Sievers DataPro2 Software with (optional) DataGuard

User Guide

Version 1.06 or later

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Water & Process Technologies
Analytical Instruments

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DataPro2

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Trademarks

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Mechanical instructions and safety warnings for the operation and maintenance of the GE Autosampler are included in the *GE Autsampler Installation Guide*.

When first setting up and configuring DataPro2, reference the following warning.

Safety Warning	
	Take care to remove your hand and arm away from the GE Autosampler, and make sure no objects will obstruct the arm's movement, as the GE Autosampler automatically moves the arm in the startup routine.

1

INTRODUCTION

This guide includes information for using DataPro2, which integrates up to four *Sievers* M-Series (M9, M9^e, or M5310 C) Laboratory or Portable Analyzers and* GE Autosampler System[1].

This guide also includes instructions for using the optional DataGuard security feature supporting 21 CFR Part 11 compliance by providing secure data, audit information, and the ability to save results to static media. For more information on this feature, see Chapter 4, "DataGuard."

For information and instructions on installing the GE Autosampler System, refer to the GE Autosampler System.

[1] *Trademark of General Electric Company; may be registered in one or more countries.

Chapter 1 INTRODUCTION

HOME SCREEN

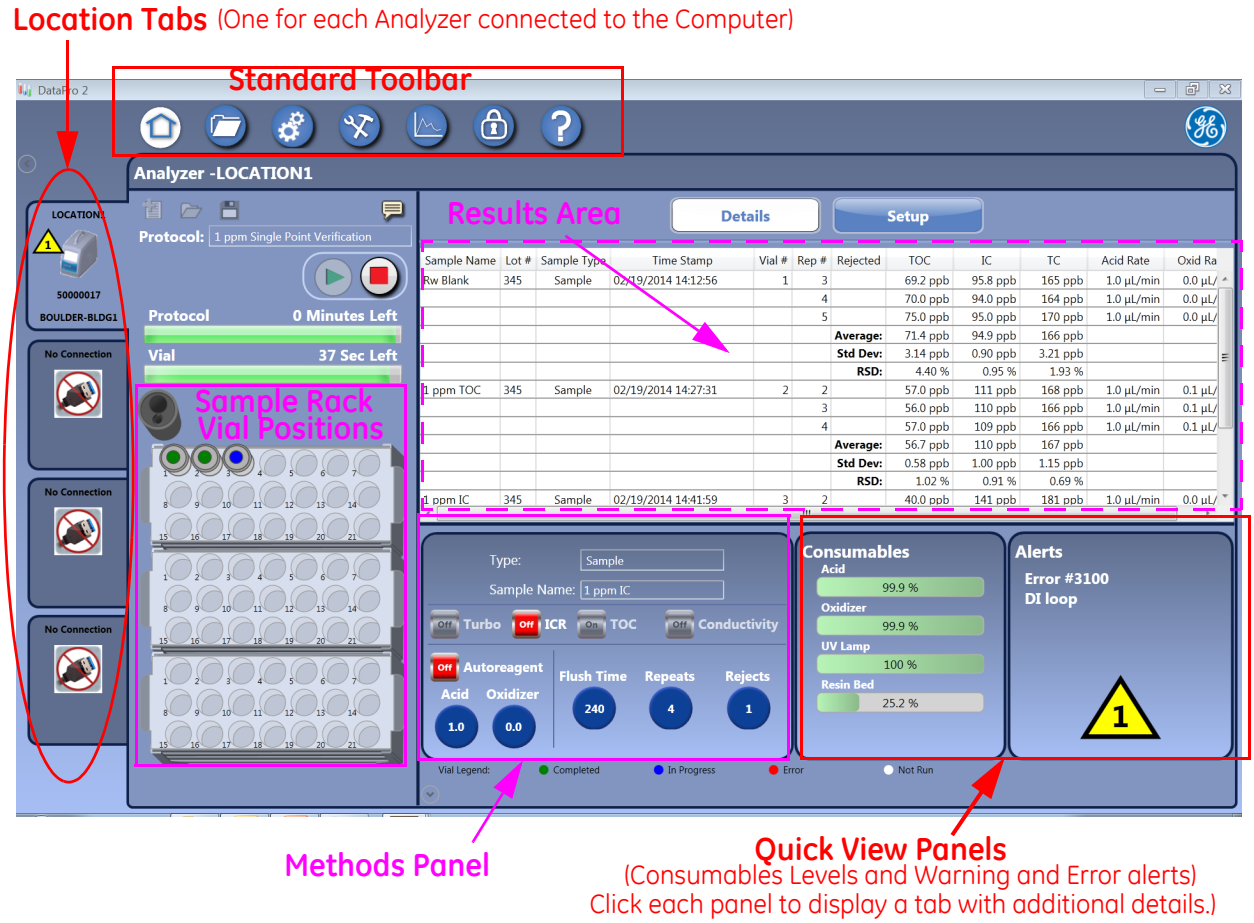

Figure 1: The Home Screen

With DataPro2, it is possible to control up to four Analyzers and GE Autosampler System systems from the *Home* screen. The *Home* screen is used to run System and User-Defined Protocols. For more information, refer to "System Protocols" on page 59 and "To run a user-defined protocol" on page 34.

DataPro2 uses *Methods* and *Protocols* to define and run vials containing standards and/or customer samples. Methods are a set of parameters assigned to each vial. Protocols are a sampling instruction for one or more vials with applied methods.

The *Home* screen is also used to create methods and user-defined protocols. For more information, refer to "To create a method" on page 30 and "To create a user-defined protocol" on page 32.

Use the *Home* screen to monitor remaining Analyzer consumable levels and Analyzer warning and error alerts. See "Details Tab" on page 12.

At the top of the *Home* screen, the *Standard Toolbar* contains icons for accessing DataPro2 screens. For an explanation of these icons and a summary of each screen, refer to "Standard Toolbar" on page 14.

HOME SCREEN COMPONENTS

The various components of the *Home* screen, including the three tab views (*Details, Setup, and System Results*[2]), are shown in Figure 1 and described in the following sections.

Location Tab

The location name of each Analyzer connected to the computer appears on one of the four *Location* tabs located on the left portion of the screen. Select the applicable *Location* tab for the corresponding Analyzer location, as needed.

At the top of the Location tab is the area used to load and run protocols. This includes the *Favorites* folder  used to select a user-defined protocol or load a System Protocol from the *System Protocols* tab on the *Favorites* screen. The name of the loaded protocol will appear in *Protocol* field located to the right of the Analyzer location name. Just below this field are the *Run Protocol*  and *Stop Protocol*  buttons. This area also includes two indicator bars that show the time remaining for any current analysis for the entire protocol and current vial.

PROTOCOL TOOL ICONS

The following icons appear above the *Protocol* (name) field:

TABLE 1: PROTOCOL TOOL ICONS

	**NEW PROTOCOL**	Displays the *Setup* tab for creating new methods and protocols, as needed. For more information, refer to "To create a method" and "To create a user-defined protocol" on page 32.
	**FAVORITES**	Displays the *Load Protocol* dialog box for selecting and loading a user-defined protocol. For more information, refer to "To run a user-defined protocol."
	**SAVE PROTOCOLS**	Displays the *Save Protocol* dialog box for entering a name for and saving a new protocol.

[2] The *System Results* tab only appears after a System Protocol has completed. This tab no longer appears on the *Home* screen after the system protocol is cleared from the screen.

TABLE 1: PROTOCOL TOOL ICONS

	**COMMENTS**	Displays the *Current Test Comments* dialog box for entering a note related to the loaded protocol. After running the protocol, the comment appears on the *Data Management* screen and related reports.

SAMPLE RACK GRAPHIC

A graphic representing the GE Autosampler System sample racks is included on the *Location* tab. The optional Rinse Station is depicted just above the top sample rack. When running an Emergency Protocol, an additional six-position *Emergency* rack appears on the right of the Rinse Station. For additional information, see "Running an Emergency Protocol" on page 35.

The sample rack graphic functionality varies slightly according to the current *User-Defined Protocol* or *System Protocol* activity.

Creating Methods and User-Defined Protocols

With the **SETUP** tab selected, additional functionality appears at the top of the sample rack graphic. A selectable menu with a list of vial sizes (17 mL, 35 mL, 40 mL, and 60 mL) appears at the top of the sample rack graphic. The number of vial positions shown in the graphic changes according the vial size selected. The *Remove Vial*  icon and *Load Protocol*  icon appear on the left and right side of the vial size menu. For additional information, see "To create a method" on page 30.

Running a User-Defined or System Protocol

When a protocol is loaded, the sample rack graphic populates with vials representing the order defined in the protocol. Click any vial (the vial turns orange) in the sample rack graphic to highlight the corresponding line in the *Protocols* table populated with settings related to that vial. During sampling, the vial graphic changes to various colors to reflect the status of the corresponding vial, as shown in Figure 2: Vial Legend.

Figure 2: Vial Legend

Details Tab

The default tab view on the *Home* screen is *Details* (or click the **DETAILS** tab to view). This tab includes the following:

- *Results Area* panel — When running a protocol, the Analyzer progressively reports the sampling data on this panel. For more information, see "Reviewing The Data Management Screen" on page 39.
- *Methods* panel — When running a protocol, click a vial to display the related method settings on this panel. If needed, use this panel to change any settings. For more information, see "Creating a Method" on page 30.
- *Quick View Consumables* panel — The percentage of useful life remaining for each of the Analyzer's consumables: Acid, Oxidizer, UV lamp, and resin cartridge appears on this panel.

  To view additional details on each consumable, click this panel to display the *Maintenance* screen. Select the *Consumables* tab to view the detailed information. For more information, see "Consumables Tab" on page 71.
- *Quick View Alerts* panel — The most recent warning  or error  appears on this panel. (If there is a list of both warnings and errors, the error indicator is given priority and appears on the *Home* screen.) The number inside the triangle icon represents the total combined number of warnings or errors (as applicable).

  To view details for an error or warning, click this panel to display the *Maintenance* screen. Select the *Alerts* tab to view the detailed information. This tab also includes **CLEAR**, **EXPORT**, and **PRINT** buttons. For more information, see "Reviewing Warning and Errors" on page 76.

Setup Tab

The view on this tab varies according to the current *User-Defined Protocol* or *System Protocol* activity. Click the **SETUP** tab to view. The following appears:

CREATING OR RUNNING A USER-DEFINED PROTOCOL

- *Methods* panel — Use this panel to create a method that is used to define the settings for sampling a vial. This panel is used together with the sample rack graphic located to the left. For more information, see "Creating a Method" on page 30.
- *Protocol* table — Each line in the *Protocol* table (located below the *Methods* panel) represents a vial in the protocol and the applied sampling method for that vial. The table first appears with only the header line. When creating a protocol, the Analyzer automatically adds a line for each vial and related method added.

  To add a vial (*shift* + *click* to add multiple vials), click a vial position on the sample rack graphic. On the *Methods* panel, select a method in the *Method* field and click the apply method  icon. This adds a new line to the *Protocols* table and populates the line with the vial position number and settings from the applied method. For additional information, see "To create a user-defined protocol" on page 32.

RUNNING A SYSTEM PROTOCOL

Protocol table — Each line in the *Protocol* table represents a vial and the system-applied method for that vial.

Standard Toolbar

This toolbar is located at the top of the *Home* screen. Click an icon to display the related screen as follows:

Standard Toolbar Icons		
	**HOME SCREEN** *(For more screen details, go to page 10.*	***Location* Tabs:** Includes the designation for the selected Analyzer, *Run Protocol* and *Stop Protocol* buttons, protocol progress monitoring indicators, and icons for managing protocols (creating, accessing, saving, and adding a note). Also, includes the sample rack graphic (active when running a protocol and when creating a new method. ***Details* Tab:** Includes the *Protocols* table and *Methods* panel (used together with sample rack graphic located to the left on the *Location* tab) to view settings from the currently running protocol. Also, includes the *Quick View Consumables* panel, and *Quick View Alerts* panel. ***Setup* Tab:** Includes the *Methods* panel and *Protocols Table* (used together with sample rack graphic located to the left on the *Location* tab) to create new methods and protocols.

Standard Toolbar Icons

	**FAVORITES SCREEN** *(For more screen details, go to page 52.)*	***Protocols* Tab** Includes the list of user-defined protocols created for loading, printing, or deleting. (Use the **ORGANIZE** button to display the *Favorite Protocol Manager* dialog box used to move a protocol to a new position in the list or to include or exclude a protocol from the *Protocol* field on the *Home* screen.) ***Methods* Tab** Includes the list of Methods created for loading, printing a list, or deleting. (Use the **ORGANIZE** button to display the *Favorite Protocol Manager* dialog box for moving a method to a new position in the list, or including or excluding a method from the *Method* menu on the *Methods* panel.) **System Protocols Tab** Includes the list of available System Protocols for loading or printing. (Use the **STACK** button to display the *Stacked System Protocol Editor* dialog box for selecting and loading more than one System Protocol to run at a time.)
	**CONFIGURATION SCREEN** *(For more screen details, go to page 39.)*	**General Panel** *Includes:* • Preferences for language, display formats, and the *Quick View Consumables* and *Quick View Alerts* panel • Default values for Methods • Activation for optional Validation Support Package II protocols • Entries for report headers **Results Panel** *Includes:* • Preferences for protocol completion, including auto export and print results and showing rejected repetitions • Result column visibility (headings displayed) • Default settings for print graph **Data Storage Panel** *Includes:* • Archive settings and Auto Archive • Backup settings and Auto Backup

Standard Toolbar Icons		
	**MAINTENANCE SCREEN** *(For more screen details, go to page 67.)*	**DataPro2 Panel** ***Database tab*** Includes administrative controls for performing a database backup, restore, or archive. ***DataPro Errors* tab** Includes a list of warning and errors related to DataPro2 database or archive file for viewing, exporting, and printing. (Show all or filter the results.) ***Analyzer Alerts* tab** Includes a cumulative list of warnings and errors related to the Analyzer. (Show all or filter the results.) **Analyzer Panel** ***Analyzer* tab** Includes the Firmware upgrade field, syringe flush, and Autosampler arm and needle movement testing. ***Consumables* tab** Includes details pertaining to the percentage of useful remaining life remaining for Analyzer consumables. ***Alerts* tab** Includes an active list of warnings and errors related to the Analyzer for viewing, exporting, printing, and clearing.
	**DATA MANAGEMENT SCREEN** *(For more screen details, go to page 39.)*	**Results List Panel** Includes the List of Results from the Database or Archive. (Also, filter the list, show a summary and a graph of the results, or export or print results.) **System Protocols Panel** ***Search Criteria* tab** Includes fields for searching result criteria for specific protocol results. ***Search Results* tab** Includes results of protocol searches.
	**DATAGUARD SCREEN** *(For more screen details, go to page 41.)*	Includes the activation field for the optional DataGuard.

Standard Toolbar Icons		
	**HELP SCREEN** *(For more screen details, go to page 73.)*	**About Panel** Includes the software version, key, license information, and Technical Support contact information. **Product Manuals Panel** *Includes:* • Electronic display of the *M-Series TOC Analyzer Operation and Maintenance Manual*, *GE Autosampler Installation Guide*, and *DataPro2 User Guide* • Hyperlinks to the latest version of above publications • Recommended Acid and Oxidizer reagent flow rates **Conductivity Tables** • Stage 1 Conductivity P/F tables for various pharmacopoeia monographs for reference, printing, and exporting

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2

SETTING UP DATAPRO2

INTRODUCTION

This chapter provides instructions for setting up and configuring the DataPro2 system. Before you begin, ensure that the GE Autosampler is installed according to the detailed instructions in the *GE Autsampler Installation Guide*.

If you need additional assistance in North America, contact GE Analytical Instruments Technical Support at 303.444-2009 or 888.245.2595 or techSupport.GEAI@ge.com. Technical support in Europe, Middle East, and Africa is available at 44 (0) 161 864 6800 or ServiceUK.Instruments@ge.com. Technical support in Asia Pacific is available at (65) 62674659 or TechSupportSG.GEAI@ge.com. In other parts of the world, contact your local GE Analytical instruments representative. You can also visit the Support tab on our website at www.geinstruments.com.

Computer Requirements

GE Analytical Instruments recommends the following minimum computer system requirements for optimal performance of the GE Autosampler system.

TABLE 2: RECOMMENDED COMPUTER REQUIREMENTS

System Component	*Recommended Requirements*				
Operating System	Windows XP®	Windows 7 Pro®	Windows 8®	Windows Server 2008®	Windows 2012®
Installed Service Packs	Service Pack 3	Service Pack 1	n/a	Service Pack 1	n/a
RAM	1 GB	2 GB	2 GB	4 GB	4 GB
CPU Speed	1 GHz	1 GHz	1 GHz	1.4 GHz	1.4 GHz
Available Disk Space	2 GB	5 GB	5 GB	10 GB	10 GB
Screen Resolution	1024 x 768	1024 x 768	1024 x 768	1024 x 768	1024 x 768

Chapter 2 SETTING UP DATAPRO2

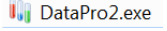
TABLE 2: RECOMMENDED COMPUTER REQUIREMENTS

System Component	*Recommended Requirements*				
Mouse (pointing device)	Required	Required	Required	Required	Required
Printer	Optional	Optional	Optional	Optional	Optional

Installing DataPro2

You will need to have installation / Administrator privileges for the destination computer and may need your network Administrator or IT group to assist with network related activities.

