

AirVision



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Introduction to

AirVision Concepts

Welcome to AirVision, the first software that addresses current air monitoring needs while accommodating future technical innovations. Developed by industry veterans and engineered from the ground up in response to users' needs, AirVision is the first software to successfully combine:

- ◆ Open data acquisition and import
- ◆ Combined -Data and Quality Assurance tools
- ◆ Post-processing/Workflow
- ◆ User-defined shortcuts for communication activities
- ◆ Sophisticated data relationships

Open Data Acquisition and Import

AirVision supports an open system of modular drivers that can be added to provide connectivity to any source of data. The driver manages the details of data collection and uses standard interface to exchange data with AirVision's core. Third parties and end users can construct new drivers for AirVision, providing an open solution to manage future requirements. AirVision is designed specifically along the concept that eventually networks (or significant parts of networks) will consist of smart instruments connected to a central AirVision data management hub through broadband connections.

To normalize these data sources, AirVision utilizes an open system that allows any end user or company to develop drivers for a particular data source. The driver incorporates all the necessary knowledge and logic to collect data and return data to the database through a standardized data access layer.

Combined Data Editing and QA Tools

To optimize quality assurance, AirVision opens up the process between data collection and final reporting through an open modular approach. Open Data Processors can be scheduled and triggered by the Task Manager to automate quality assurance while also controlling the points of data access and display, such as AIRNow and web presentation.

The Automatic Data Validation Processor Module (ADVP) assigns a quality grade (1-10) for each data point based initially on instrument/data logger flags, but allows you to generate rules that affect the quality code. The ADVP can be triggered to run automatically after data collection to grade each data point, and the quality grade can be used to prevent suspect or bad data from being published to the web or shared with other organizations.

The grades can also be used to focus quality assurance efforts on the most suspect data points. Data can be compared against other parameters at the same site, different sites (spatial testing), or historical composite values for that particular parameter and/or site (e.g., comparing this hour's value to the same hour and day of the week over the previous five years). ADVP functions also include persistency checks.

Post-processing Workflow

AirVision's post-processing of data is not limited to data editing and other manual functions. Its powerful and expandable data post-processing capabilities optimize the quality assurance process.

AirVision opens up the process between data collection and final reporting through an open modular approach similar to Open Data Sources. Open Data Processors can be scheduled and triggered as defined by you in the Task Manager to automate quality assurance while also controlling the points of data access and display, such as AIRNow and web presentation.

These post-processing tasks can include:

- ◆ AQI calculations and forecasts
- ◆ Automatic data validation
- ◆ Zero or other calibration data adjustments
- ◆ Automated AQS coding
- ◆ Web publishing, tables, real-time charts and maps
- ◆ AIRNow or real-time Exchange Network transfers
- ◆ Email alarms
- ◆ Emailed reports
- ◆ Time skewing tape sampler data

The open approach also ensures that known data paths can be easily updated to meet changing requirements, such as future alterations in the AQI calculation process (changes based on new standards, possibly including more complex algorithms that take into consideration the synergistic health effects of PM and ozone, requiring a multi-variate algorithm to calculate a more representative measurement of health effect).

User-defined Shortcuts For Common Activities

The parameter editor allows you to define parameter data. In AirVision a parameter can come from any kind of data source--it is no longer correlated with data logger channels. The parameter editor contains basics such as units, EPA reporting codes, and graph limits. This editor allows you to enter/modify a list of parameter types that each parameter can be referenced to, so the application can more easily correlate parameters with different names (e.g., "O3" vs. "OZ" vs. "OZONE").

In E-DAS Ambient, many of these configurations had to be repeated for the same parameter at multiple sites, or an assumption was made regarding parameter names, such as ozone, to avoid the need for repetitive configuration entries. AirVision avoids the problems associated with this approach by using **EPA Parameter Names** and **Parameter Categories**.

Linking parameters to parameter types makes reporting easier and eliminates the necessity to link individual selections together (e.g., for AIRNow reporting). Instead, details can be configured for an EPA parameter type. The Parameter Template Editor can be used to add new template definitions if a suitable one cannot be found in the default list.

Parameter information can be auto-filled by selecting a parameter template and the option to auto-fill EPA codes and units. Units are selected from a pick list, so that unit conversions (e.g., ppm to ppb) and unit types (e.g., whether rainfall or solar radiation is totaled, not averaged) are handled automatically. The parameter editor also supports the designation of alternate analyzer units that differ from reporting and editing units for digital data acquisition where the analyzer reports data in units different from those the customer prefers (ppm vs. ppb). The conversion is handled at the time of data acquisition (polling, file import) and data is stored in the regular EPA units in the database.

