sample collection, production workflow verification, and instrument qualification.

There are two types of workflows in RESULT Operation software:

- **A production workflow**, which normally includes collecting a background spectrum, collecting a sample spectrum, performing a measurement based on a method, and producing a report.
- **A verification workflow**, which is a workflow to help ensure that a particular production workflow is working properly for the purpose it was intended to be used.

In addition, if your system has the ValPro System Qualification package, the package includes workflows that run a series of qualification tests on your system.

Workflows can be in one of the following three states:

- **Enabled**, which means that the workflow can be run in a normal production mode. In order to run production workflows, you must be granted that privilege by your RESULT administrator.
- **Off-line**, which means that the workflow can be run for diagnostic purposes only, and the data produced will not be marked as production data. This state is helpful if you are encountering a problem with the workflow and want to run some tests before collecting production data, or if you are sending a new workflow into production and want to perform some test runs of it before you start collecting production data. In order to run workflows off-line, you must be granted that privilege by your RESULT administrator.
- **Disabled**, which means that the workflow cannot be run for any reason.

The System Maintenance chapter in this section of this manual describes diagnostics you can use to troubleshoot problems you may encounter when running workflows.

Selecting a workflow

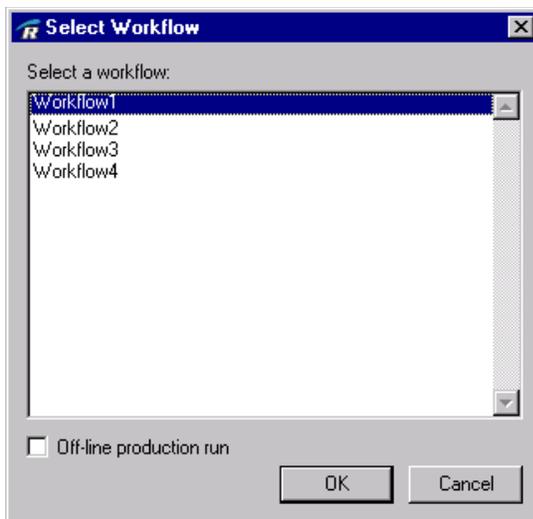
Depending upon how the software is configured, a workflow may be automatically loaded when you start RESULT Operation software, or you may have to select and load a workflow.

A workflow must be loaded before you can run it in production mode, configure and run standards for an item in the workflow, run the workflow off-line, or run test collections of backgrounds, samples, or measurements for the workflow.

Automatically loaded workflows

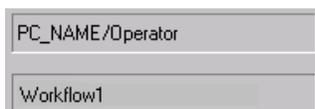
If the software is configured to automatically load a workflow, then the software will open the Select Workflow dialog box after RESULT opens, as shown below.

The Select Workflow dialog box displays all workflows that you have access to run.



If you do not have access to run workflows off-line, then the Off-line Production Run check box will be unavailable. If the workflow's state is Off-line, then this check box will be automatically selected, and you cannot change this feature.

Select the appropriate workflow, and then choose OK. After the workflow is loaded, the name of the workflow appears in the workflow display box in the main window, as shown below.



Manually selecting a workflow

If RESULT does not automatically load a workflow or if you need to select a different workflow, then you can select a workflow by opening the Select Workflow dialog box.

To select a workflow:



1. Choose the **Select Workflow** button on the toolbar in the **RESULT** main window.

The software displays the Select Workflow dialog box, as shown in the previous section.

2. Select the name of the appropriate workflow so that it is **highlighted**.

Note If the appropriate workflow does not appear in the dialog box, see your RESULT administrator. You may not have the privilege to run that type of workflow, the workflow may be disabled, or you may not have access to that particular workflow. ▲

3. If you will be running the workflow off-line, select the **Off-line Production Run** check box in the lower left corner of the **Select Workflow** window, as shown below.



If you do not select this option, then the workflow will be run in a production mode.

Note The Offline Production Run check box is available only if you have access to run workflows off-line.

If the workflow you selected only allows off-line runs, then this check box appears with a check mark in it, and you cannot clear the check box. ▲

Tip Running a workflow off-line may be useful when there is a problem with a workflow and you want to conduct some test runs of the workflow without affecting your production data. This feature may also be useful when implementing a new workflow into production. You may want to conduct some test runs of a new workflow before collecting actual production data. ▲

4. Choose **OK** to close the **Select Workflow** dialog box.

After you have selected a workflow, the name of the workflow appears in the **Workflow Display** box in the **RESULT Operation** main window.

Viewing instructions or standard operating procedures

A workflow can have a document containing instructions or standard operating procedures (SOPs) attached to it. If a workflow has a document attached to it, the instructions drop-down list box appears in the RESULT main window. Select the document from the drop-down list to display it in the display area using Adobe Reader.

See the section entitled “Instructions Drop-down List Box” in the previous chapter for information about navigating in Adobe Reader and printing a document attached to a workflow.

Note Documents attached to workflows contain important information related to running those workflows. It is advisable to view and/or print a document attached to a workflow before running the workflow. ▲

Running a workflow

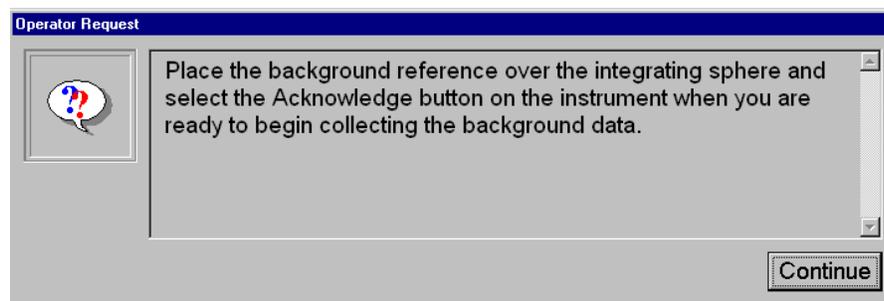
Before running a workflow, be sure you have viewed any instructions that are attached to the workflow.



When you are ready to run a selected workflow, choose the Go button on the toolbar.

If the workflow requires a background spectrum, background collection may start immediately or the workflow may prompt you to prepare for background collection. A typical background prompt is shown below.

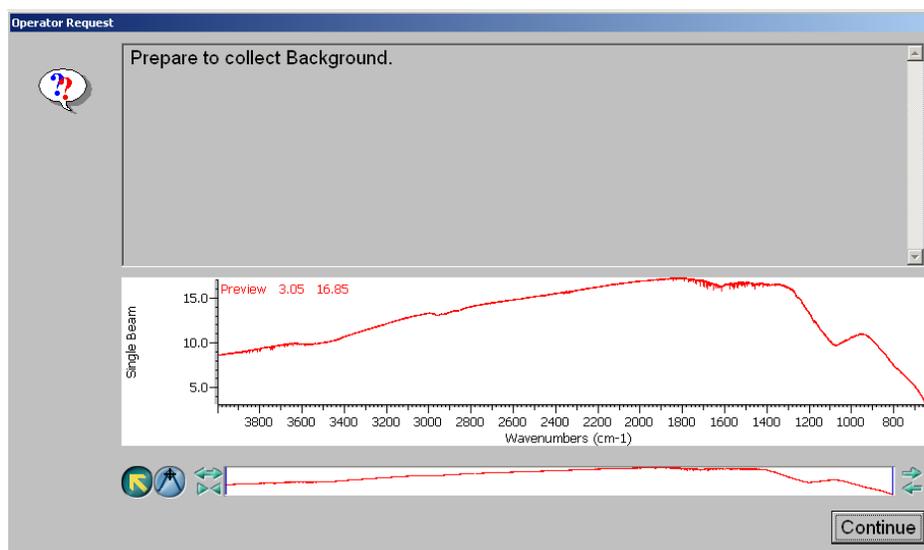
For information about configuring prompts that allow the user to respond by pressing the Acknowledge button on the instrument, see “Prompt Specifications” in “Workflow Events and Specifications.”



If the prompt is configured to allow the operator to respond by pressing the Acknowledge button on the instrument (available on Antaris Near-IR systems only), the green LED indicator on the front of the instrument will light when the prompt is displayed on the screen. Follow any instructions to prepare for the background collection and then choose Continue or, if the green LED is lit, press the Acknowledge button on the instrument.

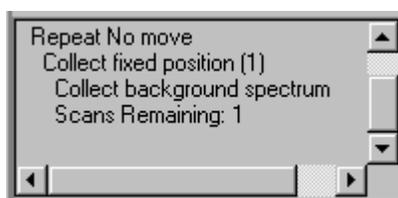
If the background prompt is configured to show a preview of background data collection, the prompt includes a collection window as shown in the example below and background collection begins immediately. The background data are displayed in the format specified in the workflow.

The background preview shows single scans of the background. If the workflow is designed to collect multiple background scans, the final background spectrum will be the average of all collected scans.

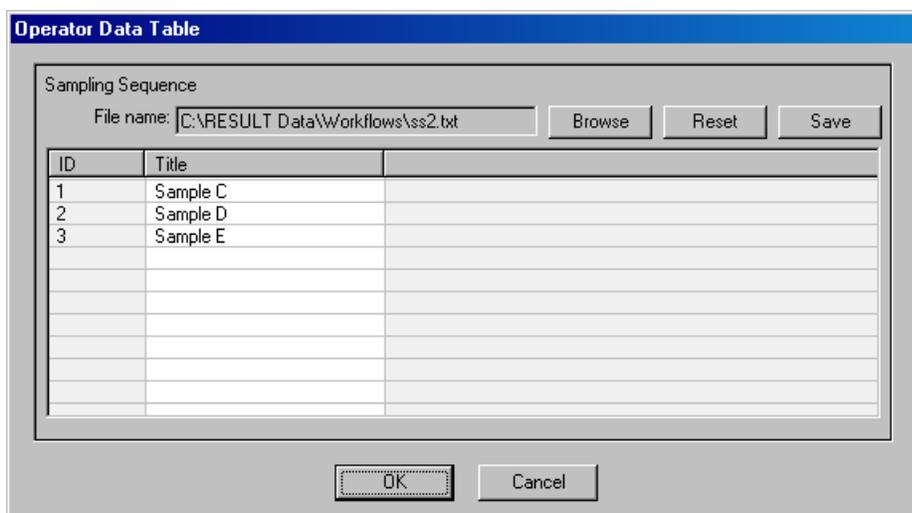


The workflow continues collecting (but not storing) the data until the operator chooses Continue in the prompt. After the operator chooses Continue, the workflow begins collecting and storing the background scans as specified in the workflow.

The software shows you the status of the background collection in the lower left corner of the window.

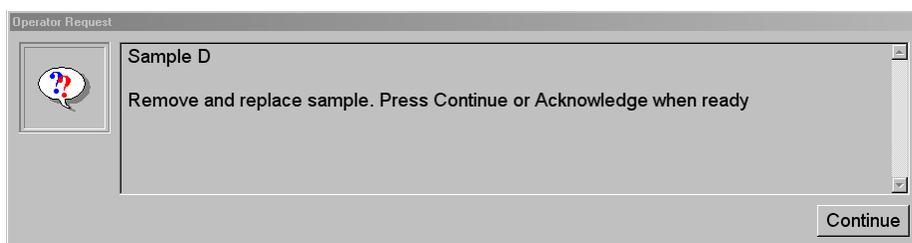


If the following dialog box appears on the screen, the workflow is set up to use a sampling sequence.



If the sample ID or position numbers and titles match the samples you plan to analyze, choose OK to continue running the workflow. If the dialog box is blank or the sampling sequence does not match your samples, use the features in the Sampling Sequence group to edit or create a sampling sequence (right click selected rows and columns for a shortcut menu of editing options) or use the Browse button to import a sampling sequence. See “Creating a sampling sequence” and “Importing a sampling sequence” in “Chapter 3 Creating and Editing Workflows” of the “RESULT Integration User Guide” for more information. When you are finished, choose OK to continue running the workflow.

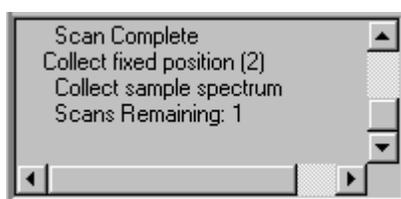
You may see additional prompts to perform various tasks. An example of a sample prompt is shown below.



When a sampling sequence is used, the prompt also shows the sample title like the example above.

If the sample prompt is configured to show a preview of sample data collection, the prompt includes a collection window similar to the background prompt shown in the previous illustration. The software begins collecting the sample scans and displays them in the window in the format specified in the workflow. The workflow continues collecting (but not storing) the sample data until the operator chooses Continue in the prompt. After the operator chooses Continue, the workflow begins collecting and storing the sample scans as specified in the workflow.

The software shows you the status of the sample collection in the lower left corner of the window.



While the workflow is running, the following buttons appear on the toolbar:



Pause. Choose this button to temporarily pause the workflow without stopping it. The workflow will pause after the software completes its current task.



Stop. Choose this button to stop and end the workflow. The workflow will stop running after the software completes its current task.

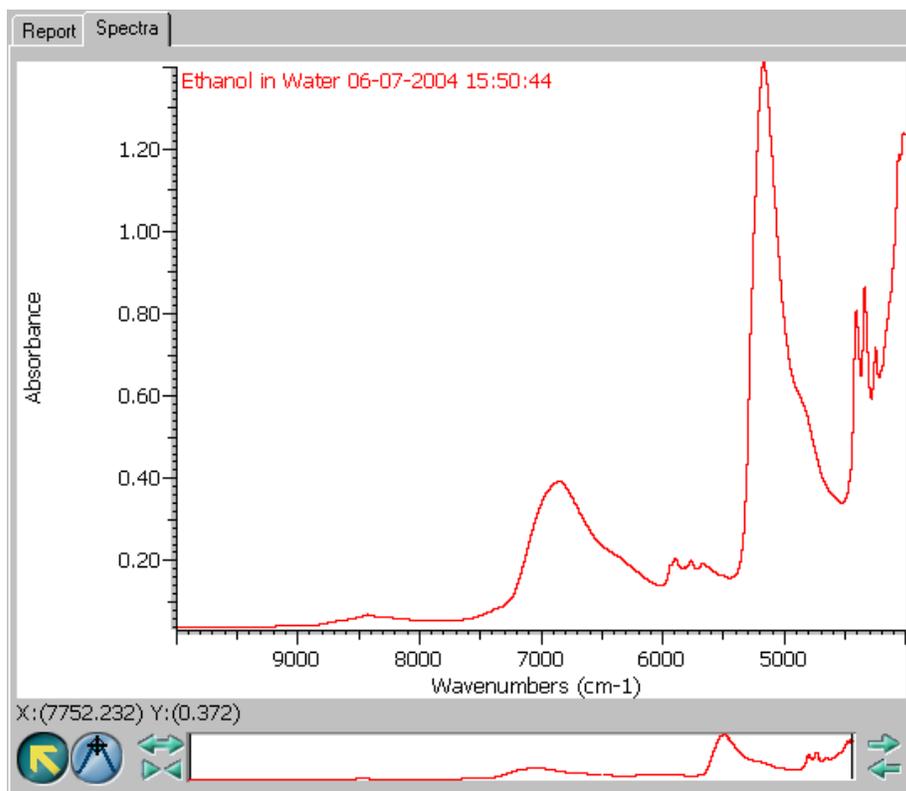


Resume. While the workflow is paused, the Resume button appears. Choose this button to continue to run the workflow.

RESULT Operation provides four options for displaying data while running tests and workflows. You can view the individual spectra or a sequence of spectra as they are collected, monitor trends in measured or input data as they are acquired, or view the sample report after the workflow has completed.

- **Viewing collected spectra.** If RESULT Operation is configured to allow the user to display spectral data when workflows are running, the Spectra tab appears in the display area as shown below. See “Chapter 4

Setting RESULT Operation Options” in the “RESULT Software Administration” manual for information about setting this display option for workflows. The operator must select the Spectra tab to show the spectral data.

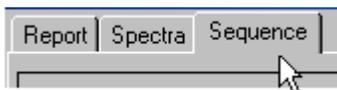


Spectra tab with displayed spectrum

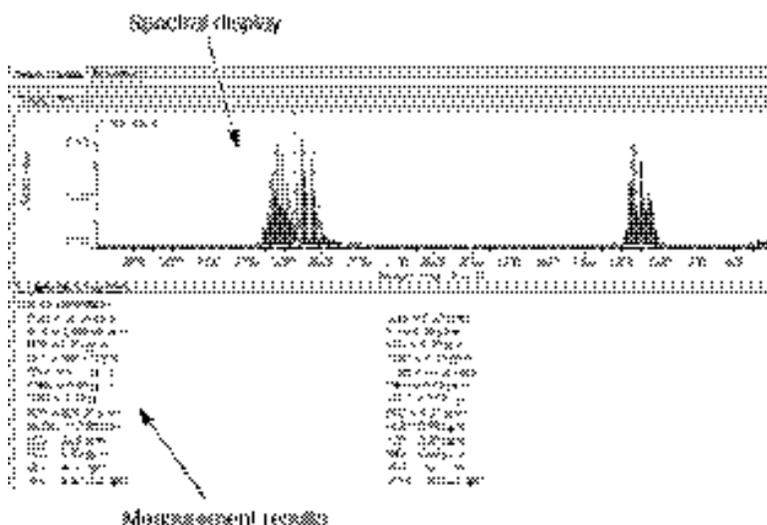
When the workflow encounters a collection event, the spectral data appear in the display area of the window. The data are updated each time the system scans the sample. After the spectrum is collected, its title appears in the upper left corner of the display area. As new spectra are added to the spectral window, the spectra are overlaid. The most recent spectrum is shown in red.

When viewing the spectral data, RESULT provides a variety of options for configuring the display window and manipulating displayed spectra. See “Viewing collected spectra while running a workflow” in the next section for more information.

- **Viewing sequence data.** If the workflow contains a run sequence event, the Sequence tab appears in the display area. The run sequence event configures RESULT software to collect and process spectra continuously. Continuous data collection provides information about samples that change composition over time. The operator must select the Sequence tab to show the sequence data.



The Sequence tab is divided into two main display areas for showing spectral data and measurement results.



Sequence tab with displayed spectrum and associated measurement results

The data and other information that may appear on the sequence tab are defined by the workflow. See “Viewing sequence data while running a workflow” in this section for details about the sequence display.

- **Viewing trends in acquired data.** If RESULT Operation is configured to allow the user to display trends in acquired data when workflows are running, the Trend tab appears in the display area as shown below. See “Chapter 4 Setting RESULT Operation Options” in the “RESULT Software Administration” manual for information about setting this

display option. The operator must select the Trend tab to show the trend data.



Trend tab with measurement results displayed in graphs and a table

The Trend tab can be used to display results produced by events in workflows over a period of time. This is relevant only for workflows that contain at least one event that produces a numerical value and a store event that saves the acquired data in the *audit log database*. Examples of events that produce numerical values include measure events (a measured concentration value is an example), request events (such as an expected concentration value), compare events (correlation coefficients or RMSEP values) and calculate events (statistical values). All this must be set up when the workflow is created. See “Creating and Editing Workflows” in the “RESULT Integration User Guide” for more information.

Before a workflow can be configured to display acquired data on the trend tab, it must be run successfully at least once to initiate a data log for the corresponding event result. Additional data may be generated all at once, for example by an embedded loop, or by simply running the workflow multiple times.

Trend data can be viewed in a graphical or tabulated format or in both formats as shown above. You can view historical data or data from a workflow that is currently running or a combination of these. To view trend data from the current workflow, start the workflow and then click the Live Update button on the Trend tab display. The button name changes to “Suspend Update” and the software begins monitoring the workflow for new data. Each time the workflow produces (and stores) a new value that is configured for display on the trend tab, the software will add a data point to the trend tab display. To stop the active update, click the Suspend Update button.

When viewing trends in acquired data, RESULT provides a variety of options for configuring the display window and manipulating displayed data. See “Viewing trend data while running a workflow” in this chapter for more information.

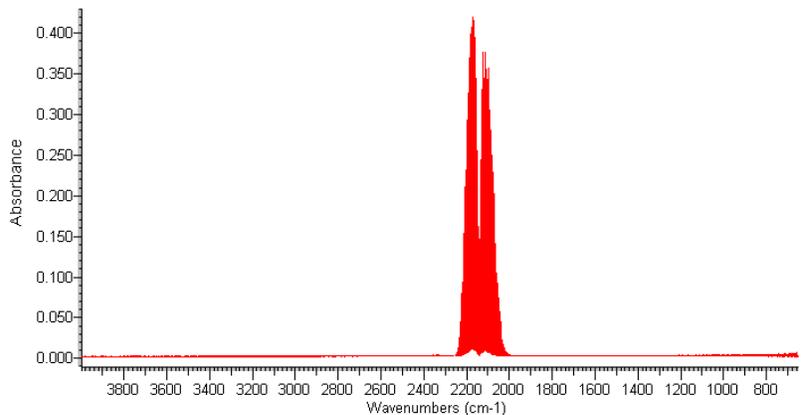
- **Viewing reports.** If the workflow has been configured to display a sample report, the software displays the report on the Report tab when the workflow has finished running. The content of the report and the report format are defined by a report event and its associated report specification in the workflow.

Quantification of Carbon Monoxide

Date of report: 3/1/2004 8:39:26 AM (GMT-05:00)
Operator: Hirsch, Jeffrey

Carbon Monoxide - CO	1,047.92
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Carbon Monoxide Plot



You can print a report from the display area by right-clicking while the cursor is in the display area and then choosing Print from the shortcut menu.

Depending on how the workflow is configured, the software may archive and/or print reports and/or spectra. The software may also require you to digitally sign spectra and/or reports that are archived. If you are required to digitally sign an item, the software displays the following dialog box:



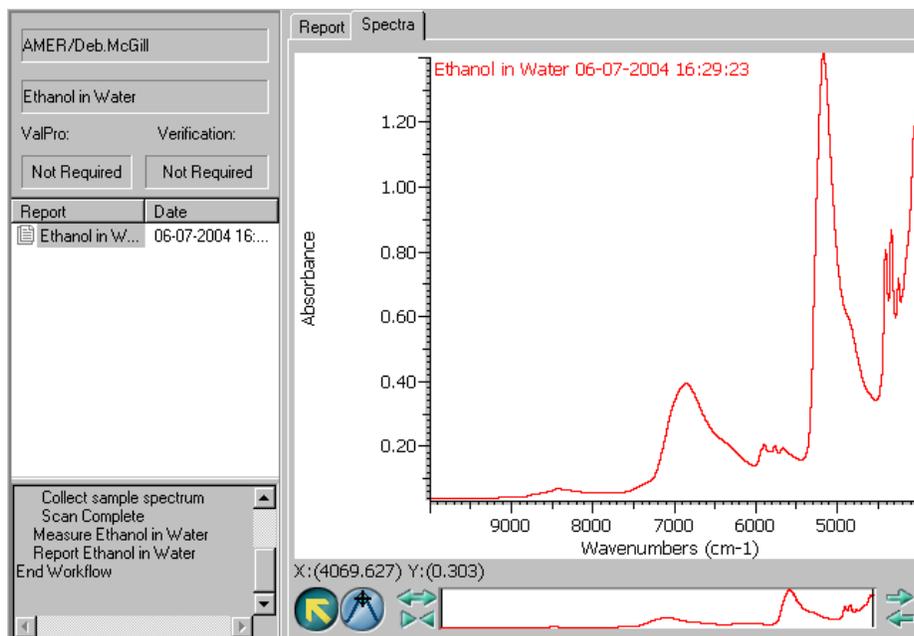
Enter your Windows password in the Password text box. The password must match your Windows password exactly, including matching letter case. Select the Authorship option from the Reason for Signature drop-down list, or enter another appropriate reason for the signature, and choose OK.

Note You have three attempts to enter your password correctly when digitally signing a file. If you are unable to correctly enter your Windows password, or if you choose Cancel from the Digital Signature dialog box, the file will not be digitally signed and the signature failure will appear as a workflow error. ▲

Viewing collected spectra while running a workflow

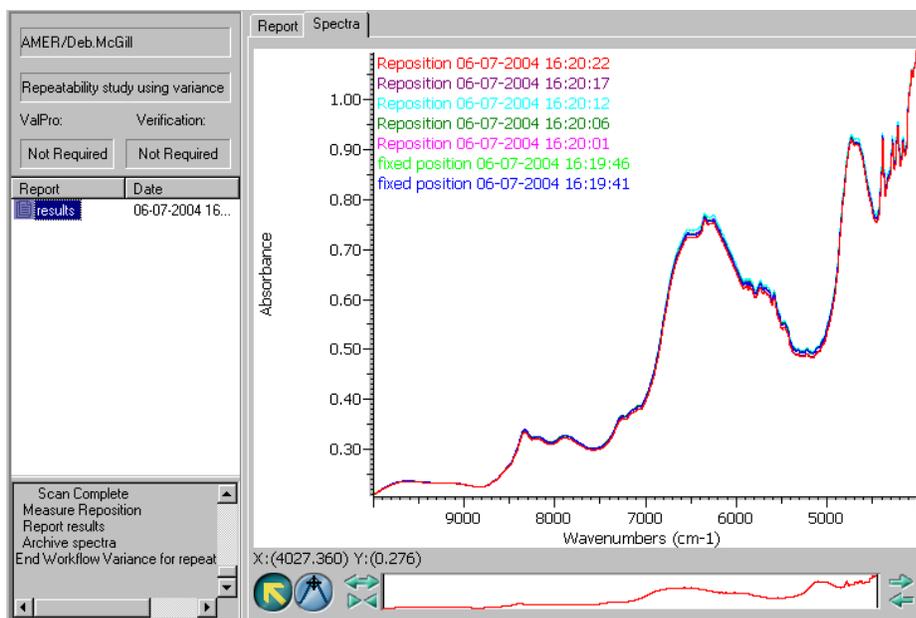
When running workflows in RESULT Operation, the software may allow you to choose whether you want to view the sample reports or the spectral data during data collection. See “Chapter 4 Setting RESULT Operation Options” in the “RESULT Software Administration” manual for information about setting this display option for workflows.

If RESULT Operation is configured to allow the user to display spectral data when workflows are running, the Spectra tab appears in the display area as shown below.



The operator must select the Spectra tab to show the spectral data. The status of the workflow is shown in the lower left corner of the window. When the workflow encounters a collect event, the spectral data appear in the display area of the window. The data are updated each time the system scans the sample.

Each new spectrum appears in red in a new pane and the spectrum title is added to the top of the list of titles. The panes are overlaid which means they are on top of one another, similar to a neat pile of transparent sheets.



The display will show a maximum of ten spectra. After ten spectra have been displayed, the next collected spectrum replaces the first one. When the workflow is finished running, it displays the Report tab to show the operator the analysis results.

When viewing the spectral data, RESULT provides a variety of options for configuring the display window and manipulating displayed spectra.

The following tools are available for manipulating the displayed data.



Selection tool. When selected, the selection tool lets you select a spectrum, expand an area of a spectrum, and reduce the size of a spectrum.



Spectral cursor tool. Use the spectral cursor tool to see the X and Y values of points in a spectrum. For example, you can use the tool to find the height and location of a peak.



Expand tool. Expands all the spectra horizontally about the center of the pane.



Contract tool. Contracts all the spectra horizontally about the center of the pane.



Roll right tool. Moves all the spectra to the left (to view a spectral region to the right).

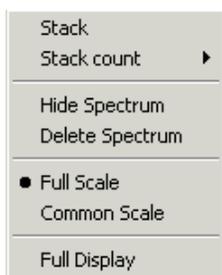
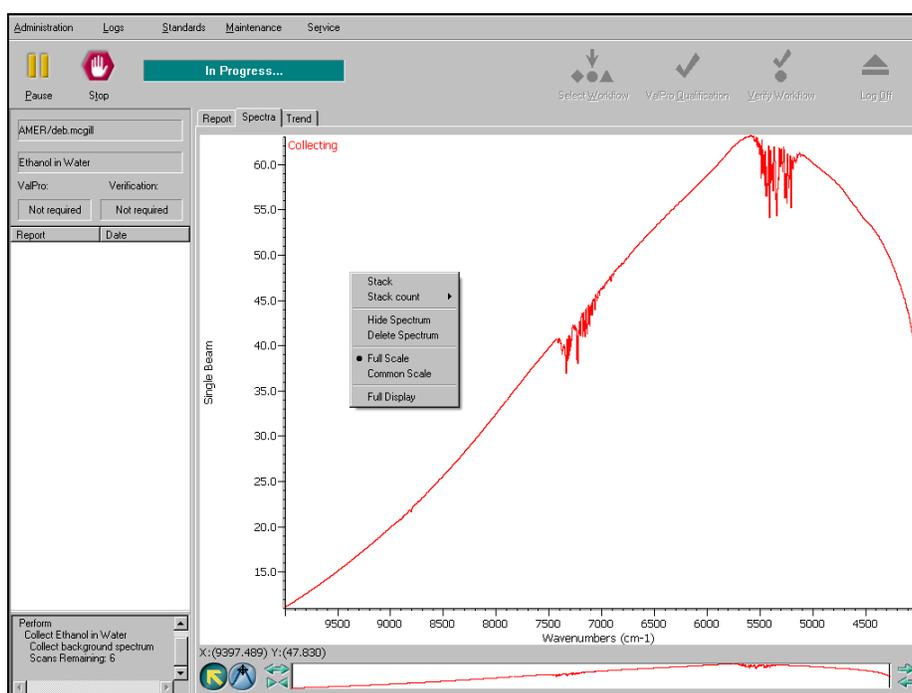


Roll left tool. Moves all the spectra to the right (to view a spectral region to the left).



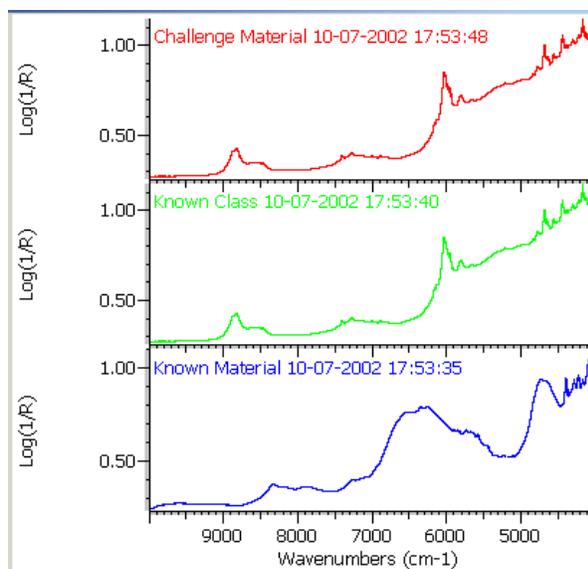
View finder. The view finder lets you adjust the display of all the spectra in a spectral window to show a larger or smaller spectral region or a different region of the same size.

You can access additional options for configuring the display from a shortcut menu. To display the shortcut menu, right-click inside the display area as shown below.



The shortcut menu contains the following menu options:

Overlay/Stack. If the spectra in the display area are currently overlaid (see the example above), Stack is available in the shortcut menu. When you choose the command, the spectra appear in a "stack" of panes, each of which can contain only one spectrum (see the example below), and the command name changes to Overlay.



Stacked spectra

Stacking spectra is most useful when you are comparing spectra that are significantly different. The number of stacked panes is determined by the setting of Stack Count in the shortcut menu.

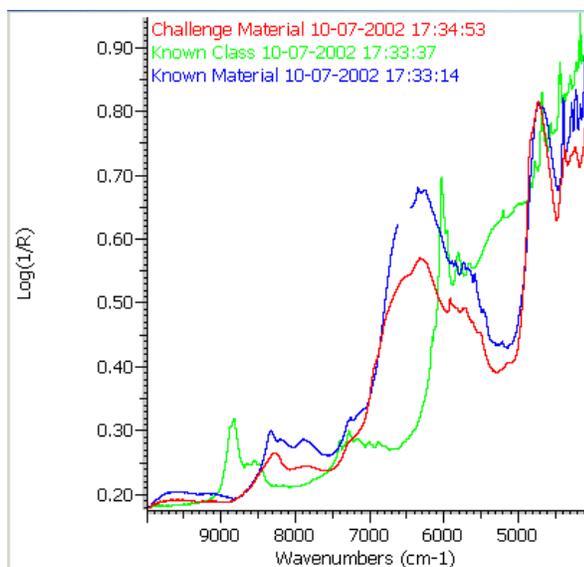
There can be more spectra in the window than there are panes. In this case some spectra may be out of view "above" or "below" the panes and a scroll bar appears at the right of the window. Use the scroll bar to scroll the additional spectra into view.

The title of each stacked spectrum is shown in the spectrum's pane.

Each pane in the stack has its own Y-axis. Any X-axis adjustments that you make will affect all of the spectra in the window.

If the spectra in the Display area are currently stacked, Overlay is available in the shortcut menu. When you choose the command, the spectra are overlaid and the command name changes to Stack.

When you overlay spectra (see the example below) in the spectral display area, their panes are on top of one another, similar to a neat pile of transparent sheets.



Overlaid spectra

The titles of the overlaid spectra are shown in the upper left corner of the display area.

Overlaying spectra makes it easy to compare them visually, especially when their features are similar. (Expanding the display can help you see small differences in a particular region.)

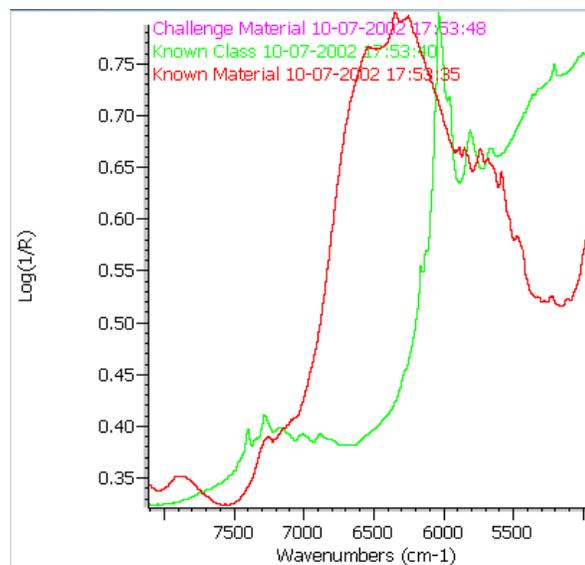
Whether spectra are overlaid or stacked, the selected spectrum is shown in red.

Stack Count. Use Stack Count in the shortcut menu to specify the number of panes to display when you stack spectra using Stack in the shortcut menu. Typically two or three panes are stacked for visually comparing spectra.

Hide Spectrum. To hide the selected spectrum so that it doesn't appear on the screen, use Hide Spectra in the shortcut menu. A hidden spectrum cannot be seen in the spectral window; only its title appears in the overlaid or stacked pane. When a spectrum is hidden, its title is displayed in italic. To make a hidden spectrum visible again, click the spectrum title in the pane.

Delete Spectrum. To delete the selected spectrum, use Delete Spectrum in the shortcut menu. A deleted spectrum cannot be retrieved.

Full Scale. Use Full Scale in the shortcut menu to adjust the vertical scale of the displayed spectra so that they fill their panes (see the example below).

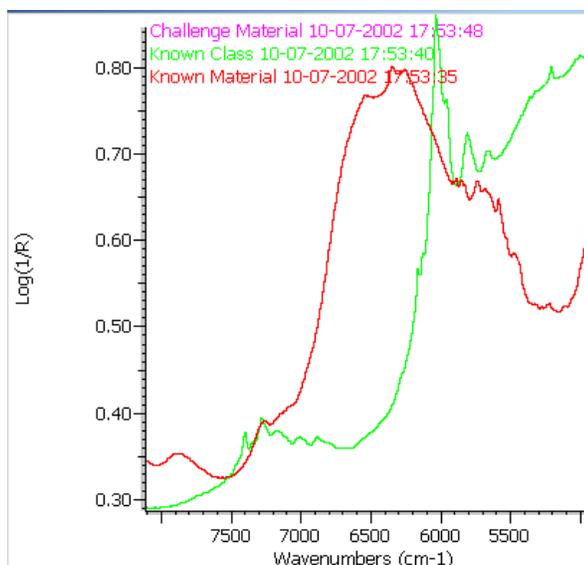


Overlaid spectra displayed full scale

Full Scale brings the highest data point of each spectrum to the top of the pane and the lowest data point of each spectrum to the X-axis.

Full Scale changes the vertical scale for the entire spectrum, not just the displayed portion. However, only the displayed region is used to find the highest and lowest points that will be used when the vertical scale is changed. The Y-axis scale matches the selected spectrum.

Common Scale. Use Common Scale in the shortcut menu to display all the spectra using the same Y-axis scale, making it easy to compare their relative peak heights visually. The minimum and maximum Y values from all the spectra become the new Y-axis display limits. Here is an example.



Overlaid spectra displayed using a common scale

Common Scale changes the display scale for the entire X-axis range, not just the displayed portion. However, only the displayed region is used to calculate the highest and lowest points which will define the common scale.

Displaying spectra with a common scale is useful when you are quantifying spectra or comparing them visually to see differences in the concentrations of components.

Full Display. Use Full Display in the shortcut menu to adjust the displayed spectra horizontally to their X-axis limits. Full Display also adjusts the vertical scale based on the current setting for the Y-axis (Full Scale or Common Scale).

Operations with displayed spectra

This section explains the operations you can perform with displayed spectra using the tools available in the spectral display area in RESULT Operation software.

Selecting a spectrum

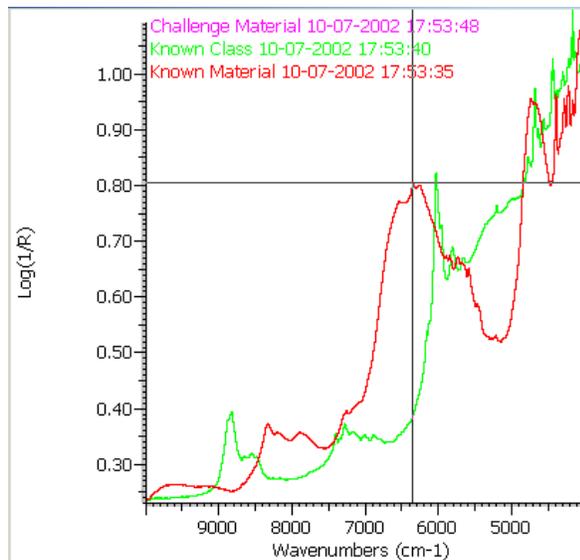
Click the spectrum using the selection tool. The spectrum becomes selected, and any other spectra that were selected are no longer selected.