To install the DataPro2 Software

1. Before installing the DataPro2 software, install Microsoft SQL Server® according to the separate written instructions shipped with the DataPro2 software.
2. With both the GE Autosampler and Analyzer powered off, right-click the installation file (DataPro2.exe 

) from the DataPro2 software media provided and select the *Run as Administrator* option. Follow the on-screen prompts to install.
3. If the following pre-requisite software/packages are not already installed on the computer, additional prompts appear to install them at this time:

Operating System	*With Installed Service Pack*	*Software or Package Name*
Windows XP	Service Pack 3	Microsoft .Net Framework 3.5
Windows 7	Service Pack 1	Microsoft .Net Framework 4.0
Windows 8	n/a	Microsoft .Net Framework 4.0
Windows Server 2008	Service Pack 1	Microsoft .Net Framework 4.0
Windows Server 2008R	Service Pack 1	Your System Administrator will need to configure .Net Framework 4.0
Window 2012	n/a	Your System Administrator will need to configure .Net Framework 4.0
All	n/a	Microsoft SQL Server

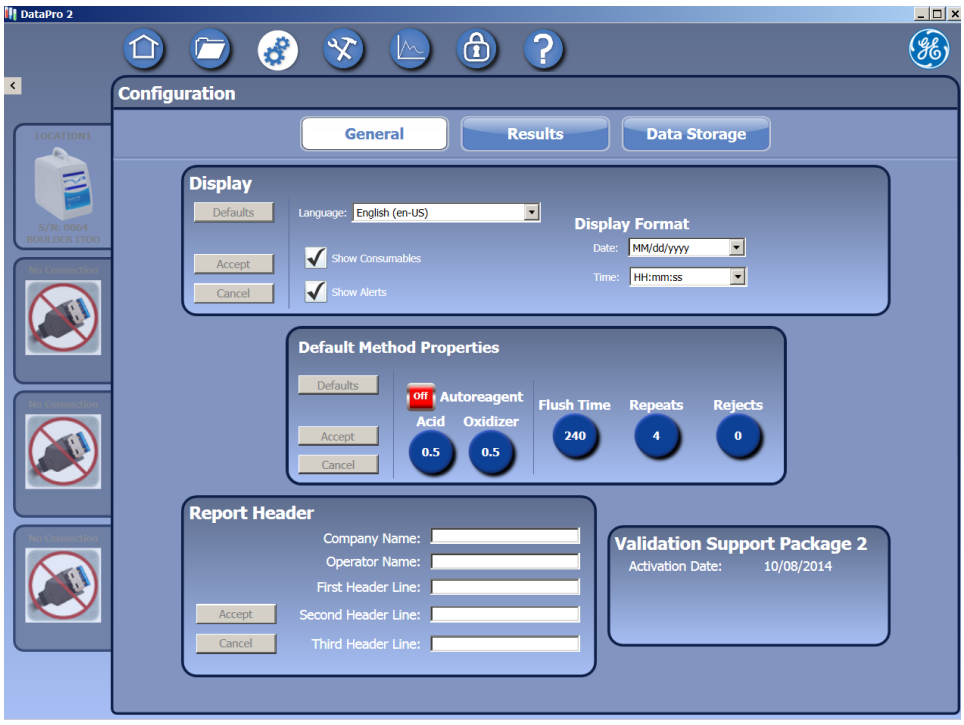
NOTE: *These additional software packages are included within the Installation file, with the exception of operating system service packs. Operating system service packs should be available from Microsoft.*

4. Reboot the computer as directed. (Multiple reboots may be required if any supporting Microsoft libraries are not present and need to be installed.)
5. Turn on the power to Analyzer and GE Autosampler.
6. Double-click the DataPro2 

icon to start the software.

WARNING	
	Take care to remove your hand and arm away from the GE Autosampler, and make sure no objects will obstruct the arm's movement, as the DataPro2 automatically moves the arm in the startup routine.

CONFIGURATION SCREEN



Chapter 2 SETTING UP DATAPRO2

The *Configuration* screen contains the following tabs:

- "General Tab" on page 22 — This panel contains preferences for language, display formats, and the *Quick View Consumables* and *Quick View Alerts* panels. Set the default values for Methods and enter text for report headers. Activate the optional Validation Support Package II protocols.
- "Results Tab" on page 24 — This panel contains preferences for protocol completion, including auto export and print results and showing rejected repetitions. Also, configure the result column visibility (headings for display).
- "Data Storage Tab" on page 27 — This panel contains fields for configuring archive settings, Auto Archive, backup settings, and Auto Backup.

General Tab

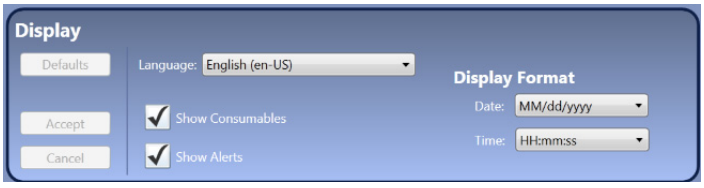
The following configuration activities are performed on the *General* panel.

- "To configure display settings" on page 22.
- "To configure default Method settings" on page 23.
- "To enter text for report headers" on page 23.
- "To activate VSP II Protocols (Optional)" on page 24.

NOTE: *It is possible to a value that exceeds a field limit. However, if a value exceeds the limit for that field, the Analyzer automatically substitutes the selection with the factory-set default limit.*

To configure display settings

1. On the *Configuration* screen, click the *General* tab.
2. Set default properties and display options using the Display panel.

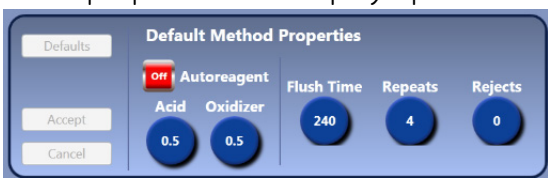


3. In the *Date* field, select one of the following date formats to display:
   - 16 Jan 2012 (Text Based)
   - 01/16/2012 (Month First)
   - 16/01/2012 (Day First)
   - 2012/01/16 (Year First)

4. In the *Time* field, select one of the following for the time formats to display:
   - 01:42:58 (am/pm)
   - 13:42:58 (24 Hour)
5. Select or deselect the *Show Consumables* and *Show Alerts* options (Quick View panels on the *Home* screen).
6. To change the display language select from the *Language* list.
7. Click **ACCEPT**. (Or to revert back to previous settings shown before changing, click **CANCEL.** Click **DEFAULTS** to return to the factory settings.)

To configure default Method settings

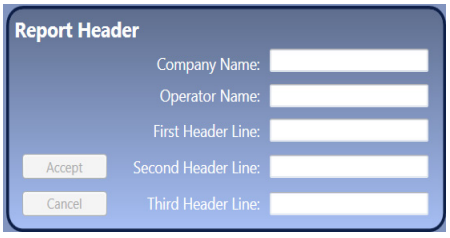
1. On the *Configuration* screen, click the *General* tab.
2. Configure the default properties and display options using the *Display* panel.



3. Set any of the following as default values to appear on the Methods panel:
   - **AUTOREAGENT** to *On* or *Off* OR ***ACID*** and ***OXIDIZER*** flow rates
   - Number of minutes for **FLUSH TIME**
   - Number of **REPEATS** and any **REJECTS**
4. Click **ACCEPT**. (Or to revert back to previous settings shown before changing, click **CANCEL.** Click **DEFAULTS** to return to the factory settings.)

To enter text for report headers

5. On the *Configuration* screen, click the *General* tab.
6. Locate the *Report Header* panel.



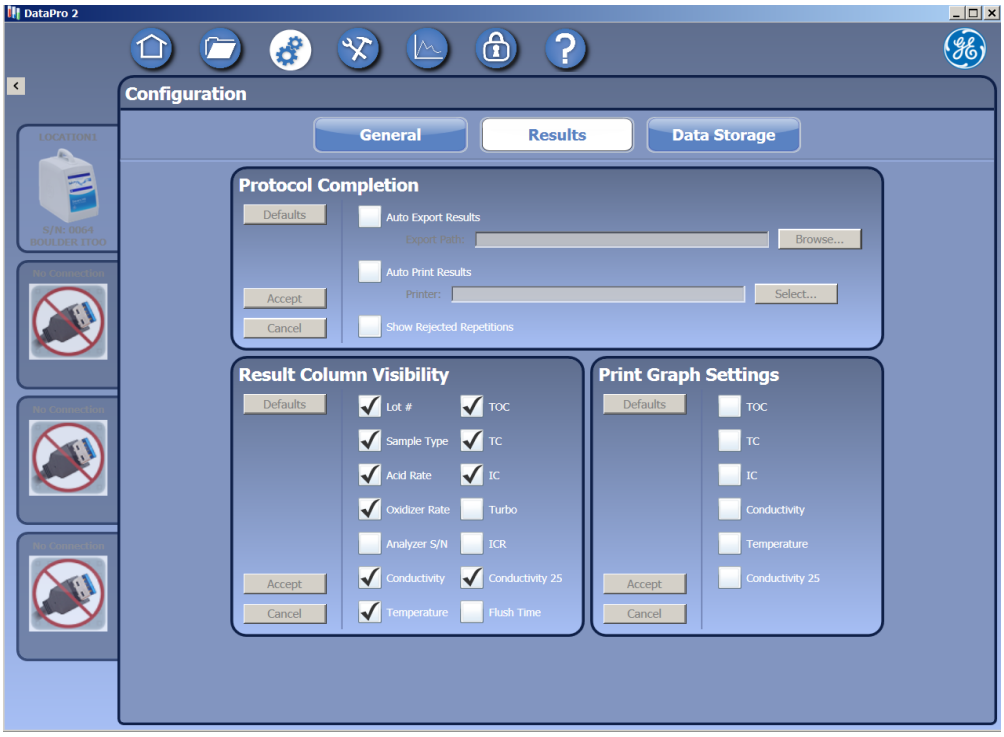
7. Type text in the applicable field for each header to define, and click **ACCEPT**.

To activate VSP II Protocols (Optional)

Additional system protocols are available with the optional *Validation Support Package Volume II (VSP II)*, including Accuracy and Precision, Robustness, Specificity, Linearity, and SDBS Suitability. A printed *VSP II Protocols Activation Certificate* is provided with the package that includes a unique activation code to enter into one copy of DataPro2 Software.

1. Locate the *VSP II Protocols Activation Certificate* provided with the Validation Support Package — Volume II.
2. On the *Configuration* screen, select the *General* tab.
3. On the *Validation Support Package II* panel, type the activation code (printed on the VSP II Protocols Activation Certificate) in the *Enter Activation Code* field.
4. Click **ACTIVATE**. The VSP II protocols will be added to the list of System Protocols appearing on the *System Protocols* tab located on the *Favorites* screen.

Results Tab

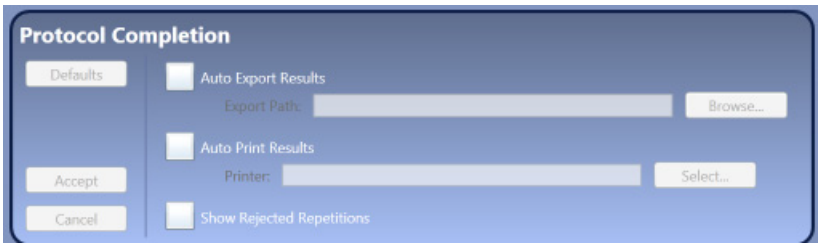


The following configuration activities are performed on the *Results* panel.

- "To configure protocol completion settings" on page 25.
- "To configure result column visibility" on page 25.
- "To configure print graph settings" on page 26.

To configure protocol completion settings

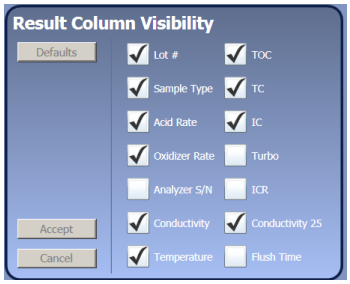
1. On the *Configuration* screen, click the *Results* tab.
2. Set default settings for protocol results using the *Protocol Completion* panel.



3. Select or deselect the A*uto Export Results* option and browse to select the folder for the file.
4. Select or deselect the *Auto Print Results* option and select the printer type from the list.
5. Select or deselect the *Show Rejected Repetitions* option.
6. Click **ACCEPT**. (Or to revert back to previous settings shown before changing, click **CANCEL.** Click **DEFAULTS** to return to the factory settings.)

To configure result column visibility

1. On the *Configuration* screen, click the *Results* tab.
2. Set column headings to display using the *Protocol Completion* panel.



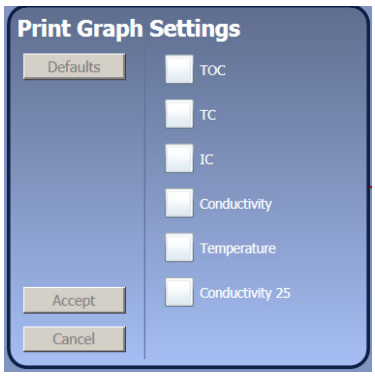
3. Select or deselect column headings to display on screen and in exported and printed reports.

NOTE: *Any column that does not contain a value from the sampling (for example, the Lot # column) will not display in the print results.*

4. Click **ACCEPT**. (Or to revert back to previous settings shown before changing, click **CANCEL.** Click **DEFAULTS** to return to the factory settings.)

To configure print graph settings

1. On the *Configuration* screen, click the *Results* tab.
2. On the *Print Graph Settings* panel, select or deselect the data to appear on the print graph.

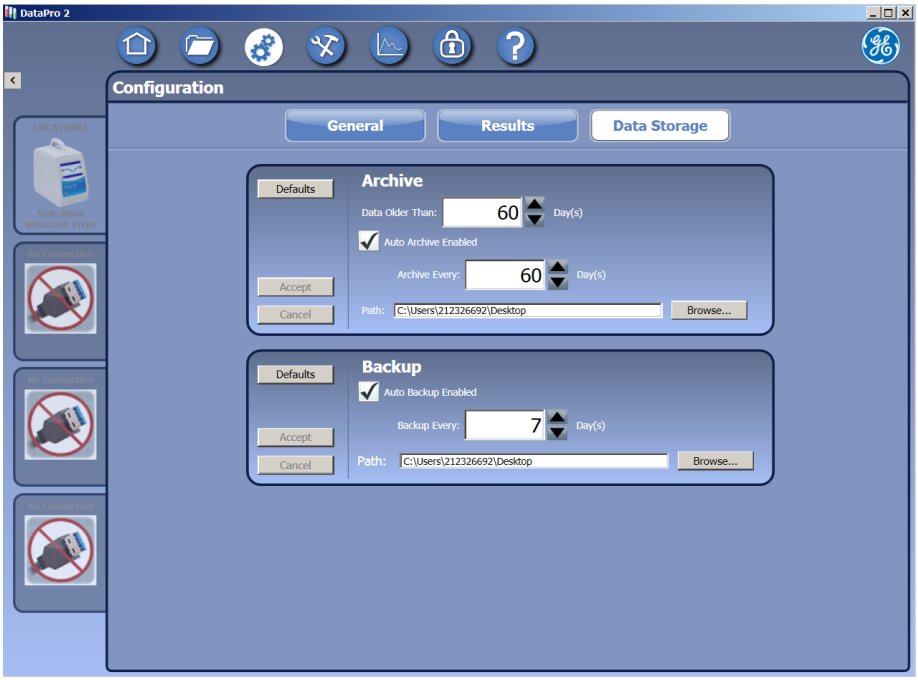


NOTE: *To disable the print graph completely, deselect all the options.*

3. Click **ACCEPT**.

NOTE: *This will create the default values for what will appear on the printed report. The standard default values for the on-screen Display Graph images always remain the same and do not change with this setting.*

Data Storage Tab



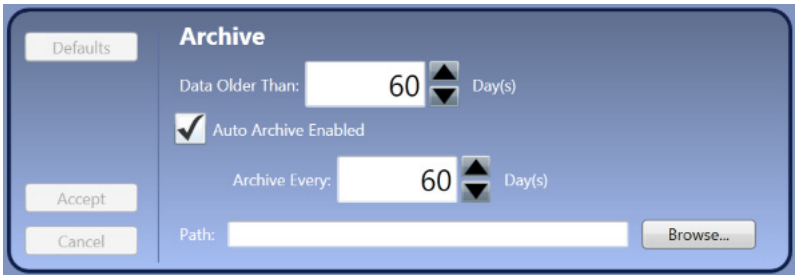
The following configuration activities are performed on the *Data Storage* panel.

- "To configure archive settings" on page 27.
- "To configure backup settings" on page 28.

Archiving removes data from the database to a separate file. Backing up the database makes a copy and leaves the data in the database.

To configure archive settings

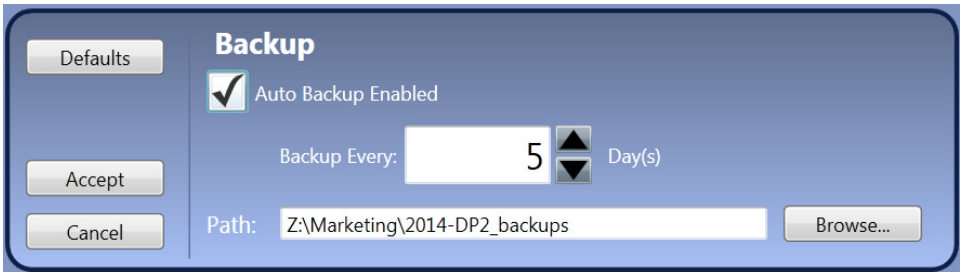
1. On the *Configuration* screen, click the *Data Storage* tab.
2. Set default settings for auto archiving using the *Protocol Completion* panel.



3. Click the **BROWSE** button to navigate to a location on the computer for the archive file.
4. Select or deselect the Auto Archive Enabled option. If selected, use the up and down arrows to select a number for the age and frequency to archive.
5. Click **ACCEPT**. (Or to revert back to previous settings shown before changing, click **CANCEL.** Click **DEFAULTS** to return to the factory settings.)

To configure backup settings

1. On the *Configuration* screen, click the *Data Storage* tab.
2. To set default settings for auto database backups using the *Protocol Completion* panel, click the **BROWSE** button to navigate to a location on the computer for the backup file.



3. Select the *Auto Backup Enabled* option. If selected, use the up and down arrows to select the frequency. [The minimum frequency is one (1) day.]
4. Click **ACCEPT**. (Or to revert back to previous settings shown before changing, click **CANCEL.** Click **DEFAULTS** to return to the factory settings.)

3

USING DATAPRO2

WORKING WITH USER-DEFINED PROTOCOLS

Create User-Defined Protocols to run on the GE Autosampler for analyzing samples. A protocol is a sampling instruction for one or more vials, each with an assigned Method. First, create one or more Methods that can be applied to vials in the protocol creation process. Next, create User-Defined Protocols using these Methods. A Method can be applied to one or more vials in a protocol, as well as be used in multiple User-Defined Protocols.

Designate frequently used Methods and User-Defined Protocols in the *Favorites*  folder using the *Favorite Protocols and Favorite Methods Manager.*

A User-Defined Protocol can be paused to analyze up to six urgent samples using the *Emergency Protocol* feature and *Emergency Protocol* rack located on the GE Autosampler. For more information, refer to "Running an Emergency Protocol" on page 35.

After running a *User-Defined* Protocol, the results appear on the *Home* screen. After loading a new protocol, the results are removed from this view and can be accessed on the *Data Management* screen (page 39).