In both the site and parameter editors, you will be able to create meta-data fields to handle customer-specific data fields, such as analyzer serial number and installation date.

Sophisticated Data Relationships

Our Agilaire customers have requested that AirVision handle new and more complex data relationships such as managing data from parameters in a hierarchical fashion. For example, PM filter data that may exist both as a total mass/concentration value, but also may consist in detailed breakdowns from speciation monitors or XRF (X-ray fluorescence) lab data. AirVision supports these relationships as part of its original design, a feature unique in its industry rather than as an afterthought or modification to an existing database.

Parameter configuration also allows the designation of a parent parameter to form parent-child relationships that can be used to drill down in the data editor. A typical example is designating analyzer diagnostic parameters, such as sample flow and box temperature, to be children of the primary analyzer pollutant value (e.g., NOx), so that a suspect reading could be investigated by drilling down in the data editor. Another use could be to group parents & children in a columnar data report.

Chapter 1

Installing AirVision

AirVision must be installed on Windows 7 / Server 2008 or better (through Windows 7/8 or Server 2008R2). 4GB of RAM is recommended. Before AirVision can be installed, the following software must be installed on your computer: **SQL Server 2008, SQL Server 2012, SQL Server 2014,** or **SQL Express** with all available service packs, as well as **.NET Framework includes versions 3.5SP1 and 4.0.** SQL will request that the Windows Component **Internet Information Services (IIS)** be added, but IIS is NOT necessary for AirVision and does not have to be enabled.

Below are the requirements for systems where AirVision and its database will be installed.

AirVision and SQL Server installed on the same machine:

- ◆ Windows 7, 8, 10, Server 2008R2, or Server 2012 -SQL Server 2008 R2, 2012, 2014
- ◆ Microsoft .NET Framework versions 3.5SP1 and 4.0.
- ▶ **Note:** I version 4.5 will be required beginning in 2016
- ◆ i7 processor or equivalent
- ◆ 6GB memory minimum, 8+GB recommended
- ◆ 500GB hard drive, 1TB recommended
- ◆ on board serial ports if modem polling still in use

AirVision only installed on machine (with SQL hosted elsewhere):

- ◆ Windows 7, 8, 10. Server 2008r2, or Server 2012
- ◆ Microsoft .NET ,ramework versions 3.5SP1 and 4.0.
- ▶ **Note:** I version 4.5 will be required beginning in 2016.
- ◆ i5 processor or equivalent
- ◆ 4GB memory minimum
- ◆ 100GB hard drive
- ◆ on board serial ports if modem polling still in use

SQL Server installed on machine (with AirVision installed elsewhere):

- ◆ Windows 7, 8, 10, Server 2008r2, or Server 2012 -SQL Server 2008 R2, 2012
- ◆ Microsoft .NET Framework versions 3.5SP1 and 4.0.
- ▶ **Note:** I version 4.5 will be required beginning in 2014**
- ◆ i5 processor or equivalent
- ◆ 4GB memory minimum
- ◆ 500GB hard drive, 1TB recommended
- ◆ reliable, high speed connection to AirVision server-firewall / security allowances for AirVision server to read, write, and execute against the SQL database ***If running in a virtualized environment, Windows and SQL Server 2012 are both strongly recommended due to known performance issues with earlier versions in virtual configurations.***

Installing Microsoft .NET Framework

If you don't already have .NET Framework versions 3.5SP1 and 4.0 installed on your computer, you can download it from the Microsoft website. Follow the instructions in the installation wizard.

Installing SQL Server

Before SQL Server can be installed, .NET Framework both versions 3.5SP1 and 4.0 must be installed.

⇒ **Important!** Although AirVision will operate with either SQL Server or SQL Express, SQL Express has a file size limit of 4G, so if you convert files from E-DAS Ambient to AirVision (i.e., to SQL files) you will run out of room quickly in SQL Express, especially if you are converting and collecting minute data. Even though SQL Express is a free download, Agilaire recommends that you start with the full version of SQL Server 2008 or 2012 to avoid upgrading later. SQL Express will stop functioning when it has reached its capacity of 4G.

To install SQL Server or SQL Express, insert the media with the installation set and follow the instructions in the wizard. In the first screen check the box to accept the license agreement and click **Next**.

The default features are sufficient in the **Feature Selection** screen, but you can select the program features you want installed. The most important feature to install is **Client Tools**. Click **Next**.

- Selecting the 'default' install instance is acceptable.
- System and Local Service accounts should be selected if not prepopulated.
- A desired user should be added as **admin**.

Agilaire recommends **Mixed Authentication Mode** for AirVision as well as AV-Trend (if you intend to use remote synchronization functions). You must enter and confirm a **password** for the System Administrator. Click **Next** to continue.