When a spectrum is selected, it is displayed in red. Its title is also displayed in red.

Using the spectral cursor tool to locate peaks



To move the spectral cursor to a point in the selected spectrum, click the point. It does not matter if you click above or below the spectrum; only the X value is used.

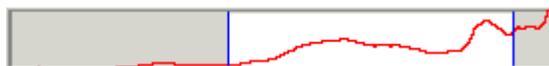


If you find it difficult to position the cursor exactly where you want it, first expand the display of the region of interest by using the view finder or selection tool.

Using the view finder

The view finder lets you adjust the display of all the spectra in a spectral window to show a larger or smaller spectral region or a different region of the same size.

The view finder contains a small image of the entire selected spectrum, regardless of which region of the spectrum is currently displayed. If more than one spectrum is displayed, the horizontal range of the view finder encompasses the ranges of all the spectra. The region markers, the blue vertical lines within the view finder, indicate the currently displayed spectral region.



Use the view finder to perform the following operations with displayed spectra.

- Expand or contract the display
- Display a different spectral region of the same size
- Change the display limits by moving the region markers
- Display the entire spectrum.

Expanding or contracting the display

You can expand or contract spectra by using the Expand and Contract buttons at the left side of the view finder.



To expand all the spectra horizontally about the center of the pane, click the Expand button.



To contract the spectra horizontally about the center, click the Contract button.

You can press and hold down the mouse button during these operations to continuously expand or contract the display.

Note

None of the spectra moves on the screen while you are expanding or contracting spectra, even if several spectra are displayed. When you are finished, all the spectra in the window are adjusted for any change you made in the X dimension. ▲

Displaying a different region of the same size

There are three ways to use the view finder to display a different spectral region of the same size:

- Roll the spectrum right or left. To move the spectrum to the right ("roll" to the right), click the right arrow  at the right of the view finder. To roll to the left, click the left arrow  at the right of the view finder.

You can press and hold down the mouse button during these operations to roll continuously to the right or left.

Note If you use the Roll button to completely compress a spectrum against one end of the view finder, you must click the Contract  button before you can use the Roll button again. ▲

- Point anywhere between the region markers, press and hold down the mouse button, drag the markers to the desired location and then release the mouse button.
- Click to the left of the left region marker or to the right of the right region marker. Whenever possible, the new displayed region will be centered on the location you clicked. The markers will move so that the clicked location is halfway between the markers.

Changing the display limits by moving the region markers

Drag a marker in the view finder left or right to the desired location. The current X values of both markers appear in a box above the view finder while you drag the marker.

Displaying the entire spectrum

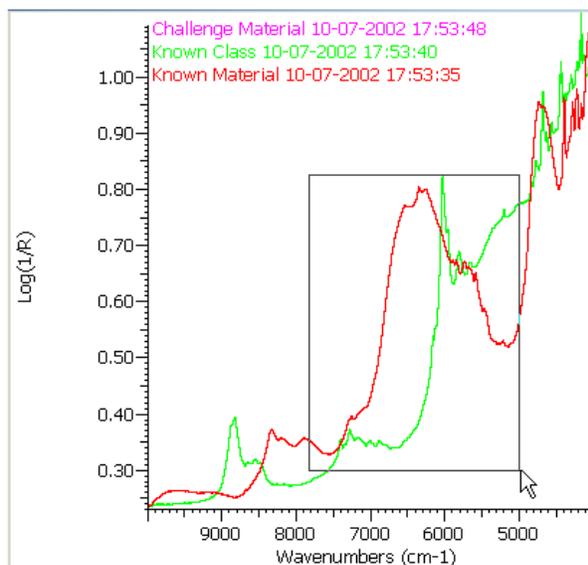
To display the entire spectrum, double-click between the region markers in the view finder.

Expanding an area of a spectrum

Follow these steps to use the selection tool to quickly expand an area of a spectrum.

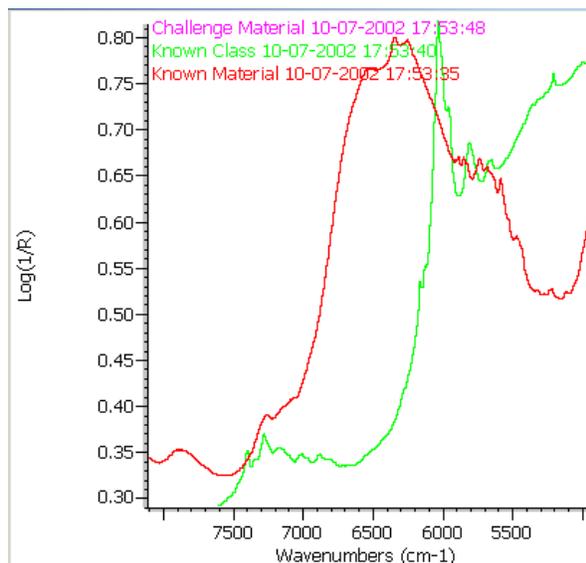
- 1. Use the selection tool to draw a box around the area you want to expand.**

To draw the box, first point to where you want to locate a corner of the box. This point should be at the desired minimum or maximum X value and minimum or maximum Y value. Then press and hold down the mouse button, drag the pointer to a location for the opposite corner and then release the mouse button. Here is an example:



2. Click inside the box.

The area inside the box expands to fill the pane and the box disappears.



The new display limits of the X-axis and Y-axis are those of the box.

If you change your mind before clicking inside the box and want to expand a different area, first remove the box from the screen by clicking a location outside the box and then repeat the action described above.

Reducing the display size of a spectrum

There are two ways to reduce the display size of a spectrum.

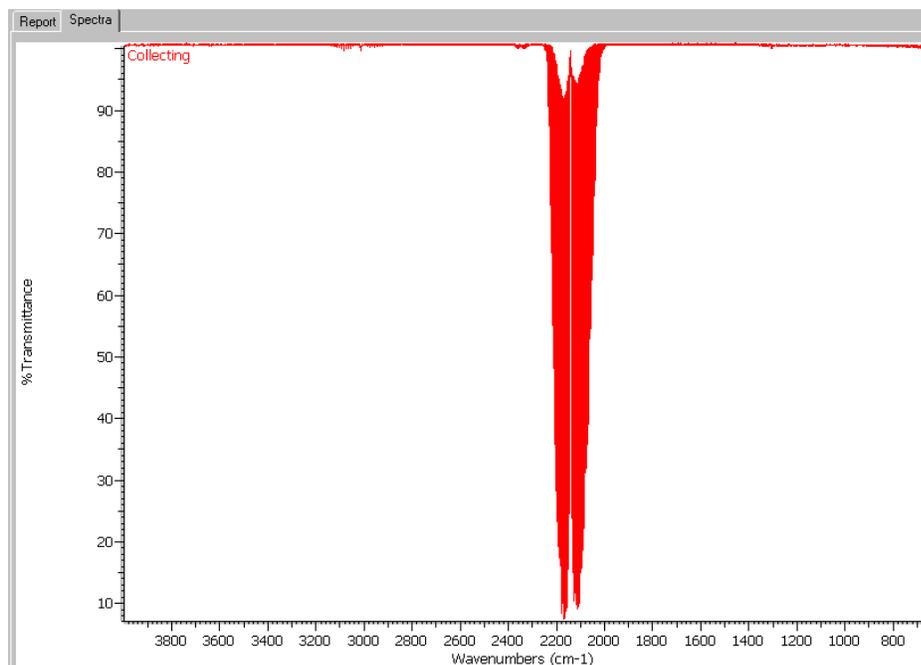
- Double-click between the markers in the view finder. The X-axis of each displayed spectrum expands to its display limits. The Y-axis is unchanged.
- Right-click inside the spectral display area of the RESULT Integration main window. A shortcut menu appears on the screen. In the shortcut menu, choose Full Display. The X-axis of all displayed spectra expands to its display limits. The Y-axis is also adjusted, depending on the selected Y-axis display setting in the shortcut menu (Full Scale or Common Scale).

Viewing sequence data while running a workflow

Collecting sample data is dictated by the workflow you are running. A workflow can be set up to collect data over a period of time and then process the data to a spectrum, or to collect and process data continuously.

If the workflow uses a collect event to collect sample data, the data are collected over a period of time and then processed to a spectrum. If the Spectra tab is enabled for the display area and the tab is selected, you will see a single spectrum during data collection. The spectrum is updated each time the instrument scans the sample.

See “Viewing collected spectra while running a workflow” in the previous section for details about the spectral display.



All the collected scans are averaged to produce the final spectrum. This is the traditional method for collecting data with a workflow.

If the workflow includes a report event, the display switches to the Report tab when data collection is complete. The Report tab will show the analysis results.

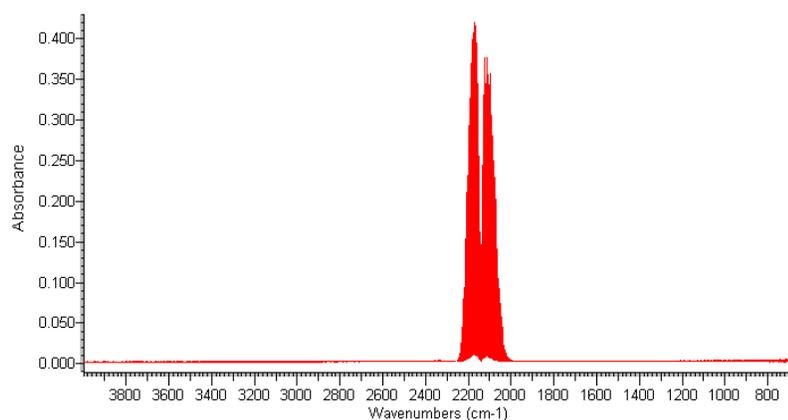
The content of the report and the report format are defined by a report event and its associated report specification in the workflow.

Quantification of Carbon Monoxide

Date of report: 3/1/2004 8:39:26 AM (GMT-05:00)
Operator: Hirsch, Jeffrey

Carbon Monoxide - CO	1,047.92
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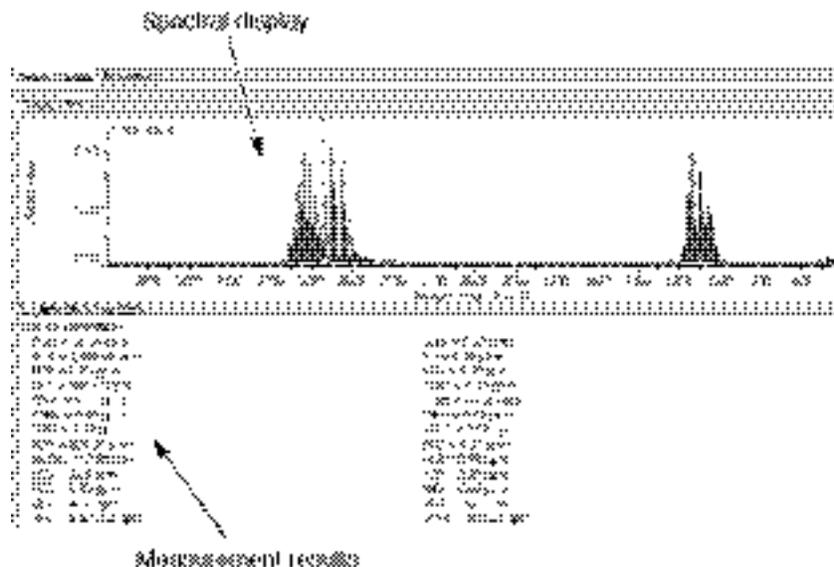
Carbon Monoxide Plot



The analysis results provide you with an average of the sample concentration over the time of the data collection. This technique is appropriate when the relative sample concentrations do not change dramatically in a short period of time.

If the workflow uses a run sequence event to collect sample data, the data are collected and processed continuously and the Sequence tab appears in the display area. The operator must select the Sequence tab to view the sequence data during collection.

The Sequence tab is divided into two main display areas for showing spectral data and measurement results.



The spectral display appears in the upper part of the tab and shows the most recent spectrum. The spectral display updates each time the instrument collects and processes a new spectrum. The rate of data collection is determined by the resolution, mirror velocity and number of scans collected for each spectrum. The spectra are displayed in sequence; each spectrum represents a “snapshot” of the sample at a particular moment in time. The vertical axis shows intensity (the workflow defines the data format) and the horizontal axis is in wavenumbers (cm^{-1}).

Depending upon how the run sequence event is set up in the workflow, the lower portion of the Sequence tab may show the measurement results calculated by the workflow over the time of the data collection. The measurement results can be component concentrations from a quantitative analysis, a match value or class number from a classification analysis, or peak heights or areas. The available results and types depend on the analysis method or methods associated with the run sequence event in the workflow.

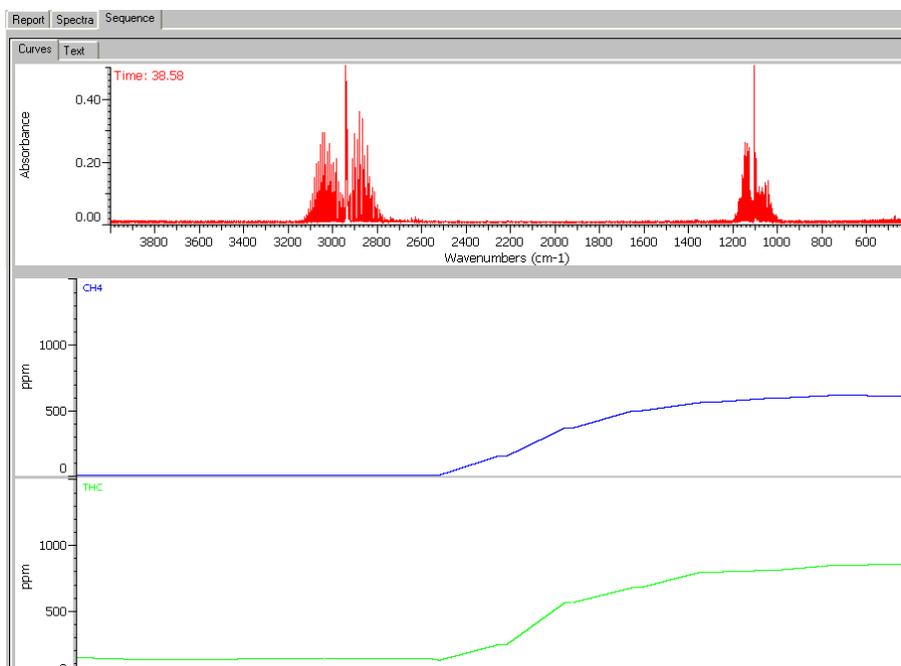
You can choose between a text format and a run chart format for displaying the measurement results. The text format (shown above) provides a running list of the calculated values over the time of the data collection. Each time the software collects a new spectrum, it recalculates the results and then displays the new values.

To display the measurement results in a run chart format, select the Curves tab at the top of the sequence display.



When the Curves tab is selected, the lower display area may be divided into one or more panes.

The run sequence event in the workflow specifies the number of curves displayed during data collection and the Y-axis limits for each curve



Each pane shows a measurement calculated by the workflow over the time of the data collection. The vertical axis shows sample concentration (the analysis method defines the component name and unit) and the horizontal axis is in seconds. The software adds data points to the concentration curves each time it collects a new spectrum.

When data collection is complete, the display switches to the report tab, which shows the analysis results.

The content of the report and the report format are defined by a report event and its associated report specification in the workflow.

Sequence Analysis	
Sequence Analysis	
Run Sequence title	Gas Sequence
Run Sequence start time	2/27/2004 11:07:40 AM (GMT-05:00)
Run Sequence end time	2/27/2004 11:09:44 AM (GMT-05:00)
Archived base name	No result files archived
Run Sequence aborted	False
Collect Sequence	
Collect Sequence title	Gas Sequence
Collect Sequence start	2/27/2004 11:07:40 AM (GMT-05:00)
Total collection time (seconds)	59.245
Number of spectra collected	30
Number of Fail results in Collect Sequence	0
Number of Pass results in Collect Sequence	30
Number of spectra archived	0
Requested temperature	80
Requested pressure	650
<i>This report was produced in Diagnostic mode</i>	

The analysis results provide you with a summary of the sample concentration values measured over the time of the data collection. Depending upon how the run sequence event is set up, the entire data set may also be available. The sequence collection technique is typically used to monitor a flowing or evolving sample so that any fluctuations in the concentrations of the sample components can be measured and recorded.

RESULT provides a special application called “RESULT Data View” for viewing sequence data files. You can use the RESULT Data View application to display the spectra collected from a sequence experiment as well as the measured concentration values or other analysis results. The analytical data are presented on a time axis; selecting a data point displays the component concentration or other measured value, the collection time and the corresponding spectrum. To learn more about RESULT Data View, including an overview of the application’s main window and brief descriptions of the key features, see the “RESULT Data View User Guide.”

Viewing trend data while running a workflow

RESULT Operation software tracks numerical values stored in the *audit log database* from events in workflows. Using this information, you can retrieve and display data showing specific trends in workflows, events, and values. This information can be helpful to show if values of certain measurements or other items are increasing or decreasing throughout a series of experiments and/or over a period of time.

If RESULT Operation is configured to allow the user to display trends in acquired data, the Trend tab appears in the display area as shown below. See “Chapter 4 Setting RESULT Operation Options” in the “RESULT Software Administration” manual for information about setting this display option.



Trend tab display

The operator must select the Trend tab to show the trend data. Trend data can be viewed in interactive graphs (control charts) or listed in a table or shown in both formats as in the illustration above. You can view the data as they are acquired, or combine new values with data collected in the past, or view a combination of new and historical data. You can also use the features on the trend tab to display historical data collected from other workflows over a period of time.

Any workflow that acquires numerical data and stores it in the audit log database can be configured to display data on the trend tab. The sections that follow explain these requirements and demonstrate how to configure the trend tab to display specific values from workflows.

Setting up the Trend tab to display trends in acquired data

The Trend tab can be used to display results produced by events in workflows over a period of time. Only workflows that meet certain criteria will produce results that can be displayed on the Trend tab. The trend tab must be set up to retrieve the selected data for display. These requirements and tasks are explained in the sections that follow.

Requirements for workflows

Workflows that meet the following requirements can be configured to display acquired data on the Trend tab:

- The workflow must include at least one event that produces a numerical value. Examples of events that produce numerical values include measure events (a measured concentration value is an example), request events (such as an expected concentration value), compare events (correlation coefficients or RMSEP values) and calculate events (statistical values). All this must be set up when the workflow is created. See “Creating and Editing Workflows” in the “RESULT Integration User Guide” to learn how to add events to workflows. For information about configuring specific events in a workflow such as measure events and request events, look up the event name in “Section 5 Workflow Events and Specifications.”
- The workflow must include a store event that saves the value(s) you want to track in the *audit log database*. See “Store events” in “Workflow Events and Specifications” for more information.

Starting a trend data log for a workflow

Before a workflow result can be selected for display on the Trend tab, the workflow must be run successfully at least once to initiate a data log for that workflow result.

To start a data log for events in a workflow, simply run the workflow. Depending on how the workflow is configured, it may produce multiple values and store them all at once, for example by using an embedded loop, or it may produce one value or set of values each time the workflow is run.

Selecting workflow results for display on the Trend tab

After you have run the workflow to start a data log for the values you want to monitor, the workflow name will be available for selection in the Trend Display Setup dialog box.

Follow these steps to select a workflow result for the Trend tab display:

1. **Select the Trend tab if it is not already selected and then choose Display Setup.**

The software opens the Trend Display Setup dialog box.

Trend Display Setup

Log Settings

Run mode: All modes

Show upper/lower limits on trend chart (The limits are not part of workflow control)

Workflow	Event	Value	Label	Y min	Y max	Lower limit	Upper limit	Decimal places

Add

Date options: All dates

Starting date: 5/23/2006 Time: 10:32:29 AM

Ending date: 5/23/2006 Time: 10:32:29 AM

User log on: Select...

All user log ons

PC name: Select...

All PC names

Display Settings

Show trend chart

Style: Scatter

X-axis label: Data Point

Stack curves Number of panes in stack: 2

Overlay curves

Show markers Symbol: Square Size: Small

Show trend table

Include these items

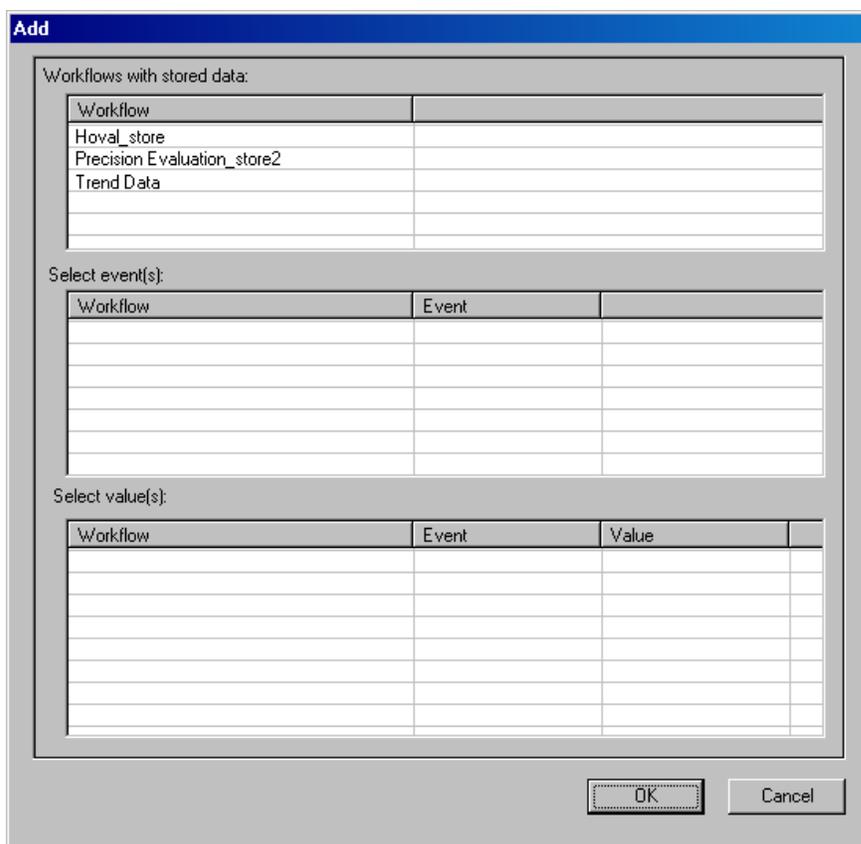
- Key ID
- Date
- PC
- Operator Name
- Audit Type
- ID
- Workflow Name
- Workflow GUID

Reset

Load Settings... Save Settings... OK Cancel

2. **Choose Add in the Log Settings group.**

The software opens the Add Workflow dialog box.



The Workflows With Stored Data box lists the names of workflows that have at least one acquired value that is stored in the *audit log database*. Only workflows that contain a properly configured Store event and that have been run at least once in RESULT Operation are eligible for display in that list. To learn how to set up a workflow to store acquired values in the audit log database, see “Store events” in “Workflow Events and Specifications.”

3. Select the name of the workflow that produces the value you want to monitor.

You may need to scroll the list to display the workflow name. After you select the workflow name, a list of the events in the selected workflow that have a stored result appears in the Select Event box. The picture below shows an example.

A workflow must have been run at least once and must contain a store event that is configured to store at least one numerical event result in the audit log database before the workflow name will appear in this list.

Workflows with stored data:

Workflow	
Hoval_store	
Precision Evaluation_store2	
Trend Data JH	

Select event(s):

Workflow	Event
Hoval_store	Surfactant

4. Select the name of the workflow event that produces the value you want to monitor.

You may need to scroll the list to display the event name. After you select the event name, a list of the numerical values that are stored in the audit log database appears in the Select Value box as in the next example.

Select event(s):

Workflow	Event	
Hoval_store	Surfactant	

Select value(s):

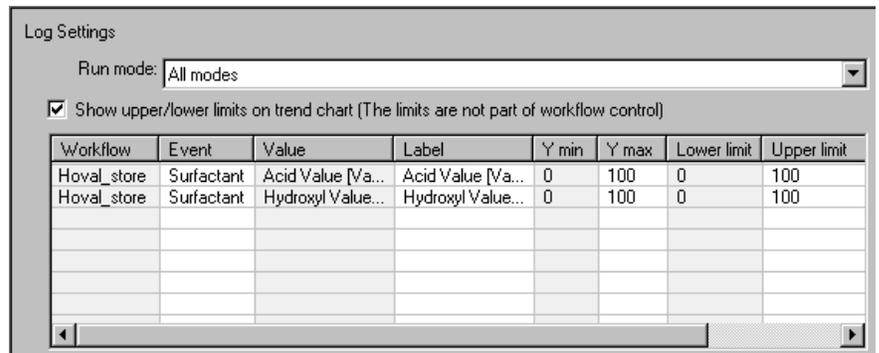
Workflow	Event	Value
Hoval_store	Surfactant	Acid Value [Value]
Hoval_store	Surfactant	Hydroxyl Value [Value]

5. Select the numerical values you want to monitor.

You may need to scroll the list to display the value name. Hold down the Ctrl key on the keyboard to select multiple entries; use the Shift key to select multiple entries that are in sequence.

6. Choose OK to save your settings and close the Add Workflow dialog box.

The software returns to the Trend Display Setup dialog box. The table in the Log Settings group shows the values you selected and their associated event and workflow names.



Workflow	Event	Value	Label	Y min	Y max	Lower limit	Upper limit
Hoval_store	Surfactant	Acid Value [Va...	Acid Value [Va...	0	100	0	100
Hoval_store	Surfactant	Hydroxyl Value...	Hydroxyl Value...	0	100	0	100

7. Use the Label column to enter a descriptive name for each value.

The label will appear on the trend chart after you close the Trend Display Setup dialog box. The software uses the Value name from the workflow as the default label. To edit a label, double click the corresponding field.

8. Set the Y-axis display limits for the trend chart.

Use the Y Min and Y Max columns in the table to specify upper and lower limits for the trend chart. The appropriate values will depend on the analysis limits for the corresponding values in the analytical method associated with the workflow. If you're not sure what limits to use, leave the default limits (0 to 100). You can use Display Setup to return to the Trend Display Setup dialog box to edit the display limits at any time.

9. Set optional acceptance limits for the trend chart.

Use the Upper Limit and Lower Limit columns in the table to specify high and low Y-axis values that correspond with the acceptance limits for the analysis, if desired. The software will place two horizontal lines on the trend chart at the specified Y-axis locations. The appropriate values will depend on the expected results for the corresponding measurement in the analytical method associated with the workflow. If you are not sure what limits to use or if you don't want acceptance limits to appear on the trend chart, set both limits to "0" or use limits that match the Y-axis display limits.

10. Specify the number of decimal places to display in the trend table.

Use Decimal Places in the Log Settings table to define the number of decimal places to include in the Measured Value column of the trend table, when it is included for display.

11. Select the features to include on the Trend tab display.

Make sure Show Trend Chart and Show Trend Table are selected in the Display Settings group to include the graph and table on the Trend Tab display.



12. Choose OK to save your settings and display the selected data using the current settings for the Trend tab display parameters.

The software will close the Trend Display Settings dialog box and return to the Trend tab display. See "Setting Trend tab display parameters" in the next section for information about customizing the Trend tab display.

Setting advanced options for retrieving data from the audit log

The software can be customized to retrieve data stored from workflows run in a specific mode (production or off-line), in a specific date range, by specific users, and with a specific computer for display on the Trend tab. These advanced settings can be accessed through the Trend Display Setup dialog box.

To set advanced options for retrieving stored data:

1. Select the Trend tab and then choose Display Setup.

The software opens the Trend Display Setup dialog box.

Trend Display Setup

Log Settings

Run mode: All modes

Show upper/lower limits on trend chart (The limits are not part of workflow control)

Workflow	Event	Value	Label	Y min	Y max	Lower limit	Upper limit	Deci
Hoval_store	Surfactant	Acid Value [Va...	Acid Val...	0	100	0	100	2
Hoval_store	Surfactant	Hydroxyl Value...	Hydroxyl...	0	100	0	100	2

Add

Date options: All dates

Starting date: 5/23/2006 Time: 10:34:17 AM

Ending date: 5/23/2006 Time: 10:34:17 AM

User log on: Select...

All user log ons

PC name: Select...

All PC names

Display Settings

Show trend chart

Style: Scatter

X-axis label: Data Point

Stack curves Number of panes in stack: 2

Overlay curves

Show markers Symbol: Square Size: Small

Show trend table

Include these items

- Key ID
- Date
- PC
- Operator Name
- Audit Type
- ID
- Workflow Name
- Workflow GUID

Reset

Load Settings... Save Settings... OK Cancel

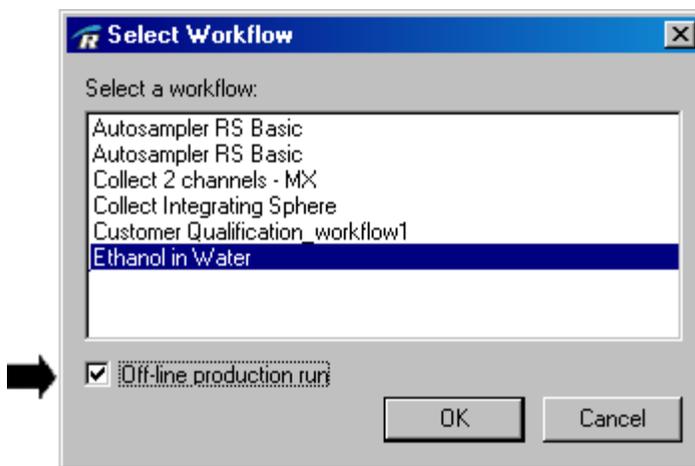
The software automatically selects all run modes and all dates and retrieves data for all user log on names and PCs (computer names). You can change any of these options to customize your results.

2. To change the run mode, select an option in the Run Mode drop down list box.



The following options are available:

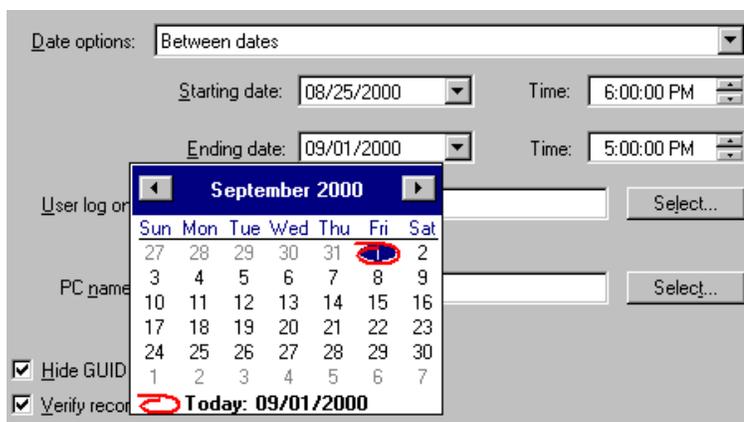
- **All modes.** Displays data from selected workflows run in both production and off-line modes.
- **Production mode.** Displays data from selected workflows run only in production mode. Only workflows run in RESULT Operation with State set to Enabled in the Manage Workflow dialog box are included in this group. See “Setting up a new workflow” in “Chapter 6 Managing Workflows” of the “RESULT Software Administration” manual for details on specifying this feature for a specific workflow.
- **Off-line.** Displays data from selected workflows run off-line. All workflows run in RESULT Integration are considered “off-line.” RESULT also tags data as “off-line” from workflows run in RESULT Operation with State set to Off-Line in the Manage Workflow dialog box, as well as workflows that have the “Off-Line Production Run check box selected in the Select Workflow dialog box:



3. To change the dates for retrieving data, select an option from the Date Options drop-down list.

Depending on the selection you make, the Starting Date and/or Ending Date boxes may become available. You can change the date in these boxes by:

- **Typing the appropriate dates(s)** into the boxes;
- **Selecting a portion of the date** and using the arrow keys on your keyboard to adjust the date; or
- **Selecting the drop-down arrow** to the right of the box. If you select one of the drop-down arrows on a date box, the software will open a calendar.

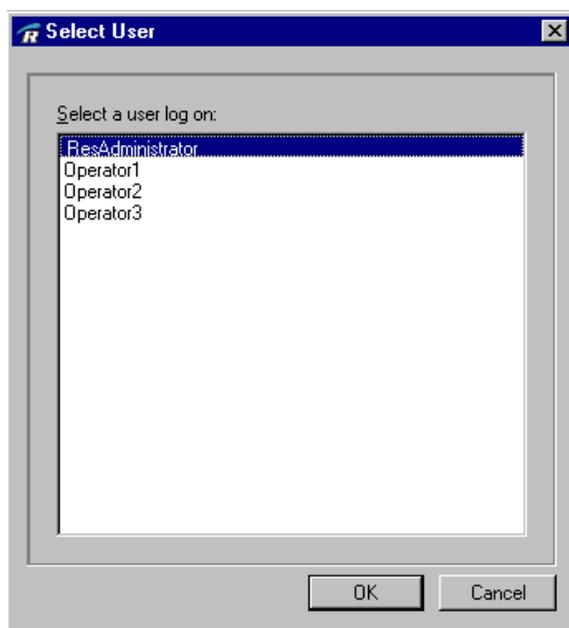


Use the mouse cursor to select the date from the calendar. Use the arrow buttons at the top of the calendar to navigate to the next and previous months.

You can change the time by typing the appropriate time in the box, or by selecting a portion of the time and using the arrow keys on your keyboard or the Up and Down buttons to the right of the box to change the time.

4. To retrieve data collected with a specific user log on, clear the All User Log Ons check box.

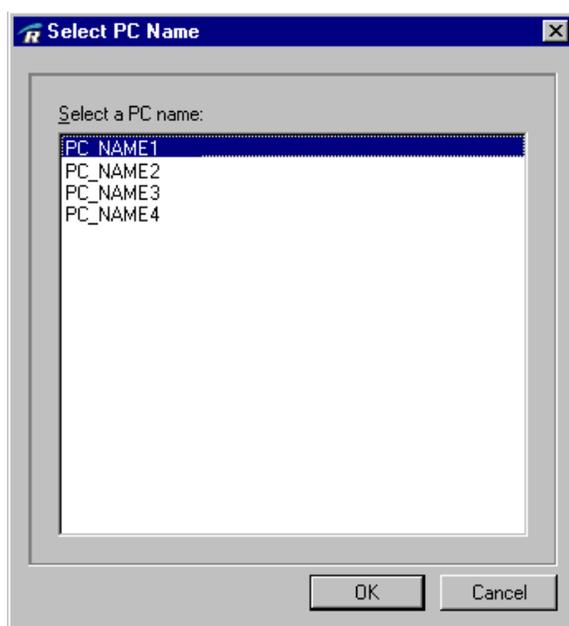
Type the user's log on name in the User Log On text box or choose the Select button adjacent to the text box to open the Select User dialog box.



Select the user from the list and then choose OK. The dialog box closes and the name of the user appears in the User Log On text box.

5. To retrieve data collected on a specific computer, clear the All PC Names check box.

Enter the name of the computer in the PC Name text box or choose the Select button adjacent to the text box to open the Select PC Name dialog box.



Select the computer name from the list and then choose OK. The dialog box closes and the name of the computer appears in the PC Name text box.

6. Choose OK to save your settings and use them to display the currently selected workflow results.

The software will close the Trend Display Settings dialog box and display the specified data from the selected workflows on the Trend tab. Depending upon the current settings for the Trend tab display parameters, you may see the data displayed in a graphical format, a table format, or both formats. See “Setting Trend tab display parameters” in the next section for information about customizing the Trend tab display.

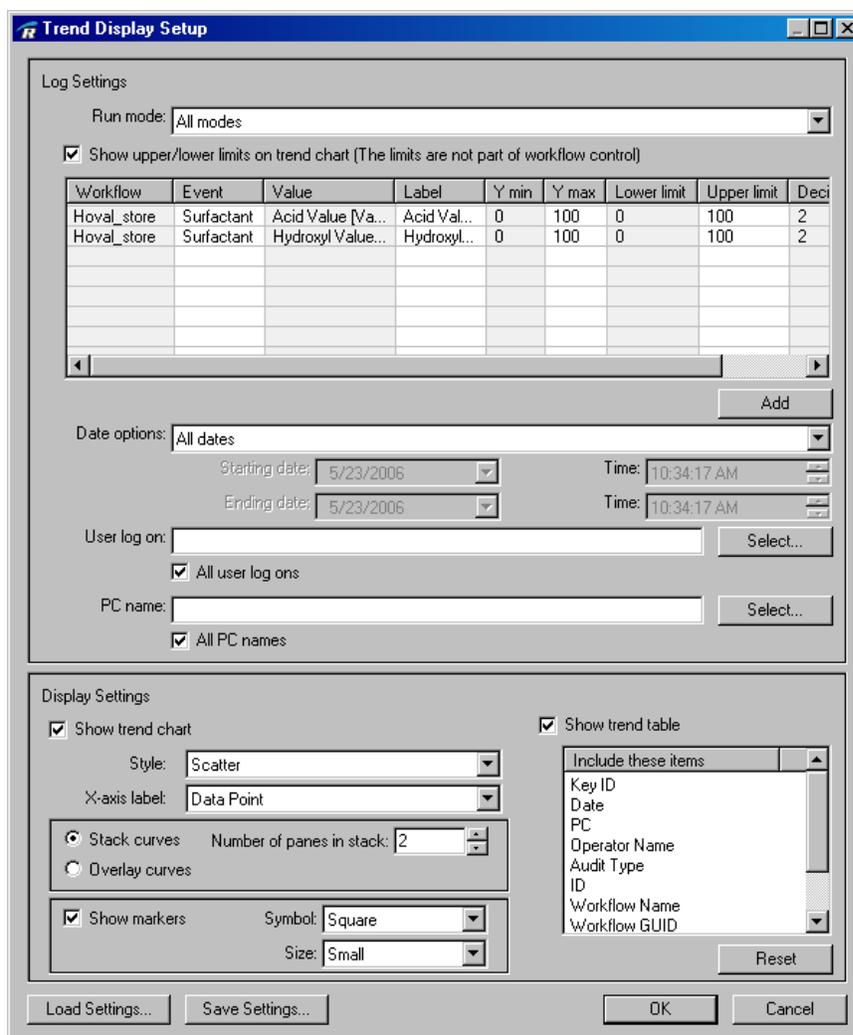
Setting Trend tab display parameters

You can specify whether to create a graph of trends or to display the data in a table or both of these options. You can also define styles and labels for the graph and column headings for the table. Follow these steps to specify display options for the Trend tab.