This chapter includes instructions for:

Chapter 3 USING DATAPRO2

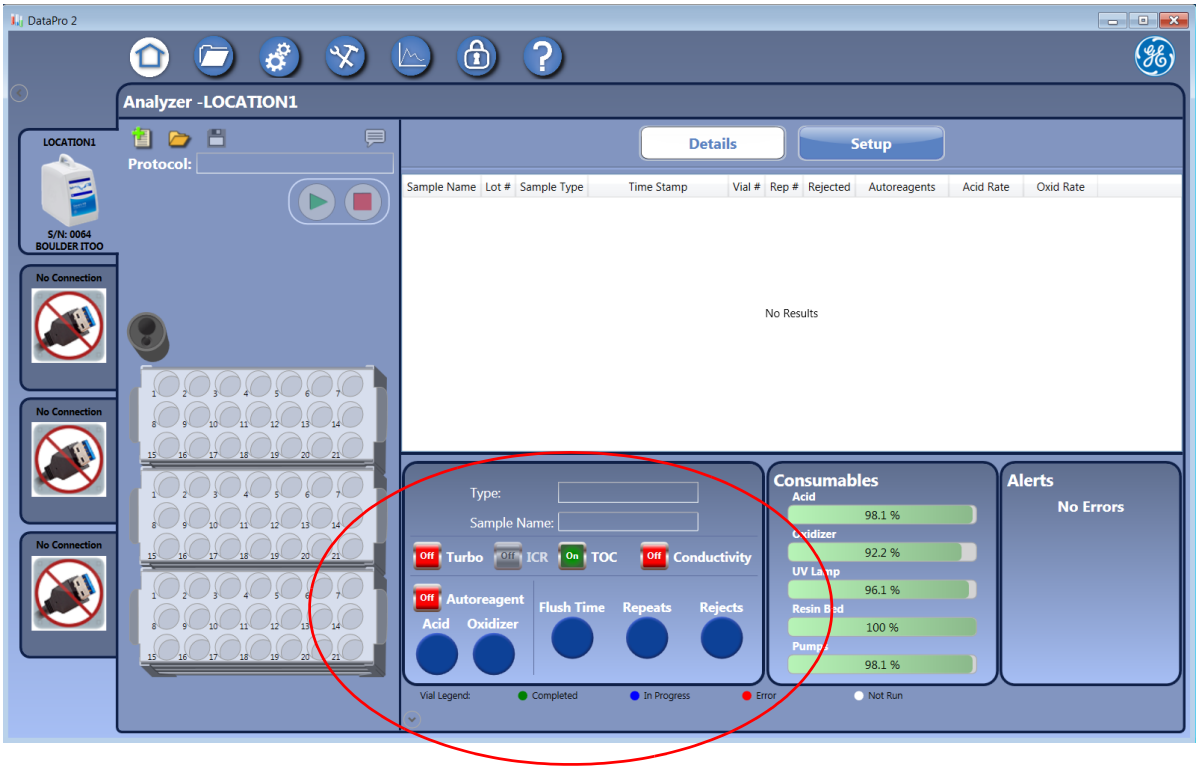
Creating a Method

Use the *Setup* tab on the Home screen to create one or more methods to use in creating *User-Defined* protocols. A Method is a set of parameters assigned to a vial, such as reagent flow rates, flush time, number of repeats and rejects. The method also contains settings for Turbo, ICR, and TOC or Conductivity.

To create a method

For additional information on setting parameters for the sampling method, refer to the *Sievers TOC Analyzer Operation and Maintenance Manual* for the Analyzer. (To download a copy for your Analyzer, see "Help Screen" on page 73.)

1. On the *Home* screen, select the *Setup* tab to display the *Method* panel.



2. Select a description for the Method from the *Type* (field) list.
   - **SAMPLE** — Used for measurement of the sample collected for analysis
   - **BLANK** — Used for measurement of background TOC
   - **CLEANUP** — Used to run low-TOC DI water (The cleanup type is generally used after analyzing unusual samples, such as samples containing particles or those that have a TOC concentration at the upper end of the analytical range.)

- **INFLUENT** — Used to compare to the effluent sample and automatically calculate and report the percent TOC removal (Effluent-Influent = TOC removal).
- **EFFLUENT** — Used to compare to the influent sample and automatically calculate and report the percent TOC removal (Effluent-Influent = TOC removal).

3. Toggle the applicable indicators for the following Analyzer options to **ON** or **OFF**: *Turbo*, *ICR*, *TOC*, and *Conductivity*.

NOTE: *When toggling the Turbo mode to an On state, the Acid and Oxidizer indicators each automatically change to 2.0.*

The options applicable to the connected Analyzer appear red and those that are not applicable appear gray.

4. Click the applicable circle to select the *Acid* and *Oxidizer* flow rates. Or, to use the *Autoreagent* mode, toggle the indicator to the **ON** position.

NOTE: *Refer to the Product Manuals tab on the Help screen for a list of recommended flow rates. Also, for information on using the Autoreagent mode, use this tab to download a copy of the Analyzer's Sievers TOC Analyzer Operation and Maintenance Manual. Refer to "Chapter 4: Operation."*

5. Click the applicable circle, to select the *flush time*, number of *repeats*, and number of rejects.
6. To revert to the original values displayed on this panel, click the *New Method* icon.
7. Click the *Save* icon to display the *Save Method* dialog box. Type a name for the Method and click **OK**.
8. Continue to "Creating a User-Defined Protocol" on page 31 for instructions on applying a method to one or more vials in a protocol.

Creating a User-Defined Protocol

A protocol is a sampling instruction for the GE Autosampler consisting of one or more vials, each with an applied method (a set of parameters). Use this procedure to create a User-Defined Protocol and to apply method(s) to one or more vials within the protocol.

To create a user-defined protocol

1. On the *Home* screen, select the *Setup* tab to display the *Method* panel and *Protocols* table.

1. Select a vial size (17 mL, 35 mL, 40 mL, and 60 mL) for the *Sampling Rack* graphic from the *Vial Size* menu. The graphic appears with the related number and size vial positions.
2. Click a vial position on the *Sampling Rack* graphic to add a vial.

   (*Hold left mouse button down + drag* to select more than one vial. Press *Shift+Ctrl* and *Ctrl+V* to copy and paste this selected group of vials to a new rack or new protocol.)
3. Repeat the previous step to add additional vials to the protocol.
4. On the *Method* panel, select a method to apply from the *Method* (field) list. The parameter settings from the selected method appear on the *Method* panel.
5. Select one or more vials in the *Sampling Racks* graphic and click the *Apply Method to Vials (Insert)* icon. DataPro2 applies the method to the selected vial(s).

   The vial appears in its corresponding position on the *Protocols* table. The parameters from the applied method also appear on the line.
6. Repeat the previous step, as needed, to add all the vials included in the protocol.

7. If the Analyzer is configured with the Rinse Station option, click the *Rinse Station* graphic to add a syringe to the protocol.

   DataPro2 automatically populates the line with the corresponding parameters.

8. To remove a vial, select the vial in the *Sampling Racks* graphic and click the *Remove Selected Vials (Delete)* icon.

9. Click the *Save* icon to display the *Save Protocol* dialog box. Type a name for the protocol and click **OK**.

NOTE: *To use another protocol as a template for modification, load an existing protocol using the Select Protocol (or Favorites) icon. Make changes to the protocol and save with a new name (or save with the same name to modify an existing protocol.)*

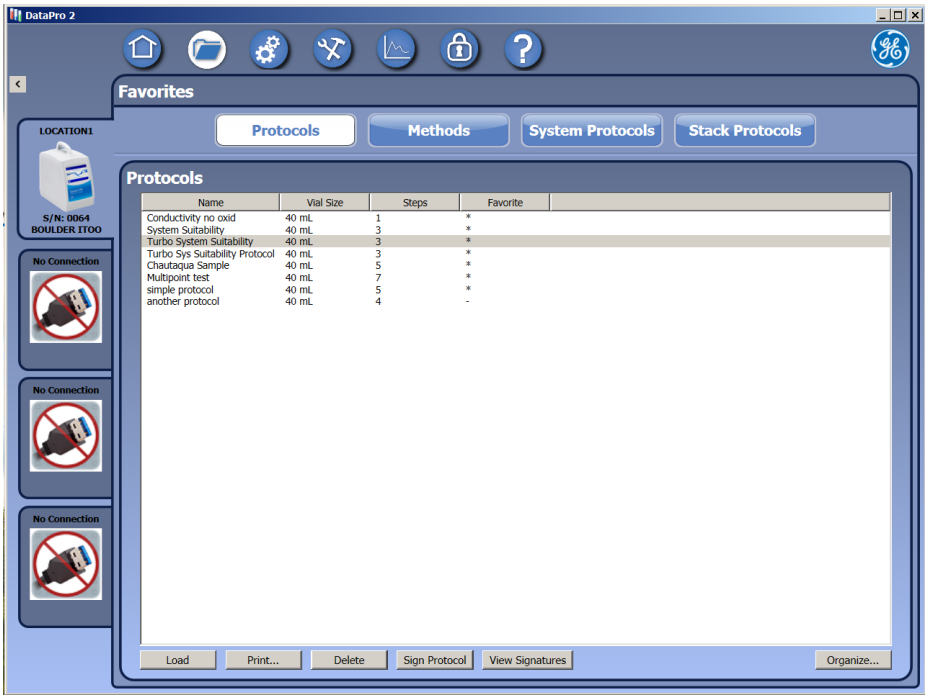
Running a User-Defined Protocol

Running a User-Defined Protocol involves loading the protocol in DataPro2 and then loading the vial samples into the GE Autosampler in the corresponding vial position defined in the protocol. If the Analyzer has not been used in the last eight hours, also load a vial of DI water in position 6 of the *Emergency Protocol* rack in preparation of a syringe flush prior to running the protocol.

Users with DataGuard can create an electronic signature on the Favorites screen using the **SIGN RESULTS** button. DataGuard users can also view any signatures entered for a protocol using the **VIEW SIGNATURES** button.

To run a user-defined protocol

1. On the *Favorites* screen, click the *Protocols* tab.



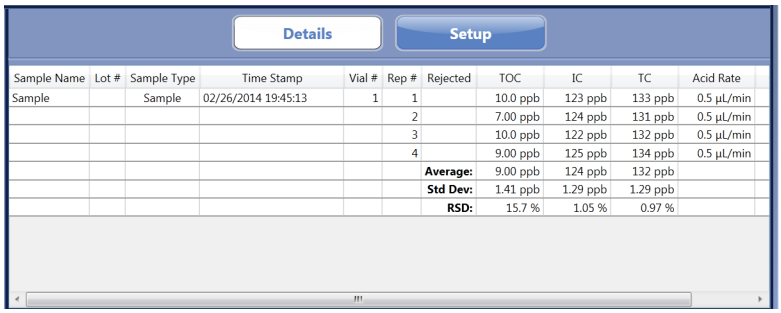
2. Select the protocol to run and click **LOAD**. The *Lot Number Setup* dialog box appears.
3. Type the lot number of the standards (or leave the field blank) and click **OK**. The *Home* screen appears with the *Setup* tab active.
4. Load the vial samples into the GE Autosampler sample racks in the positions shown on the *Sampling Rack* graphic.
5. To add a comment to the User-Defined Protocol, click the Comment icon to display the *Current Test Comments* dialog box. Enter a note for referencing later from the *Data Management* screen and related reports.
6. To view an applied method for a vial in the protocol, select the vial on the *Sampling Rack* graphic. The Method panel for method applied to the vial appears.
7. Click the *Run Protocol* button. If a syringe flush is needed[3], continue to step 9. Otherwise, the GE Autosampler begins sampling.
8. DataPro2 displays a confirmation message. Click **Yes**. The *Maintenance* screen *Analyzer* tab appears.

3. If the GE Autosampler has not been used in the last eight hours, DataPro2 displays a message suggesting a syringe flush before running a system protocol.

9. On the *Syringe Flush* panel, enter the number of flushes or leave the default value **1**. Insert a flush vial[4] (filled with DI water) in position 6 of the *Emergency* rack and click **START**.

   When the flush completes, the GE Autosampler begins sampling.

10. When the analysis is complete, DataPro2 displays the Details tab showing the results data of the analysis.



Sample Name	Lot #	Sample Type	Time Stamp	Vial #	Rep #	Rejected	TOC	IC	TC	Acid Rate
Sample		Sample	02/26/2014 19:45:13	1	1		10.0 ppb	123 ppb	133 ppb	0.5 µL/min
					2		7.00 ppb	124 ppb	131 ppb	0.5 µL/min
					3		10.0 ppb	122 ppb	132 ppb	0.5 µL/min
					4		9.00 ppb	125 ppb	134 ppb	0.5 µL/min
						Average:	9.00 ppb	124 ppb	132 ppb	
						Std Dev:	1.41 ppb	1.29 ppb	1.29 ppb	
						RSD:	15.7 %	1.05 %	0.97 %	

11. Remove the vials from the Analyzer.

Running an Emergency Protocol

The *Emergency Protocol* feature is available for pausing a User-Defined protocol in order to create and run a sample analysis using an Emergency Protocol. The vials for this Emergency Protocol are loaded into the *Emergency Protocol* rack that is located directly in front of the GE Autosampler tower and to the right of the optional Rinse Station.

To run an emergency protocol

1. On the *Home* screen (while the User-Defined protocol is running), click the *Pause* button. DataPro2 pauses analysis or if the analysis of the vial has not yet completed, a message appears that analysis will pause at the end of the vial (sampling).

***NOTE:** The Pause button replaces the Run Protocol button after clicking the Run Protocol button.*

2. After pausing the User-Defined protocol, click the *Set up Emergency Protocol* icon that appears to the left of the *Run Protocol* icon.

   The icon changes to the *Close Emergency Protocol* icon and the following are added to the screen:

4. If the GE Autosampler is installed with the optional Rinse Station, click **START** (without adding an additional flush vial). DataPro2 will automatically add the Rinse Station location on the first line of the protocol.

- The *Protocol* field populates with *Emergency Protocol*.
- The *Emergency Rack* graphic appears above the *Sample Rack* graphic.
- The *Setup* tab view appears with the *Method* panel and *Protocols* table.

3. Load the sample vials into the *Emergency Protocols* rack located in front of the GE Autosampler tower.
4. Click the corresponding positions on the *Emergency Rack* graphic and apply the appropriate method to each vial. Refer to "Creating a Method" on page 30, as needed.

NOTE: *This will create a one-time use protocol, therefore there is no Save Protocol button.*

5. Click the *Run Protocol* icon. The analysis using the Emergency Protocol begins and the time remaining for the entire protocol and each vial appears above the *Sample Rack* graphic.
6. Click the *Close Emergency Protocol* icon to resume the paused *User-Defined* protocol. The additional Emergency Protocol screen elements no longer appear.

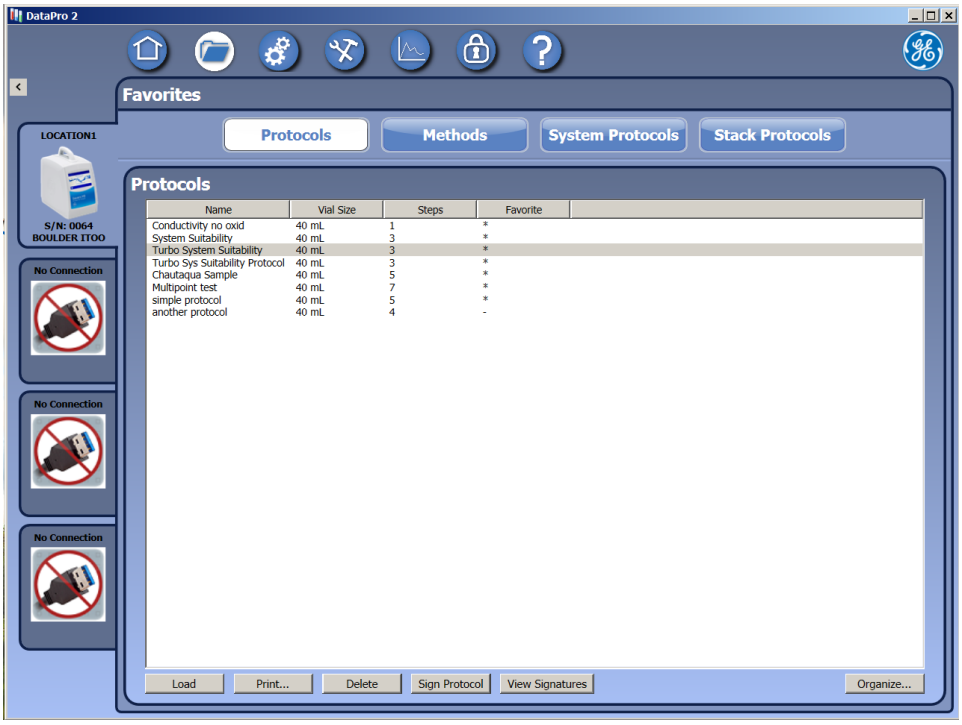
Managing Favorite Protocols and Methods

Protocols and Methods each have a *Favorites* folder. Favorites for Protocols is managed on the *Protocols* tab and favorites for Methods is managed on the *Methods* tab. However, the process for organizing each of the folders is the same. All User-Defined Protocols initially appear in the (Protocols) *Favorites* folder and likewise for Methods in the (Methods) Favorites folder, until reorganization.

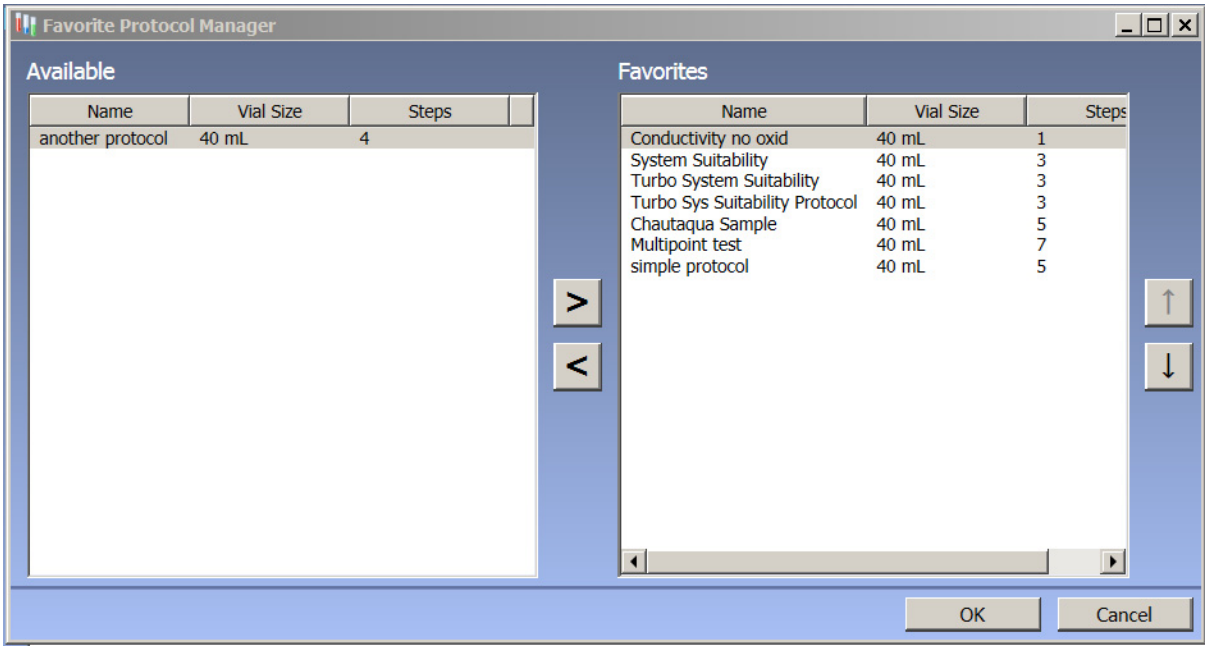
To remove a user-defined protocol or method, select the appropriate line and click the **DELETE** button.