The remaining setup screens are self-explanatory. Follow the directions and click **Finish** in the **Completing Microsoft SQL Server Setup** screen.

- ▶ **Note:** If you set up SQL in **Windows Authentication mode**, you must must log in to SQL with Windows Authentication, not SQL Server Authentication, or the AirVision Service won't start.
- ▶ **Note:** If you install **SQL ServerExpress, Management Studio** (free download) is a separate installation. SQL Express must be installed first, before Management Studio. Management Studio will not work without SQL.

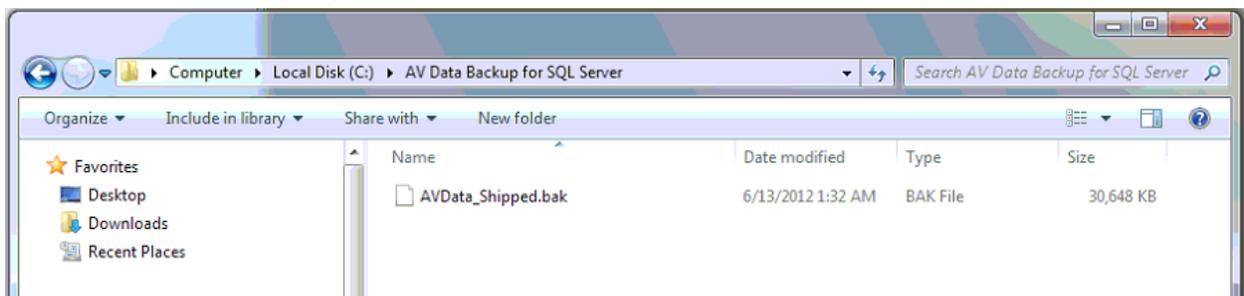
⇒ **Important!** If SQL Express is installed on the same computer as AirVision Server, the **SQL Express login name** must be **.\SQLEXPRESS** instead of your computer name.

SQL will request that the Windows Component **Internet Information Services (IIS)** be added, but IIS is not necessary for AirVision at this time and does not have to be enabled.

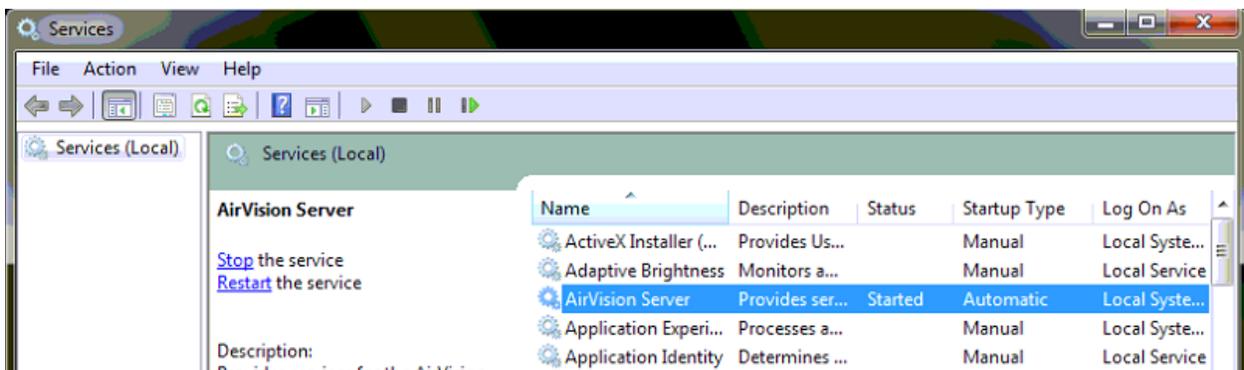
Installing the AirVision Database

After you have installed SQL Server:

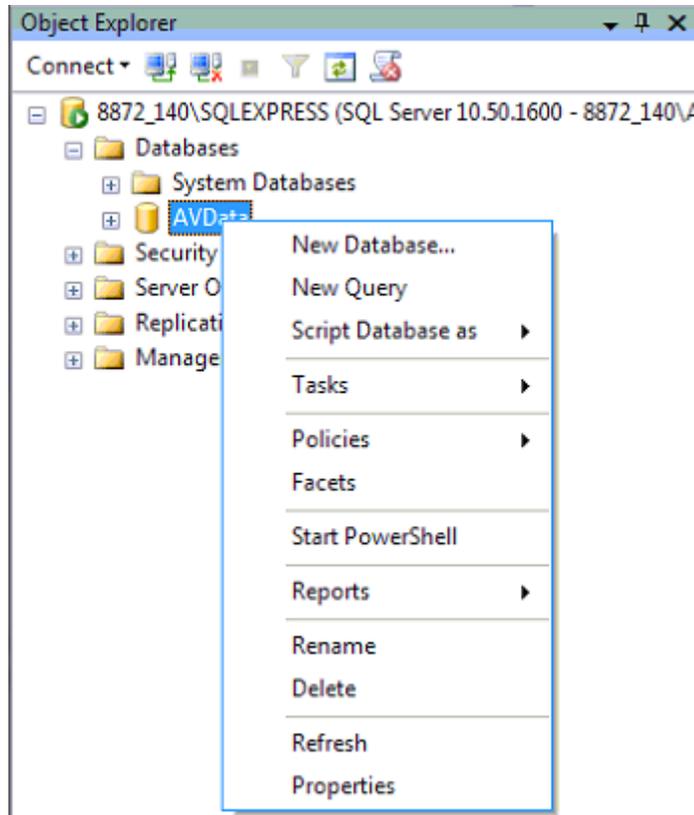
1. From the Windows **Start** menu, select **All Programs > Microsoft SQL Server** (or **Microsoft SQL Server 2008**) > **SQL Server Management Studio**.
2. Right-click the **Databases** folder and select **New Database**. For the **Database name**, enter **AVData** and click **OK**.
3. **Click** to select the database you just created (AVData).
4. Confirm you have an 'As Shipped' database backup.



5. Under Windows Services (under "Start" button), stop the AirVision Server service



6. Open SQL Server, log in, expand “Databases” on the left, right click on the AVData database and choose **Tasks->Restore Database**.



7. Select ‘**From device**’ and click the ‘...’ button.

Specify the source and location of backup sets to restore.

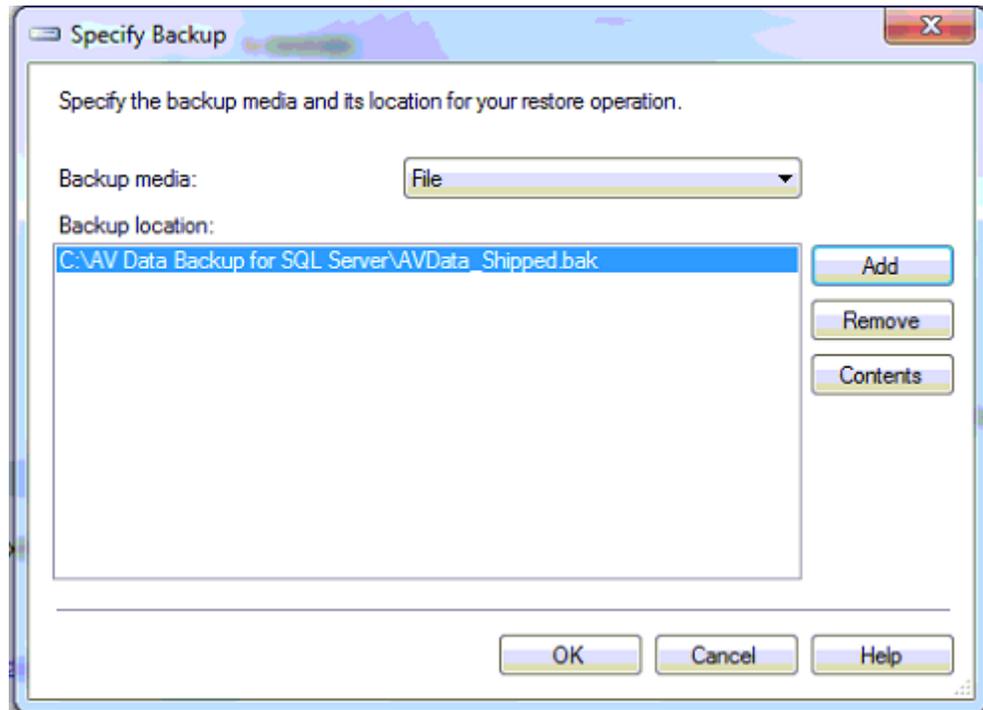
From database:

From device:

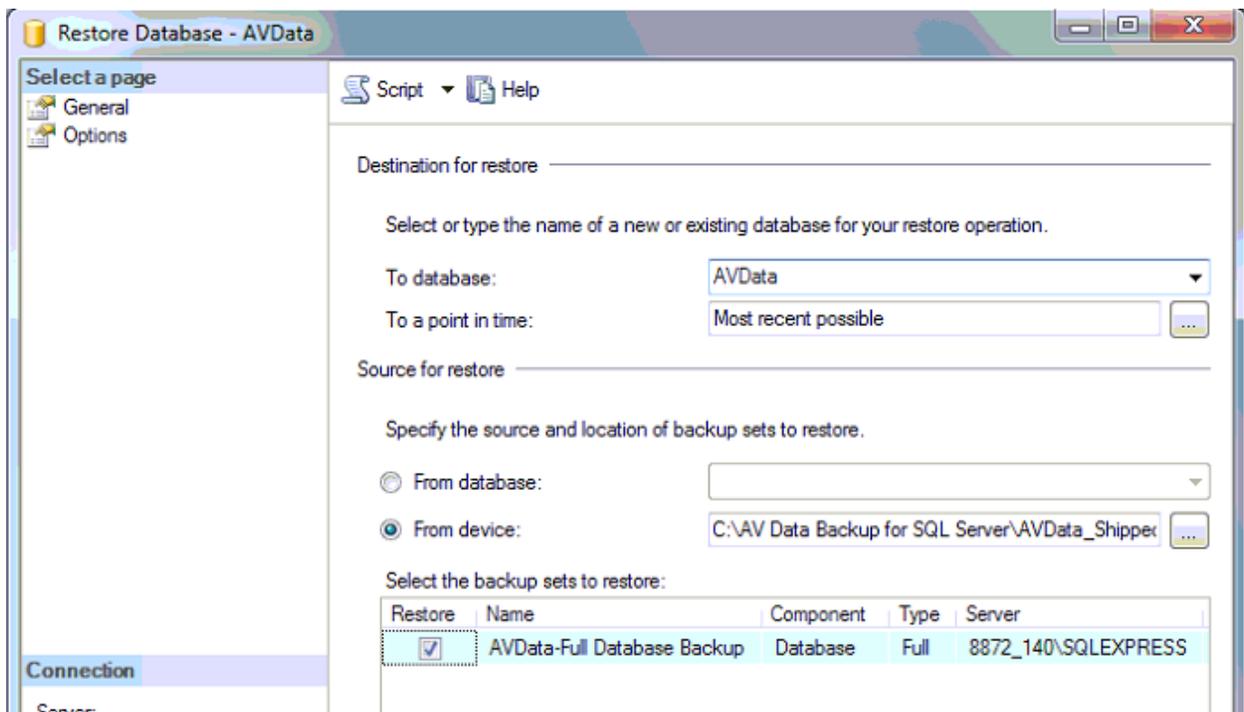
Select the backup sets to restore:

Restore	Name	Component	Type	Server	Database	Position	First LSN	Last LSN
---------	------	-----------	------	--------	----------	----------	-----------	----------

8. Select the AVData_Shipped.bak file provided by Agilaire, then click **OK**.



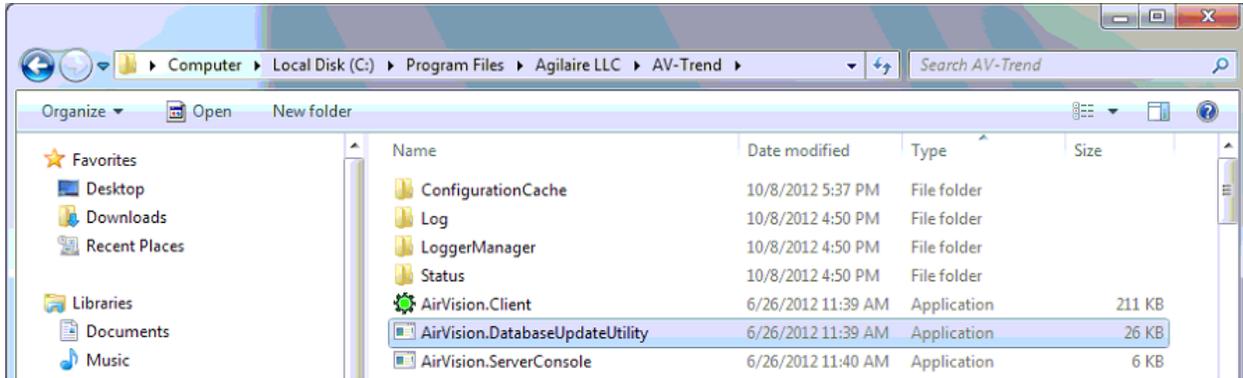
9. Set the 'To database' as AVData, place a check mark in the box next to the .bak file you selected, then click **OK**.



