

# ProRAE Guardian Quick Start Guide

Version 1.0 – February 23, 2016



*This Quick Start Guide provides the initial setup and general air monitoring using ProRAE Guardian software. ProRAE Guardian is a proprietary program licensed by RAE Systems that has been installed on the host computers that accompany the EPA AreaRAE Rapid Deployment Kits. The directions below will guide the operator through the process of setting up an air monitoring network and interfacing with that network through the ProRAE Guardian.*

## 1.0 ProRAE Guardian Deployment Kit Components

The EPA AreaRAE Rapid Deployment Kit will be deployed with a computer with ProRAE Guardian installed and a RAELink 3 Host, as shown in the picture below:



RAELink 3 Host

To set up the ProRAE Guardian host computer, connect the cables to the device or port with the same letter. In order to provide power to the host computer and RAELink 3 host, an extension cord must be connected to the Pelican case through a power inlet on the outside of the case. Other connections include: the RAELink 3 Host connection to the computer through a USB to serial connection, the power cord to the computer, and the power cord to the RAELink Host. The power cord to the host computer and RAELink 3 host are connected to an outlet beneath the foam padding, which is connected to the power inlet on the outside of the Pelican case. A picture of the completed ProRAE Guardian deployment kit is found below.

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## 2.0 Initiating ProRAE Guardian

Prior to initiating ProRAE Guardian it is advisable to set up the air monitoring network in an area close to where the ProRAE Guardian host computer is located. Follow the EPA's quick start guides for the selected air monitoring equipment (AreaRAEs, RAELink 3, and/or MultiRAE Pro) and calibrate as necessary. To connect the MultiRAE Pro to the ProRAE Guardian network follow the quick start guide for RAELink3/3 Mesh. The AreaRAE can connect directly with ProRAE Guardian. Once the equipment is operational, follow the instructions below.

Turn on the computer. After turning on the computer, a screen will prompt the operator to type in a computer administrator password. This administrator password is provided on the laptop in the lower, left corner of the host computer. Once the password is successfully entered, the computer will enter its normal startup sequence. To start ProRAE Guardian proceed with the following steps:

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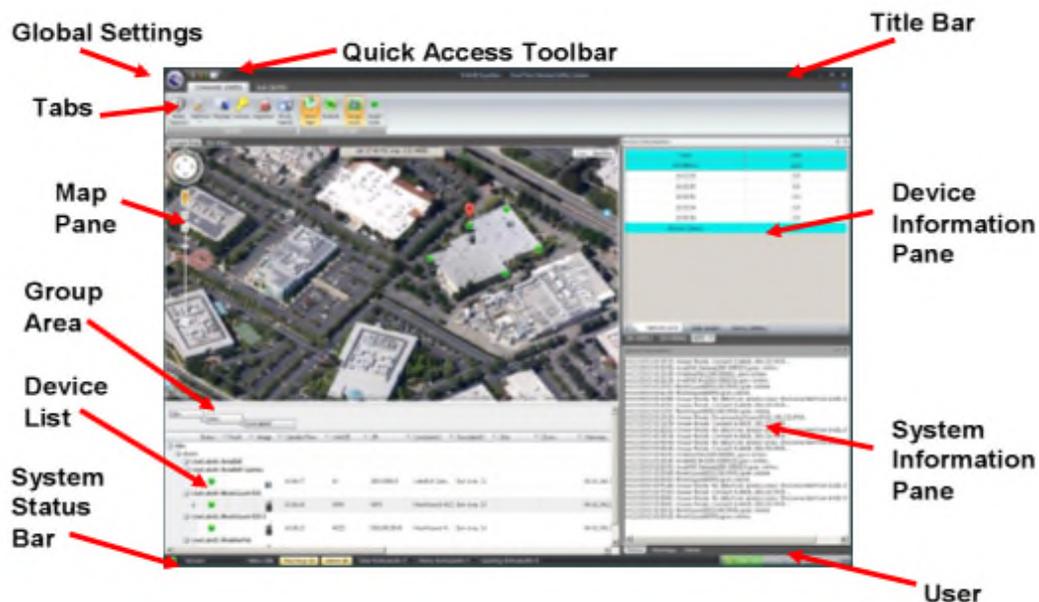


1. Connect the computer to the internet via a wireless hotspot or physical connection.
2. Prior to opening ProRAE Guardian the RAELink 3 host should be powered on and communicating with the host computer. If the RAELink 3 host is not powered on and communicating with the host computer, data will not transmit between the instruments and host computer. As a result, instruments will not appear in the Device List.
3. Start ProRAE Guardian by double-clicking on the following icon.