To organize Favorites folders

1. On the *Favorites* screen, click the *Protocols* or *Methods* tab, as applicable.



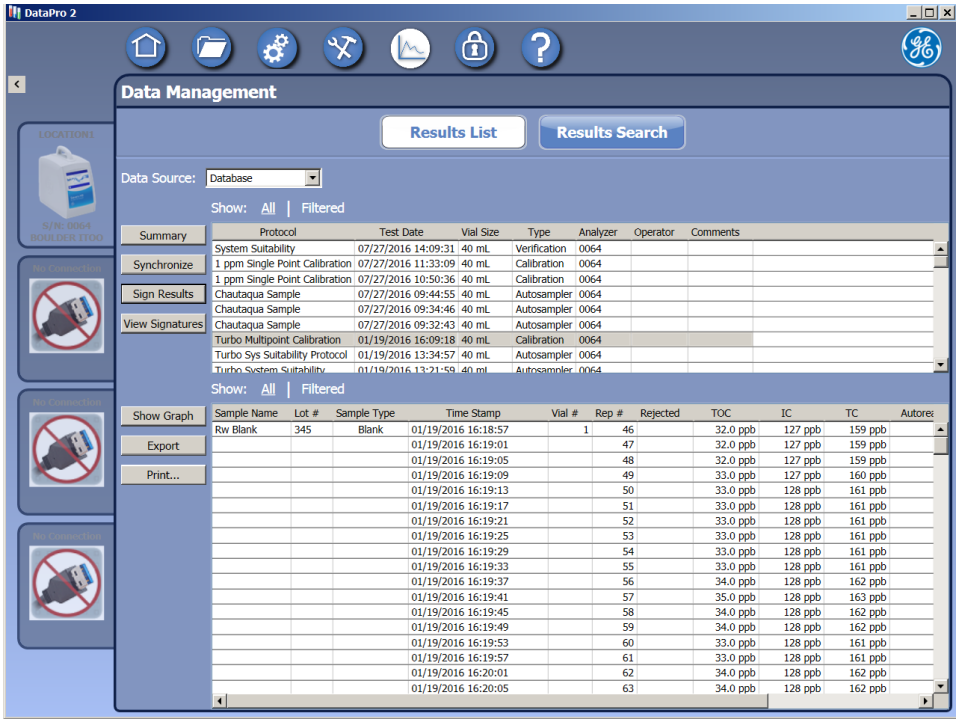
2. Click **ORGANIZE** to display the *Favorite Protocol Manager* or *Favorite Method Manager*, as applicable.



3. Organize the list by preference and click **OK** to save. The first time the manager dialog box is used, all the User-Defined Protocols or Methods appear on the right in the *Favorites* list.

   Select a line and click the left arrow to move it to the Available list. Select a line and use the up or down arrow to move it toward the beginning or end of the list.

Reviewing The Data Management Screen



The results data for sample analyses run is located on the *Data Management* screen. Use the *Results List* tab to view all or filtered sampling results and the various levels of detail. Export data, as needed. Use the *Results Search* tab to define criteria for search for specific categories, fields, and values.

RESULTS LIST TAB

First select either *Database* (the default view showing current results stored in *DataPro2*) *or Archive* to browse on the computer or network for archive files. Select *All* or *Filtered* data (click **CHANGE** to display the *Filters* dialog box with fields for setting filter criteria.)

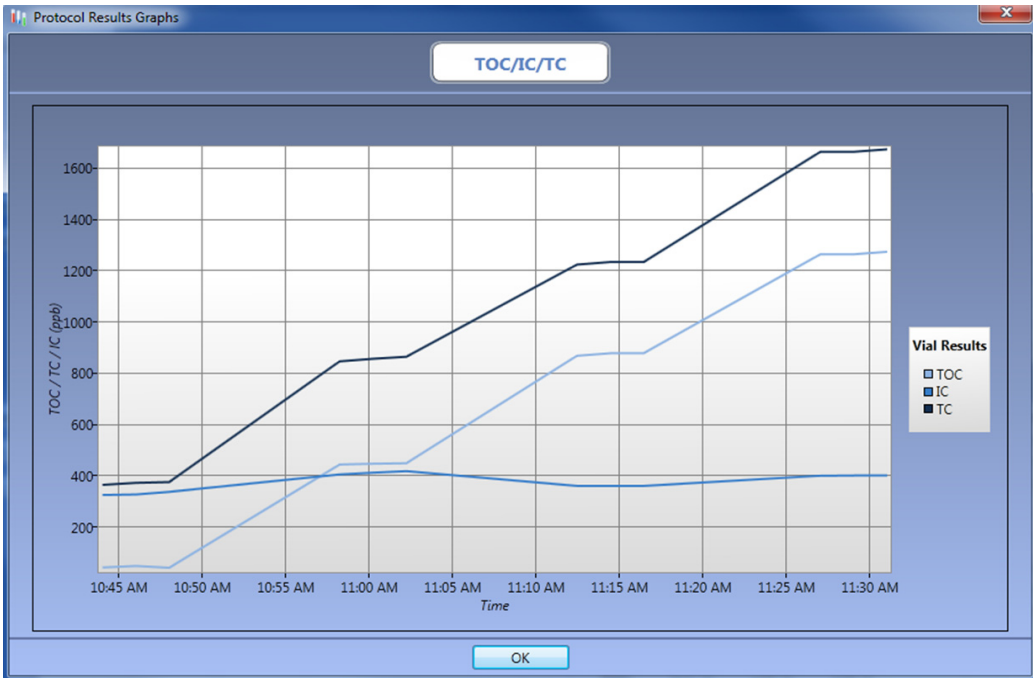
Select a line to display the details for the sampling results in the lower table. (Show *All* must be selected also.)

Users with DataGuard can create an electronic signature using the **SIGN RESULTS** button. DataGuard users can also view any signatures entered for an executed protocol using the **VIEW SIGNATURES** button.

In the event of synchronization failure, use the **SYNCHRONIZE** button. For additional information, refer to the page 76 in the *Troubleshooting* Chapter.

Select a line and click **SHOW GRAPH** to display the TOC/IC/TC results and time in a graph format. Export or print the results using the buttons on this tab.

NOTE: *If the sampling result includes conductivity values, the Cond/Temp/Scond options for graphing also appear.*



RESULTS SEARCH TAB

Select either *Database* (the default view showing current results stored in *DataPro2*) *or Archive* to browse on the computer or network for archive files. In the *Quick* option view, use the *Category*, *Field*, *Criteria*, and Value (and related) fields to define the filters for the search results and click **SEARCH**. DataPro2 displays the protocol results fitting this criteria in a new table on this tab. Use the buttons on the left to show a graph, export the data, or print the data.

4

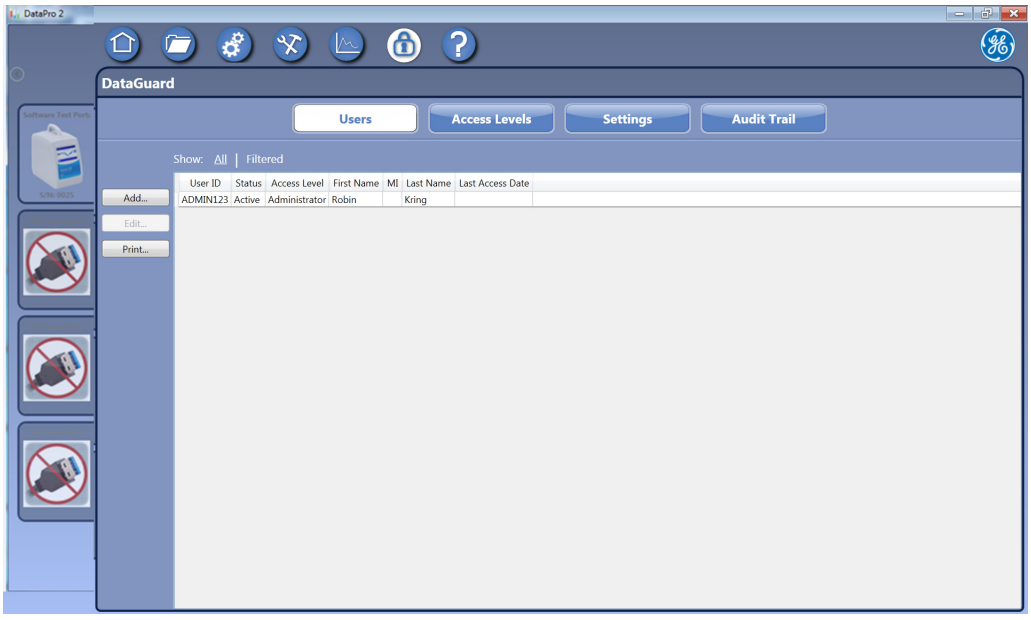
DataGuard

Overview

Sievers DataGuard Feature is an available option for DataPro2, offering a complete 21 CFR Part 11 TOC Analyzer compliance solution using the following:

- Administratively controlled user-level security control
- Electronic signatures that assign ownership to all controlled system actions
- An audit trail system that records system changes including file creation, viewing, any database changes, or changes to local settings

DataGuard Screen



Chapter 4 DATAGUARD

Use the *DataGuard* screen to view and manage users, access levels, and the Audit Trail. Also, configure settings for DataGuard on this screen. This screen includes the following tabs:

- ***Users Tab*** — View a list of users, add new users, and print a report of the Users and assigned access levels. Use the Edit button to change a User's status or Access Level. Show **ALL** users or click **FILTERED**, **CHANGE TO** enter criteria for narrowing the search results. See "To add a user" on page 44.
- ***Access Levels Tab*** — Select a User line and view the assigned roles. Add new Levels and edit assigned roles. See "To create a new Access Level" and "To edit user roles assigned to an Access Level" on page 46.
- ***Settings Tab*** — Set the default values for the number of login attempts, minimum and maximum User ID length, minimum and maximum password length, password expiration, and inactivity timeout. Also set the number of numeric and/or upper case characters required for both the User ID and password and if special characters can be used. See "Configuring DataGuard" on page 48.
- ***Audit Trail Tab*** — View the list of actions and related details performed by DataGuard and non-DataGuard users. The audit trails includes the time, date, User ID, and related details for any DataGuard signature-required action. Show All lines or click **FILTERED**, **CHANGE TO** enter criteria for narrowing the search results. Export or print the list. See "Reviewing the Audit Trail" on page 49.

> ***NOTE:*** *A User must have the appropriate assigned role to view and make changes on these tabs.*

Using the DataGuard Signature (log in)

After DataGuard is activated, all actions involving a change require a DataGuard signature from the appropriate Level User as defined by the DataGuard Administrator. When accessing certain screens or performing change actions (such as **SAVE**) the *DataGuard — Signature* dialog box appears (Figure 3). Enter *User ID* and *password* and click **OK** to complete the action. Requirement for completing this signature is a repetitive process. (There is no one-time DataGuard sign-in process.)

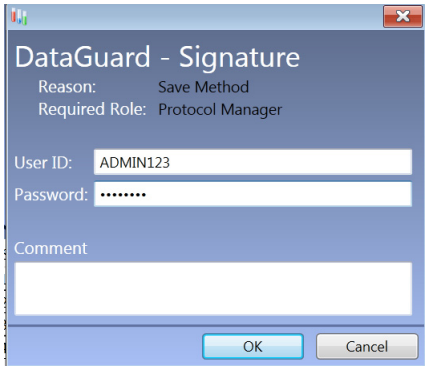


Figure 3: DataGuard — Signature Dialog Box

The actions and signatures are recorded in the DataGuard Audit Trail. To review, see "Reviewing the Audit Trail" on page 49.

FORGOTTEN OR DEACTIVATED PASSWORDS

If the unsuccessful number of login attempts reaches the configured setting (as set by the Administrator) or you forget your password, the password will need to be reset by your DataPro2 Administrator ("To edit a User ID" on page 45) or GEAI Technical Support. In North America, contact GE Analytical Instruments Technical Support at 303.444-2009 or 888.245.2595 or techSupport.GEAI@ge.com. Technical support in Europe, Middle East, and Africa is available at 44 (0) 161 864 6800 or ServiceUK.Instruments@ge.com. Technical support in Asia Pacific is available at (65) 62674659 or TechSupportSG.GEAI@ge.com. In other parts of the world, contact your local GE Analytical instruments representative. You can also visit the Support tab on our website at www.geinstruments.com.

Provide the *Key* number (as shown on the *About* tab on the *Help* screen) to Technical Support, who will supply a password of the day. If you have also forgotten your User ID, enter "SIEVERS" as the User ID (with Administrator User level). Log into the DataGuard using this temporary password (and ID) and change your password according to "To change your DataGuard password" on page 43.

To change your DataGuard password

1. On the *DataGuard*  screen, select the *Users* tab.
2. Select the line with your USER ID[5] and click **EDIT**. The *Edit User* dialog box appears.
3. Type a new password in the *Password* and (confirm) *Password* fields. Click **OK**. The old password will be overwritten.

5. If you still do not recognize your original USER ID at this time, create a new one.

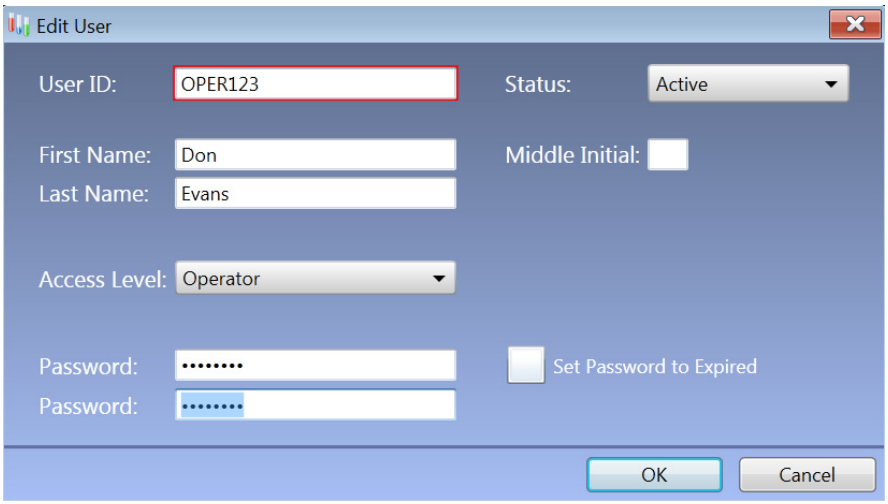
Chapter 4 DATAGUARD

Managing Users

Access the *Users* tab to add and edit User ID status, levels, and passwords. Completing each of these procedures using the DataGuard Signature dialog box, requires a User ID and password with an Administrator or other User Level with appropriate assigned roles.

To add a user

1. On the *DataGuard* screen, select the *Users* tab.
2. Click **ADD** to display the *Edit User* dialog box appears.



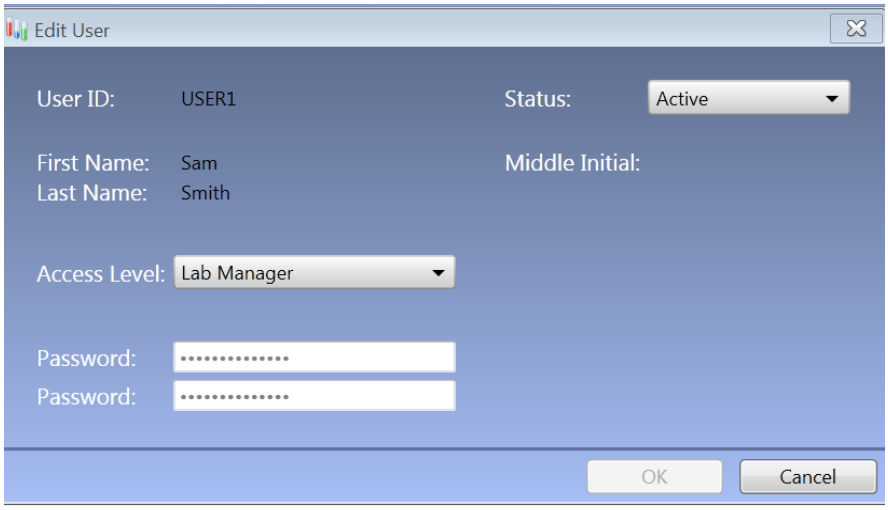
3. Complete the following:
   - User ID
   - First Name
   - Middle Initial (optional)
   - Last Name
   - Password
   - (Confirm) Password
4. Select the appropriate Access Level.
5. (Optional) Select the *Set Password to expired* option, if appropriate.
6. Verify that the Status is set to *Active* and click **OK** to save.

NOTE: *After saving a User ID, the User ID and name cannot be modified.*

To edit a User ID

Select a new access level, change a password, or select a new status *Active*, *Disabled*, or *Retired*.

1. On the *DataGuard* screen, select the *Users* tab.
2. Select the line with the User ID to modify.
3. Click **EDIT**. The *Edit User* dialog box appears.



4. Enter a new password or select a new Access Level or Status, as needed, and O**K**.

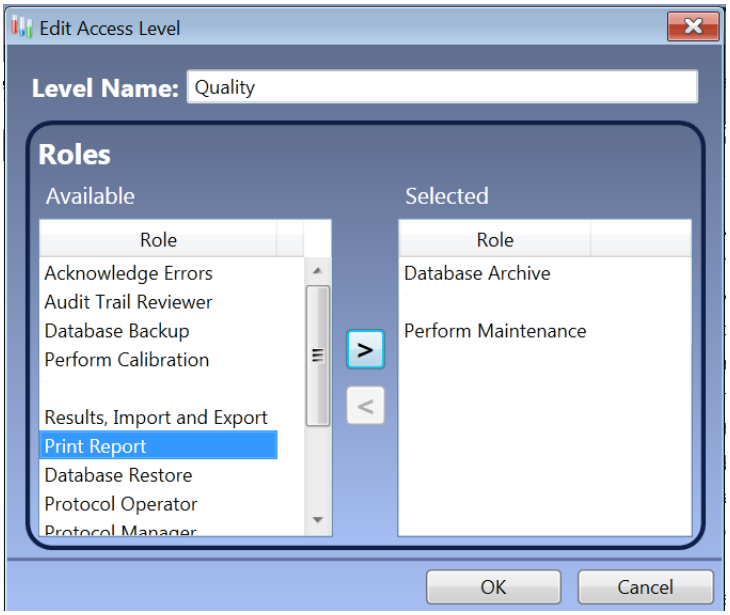
Creating an Access Level

The *Administrator* Access Level is pre-created in DataPro2 and is automatically assigned all roles, with the exception of the database management roles (*Database Backup*, *Database Archive*, and *Database Restore*).

This procedure describes creating a new Access Level. Assign the appropriate roles to the new Access Levels in these steps. Complying with 21 CFR Part 11, the *User Account Manager* role and database management roles cannot be assigned to the same Access Level.

To create a new Access Level

1. On the *DataGuard* screen, select the *Access Levels* tab.
2. Click **ADD** to display the *Edit Access Level* dialog box.