To set the Trend tab display parameters:

1. Select the Trend tab if it is not already selected and then choose Display Setup.

The software opens the Trend Display Setup dialog box.



2. To create a graph of acquired data on the Trend tab, select Show Trend Chart.

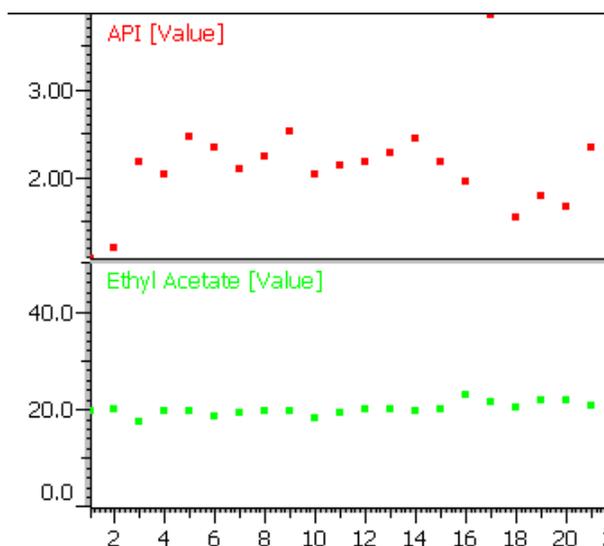
Show trend chart

After you select the option, the features in the Trend Chart group become available in the software.

3. If you selected the Show Trend Chart option in the previous step, specify the chart display parameters.

- **Style** allows you to select between a scatter plot (data points unconnected) and a line (data points connected) for each series of data or “curve.”

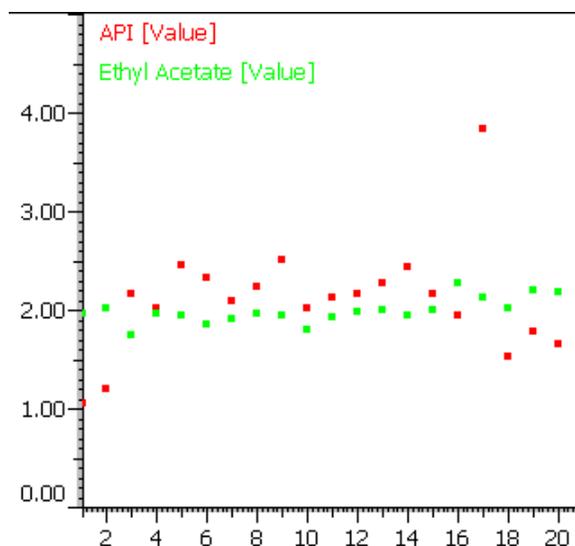
- **X-Axis Label** can be set to Data Points (points in the graph are spaced the same distance apart on the X-axis) or Time (X-axis spacing is defined by the collection dates and times for the acquired data).
- **Stack/Overlay Curves** defines whether the charts are stacked or overlaid. In stack mode, each curve appears in a unique pane and the specified number of panes are stacked in the display area as shown below.



Stacked trend charts

There can be more curves than there are panes. In this case, some curves may be out of view “above” or “below” the panes and a scroll bar appears at the right of the window. Use the scroll bar to scroll the additional curves into view. The title of each stacked curve is shown in the curve’s pane. Each pane in the stack has its own Y-axis. Any X-axis adjustments that you make will affect all of the curves in the window.

In overlay mode, the panes are on top of one another.



Overlaid trend charts

Each curve is displayed in a unique color. The titles of the overlaid curves are shown in the upper left corner of the display area.

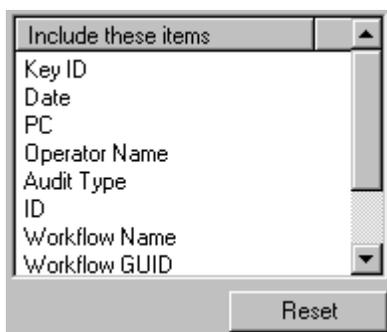
- **Show Markers** allows you to customize the size (small, medium, or large) and shape (square, circle, cross, diamond, or triangle) of the markers used to represent individual points on the trend chart.

4. To create a table of trend data on the Trend tab, select Show Trend Table.



After you select the option, the features in the Trend Table group become available in the software.

5. If you selected the Show Trend Table option in the previous step, specify the items to include in the table.



The following options are available:

- **Key ID** refers to the unique ID number assigned to each entry in the audit log database.
- **Date** refers to the date of the entry.
- **PC** indicates the computer where the entry originated.
- **Operator Name** is the name of the user logged on the computer when the entry was made.
- **Audit Type** gives the source for the information that was saved in the audit log database such as a measurement or service log.
- **ID** gives the ID number assigned to each entry in the audit log database (same as Key ID above).
- **Workflow Name** and **Workflow GUID** refer to the name and globally unique identifier of the associated workflow.
- **Event Name** indicates the name of the associated workflow event.
- **Value Name** refers to the name of the acquired value.
- **Measured Value** refers to the numerical result produced by the workflow.

You can edit the list to remove any items you want to exclude from the trend table. To remove an item from the list, right click the item to display a shortcut menu and then choose Delete or press Delete on the keyboard. Use the Reset button below the list to restore the default list of items for the trend table.

6. Choose OK to save your settings and use them to display the currently selected workflow results.

The software will close the Trend Display Settings dialog box and return to the Trend tab display. Depending upon the workflow results that are currently selected for display, you may see the one or more results from one workflow or results from multiple workflows. See “Selecting workflow results for display” in the previous section for more information.

Working with displayed trend data

This section explains the features you can use to interact with data displayed on the Trend tab. It covers the Live Update and Refresh buttons, the view finder and its associated tools, and the commands on the shortcut menus available in the trend tab display.

You can use the trend tab to display results produced by events in workflows over a period of time. This is relevant only for workflows that contain at least one event that produces a numerical value and a store event that saves the acquired data in the *audit log database*. Before a workflow can be configured to display acquired data on the trend tab, it must be run successfully at least once to initiate a data log for the corresponding event result. The event result must also be selected for display on the Trend tab. See “Selecting workflow results for display on the Trend tab” in the previous section for details. Additional data may be generated all at once, for example by an embedded loop, or by simply running the workflow multiple times.

You can view historical data from any workflow or data from a workflow that is currently running or a combination of these. Trend data can be viewed in a graphical or tabulated format or in both formats. See “Setting Trend tab display parameters” to learn how to format the Trend tab display.

About the Trend tab display

After you select the workflow results to display, historical data from the selected events appear in the display area located at the right side of the Trend tab.

This illustration has Style set to Scatter in the Trend Display Setup dialog box; the Scatter setting plots individual points in the trend charts.

The trend chart appears in the display area only when Show Trend Chart is selected in the Trend Display Setup dialog box. This trend chart has the data displayed in two panes.

The trend table is displayed when Show Trend Table is selected.

To open the Trend Display Setup dialog box, click the Display Setup button on the Trend tab. See “Setting Trend tab display parameters” for information about configuring trend charts and tables.



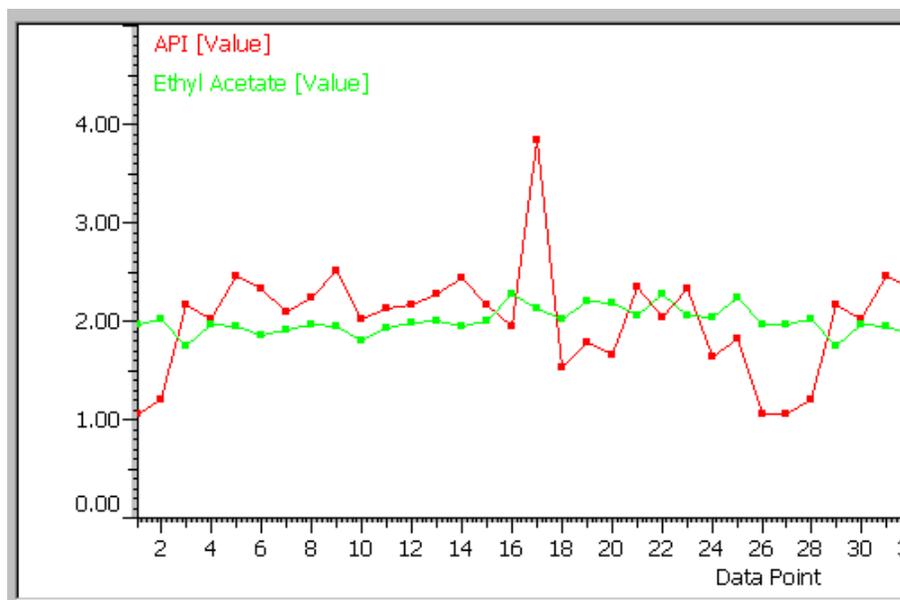
The display area may contain up to two frames. The top frame may be used to view plotted workflow results retrieved from the *audit log database*. Each plot represents a result (number) produced by a specific workflow event over a period of time. Examples of events that produce numerical values include measure events (a measured concentration value is an example), request events (such as an expected concentration value), compare events (correlation coefficients or RMSEP values) and calculate events (statistical values). The X-axis can be in units of time, in which the points may be clustered as in the above illustration, or in units of Data Points, which are spaced evenly over the specified range. The View finder can be used to manipulate the displayed data in order to view different portions of the chart.

The bottom frame may be used to view the data associated with each measurement. The columns in the table are defined by an editable display box available in the Trend Display Setup dialog box.

The blue crosshair (see above) shows a workflow result collected at a specific point in time. When you select a point in the trend chart, the software highlights the associated row of data in the trend table. The readout between the two frames gives the date the data point was stored in the audit log, the reported value, the total number of data points for that workflow result, and the date and time when the first and last data points were stored in the audit log.

The display settings define the workflow results displayed on the Trend tab, the number of trend charts displayed at one time, the display units and limits, the display mode (overlaid or stacked), the size and shape of the display markers, and the columns of data in the table. When the charts are stacked, the charts appear in a “stack” of panes, each of which can contain only one chart (see the example above). When you overlay the curves as shown below, their panes are on top of one another, similar to a neat pile of transparent sheets.

This illustration has Style set to Line in the Trend Display Setup dialog box so you can differentiate the two charts when they are overlaid.



The data may be displayed using custom display settings, or the display settings stored in an associated display settings file, or using the software’s default display settings.

The following tools are available for manipulating data displayed in trend charts and trend tables.



Expand tool. Expands all the charts horizontally about the center of the pane.



Contract tool. Contracts all the charts horizontally about the center of the pane.



Roll right tool. Moves all the charts to the left (to view a time period or data points to the right).



Roll left tool. Moves all the charts to the right (to view a time period or data points to the left).



View finder. The view finder lets you adjust the display of all the trend charts to show a larger or smaller range or the same range in a different location.

The view finder contains a small image of the entire selected trend chart, regardless of which portion of the chart is currently displayed. If more than one trend chart is displayed, the horizontal range of the view finder encompasses the ranges of all the charts. The region markers, the gray vertical lines within the view finder, indicate the currently displayed spectral region.



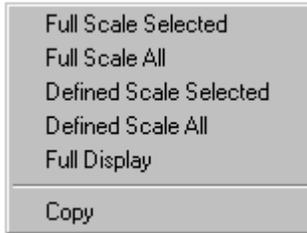
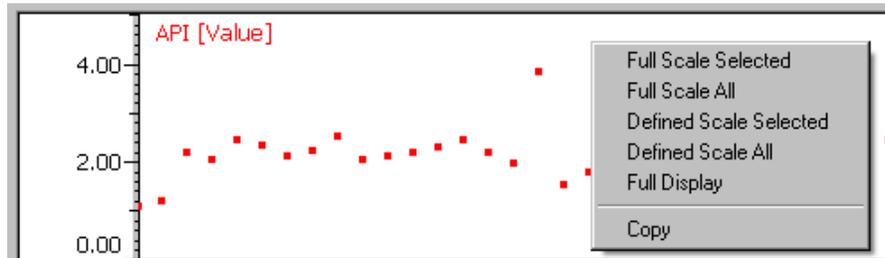
Use the view finder to perform the following operations with displayed trend charts.

- Expand or contract the display – Click, or click and hold, the Expand or Contract button.
- Display a different region of the same size – Roll the data right or left; or point anywhere between the region markers, press and hold down the mouse button, drag the markers to the desired location and then release the mouse button; or click to the left of the left region marker or to the right of the right marker.
- Change the display limits by moving the region markers – Drag a marker in the view finder left or right to the desired location.
- Display the entire spectrum – Double-click between the region markers in the view finder.

- Expanding an area of a spectrum – Use the cursor to draw a box around the area you want to expand and then click inside the box.
- Reducing the display size of a spectrum – Double-click between the markers in the view finder or right-click and choose Full Display in the shortcut menu.

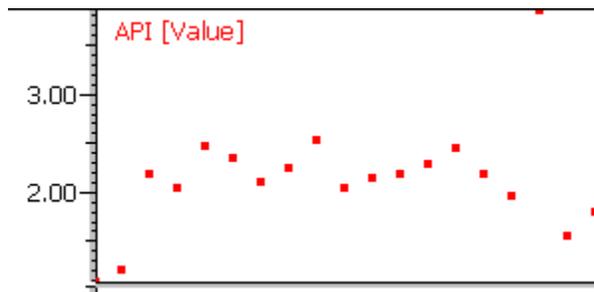
This view finder works the same as the view finder on the Spectra tab in RESULT Operation. See “Viewing collected spectra while running a workflow” in this section for details and examples on using the view finder and associated tools described above to manipulate the trend chart display:

You can access additional options for configuring trend charts from a shortcut menu. To display the shortcut menu, right-click inside the top frame as shown below.



The shortcut menu contains the following options:

- **Full Scale Selected.** Use Full Scale Selected to adjust the vertical scale of the selected chart so that it fills the pane (see the example below).



Trend chart displayed full scale

Full Scale Selected changes the vertical scale for the entire curve, not just the displayed portion. However, only the displayed region is used to find the highest and lowest points that will be used when the vertical scale is changed.

- **Full Scale All.** Use Full Scale All in the shortcut menu to adjust the vertical scales of all the displayed trend charts so that they fill their panes (see the example below). Full Scale All works the same as Full Scale Selected. If the panes are stacked, each curve may have a different Y-axis scale after using Full Scale All. If the panes are overlaid (see below), the Y-axis scale will match the selected trend chart.
- **Defined Scale Selected.** Use Defined Scale Selected in the shortcut menu to adjust the vertical scale of the selected trend chart so that it matches the display limits defined in the Trend Display Setup dialog box. To display the dialog box, choose Display Setup on the Trend tab. The Trend Display Setup dialog box lets you define Y-axis limits for each workflow result displayed on the Trend tab. See “Setting Trend tab display parameters” for more information.

Defined Scale Selected changes the vertical scale for the entire chart, not just the displayed portion.

- **Defined Scale All.** Use Defined Scale All in the shortcut menu to adjust the vertical scales all the displayed trend charts so that they match the display limits defined in the Trend Display Setup dialog box. Defined Scale All works the same as Defined Scale Selected.

If the panes are stacked, each trend chart may have a different Y-axis scale after using Defined Scale All. If the panes are overlaid, the Y-axis scale will match the selected chart.

- **Full Display.** Use Full Display in the shortcut menu to adjust the displayed trend charts horizontally to their X-axis limits. Full Display also adjusts the vertical scale based on the current setting for the Y-axis (Full Scale or Defined Scale).
- **Copy.** Use Copy in the shortcut menu to copy the displayed trend charts to the Windows Clipboard so you can paste them into other applications. The software copies the data displayed in all the panes along with their X- and Y-axes and axes labels.

- **Export To Text File.** Use Export To Text File in the shortcut menu to send all the data displayed in the trend table to a text file using a file name and location you specify. To display the shortcut menu, right-click inside the table as shown below.

Key ID	Date	Workflow Name	Workflo
136	01-26-2006 09:2	Trend Data JH	{80890D...
152	01-26-2006 09:2	Trend Data JH	{80890D...
168	01-26-2006 09:2	Trend Data JH	{80890D...
184	01-26-2006 09:2	Trend Data JH	{80890D...
200	01-26-2006 09:2	Trend Data JH	{80890D...
216	01-26-2006 09:2...	Trend Data JH	{80890D...
232	01-26-2006 09:2...	Trend Data JH	{80890D...
248	01-26-2006 09:2...	Trend Data JH	{80890D...
264	01-26-2006 09:2...	Trend Data JH	{80890D...
280	01-26-2006 09:2...	Trend Data JH	{80890D...
296	01-26-2006 09:2...	Trend Data JH	{80890D...

Viewing trend data from the current workflow

To view trend data from the current workflow, start the workflow and then click the Live Update button on the Trend tab display. The button name changes to “Suspend Update” as in the example below and the software begins monitoring the workflow for new data.

Use the Refresh button to retrieve any recent data for all the workflow results selected for display on the Trend tab.



Each time the workflow produces (and stores) a new value that is configured for display on the trend tab, the software will add a data point to the trend chart and a row of corresponding data to the table.

To stop the active update, click the Suspend Update button.

Working with display settings files for the Trend tab

This section describes how to use display settings files to configure the Trend tab display. A display settings file defines the workflow results displayed on the Trend tab, the number of trend charts displayed at one time, the display units and limits, the display mode (overlaid or stacked), the size and shape of the display markers, and the columns of data in the table (everything in the Trend Display Setup dialog box). You can use display settings files to quickly format the Trend tab display to show the results from the current or a specific workflow along with results from similar workflows collected at this workstation. After you create a display settings file for a set of workflows, each time you load the display settings file, the software will automatically configure the display using the settings specified in the file.

Read this chapter to learn how to create, edit, and load display settings files to configure the trend tab for a specific data set.

Creating or updating a display settings file

You can create a display settings file for any data set configured for display on the Trend tab by using the Save Settings button in the Trend Display Setup dialog box. If the current data set already has an associated display settings file and that file is currently open, Save Set updates the display settings file using the current settings for the display parameters.

To create or update a display settings file for a data set:

- 1. Open the Trend Display Setup dialog box by selecting the Trend tab in RESULT Operation and then choosing Display Setup.**
- 2. Select the workflow results that require a display settings file.**

See “Selecting workflow result for display on the Trend tab” for more information.

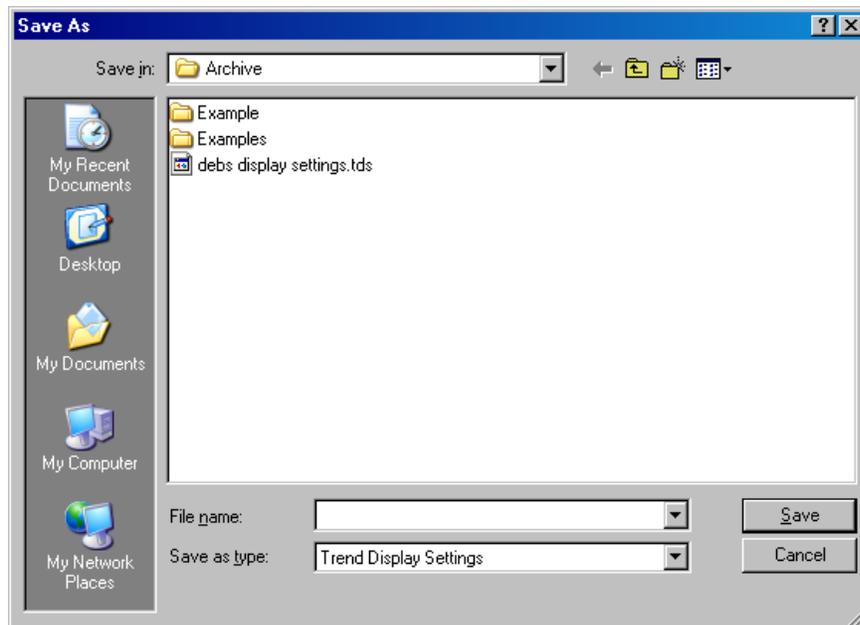
- 3. Configure the display parameters as desired.**

See “Setting Trend tab display parameters” for more information.



4. Choose Save Settings from in the Trend Display Setup dialog box.

The software displays the following dialog box, which lists the Trend Display Settings (*.tds) files in the default location for archived data.



5. Select a folder for storing the file or create and then select a new folder.

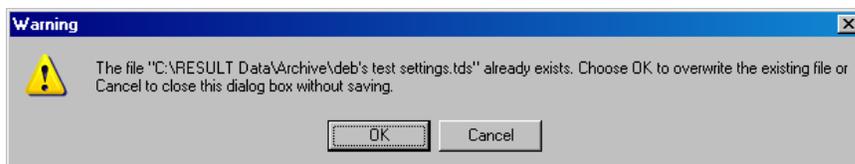
6. Enter a descriptive name for the file in the File Name box.

The software will add the proper extension (.tds) to the file name.

7. When you are finished, choose Save.

The software saves the current settings for all the display parameters in the specified file and location.

If the open data set already has an associated display settings file with this file name, the software displays a message similar to the following:



Choose OK to overwrite the associated display settings file using the current settings for the display parameters. If you choose No, the display settings file will not be overwritten.

The data set that was displayed previously remains on the Trend tab. To open the display settings file you just created, use Load Settings in the Trend Display Settings dialog box. See the next section for more information.

Loading display settings

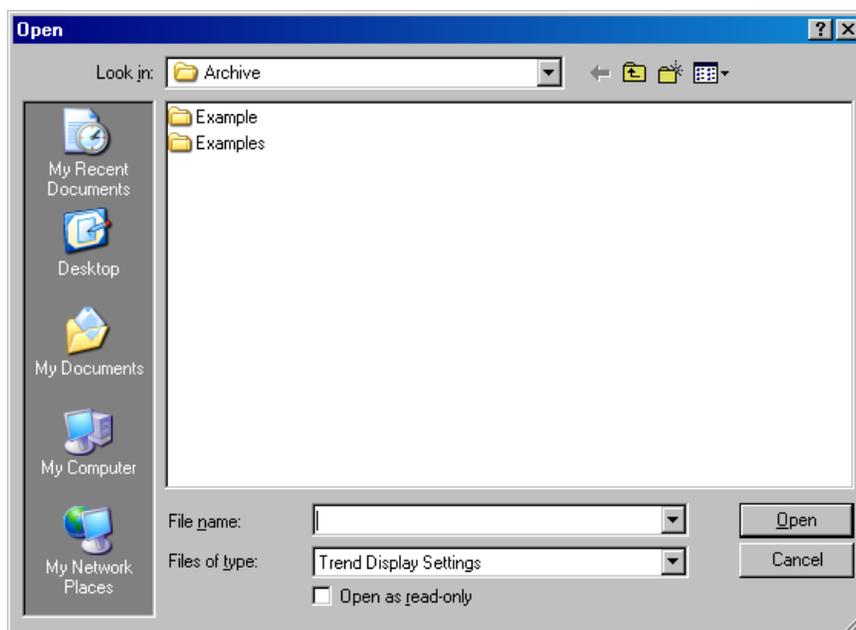
Use the Load Settings button in the Trend Display Setup dialog box to open an existing display settings file for the Trend tab. Each display settings file can specify the workflow results to display and the display format. Associating a display settings file with a set of data allows you to easily view any new and historical data without taking time to configure the display.

To load a display settings file:

- 1. Open the Trend Display Setup dialog box by selecting the Trend tab in RESULT Operation and then choosing Display Setup.**
- 2. Choose Load Settings in the Trend Display Setup dialog box.**



The software displays the following dialog box, which lists the Trend Display Settings (*.tds) files in the default location for archived data.



3. Select a Trend Display Settings file.

You may need to change directories or disks to locate the file you want to open. You can also enter a file name in the File Name box.

Trend Display Settings files have a *.tds file name extension.

4. Choose Open.

If the file is valid, the software resets the selected workflow results and display settings to the results and settings specified in the display settings file.

5. To view the historical data for the selected workflow results, choose OK in the Trend Display Setup dialog box.

The software displays the data on the Trend tab in the format specified in the display settings file.

Printing reports of trend data

Follow these steps to set up a simple report of the data displayed on the Trend tab.

To set up a report of displayed trend data:

1. **Select the Trend tab if it is not already selected and then choose Report Setup.**

The software opens the Trend Report Setup dialog box.

The screenshot shows the 'Trend Report Setup' dialog box. It has a title bar with a close button. The dialog is divided into several sections: 'Title' with an empty text box; 'Comment' with a text area containing 'Run mode : All modes', 'User : All', and 'PC : All'; 'Sections in this report' with two checked checkboxes, 'Trend chart' and 'Trend table'; and 'Location' with 'Base path' set to 'C:\RESULT Data\Archive' and 'File name' set to 'ThermoRESULTTrendReport.htm'. There is a 'Browse' button next to the base path, and 'OK' and 'Cancel' buttons at the bottom right.

2. **If you want to add a title to the report, enter a title in the Title text box.**

The title you enter will appear in large black type at the top of the report and aligned with the left edge of the screen. If the title is longer than the screen width, the text wraps to the next line with no hyphenation.

3. **If you want to add other information or a comment to the report, enter it in the Comment text box.**

The default comments show the current settings for Run Mode, user name and PC name in the Trend Display Settings dialog box.

4. Indicate the sections to include in the report.

You can include the trend chart, the trend table, or both. The selected items will appear in the report even if they are not currently selected for display on the trend tab.

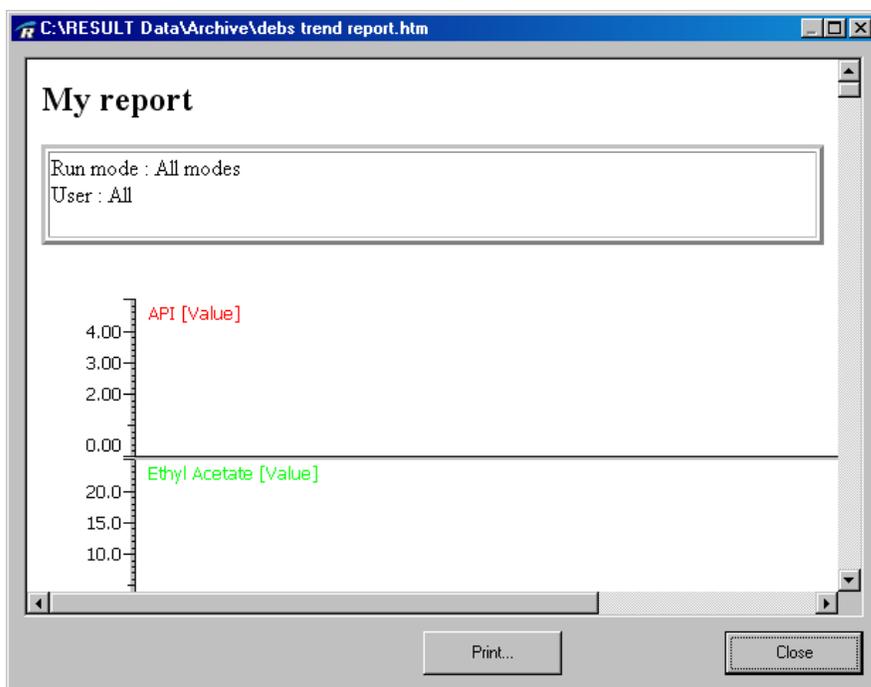
5. Specify a location for the archived report.

You can specify a file name and folder for archiving the report or use the default file name and folder. If you use the default file name and folder, the report will be saved in HTML format (*.htm extension) with the file name “ThermoResultTrendReport.htm” and in the currently selected path for archiving spectra and reports in RESULT Operation software. See “Setting RESULT Operation Options” in the “RESULT Software Administration” manual for information about specifying a base path for archiving spectra and reports in RESULT Operation.

6. When you have finished setting the report options, choose OK to save your settings and close the Report Setup dialog box.

If you choose Cancel, your settings will not be saved.

After you choose OK, the software opens windows that shows the report as you have designed it and gives you the option to print or close the report. An example of a formatted report is shown below.



7. **If you want to print the report, choose Print in the report window, or choose Close to close the window without printing.**

If you elected to print the report, the software displays the report in a standard Windows Print Preview window.

8. **Choose Print from the Print Preview window to print the report exactly as it appears in the window, or choose Close to close the Print Preview window without printing the report.**

If you elected to print the report, the software displays the standard Windows Print dialog box.

9. **Set the print options as desired and then choose OK to print the report.**

Running a verification workflow

Some workflows may require running a verification workflow before each production run of a workflow, or after a specific number of days or hours. A verification workflow is a process to help ensure that the production workflow is working properly for the purpose it was intended to be used.

The Verification indicator in the software's main window will indicate if a verification workflow is necessary, as shown below.



The screenshot shows a software interface with the following elements:

- A text field containing "PC_NAME\Operator".
- A text field labeled "Workflow name".
- Two labels: "ValPro:" and "Verification:".
- Two buttons: "Satisfied" and "Required".

If the Verification indicator states, "Required", you will be unable to run the production workflow in production mode until you have run the verification workflow.



To run a verification workflow, choose the Verify Workflow button. The software begins running the appropriate verification workflow. As with a production workflow, the software may prompt you to perform certain actions while the workflow is running. While the workflow is running, the status of the workflow is displayed in the status indicator in the software's main window.

If the verification workflow is successful, the Verification indicator on the software's main window changes to "Satisfied" until it is necessary to run verification for that workflow again.

Running qualification workflows



If your system has the ValPro System Qualification package, the software may be configured to run qualification workflows at a specified frequency. The package consists of a series of workflows that perform specific tests on your instrument as part of operational qualification. These tests were also run during your installation qualification. The ValPro System Qualification tests were designed to demonstrate that the instrument performs consistently and to the manufacturer's specifications, and these tests can be run as part of your system qualification and validation procedures. For more information about the types of tests performed and system qualification, see your *ValPro System Qualification* documentation.

The ValPro indicator displays the message “Required” when you are required to run instrument qualification. You will be unable to run production workflows until a successful qualification test has been run on the instrument.



To run qualification tests on your system, choose the ValPro Qualification button. The software loads the appropriate workflow(s) and begins the qualification process. The qualification process runs like any other workflow, and you may be prompted by the software to perform certain tasks.

Note In order to run qualification workflows, you must have that privilege in the software. If you are unable to run qualification workflows, see your RESULT administrator. ▲

While you are running the qualification workflows, the status indicator at the bottom left of the software window displays the status of the qualification process. As reports are created, they are listed in the report navigation frame and displayed in the display area. You can select reports from the report navigation frame and view them in the display area.

Depending on how qualification options have been set up on your system, the software may prompt you to digitally sign each archived item. If you are required to digitally sign archive items, the software displays the digital signature dialog box, as shown below.



Enter your Windows password in the Password text box. The password must match your Windows password exactly, including matching letter case. Select the Authorship option from the Reason for Signature drop-down list, or enter another appropriate reason for the signature, and choose OK.

Note You have three attempts to enter your password correctly when digitally signing a file. If you are unable to correctly enter your Windows password, or if you choose Cancel from the Digital Signature dialog box, the file will not be digitally signed and the signature failure will appear as a workflow error. ▲

Note If the Digital Signature dialog box appears again, the workflow requires a second signature. Follow the steps above and your internal procedures to apply an appropriate second signature to the file. ▲

When the qualification test has been completed, the bottom of the Antaris Qualification test report indicates whether qualification has passed or failed with one of the following images:



Pass image



Fail image

If the instrument fails ValPro qualification, you will still be unable to run production workflows until the instrument has successfully passed the qualification process.

Depending upon how qualification options have been set up on your system, the software may automatically print the Antaris Qualification Reports generated from qualification runs.

After successful ValPro qualification has been run, the ValPro indicator on the software's main window will read "Satisfied," as shown below. When qualification is again necessary, the indicator will change to "Required."

PC_NAME\Operator	
Workflow name	
ValPro:	Verification:
Satisfied	Required

For more details about the types of qualification tests that are included in the ValPro System Qualification package, see your *ValPro System Qualification* documentation.

Resolving workflow errors

If the software detects any problems when running a workflow, it produces a table of workflow errors. An example table of workflow errors is shown below.

Errors While Running Workflow

Event Name	Error Description
Collect Polystyrene	RESULT is unable to communicate with the analyzer. Check the following: Analyzer power cord is connected. Analyzer power switch is on. Interface cable is connected to analyzer and computer.
Measure Polystyrene	Failed to complete this measurement. Check that spectrum is compatible with selected measurement.

The Error Description column explains the nature of the error and offers suggestions for correcting the error. Chapter 8 Troubleshooting contains more information about problems you may encounter when running the software, in the event you are unable to resolve the workflow errors from their descriptions.

When you encounter workflow errors, before running the workflow again in a production mode, you may want to run the workflow in a diagnostic mode, either by running the workflow off-line or using some of the software diagnostic features available in the Maintenance menu. See “Chapter 5 Maintaining the System” for more information about the diagnostics available in the Maintenance menu.

Chapter 4 Working with Standards

RESULT Operation software allows users to configure and collect standards for measurement items in workflows. This chapter describes how to use the Configure Standards dialog box to set up an experiment to collect a set of standards.

Note In order to be able to configure and run standards, you must be given the privilege to access the Standards menu by the RESULT administrator. ▲

Introduction to standards

Standards are samples used to develop a quantitative or qualitative model, and can be collected for measurement items in a workflow in RESULT Operation software.

In order to configure and collect standards, the RESULT administrator must grant you access to the Standards menu in the RESULT main window.

Note Standards are based on a measurement item in a workflow. You must first select and load the appropriate workflow before you can set up the standards and begin collection. If you attempt to configure or collect standards without first selecting a workflow, the software displays the following message:



See “Selecting a Workflow” in “Chapter 2 Running Workflows” for instructions for how to select a workflow. ▲

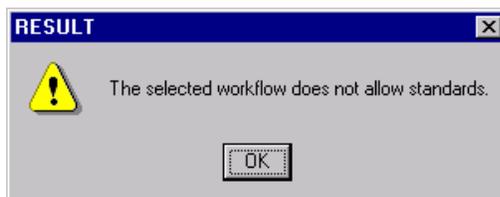
Configuring standards

Standards are set up using the Configure Standards dialog box. The dialog box has two tabs: a Collect tab for specifying the collection of standards and a Save tab for specifying how the spectral data for the standards will be saved.

Before you open the Configure Standards dialog box, make sure the appropriate workflow is selected and its name appears in the Workflow indicator in the main window of the software. To configure standards for a measurement item in the selected workflow, choose Configure Standards from the Standards menu in the RESULT main window.

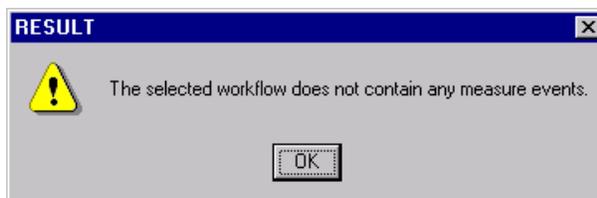
Note If the Standards menu does not appear in the menu bar of the main window, then you do not have the privilege to run standards in the software. See your RESULT administrator. ▲

Note If the workflow is configured so standards cannot be run for measurement items, you will receive a message stating that standards cannot be run for the workflow, as shown below.



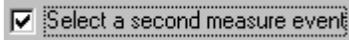
See your RESULT administrator if you need to run standards on that particular workflow. ▲

Note •If there are no measurement items in the workflow, then the following message appears:



If you receive this message, be sure you have selected the appropriate workflow, or contact the person who developed the workflow for clarification. ▲

- 3. If the current workflow contains multiple measure events and you need to collect standards for a second measure event, select the Select A Second Measure Event check box.**



When you select the check box, the Measure Event list box directly below the check box is enabled. The drop-down list includes the names of the remaining measure events in the workflow.

Choose a name in the Measure Event drop-down list.

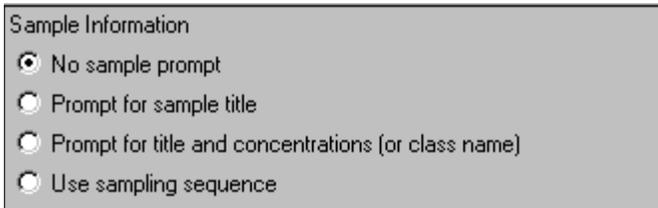


The second measure event can occur anywhere in the workflow. If both measure events operate on the same collection result, the software collects one set of spectra and uses both measure events for the analysis. If the second measure event operates on the spectra (results) from a different collect event, then the software will collect two spectra from each standard and use the first collect/measure event pair to analyze the first set of spectra and the second collect/measure event pair to analyze the second set of spectra.

This feature allows you to use the same set of standards to collect spectra for two different measure events, or two collect/measure event pairs, at the same time. This is useful for measuring a combination of sample characteristics that aren't (or can't be) combined in one analytical method, such as collecting both transmission and diffuse reflection data using the MultiPro Autosampler.

- 4. Choose a method the operator will use to specify information about the standards at run time by selecting an option in the Sample Information group.**

When Configure Standards is set up to collect standards for two measure events (see step 3 above), you must use a sampling sequence to specify information about the standards at run time.



The options include:

- **No sample prompt.** The software collects each standard without prompting the operator to enter a title or other information.
- **Prompt for sample title.** Before collecting each standard, the software displays a prompt asking for the title of the standard. The user must enter a title before the software will continue. Keeping this feature selected is helpful if your organization has specific naming conventions you want to use when titling each standard.

The titles are saved along with the spectral data for the standards. The titles also appear in the TQ Analyst standards table in default mode after the standards have been imported to that application, and in the TQ Analyst spectral windows when the spectra are displayed.

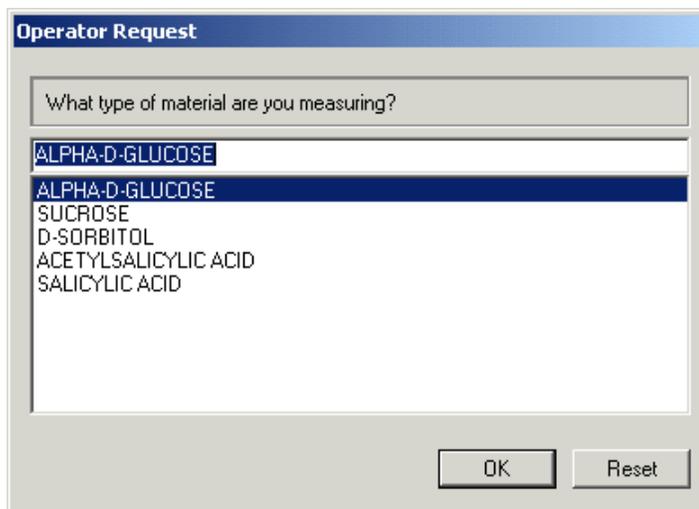
Note The title is a descriptive name saved within a spectral file; it is not the file name. ▲

- **Prompt for title and concentrations (or class name).** This option operates differently depending on whether the selected measure event is linked to a quantitative, qualitative, or spectral measurement method.