4. If the ProRAE Guardian icon is not on the computer's desktop screen, the operator can launch it by following this path:  
Start >> Programs >> RAE Systems by Honeywell >> ProRAE Guardian >> ProRAE Guardian
5. Upon opening the ProRAE Guardian software, the user interface will appear as shown below. See Section 3.0 for a detailed discussion regarding the ProRAE Guardian features.

## ProRAE Guardian User Interface Screenshot



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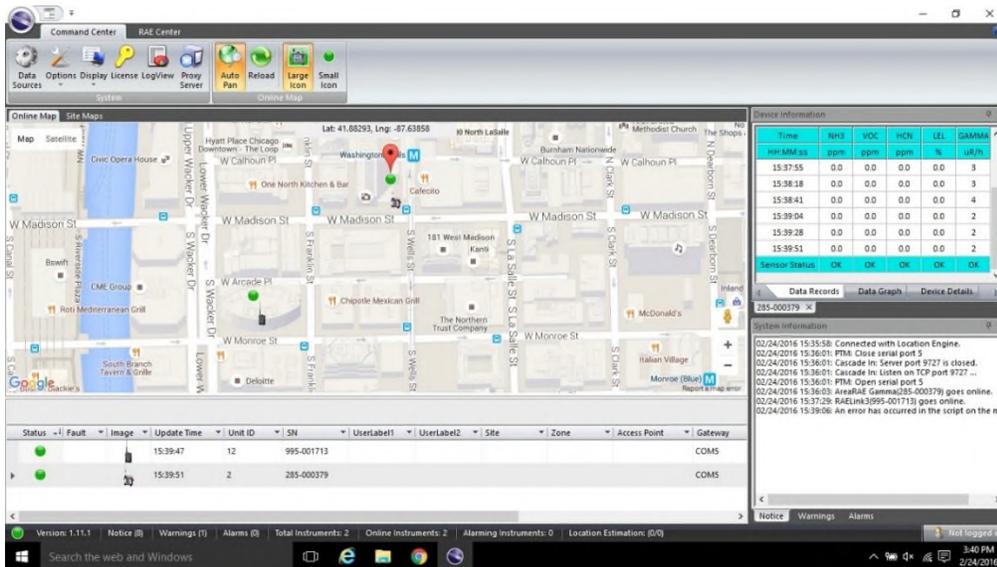


- Depending on the distance of the air monitoring equipment to the host computer, line-of-sight obstructions, and weather conditions, air monitoring equipment may take several minutes to transmit data to the host computer. If air monitoring equipment is not immediately registered on the Device List, allow several minutes for the RAELink 3 Host to locate and connect with the instruments. For a persistent problem refer to the quick start guide on RAELink3/3 Mesh.

## 3.0 ProRAE Guardian User Interface

The ProRAE Guardian User Interface refers to the main screen once the program is opened. The user interface can be modified to expand or contract existing panes or add new panes by using the “Display” button in the Quick Access Toolbar

### ProRAE Guardian User Interface Screenshot



### 3.1 Command Center

The Command Center encapsulates the real-time functionality of ProRAE Guardian. It includes real-time instrument readings, maps, and datalogs.

#### Quick Access Toolbar

The Quick Access Toolbar is a section of the Command Center that is a way to have easy access to the most commonly used functions in ProRAE Guardian. This toolbar can be customized to best fit the user’s needs.

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To customize the Quick Access Toolbar, click on the downward facing arrow in the top right corner of the interface.



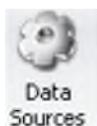
## System Tab

The System area of the Command Center provides access to the tools needed to set up ProRAE Guardian, change options, and other features, which are all outlined in the following sections.