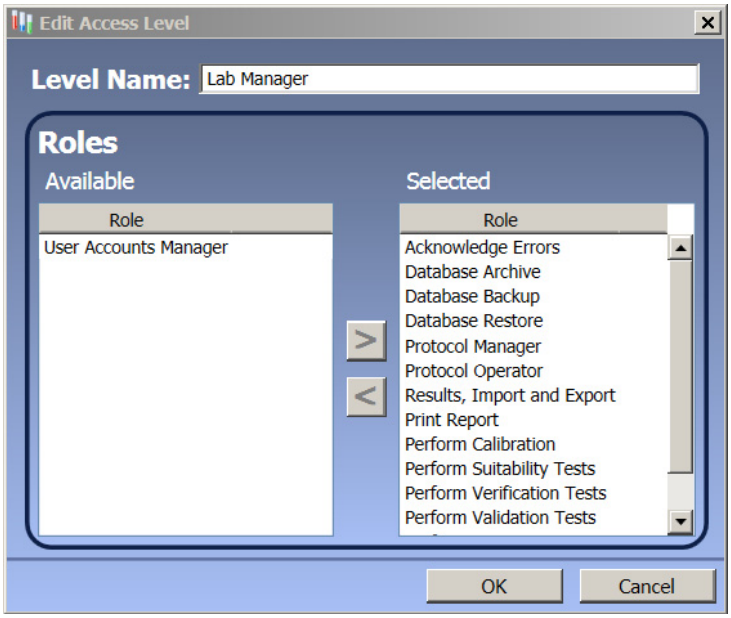
3. In the *Level Name* field, type a name for the new Access Level.
4. Assign roles to the Access Level. Select a line in the *Roles* list (*Ctrl*+select for more than role) in the *Available* list and click the right arrow to move it to the *Selected* list. Click **OK**.
5. Repeat the previous step until all the roles for the selected level are satisfied. To remove a role from the *Selected* list, select it and then click the left arrow to move it back to the *Available* list. Click **OK**.

Editing User Roles

Use this procedure to edit roles assigned to an existing Access Level. To create a new Access Level and assign roles, go to "To create a new Access Level" on page 45.

To edit user roles assigned to an Access Level

1. On the *DataGuard* screen, select the *Access Levels* tab.
2. Select the level to modify and click **EDIT** to display the *Edit Access Level* dialog box.



3. Select a role (*Ctrl*+select for more than role) in the *Available* list and click the right arrow to move it to the *Selected* list. Click **OK**.
4. Repeat the previous step until all the roles for the selected level are satisfied. To remove a role from the *Selected* list, select it and click the left arrow to move it back to the *Available* list. Click **OK**.

TABLE 3: AVAILABLE ROLES

Available Role Names	
Perform Calibration	User Accounts Manager
Print Report	Perform Validation Tests
Acknowledge Errors	Perform Verification Tests
Results, Import and Export	Audit Trail Reviewer
Perform Maintenance	Database Backup
Protocol Operator	Database Restore
Protocol Manager	Database Archive
Perform Suitability Tests	

Chapter 4 DATAGUARD

Configuring DataGuard

Use the *Configure* tab to set the default values for the number of login attempts, minimum and maximum User ID length, minimum and maximum password length, and password expiration. Also set the number of numeric and/or upper and lower case characters required for both the User ID and password, and if special characters can be used.

To configure DataGuard settings

1. On the *DataGuard*  screen, select the *Settings* tab.

2. Complete the following and click **ACCEPT**:

   - **Expire Password After (1-360 Days)** — Specifies how long the Password is valid before it must be changed. The default value is 90 days.
   - **Lockout User After (2-10)** — Specifies the number of incorrect password entries before the DataPro2 automatically sets the User ID status to *Inactive*. The default value is 3.
   - **User ID Length (2-20)** — Sets the minimum and maximum number of characters allowed in a User ID. The default values are 8 and 20.

     Enter a minimum value in the left field and a maximum value in the right field.
   - **Password Length (4-20)** — Specifies the minimum and maximum number of characters required for a valid Password. The default values are 6 and 20.
   - **Required Characters** — Specifies the minimum number of upper case characters (default value is 1), lower case characters (default value is 0), numbers (default value is 1), and special characters (default value is 0).

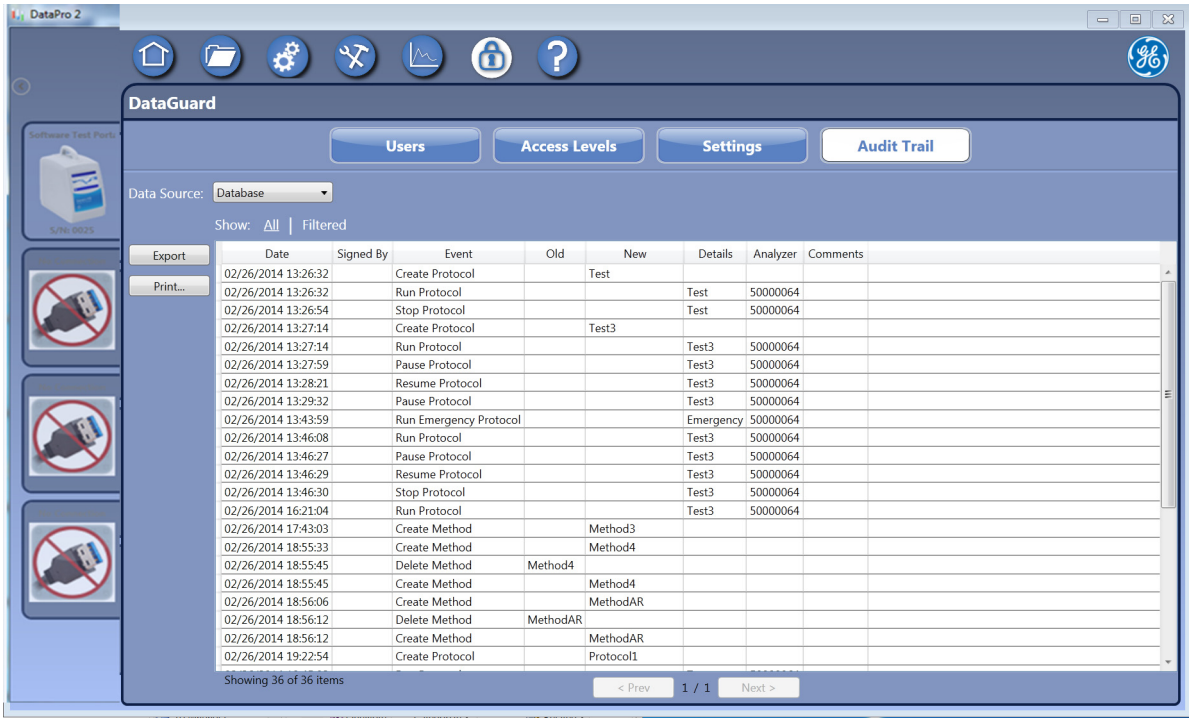
Reviewing the Audit Trail

The DataGuard feature maintains an audit trail showing the history of activities performed in DataPro2 by each User ID. Each audit trail entry details what event was performed, when the event was performed, and the User ID (DataGuard Signature) of the user who performed the operation. The method and protocol names, *Analyzer Location* name, and any added *User-Defined Protocol* comments are also listed. The audit trail can accommodate up to 3,000 entries.

Search the audit trail records by keyword, date entered, and record type. It is also possible to search by selecting the audit trail action (such as Start Analysis). Print the Audit trail and export the audit trail to a secure encrypted file format.

To review the Audit Trail

1. On the *DataGuard* screen, select the *Audit Trail* tab.



2. Select either *Database* (current results stored in *DataPro2*) *or Archive* to browse on the computer or network for archive files.
3. Select *All* or *Filtered* data (click **CHANGE** to display the *Filters* dialog box with fields for setting filter criteria by field name or date.)
4. Use the **EXPORT** button to create and save a comma-separated text file (.csv) and/or the **PRINT** button to print the Audit History report.

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5

CALIBRATION AND SYSTEM PROTOCOLS

INTRODUCTION

DataPro2 provides a full set of automated system protocols for calibration, validation, and verification. DataPro2 detects if the Analyzer is configured with the optional sample conductivity cell or if the Turbo option has been activated on the Analyzer. Protocols for these options automatically appear in the DataPro2 list of protocols.

Additional system protocols are available with the optional *Validation Support Package Volume II (VSP II)* for linearity, accuracy and precision, specificity, and robustness. Activation for these protocols is required in DataPro2. (See "To activate VSP II Protocols (Optional)" on page 24.) The VSP II document also includes a manual protocol for determining limit of detection/limit of quantitation.

The Analyzer is calibrated at the factory and requires annual recalibration. Perform a calibration verification when replacing components that may affect analysis, such as the UV lamp.

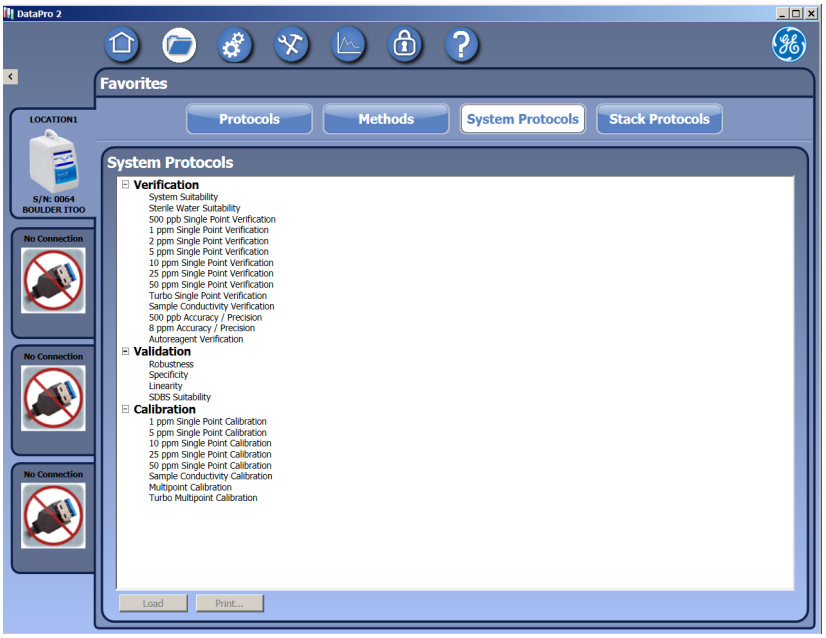
Calibration and verification involve using Sievers Standards in 40-mL vials sampled via the GE Autosampler. DataPro2 facilitates the calibration and verification process with automatic calculations. You will then have the opportunity to apply or not apply the calibration at the end of the procedure.

Calibrate the Sievers M-Series TOC Analyzer using either the Single-Point Calibration (at 1, 5, 10, 25 or 50 ppm) or a Multi-Point Calibration (at 0.25, 1, 5, 10, 25, and 50 ppm). Do not perform both types of calibration as the DataPro2 only stores the last applied calibration. A Single-Point Calibration requires approximately one hour to complete and the Multi-Point Calibration requires approximately two hours.

GE Analytical Instruments recommends calibrating the Analyzer using the Single-Point Calibration at a concentration above the range of interest. For customers typically operating

below 1 ppm, GE Analytical Instruments recommends selecting the 1 ppm Single-Point Calibration. Multi-Point Calibration calibrates the Analyzer over its entire operating range and is available as an alternate procedure.

FAVORITES SCREEN



Use the *Favorites* screen to manage (user-defined) protocols, methods, and system protocols using the following tabs:

- **Protocols Tab** — Contains the list of user-defined protocols created. Contains buttons for loading, printing, or deleting a protocol. Use the **ORGANIZE** button to display the *Favorite Protocol Manager* dialog box to move a protocol to a new position in the list or to include or exclude a protocol from the *Favorites* folder on the *Home* screen.
- **Methods Tab** — Contains the list of methods created. Contains buttons for loading, printing, or deleting a method. Use the **ORGANIZE** button to display the *Favorite Protocol Manager* dialog box to move a method to a new position in the list or to include or exclude a method from the *Method* menu on the *Methods* panel.
- **System Protocols Tab** — Contains a list of System Protocols for loading, printing, or stacking (grouping more than one protocol to run at a time).

REQUIRED CALIBRATION SUPPLIES

To ensure accurate results, ALWAYS use Sievers Standards for all calibration and verification procedures. Standards sets for calibration and verification can be purchased individually or as combined Calibration & Verification Sets. All standards for use in the Analyzer are provided in 40-mL vials.

Ordering Standards

To order standards in North America, contact GEAI Order Entry at 303.444.2009 or 800.255.6964 or orders@geinstruments.com. In Europe, Middle East, and Africa (EMEA), contact us at +44 (0) 161 864 6800 or csgeai.europe@ge.com. And, in Asia Pacific, contact us at (8621) 38777735.

REQUIRED STANDARDS LISTS

This section details what standards are required for the calibration and system protocols. Standards Contact GE Analytical Instruments to request our *Reference Standards Parts List* or *Sievers Certified Reference Materials and Consumables Catalog* to order the correct standards for your instrument.

Standards Required for Single-Point Calibration

Purchase Sievers Single-Point Calibration standards in a concentration that is appropriate for your application. Sets include one vial of reagent water and one vial each of TOC and IC in the selected concentration. For customers typically operating below 1 ppm, GE Analytical Instruments recommends selecting the 1 ppm Single-Point calibration. All available concentrations are shown in Table 4.

TABLE 4: STANDARDS REQUIRED FOR SINGLE-POINT CALIBRATION

TOC Calibration Standards
Calibration Blank
1, 5, 10, 25, or 50 ppm TOC (as KHP)
IC Calibration Standards
1, 5, 10, 25, or 50 ppm IC (as Na_2CO_3)

Standards Required for Multi-Point Calibration

Sievers Multi-Point Calibration sets include all the TOC and IC standards shown in Table 5.

TABLE 5: STANDARDS REQUIRED FOR MULTI-POINT CALIBRATION

TOC Calibration Standards
Calibration Blank
250 ppb TOC (as KHP)
1 ppm TOC (as KHP)
5 ppm TOC (as KHP)
10 ppm TOC (as KHP)
25 ppm TOC (as KHP)
50 ppm TOC (as KHP)
IC Calibration Standards
10 ppm IC (as Na_2CO_3)

Standards Required for Single-Point Verification

Purchase Calibration Verification standards in a concentration that is appropriate for your application. Sets include one vial of reagent water blank and one vial each of TOC and IC in the selected concentration. The available concentrations are shown in Table 6.

TABLE 6: STANDARDS REQUIRED FOR SINGLE-POINT VERIFICATION

TOC Verification Standards
Verification Blank
500 ppb (*M9-Series only*) or 1, 2, 5, 10, 25, or 50 ppm TOC (as sucrose)
IC Verification Standards
500 ppb (*M9-Series only*) or 1, 2, 5, 10, 25, or 50 ppm IC (as Na_2CO_3)

Standards Required for Autoreagent Verification

Autoreagent verification standards sets include the standards shown in Table 7.

TABLE 7: STANDARDS REQUIRED FOR AUTOREAGENT VERIFICATION

Autoreagent Verification Standards
10 ppm TOC (as sucrose)
25 ppm TOC (as sucrose)

Standard Required for Sample Conductivity Calibration

TABLE 8: STANDARDS REQUIRED FOR SAMPLE CONDUCTIVITY CALIBRATION

Sample Conductivity Calibration Standard
1.4 mS Conductivity (as KCl)

Standard Required for Sample Conductivity Verification

TABLE 9: STANDARDS REQUIRED FOR SAMPLE CONDUCTIVITY VERIFICATION

Sample Verification Standard
25 µS Conductivity (as HCl)

Standards Required for Turbo Multi-Point Calibration

Sievers Turbo Multi-Point Calibration sets include all the TOC and IC standards shown in Table 10.

TABLE 10: STANDARDS REQUIRED FOR TURBO MULTI-POINT CALIBRATION

TOC Calibration Standards
Calibration Blank
250 ppb TOC (as KHP)
500 ppb TOC (as KHP
1 ppm TOC (as KHP)
3 ppm TOC (as KHP)
5 ppm TOC (as KHP)
IC Calibration Standards
2 ppm TOC (as Na_2CO_3)
Low IC

NOTE: *Use either the 2 ppm IC standard or the Low IC standard. The "Low IC" vial is for use with <500 ppb samples. For more information, reference Field Service Bulletin "TOC, M-Series Alternative Turbo Mode Calibration" our website at http://www.geinstruments.com (support> Support Documents>Field Service Bulletins).*

Standards Required for Turbo Single-Point Verification

Purchase Calibration Verification standards in a concentration that is appropriate for your application. Sets include one vial of reagent water blank and one vial each of TOC and IC in the selected concentration. The available concentrations are shown in Table 6.

TABLE 11: STANDARDS REQUIRED FOR SINGLE-POINT VERIFICATION

TOC Verification Standards
Verification Blank
2 ppm TOC (as sucrose)
IC Verification Standards
2 ppm IC (as Na_2CO_3)
Low IC

PREPARING FOR CALIBRATION

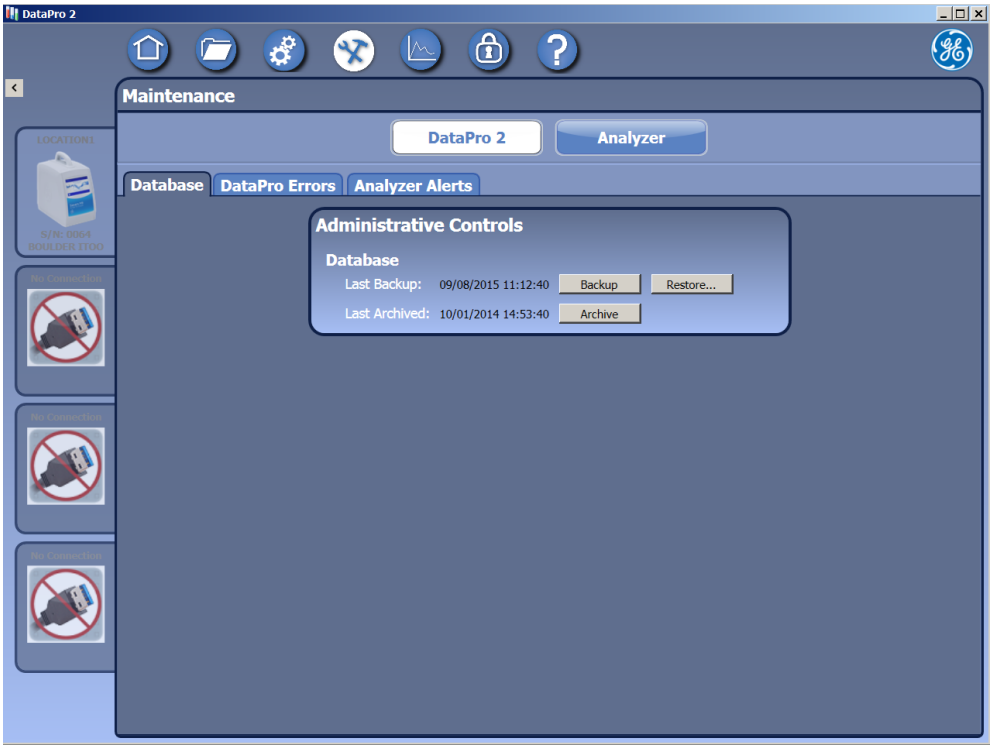
Before calibrating the Analyzer, back up the database and (for annual calibrations) perform annual maintenance tasks. Additionally, if the Analyzer is used online with water less than 50 ppb TOC, perform a TOC Autozero. Instructions are included in the *Sievers TOC Analyzer Operation and Maintenance Manual*. (To download a copy, see "Help Screen" on page 73).