For quantitative methods. Select this option if you want the operator to enter the concentration values of the components in each standard as they are being collected. The software will display a dialog box prompting the user to enter the concentration value of each component before collecting each standard. After the concentration values have been entered, the software displays a second dialog box requesting a title for the standard.

If you don't select this option, then the concentration values for the standards will need to be entered when developing the method in TQ Analyst or other method development application.

For qualitative methods. Select this option if you want the operator to specify the correct class for each standard as it is being collected. The software will display a dialog box prompting the user to indicate the type of material he or she is measuring. The dialog box will present the class names from the qualitative method associated with the measure event specified in the Configure Standards dialog box. The operator dialog box will look something like the following:



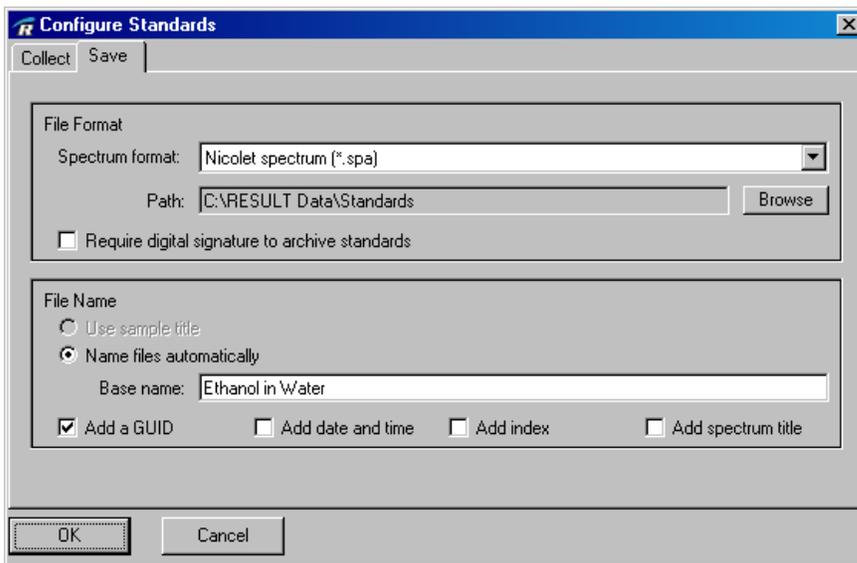
The operator must indicate the sample material being analyzed by selecting a material in the list and then choose OK.

If you don't select this option to prompt for the spectrum title and class, then the correct classes for the standards will need to be specified when developing the method in TQ Analyst or other method development application.

For spectral measurement methods. If the selected measure event is linked to a measurement specification for a TQ Analyst spectral measurement method, select one of the other options for Sample Information.

Note Spectral measurement methods do not require standards. However, you can still use Configure Standards and Collect Standards to set up and test a spectral measurement method. ▲

The following information is displayed.



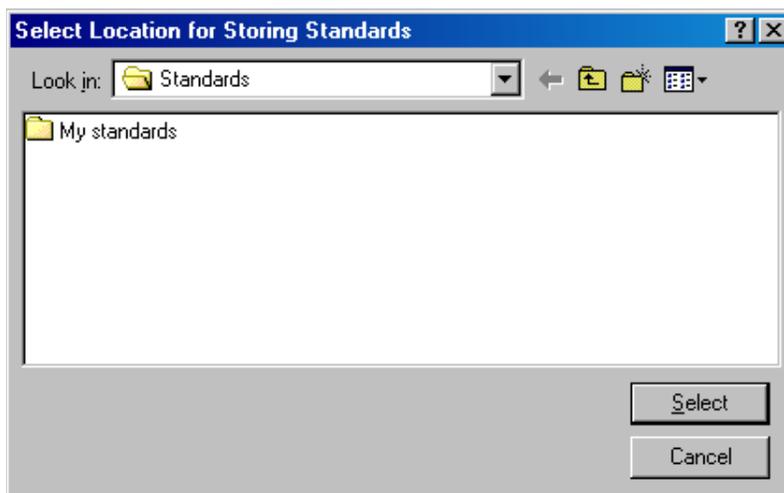
2. Use the Spectrum Format list box to select a format for archiving the spectra of the standards.

The following options are available:

- **Nicolet spectrum (*.SPA)**. This is the preferred format for spectra, and is compatible with all Thermo Scientific applications such as TQ Analyst and RESULT. Data that are stored in the Nicolet format contain complete information about the conditions used for data collection as well as the archived sample and background interferograms, and are compatible with the digital signature features of RESULT software.
- **JCAMP-DX (*.JDX)**. This file format is compatible with other software applications used in the industry, allowing exchange of spectral data between various instruments. JCAMP-DX uses printable ASCII characters and provides some file header information.
- **Galactic (*.SPC)**, which is a binary format that is compatible with other applications and other types of data in the industry, especially spectral and chromatographic data. Galactic files include some file header information.

- **Comma-Separated Values (*.CSV).** This option creates a text file that specifies each data point in the spectrum as a set of X and Y values. The values may be separated by a list separator (defined by the Windows regional settings) or a tab. CSV formatted files can be read by any compatible spreadsheet or other program.
3. **Use the Path text box to enter the path and folder that will be used to archive the spectra, or use the Browse button to locate or create and then select an appropriate folder.**

When using Browse to choose a directory path, spectral files do not appear in the Browse dialog box.

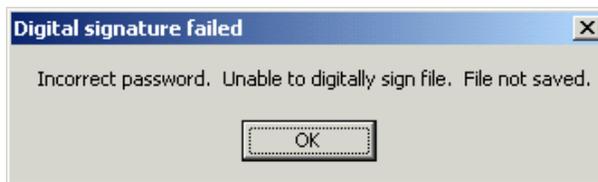


Creating a folder for a set of standards can help you easily locate and select those standards when importing them into TQ Analyst or other method development application.

4. **If you want to require digital signatures to archive the spectral files, select the Require Digital Signature check box.**

Using digital signatures for spectral files can help ensure the authenticity of the data. When this feature is selected, after you collect the spectrum of each standard, the software will open a dialog box prompting the user to enter his or her Windows user name and password to sign the file. The software will request the digital signature when the standards are collected in RESULT Operation or RESULT Integration software.

You have three attempts to enter your password correctly when digitally signing a file. If you are unable to correctly enter your Windows password or if you cancel the Digital Signature dialog box, the following error message appears:



If you see this error message, the files are not archived.

To check for signatures in spectral files from RESULT Operation software, use the query feature to display the archived spectra in the report navigation frame. The status box will indicate the signed/unsigned status of the selected file.

If a file has been signed, the software shows the name of the person who signed the file, the date and time the file was signed and the reason it was signed, if one was specified.

Files that have been signed and then altered will be reported as “unsigned” by RESULT Operation.

Note If you collect unsigned standards, you can ensure the authenticity of the data after you import the standards into TQ Analyst by signing the TQ Analyst method file. ▲

5. Use the File Name group to specify the names that will be used to save the spectral files on a computer disk (different from spectral titles, which appear when files are displayed in the software).

The following options are available:

- **Use sample title.** This option is available in the software only when the Sample Information feature on the Collect tab in the Configure Standards dialog box is set to Prompt For Sample Title or Use Sampling Sequence. If you elect to use the sample titles for the file names, the software will archive the spectra using the titles the operator enters at run time or the titles specified in the sampling sequence or by a Report To Spectrum event.

- **Name files automatically.** Select this option if you want the software to name the files automatically. You can specify whether a base name will be used to archive the files, and select whether a globally unique identifier (GUID), a date stamp or both will be added to the file name.

Base name. If you want to include a base name when the files are named automatically, enter a name in the Base Name box. If you specify a base name, the software will include that name at the beginning of the file name of each standard. This step is recommended because creating a base name for a set of standards can help you easily identify those standards after they are archived. The base name is also used by RESULT Integration to identify which standards to import into TQ Analyst when building an analytical method. If you don't specify a base name, the files will be named with any file name options selected in the File Name group, such as a GUID or date stamp, and no prefix.

Add GUID. If you want the software to add a globally unique identifier (GUID) to the file names of the standards, select Add A GUID. A GUID is a string of characters generated by the software as an identifier for a particular file. Each GUID is unique and cannot be used for more than one file.

Add date and time. If you want the software to add a date stamp to the file names of the standards, select Add Date And Time. The software adds the date stamp immediately after the base name.

Add index. If you want the software to add an index number to the file names of the standards, select Add Index. The index is a three-digit number that increases by one each time it is applied (i.e., 001, 002, 003). The software adds the index immediately after the base name.

Note If a GUID, date stamp and index are used, the file name includes the base name, followed by the GUID, followed by the date stamp, followed by the index. ▲

Add spectrum title. If you want the software to add the spectrum title to the file names of the standards, select Add Spectrum Title. The software will archive the spectra using the titles the operator enters at run time or the titles specified in the sampling sequence.

The titles will be appended to the base name and any other file name option selected in the File Name box.

6. After you have configured the standards, choose OK to close the Configure Standards dialog box.

If you close the dialog box without choosing OK, your settings will not be saved. Choose Cancel to close the dialog box without saving your settings.

After the standards have been configured for the measurement item in the workflow, you can continue with collecting the prepared sample standards.

Collecting standards

After the standards have been configured, you can proceed to collecting the standards. The software collects standards based on how they were configured and the parameters specified in the workflow.

To collect each standard:

1. Choose Collect Standards from the Standards menu in the RESULT main window.

Note If the workflow settings do not contain any operator prompts for positioning samples and background materials, be sure to have your sample positioned in the sampling module before you choose the Collect Standards command. ▲

Once you have selected the Collect Standards option, the software will begin collecting standards based on how the standards were configured and the parameters specified in the workflow, including operator prompts, background collection settings, and data collection settings.

2. If the standards were configured to prompt for concentration values or class names, enter these items when requested by the software.

An example of a concentration amount prompt is shown below.

Operator Request

Please enter the information requested below. Items marked with a (*) are required.

Enter the concentration for 'Water (*)':

Enter a number. This field is required.

Enter a real number (a number that can include decimal points). Always enter the value in the unit requested in the dialog box.

An example of the dialog box for selecting a class name is shown below.

Operator Request

Please select a class name from the list:

ALPHA-D-GLUCOSE
 ALPHA-D-GLUCOSE
 SUCROSE
 D-SORBITOL
 ACETYLSALICYLIC ACID
 SALICYLIC ACID

Select the appropriate class name from the list, and then choose Accept. If you have selected the wrong class name, you can choose Reset to clear the selection.

3. If the standards were configured to prompt for titles, enter the title of the standard at the software prompt, as shown below.

Operator Request

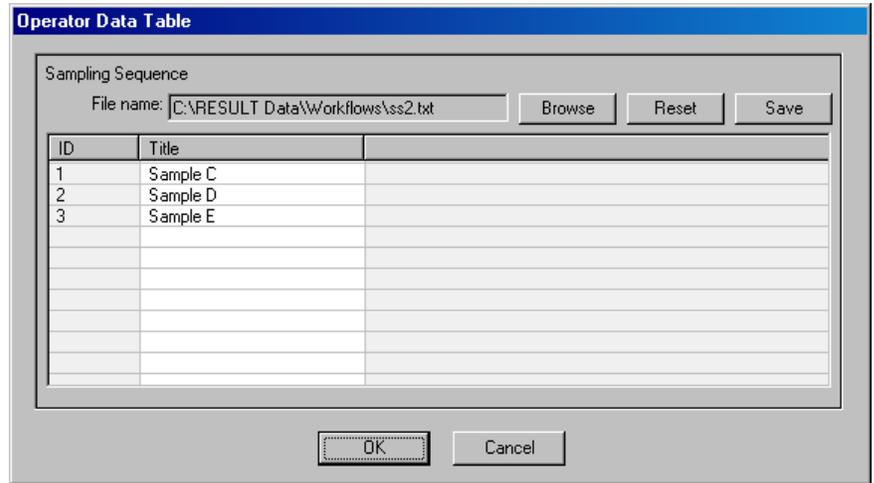
Please enter the information requested below. Items marked with a (*) are required.

Enter title for this standard (*):

Enter text and/or numbers. This field is required.

Enter the title in the text box. Choose Accept to save the title and close the dialog box, or choose Reset to clear the text box if you have made an error.

4. **If the standards were configured to use a sampling sequence with operator interaction, the software displays the following dialog box.**



Use the features in the Sampling Sequence box to edit or create a sampling sequence (right click selected rows and columns for a shortcut menu of editing options) or use the Browse button to import a sampling sequence. See “Creating a sampling sequence” and “Importing a sampling sequence” in “Chapter 3 Creating and Editing Workflows” of the “RESULT Integration User Guide” for more information. When finished, choose OK to begin collecting standards.

After completing the required prompts, the software will begin collecting data. The software will use the parameters set in the workflow to collect the data. You can view the status of the collection in the status indicator at the lower left corner of the software’s main window.

When the software has finished collecting data, it displays the spectrum in the display area of the window and open the following dialog box:



5. If you want to save the spectrum, choose Yes from the above dialog box.

If you believe an error occurred during preparation or collection, or if the spectrum does not look reasonable, choose No.

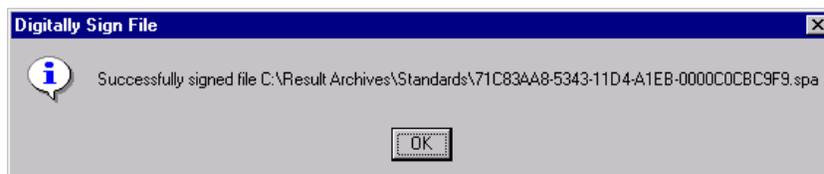
6. If the standards were configured to require digital signatures for archiving, enter your password at the Digital Signature dialog box.



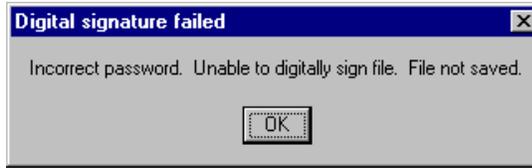
Enter your Windows password in the Password text box. The password must match your Windows password exactly, including matching letter case.

Select the Authorship option from the Reason for Signature drop-down list, or enter another appropriate reason for the signature, and choose OK.

After you choose OK, the software displays a message indicating that the file has been successfully signed, as shown below.



Note You have three attempts to enter your password correctly when digitally signing a file. If you are unable to correctly enter your Windows password, or if you choose Cancel from the Digital Signature dialog box, the file will not be digitally signed and the software displays the following message:



The file will not be saved. ▲

- 7. Follow steps 1 through 6 above for each additional standard you need to collect. For each standard, you will be required to begin collection by choosing Collect Standards in the Standards menu.**

Chapter 5 Working with the Audit Log

This chapter introduces you to RESULT's audit logging feature. The audit logging feature in RESULT Operation software tracks software and data archive changes; pass/fail results from check events, ValPro, and instrument checks; service log entries; and concentration trends. Information about how to query the audit log, create reports, and print reports is included in this chapter.

Note To work with the audit log, you must have access to the Logs menu in the software. If you do not have access to the Logs menu, see your RESULT administrator. ▲

Introduction to the audit logging feature

The audit logging feature is RESULT Operation software's tracking system. It tracks software and data archive changes; pass/fail results from check events, ValPro, and instrument checks; service log entries; and concentration results. The audit log is set up as a Microsoft® Access database, and can be queried using the Logs menu in RESULT Operation software.

Each entry into an audit log is assigned a key ID number. Other pertinent information is logged, such as the date of the entry, the PC where the entry originated, the name of any associated workflow, the user logged on, and results of events.

Note The audit logs do not contain archived information. The logs note changes made to archives, but archive data is stored separately from the logs. ▲

The audit log can be viewed in a compatible database application, such as Microsoft Access. The database consists of various tables set up to log items, along with an integrity table that is used to verify the authenticity of a record before it's displayed in a report.

Notice As a security feature, if any changes are made to the log through another application, those changes will be marked as suspect data when accessed through the audit logging query features in RESULT Operation software. The suspect data will be marked with an asterisk (*) next to the entry's Key ID number. ▲

If suspect data is found in an audit log report, it is recommended that the audit logs be archived and the RESULT administrator create a new database for logging purposes. □

In order to query the audit log and create reports in RESULT Operation software, you must have access to the Logs menu in the software's main window. See your RESULT administrator if you do not have access to this menu.

The Logs menu



The Logs menu in RESULT Operation software allows you to perform different types of queries on the audit log database. You can choose one of the following commands from the Logs menu:

- **User**, which performs a query of changes made to user settings in the software.
- **Workflow**, which performs a query of changes made to workflow settings in the software.
- **Archive**, which performs a query of items that were archived and allows users to view actual reports or archived information in a table. **Pass/Fail**, which performs a query of pass/fail results from check events in workflows.
- **ValPro**, which performs a query of the results of instrument qualification runs in the ValPro Qualification software package.
- **Service**, which performs a query of entries into the software's service log.
- **Measurement**, which performs a query of stored values in measurement events in workflows and allows users to create control or trend charts.

- **Administration**, which performs a query of changes to administrative features in the software, such as changes made to RESULT options, ValPro options, system paths, and the data source.

After you choose the type of query you want to perform, the software will open a window allowing you to customize your query and specify advanced settings.

The following sections go through each type of query you can perform and contain sample reports that you can create using the query features.

User list query

RESULT Operation software tracks any changes made to the software's user list, including additions, deletions, and changes to user privileges. You can query the audit log about changes made to a particular user or to all users. The software displays the results of your query as a table in the display area of the main window.

Performing the user list query

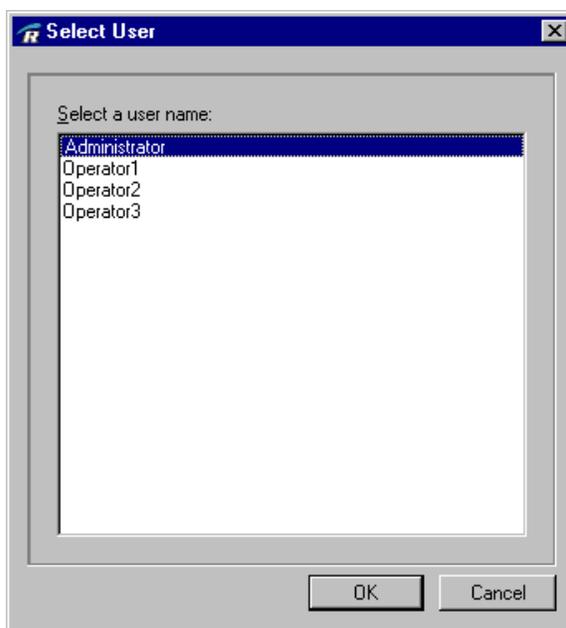
To perform the user list query:

1. **Choose User from the Logs menu in the RESULT Operation main window.**

The software will open the User Log query dialog box, as shown below.



From this dialog box, you can specify whether you want to query changes made to a specific user name or all user names. The software automatically specifies a query for changes made to all users in the RESULT user list. If you want to perform a query for a specific user, type the user name in the User text box, or choose the Select button to open the Select User dialog box, as shown below.



Select the user name from the list, and choose OK. The Select User dialog box will close, and the User text box in the User Log dialog box will contain the user name you selected.

2. Select the type of change you want to query from the Type of Change drop-down list.

Select one of the following options:

- All changes.
- Additions.
- Removals.
- Modifications.

3. Choose OK to begin the query.

The software will query the audit log and return a report in the display area.

Note The software automatically returns a query of user list changes made within the last seven days. See the Advanced Query Settings section in this chapter for information about changing this default and working with other advanced settings. ▲

User list query results

The software displays the report as a table in the display area of the main window. An example report is shown below.

User Table

<i>Key ID</i>	<i>Date</i>	<i>PC</i>	<i>Operator Name</i>	<i>User Name</i>	<i>Change</i>	<i>Description</i>
15	06-13-2000 07:36:12	PC_NAME	Administrator	Operator4	Removals	Operator4, PC_NAME Privileges: Run production workflows, Run workflows off-line, Run ValPro qualification
14	06-13-2000 07:36:12	PC_NAME	Administrator	Operator3	Modifications	Operator3, PC_NAME Privileges: Run production workflows, Run workflows off-line, Run ValPro qualification
13	06-13-2000 07:35:53	PC_NAME	Administrator	Operator4	Additions	Operator4, PC_NAME Privileges: Run production workflows, Run workflows off-line, Run ValPro qualification
8	06-13-2000 07:34:34	PC_NAME	Administrator	Operator3	Additions	Operator3, PC_NAME Privileges: Run production workflows, Run workflows off-line, Run ValPro qualification, Access Standards menu, Access Logs menu, Access Maintenance menu

The table includes the following information:

- **Key ID**, which is assigned to each entry into the audit log. If the log contains any suspect data, an asterisk (*) appears before the Key ID assigned to that entry in the report.
- **Date**, which indicates the date and time the entry was made into the audit log.
- **PC**, which shows the computer name from which the changes to the user list were made.
- **Operator Name**, which shows the log on name of the operator who made the changes.

- **User Name**, which reveals the user name affected by the change.
- **Change**, which reveals the type of change made to the user list. Types of changes can be additions, removals, or modifications.
- **Description**, which includes the user's log on name, computer or domain name, and the privileges that are assigned to that user.

You can print the report of user list changes by placing your cursor inside the display area and right-clicking with the mouse. Choose Print from the shortcut menu that appears, and the software will open a standard Windows Print dialog box where you can specify printer settings.

Workflow settings query

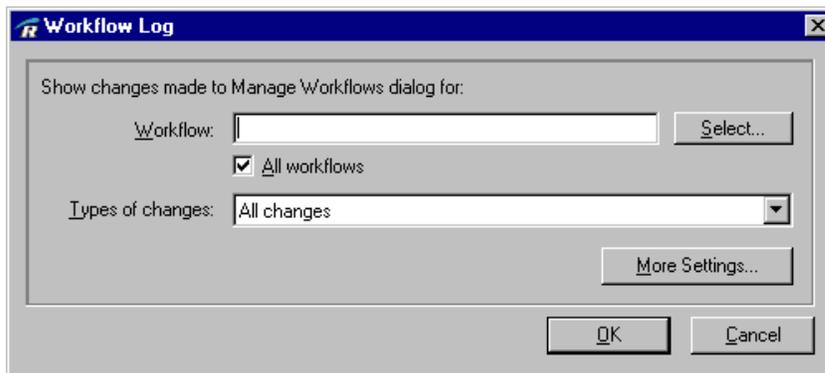
RESULT Operation software tracks when workflows are added to the software, any changes made to workflow settings, and when workflows are removed from the software. You can query the audit log about changes made to a particular workflow or to all workflows. The software displays the results of your query as a table in the display area of the main window.

Performing the workflow settings query

To perform the workflow settings query:

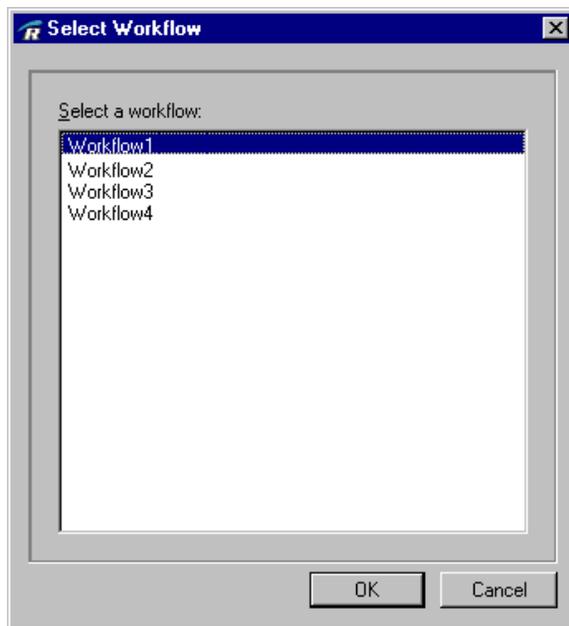
1. **Choose Workflow from the Logs menu in the RESULT Operation main window.**

The software will open the Workflow Log query dialog box, as shown below.



From this dialog box, you can specify whether you want to query changes made to a specific workflow or all workflows. The software automatically specifies a query for changes made to all workflows. If

you want to perform a query for a specific workflow, type the workflow name in the Workflow text box, or choose the Select button to open the Select Workflow dialog box, as shown below.



Select the workflow name from the list, and choose OK. The Select Workflow dialog box will close, and the Workflow text box in the Workflow Log dialog box will contain the workflow name you selected.

2. Select the type of change you want to query from the Type of Change drop-down list.

Select one of the following options:

- All changes.
- Additions.
- Removals.
- Modifications.

3. Choose OK to begin the query.

The software will query the audit log and return a report in the display area.

Note The software automatically returns a query of the workflow changes made within the last seven days. See the Advanced Query Settings section in this chapter for information about changing this default and working with other advanced report settings. ▲

Workflow settings query results

The software displays the report as a table in the display area of the main window. An example report is shown below.

Workflow Table

<i>Key ID</i>	<i>Date</i>	<i>PC</i>	<i>Operator Name</i>	<i>Workflow Name</i>	<i>Change</i>	<i>Description</i>
55	06-13-2000 10:52:43	PC_NAME	Administrator	Workflow1	Modifications	Workflow1.wfl, Production workflow, Enabled All user access
54	06-13-2000 10:52:32	PC_NAME	Administrator	Workflow3	Removals	Workflow3.wfl, Production workflow, Enabled All user access
53	06-13-2000 10:52:18	PC_NAME	Administrator	Workflow4	Additions	F:\Shared Folders\Test Workflows\ Workflow4.wfl Workflow4.wfl, Production workflow, Off-line, Allow collection of standards User access: ResAdministrator, Operator2
46	06-13-2000 12:33:40	PC_NAME	Administrator	Workflow5	Additions	Workflow5.wfl, Verification workflow, Enabled, Allow collection of standards All user access

The table includes the following information:

- **Key ID**, which is assigned to each entry into the audit log. If the log contains any suspect data, an asterisk (*) appears before the Key ID assigned to that entry in the report.
- **Date**, which indicates the date and time the entry was made into the audit log.
- **PC**, which shows the computer name from which the changes to the workflow settings were made.
- **Operator Name**, which shows the log on name of the operator who made the changes.
- **Workflow Name**, which reveals the name of the workflow affected by the change.

- **Change**, which reveals the type of change made to the workflow's settings. Types of changes can be additions, removals, or modifications.
- **Description**, which includes the location of the workflow, if it is stored in a location other than the standard location for workflows (as specified in RESULT Options), the file name of the workflow, the workflow's settings, and the users who have access to the workflow.

You can print the report of workflow settings changes by placing your cursor inside the display area and right-clicking with the mouse. Choose Print from the shortcut menu that appears, and the software will open a standard Windows Print dialog box where you can specify printer settings.

Archive query

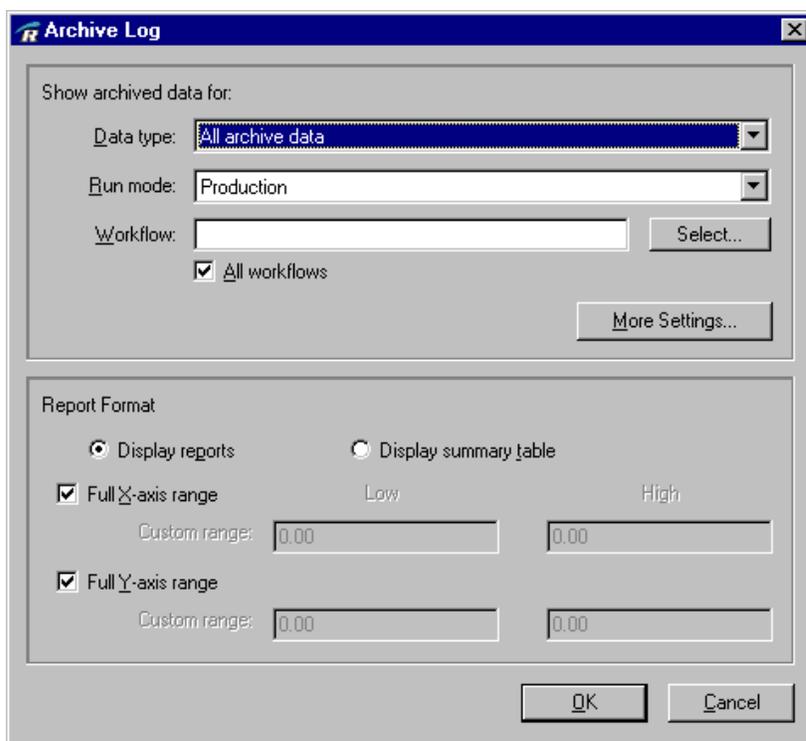
RESULT Operation software tracks items, such as reports, backgrounds, and spectra, saved into the software's data archives. You can query the audit log for specific archived items or for all archived items. You can choose to have the software display the results of your query as a table in the display area of the main window or to display a list of archived items in the report navigation frame. You can then select a specific report to appear in the display area.

Performing the archive query

To perform the archive query:

1. **Choose Archive from the Logs menu in the RESULT Operation main window.**

The software will open the Archive Log query dialog box, as shown below.



From this dialog box, you can specify whether you want to query specific types of archived items based on the data type, run mode, and/or a specific workflow. The software automatically sets up a query of all archived items run in production mode for the workflow that is currently loaded in the software.

2. If you want to query a specific type of data added to the archive, select the type from the Data Type drop-down list.

Select from the following options:

- **All Archive Data**, which is all data that has been archived.
- **Reports**, which are HTML reports produced from workflows or maintenance items.
- **Spectra**, which are spectral files saved either as Nicolet (*.SPA) or JCAMP-DX (*.JDX).
- **Backgrounds**, which include are background spectral files.

- **Archived file list reports**, which includes the file names of archived items related to archive events in the workflow(s) you select.

Note In order for the above option to produce data, the archive event(s) in the workflow(s) must have the Save List Of Archive File Names option selected. See “Workflow Events and Specifications” for more information about this feature. ▲

3. If you want your query to cover modes other than production, select the mode from the Run Mode drop-down list.

Select from the following options:

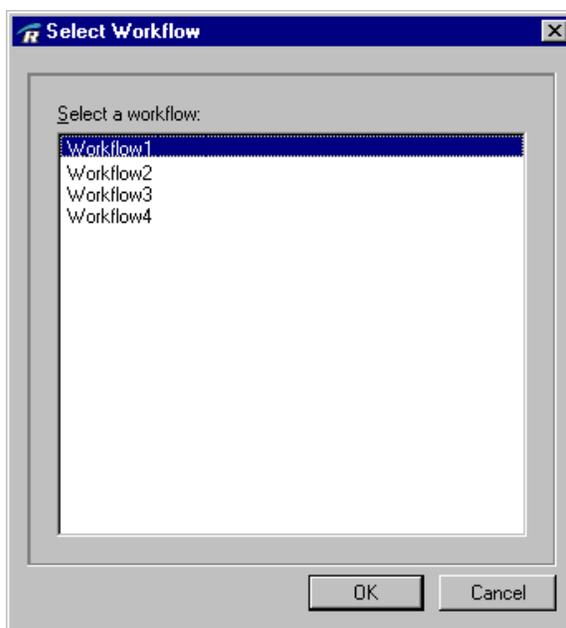
- All modes.
- Production.
- Off-line.

4. If you want your query to cover all workflows, select the All Workflows check box.

-or-

If you want your query to cover a specific workflow, other than the currently loaded workflow, type the name of the workflow in the Workflow text box or choose the Select button to select the workflow.

If you choose the Select button, the software will open the Select Workflow dialog box, as shown below.



The Select Workflow dialog box will contain workflows that have archive entries. Select the workflow name from the list, and choose OK. The Select Workflow dialog box will close, and the Workflow text box in the Archive Log dialog box will contain the workflow name you selected.

5. Select how you want the query results displayed.

The software automatically selects the Display Reports option button. This means that it will display the query results as reports in the report navigation frame of the software. You can then select a report from the navigation frame to have it appear in the display area of the software.

If you would prefer to have the results displayed in a table, select the Display Summary Table option. The query results appears in a table in the display area of the software.

6. If you chose to display the results as reports in the report navigation frame in the previous step, then you can customize the X-axes and Y-axes ranges of the reports.

The software automatically uses the full ranges of both axes, based on the X- and Y- axes of the items you are querying. If you want to display archive items for specific ranges, clear the Full X-axis Range and/or the

Full Y-axis Range check boxes. Type the appropriate low and high ranges in the Custom Range text boxes.

This option does not apply if you chose to have the query results displayed in a summary table.

7. Choose OK to begin the query.

The software will query the audit log and return a report in the display area.

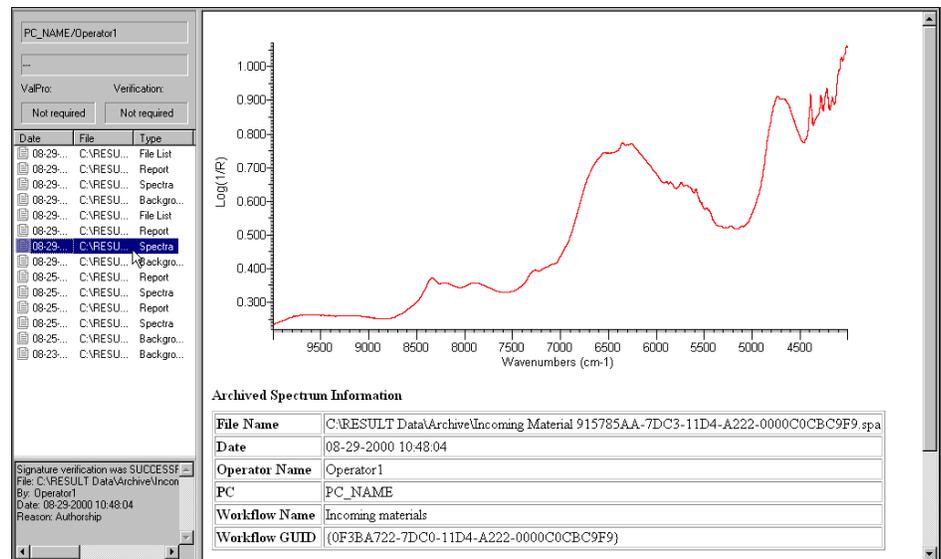
Note The software automatically returns a query of items archived within the last hour. See “Advanced Query Settings” in this chapter for information about changing this default and working with other advanced settings. ▲

Archive query results

The results will be returned either as a series of reports in the report navigation frame or as a table in the display area, depending on the settings you specified in the Archive Log query dialog box.

Reports archived

If you specified to display the actual reports that were archived, the software displays those reports in the report navigation frame, as shown in the below example.



Spectral File Viewed from an Archive Query

Based on the type of item you select, the display area will contain the following:

- If you are viewing a spectrum saved in the Nicolet (*.SPA) file format, the display area will contain the spectrum, the archive information, the data collection parameters, and digital signature information, if any.
- If you are viewing a report, the display area will contain the report, along with digital signature information, if any.
- If you are viewing a list of archived file for a workflow, the display area will contain a table listing the type of file, the event name, and the file name, along with any image files linked to the document. The report will also display digital signature information, if any.

Note The status indicator in the lower left portion of the main window will contain information about whether the report was digitally signed. If the report was signed, it lists the file name, the full name of the user who signed the file, the date and time the signature was recorded, and the reason for the signature.

If the software is unable to verify that the file was digitally signed, then the status indicator displays that no signature was found for the file. ▲

You can print any report from the display area by placing your cursor inside the display area and right-clicking with the mouse. Choose Print from the shortcut menu that appears, and the software will open a standard Windows Print dialog box where you can specify printer settings.

**Summary table
of archived items**

If you chose to display the archive information in a summary table, the table appears in the display area. An example of an archive summary table is shown below.

Archive Table

<i>Key ID</i>	<i>Date</i>	<i>PC</i>	<i>Operator Name</i>	<i>Workflow Name</i>	<i>File Name</i>	<i>File Type</i>	<i>Item Name</i>	<i>Run Mode</i>
1,652	07-11-2000 15:17:39	PC_NAME	Operator1	Workflow1	C:\Result Data\Workflow1 Results 1084EAAD-4766-11D4-A1F0-0000C0 CBC9F9.htm	Report	Workflow1 Test Results	Production
1,433	07-11-2000 14:20:11	PC_NAME	Operator2	Workflow1	C:\Result Data\Workflow1 Results 1084EAAD-5766-11D4-A1F0-0000C0 CBC9F8.spa	Spectra	Polystyrene Peak	Production
1,336	07-11-2000 12:08:52	PC_NAME	Operator1	Workflow1	C:\Result Data\Workflow1 Results 1084EAAAC-5766-11D4-A1F0-0000C0 CBC9F9.spa	Spectra	Polystyrene Peak	Production
1,282	07-11-2000 11:18:33	PC_NAME	Operator2	Workflow1	C:\Result Data\Workflow1 Results BFADD592-574B-11D4-A1F0-0000C0 CBC9F9.spa	Background	Polystyrene Peak	Production
1,031	07-11-2000 10:42:50	PC_NAME	Operator2	Workflow1	C:\Result Data\Workflow1 Results BFADD42D-574B-11D4-A1F0-0000C0 CBC9F9.htm	Report	Workflow1 Test Results	Off-line

The table includes the following information:

- **Key ID**, which is assigned to each entry into the audit log. If the log contains any suspect data, an asterisk (*) will appear before the Key ID assigned to that entry in the report.
- **Date**, which indicates the date and time the entry was made into the audit log.
- **PC**, which reveals the computer name from which the data was archived.
- **Operator Name**, which shows the RESULT log on name of the user who archived the data.
- **File Name**, which reveals the name of the file and file path.
- **File Type**, which indicates whether the archive item is a report, background, or spectrum.
- **Item Name**, which reveals the name of the report, spectrum, or background.
- **Run Mode**, which indicates the mode in which the workflow was run. The workflow could have been run in a normal production mode or off-line.

You can print the archive table by placing your cursor inside the display area and right-clicking with the mouse. Choose Print from the shortcut menu that appears, and the software will open a standard Windows Print dialog box where you can specify printer settings.