10. Once the restore completes, start the AirVision Server service that you stopped in step 3.

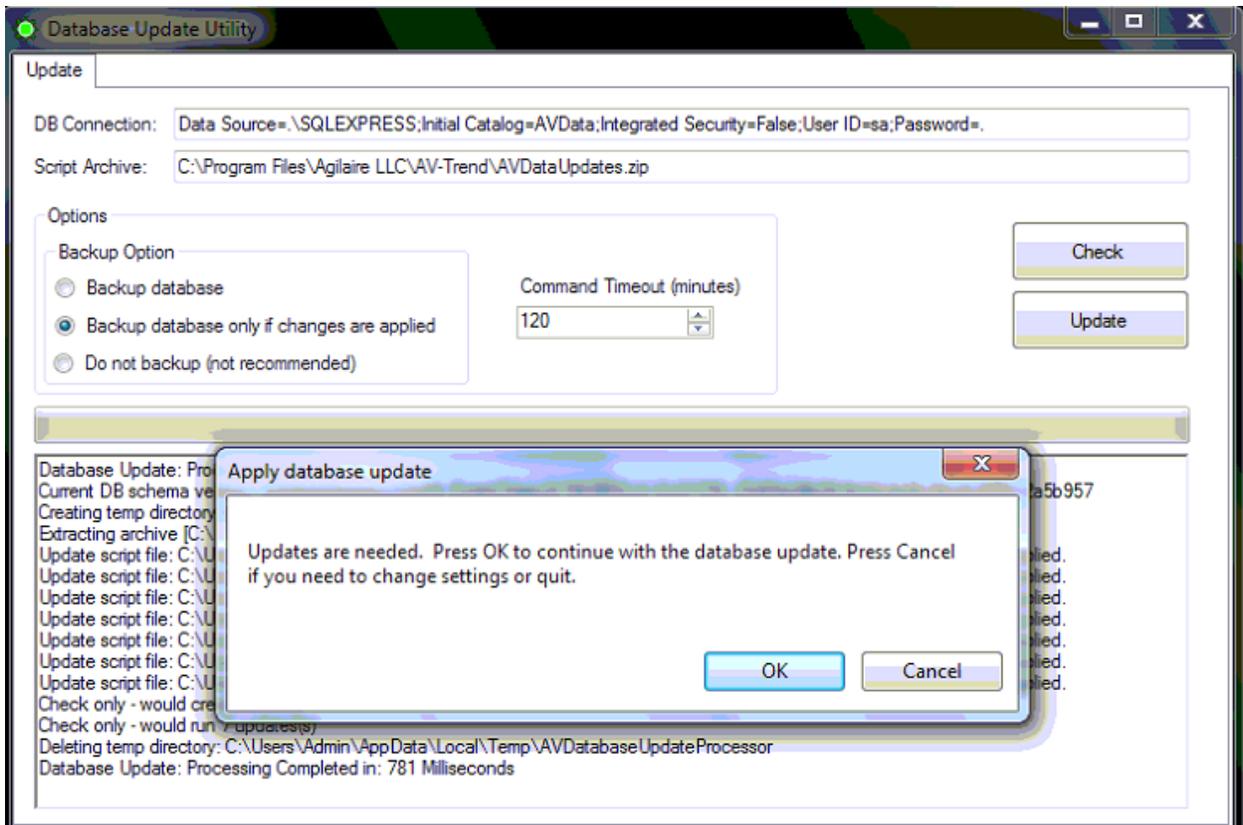
11. If you are not 100% certain that your database matches the version of the software you are running, navigate to **C:\Program Files\Agilaire LLC\AirVision\Server** and launch the **AirVision.DatabaseUpdateUtility**.

Screen cap has AV-Trend



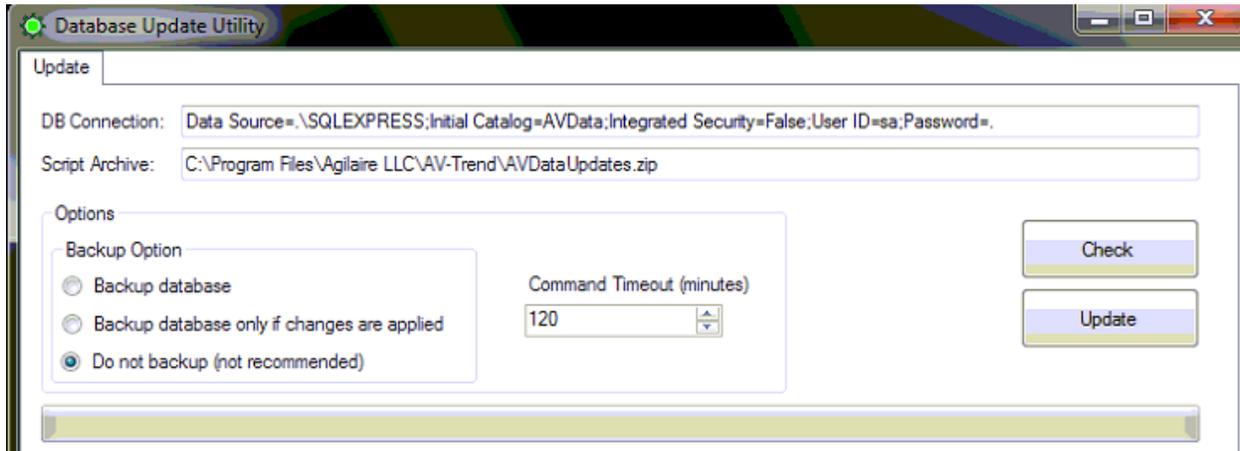
12. If you have a newer version of AirVision installed than what was originally loaded on the system, you will see the following window:

Screen cap has AV-Trend

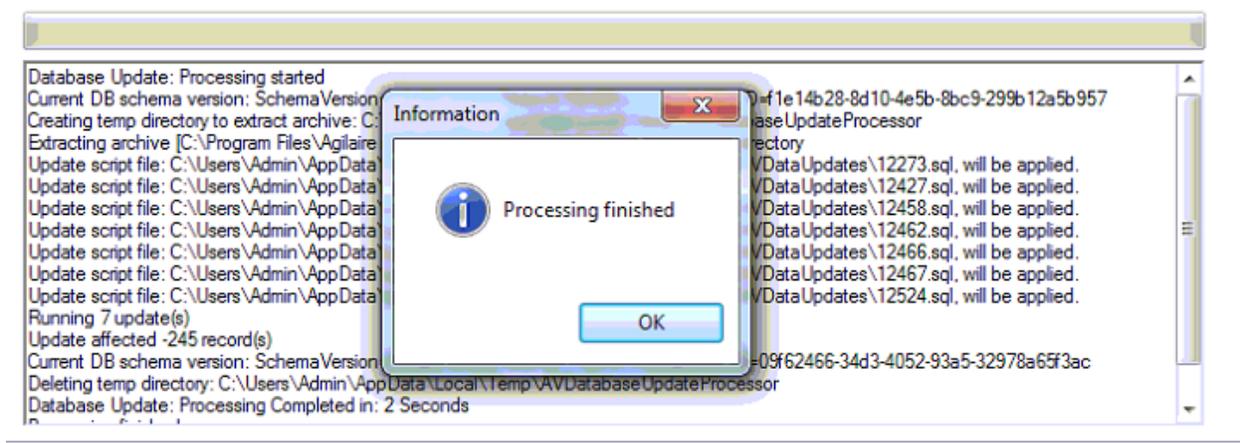


13. Click **Cancel**, then select the 'Do not back (not recommended)' option, click **OK**, then click the **Update** button.

Screen
cap has
AV-
Trend



14. When the updates complete, you should see the following message:



15. Close the Update Utility window.
16. Restart the AirVision Service.
17. SSMS and the Windows Services window can both be closed as well.

Installing the AirVision Server

1. After you run the appropriate script to install the database for the first time or upgrade the database as described in the previous section, continue to browse the AirVision installation media. Double-click to open the **Server** folder.
2. Within the **Server** folder, double-click to open the file **AVServerSetup.msi** to install the server part of the AirVision software for new installations, or **setup.exe** for upgrades.
3. When the installation begins, most of the screens are self-explanatory.
 - You will want to review and accept the **End-User License Agreement** in order to proceed with the install.
 - The default install directory is C:\Program Files\Agilaire LLC\Server (you can also browse to change the install directory if desired).
4. Click **Next** to accept the default destination directory (C:\Program Files\Agilaire LLC\Server) or browse to change the directory and then click **Next**.
5. The final screen will say the AirVision Server has been successfully installed. Check the selection box to launch the **Server Settings Editor** and click **Finish**.
6. You will be prompted if you want to install the AirVision Client. If you do not want to install the Client, unclick this box.

Running Standard or Enterprise SQL Server 2008/2012/2014

If you installed AirVision using either Standard or Enterprise SQL Server for your database, click the **Test Connection** button after the installation. You should see a message box saying your connection was successful.

Running SQL Server Express

If you are running SQL Express, you will need to make a change to the Database Server field in the Server Settings Editor (Windows **Start** menu/Agilaire LLC/AirVision/Server Settings Editor) for both the **Default Connection Settings** tab and the **Advance Settings** tab. Replace **local** with the name of the computer along with \SQLEXPRESS. For example, if the computer name is **yourcomputername**, then you would replace local with **yourcomputername\SQLEXPRESS**.