Back up the Database

Prior to performing any calibration procedure, back up the database so that these data can be re-loaded or referred to in the future (if needed).

To back up the database

1. On the *Maintenance* screen, click the *DataPro2* tab.



2. Click the *Database* tab to display the *Administrative Controls* panel.
3. Click *Backup*. Browse for a backup destination folder and click **OK**.

Perform Annual Maintenance Tasks

Before an annual Analyzer calibration, replace consumables as appropriate, such as the sample pumps, UV lamp, chemical reagents, and resin bed. For step-by-step instructions, refer to "Chapter 7, Maintenance" in the Sievers *Operation and Maintenance Manual* for the Analyzer. (To download a copy of the manual, refer to the *Help* screen.)

Perform a TOC Autozero (optional)

Only perform a TOC Autozero on the Analyzer (from the Analyzer screen controls) if regularly analyzing online samples with TOC <50 ppb. If using the Analyzer to analyze water that is greater than 50 ppb or for grab samples using vials, there is no need to perform a TOC Autozero (unless instructed to do so by GE Technical Support). The optional TOC Autozero corrects for minor differences in the response of the two CO_2 sensors. This adjustment is critical only for the determination of low-level TOC concentrations. For instructions, see "Chapter 6, Calibration" in the Sievers *Operation and Maintenance Manual* for the Analyzer. (To download a copy of the manual, refer to the *Help* screen.)

USING THE AUTOREAGENT VERIFICATION

Perform the *Autoreagent Verification* when concentration in the sample is not known.

HANDLING STANDARDS

Take care when handling standards, as sample preparation and control is extremely important. Special handling of the standard solutions is required to avoid conductivity and organic carbon contaminants.

Store standards at approximately 5 °C (±4 °) and protected from light. Warm standards to ambient temperature prior to starting analysis. Avoid touching the top of the vial to protect against contamination.

DATAGUARD SIGNATURE

If DataGuard is enabled, DataPro2 will require the appropriate signature (*User Level ID* and *password*) to run a System Protocol and apply calibrations.

SYSTEM PROTOCOLS

This section includes information for running system protocols and shows the 1 ppm Calibration System Protocol as an example. All protocols are run similarly[6], unless noted. Additional information on calibrating the Analyzer, as well as *Pass* and *Fail* criteria for each protocol, is presented in "Chapter 6, Calibration" in the Sievers *Operation and Maintenance Manual* for the Analyzer. (To download a copy of the manual, refer to the *Help* screen.)

DataPro2 Software includes the following System Protocols:

Calibration System Protocols

System Suitability (*M9-Series only*)

Sterile Water Suitability (*M9-Series only*)

1 ppm Single-Point Calibration

5 ppm Single-Point Calibration

10 ppm Single-Point Calibration

25 ppm Single-Point Calibration

50 ppm Single-Point Calibration

Sample Conductivity Calibration (*M9-Series only*)

Multi-Point Calibration

Turbo Multi-Point Calibration (*M9-Series only*)

NOTE: *It is only necessary to perform either a Single-Point calibration or a Multi-Point calibration, as the Analyzer only stores the last calibration performed and applied.*

Verification Protocols

- 500 ppb Single-Point Verification (*M9-Series only*)
- 1 ppm Single-Point Verification
- 2 ppm Single-Point Verification
- 5 ppm Single-Point Verification
- 10 ppm Single-Point Verification

6. When running the *500 ppb TOC Accuracy/Precision* protocol or the *Linearity* protocol (available with the optional *Validation Support Package Volume II*), there is an additional ability to adjust TOC concentrations, acid rate, and oxidizer rate for the first vial (Accuracy/Precision) and for the first, second, and third vial (Linearity).

- 25 ppm Single-Point Verification
- 50 ppm Single-Point Verification
- Turbo Single-Point Verification (*M9-Series only*)
- Sample Conductivity Verification (*M9-Series only*)
- Autoreagent Verification

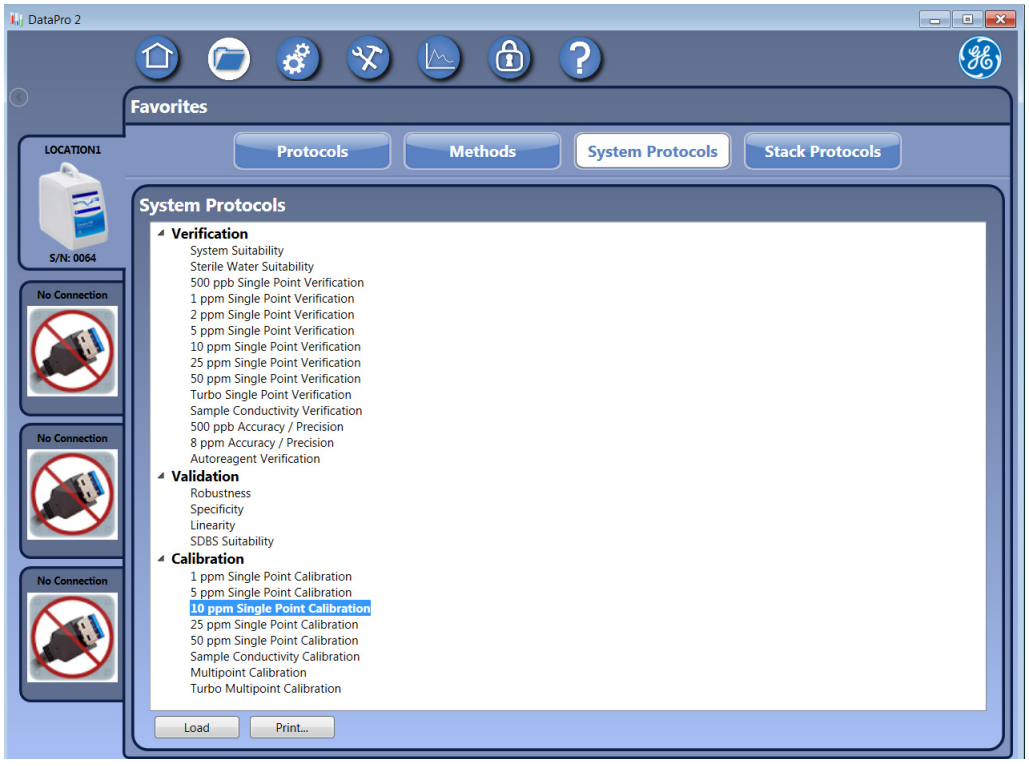
Validation Protocols

- SDBS Suitability
- ICR

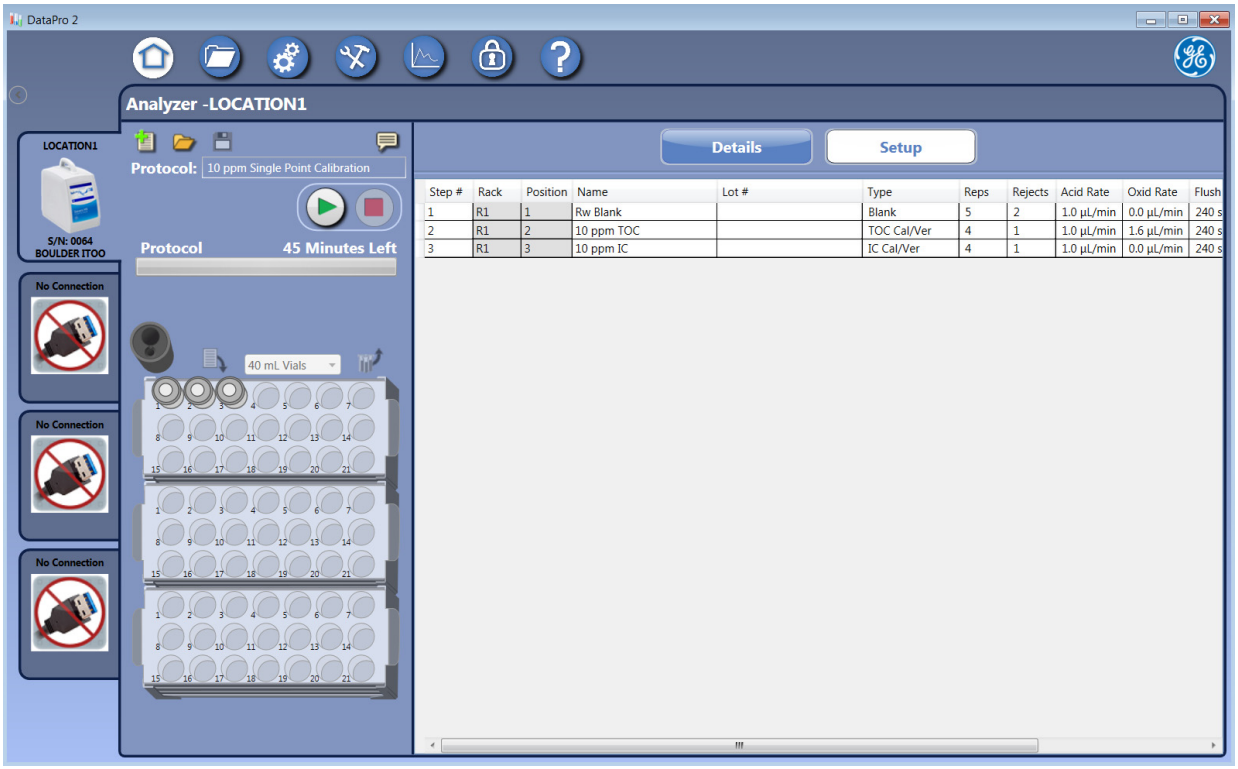
Running a System Protocol

To run a System Protocol

1. On the *Favorites* screen, click the *System Protocols* tab.

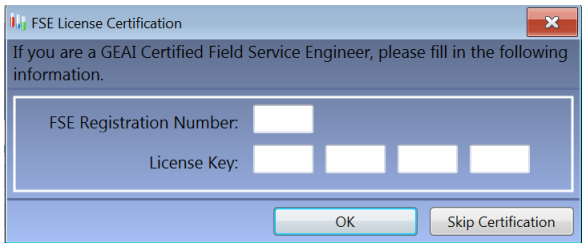


2. Select the protocol to run and click **LOAD**. The Home screen appears with the *Setup* tab active.



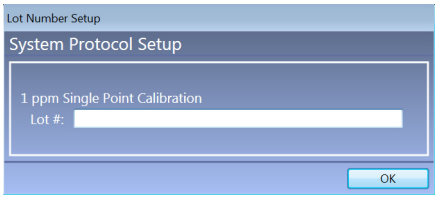
3. Load the standards vials into the GE Autosampler sample racks in the positions shown on the *Sampling Rack* graphic and corresponding vial lines on the *Setup* tab.
4. To add a comment to the System Protocol, click the Comment icon to display the *Current Test Comments* dialog box. Enter a note for referencing later from the *Data Management* screen and related reports.
5. Click the *Run Protocol* button.

   (Calibration Protocols Only) The FSE Certification dialog box appears.



   If you are a GEAI Certified Field Service Engineering, complete the fields and click **OK**. Otherwise, click **SKIP CERTIFICATION**.

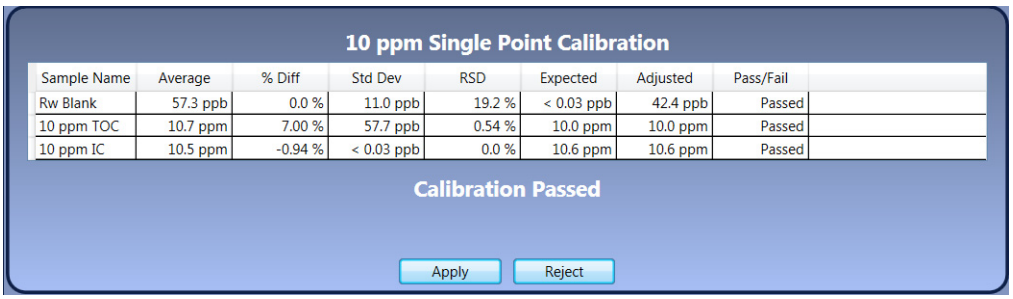
6. The *Lot Number Setup* dialog box appears.



7. Type the lot number of the standards (or leave the field blank) and click **OK**.
8. If a syringe flush is needed[7], a message appears asking if you want to flush the syringes now. Click **YES** and continue to step 9 or **NO** and continue to step 10.

   Otherwise, if a syringe flush has been completed in the last eight hours, continue to step 10.
9. On the *Syringe Flush* panel, enter the number of flushes or leave the default value **1**. Insert a flush vial (filled with DI water) in position 6 of the *Emergency* rack and click **START**.

   When the flush completes, the Analyzer begins sampling. Continue to step 11.
10. The Analyzer begins sampling.
11. When sampling has completed, a summary dialog box appears DataPro2 showing the results data and a *Passed* or *Failed* result.



12. If the System Protocol is a calibration or system suitability[8], DataPro2 requires you to accept or reject the results as follows:
    - Click **APPLY** to accept and apply.
    - Click **REJECT** to reject without applying.
13. Click the **DETAILS** tab to view additional data.
14. Remove the vials from the GE Autosampler.

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7. If the GE Autosampler has not been used in the last eight hours, GE Autosampler displays a message suggesting a syringe flush before running a system protocol.
8. Available System Suitability protocols include: System Suitability, Sterile Water Suitability, or SDBS Suitability.

Stacking System Protocols

To run more than one Protocol at a time, use the Stack Protocols feature. Access the *Stacked System Protocol Editor* to select and order the System and User Defined Protocols to run. The limit to the number of protocols to stack is dependent only on the number of vial positions available in the racks.

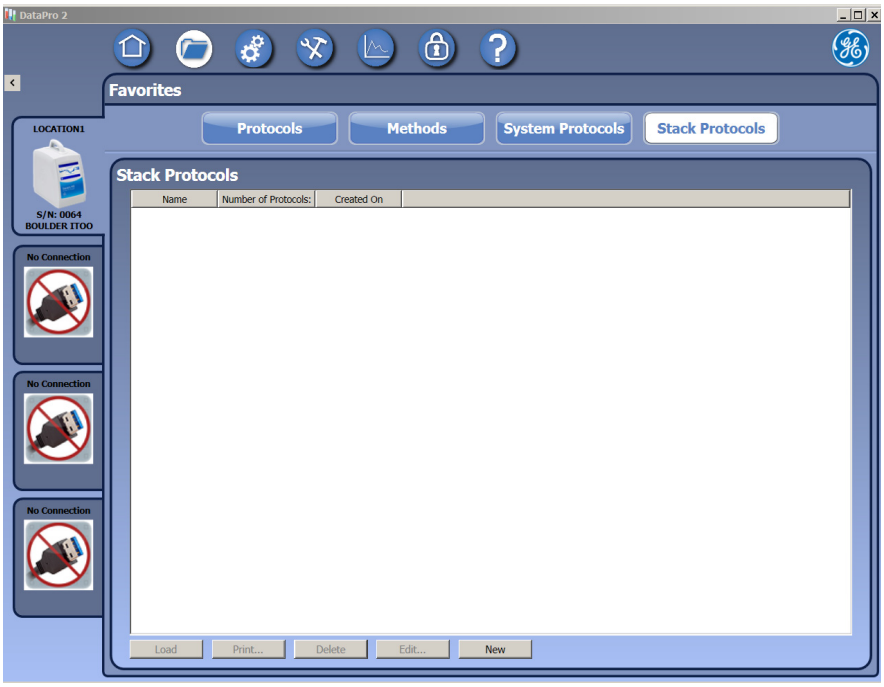
At the end of the last protocol, a list of all the protocols in the Stack appears. Click the name of each Protocol to view the corresponding *Result* or *Summary* panel.

When running a Calibration protocol in a stack and the Calibration passes, the Analyzer will automatically apply the calibration. If the Calibration protocol fails, the Analyzer will pause the protocol stack process. You can then manually apply or reject the calibration results, after which the Analyzer continues to the next protocol in the stack.

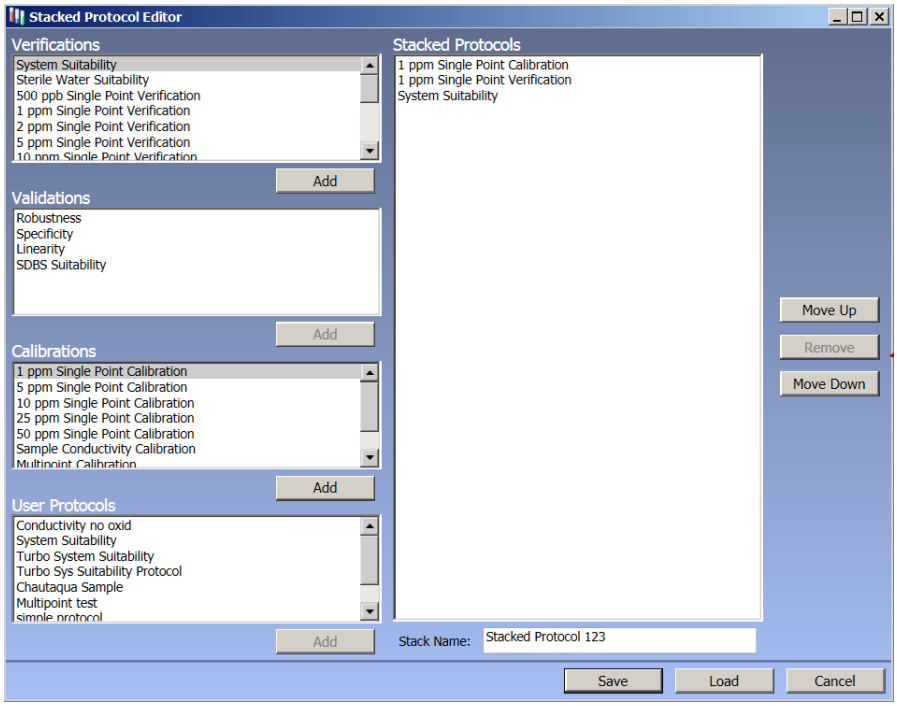
If other protocol results fail, DataPro2 completes the measurement of the vial and then stops the analysis of the remaining Protocols in the stack.