Pass/fail results query

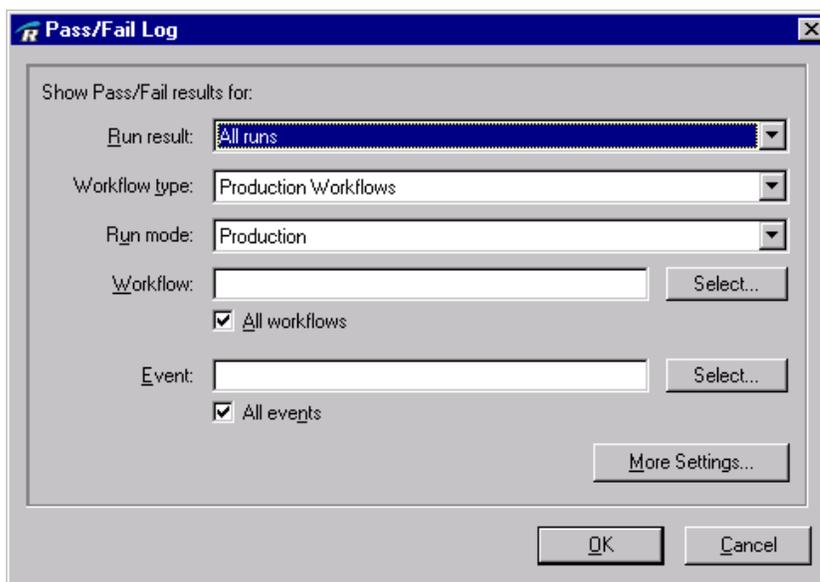
RESULT Operation software tracks pass/fail results from workflow runs. You can query the audit log about pass/fail results for a particular workflow, run mode, workflow type, or for any combination of these items. The software displays the results of your query as a table in the display area of the main window.

Performing the pass/fail results query

To perform the pass/fail results query:

1. **Choose Pass/Fail from the Logs menu in the RESULT Operation main window.**

The software will open the Pass/Fail Log query dialog box, as shown below.



From this dialog box, you can specify whether you want to query results from a specific workflow, specific run mode, specific workflow type, specific event, or a combination of any or all of these items. The software automatically specifies a query for all results of events for production runs of the currently-loaded workflow or, if no workflow is loaded, all workflows.

2. **If you want your query to include only specific results, select the type of result you want to query from the Run Results drop-down list.**

Select one of the following options:

- **All Runs**, which will include both successful and unsuccessful workflow runs.
- **Successful Workflow Runs**, which will include runs that passed criteria specific to the workflows you include in the query.
- **Unsuccessful Workflow Runs**, which will include runs that failed criteria specific to the workflows you include in the query.

3. If you want your query to include only specific types of workflows, select the type of workflow from the Workflow Type drop-down list.

Select one of the following options:

- **All Types**, which will include all of the workflow types in the list.
- **Production Workflows**, which will include all workflows designated as a production workflow.
- **Verification Workflows**, which will include all workflows designated as a verification workflow (a workflow that is run to verify that a particular production workflow is suitable for the manner it was intended).

4. If you want your query to cover modes other than production runs, select the mode from the Run Mode drop-down list.

Select one of the following options

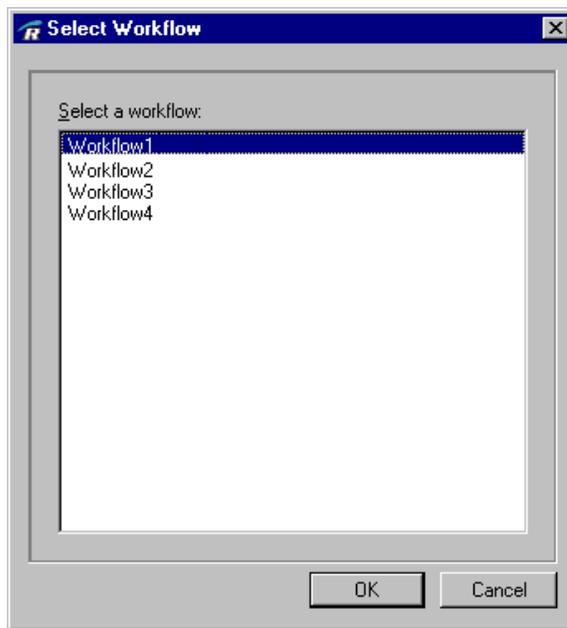
- **All Modes**, which will include all of the modes in the list.
- **Production**, which will include runs in the production environment.
- **Off-line**, which will include runs specifically designated as off-line, either when the workflow was specifically taken off- line or simply run in an off-line mode.

5. If you want your query to cover all workflows, select the All Workflows check box (if it is not already selected).

-or-

If you want your query to cover a specific workflow, other than the currently-loaded workflow, type the name of the workflow in the Workflow text box or choose the Select button to select the workflow.

If you choose the Select button, the software will open the Select Workflow dialog box, as shown below.



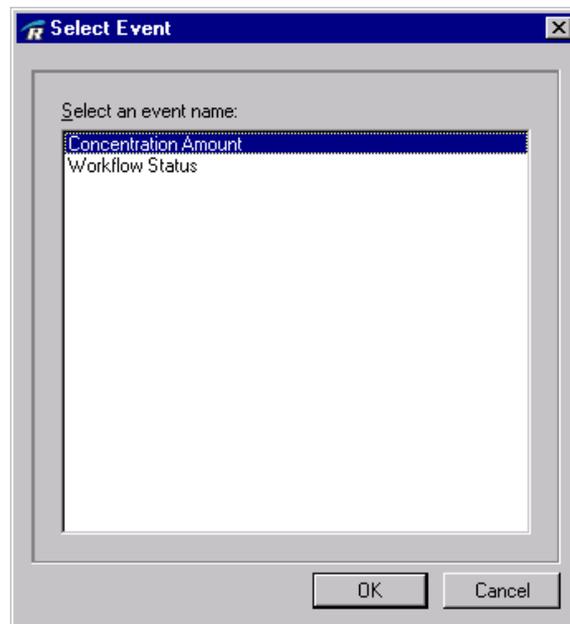
The Select Workflow dialog box will contain workflows that have archived pass/fail results. Select the workflow name from the list, and choose OK. The Select Workflow dialog box will close, and the Workflow text box in the Pass/Fail Log dialog box will contain the workflow name you selected.

Note When you select a workflow, the workflow must be designated as the type you selected from the Workflow Type drop-down list, or you may not receive proper results from your query. For example, if you selected Verification Workflows from the Workflow Type drop-down list, but then chose a workflow that is actually designated as a production workflow, you will not receive any results from your query. ▲

If you are querying events related to a specific workflow, it is recommended that you select All Types from the Workflow Type drop-down list and then type the workflow name or select the workflow. This will avoid any potential conflict between workflow types when you perform the query. □

- 6. If you want the query to include only a specific event, type the name of the event in the Event text box, or choose the Select button adjacent to the text box to select the event.**

If you choose the Select button, the software will open the Select Event dialog box, as shown below.



The Select Event dialog box will contain a list of archived event names included in the workflow, workflow type, and/or run mode you specified for your query. Select the event name from the list, and choose OK. The Select Event dialog box will close, and the Event text box in the Pass/Fail Log dialog box will contain the event name you selected.

- 7. Choose OK to begin the query.**

The software will query the audit log and return a report in the display area.

Note The software automatically returns a query of the pass/fail results archived within the last seven days. See “Advanced Query Settings” in this chapter for information about changing this default and working with other advanced settings. ▲

Pass/fail query results

The software displays the report as a table in the display area of the main window. An example report is shown below.

Workflow Run Results

<i>Key ID</i>	<i>Date</i>	<i>PC</i>	<i>Operator Name</i>	<i>Workflow Name</i>	<i>Event Name</i>	<i>Workflow Type</i>	<i>Result</i>	<i>Run Mode</i>
275	06-14-2000 10:19:40	PC_NAME	ResAdministrator	Workflow1	Workflow Status	Production Workflow	Failed	Off-line
271	06-14-2000 10:12:55	PC_NAME	Operator1	Workflow1	Workflow Status	Production Workflow	Failed	Production
270	06-14-2000 10:12:49	PC_NAME	Operator1	VerWF1	Workflow Status	Verification Workflow	Passed	Production
123	06-13-2000 13:37:23	PC_NAME	Operator2	Workflow2	Workflow Status	Production Workflow	Passed	Production

The table includes the following information:

- **Key ID**, which is assigned to each entry into the audit log. If the log contains any suspect data, an asterisk (*) will appear before the Key ID assigned to that entry in the report.
- **Date**, which indicates the date and time the entry was made into the audit log.
- **PC**, which shows the computer name from which the workflow was run.
- **Operator Name**, which shows the RESULT log on name of the user who ran the workflow.
- **Workflow Name**, which reveals the name of the workflow that was run.
- **Event Name**, which reveals the name of the workflow event that was logged.
- **Workflow Type**, which reveals the type of workflow, such as a verification or production workflow.

- **RESULT**, which indicates whether the event passed or failed.
- **Run Mode**, which reveals whether the workflow was run in a normal production mode or off-line.

You can print the pass/fail table by placing your cursor inside the display area and right-clicking with the mouse. Choose Print from the shortcut menu that appears, and the software will open a standard Windows Print dialog box where you can specify printer settings.

ValPro results query

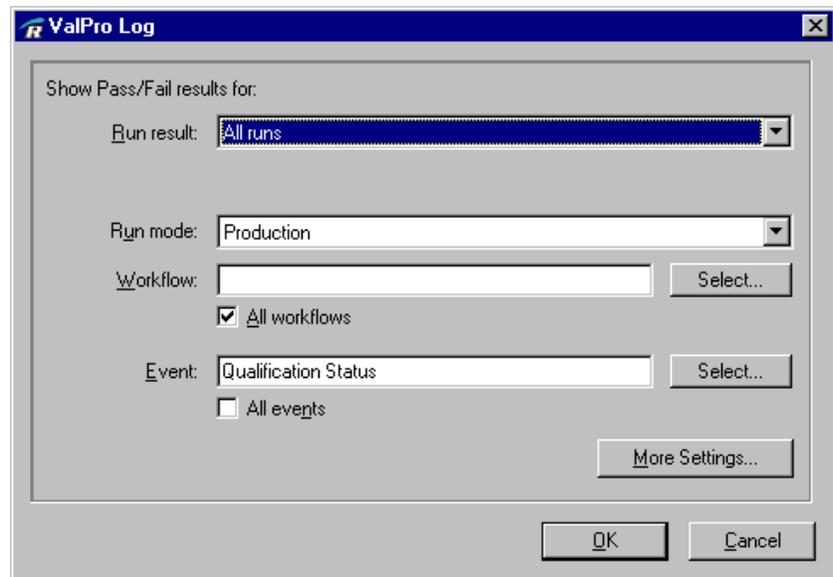
If your system has the ValPro System Qualification package, you can query results of instrument qualification runs. You can query the audit log about pass/fail results for a particular qualification test and/or event. The software displays the results of your query as a table in the display area of the main window.

Performing the ValPro results query

To perform the ValPro results query:

1. **Choose ValPro from the Logs menu in the RESULT Operation main window.**

The software will open the ValPro Log query dialog box, as shown below.



From this dialog box, you can specify whether you want to query results of a specific ValPro or customer workflow and/or specific event. The software automatically specifies a query for all results of qualification status events.

Note Do not select a Run Mode other than Production. ValPro qualification cannot be run in any other mode. ▲

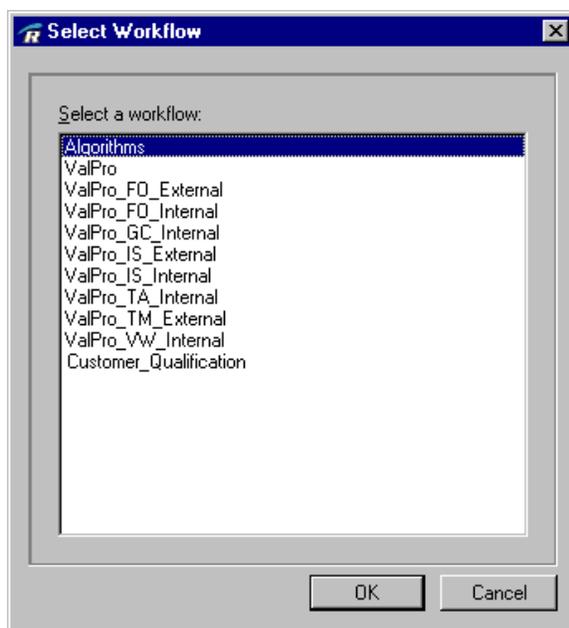
2. If you want your query to include only specific results, select the type of result you want to query from the Run Results drop-down list.

Select one of the following options:

- **All Runs**, which will include both successful and unsuccessful workflow runs.
- **Successful Workflow Runs**, which will include runs that passed the qualification tests.
- **Unsuccessful Workflow Runs**, which will include runs that failed the qualification tests.

3. If you want your query to cover only a specific ValPro workflow, type the workflow name in the Workflow text box, or choose the Select button adjacent to the text box to select the workflow.

If you choose the Select button, the software will open the Select Workflow dialog box, as shown below.



Depending on the ValPro workflows run on your system, the Select Workflow dialog box may include the following workflow names:

- **Algorithms**, which is the ValPro algorithm qualification test.
- **ValPro**, which is the composite result of combined ValPro tests that are included in your instrument qualification procedure. This is a good option to choose if you simply want to know when qualification was run and composite result of each qualification run.

Any additional workflows that are specific to your system will also be listed. If your system runs workflows that have been developed by your organization, then the name of that workflow appears in the dialog box, as well.

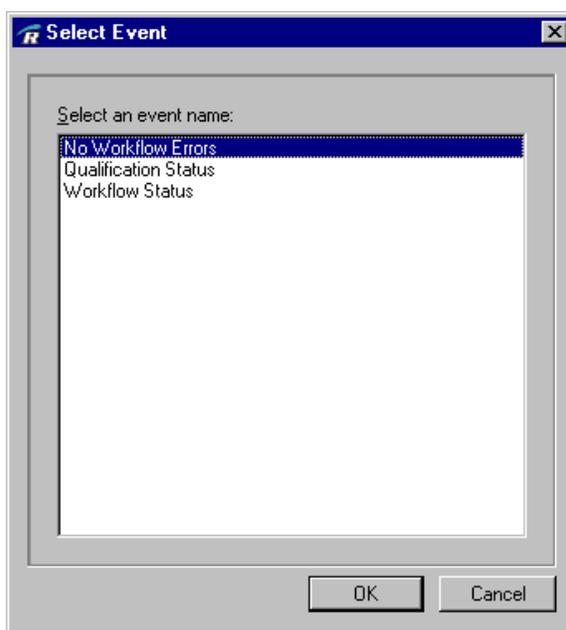
Select the workflow name from the list, and choose OK. The Select Workflow dialog box will close, and the Workflow text box in the ValPro Log dialog box will contain the workflow name you selected.

4. **If you want to query events other than the Qualification Status events, change the default settings for this query.**

The software automatically queries Qualification Status events, which is the name given to all events that produce pass/fail results in ValPro System Qualification workflows. If you are querying a specific event in a customer-developed workflow, then you may want to change this default.

If you want to query all events, select the All Events check box.

If you want to query a specific event, other than Qualification Status, type the event name in the Event text box or choose the Select button adjacent to the text box to open the Select Event dialog box, as shown below.



Depending on the ValPro workflows run on your system, the Select Event dialog box may include the following event names:

- **No Workflow Errors.** If you select this event, the query will include the event which checks whether any workflow errors were encountered while running ValPro qualification tests.
- **Qualification Status.** If you select this event, the query will cover the combined pass/fail result of each qualification run.
- **Workflow Status.** If you select this event, the query will cover the results of each ValPro workflow that is run during qualification.

The Select Event dialog box will also contain the names of any events in a customer-developed qualification test.

Select the event name from the list, and choose OK. The Select Event dialog box will close, and the Event text box in the ValPro Log dialog box will contain the event name you selected.

5. Choose OK to begin the query.

The software will query the audit log and return a report in the display area.

Note The software automatically returns a query of the ValPro results archived within the last seven days. See “Advanced Query Settings” in this chapter for information about changing this default and working with other advanced settings. ▲

ValPro query results

The software displays the report as a table in the display area of the main window. An example report is shown below.

ValPro Run Results

<i>Key ID</i>	<i>Date</i>	<i>PC</i>	<i>Operator Name</i>	<i>Workflow Name</i>	<i>Event Name</i>	<i>Workflow Type</i>	<i>Result</i>	<i>Run Mode</i>
336	06-14-2000 11:02:28	PC_NAME	Operator1	Customer_Qualification_WF	Workflow Status	VALPRO	Passed	Production
333	06-14-2000 11:02:08	PC_NAME	Operator1	Algorithms	Workflow Status	VALPRO	Passed	Production
319	06-14-2000 11:01:54	PC_NAME	Operator1	ValPro_VW_Internal	Qualification Status	VALPRO	Passed	Production

The table includes the following information:

- **Key ID**, which is assigned to each entry into the audit log. If the log contains any suspect data, an asterisk (*) will appear before the Key ID assigned to that entry in the report.
- **Date**, which indicates the date and time the entry was made into the audit log.
- **PC**, which shows the computer name from which the qualification test was run.

- **Operator Name**, which shows the RESULT log on name of the user who ran the test.
- **Workflow Name**, which reveals the name of the workflow that performs the qualification test.
- **Event Name**, which reveals the name of the event that was logged.
- **Workflow Type**, which reveals the type of workflow, which will always read VALPRO.
- **RESULT**, which indicates whether the test passed or failed.
- **Run Mode**, which indicates whether the tests were run in a normal production mode or off-line. For ValPro tests, this will always read Production.

You can print the report of ValPro results by placing your cursor inside the display area and right-clicking with the mouse. Choose Print from the shortcut menu that appears, and the software will open a standard Windows Print dialog box where you can specify printer settings.

Service log query

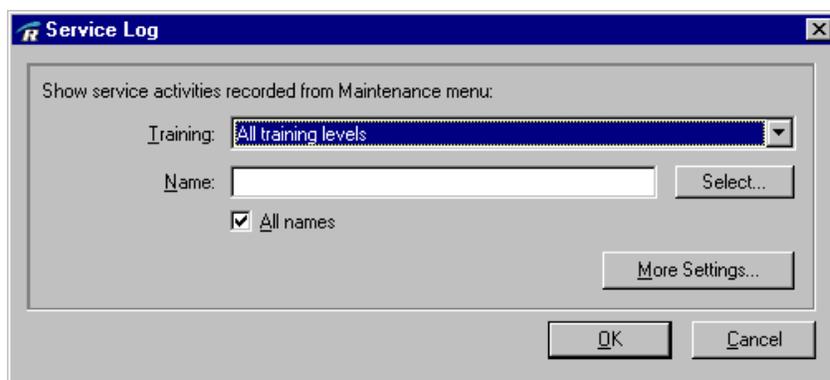
RESULT Operation software tracks any entries made to the software's on-line service log. You can query the audit log to return all service log entries, entries made by our service engineers or customers, or entries made by a specific person. The software displays the results of your query as a table in the display area of the main window.

Performing the service log query

To perform the service log query:

1. **Choose Service from the Logs menu in the RESULT Operation main window.**

The software will open the Service Log query dialog box, as shown below.



From this dialog box, you can specify whether to query entries made by our service engineers, customers, all training levels, or entries by a specific person. The software automatically sets up the query for all entries made to the service log.

2. Select the training level you want to query from the Training drop-down list.

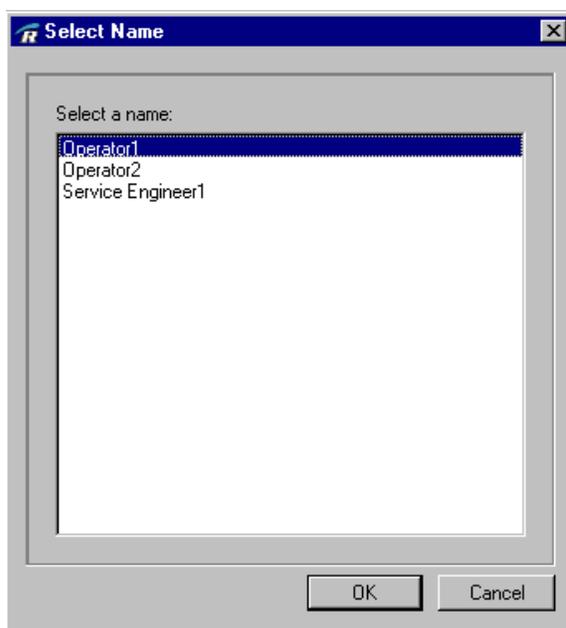
Select one of the following options:

- All Training Levels.
- Thermo Fisher Scientific Service Engineer.
- Customer.

Note If you are going to perform a query of entries made by a specific person, make sure the training level you select matches the training level of the person, or select All Training Levels from the drop-down list. ▲

3. If you want to perform the query for entries made by a specific person, clear the All Names check box and type the name of the person in the Name text box or choose the Select button.

If you choose the Select button, the software will open the Select Name dialog box, as shown below.



The Select Name dialog box includes all names that have entries in the software's on-line service log. Select the appropriate name from the dialog box and choose OK. The dialog box closes and the name you selected appears in the Name Text box.

4. Choose OK to begin the query.

The software will query the audit log and return a report in the display area.

Note The software automatically returns a query of all entries made to the service log based on the parameters you specified. See “Advanced Query Settings” in this chapter for information about performing a query for a specific time period and working with other advanced settings. ▲

Service log query results

The software displays the service log query report as a table in the display area of the main window. An example report is shown below.

Service Log

<i>Key ID</i>	<i>Date</i>	<i>PC</i>	<i>Operator Name</i>	<i>Serviced By</i>	<i>Training Level</i>	<i>Activities</i>
809	07-10-2000 16:49:30	PC_NAME	Operator2	Operator2	Customer	Tested the collection event Polystyrene SMLR1 in workflow Workflow1. The test was SUCCESSFUL.
743	06-14-2000 13:34:34	PC_NAME	Operator1	Operator1	Customer	Performed instrument check using transmission module. The test was SUCCESSFUL.
626	05-03-2000 08:30:02	PC_NAME	Operator2	Operator2	Customer	An instrument alignment was successfully performed. Align information: Setup instrument for align process. Calibrate gain Align laser Optimize interferogram position signal (volts): 7.4 Alignment complete (volts): 7.8
153	04-14-2000 11:19:28	PC_NAME	ResAdministrator	Service Engineer1	Nicolet Service Engineer	Instrument Status Laser is within manufacturers specifications. Laser alignment is good. Source is within manufacturers specifications. Power is within manufacturers specifications. Instrument is scanning.

The table includes the following information:

- **Key ID**, which is assigned to each entry into the audit log. If the log contains any suspect data, an asterisk (*) will appear before the Key ID assigned to that entry in the report.
- **Date**, which indicates the date and time the entry was made into the log.
- **PC**, which shows the computer name from which the entry was made.
- **Operator Name**, which shows who was logged on to the software at the time the entry was made.
- **Serviced By**, which reveals the name of the person who performed the service.
- **Training Level**, which reveals whether the service was performed by the customer or a trained engineer.
- **Activities**, which describes the service performed.

You can print the report of service log entries by placing your cursor inside the display area and right-clicking with the mouse. Choose Print from the shortcut menu that appears, and the software will open a standard Windows Print dialog box where you can specify printer settings.

Measurement trend query

RESULT Operation software tracks values stored into the audit log database from measurement items in workflows. Using this information, you can create reports showing specific trends in workflows, events, and values. You can also specify whether to create a graph of measurement trends or to show results of your query in a table. This information can be helpful to show if values of certain measurements are increasing or decreasing throughout a series of experiments and/or over a period of time.

Performing the measurement query

To perform the measurement trend query:

1. **Choose Measurement from the Logs menu in the RESULT Operation main window.**

The software will open the Measurement Log query dialog box, as shown below.

Measurement Log

Show measurements for:

Run mode: Production

Workflow: [Text Box] Select...

All workflows

Event: [Text Box] Select...

All events

Value: [Text Box] Select...

All values

More Settings...

Display Format

Graph Table

Full Y-axis range

Custom range: [Text Box] Low [Text Box] High

Include limit indicator

Y limits: [Text Box] [Text Box]

Digits after decimal: 2

OK Cancel

The software automatically specifies a query for all values for every event in all workflows run in a production mode. The query will produce a graph of the results, using the full Y-axis range of the values included in the query.

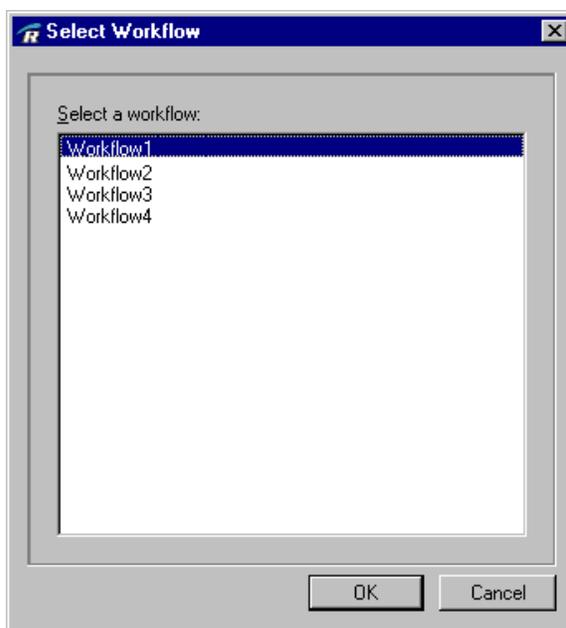
2. If you want to query a run mode other than production, select the mode from the Run Mode drop-down list.

Select one of the following options:

- **All Modes**, which will include all of the modes in the list.
- **Production**, which will include runs in the production environment.
- **Off-line**, which will include runs specifically designated as off-line, either when the workflow was specifically taken off-line or simply run in an off-line mode.

3. If you want your query to cover a specific workflow, clear the All Workflows check box.

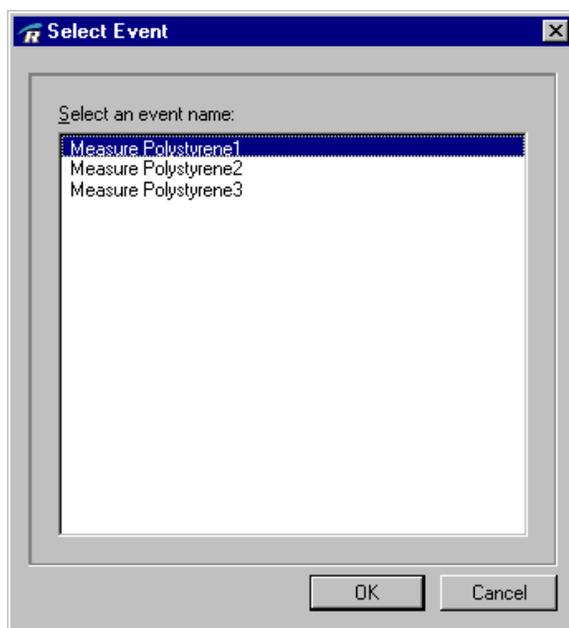
Type the name of the workflow in the Workflow text box or choose the Select button to select the workflow. If you choose the Select button, the software will open the Select Workflow dialog box, as shown below.



The Select Workflow dialog box will contain workflows that have values stored in a database. Select the workflow name from the list, and choose OK. The Select Workflow dialog box will close, and the Workflow text box in the Measurement Log dialog box will contain the workflow name you selected.

4. If you want the query to include only a specific event, clear the All Events check box.

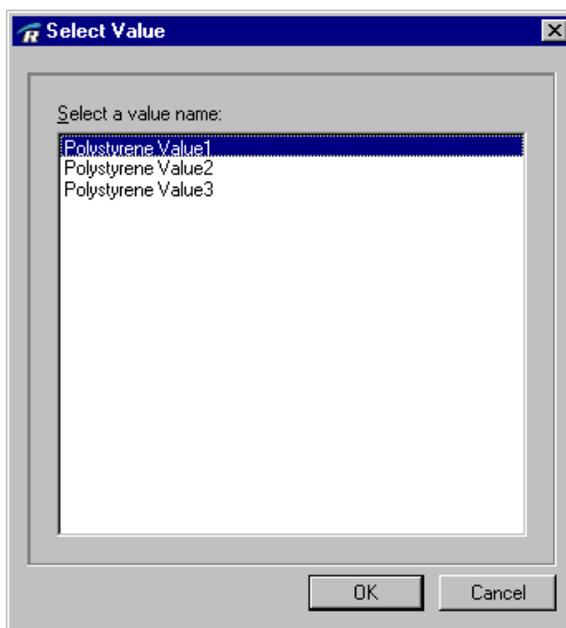
Type the name of the event in the Event text box, or choose the Select button adjacent to the text box to select the event. If you choose the Select button, the software will open the Select Event dialog box, as shown below.



The Select Event dialog box will contain a list of archived event names included in the workflow, workflow type, and/or run mode you specified for your query. Select the event name from the list, and choose OK. The Select Event dialog box will close, and the Event text box in the Measurement Log dialog box will contain the event name you selected.

5. If you want your query to cover a specific value, clear the All Values check box.

Enter the value in the Value text box, or choose the Select button to open the Select Value dialog box, as shown below.



The Select Value dialog box will contain a list of values saved to a database, based on the workflows and events you have chosen to query. Select the appropriate value from the list, and choose OK. The Select Value dialog box will close, and the Value text box in the Measurement Log dialog box will contain the value name you selected.

6. Select the format in which you want your results displayed.

The software automatically selects the Graph option button from the Display Format option button group. If you keep this option selected, the software displays a graph with the X-axis noting the collection date and time and the Y-axis noting the value amount.

If you prefer to have the results of your query in a summary table, select the Table option button. The software creates a table containing the results and the table appears in the display area.

7. If you chose to have the data displayed in a graph in the previous step, then you can customize the Y-axis range and include a limit indicator.

The software automatically uses the full range of value amounts archived for the Y-axis in the graph. If you want to customize the range, clear the Full Y-axis Range check box. Type the appropriate low and high ranges in the Custom Range text box.

If you want to include indicators to show specific limits for the Y-axis, select the Include Limit Indicator check box. Selecting this option will cause the graph to contain lines showing the range of acceptable limits of the value amounts. If you select this option, type the low and high limits of the indicators in the Y Limits text boxes.

These options do not apply if you chose to have the query results displayed in a table.

8. If you chose to have the results displayed in a table, then select the number of decimal places you want the value column in the table to include.

The software automatically includes two decimal point places for the value column in the table. If you want to change this default, select one of the options from the Digits After Decimal drop-down list. You can select to display up to six decimal places. The software will round the number to the nearest decimal place you select.

9. Choose OK to begin the query.

The software will query the audit log and return a report in the display area.

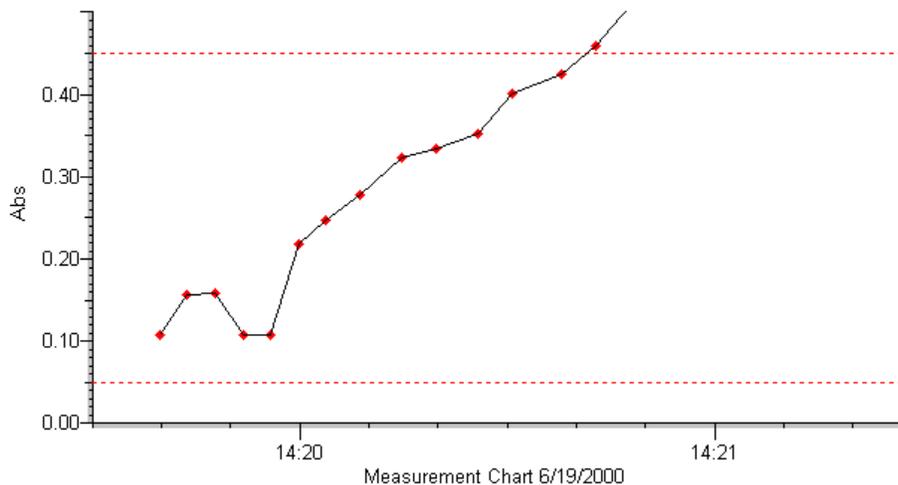
Note The software automatically returns a query of the measurement items archived within the last seven days. See “Advanced Query Settings” in this chapter for information about changing this default and working with other advanced settings. ▲

Measurement query results

The results of your query will be returned either as a graph or as a table in the display area, depending on the settings you specified in the Measurement Log query dialog box.

Measurement graph

If you specified to have the results displayed in a graph, the graph appears in the display area of the software, as shown in the example below.



For the above example, the Y-axis is based on the absorbance values collected, and there are indicators showing that the acceptable limits are at 0.05 absorbance units for the low and .50 absorbance units for the high. The X-axis plots collection times, in military time format, for collections on June 19, 2000.

You can print the graph by placing your cursor inside the display area and right-clicking with the mouse. Choose Print from the shortcut menu that appears, and the software will open a standard Windows Print dialog box where you can specify printer settings.

Table of values

If you chose to display the information in a table, the table appears in the display area. An example of a table of values collected is shown below.

Measurement Results

<i>Key ID</i>	<i>Date</i>	<i>PC</i>	<i>Operator Name</i>	<i>Workflow Name</i>	<i>Event Name</i>	<i>Value Name</i>	<i>Measure Value</i>	<i>Measure Unit</i>	<i>Run Mode</i>
65	06-19-2000 14:21:24	PC_NAME	Operator2	Polystyrene	Measure Polystyrene1	Polystyrene Value1	0.7007	Absorbance	Production
62	06-19-2000 14:21:18	PC_NAME	Operator2	Polystyrene	Measure Polystyrene1	Polystyrene Value1	0.6530	Absorbance	Production
59	06-19-2000 14:21:13	PC_NAME	Operator2	Polystyrene	Measure Polystyrene1	Polystyrene Value1	0.6232	Absorbance	Production
56	06-19-2000 14:21:06	PC_NAME	Operator2	Polystyrene	Measure Polystyrene1	Polystyrene Value1	0.5863	Absorbance	Production
53	06-19-2000 14:21:00	PC_NAME	Operator2	Polystyrene	Measure Polystyrene1	Polystyrene Value1	0.5597	Absorbance	Production
8	06-19-2000 14:19:46	PC_NAME	Operator2	Polystyrene	Measure Polystyrene1	Polystyrene Value1	0.1071	Absorbance	Production

The table includes the following information:

- **Key ID**, which is assigned to each entry into the audit log. If the log contains any suspect data, an asterisk (*) will appear before the Key ID assigned to that entry in the report.
- **Date**, which indicates the date and time the entry was made into the audit log.
- **PC**, which shows the computer name from which the workflow was run.
- **Operator Name**, which shows the RESULT log on name of the user who ran the workflow.
- **Workflow Name**, which reveals the name of the workflow associated with the value.
- **Event Name**, which reveals the name of the event associated with the value.
- **Value Name**, which reveals the name of the value that was saved to the database.
- **Measure Value**, which indicates the value of the item, in the units specified in the workflow.
- **Measure Unit**, which indicates the unit of measurement for the value.
- **Run Mode**, which describes what mode the workflow was in when it was run, either production or off-line.

You can print the table by placing your cursor inside the display area and right-clicking with the mouse. Choose Print from the shortcut menu that appears, and the software will open a standard Windows Print dialog box where you can specify printer settings.

Administration query

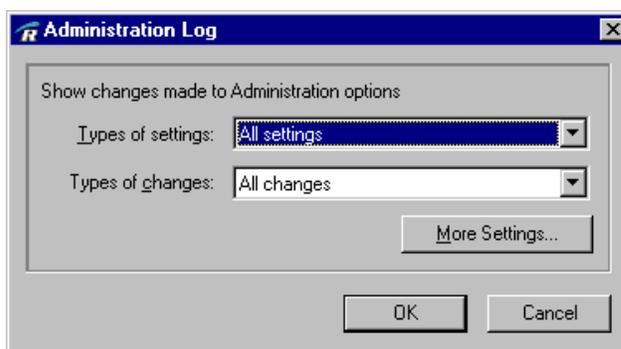
RESULT Operation software tracks any administrative-level changes made to the software's features, including changes to ValPro settings, RESULT Options, and software configuration. You can query the audit log about all or particular types of administrative changes. The software displays the results of your query as a table in the display area of the main window.

Performing the administration query

To perform the administration query:

1. **Choose Administration from the Logs menu in the RESULT Operation main window.**

The software will open the Administration Log query dialog box, as shown below.



From this dialog box, you can specify the types of administrative changes you want to query. The software automatically specifies a query for all types of settings and changes.

2. **If you want to query a specific type of setting, select the setting from the Types of Settings drop-down list.**

Select one of the following options:

- **All Settings**, which includes all options in the drop-down list.

- **RESULT Options**, which includes changes made to the RESULT Options dialog box.
- **ValPro Options**, which includes changes made to instrument qualification frequency and qualification instructions in the ValPro Options dialog box.
- **ValPro Tests**, which includes any changes made to the tests specified for instrument qualification in the ValPro Options dialog box.
- **Data Source**, which includes any changes made to the software's data source configuration in the Configure System dialog box.
- **System Path**, which includes any changes made to the path for storing system configuration files in the Configure System dialog box.

3. If you want to query specific types of changes, select the change from the Type of Change drop-down list.

Select one of the following options:

- **All Changes**, which includes all options in the drop-down list.
- **Modify**, which includes modifications made to settings.
- **Open Data Source**, which includes when a RESULT administrator selected a different data source or created a new data source to use for audit logging. This option will include all information about the new data source selected.
- **Close Data Source**, which includes when a RESULT administrator selected a different data source or created a new data source for audit logging. This option will include all information about the old data source that was closed.

4. Choose OK to begin the query.

The software will query the audit log and return a report in the display area.

Note The software automatically returns a query of administrative changes made within the last seven days. See “Advanced Query Settings” in this chapter for information about changing this default and working with other advanced settings. ▲

Administration query results

The software displays the report as a table in the display area of the main window. An example report is shown below.