## Data Sources (PTM)

When the Data Sources button is clicked, a window appears with four tabs where settings are chosen and input that help to configure the software for the computer running ProRAE Guardian.



Three types of data sources can be configured to match the source:

**PTM** Point To Multipoint, for use with RAELink3 or RAELink2 modem

**RCS** Remote Communication Standard, for use with RAE Systems mesh radio-equipped devices, such as MeshGuards

**Modbus** Data from equipment using Modbus protocol

**Remote Data In** Data from external sources via ProRAE Guardian's XML interface

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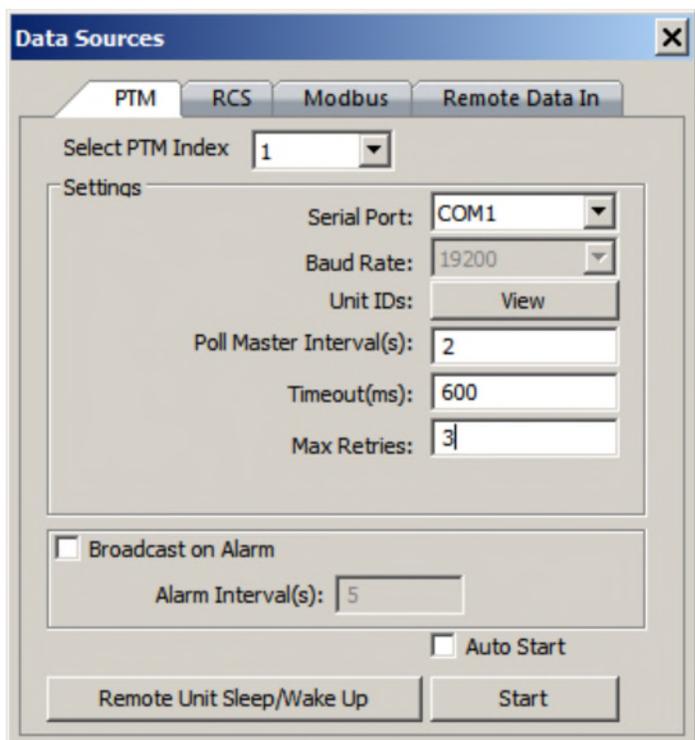
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## *Point to Multipoint (PTM)*

The PTM tab in the Data Sources menu allows configuration with AreaRAEs and other monitors via RAELink 3 devices operating in Host mode.

### Data Sources Menu Screenshot



## *Serial Port*

Serial Port refers to the USB port being used by a compatible modem/device is sensed by the program and preselected. In order to change the selected Serial Port, the operator should ensure the “Start” button is not in the on position. This will allow any of the COM ports available on your system to be selected. If ports do not show up, it could be the result of ProRAE Guardian not detecting any available local COM ports.

## *Baud Rate*

The baud rate is the transmission rate at which data flows between computers, and is equivalent to the number of bits per second (bps). For proper data transfer, the baud rate must be the same at the

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transmitting and receiving ends of a connection. The default setting for the baud rate is fixed at 19200 bps. **This setting should not be changed.**

## *Unit IDs*

Clicking the “View” button under “Unit IDs” opens up the Unit IDs dialog box. This box has two modes: Normal and Diagnostic. The default is Normal mode. In Normal mode, ProRAE Guardian shows a check next to each PTM channel on which it has detected an instrument. ProRAE Guardian automatically detects any instrument broadcasting on any of the 64 available channels.

In Diagnostic mode, ProRAE Guardian measures the efficiency of each channel and shows the percentage of successful transmission attempts.

## *Poll Master Interval*

The Poll Master Interval determines the minimum update interval for every active remote monitor. When ProRAE Guardian is in operation, it will poll all active remote detectors in sequence. The Poll Master Interval is the channel reading update interval. ProRAE Guardian polls for data according to the Poll Master Interval. The number range is 1 to 60 seconds, and the default is 2 seconds.