To create a Protocols Stack

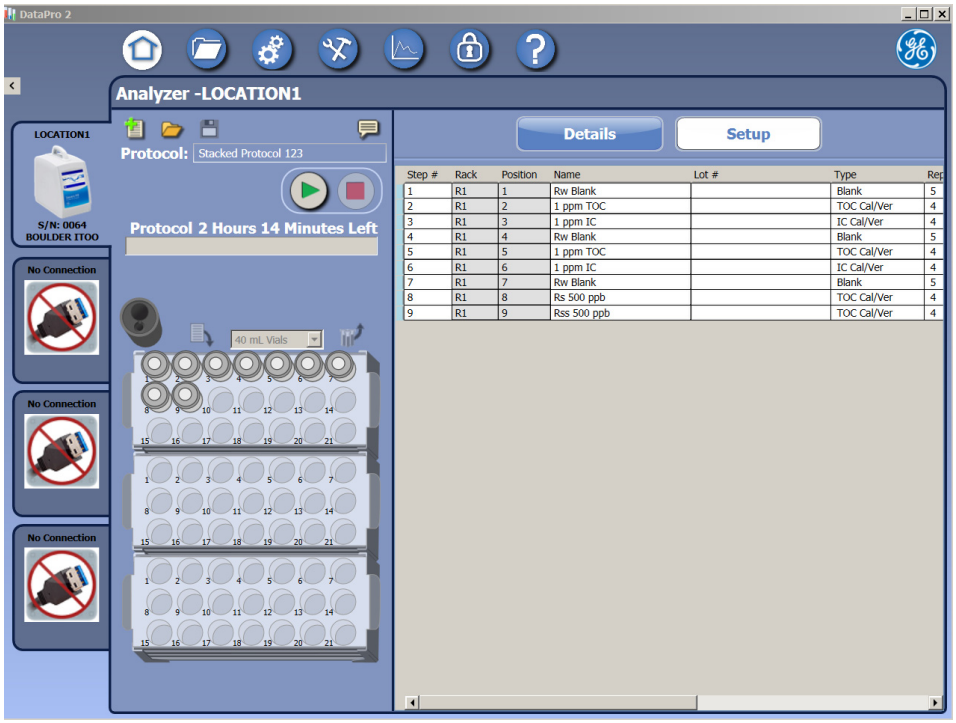
1. On the *Favorites* screen, click the *Stack Protocols* tab.



2. Click **NEW** to display the *Stacked System Protocol Editor* dialog box.

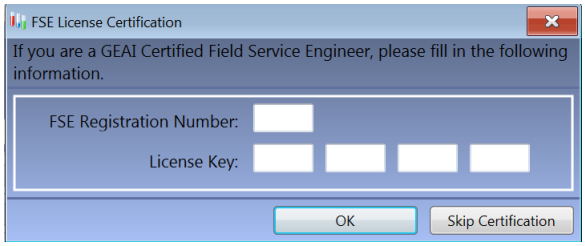


3. In the *Verification*, *Validations*, *Calibrations* and *User Protocols* lists on the left, select the protocol to run first in the Stack and click **ADD**. The name of the protocol appears at the top of the *Stacked Protocols* list on the right.
4. Repeat the previous step to add the second System Protocol to run, and repeat as needed to include all System Protocols in the stack.
5. To delete a System Protocol from the *Stacked Protocols* list, select it and click **REMOVE**.
6. To save the *Stacked Protocols* list for future use, type a name (maximum 50 characters) in the *Stack Name:* field and click **SAVE**.
7. To run the list of stacked protocols, click **LOAD**. The *Home* screen with the *Setup* tab active appears.



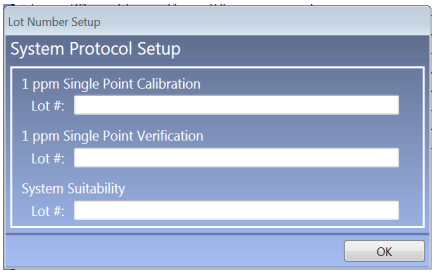
8. Load the standards vials into the GE Autosampler sample racks in the positions shown on the *Sampling Rack* graphic and corresponding vial lines on the *Setup* tab.
9. To add a comment to the System Protocol, click the Comment icon  to display the *Current Test Comments* dialog box. Enter a note for referencing later on the *Data Management* screen and related reports
10. Click the *Run Protocol*  button.

    (Calibration protocols only) The FSE Certification dialog box appears.



    If you are a GEAI Certified Field Service Engineering, complete the fields and click **OK**. Otherwise, click **SKIP CERTIFICATION**.

11. The *Lot Number Setup* dialog box appears with a Lot # field for each System Protocol.



12. Type the lot number of the standards for each System Protocol (or leave the fields blank) and click **OK**. If a syringe flush is needed[9], a message appears asking if you want to flush the syringes now. Click **YES** and continue to step 13 or **NO** and continue to step 14.

    Otherwise, if a syringe flush has been completed in the last eight hours, go to step 14.

13. On the *Syringe Flush* panel, enter the number of flushes or leave the default value of **1**. Insert a flush vial (filled with DI water) in position 6 of the *Emergency* rack and click **START**.

    When the flush completes, the Analyzer begins sampling.

14. The Analyzer begins sampling.

NOTE: *If a measurement fails, the Analyzer automatically stops the GE Autosampler Stacked Protocol process after displaying a message and completing the measurement of the vial, with the exception of a Calibration protocol.*
If a Calibration Protocol fails, the Analyzer pauses the GE Autosampler Stacked Protocol process. You can then apply or reject the calibration results, after which the Analyzer continues to the next protocol in the Stack.

15. Click the name of each System Protocol to view the related Results or Summary panel.

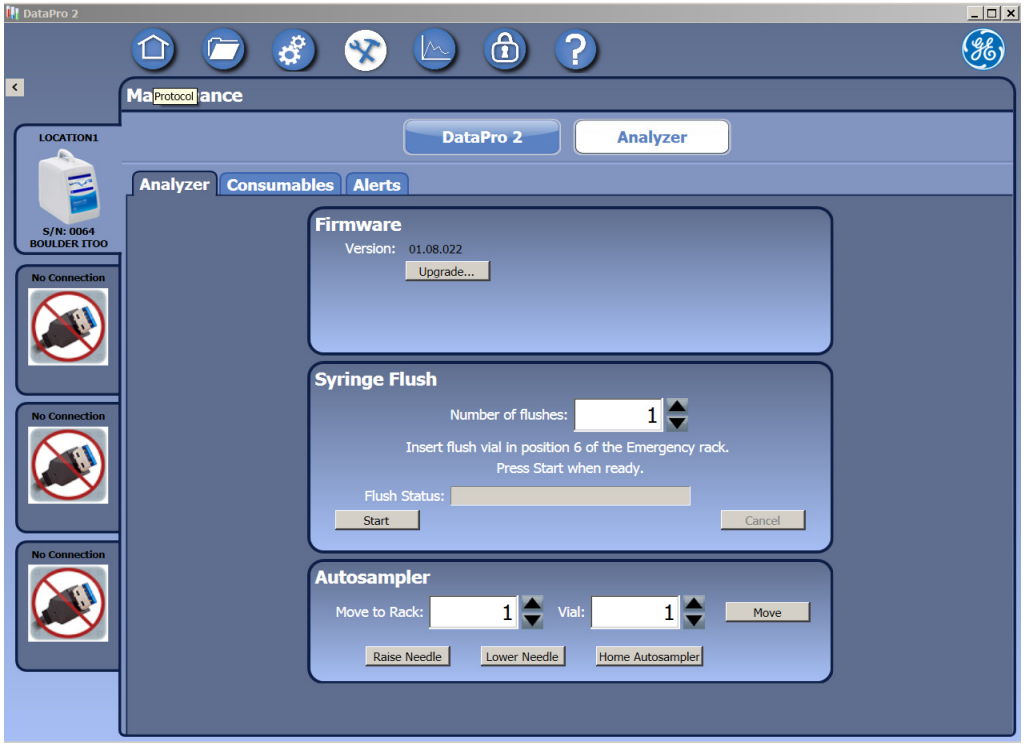
16. Remove the vials from the GE Autosampler.

9. If the GE Autosampler has not been used in the last eight hours, GE Autosampler displays a message suggesting a syringe flush before running a system protocol.

6

MAINTENANCE

MAINTENANCE SCREEN

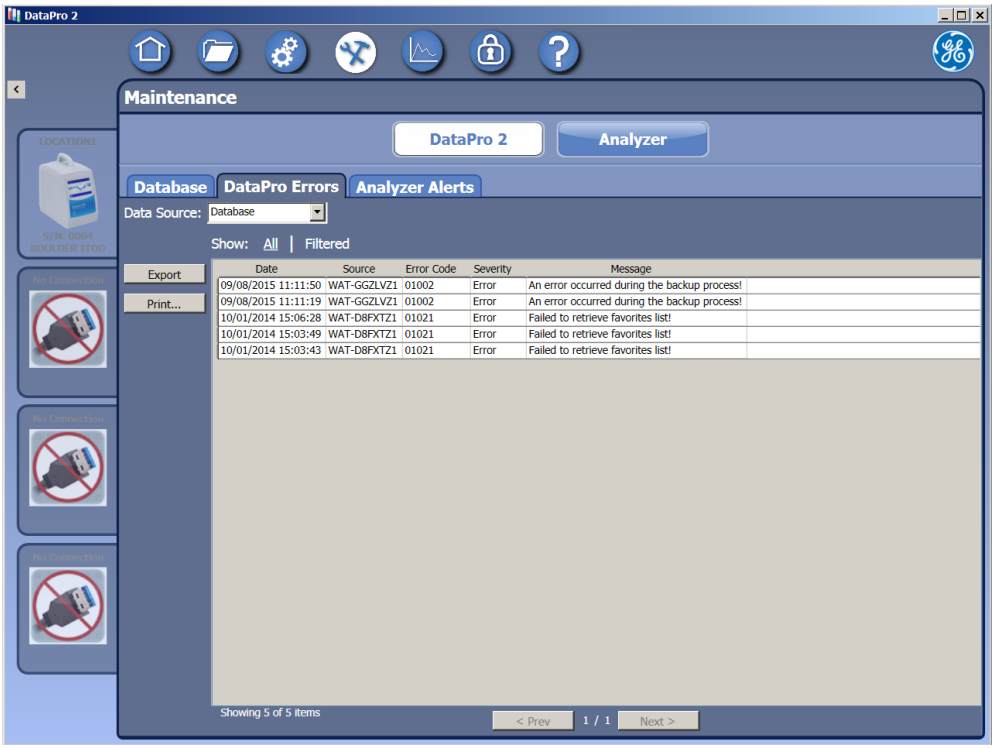


This screen contains the following tabs:

- *DataPro2* tab — Use this tab to back up (make a copy of) the database or archive (remove and make a copy of) the database. Also, restore the database from this location. View DataPro2 Software warning and error alert messages on the panels located on this tab.

- *Analyzer* tab — Use this tab to update firmware, define the number of syringe flushes, and test the alignment of the Autosampler needle. You can also use the sub tabs to view consumables levels and review current warning and error alert information.

DataPro2 Tab



There are three sub tabs, including *DataPro Errors*, *Database*, and *Analyzer Alerts*.

DATAPRO ERRORS

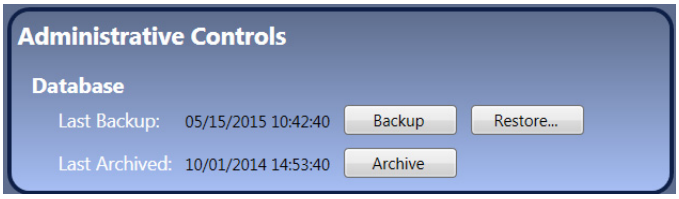
Use this default sub tab to review details for DataPro2 Software warning and errors. Select *Database* for a cumulative list of warnings and *Archive* to browse to an archive file. Use the **FILTER** link to define parameters for data to display. There are also buttons for exporting and printing this data.

For a list of message descriptions, see "Warning and Errors (DataPro2)" on page 77.

DATABASE

Use this tab to back up (make a copy), restore, or archive (remove and make a copy) the DataPro2 Software database.

1. Click the *Database* tab to display the *Administrative Controls* panel.



2. Do one of the following:
   - To back up the database — Click **BACKUP** to display Windows Explorer on the computer.
   - To archive the database — Click **ARCHIVE** to display Windows Explorer on the computer.
3. Browse for a destination folder and click **OK**. DataPro2 Software creates and places a copy of the database in this location. If **ARCHIVE** was selected in the previous step, DataPro2 Software removes the database and makes a copy in this location.
4. To restore a database copy, click **BACKUP** to display Windows Explorer on the computer.
5. Browse for a destination folder and click **OK**. DataPro2 Software restores the database with the file selected.

ANALYZER ALERTS

Use this tab to review details for Analyzer warning and errors. Select *Database* for a cumulative list of warning and *Archive* to browse to an archive file. Use the **FILTER** link to define parameters for data to display. There are also buttons for exporting and printing this data.

For a list of message descriptions, see "Warning and Errors (Analyzer)" on page 79.

Analyzer Tab

This tab contains three additional sub tabs:

- "Analyzer Tab" on page 70
- "Consumables Tab" on page 71
- "Alerts Tab" on page 72

ANALYZER TAB

This tab contains three panels, including the *Firmware* panel, *Syringe Flush* panel, and *Autosampler* panel. These panels are used for performing the following tasks.

To upgrade firmware

You can upgrade the Analyzer firmware directly from the DataPro2 Software by accessing the upgrade file from the computer.

NOTE: *To access the upgrade file from a USB memory drive, insert the USB memory drive into the computer (and not the Analyzer).*

1. On the *Maintenance* screen, select the *Analyzer* tab.
2. On the *Firmware* panel, click **UPGRADE** and navigate to the file location on the computer (folder or drive) containing the firmware update file.
3. Click **UPDATE FIRMWARE**. DataPro2 Software processes the firmware update on the Analyzer.

To configure the number of syringe flushes

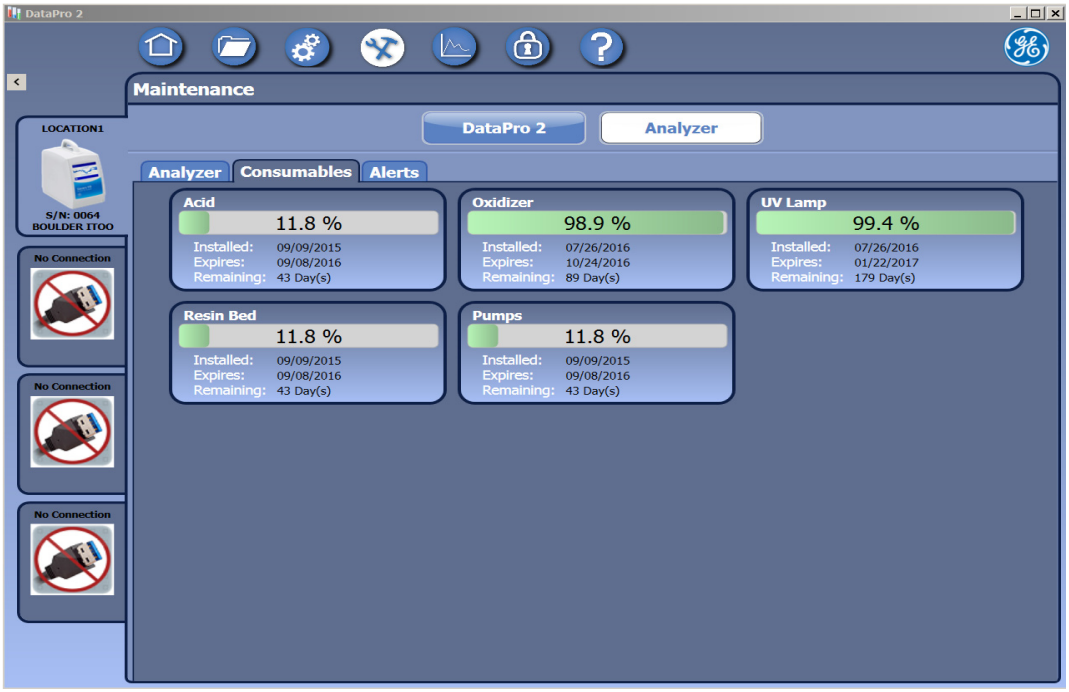
On the *Syringe Flush* panel, enter the number of flushes or leave the default value **1**. Insert a flush vial[10] (filled with DI water) in position 6 of the *Emergency* rack and click **START**. A step for preparing for a syringe flush is included in each of the following

protocol instructions: "To run a user-defined protocol" on page 34 or "To run a System Protocol" on page 60.

To test the needle alignment

1. On the *Maintenance* screen, select the *Analyzer* tab.
2. On the *Autosampler* panel, identify the position of a specific vial location to test by clicking the *up* and *down* arrows on the *Move to Rack* and *Vial* fields.
3. Click **MOVE**. The Autosampler arm will move to the position identified.
4. Click **RAISE NEEDLE** and observe the alignment of the Autosampler needle.
5. Click **LOWER NEEDLE** and observe the alignment of the Autosampler needle.
6. To return the needle to home position, click **HOME AUTOSAMPLER**.
7. If there are any issues, contact GE Technical Support for further assistance.

CONSUMABLES TAB



Click the *Consumables* tab (Figure 4) to view indicators of the percentage of useful life remaining for each consumable: Acid, Oxidizer, UV lamp, (sample) pumps, and resin cartridge.

10. If the GE Autosampler is installed with the optional Rinse Station, click **START** (without adding an additional flush vial). DataPro2 will automatically add the Rinse Station location on the first line of the protocol.

The *Home* screen (page 10) also displays a quick view of levels for each of the Analyzer's consumables on one the lower-right panels. To access additional details, click the *Quick View* panel to display the *Analyzer* tab on the *Maintenance* screen.