System Settings

Key ID	Date	PC	Operator Name	Settings Type	Change	Description
458	06-15-2000 10:44:57	PC_NAME	ResAdministrator	ValPro Tests	Modify	Instrument qualification test Transmission qualification using external standards Customer qualification Algorithm qualification test Qualification frequency: Every 180 days
457	06-15-2000 10:44:48	PC_NAME	ResAdministrator	ValPro options	Modify	Instrument qualification test Customer qualification Algorithm qualification test Qualification frequency: Every 180 days
3	06-13-2000 07:31:13	PC_NAME	ResAdministrator	System path	Modify	C:\Result Info\Configuration
2	06-13-2000 07:31:13	PC_NAME	ResAdministrator	Data source	Open data source	RESULTData
1	06-13-2000 07:31:12	PC_NAME	ResAdministrator	Data source	Close data source	RESULTData

The table includes the following information:

- **Key ID**, which is assigned to each entry into the audit log. If the log contains any suspect data, an asterisk (*) will appear before the Key ID assigned to that entry in the report.
- **Date**, which indicates the date and time the entry was made into the audit log.
- **PC**, which shows the computer name from which the changes to settings were made.
- **Operator Name**, which shows the RESULT log on name of the user who made the changes.

- **Settings Type**, which reveals the type of administrative setting that was changed.
- **Change**, which reveals the type of change made to the settings.
- **Description**, which indicates the current settings of the item that was changed.

You can print the report by placing your cursor inside the display area and right-clicking with the mouse. Choose Print from the shortcut menu that appears, and the software will open a standard Windows Print dialog box where you can specify printer settings.

Advanced query settings

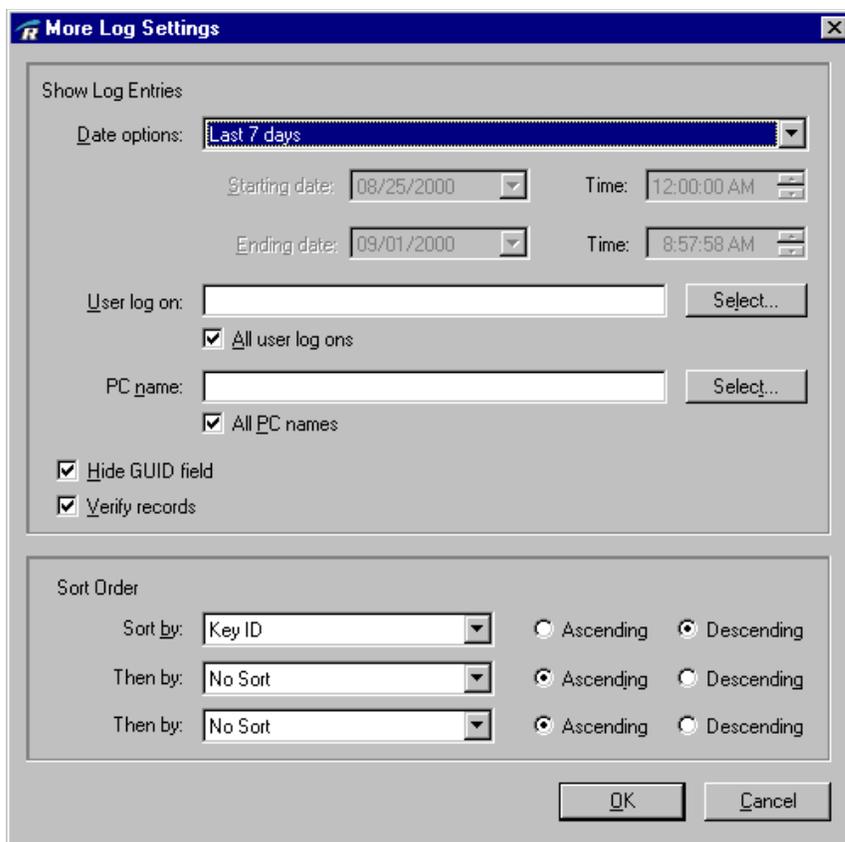
Each of the queries described in this chapter can be customized to encompass a specific date range, cover specific user log on names, cover specific computer names, show GUID fields, and sort data by one or more fields. These advanced settings can be accessed through the More Settings button on any of the query dialog boxes.

To set advanced settings:

1. **Choose one of the queries from the Logs menu in the RESULT main window.**
2. **Choose the More Settings button on the query dialog box.**



The software opens the More Settings dialog box.



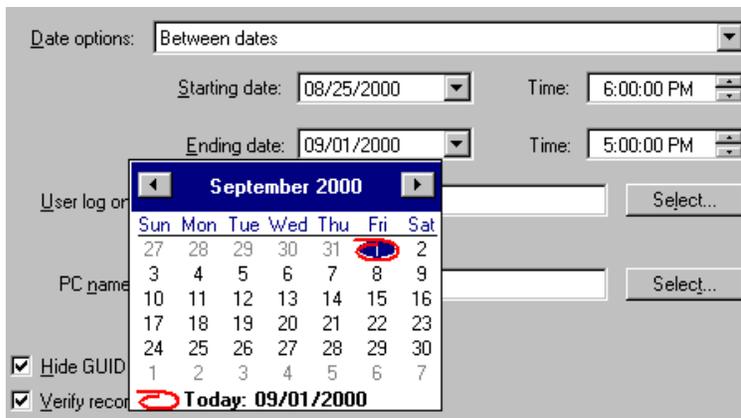
The software automatically selects a date range, and performs the query for all user log on names and PCs (computer names). The software also is automatically set up to hide the system-assigned GUID field in the query results and to verify all records for integrity. The query results are automatically sorted by their Key IDs in descending order. You can change any of the above options to customize your query results.

3. To change the dates that encompass your query, select the option you want from the Date Options drop-down list.

Depending on the selection you make, the Starting Date and/or Ending Date boxes may become available. You can change the date in these boxes by:

- **Typing the appropriate dates(s)** into the boxes;
- **Selecting a portion of the date** and using the arrow keys on your keyboard to adjust the date; or

- **Selecting the drop-down arrow** to the right of the box. If you select one of the drop-down arrows on a date box, the software will open a calendar, as shown below.

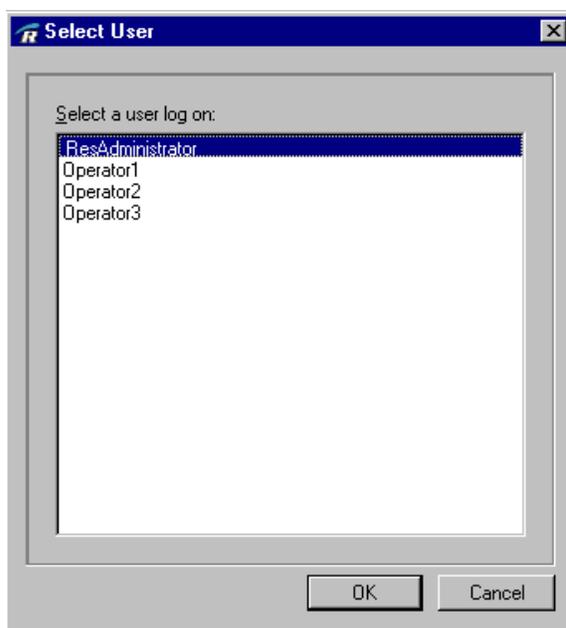


Choose the date from the calendar with your cursor. Use the arrow buttons at the top of the calendar to navigate to the next and previous months.

You can change the time by typing the appropriate time in the box, or by selecting a portion of the time and using the arrow keys on your keyboard or the Up and Down buttons to the right of the box to change the time.

4. To query a specific user log on, clear the All User Log Ons text box.

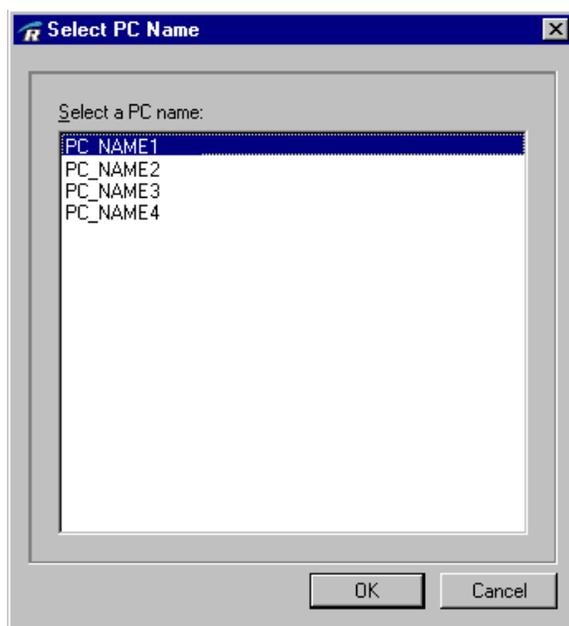
Type the user's log on name in the User Log On text box or choose the Select button adjacent to the text box to open the Select User dialog box, as shown below.



Select the user from the list, and then choose OK. The dialog box closes and the name of the user appears in the User Log On text box in the More Settings dialog box.

5. To query information related to a specific computer name, clear the All PC Names check box.

Enter the name of the computer in the PC Name text box or choose the Select button adjacent to the text box to open the Select PC Name dialog box, as shown below.



Select the computer name from the list, and then choose OK. The dialog box closes and the name of the computer appears in the PC Name text box.

6. If you want your query results to include GUIDs, clear the Hide GUID Field check box.

This check box is automatically selected to hide the GUID. If you clear this check box, then the report will contain GUIDs for each entry.

This option is not applicable when retrieving reports in an archive query or when creating a graph in a measurement query.

7. If you do not want the software to verify the records, clear the Verify Records check box.

When selected, the software will use determine whether records have been manually changed. If there software finds any manual changes to data, then the data will be marked in your report as suspect. Suspect data is marked with an asterisk (*) before the record's Key ID number in a report.

Leaving this option selected helps assure the integrity of the data in your reports. However, clearing this option will increase the speed of your query.

This option is not applicable when retrieving reports in an archive query or when creating a graph in a measurement query.

8. Specify Sort Order options.

The software automatically sorts records in descending order by their Key ID. You can sort the report by up to three fields, in either ascending or descending order.

To sort the report by another field in the audit log table, select the appropriate field from the Sort By drop-down list. The items in this list will vary depending on the type of query you are performing.

Choose whether you want the records sorted in ascending or descending order by selecting one of the option buttons adjacent to the Sort By drop-down list.

If you want the records sorted on a second and/or third level, select the fields you want the sort based upon from the Then By drop-down list(s). Choose whether you want the records sorted in ascending or descending order by selecting the appropriate option button(s) adjacent to the drop-down list(s).

9. Choose OK to save your settings.

The software will close the More Settings dialog box and return to the dialog box you were previously using. Change any appropriate options in the query dialog box, and then choose OK to perform the query.

Note If you change any of the advanced settings, the changes will remain in effect for all queries until you change those settings again or log off the software, with the exception of the date options. The date options will revert back to their defaults when you perform a different query. ▲

Chapter 6 System Maintenance

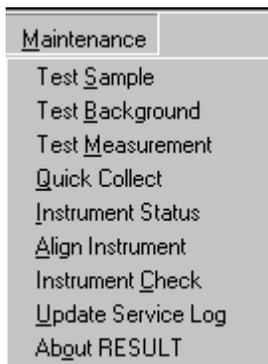
The Maintenance menu in RESULT Operation software contains diagnostics and other features, including:

- **Workflow diagnostics**, which allow you to perform test runs of sample collection, background collection, and measurement events related to workflows.
- **The Quick Collect feature**, which allows you to perform a background and sample collection to produce a spectrum.
- **Instrument diagnostics**, which allow you to check the instrument's status, align the instrument, and perform an instrument check.
- **The service log**, which allows you to make entries into the software's on-line service log.

This chapter includes instructions for using the features in the Maintenance menu.

Note To work with features in the Maintenance menu, your RESULT administrator must give you access to the menu. If the Maintenance menu does not appear in the RESULT Operation software main window menu bar, then you do not have access to the features described in this chapter. See your RESULT administrator. ▲

Introduction to the Maintenance menu



The Maintenance menu in RESULT Operation software contains diagnostics and other features to assist you with troubleshooting and maintenance of the system. The features in the maintenance menu include:

- **Test Sample**, which allows you to perform a diagnostic run of a sample collection event in a workflow.
- **Test Background**, which allows you to perform a diagnostic run of a background collection event in a workflow.
- **Test Measurement**, which allows you to perform a diagnostic run of a measurement event in a workflow.
- **Quick Collect**, which allows you to collect a background and sample to produce a spectrum.●
- **Instrument Status**, which produces a report of the status of the laser, source, detectors, and power supply. The instrument status report also contains serial numbers and firmware version information.
- **Align Instrument**, which calibrates the gain, aligns the laser, and optimizes the interferogram position for the instrument.
- **Instrument Check**, which uses the main analyzer transmission detector to produce a series of spectra for diagnostic purposes. The spectra produced by running the instrument check include an interferogram, a single-beam, 100% line, and polystyrene (if the system has an internal attenuator wheel that includes a polystyrene sample).
- **Update Service Log**, which allows you to add entries to the software's on-line service log.
- **About RESULT**, which contains information about the current version of the software.

In order to work with the features in the Maintenance menu, the RESULT administrator must give you access to the menu. If the Maintenance menu does not appear in the menu bar of the RESULT Operation main window, then you do not have access to these features. See your RESULT administrator.

Testing a sample, background, or measurement

The Maintenance menu contains diagnostics for performing test collections of background spectra, sample spectra, and measurement events in workflows, without having to run through an entire workflow and without affecting your production data archives. These diagnostics are helpful if you are encountering a problem with a workflow and want to test specific events.

The workflow you want to test needs to be loaded before you select any of the workflow diagnostic features. See “Selecting a Workflow” in “Chapter 2 Running a Workflow” for instructions on how to select a workflow.

The Test Sample, Test Background, and Test Measurement options in the Maintenance menu open similar dialog boxes for performing the tests. The dialog boxes allow you to select the event you want to test, display the specifications for the event, provide you with options to display the spectra using customized axes, allow you to archive and sign data, and create service log entries.

To test a sample, background, or measurement event:

- 1. If you have not already selected the appropriate workflow, select the workflow that contains the event you want to test.**

See “Selecting a Workflow” in “Chapter 2 Running a Workflow” for instructions on how to select a workflow.

- 2. Choose the appropriate command from the Maintenance menu of the RESULT main window.**

Choose either Test Sample, Test Background, or Test Measurement, depending on the event you want to test. The software will open the associated dialog box, as shown in the example below.

The Test Measurement dialog box will contain a list of measure events, and the Test Background and Test Sample dialog boxes will contain lists of collect events.

The Measurement Parameters box only appears in the Test Measurement dialog box.

The screenshot shows the 'Test Measurement' dialog box. It features a title bar with the 'R' logo and the text 'Test Measurement'. The main area is organized into several sections. At the top, there is a 'Select the measure event:' label followed by a dropdown menu currently set to 'Incoming Material'. Below this is the 'Collection Parameters' section, which includes several input fields and dropdown menus: 'Number of scans' (30), 'Resolution' (8.0 cm-1), 'Attenuator' (Empty), 'Gain' (1x), 'Data format' (Log I/R), and 'Operator prompts' (Before sample). A checkbox labeled 'Collect a background only' is present but unchecked. The next section is 'Measurement Parameters', which contains a single text field for 'Method file name' set to 'C:\RESULT Data\Workflows\Incoming Materials.qnt'. The 'Options' section follows, containing a 'Number of repetitions' text box with the value '1'. It also includes several checkboxes: 'Collect one background only' (checked), 'Use custom X-axis range for spectral display' (unchecked), and 'Use custom Y-axis range for spectral display' (unchecked). The X-axis range has 'Begin' (4,000.00) and 'End' (10,000.00) fields. The Y-axis range has 'Begin' (0.00) and 'End' (0.00) fields. There are also checkboxes for 'Archive spectral data' and 'Archive reports', with the latter having an 'Archive base name' text box containing 'Incoming Material'. Other options include 'Require digital signature' (unchecked) and 'Create service log entry upon completion' (unchecked). At the bottom right, there are 'OK' and 'Cancel' buttons.

3. Select the event you want to test from the drop-down list.

After you select the event, the software displays the collection parameters for that event. These are the parameters specified in the workflow, and cannot be changed.

4. If you want to perform more than one test of the collection event, enter the number of times you want to perform the test in the Number Of Repetitions text box.

If you enter more than one repetition, then the Collect One Background Only check box will become available, as shown below.

Options
 Number of repetitions: 4
 Collect one background only

Select this check box if you only want to collect one background for the test. If you want to collect a background for each repetition in the experiment, then clear this check box.

5. If you want to specify custom X- and/or Y- axes for the spectral display, select the Use Custom X-axis Range For Spectral Display and/or the Use Custom Y-axis Range For Spectral Display check box(es).

If you do not select custom axes, then the software will use the spectral range and data format range specified in the workflow.

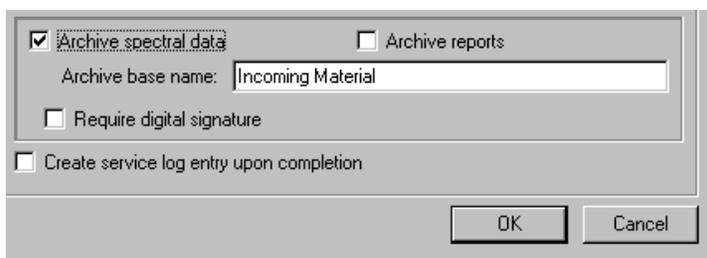
If you select one or both of the custom axis check boxes, then you need to enter the beginning and ending ranges in the appropriate text boxes, as shown below.

Use custom X-axis range for spectral display
 Begin: 6,000.00 End: 10,000.00
 Use custom Y-axis range for spectral display
 Begin: 0.00 End: 0.00

6. Select any archive or service log options.

You can elect to archive a spectrum and/or report by selecting the appropriate check boxes. The Archive Spectral Data check box directs the software to save the spectrum produced as a spectral file (*.SPA), which is compatible with other Thermo Scientific software applications. The Archive Reports check box directs the software to save the spectrum as an HTML file, which is viewable by Web browser applications and RESULT Operation software.

If you elect to archive the spectrum or report, then the Archive Base Name text box and the Require Digital Signature check box become available, as shown below.



The software automatically assigns the item a base name that correlates with the name of the event or background. However, you can change the base name.

You can elect to digitally sign the archive item by selecting the Require Digital Signature check box.

You can also elect to make an entry in the service log after performing the test collection by selecting the Create Service Log Entry Upon Completion check box.

7. After you have selected the appropriate options, choose OK to begin collection.

If you close the dialog box without choosing OK, your settings will not be saved and the test will not begin. Choose Cancel to close the dialog box without saving your settings.

After you choose OK, the software will begin the test. The software will collect data as if it were running that portion of the workflow.

You can watch the status of the test in the status indicator in the lower left of the software's main window. If you have specified to repeat the test more than once, the software will repeat the test until it has gone through the required number of repetitions.

When the test is completed, the resulting spectrum appears in the display area.

8. If you elected to archive items and require a digital signature, enter your Windows password at the Digital Signature dialog box, as shown below.



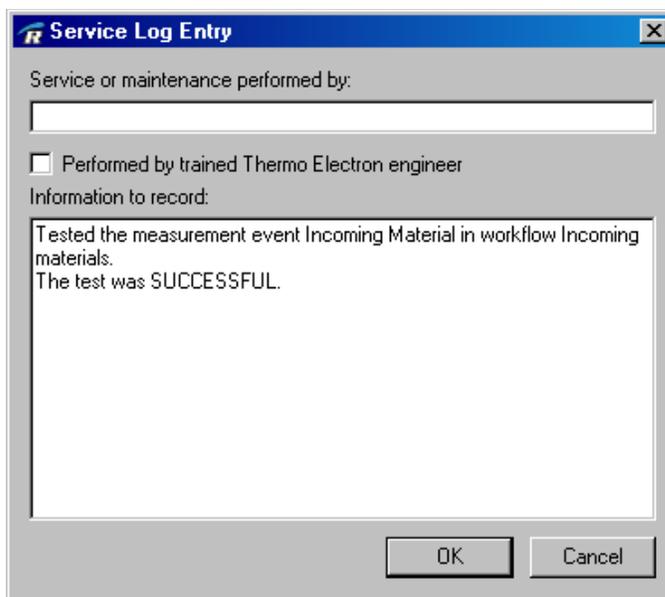
Enter your Windows password in the Password text box. The password must match your Windows password exactly, including matching letter case.

Select the Authorship option from the Reason for Signature drop-down list, or enter another appropriate reason for the signature, and choose OK.

Note You have three attempts to enter your password correctly when digitally signing a file. If you are unable to correctly enter your Windows password, or if you choose Cancel from the Digital Signature dialog box, the file will not be digitally signed. The software will create a report of workflow errors indicating that the archived file was not been signed. ▲

9. If you specified to create a service log entry, then enter the service log information into the Service Log Entry box when it is displayed, as shown below.

The software automatically records whether the test was successful.



Enter your name in the Service Or Maintenance Performed By text box. Do not select the Performed By Trained Thermo Fisher Scientific Engineer check box unless you are a trained Thermo Fisher Scientific engineer.

You can add or modify information in the Information to Record text box.

After you have entered the appropriate information, choose OK to create the log entry. If you close the dialog box without choosing OK, the entry will not be created. Choose Cancel to close the dialog box without creating an entry.

Note Once you have created a service log entry, it cannot be modified. ▲

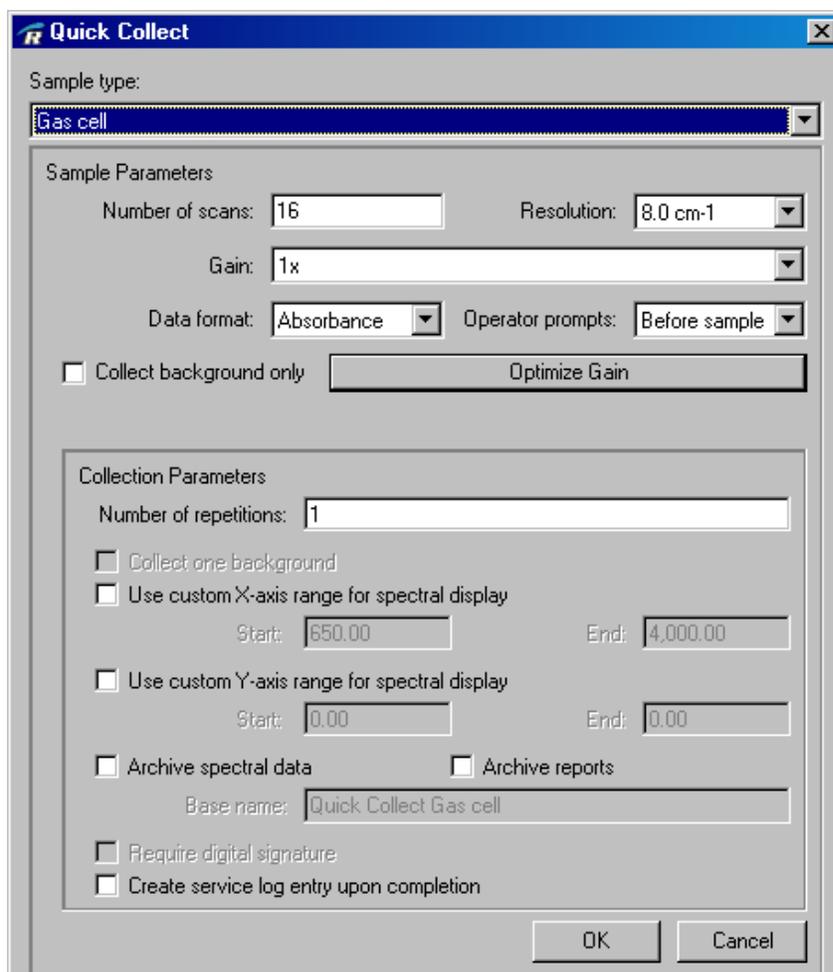
Using Quick Collect

The Quick Collect feature allows you to collect background and sample spectra without the necessity of creating or selecting a workflow. This is a helpful feature if you simply want to produce a viewable spectrum from a sample or background collection.

To use the Quick Collect feature:

1. **Choose Quick Collect from the Maintenance menu in the RESULT Operation main window.**

The software will open the Quick Collect dialog box, as shown below.



2. Select the sampling module you plan to use from the Sample Type drop-down list.

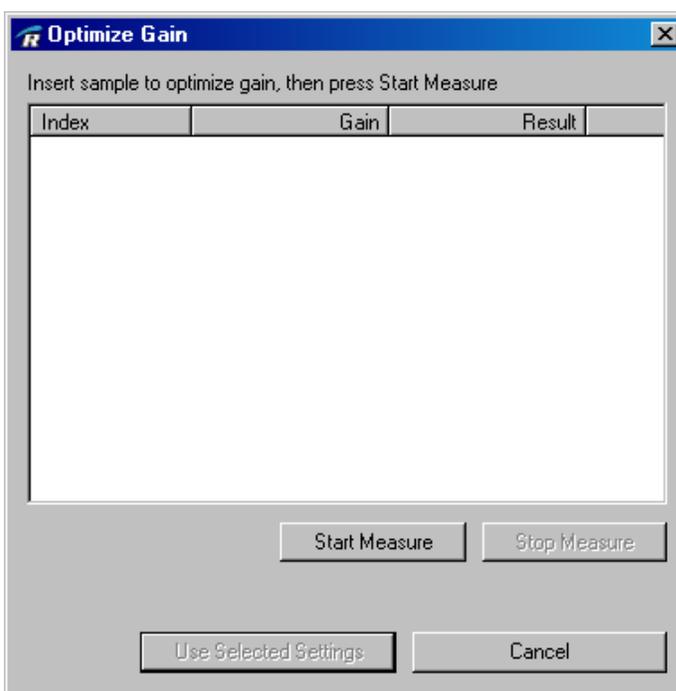
The options in the drop-down list will vary, depending upon the instrument your software was configured to use. Once you select a sampling module, the Sample Parameters box displays the default settings for that module.

3. Change any default settings in the Sample Parameters box.

Note When deciding what to select in the Operator Prompts drop-down list, the selection you make should depend on the sampling module you are using and whether you are collecting background data using an internal or external reference. See the appropriate chapter for your sampling module in your *Antaris User's Guide* for more information about specifying operator prompts in the Quick Collect feature. ▲

If you need to determine an appropriate gain and attenuation settings for your samples, choose Optimize Gain in the Quick Collect dialog box. When you choose Optimize Gain, the following dialog box appears:

For detailed information about the Optimize Gain feature, see “Sample specifications” in “Workflow Events and Specifications.”



To determine the recommended gain and attenuation wheel settings for a sample material, prepare a representative sample for data collection, place the sample in the appropriate sampling module, and then choose Start Measure in the Optimize Gain dialog box. The software collects sample data using each possible combination of gain and attenuation settings to find the settings that produce the best results. When the measurements are completed, the results appear in a table in the Optimize Gain dialog box.

If you want the software to automatically reset the Attenuator and Gain parameters in the Quick Collect dialog box to the recommended settings (or simply reset Gain to the highest voltage value), choose Use

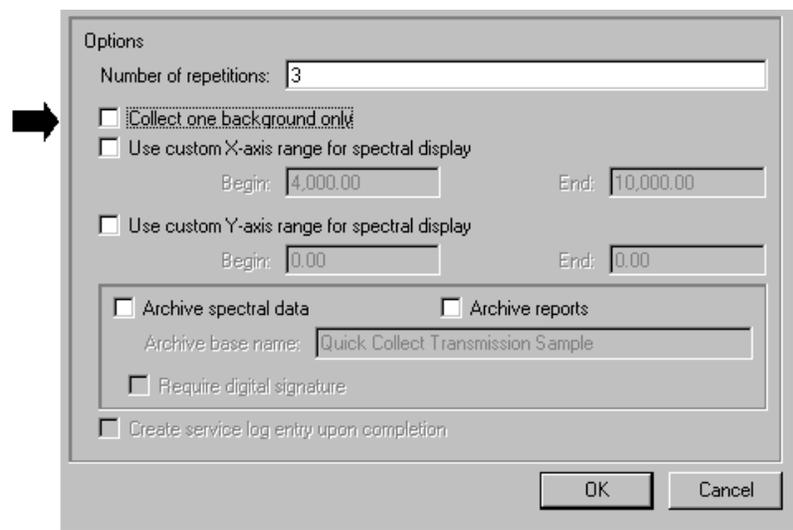
Selected Settings in the Optimize Gain dialog box. The dialog box closes and the new Gain setting appears in the Quick Collect dialog box.

- 4. If you are collecting a background spectrum only, select the Collect Background Only check box.**

If this check box is not selected, then the software will collect both a background and sample spectrum.

- 5. If you want to perform multiple collections, enter the number of collections you want to perform in the Number Of Repetitions text box.**

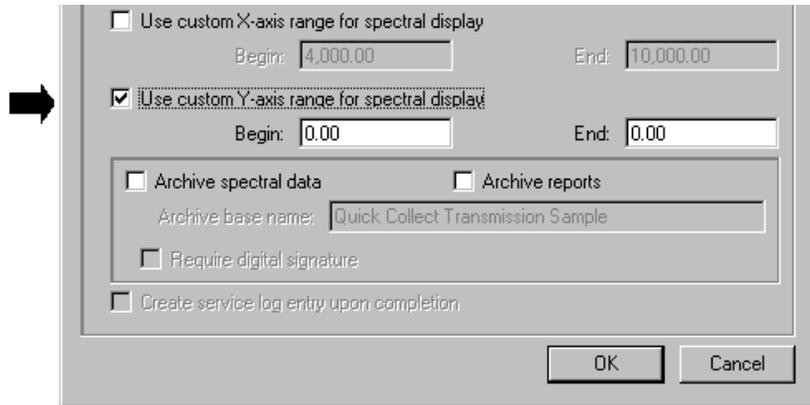
If you change the number of repetitions, then the Collect One Background Only check box will become available, as shown below.



Select the Collect One Background Only check box if you want to collect only one background spectrum for the experiment. If you want to collect a background spectrum for each sample collection, then do not select this check box.

- 6. If you want to specify custom X- and/or Y- axes for the spectral display, select the Use Custom X-axis Range For Spectral Display and/or the Use Custom Y-axis Range For Spectral Display check box(es).**

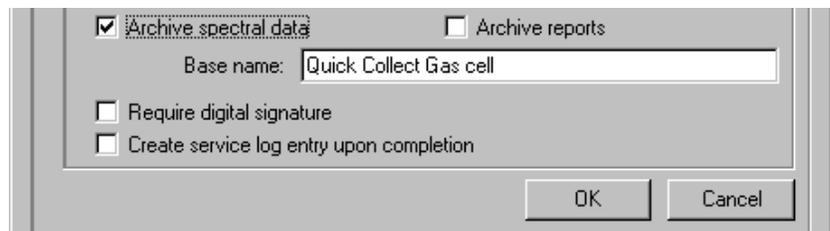
If you do not select custom axes, then the software will use the default spectral range and data format range. If you select one or both of the custom axis check boxes, then you need to enter the beginning and ending ranges in the appropriate text boxes, as shown below.



7. Select any archive options.

You can elect to archive a spectrum and/or report by selecting the appropriate check boxes. The Archive Spectral Data check box directs the software to save the spectrum as a spectral file (*.spa), which is compatible with other Thermo Scientific software packages, such as RESULT Integration and TQ Analyst. The Archive Reports check box directs the software to save the spectrum as an HTML file, which is viewable by Web browser applications and RESULT Operation software.

If you elect to archive the spectrum or report, then the Base Name text box and Require Digital Signature check box become available, as shown below.



The software automatically completes the Base Name text box based on the type of module you are using. However, you can change this base name. You can also elect to digitally sign the archive item by selecting the Require Digital Signature check box.

8. After you have selected the appropriate options, choose OK to begin collection.

If you close the dialog box without choosing OK, your settings will not be saved and collection will not begin. Choose Cancel to close the dialog box without saving your settings.

After you choose OK, the software will begin data collection. If you are prompted to prepare for a background and/or sample collection, after you have prepared the appropriate items, choose OK at the software prompt to continue the collection process.

When data collection is complete, the spectrum appears in the display area of the software.

9. If you elected to archive items and require a digital signature, enter your Windows password at the Digital Signature dialog box, as shown below.



Enter your Windows password in the Password text box. The password must match your Windows password exactly, including matching letter case.

Select the Authorship option from the Reason for Signature drop-down list, or enter another appropriate reason for the signature, and choose OK.

Note You have three attempts to enter your password correctly when digitally signing a file. If you are unable to correctly enter your Windows password, or if you choose Cancel from the Digital Signature dialog box, the file will not be digitally signed. The software will create a report of workflow errors indicating that the archived file has not been signed. ▲

Instrument status

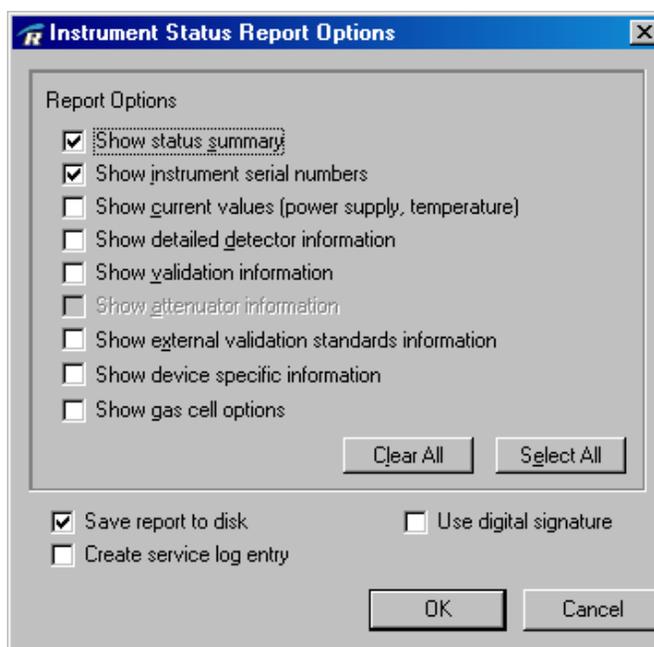
The Instrument Status feature in the RESULT Operation software main menu allows you to check instrument component specifications and view instrument serial numbers. This feature can be a helpful instrument diagnostic when discussing any problems with our service representatives.

Checking the status

To check the instrument's status:

1. **Choose Instrument Status from the Maintenance menu in RESULT Operation software's main window.**

The software will open the Instrument Status Report Options dialog box, as shown below.



The software automatically selects the Show Status Summary and Show Instrument Serial Numbers options. If you do not want these options displayed in the report, you can clear these selections individually, or choose the Clear All button to clear the selections.

The software also automatically selects the Save Report To Disk option, which means that the status report will be saved in the directory designated for archiving data.

2. Select the items you want displayed in the report from the Report Options check boxes.

You can select any combination of the above options by selecting the check box next to the options, or you can select all of the options by choosing the Select All button. See the next section for information about each report option and what that option will display in the instrument status report.

3. If you do not want the instrument status report archived, clear the Save Report To Disk check box.

4. If you choose to archive the report and want the report digitally signed, select the Use Digital Signature check box.

If you select the Use Digital Signature check box, after the report is generated, the software displays the Digital Signature dialog box and require you to enter your Windows password to sign the report.

5. If you want to create a service log entry for the instrument status check, select the Create Service Log Entry check box.

When selected, this option will enter the summary information and the instrument status values into the software's on-line service log.

6. After you have selected the appropriate options, choose OK to begin collecting the instrument's status.

If you close the dialog box without choosing OK, the software will not collect the instrument status information. Choose Cancel to close the dialog box and cancel the instrument status collection.

The instrument status collection process will take a couple of minutes. When the software has completed the status collection, it displays a report of the selected options in the display area of the software.

7. If you chose to have the report digitally signed, the software will open the Digital Signature dialog box, as shown below.

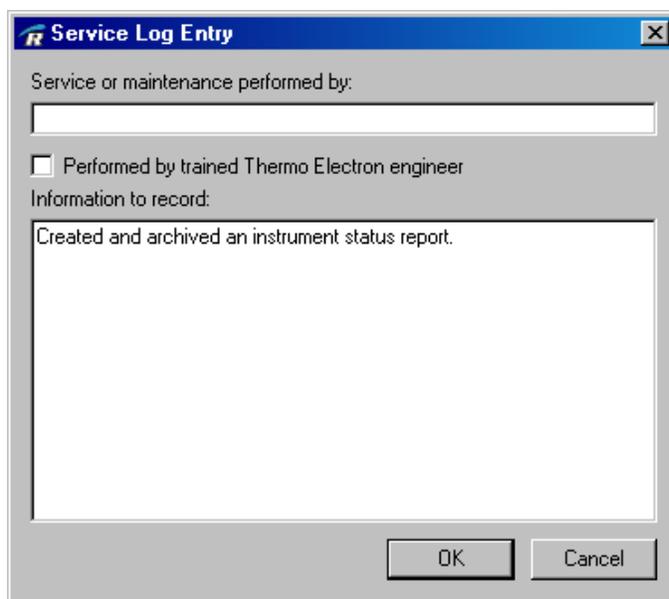


Enter your Windows password in the Password text box. The password must match your Windows password exactly, including matching letter case.

Select the Authorship option from the Reason for Signature drop-down list, or enter another appropriate reason for the signature, and choose OK.

Note You have three attempts to enter your password correctly when digitally signing a file. If you are unable to correctly enter your Windows password, or if you choose Cancel from the Digital Signature dialog box, the file will not be digitally signed. The software will create a report of workflow errors indicating that the archived file has not been signed. ▲

8. If you chose to create a service log entry, the software will open the following dialog box.



The Information to Record section in the dialog box contains text that indicates you have created an instrument status report. You can add additional text to this information.

Enter your name in the Service Or Maintenance Performed By text box. Do not select the Performed By Trained Thermo Fisher Scientific Engineer check box unless you are a trained Thermo Fisher Scientific service engineer. Choose OK to close the dialog box and record the service log entry. If you close the dialog box without choosing OK, the entry will not be made into the service log.

Note Once you create a service log entry, it cannot be modified. ▲

To print the report from the display area, right-click with the cursor anywhere within the display area, to open a shortcut menu and choose the Print option. The software will open a standard Windows Print dialog box, from which you can specify your printer settings and print the document.

Instrument status report options

The instrument status report produced will depend on the options you selected in the Instrument Status Report Options dialog box. This section contains samples and brief explanations of each instrument status report option.

Status summary Selecting the Show Status Summary option in the Instrument Status Report Options dialog box displays information about the status of the software and the laser, laser alignment, source, and power. An example of the status summary is shown below.

Software Configuration

RESULT version: 2.0 Build 163, Service Pack

Instrument Status

Laser is within manufacturers specifications.
Laser alignment is within manufacturers specifications.
Source is within manufacturers specifications.
Power is within manufacturers specifications.
Instrument is scanning.