## *Timeout (ms)*

Every time ProRAE Guardian polls an instrument for data, it waits for a response. If a valid response is received within the Timeout time, ProRAE Guardian will then poll other active monitors in sequence. If a valid response is not received within the Timeout interval, ProRAE Guardian will resend the request. The range is 200 to 800 milliseconds (ms), and the default is 600 ms. After ten attempts of polling an instrument without a valid response, ProRAE Guardian will designate the instrument as offline.

## *Max Retries*

Max Retries displays the number of times the host computer will resend requests to an instrument before “one failure of communication” for the instrument occurs. When ten consecutive failures of communication occur, the status indicator for that instrument changes from green to gray, and this monitor is then set to “offline.”

## *Broadcast On Alarm*

Checking the Broadcast On Alarm box enables ProRAE Guardian to send a signal that places all PTM devices in alarm when one PTM device goes into alarm.

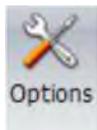
## 3.2 Options

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This toolbar icon opens the Options dialog box, which allows setting various display, alarm, and other functions.



The Options Dialog/Control window has four tabs:

**Data Options**

**Add-ons**

**Device Templates**

**Status**

## *Data Options*

The Data Options menu has five tabs and several features to configure parameters and provide insight and control for ProRAE Guardian and its data.

## **Data Options Screenshot**

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The screenshot shows the 'Data Options' dialog box with the 'Formats' tab selected. The dialog has a title bar with a close button. Below the title bar are several tabs: 'Formats', 'Alarm', 'Data Forwarding', 'Web Viewer', 'Care Center', and 'Platform'. The 'Formats' tab contains four sections: 'Data Display' with input fields for 'Records In Device Information View' (300) and 'Records Per Page in Log View' (2000); 'Date time Format' with dropdowns for 'Date Format' (mm/dd/yyyy) and 'Time Format' (HH:MM:ss), and radio buttons for 'GMT' and 'Local Time' (selected); 'GPS Format' with a text field for coordinates (Lat: 37.25643; Lng: -121.89532) and radio buttons for 'Decimal' (selected) and 'Degree'; and 'Measurement Unit' which contains a table with columns 'Category' and 'Unit', and buttons for 'Add', 'Remove', and 'Edit'. The table lists 'Radiation' (uR/h), 'Wind Speed' (mph), and 'Temperature' (°F). At the bottom of the dialog are 'Set' and 'Cancel' buttons.

## *Formats*

Formats is where you set the way in which data is presented. There are four sections, Data Display, Date time Format, GPS Format, and Measurement Unit. These settings should be set to what is shown in the screenshot above unless otherwise specified.

## *Alarm*

The Alarm tab provides options for local and remote notification when ProRAE Guardian receives alarm data from its network.

## ***Enable Off-Line Alarm Notifications***

If this is checked, the Off-line Alarm feature is activated, ensuring that you are informed in cases when remote instruments lose connection with ProRAE Guardian.

## ***How the Off-Line Alarm Works***

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ProRAE Guardian starts to check the online instrument number once the number is equal to (or greater than) the value of “Minimum Online Devices” (refer to the next screen image). When some instruments go offline (as a result of their power being turned off or because of lost communication with ProRAE Guardian) and if the online instrument number drops below the value of “Minimum Online Devices,” ProRAE Guardian activates the Off-line Alarm.

A screenshot of the "Data Options" dialog box, specifically the "Alarm" tab. The dialog has a title bar with "Data Options" and a close button. Below the title bar are several tabs: "Formats", "Alarm" (selected), "Data Forwarding", "Web Viewer", "Care Center", and "Platform". The "Alarm" tab contains several settings: "Enable Offline Alarm Notification" (checked), "Minimum Online Devices" (8), "Bring Window to Top on Alarm" (checked), and "Enable PC Voice" (unchecked). Under "Send Email Notifications on Alarm" (checked), there is a sub-section for "Attach ProRAE Guardian Screen Snapshot in Email" (checked). This sub-section includes fields for "SMTP Server" (mail.corp.hammlabs.com), "SMTP Port" (25), and a checkbox for "My Server requires secure connections. (SSL/TLS)" (unchecked). Below these are fields for "User Name" (Robert Jones), "Password" (masked with dots), "Sender" (rjones@hammlabs.com), and "Receiver(s)" (fsmith@hammlabs.com). A "Send a Test Email" button is located below the "Receiver(s)" field. To the right of the email settings is a "Note" box with two instructions: "1. Use semicolon(;) to separate multiple receivers." and "2. Please send a test email to verify the settings." At the bottom of the dialog are "Set" and "Cancel" buttons.