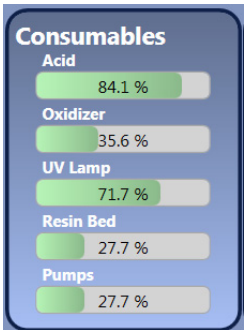
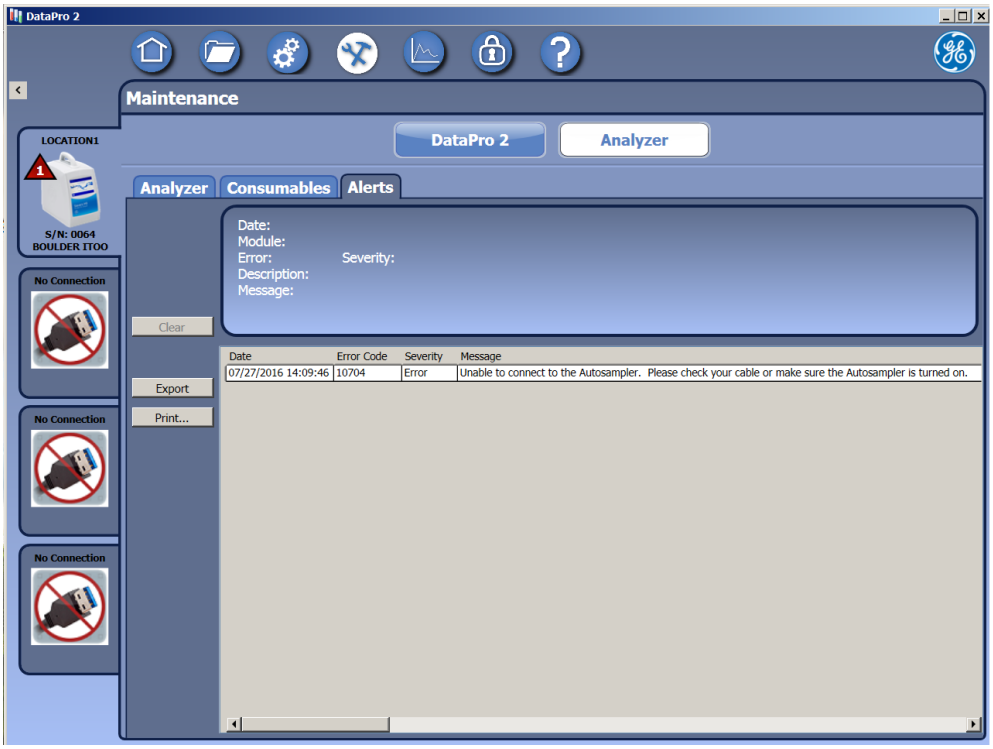


Figure 4: The *Home* Tab — Consumables Quick View Panel

ALERTS TAB



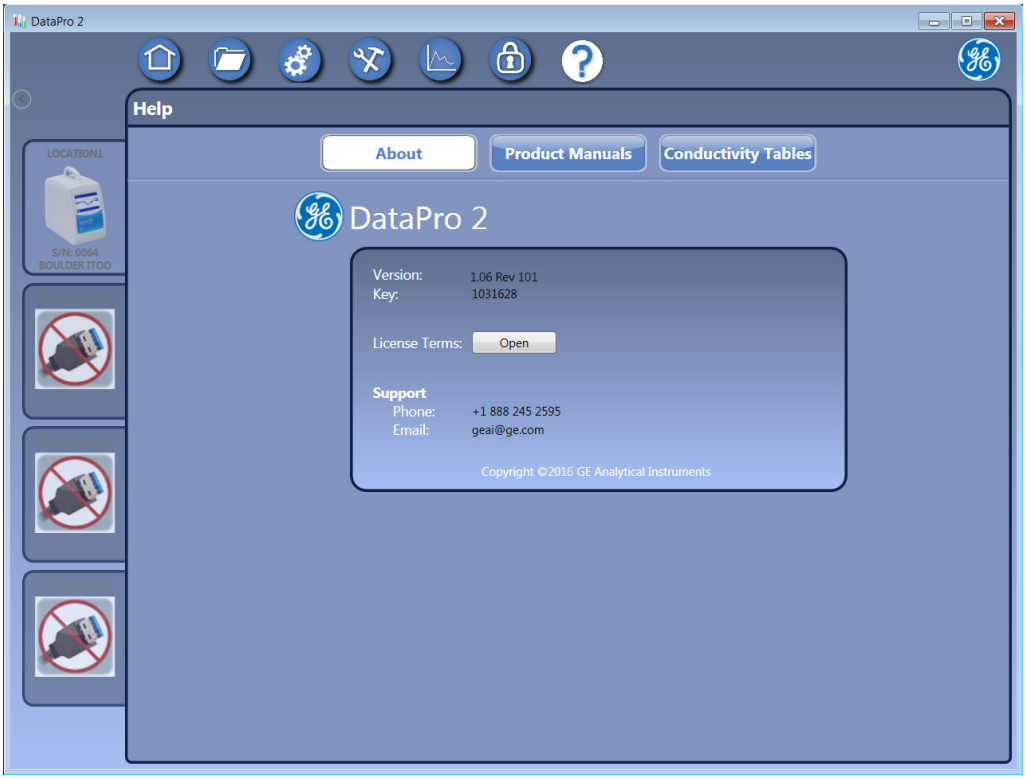
Use this tab to view, export, and/or print warning and error messages for the Analyzer. For more information, including message descriptions, see "Reviewing Warning and Errors" on page 76.

7

TROUBLESHOOTING

Use this chapter for troubleshooting any common DataPro2 installation and operational issues. This chapter also includes a descriptions list of DataPro2 warning and errors that appear on the *Maintenance* screen.

Help Screen



The *Help* screen includes the *About* tab and the *Product Manuals* tab. The *About* tab includes version, license, and support contact information, as well as key number to provide to Technical Support for a password of the day in the case of a forgotten password.

The *Product Manuals* tab is described in the following section.

THE PRODUCT MANUALS TAB

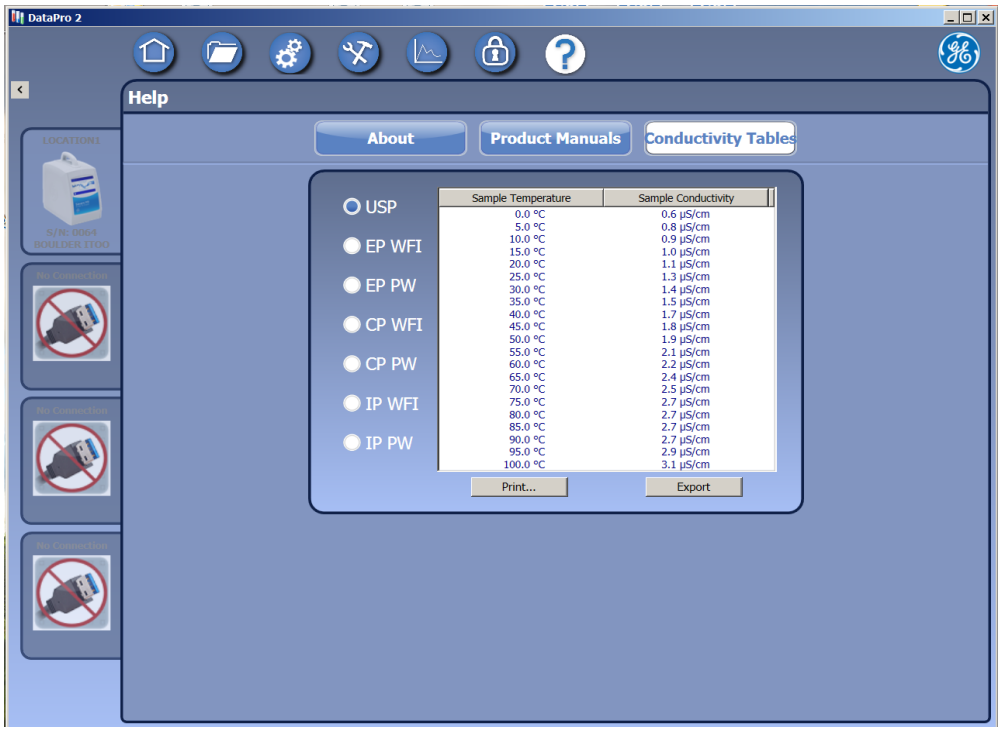
This tab includes a button to display a list of the recommended flow rates and buttons to display User Manuals, including: *DataPro2 Software with (optional) DataGuard User Guide* and the *Sievers M9 and M9e Operation and Maintenance Manual*. A hyperlink is also included for accessing the "M-Series Documentation" page of the GE Analytical Instruments website for downloading the most recently published version of these documents and the *Sievers M5310 C Operation and Maintenance Manual*. Instructions follow for replacing the version of the of *Manual* displayed.

To replace the version of the Software or Analyzer manual

1. Using the hyperlink provided on the *Product Manuals* tab, access the "M-Series Documentation" page of the GE Analytical Instruments website.
2. Download the most recent PDF version of the manual to use.
3. Rename the PDF file to:
   - To display from the Software User's Manual **OPEN** button — Rename the PDF as *DataProUserGuide.pdf*.
   - To display from the Analyzer User's Manual **OPEN** button — Rename the PDF as *InstrumentUserGuide.pdf*.

4. Copy the new PDF file over the existing file in DataPro2 folder on your computer. The location of folder depends on the location selected when DataPro2 Software was installed.

THE CONDUCTIVITY TABLES TAB



This tab includes a Stage 1 Conductivity P/F table for reference, printing, and exporting. The sample temperature and sample conductivity can be displayed for various global pharmacopoeia monographs by selecting a pharmacopoeia to the left of the table (such as USP or EP WFI).

NOTE: The Print and Export radio button options are provided for selecting a reference table only and are not used to change the pharmacopoeia monograph for the Analyzer. Specify which pharmacopoeia monograph to apply to sample analyses using the Analyzer's screen. For step-by-step instructions, refer the Analyzer's Operation and Maintenance Manual.

Reviewing Warning and Errors

A warning  icon or error  icon appears on the *Analyzer location* tab and in the *Alerts* panel located on the lower-right portion of the *Home* screen to indicate that the Analyzer has issued a warning or error message(s). The total number of warnings and errors appears in the center of the icon.

The Analyzer issues two levels of messages:

Warnings — Warnings do not stop TOC measurements, but may indicate that corrective action is required.

Errors — Errors are critical alerts that require immediate corrective action. Analysis is immediately stopped with an Error issue.

Use the *Maintenance*  screen to view errors and warnings as follows:

- The *DataPro Errors* tab — Contains a list of current errors and warnings related to the DataPro2 Software.
- The *Analyzer Alerts* tab — Contains a list of current errors and warnings related to the Analyzer.

Common Troubleshooting Issues

Software Unresponsive — The software may temporarily become unresponsive when performing a database backup or archive or while printing protocols with a large number of data points. In this case, wait a few minutes and the software will automatically resume responsiveness.

Slow Software Response — Exit DataPro2 and restart the software. Any protocol should continue to run after the restart.

DataPro2 Software is Not Recognizing the Analyzer — Occasionally when power cycling the GE Autosampler while it is connected to the Analyzer, the Analyzer may lose the ability to communicate with the DataPro Software.

If the DataPro2 Software does not recognize the Analyzer, try re-establishing connection from the Analyzer. On the *Maintenance* screen, select the *Advanced* tab and click **AUTOSAMPLER CONNECTION**. The Analyzer will attempt to reset the USB connection between the Analyzer and computer that is running the DataPro2 Software.

DataPro2 Protocol Results Missing from Analyzer — Protocol results run using DataPro2 automatically synchronize to the *Data View* screen on the Analyzer. In the event that DataPro2 is intentionally or unintentionally disconnected (for example, due to a power outage) and the data do not automatically sync, access the *Data Management* screen in

DataPro2 (making sure the computer is connected to the Analyzer). Select a protocol line and click the **SYNCHRONIZE** button to initiate transfer of the data.

Computer Disconnecting During Extended Protocol Run — If your computer disconnects from the GE Autosampler during an extended protocol run, your computer may be configured to suspend USB communications. To resolve this issue, open the Windows *Power Options* dialog box (Figure 5) and under *USB settings* change the *USB Selective Suspend* options to **DISABLED**.

To find the *Power Options* in Windows 7, type "power options" in the Windows *Search programs and files* field, located at the bottom of the *Start/Programs* menu. In Windows 8, click the *Search* icon located on the desktop. Navigate to Change plan settings>*Change advanced settings* or *Change advanced power settings>Advance (Power) Settings* dialog box.

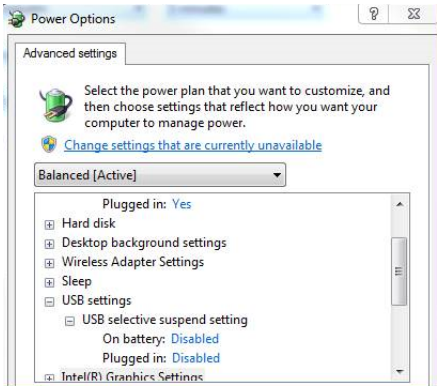


Figure 5: Windows Power Options Dialog Box

Warning and Errors (DataPro2)

DataPro2 will display warning and error messages related to the DataPro2 Software on the *DataPro Errors* tab, located on the Maintenance screen. Message descriptions are included in Table 12.

TABLE 12: DATAPRO2 WARNING AND ERROR MESSAGES

Number	Level	Warning/Error Message
0	Error	Unknown
1	Critical	Connection to the database failed!
2	Critical	An error occurred during the database restore process!
1000	Error	DataPro2 Automatic Database Backup Failed!
1001	Error	DataPro2 Automatic Database Archive Failed!
1002	Error	An error occurred during the backup process!

Number	Level	Warning/Error Message
1003	Error	Database Archive Failed!
1004	Error	Failed to activate DataGuard!
1005	Error	Failed to apply backup settings!
1006	Error	Failed to apply archive settings!
1007	Error	Failed to apply password settings!
1008	Error	Failed to load archive file!
1009	Error	Failed to retrieve audit records!
1010	Error	Failed to create new user!
1011	Error	Failed to update user!
1012	Error	Failed to retrieve user records!
1013	Error	Failed to save access level!
1014	Error	Failed to update access level!
1015	Error	Failed to delete access level!
1016	Error	Failed to retrieve access level records!
1017	Error	Failed to save protocol!
1018	Error	Unable to load protocol!
1019	Error	Failed to retrieve protocol data!
1020	Error	Failed to update favorites!
1021	Error	Failed to retrieve favorites list!
1022	Error	Failed to save method!
1023	Error	Unable to load method!
1024	Error	Failed to retrieve method data!
1025	Error	Failed to load method list!
1026	Error	Failed to save stacked protocol!
1027	Error	Failed to load stacked protocol!
1028	Error	Failed to retrieve stacked protocol!
1029	Error	Failed to retrieve stacked protocol list!
1031	Error	Failed to retrieve results!

Number	Level	Warning/Error Message
1032	Error	Failed to retrieve results list!
1033	Error	Failed to retrieve search!
1034	Error	Export Results List Failed!
1035	Error	Export Results Search Failed!
1036	Error	Failed to retrieve application error records!
1037	Error	Failed to retrieve analyzer alert records!
1038	Error	Failed to update analyzer alert record!
1039	Error	Failed to load archive!
1040	Error	Failed to export Conductivity Table!

Warning and Errors (Analyzer)

DataPro2 will display warning and error messages related to the DataPro2 Software on the *Analyzer Alerts* tab, located on the Maintenance screen.

For a comprehensive list of message descriptions, refer to "Appendix C: Warning and Error Descriptions" in the *Sievers TOC Analyzer Operation and Maintenance Manual* for the Analyzer. (To download a copy of the Manual, see "Help Screen" on page 73.)

A subsection of this list, containing GE Autosampler and DataPro warning and error messages, is provided in Table 13.

TABLE 13: GE AUTOSAMPLER WARNINGS/ERROR MESSAGES

Number	Level	Short Description	Warning/Error Message
10058	Warning	DataPro	Unable to complete the request from either DataPro or via the diagnostics port. The instrument is currently running an analysis.
10114	Error	Analyzer Vial Port Door Open	The Analyzer's vial port door is opened. Please close the vial port door to run an analysis using the Autosampler.
10502	Error	Autosampler	The instrument has encountered an Autosampler error. Please power cycle the instrument and the Autosampler If problem the persists, please contact technical support.

Number	Level	Short Description	Warning/Error Message
10503	Error	Autosampler	The instrument has encountered an Autosampler error. Please power cycle the instrument and the Autosampler If problem the persists, please contact technical support.
10504	Error	Autosampler	The instrument has encountered an Autosampler error. Please power cycle the instrument and the Autosampler If problem the persists, please contact technical support.
10505	Error	Autosampler	The instrument has encountered an Autosampler error. Please power cycle the instrument and the Autosampler If problem the persists, please contact technical support.
10506	Error	Autosampler	The instrument has encountered an Autosampler error. Please power cycle the instrument and the Autosampler If problem the persists, please contact technical support.
10507	Error	Autosampler	The instrument has encountered an Autosampler error. Please power cycle the instrument and the Autosampler If problem the persists, please contact technical support.
10508	Error	Autosampler	The Autosampler is unable to lower the needle. Please check for any blockage.
10509	Error	Autosampler	The instrument has encountered an Autosampler error. Please power cycle the instrument and the Autosampler If problem the persists, please contact technical support.
10510	Error	Autosampler	The instrument has encountered an Autosampler error. Please power cycle the instrument and the Autosampler If problem the persists, please contact technical support.
10511	Error	Autosampler	The instrument has encountered an Autosampler error. Please power cycle the instrument and the Autosampler If problem the persists, please contact technical support.
10512	Error	Autosampler	The instrument has encountered an Autosampler error. Please power cycle the instrument and the Autosampler If problem the persists, please contact technical support.
10513	Error	Autosampler	The instrument has encountered an Autosampler error. Please power cycle the instrument and the Autosampler If problem the persists, please contact technical support.
10516	Error	Autosampler	Autosampler returned error INVALID_COMMAND_ERROR
10517	Error	Autosampler	The instrument has encountered an Autosampler error. Please power cycle the instrument and the Autosampler If problem the persists, please contact technical support.
10518	Error	Autosampler	The instrument has encountered an Autosampler error. Please power cycle the instrument and the Autosampler If problem the persists, please contact technical support.

Number	Level	Short Description	Warning/Error Message
10519	Error	Autosampler	The instrument has encountered an Autosampler error. Please power cycle the instrument and the Autosampler If problem the persists, please contact technical support.
10520	Error	Autosampler	The instrument has encountered an Autosampler error. Please power cycle the instrument and the Autosampler If problem the persists, please contact technical support.
10521	Error	Autosampler	The instrument has encountered an Autosampler error. Please power cycle the instrument and the Autosampler If problem the persists, please contact technical support.
10522	Error	Autosampler	The instrument has encountered an Autosampler error. Please power cycle the instrument and the Autosampler If problem the persists, please contact technical support.
10523	Error	Autosampler	The instrument has encountered an Autosampler error. Please power cycle the instrument and the Autosampler If problem the persists, please contact technical support.
10524	Error	Autosampler	The instrument has encountered an Autosampler error. Please power cycle the instrument and the Autosampler If problem the persists, please contact technical support.
10600	Error	Autosampler	The instrument has encountered an Autosampler error. Please power cycle the instrument and the Autosampler If problem the persists, please contact technical support.
10601	Error	Autosampler	The instrument has encountered an Autosampler error. Please power cycle the instrument and the Autosampler If problem the persists, please contact technical support.
10701	Error	Autosampler	The instrument has encountered an Autosampler error. Please power cycle the instrument and the Autosampler If problem the persists, please contact technical support.
10702	Error	Autosampler	The connection to the Autosampler is lost. Please check the cable or the connection.
10703	Error	Autosampler	The connection to the Autosampler has timed out. Please check the cable or the connection.
10704	Error	Autosampler	Unable to connect to the Autosampler. Please check your cable or make sure the Autosampler is turned on.
10705	Error	Autosampler	The instrument has encountered an Autosampler error. Please power cycle the instrument and the Autosampler If problem the persists, please contact technical support.
10706	Error	Autosampler	The instrument has encountered an Autosampler error. Please power cycle the instrument and the Autosampler If problem the persists, please contact technical support.

Number	*Level*	*Short Description*	*Warning/Error Message*
10707	Error	Autosampler	The instrument has encountered an Autosampler error. Please power cycle the instrument and the Autosampler If problem the persists, please contact technical support.
10708	Error	Autosampler	The instrument has encountered an Autosampler error. Please power cycle the instrument and the Autosampler If problem the persists, please contact technical support.
10709	Error	Autosampler	Autosampler model is not supported.
10710	Error	Autosampler	The vial size specified is not supported by the Autosampler model.
10711	Warning	Autosampler	The Autosampler is unable to lower the needle. Please check for any blockage. The analysis will continue on the next vial.

NOTES