The above information can be useful if you suspect that the instrument needs to be aligned, or if you want to check whether the laser, source, and power supply are functioning within specifications.

Instrument serial numbers Selecting the Show Instrument Serial Numbers option in the Instrument Status Report Options dialog box displays the serial numbers and installation dates of various internal components; firmware versions; the position, type, and serial number of each detector; and, if you have the ValPro System Qualification validation wheel, the position, type, and serial number of each standard on the validation wheel. An example report of instrument serial numbers is shown below.

Instrument Serial Numbers

Main bench serial number: AFA0000167
Control module serial number: 1253586
Power supply serial number: 139949
Laser serial number: 9023OM
Source serial number: AFB0000306
Beampath mirror serial number: AFB0000336
Interferometer serial number: 6522
Heater block serial number: AFB0000003
Heater block calibration values: Slope = 901,825 Intercept = -244.60
Sample control board serial number: AFB0000340
SCCM ADC calibration values: Slope = 999,128 Intercept = -273.24
Transmission tray serial number: AFB0000337
Fiber probe serial number: AFC0000132

Laser install date: 09-21-2000
Source install date: 09-21-2000
Power supply install date: 09-21-2000
Desiccant install date: 09-21-2000

Driver version: 1.00
Firmware version: 1.09
Sample compartment firmware version: 1.09

This information can assist you in satisfying regulatory requirements to show if there are any changes to your system and to verify component serial numbers. It can also assist you in determining the age of perishable components.

Current values of components

Selecting the Show Current Values (Power Supply, Temperature) option in the Instrument Status Report Options dialog box displays a table of the values upon which the instrument status summary (the first option in the Instrument Status Report Options) is based. An example of the instrument status values table is shown below.

Instrument Status Values

<i>Title</i>	<i>Actual</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Pass/Fail</i>
Plus 5 (volts)	5.03	4.5	5.5	Pass
Plus 12 (volts)	11.72	11	13	Pass
Minus 12 (volts)	-12.03	-13	-11	Pass
Laser X (volts)	14.9	10	22	Pass
Laser Y (volts)	12.4	10	22	Pass
Laser R (volts)	12.4	10	22	Pass
Laser current (amps)	0.61	0.05	1.3	Pass
Source current (amps)	1.52	1.4	3	Pass
Source power (volts)	10.36	9	11.5	Pass
Board temperature (deg C)	52	0.5	70	Pass

The table displays the item being tested, the actual value, the minimum and maximum specifications, and whether the item passed or failed. This information can be helpful in assisting our representative in determining if any problems exist with your instrument.

Detailed detector information

Selecting the Show Detailed Detector Information option in the Instrument Status Report Options dialog box displays a table of details for each detector in the instrument. An example of the detailed detector information in the instrument status report is shown below.

Detector information

<i>Position</i>	<i>Type</i>	<i>Serial Number</i>
Main bench	InGaAs 2.6um	AFB0000211
Fiber port	InGaAs 2.6um	AFB0000207
Integrating sphere	InGaAs 2.6um	AFB0000204

<i>Position</i>	<i>Laser Adjustment</i>	<i>Gain</i>	<i>Gain Factor</i>
Main bench	0.000	1	1.0000
-	-	2	1.0000
-	-	4	1.0000
-	-	8	1.0000
Fiber port	0.000	1	1.0000
-	-	2	1.0000
-	-	4	1.0000
-	-	8	1.0000
Integrating sphere	0.000	1	1.0000
-	-	2	1.0000
-	-	4	1.0000
-	-	8	1.0000

As shown above, the table displays the position of the detector, the detector type, and its serial number. The report also includes the laser adjustment, gain, and gain factor of each detector.

Validation information

Selecting the Show Validation Information option in the Instrument Status Report Options dialog box displays a table with the information about your validation wheel. This option applies only if you have purchased the ValPro System Qualification package. An example of the table that might be included in the report for the Antaris NIR validation wheel is shown below.

Validation wheel information required for ValPro

Validation wheel serial number: AFB0000341

Start date for wheel: 09-19-2000

End data for wheel: 09-19-2005

<i>Position</i>	<i>Type</i>	<i>Serial Number</i>
1	Empty	-
2	2% filter	AFB0000341-02
3	10% filter	AFB0000341-10
4	20% filter	AFB0000341-20
5	40% filter	AFB0000341-40
6	80% filter	AFB0000341-80
7	Polystyrene	AFB0000341-PS

<i>ID</i>	<i>Measurement Location</i>	<i>Traceable Value</i>
-02	8,333	1.9775
-02	6,250	1.6665
-02	5,000	1.4584
-10	8,333	1.0295
-10	6,250	0.9824
-10	5,000	0.9524
-20	8,333	0.6454
-20	6,250	0.5663
-20	5,000	0.5068
-40	8,333	0.4346
-40	6,250	0.3925
-40	5,000	0.3703
-80	8,333	0.1215
-80	6,250	0.1101
-80	5,000	0.1032
-PS	Peak #1	4,332.885
-PS	Peak #2	5,948.186
-PS	Peak #3	8,742.506

As shown above, the table lists the position, number sets, First X, Last X, and Amplitude of the validation wheel. This information is helpful when performing instrument qualification, to verify that the information in your validation wheel certificate matches the information in the software.

For more information about the values that appear in this table, see your *ValPro System Qualification* package documentation.

Attenuator information

Selecting the Show Attenuator Information option in the Instrument Status Report Options dialog box displays a table containing information about the attenuator wheel in the instrument. An example of the table that appears in the report is shown below.

Attenuator wheel information

<i>Position</i>	<i>Type</i>	<i>Serial Number</i>	<i>Screen Factor</i>
1	Empty	-	1.0000
2	B Screen	AFB0000312-B	0.0642
3	C Screen	AFB0000312-C	0.0274
4	C Screen + polystyrene	AFB0000312-PS	1.0000

The table displays the wheel position, the type of screen, the serial number of the screen, and the screen factor. This information is helpful when performing instrument qualification and in satisfying regulatory requirements as verification that no changes have been made to the system.

External validation standards information

Selecting the Show External Standards Information option in the Instrument Status Report Options dialog box displays a table containing information about purchased external standards. This option applies only if you have purchased the ValPro System Qualification package. An example of the table included in the report is shown below.

External validation information required for ValPro

External transmittance standards for linearity

Serial Number AFB0000354

<i>ID</i>	<i>Measurement Location</i>	<i>Traceable Value</i>
-02	8,333	1.3636
-02	6,250	1.3044
-02	5,000	1.2932
-10	8,333	1.0437
-10	6,250	1.0027
-10	5,000	0.9725
-20	8,333	0.6347
-20	6,250	0.5624
-20	5,000	0.5020
-40	8,333	0.3548
-40	6,250	0.3085
-40	5,000	0.2809
-80	8,333	0.1177
-80	6,250	0.1049
-80	5,000	0.0986

The table lists the serial number of external standards, each standard's ID, measurement location, and traceable value. For more information about the values that appear in this table, see your *ValPro System Qualification* package documentation.

Device-specific information

Selecting the Show Device Specific Information option in the Instrument Status Report Options dialog box displays information about add-in options installed on the system. For example, if you installed any options for RESULT such as the option for the Autosampler RS, the sequence module, the OPC server support, or The Unscrambler, Pirouette, or PLSplus/IQ method development software, those options can be listed in the instrument status report.

An example of the device-specific information that might be included in the report is shown below.

Device specific information
OPCServer Add-In OPCServer support for RESULT Software version: 2.0 Build 163
Sequence Add-In Sequence support for RESULT Software version: 2.0 Build 163

Gas cell options

Selecting Show Gas Cell Options in the Instrument Status Report Options dialog box displays information about any gas cell options that are installed on the system. This feature applies mainly to the Antaris IGS (integrated gas system). The information includes the serial number and pathlength of the installed gas cell and the serial numbers of the two internal mirrors that direct the infrared beam through the gas cell beam path. The report also indicates whether the system is configured with a gas cell temperature and/or pressure control unit.

An example of the gas cell options information that might be included in the report is shown below.

Gas cell options information
Single gas cell system Gas cell serial number: AFP0300012 Gas cell pathlength: 5.00
Left mirror flipper serial number: AFV0300003 Right mirror flipper serial number: AFV0300004
There is no temperature/pressure controller unit on the instrument. There is no temperature controller on the instrument. There is no pressure transducer on the instrument.

Aligning the instrument

The Instrument Align feature in RESULT Operation software allows you to optimize the instrument's performance. The instrument alignment feature performs the following functions:

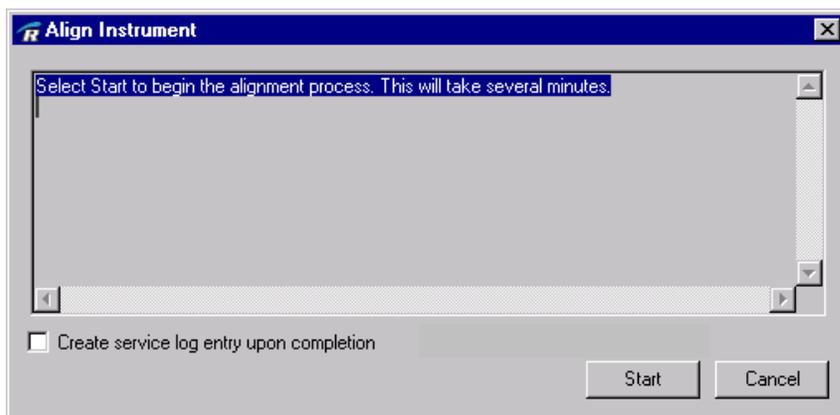
- Adjusts the digitizers and amplifiers in the main board of the instrument for optimal performance.
- Adjusts the laser signal to ensure it is passing through the center of the instrument's beamsplitter.

- Optimizes the IR signal so the maximum signal passes through the beamsplitter.

To perform an instrument alignment:

- 1. Choose Align Instrument from the Maintenance menu in the RESULT Operation software main window.**

The software displays the Align Instrument dialog box, as shown below.

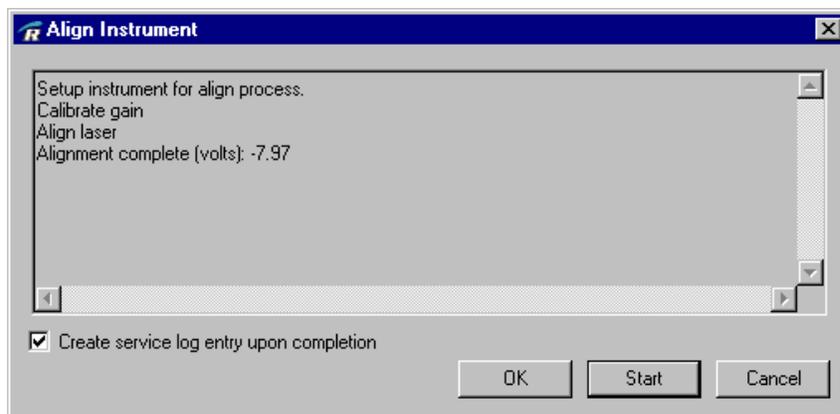


- 2. If you want to create a service log entry showing the instrument alignment was performed, select the Create Service Log Entry Upon Completion check box.**
- 3. Choose Start when you are ready to begin instrument alignment.**

The instrument alignment process will take several minutes. The software and instrument will go through the process of calibrating the gain, aligning the laser, and optimizing the interferogram position signal.

The status of the alignment process will be displayed in the Align Instrument dialog box. If you want to cancel alignment during the process, choose Cancel in the dialog box.

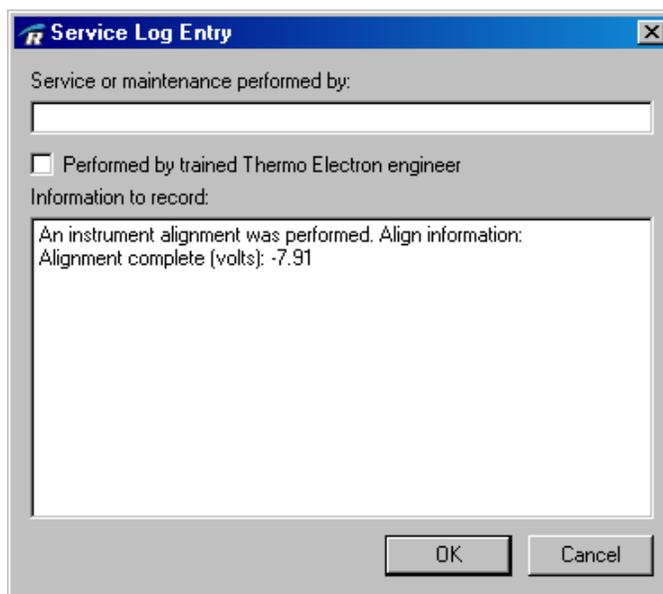
The dialog box will also display when alignment has been completed, as shown below.



Note If you receive a message in the Align Instrument dialog box indicating that the alignment was unsuccessful, power off the instrument, power the instrument back on and allow it to stabilize for approximately 20 minutes. Log off and log back into the software and attempt the instrument alignment again. If the instrument alignment is still unsuccessful, contact our service representative. ▲

4. Choose OK to close the dialog box.

If you have opted to create a service log entry, the software displays the following dialog box.



The Service Log Entry dialog box displays the alignment information. You can add text to the Information to Record text box.

Enter your name in the Service Or Maintenance Performed By text box. Do not select the Performed By Trained Thermo Fisher Scientific Engineer unless you are a trained Thermo Fisher Scientific engineer.

Choose OK to close the dialog box and record your service log entry. If you choose Cancel, the dialog box will close without the entry being recorded.

Note Once you have created a service log entry, it cannot be modified. ▲

Instrument Check

The Instrument Check feature in RESULT Operation software uses the main analyzer transmission detector to produce a series of spectra for diagnostic purposes. The spectra produced by running the instrument check include an interferogram, a single-beam, 100% line, and polystyrene (if the system has an internal attenuator wheel that includes a polystyrene sample).

When compared to previous instrument check spectra, these tests are helpful in determining whether a problem exists with your instrument.

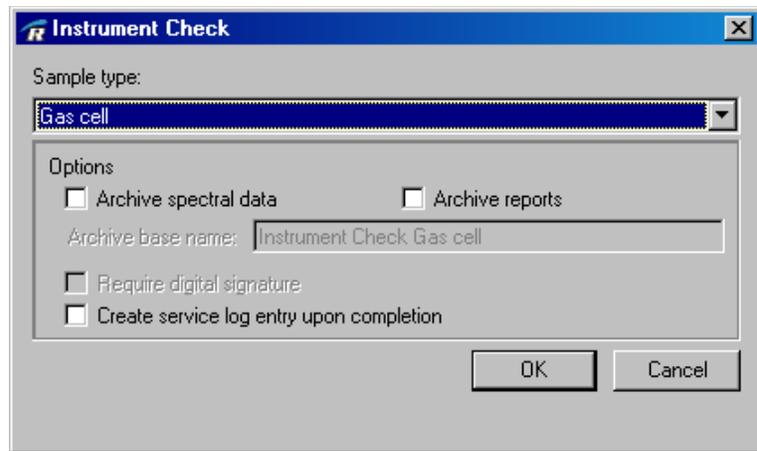
Running the instrument check

To run the instrument check:

1. **Choose Instrument Check from the Maintenance menu in the RESULT Operation software main window.**

The software will open the Instrument Check dialog box, as shown below.

The choices in the Select A Sampling Module drop-down list may differ, depending on the type of instrument configured in the software's options.



2. **Select the sampling module you want to check from the Sample Type drop-down list.**

3. **Select the appropriate options from the Options group.**

Choose a combination of any of the following:

- **Archive Spectral Data**, which will archive each spectrum as a spectral (*.SPA) file, viewable by other Thermo Scientific software applications, such as TQ Analyst or RESULT Integration software.
- **Archive Reports**, which will archive each spectrum as an HTML file, viewable by RESULT Operation software and other web browsers or applications that can open HTML files.



Note If you select either of the above options, the Archive Base Name text box becomes available. The software automatically creates a file base name that corresponds with the sampling module you have selected. However, you can change this base name by typing over the text in the Archive Base Name text box. ▲

- **Require Digital Signature**, which is available if you choose to archive spectral data or reports. If you select this option, then you will be required to enter your password to digitally sign the archive files after the instrument check is completed.
- **Create Service Log Entry Upon Completion**, which creates a service log entry detailing whether the instrument check was successful.

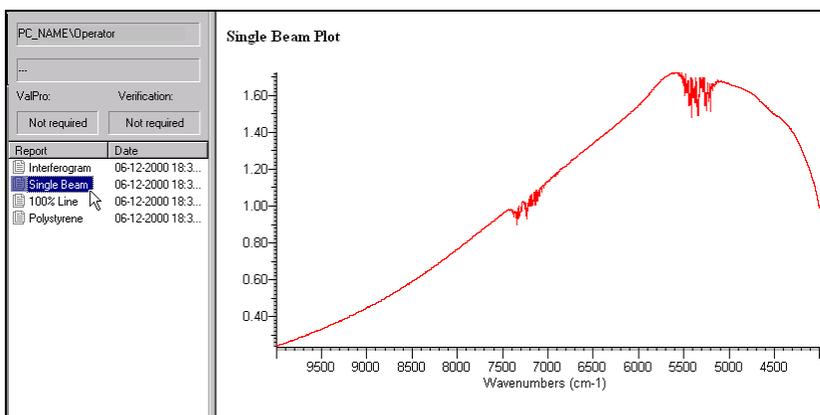
4. **Choose OK to perform the instrument check.**

Note If you close the Instrument Check dialog box without choosing OK, the software will cancel the instrument check. Choose Cancel to close the dialog box without performing the instrument check. ▲

After you choose OK, the dialog box will close and the software and instrument will begin performing the instrument check. The status indicator on the lower left side of the main window displays the status of each test, as shown below.



The software will create a report of each spectrum. You can select a report from the Report Navigation frame to open it in the display area of the software, as shown below.



If any errors occur while performing the instrument check, the software will create a report of workflow errors. You can select the report to view the errors in the display area.

- If you are archiving the data or reports and have specified that a digital signature is required, enter your Windows password at the Digital Signature dialog box, as shown below.**

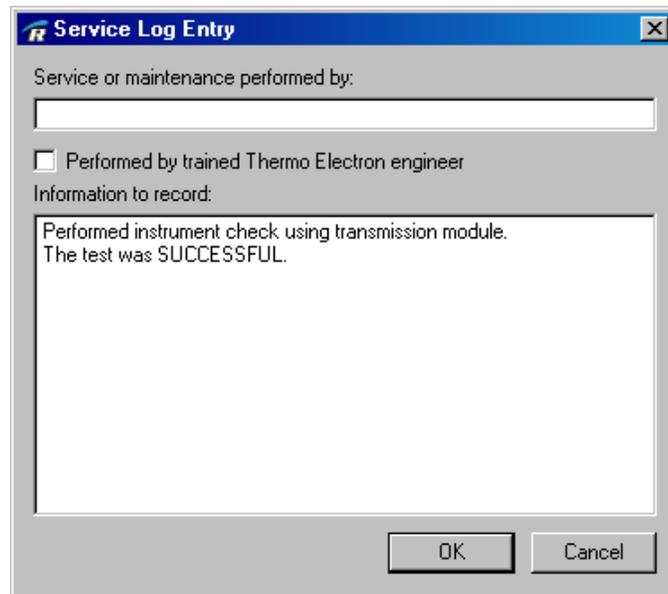


Enter your Windows password in the Password text box. The password must match your Windows password exactly, including matching letter case.

Select the Authorship option from the Reason for Signature drop-down list, or enter another appropriate reason for the signature, and choose OK.

Note You have three attempts to enter your password correctly when digitally signing a file. If you are unable to correctly enter your Windows password, or if you choose Cancel from the Digital Signature dialog box, the file will not be digitally signed. The software will create a report of workflow errors indicating that the archived files have not been signed. ▲

6. If you specified to create a service log entry, complete the Service Log Entry dialog box when it appears.



The Information To Record text box includes whether the instrument check was successful. If the test was noted as SUCCESSFUL, then no errors occurred. If the test was noted as UNSUCCESSFUL, then errors occurred and a workflow error report was generated.

Add any additional information to the Information To Record text box, as appropriate, and enter your name in the Service Or Maintenance Performed By text box.

Do not select the Performed By Trained Thermo Fisher Scientific Engineer unless you are a trained Thermo Fisher Scientific engineer.

Choose OK to make the service log entry. If you close the dialog box without choosing OK, the service log entry will not be made. Choose Cancel to close the dialog box without making a service log entry.

Note Once you choose OK, the service log entry cannot be changed. ▲

Instrument check spectra

The instrument check feature may produce up to four separate spectra: an interferogram, single-beam, 100% line, and polystyrene. The number and types of spectra produced will depend on the chosen sampling module. If any errors occurred during the process, the instrument check will also produce a report of those errors.

If you suspect there is a problem with your instrument, the instrument check feature can be a helpful diagnostic tool. You can compare the resulting spectra with spectra collected when running prior instrument checks to see if any there are any differences.

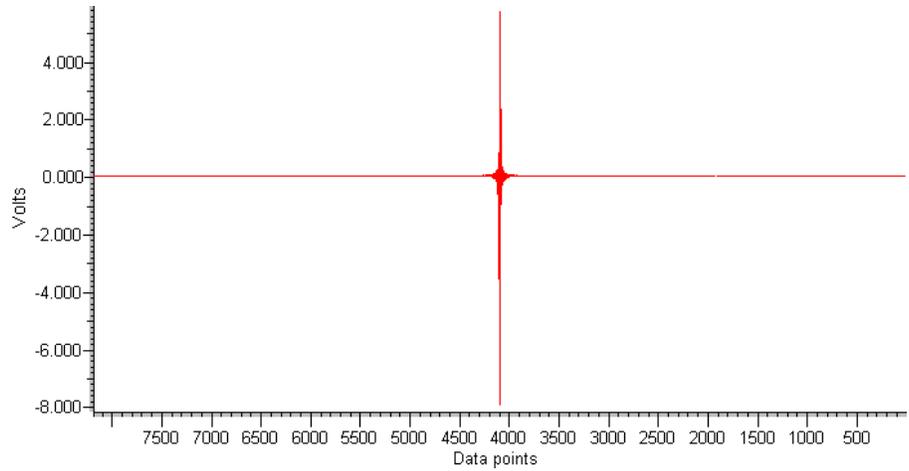
This section contains brief descriptions and examples of the spectra that may be created when running an instrument check.

Note The spectra you produce when running an instrument check may contain subtle differences from the examples in this section. The spectra in this section are shown as examples only, and should not be used as diagnostics or compared with the results you obtain from an instrument check. When running an instrument check, compare the resulting spectra with previously-run instrument checks on the same system.

If you have replaced any instrument components, this may affect the noise levels in your instrument, and make subtle differences in the instrument check spectra. If this is the case, you may want to run an instrument check more than once to see if you are obtaining consistent results after replacing an instrument component. ▲

Interferogram

The instrument check feature first produces an interferogram, which is the raw data collected during a scan by the instrument. An example interferogram is shown below.

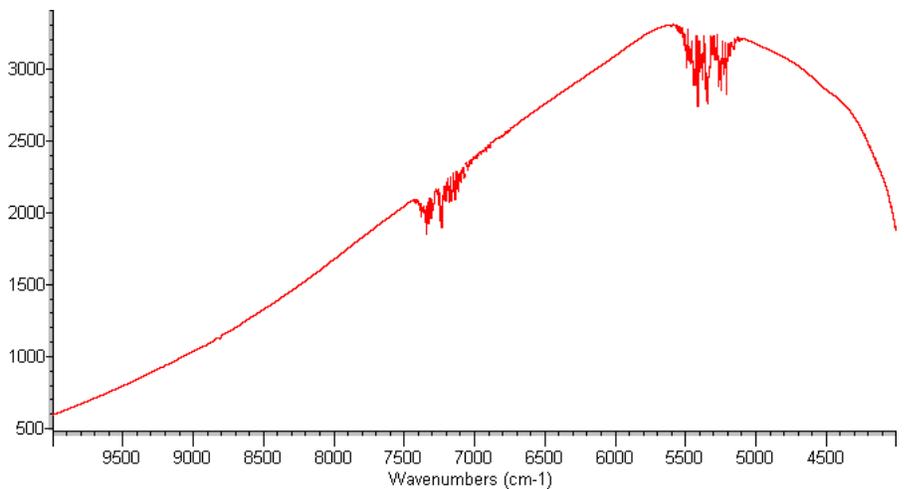


Interferogram plot using the transmission sampling module of a Antaris NIR analyzer

As shown above, the interferogram depicts signal intensity in volts (Y-axis) per data point (X-axis).

Single-beam

The instrument then produces a single-beam spectrum through the sampling module beam path with no sample in place. A single-beam spectrum is produced when the interferogram is Fourier transformed into a spectrum. An example single-beam spectrum is shown below.



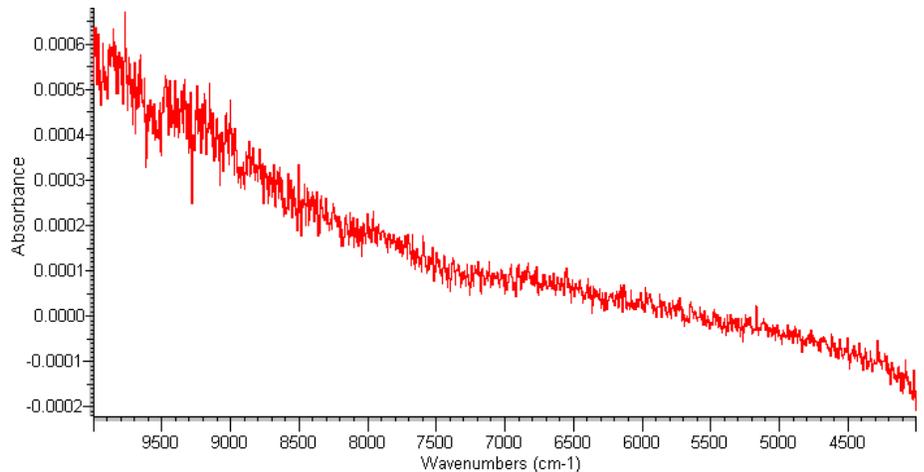
Single-beam spectrum using the transmission sampling module of a Antaris NIR analyzer

The spectrum shows how the energy of the source is distributed over the displayed frequency range. It includes the characteristics of the detector, beamsplitter, and the instrument's internal atmosphere.

The single-beam spectrum shown above was taken using the transmission module of a ANTARIS NIR analyzer. The spectral range may be different for your instrument model.

100% line

The instrument check may also produce a 100% line spectrum, which shows the noise level in the sampling environment and the instrument. An example 100% line spectrum is shown below.



100% line spectrum in absorbance units using the transmission sampling module of a ANTARIS NIR analyzer

The noise level on a spectrum depends on many factors, including the optical components, the parameter settings, and the physical surroundings of the system. These items are referred to as “instrument noise.”

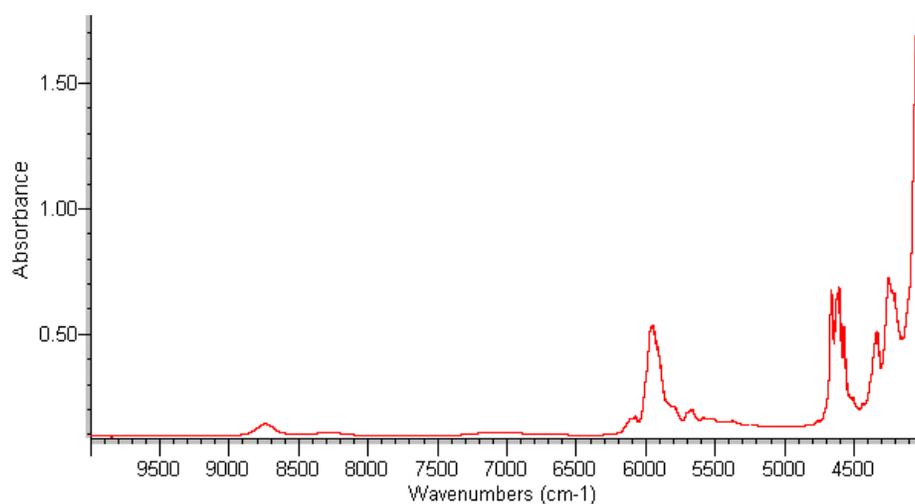
Instrument noise is calculated by processing two measurements of the background. When two identical measurements are ratioed together, the result is a spectrum of the random noise in both measurements. Since none of the infrared energy is absorbed, the spectrum is a curve very close to zero absorbance units.

The absorbance spectrum shown above is the absorbance representation of a 100% line. This is the display format since noise levels are reported in absorbance units.

The 100% line spectrum shown above was taken using the transmission module of a ANTARIS NIR analyzer. The spectral range may be different for your instrument model.

Polystyrene

The instrument check may also collect a sample using the internal polystyrene sample on the attenuator wheel (if one is included), and produce a spectrum. The sample spectrum is ratioed against the single-beam spectrum that was previously collected. An example polystyrene spectrum is shown below.



Internal polystyrene sample using the transmission sampling module of a ANTARIS NIR analyzer

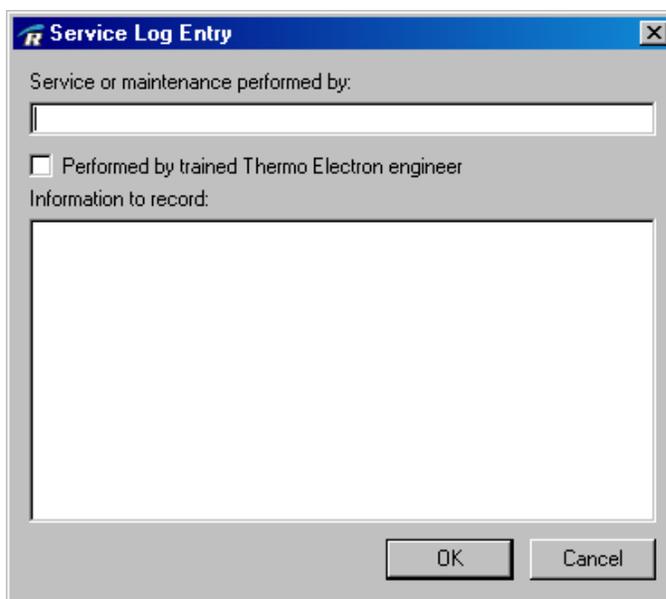
Creating an entry in the service log

You have seen that there are options throughout the software that allow you to make service log entries specific to a feature or diagnostic being used. You can also make entries into the software's on-line service log that are not related to a specific feature in the software through the Maintenance menu.

To create an entry in the service log:

1. **Choose Update Service Log from the Maintenance menu in the RESULT Operation software main window.**

The software will open the Service Log Entry dialog box, as shown below.



2. **Enter the name of the person who has performed the service or maintenance in the Service Or Maintenance Performed By text box.**
3. **If the person who performed the service or maintenance is a trained Thermo Fisher Scientific engineer, select the Performed By Trained Thermo Fisher Scientific Engineer Check Box.**
4. **Type the service or maintenance performed in the Information To Record text box.**

The text box does not have a character limit. If your text goes beyond the limit of the viewable area in the text box, use the Up and Down Arrow keys on your keyboard to move up or down in the text box.

5. **Verify the information you entered is accurate.**

Note Once you have created the service log entry, it cannot be changed or deleted. ▲

6. **Choose OK to create the service log entry.**

If you close the dialog box without choosing OK, the entry will not be created. Choose Cancel to close the dialog box without creating a service log entry.

About RESULT

The Maintenance menu also contains a feature that lists the version information about RESULT Operation software you have loaded on the system.

To display this information:

- 1. Choose About RESULT from the Maintenance menu in the RESULT Operation software main window.**

The software will open the About RESULT dialog box, which lists the copyright information and the version number of the software.

- 2. Choose Close to close the dialog box.**

Chapter 7 Servicing the Analyzer

This chapter includes information about using RESULT Operation software to update instrument information after you have replaced hardware components. It also contains information about how to view on-line help and videos related to warranty information, servicing the analyzer, maintaining the analyzer, and ordering replacement parts. These features are contained in the Service menu in RESULT Operation software.

Note To work with features in the Service menu, your RESULT administrator must give you access to the menu. If the Service menu does not appear in the RESULT Operation software main window menu bar, then you do not have access to the features described in this chapter. See your RESULT administrator. ▲

Note You may want to have a Thermo Fisher Scientific-certified service engineer or Thermo Fisher Scientific-trained on-site maintenance personnel perform instrument maintenance, replace instrument components, and/or use the features in the Service menu. If you have any questions or concerns regarding service or maintenance of the instrument or any features in the Service menu, contact our Customer Support. See the information at the beginning of this document for information regarding how to contact us. ▲

Introduction to the Service menu



The Service menu in RESULT Operation software contains features that allow you to update information related to replacing components in the instrument and view the software's on-line help system. The features in Service menu include:

- **Update Instrument Information**, which allows you to update installation dates and serial numbers after the laser, source, power supply, or desiccant have been replaced. Selecting Update Instrument Information also allows you to create back-up files containing the configuration information about your instrument.

- **Servicing the Antaris Analyzer**, which allows you to open help files and on-line videos that assist you with ordering parts, replacing instrument components, maintaining the instrument, and cleaning instrument components and accessories. You can also view warranty information related to the instrument.

Note The on-line help files and videos must be installed on your computer in order to view them from the Service menu. If they are not installed, you can view these help files by running them off your installation disk. ▲

In order to work with the features in the Service menu, the RESULT administrator must give you access to the menu. If the Service menu does not appear in the menu bar of the RESULT Operation main window, then you do not have access to these features. See your RESULT administrator.

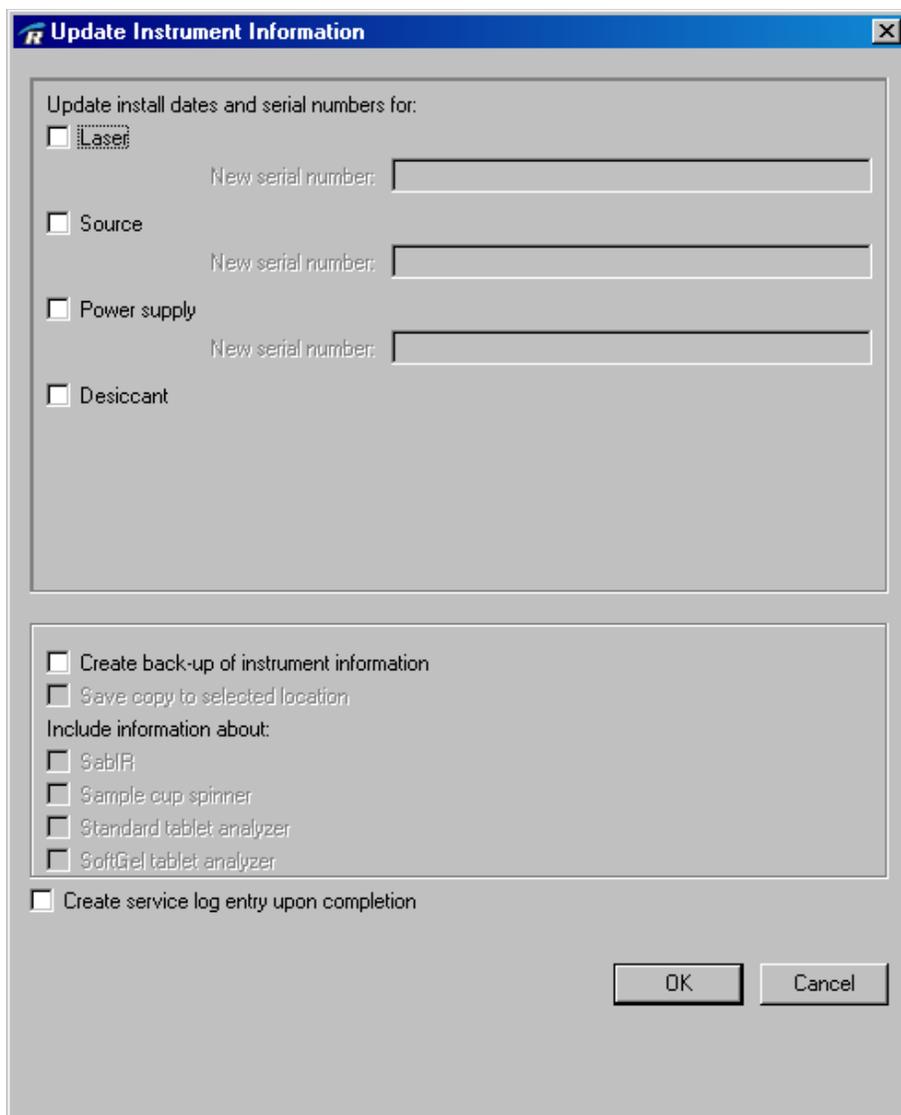
Updating instrument information

RESULT Operation software allows you to update installation dates and serial numbers after you've replaced the laser, source, power supply, or desiccant through the Update Instrument dialog box. Through this dialog box, you can also create back-up files of your instrument's configuration.

Note You may want to have a Thermo Fisher Scientific-certified service engineer or Thermo Fisher Scientific-trained on-site maintenance personnel update instrument information and/or create back-up files of your instrument's configuration. If you have any questions or concerns regarding any features in the Service menu, contact our Customer Support. See the information at the beginning of this document regarding how to contact us. ▲

To open the Update Instrument dialog box, select Update Instrument Information from the Service menu in the main window of RESULT Operation software.

When you open the Update Instrument Dialog box, the New Serial Number text boxes contain the serial numbers currently stored in the instrument's memory files.



Update Instrument Information dialog box

Updating installation dates and serial numbers

The Update Instrument dialog box allows you to update the instrument serial numbers and installation dates after you have replaced a laser, source, power supply, or desiccant. This information is updated in the instrument's memory. You can also create a service log entry with the update information.

Notice This procedure will alter the memory components in the system. Always have at least one backup of instrument memory components before updating the instrument's memory components. Your company should also have a procedure in place to ensure accuracy change control. ▲

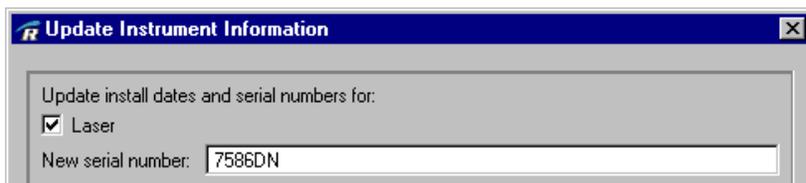
To update installation dates and serial numbers of replaced parts:

1. Open the Update Instrument Information dialog box.

Select Update Instrument Information from the Service menu in the main window of RESULT Operation to open the dialog box.