## ***Minimum Online Devices***

The minimum number of devices that should remain online to prevent the system from sending an “offline” alarm notification.

## ***Bring Window to Top on Alarm***

When this is checked, the ProRAE Guardian window comes to the top if you have other applications open on your computer, ensuring that you are informed of any alarm state changes.

## ***Enable PC Voice***

When this is checked, a voice reads any information that is shown in the System Information pane. This lets you know when ports are opened or closed, when a monitor goes into or out of alarm, etc.

## ***Send Email Notifications on Alarm***

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If the host computer is connected to the Internet via a LAN, checking this option enables email alarm notification. The alarm time, monitor number, and the reason (pump blocked, concentration of some gas is too high, etc.) is included in the email.

## ***Attach ProRAE Guardian Screen Snapshot in Email***

Enable this by checking the box. This captures ProRAE Guardian's image and sends it as an attachment with the email to whoever is notified.

## ***SMTP Server***

Adding proper settings under "SMTP Server" may require that you get this information from your I.T. department (they may also have to supply a "User Name" and "Password" for you). Once all settings are done, use the "Send a Test Email" button to send a test email.

## ***SMTP Port***

This controls the port for which outgoing mail connections will be accepted.

## ***My server requires secure connections (SSL/TLS)***

This security option may need to be set depending on security options required by your systems administrator.

## ***User Name***

This edit box shows the username used for authentication on the SMTP server (Extended SMTP). If the SMTP server does not require authentication, leave it blank.

## ***Password***

This edit box shows the password companion with the User Name used for authentication on the SMTP server (Extended SMTP). If the SMTP server does not require authentication, leave it blank.

**Note:** There are various authentication methods (LOGIN, CRAM-MD5, PLAIN, etc.) for Extended SMTP. ProRAE Guardian only supports the most common "Login" method that uses BASE64 coding. Contact IT support for more information about your SMTP server.

## ***Sender***

This edit box shows the originator (source of alarm) of the alarm email.

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## *Receiver(s)*

In this edit box, input the destination email address of the manager who is in charge of alarm notification circulation. If you want to send emails to multiple addresses, separate them with a semicolon (“;”), but do not place spaces between them or in the addresses.

## *Send a Test Email*

Clicking this button sends a test email to the destination email address. This is to be used for testing the Internet Email configuration.

**Note:** It is recommended that you test the email function to make sure it works when configuring the email parameters.

The other four tabs in “**Data Options**” (*Data Forwarding, Web Viewer, Care Center, Platform*) are not applicable to the scope of work being performed using ProRAE Guardian.

## *Display*

This group of parameters governs the number of displayed records, date and time format, and measurement units.



When you are done making changes, click “Set” to implement them and to close the dialog box. If you wish to exit without implementing the changes, click “Cancel.” No changes are made, and the dialog box closes.

### *Reset Panes*

When “Reset Panes,” is clicked, the panes are reconfigured to their default sizes and locations.

### *View/Hide Panes*

When “View/Hide Panes,” is clicked, you can show or hide the Device Information and/or System Information panes.

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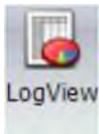


## Map Pane

You can turn tooltips on and off for the Map Pane.

## Log View

Log View allows the operator to review the datalog from each of the instruments while the instruments are deployed. The datalog can be viewed as a summary, spreadsheet, or graph.

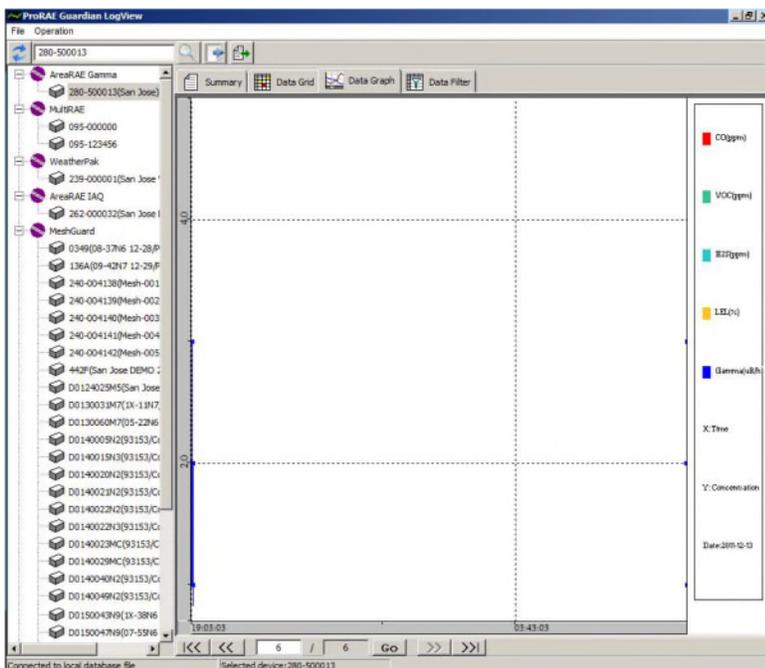


When the Log View button is clicked, a window with two panes appears:

**Left Pane:** Navigation of the monitors/nodes

**Right Pane:** Query, Export Summary, Data Grid, Graph, Filtered Grid

## Log View Screenshot



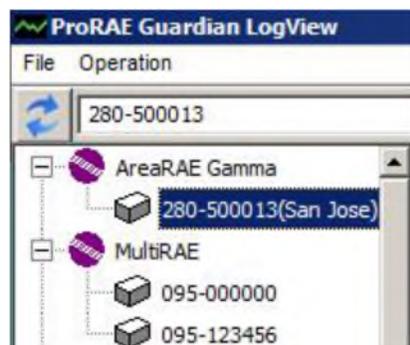
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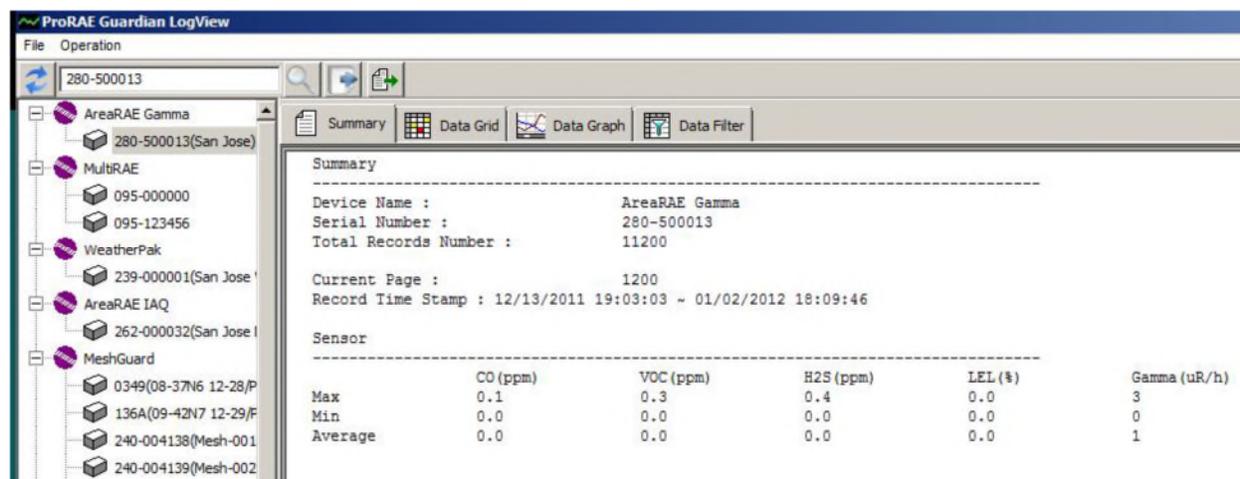
## Viewing an Instrument's Information

To view information about a specific instrument, double-click on the instrument serial number that appears below the name of the type of device.