2. Select the check box(es) for the appropriate component(s) you have replaced.

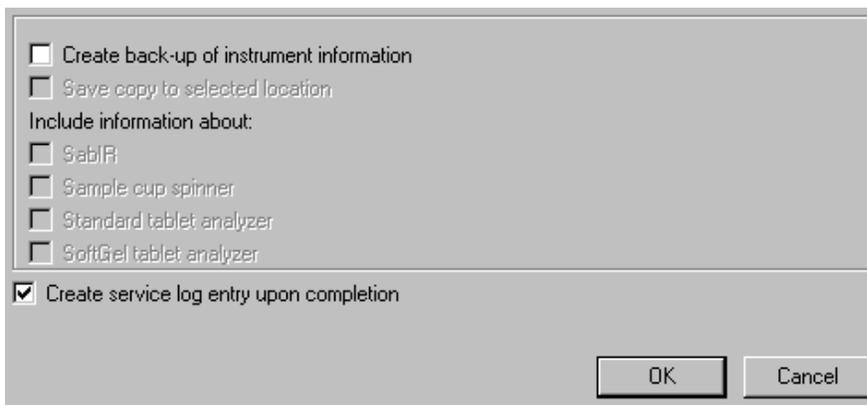
Once you select a check box for the laser, source, or power supply, the New Serial Number text box becomes available for the component(s) you selected. Type the new serial number for the component(s) you replaced in the appropriate text box, as shown below.



Note Because the desiccant pack does not have a serial number, the software can only update the installation date of a desiccant pack. ▲

Note Be sure to verify that the serial number(s) you typed are correct before proceeding. ▲

3. If you want to create a service log entry containing the replacement information, select the Create Service Log Entry Upon Completion check box, as shown below.



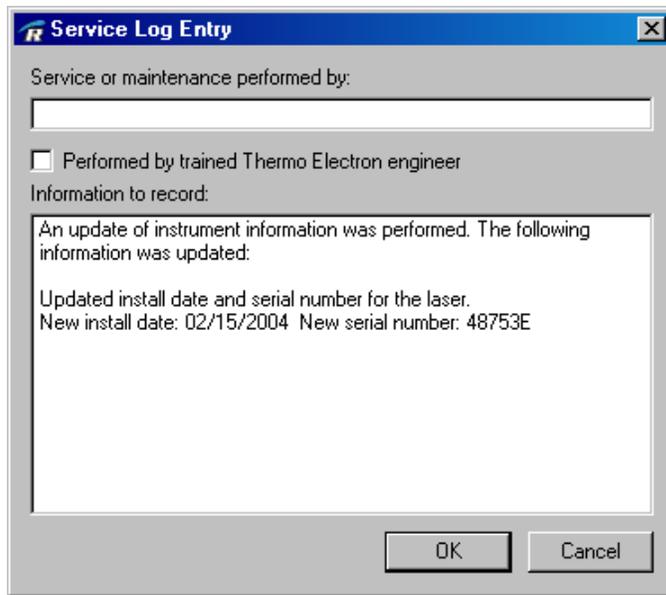
4. **Choose OK or proceed to the next section in this chapter to create back-up files of instrument information.**

If you choose OK, the dialog box will close and the software will update the appropriate instrument memory components with the new installation date(s) and serial number(s) of the components you selected.

Note It is recommended that, each time you replace an instrument component, you also create back-up files of instrument information before and after you replace a component. See the next section in this chapter for more information about creating these back-up files. ▲

After the software has updated the instrument's memory components, if you have chosen to create a service log entry for the replacement information, the software will open the Create Service Entry dialog box, as shown below.

The Information To Record text box contains the information related to the component that was replaced.



Type your name or the name of the person who replaced the component(s) in the Service Or Maintenance Performed By text box. If one of our trained service engineers replaced the component, then select the Performed By Trained Thermo Fisher Scientific Engineer check box.

You can add or change text in the Information to Record check box. After you have entered the appropriate information, choose OK to create the service log entry.

Note Once you create a service log entry, it cannot be changed or deleted. ▲

Creating back-up files of instrument information

The Update Instrument Information dialog box in RESULT Operation software contains a feature that allows you to create a set of back-up files containing the instrument's configuration information. The files are written to the same directory where software configuration files are stored.

It is recommended that you create back-up files of your instrument's configuration information upon initial installation, after you attach the instrument to a different computer, and/or after you replace instrument components.

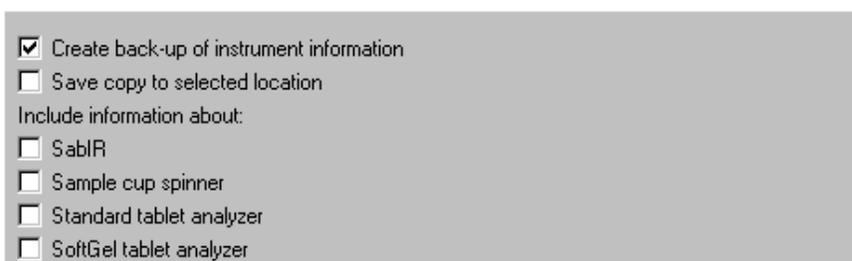
Note Even though you were provided with instrument configuration information on disks at the time the instrument was installed, it is good practice to include creating back-up files of instrument information as part of your organization's standard procedures. Should the instrument's memory components become damaged or erased, our service engineer can restore configuration information by using these back-up files. ▲

To create back-up files of instrument information:

1. If the Update Instrument Information dialog box is not already open, open the dialog box.

Select Update Instrument Information from the Service menu in the main window of RESULT Operation software to open the dialog box.

2. Select the Create Back-up Of Instrument Information check box, as shown below.



After you select the check box, several check boxes related to sampling accessories become available.

3. Select the appropriate check boxes for the sampling accessories you want included in the back-up files.

The software can also create back-ups of the memory configuration of the SabIR, sample cup spinner, standard tablet analyzer, and softgel tablet analyzer. When the software is creating the back-up files, it will prompt you to connect the appropriate sampling accessory.

Note If your system has both the standard tablet analyzer and the softgel tablet analyzer, you will be required to install one of the accessories, remove it, and then install the other accessory while the software is creating the back-up files. ▲

Note Configuration information for autosampler accessories will be backed up only when those accessories are installed on the analyzer. ▲

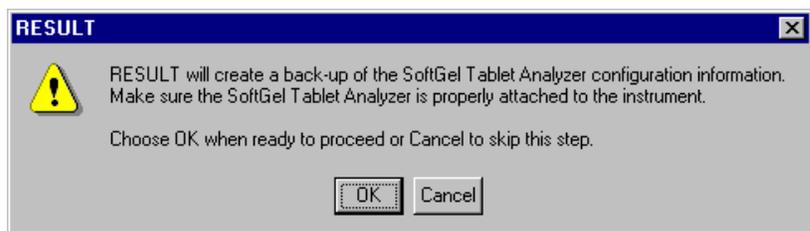
4. If you want to save an additional copy on another disk, select the Save Copy To Selected Location check box.

5. If you want to create a service log entry noting that the back-up was created, select the Create Service Log Entry Upon Completion check box.

6. Choose OK to close the dialog box and begin creating back-up files.

Choose Cancel if you want to close the dialog box without creating the back-up files.

After you choose OK, the software will begin creating back-up files. If you have selected to make back-up files of the SabIR, sample cup spinner, standard tablet analyzer, or softgel tablet analyzer memory components, the software displays a message if you need to install the appropriate sampling accessory. An example message is shown below.

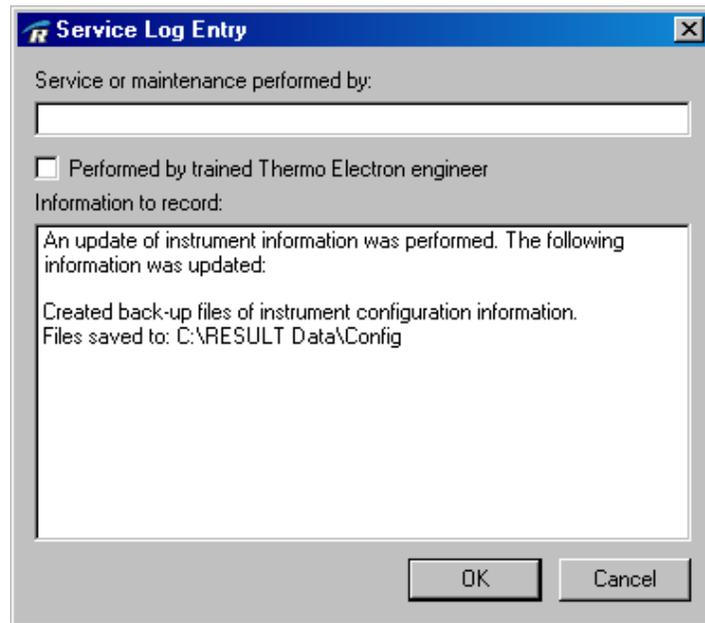


Connect the appropriate sampling accessory and choose OK. If the software cannot detect that the appropriate sampling accessory is attached, the software will continue to display the dialog box until you choose OK and the software detects that the accessory is installed, or until you choose Cancel.

If you do not want the software to create back-up files of the accessory's memory components, choose Cancel to skip that process.

If you selected to save a copy to another disk, the software will save a second copy of the back-up files on the selected disk.

If you selected to create a service log entry of the process, the software displays the Service Log Entry dialog box after it has finished creating the back-up files.



The Information To Record text box contains the update information. You can add or change text in this box.

Type your name in the Service Or Maintenance Performed By text box. Do not select the Performed By Trained Thermo Fisher Scientific Engineer check box unless you are a trained Thermo Fisher Scientific engineer. Choose OK to create the service log entry.

Note Once you create a service log entry, it cannot be changed or deleted. ▲

Servicing the Antaris analyzer

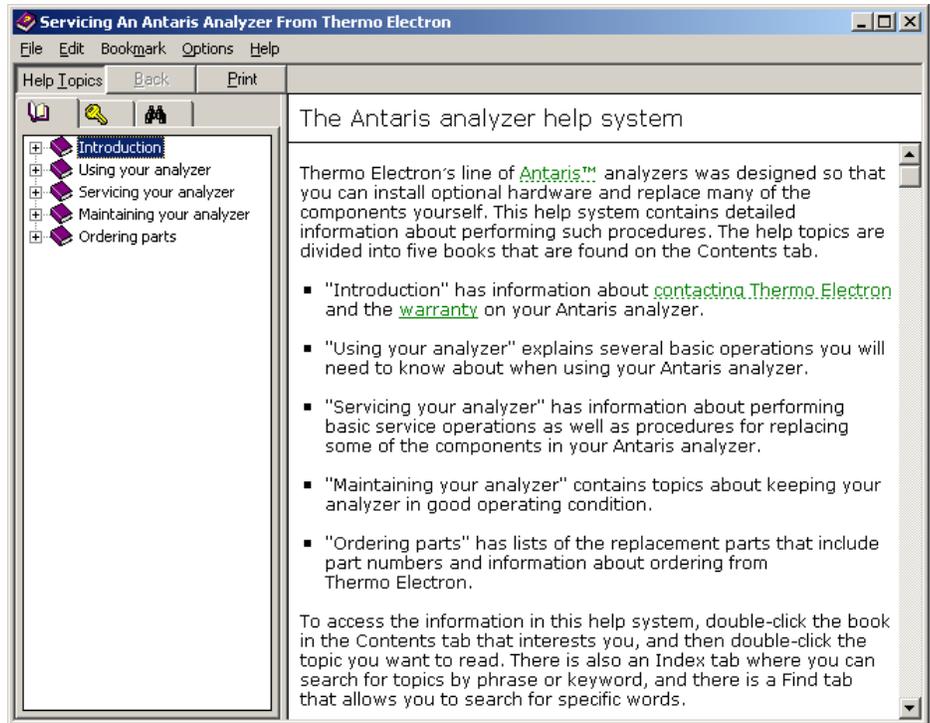
If you have an Antaris NIR analyzer (Antaris II, Antaris MX, or Antaris EX), RESULT Operation software provides online help files to provide you with easy access to useful information about your warranty, cleaning the analyzer and sampling accessories, maintaining the analyzer, servicing the analyzer, and ordering replacement parts. This information is also contained in the instrument user's guide and associated user manuals.

Note In order to access the help files from the Service menu, the help files must be installed from your RESULT software language pack installation disk. These help files can also be run directly from the disk, in the event you choose not to install the help files onto your computer. ▲

Note If you have an Antaris IGS or Target Blend analyzer, see the printed documentation or the portable document format (*.pdf) files provided with RESULT software for cleaning, maintenance, and service instructions and information about the warranty and ordering replacement parts. ▲

Note You may want to have a Thermo Fisher Scientific-certified service engineer or Thermo Fisher Scientific-trained on-site maintenance personnel perform instrument maintenance and/or replace instrument components. If you have any questions or concerns regarding service or maintenance of the instrument, use the information at the beginning of this document to contact our Customer Support. ▲

To open the help files, select Servicing the Antaris Analyzer from the Service menu in the RESULT Operation main window. The software will open the Help Topics dialog box, as shown below.



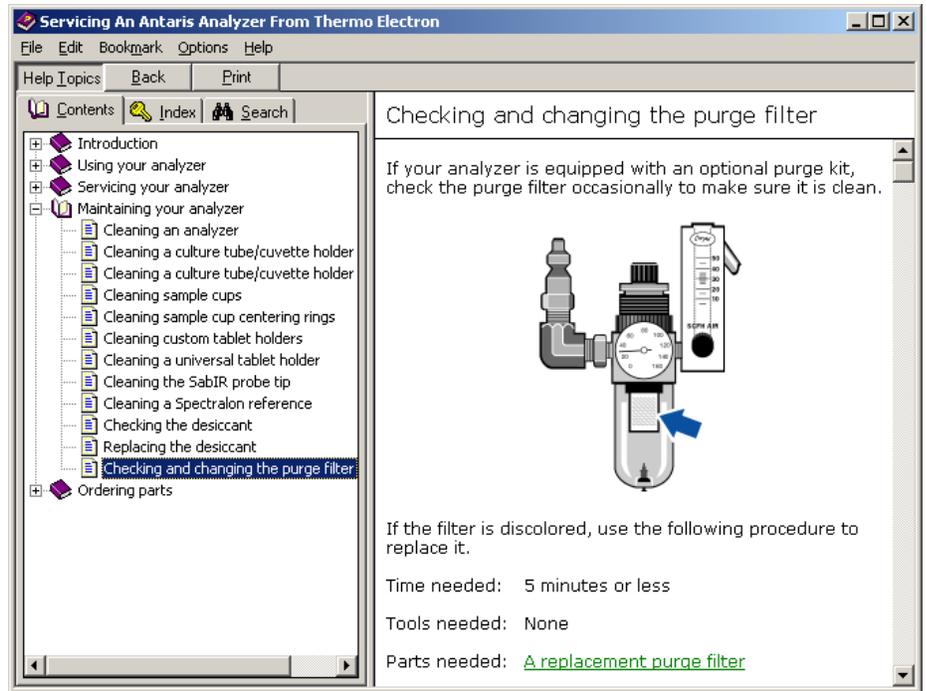
The help files are similar to other help systems for Windows applications. You can find topics by selecting them in the Contents tab, typing in words or characters in the Index tab, or using the help search engine in the Search tab to search for key words.



To expand each help topic to view a list of sub-topics, double-click on the icon to the left of the topic.



To open a sub-topic, select the icon to the left of the sub-topic you want to view. The software will open a new window containing the sub-topic you selected, as shown below.

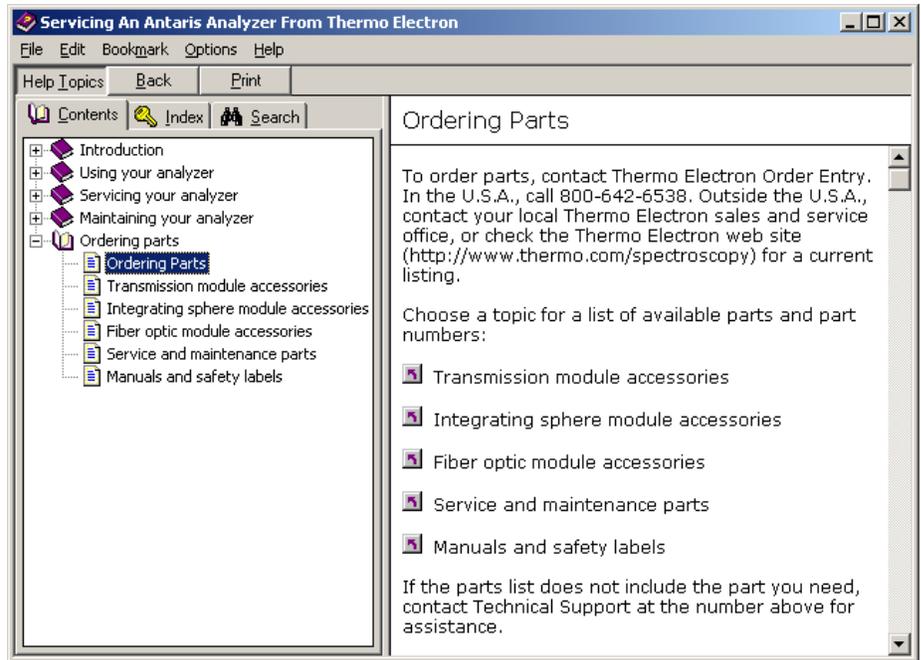


Checking and Changing the Purge Filter Sub-Topic

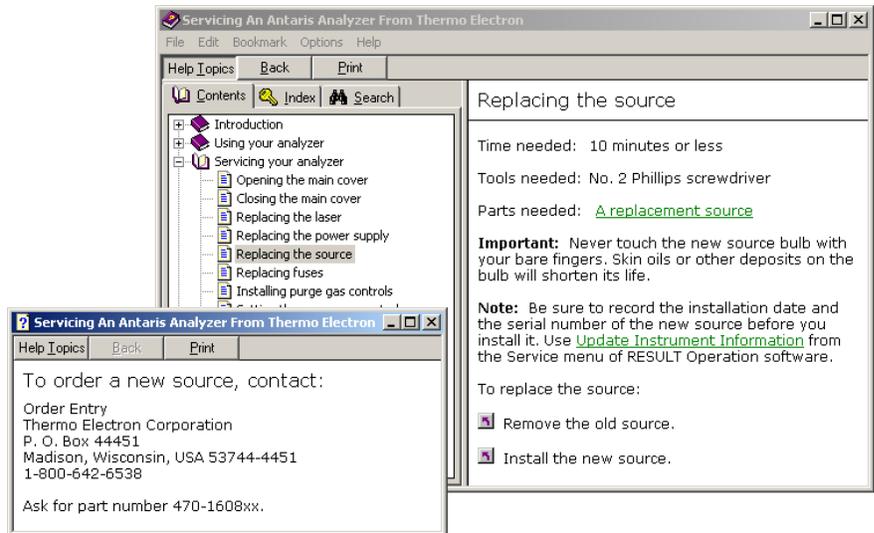
Note Be sure to pay special attention to any cautions or warnings that appear in the help information. ▲

If you need to order parts, you have two options:

- You can go to the Ordering Parts topic and click the appropriate sub-topic for the part you need.



- You can click on the “Parts needed” link in parts replacement procedures to obtain ordering information for the component being replaced.



Chapter 8 Troubleshooting RESULT Operation

This chapter describes some possible problems you may encounter when running workflows and other features in RESULT Operation software and offers some suggestions for resolving them.

If you are unable to resolve a problem or have questions or concerns, contact a local service representative or use the information at the beginning of this document to contact our Customer Support.

Notes The information in this chapter pertains to troubleshooting issues within RESULT Operation software only. Troubleshooting information can also be found in other sections of this user's guide pertaining to RESULT Integration software, software administration, and sampling modules.

Updated troubleshooting information can also be found in the release notes issued for the software on your installation disks.

Because they are self-explanatory and contain suggestions for resolution, workflow errors are not covered in this troubleshooting chapter. If you receive workflow errors when running a workflow, follow the suggestions in the error table for resolving the situation. ▲

Logging on to the workstation/software

Problem	Possible Causes	Suggestions
A Service Control Manager message appears when you log on to the workstation, stating that at least one service or driver failed during startup	The analyzer is not connected to the workstation.	<p>If an analyzer is supposed to be connected to the computer, make sure the instrument is properly connected to the computer. Log off the computer and restart before running any workflows.</p> <p>If an analyzer is not supposed to be connected to the computer (if the computer is for software use only), then you do not need to perform any action in order to use the software. However, you may want to have your Windows administrator reinstall the software without loading the bench driver to avoid receiving this message each time you log on to the workstation.</p>
RESULT Operation software starts, but you do not have access to any menus.	Your name was not added to the RESULT user list.	Have your RESULT administrator add your name to the RESULT user list.
	You were added to the RESULT user list, but were not granted any privileges.	Have your RESULT administrator assign you the appropriate RESULT privileges.
RESULT Operation cannot verify your password when attempting to at log on.	The letter case of your password does not match your password stored on the computer.	Make sure you type the password correctly, including matching letter case (for example, all capital letters, all lower case letters, or a mixture of capital and lower case letters). Be sure the Caps Lock key is not turned on.
	Another user is logged into the workstation.	Close the software and point to Shut Down from the Start menu on the Windows Taskbar. Select the Close All Programs And Log On As A Different User Option, and choose OK. Log onto the workstation using your user name and password.
	Windows services were not correctly configured.	See your Windows administrator.

Running workflows

Problem	Possible Causes	Suggestions
The workflow you want to load does not appear in the Select Workflow dialog box.	You do not have access to run that workflow, the workflow is disabled, or the workflow is not configured in RESULT Operation software.	See your RESULT administrator. Only a RESULT administrator can configure your user privileges and workflows.
You cannot clear the Off-line Production Run check box in the Select Workflow dialog box.	The workflow is configured to allow off-line production runs only.	See your RESULT administrator. Only a RESULT administrator can configure workflows.
You are attempting to run a workflow, but the software says you need to run ValPro Qualification. Your software does not have the ValPro System Qualification package.	ValPro options were set up, even though your software does not have the ValPro System Qualification.	Have your RESULT administrator set the instrument qualification frequency in the ValPro Options dialog box to None.
Images do not appear in reports.	The image is not stored in the directory specified for locating HTML images.	Have the RESULT or Windows administrator copy the image into the directory specified for locating HTML images (this information can be found in RESULT Operation options).
	The name of the image file has changed.	The new image file must be attached to the Report in RESULT integration software.
You receive a workflow error stating that the software was unable to locate the associated method.	The method is not stored in the directory specified for locating workflows and methods.	Have the RESULT or Windows administrator copy the method into the directory specified for locating workflows and methods (this information can be found in RESULT Operation options).
	The name of the method file has changed.	The new method file name must be attached to the measurement specification in RESULT Integration software.

Digitally signing files

Problem	Possible Causes	Suggestions
The software is unable to recognize the password you entered when digitally signing a file.	The letter case of your password does not match what is stored on the computer.	Make sure you type the password correctly, including matching letter case (for example, all capital letters, all lower case letters, or a mixture of capital and lower case letters). Make sure the Caps Lock key is not turned on.
	Another user is logged into the workstation.	Close the software and point to Shut Down from the Start menu on the Windows Taskbar. Select the Close All Programs And Log On As A Different User Option, and choose OK. Log onto the workstation using your user name and password.
	Your password has been changed or forgotten.	See your Windows administrator to reset your password.
You receive other types of errors when attempting to digitally sign a file.	Windows files are missing or were overwritten with different versions when installing other software applications.	Have a Windows administrator install or reinstall the Windows Service Pack.

Configuring and collecting standards

Problem	Possible Causes	Suggestions
The Standards menu does not appear in the RESULT Operation software main window.	You do not have access to the Standards menu.	See your RESULT administrator. Only a RESULT administrator can grant user privileges.
You receive a message stating that no workflow has been selected.	No workflow is loaded into the software.	Select and load the appropriate workflow.
You receive a message stating that the workflow does not allow standards.	The workflow was configured to not allow standards to be run for it.	See your RESULT administrator. Only a RESULT administrator can change workflow settings.

Problem	Possible Causes	Suggestions
You receive a message stating that the workflow does not allow standards.	The workflow was configured to not allow standards to be run for it.	See your RESULT administrator. Only a RESULT administrator can change workflow settings.
You need to change the path where the standards will be stored, but cannot do it from the Configure Standards dialog box.	Standards are saved in the location specified in RESULT Options.	Have your RESULT administrator change the path for storing standards in the RESULT Options dialog box. -or- Run the standards in RESULT Integration software if your company's procedures allow this.

Running ValPro System Qualification

Problem	Possible Causes	Suggestions
Nothing happens when you choose the ValPro Qualification button.	ValPro Options have not been set up.	Have your RESULT administrator set up ValPro options.
You receive a message that ValPro is not installed when you choose the ValPro Qualification button.	ValPro System Qualification package is not installed on the system.	Have your Windows administrator install the ValPro System Qualification software.
	RESULT Options are set up incorrectly.	Have your RESULT administrator open the RESULT Options dialog box and make sure the System Has ValPro Option Installed check box is selected.
You receive a message indicating that the software is unable to run ValPro because it cannot locate workflow.	ValPro System Qualification package is not installed or the files have become corrupted.	Have your Windows administrator install or reinstall the ValPro System Qualification package software.

Viewing instructions

Problem	Possible Causes	Suggestions
The Instructions drop-down list does not appear in the RESULT Operation software main window.	No general or ValPro instructions are attached to the software.	If instructions are supposed to be attached, then see your RESULT administrator. Only a RESULT administrator can attach instructions to the software.
Instructions do not appear for a workflow.	The correct workflow is not loaded, or no workflow is loaded.	Check the Workflow indicator on the RESULT Operation software main window to verify what workflow is loaded. If the wrong workflow or no workflow is loaded, load the correct workflow and the instructions for that workflow should appear in the Instructions drop-down list.
	Instructions were not attached to the workflow.	If instructions are supposed to be attached to a workflow, then see your RESULT administrator. Only a RESULT administrator can attached instructions to a workflow.
When attempting to read instructions, you receive an error message indicating that Adobe Reader is not installed.	Adobe Reader was not installed on the workstation.	Have a Windows administrator install Adobe Reader, version 7.0 or higher. Adobe Reader can be found in your RESULT installation disk.
When attempting to read instructions, you receive error messages indicating that certain Adobe Reader components could not be found, or that the document cannot be understood by Adobe Reader.	The instructions document was written in a different version of Adobe Reader than is installed on your workstation.	Have a Windows administrator install a matching version of Adobe Reader. Adobe Reader version 4.05 can be found in your RESULT installation disk. Note: If you receive a message asking if you want to suppress further errors, you can choose Yes at the prompt, and you may be able to open the instructions document. However, you will still want to make sure that consistent versions of Adobe Reader are installed on workstations.

Performing queries

Problem	Possible Causes	Suggestions
The Logs menu does not appear in the menu bar of the RESULT Operation software main window.	You do not have access to the Logs menu.	Have a RESULT administrator grant you the privilege to access the Logs menu.
The query is taking a very long time to return results, or the software has locked up.	<p>There are too many records that match your query criteria.</p> <p>The software is attempting to verify the integrity of all records, which is slowing down the system.</p>	<p>Press Ctrl + Alt + Delete and open the Windows Task Manager. Select RESULT Operation software from the lists of tasks and choose End Task to close the software. Open the software again, and narrow the scope of your query to return less data.</p> <p>If it is not important to verify the integrity of the records and mark suspect data, then close the software by following the steps in the above suggestion. Before performing the query again, choose the More Settings button in the query dialog box. Clear the Verify Records check box in the More Log Settings dialog box.</p>
No data appears when you perform a user list query.	<p>If performing a query for a specific user, the user log on name may be typed incorrectly in the User text box in the User Log query dialog box.</p> <p>Your query parameters are too narrow or do not match the data.</p> <p>No data exists for the date range specified.</p> <p>The wrong data source and/or database is connected to the software.</p>	<p>Choose the Select button adjacent to the User text box and select the user log on name from the Select User dialog box.</p> <p>Widen the scope of your query by selecting the All users text box and selecting All Changes from the Type of Changes drop-down list.</p> <p>Choose the More Settings button from the query dialog box and broaden the date range for the query.</p> <p>Have the RESULT administrator verify that the correct data source and database are associated with the software.</p>

Problem	Possible Causes	Suggestions
No data appears when you perform a workflow settings query.	If performing a query for a specific workflow, the workflow name may be typed incorrectly in the Workflow text box in the Workflow Log query dialog box.	Choose the Select button adjacent to the Workflow text box and select the workflow name from the Select Workflow dialog box.
	Your query parameters are too narrow or do not match the data.	Widen the scope of your query by selecting the All Workflows check box and selecting All Changes from the Type of Changes drop-down list.
	No data exists for the date range specified.	Choose the More Settings button from the query dialog box and broaden the date range for the query.
	The wrong data source and/or database is connected to the software.	Have the RESULT administrator verify that the correct data source and database are associated with the software.
No data appears when you perform an archive query.	If performing a query for a specific workflow, the workflow name may be typed incorrectly in the Workflow text box in the Archive Log query dialog box.	Choose the Select button adjacent to the Workflow text box and select the workflow name from the Select Workflow dialog box.
	Your query parameters are too narrow or do not match the data.	Widen the scope of your query by selecting the All Workflows check box, choosing All Archive Data as the Data Type, and/or choosing All Runs as the run mode.
	If specifying custom axes, the custom ranges may not fit the ranges of data stored.	Select the Full X-axis Range and Full Y-axis Range check boxes in the Archive Log query dialog box.
	No data exists for the date range specified.	Choose the More Settings button from the query dialog box and broaden the date range for the query.
	The wrong data source and/or database is connected to the software.	Have the RESULT administrator verify that the correct data source and database are associated with the software.

Problem	Possible Causes	Suggestions
No data appears when you perform a pass/fail results query.	If performing a query for a specific workflow and/or event, the workflow and/or event name may be typed incorrectly in the text boxes in the Pass/Fail Log query dialog box.	Choose the Select button adjacent to the text box(es) and select the appropriate workflow name and/or event name.
	The workflow you specified is not the same type as the selection in the Workflow Type drop-down list.	Choose All Workflows from the Workflow Type drop-down list.
	Your query parameters are too narrow or do not match the data.	Widen the scope of your query by selecting the All Workflows check box, selecting the All Events check box, choosing All Runs as the Run Result, All Types as the Workflow Type, and All Modes as the Mode Type.
	No data exists for the date range specified.	Choose the More Settings button from the query dialog box and broaden the date range for the query.
	The wrong data source and/or database is connected to the software.	Have the RESULT administrator verify that the correct data source and database are associated with the software.
No data appears when performing a ValPro results query.	If performing a query for a specific workflow and/or event, the workflow and/or event name may be typed incorrectly in the text boxes in the ValPro Log query dialog box.	Choose the Select button adjacent to the text box(es) and select the appropriate workflow name and/or event name.
	The incorrect run mode is selected.	Make sure the Production or All Modes Run Mode is selected in the ValPro Results query dialog box.
	Your query parameters are too narrow or do not match the data.	Widen the scope of your query by selecting the All Workflows check box, selecting the All Events check box, choosing All Runs as the Run Result, and All Modes or Production as the Run Mode.

Problem	Possible Causes	Suggestions
No data appears when performing a ValPro results query. <i>(continued)</i>	No data exists for the date range specified.	Choose the More Settings button from the query dialog box and broaden the date range for the query.
	The wrong data source and/or database is connected to the software.	Have the RESULT administrator verify that the correct data source and database are associated with the software.
No data appears when you perform a service log query.	If performing a query for a specific name, the name may be typed incorrectly in the Name text box in the Service Log query dialog box.	Choose the Select button adjacent to the text box and select the appropriate name.
	The training level you specified does not match the training level of the name you specified.	Choose All Training Levels from the Training drop-down list.
	Your query parameters are too narrow or do not match the data.	Widen the scope of your query by selecting the All Names check box and All Training Levels from the Training drop-down list.
	No data exists for the date range specified.	Choose the More Settings button from the query dialog box and broaden the date range for the query.
	The wrong data source and/or database is connected to the software.	Have the RESULT administrator verify that the correct data source and database are associated with the software.
No data appears when you perform a measurement query.	If performing a query for a specific workflow, event, and/or value, the names may be typed incorrectly in the text boxes in the Measurement Log query dialog box.	Choose the Select button adjacent to the text box(es) and select the appropriate name(s).
	Your query parameters are too narrow or do not match the data.	Widen the scope of your query by selecting the All Workflows check box, selecting the All Events check box, selecting the All Values check box, and choosing All Modes as the Run Mode.

Problem	Possible Causes	Suggestions
No data appears when you perform a measurement query. <i>(continued)</i>	If specifying a custom Y-axis, the custom range may not fit the range of data stored.	Select the Full Y-axis Range check box in the Measurement Log query dialog box.
	No data exists for the date range specified.	Choose the More Settings button from the query dialog box and broaden the date range for the query.
	The wrong data source and/or database is connected to the software.	Have the RESULT administrator verify that the correct data source and database are associated with the software.
No data appears when you perform an administration query.	Your query parameters are too narrow or do not match the data.	Widen the scope of your query by selecting All Settings from the Types Of Settings drop-down list and selecting All Changes from the Types Of Changes drop-down list.
	No data exists for the date range specified.	Choose the More Settings button from the query dialog box and broaden the date range for the query.
	The wrong data source and/or database is connected to the software.	Have the RESULT administrator verify that the correct data source and database are associated with the software.

Working with the Maintenance menu

Note If none of the suggestions in the following table resolve the situation, use the information at the beginning of this document to contact our customer support for more troubleshooting suggestions before you replace any instrument components. ▲

Problem	Possible Causes	Suggestions
When running Quick Collect, you receive a message stating “Too many bad scans occurred, so collection was aborted.”	The gain setting is too high, and you are collecting multiple samples with only one background collection.	Lower the Gain to 1x or 2x. -or- Clear the Collect One Background Only check box so the software will collect a background spectrum for each repetition of the experiment.
When running Quick Collect, you receive a message stating, “Interferogram peak location not found within expected range. An alignment of the instrument may be necessary.”	If aligning the instrument does not solve the problem, the gain setting is too high and you are collecting multiple samples with only one background collection.	Lower the Gain to 1x or 2x. -or- Clear the Collect One Background Only check box so the software will collect a background spectrum for each repetition of the experiment.
One of the power supply readings is out of the tolerance in the instrument status report.	The power supply is not connected properly or the instrument has not stabilized. The power supply needs to be replaced.	Power off the analyzer. Make sure the power supply cable is properly connected to the instrument and to the power source. Power the analyzer on and allow it to stabilize for approximately 20 minutes. Log off and log back into the software, and re-run the instrument status report. Replace the power supply.
One of the laser voltages is out of specification in the instrument status report.	The laser is not aligned. The laser needs to be replaced.	Remove any samples and accessories from the sample compartment, and perform an instrument alignment. Replace the laser.

Problem	Possible Causes	Suggestions
The laser current is out of specifications in the instrument status report.	The instrument has not had a chance to stabilize.	Power off the analyzer. Make sure the power supply cable is properly connected to the instrument and to the power source. Power the analyzer on and allow it to stabilize for approximately 20 minutes. Log off and log back into the software, and re-run the instrument status report.
	The laser is not aligned.	Remove any samples and accessories from the sample compartment, and perform an instrument alignment.
	The laser needs to be replaced.	Replace the laser.
The source current is out of specifications in the instrument status report.	The instrument has not had a chance to stabilize.	Power off the analyzer. Make sure the power supply cable is properly connected to the instrument and to the power source. Power the analyzer on and allow it to stabilize for approximately 20 minutes. Log off and log back into the software, and re-run the instrument status report.
	The source needs to be replaced.	Replace the source.
The source voltage is out of specifications in the instrument status report.	The power supply is not connected properly or the instrument has not stabilized.	Power off the analyzer. Make sure the power supply cable is properly connected to the instrument and to the power source. Power the analyzer on and allow it to stabilize for approximately 20 minutes. Log off and log back into the software, and re-run the instrument status report.
	The source needs to be replaced.	Replace the source.

Problem	Possible Causes	Suggestions
The board temperature is out of specifications in the instrument status report.	The ambient temperature is too high or too low.	<p>Power off the instrument and check the surroundings to see if the instrument is placed near a vent or another heating or cooling source, or check the room temperature to make sure the room temperature is within the tolerance levels shown in the status report.</p> <p>Move the instrument or change the room temperature to a level within the tolerances shown in the status report. Wait approximately 20 minutes before powering on the instrument. After powering on the instrument, allow it to stabilize for approximately 20 minutes. Log off and back into the software, and re-run the status report.</p>
While performing an instrument alignment, the software notifies you that alignment failed.	The instrument has not had a chance to stabilize.	<p>Power off the instrument. Power on the instrument and allow it to stabilize for approximately 20 minutes. Check to make sure the beam path is not blocked by samples or sample holders. Log off and back into the software and perform the alignment again.</p> <p>If the alignment fails again, call our service representative.</p>
Spectra produced in an instrument check are inconsistent with previously-collected spectra.	<p>The instrument has not had a chance to stabilize.</p> <p>The instrument may need to be aligned or a component may need to be replaced.</p>	<p>If the instrument has not been powered on for at least 20 minutes, wait 20 minutes and run the instrument check again.</p> <p>Run the instrument status report, and specify to show the instrument status values. Check to see if the laser alignment is within specifications. If not, perform an instrument alignment.</p> <p>Check to see if the Instrument Status Values are within the tolerances. If an item has failed, follow suggestions in this table for resolving the problem.</p>

Problem	Possible Causes	Suggestions
Spectra produced in an instrument check are inconsistent with previously-collected spectra. <i>(continued)</i>	If performing an instrument check with the tablet analyzer module, the incorrect sampling module may be selected for the tablet analyzer you are using.	Run the instrument check again, and make sure you select the correct option from the Select A Sampling Module drop-down list: Standard Sample (for the standard tablet analyzer) or SoftGel Sample (for the softgel tablet analyzer)
	A component within the instrument has been replaced.	If components within the instrument were replaced, this may affect the noise levels in your spectra. Wait approximately five minutes and run the instrument check again to see if you obtain the same results.

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