After a few seconds, the right pane will display the datalog information from the instrument, which is shown in summary form under the Summary tab.

## Log View: Summary Screenshot

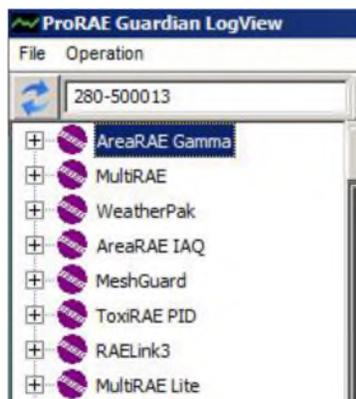


## Compacting/Expanding/Updating the Device List

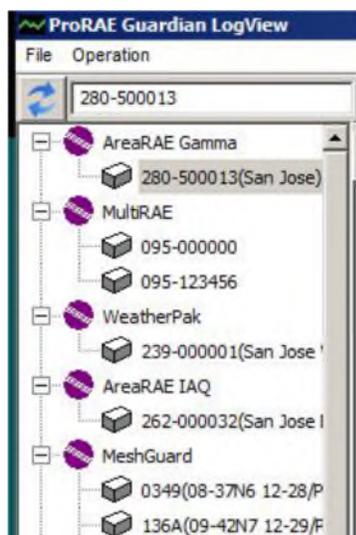
The list of instruments can be compacted by clicking on the “-” sign to the left of each instrument’s name. When they are compacted, only the device type is shown (each of the instruments of that type are hidden), and a “+” sign appears to the left.

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Open each of them again by clicking on the “+” sign.



To refresh the Instrument List, click this icon:



## *Query Button*



Click this button instead of double-clicking the instrument in the stack on the left side. Like double-clicking a particular instrument, clicking the Query button will display the datalog information.

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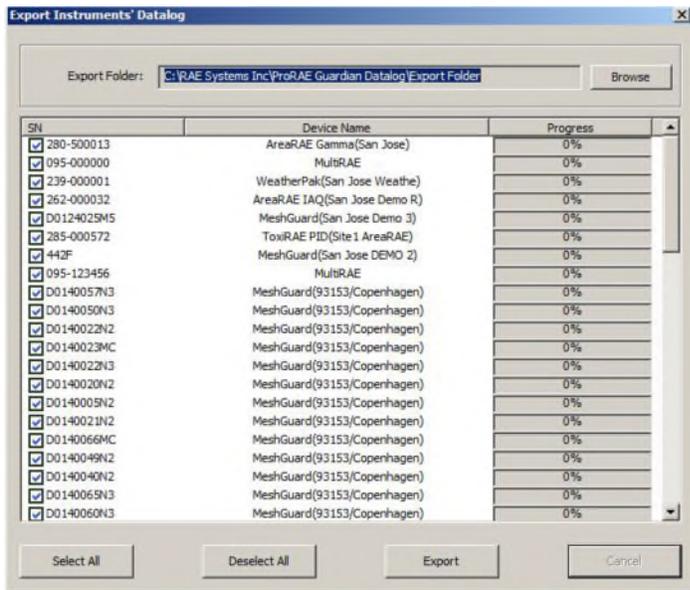
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## Export Multiple Instruments' Datalog

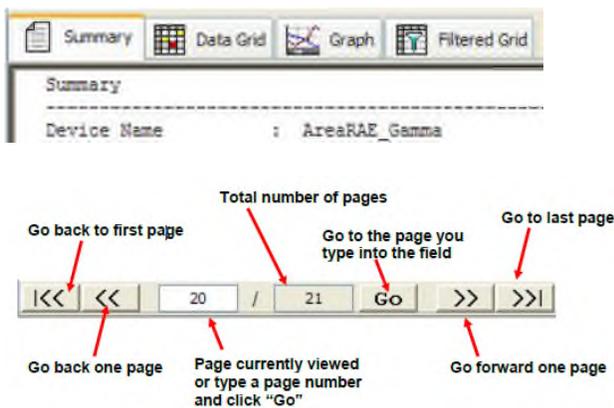


Clicking the “Export Multiple Instruments’ Datalog” button saves the data from all the instruments in the list as a .csv file to the computer or a drive for processing and storage. The data in the files can then be viewed in a spreadsheet or processed by using software such as Microsoft Excel.



## Summary

The Summary tab provides a summarized view of a specific device’s data. These summaries are organized by pages. The operator can navigate them by using the navigation buttons along the bottom of the page:



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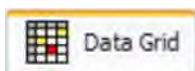
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The summary tab shows the Maximum, Minimum, and Average readings for the run, for each sensor, for the selected instrument.

## Data Grid

Data Grid displays the datalog in a spreadsheet format, showing individual sensor readings at each interval. Use the same navigation described on the Summary tab to go from page to page.



## Graph

The Graph tab provides a graphic display of the datalog information, using different colors to display individual sensor readings, with concentrations (or other values) plotted against time. Use the same navigation described on the Summary tab to go from page to page.



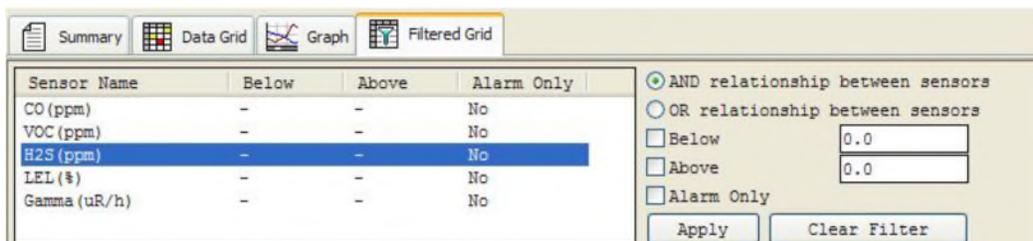
## Filtered Grid

Filtered Grid allows you to create and use “and/or” relationships and level-detection filters to customize which data appears in the grid. It also allows you to select only entries in which an alarm was triggered.



Here is an example of how you can use this tool to tailor what you see in your data grid.

1. Click on one of the sensors in your list.



2. Choose “AND relationship between sensors” or “OR relationship between sensors.”

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A dialog box for configuring sensor relationships. It has two radio buttons: "AND relationship between sensors" (selected) and "OR relationship between sensors". Below these are three checkboxes: "Below", "Above", and "Alarm Only". To the right of "Below" and "Above" are two empty text input boxes. At the bottom are "Apply" and "Clear Filter" buttons.

3. Now select “Below,” “Above” by clicking in the checkbox. If “Below” or “Above” are selected, supply a value by typing it into the box to the right of the appropriate checkbox. Note that the units are the same as those shown in parentheses after the name of the sensor. A choice of “Alarm Only” tells the filter that you only want data that occurs during an alarm.

## 3.2 System Status Bar

The System Status Bar, located at the bottom of the window, indicates whether the system is online (green dot). The System Status bar also provides information regarding notices, warnings, and alarms during the session.



Information provided on the System Status bar can be customized to the operator’s preferences. To configure the information provided on the System Status bar, right-click on any item in the bar. Items can be selected by clicking on each item to view or hide it in the System Status bar.

Status Bar Configuration	
<input checked="" type="checkbox"/>	System Status System is normal.
<input checked="" type="checkbox"/>	Version Version: 1.6.0
<input checked="" type="checkbox"/>	Notice Notice (2)
<input checked="" type="checkbox"/>	Warnings Warnings (0)
<input checked="" type="checkbox"/>	Alarms Alarms (0)
<input checked="" type="checkbox"/>	Number of instruments connected. Total Instruments: 6
<input checked="" type="checkbox"/>	Number of online instruments. Online Instruments: 6
<input checked="" type="checkbox"/>	Number of instruments with sensor alarm or fault alarm. Alarming Instruments: 0
<input checked="" type="checkbox"/>	User Information User: administrator Autologoff in 00:29:58

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