- ▶ **Note:** If you don't know your computer name, right click the **My Computer** icon on the Windows Desktop, select > **Properties** > **Computer Name** tab, and find **Full computer name**: The name given before the first period in the path is the computer name. The name given after the first period is the domain name, which is not needed for this step.

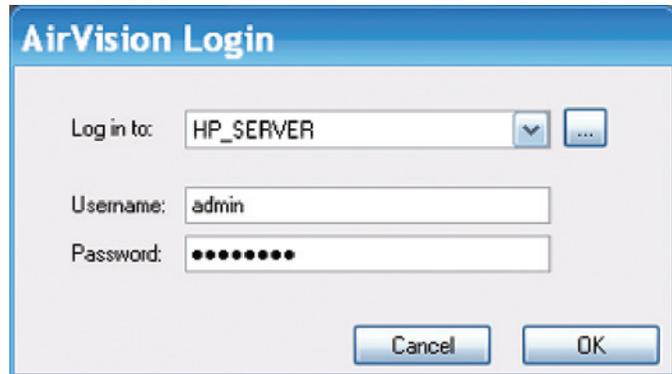
Don't make any other changes. Don't add any other characters or spaces or delete any previously existing characters or spaces because unnecessary changes can cripple the operation of the conversion utility. After you have replaced **local** with **yourcomputername\SQLEXPRESS**, save and close the file, then click the **Test Connection** button. If a successful message box pops up click **OK**, then click the **Save** button at the bottom right. You will not see anything happen when the **Save** button is clicked. After saving click the **X** button in the top right corner to close the screen.

Installing the AirVision Client on Secondary Computers

- ▶ **Note:** If you are upgrading AirVision from a previous version, you no longer have to uninstall the old version before you run the Client installation.
1. After you have installed the AirVision Server and the AirVision SQL database, continue to browse the AirVision installation CD (double-click to open **My Computer**, then right-click the **CD drive** and select **Open**). Double-click to open the folder **Client**. Within the Client folder, double-click to run **AirVisionClient_Installer.exe**. Click **Next** in the first screen to continue.
 2. Accept the license agreement and click **Next**.
 3. Enter your **User Name**, **Company Name** (optional), and the unique **Product ID** (required) supplied by Agilaire. Click **Next**.
 4. Click **Next** to accept the default destination directory (C:\Program Files\Agilaire LLC\Server) or browse to change the directory and then click **Next**.
 5. The final screen will say the AirVision Client has been successfully installed. Click **Finish**.

Logging In to AirVision

Double-click the AirVision icon on your desktop and log in to the AirVision Client. If you are logging in for the first time click the square button to open the **Profiles** screen.

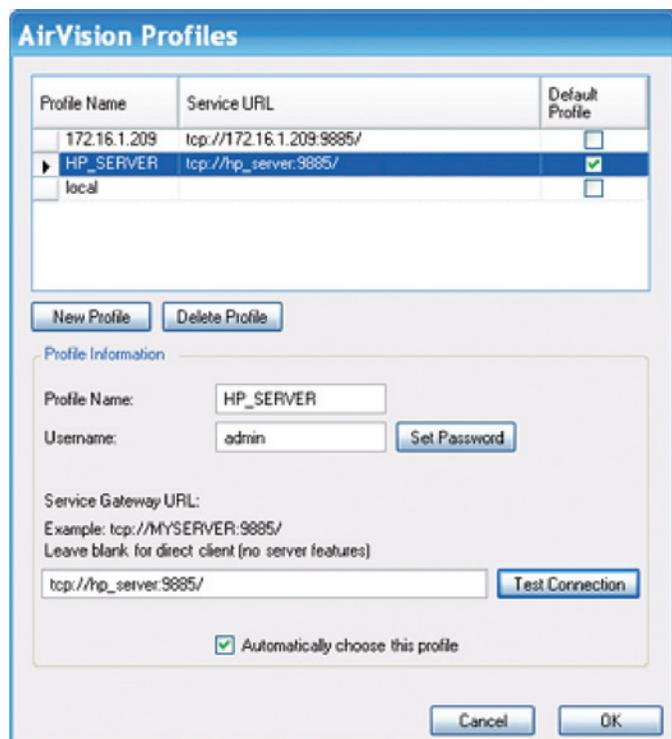


AirVision Login

In the profiles screen, click the **Add Profile** button. If your Server and Client are on the same machine, accept the default PC name, accept the default PC name. If you are installing a remote Client, change the default name in the box to the name of the server you wish to log into.

Enter **admin** as the **Username**, click **Set Password** and enter **Agilaire**.

Click the **Test Connection** button to see if AVTrend is communicating with the database.



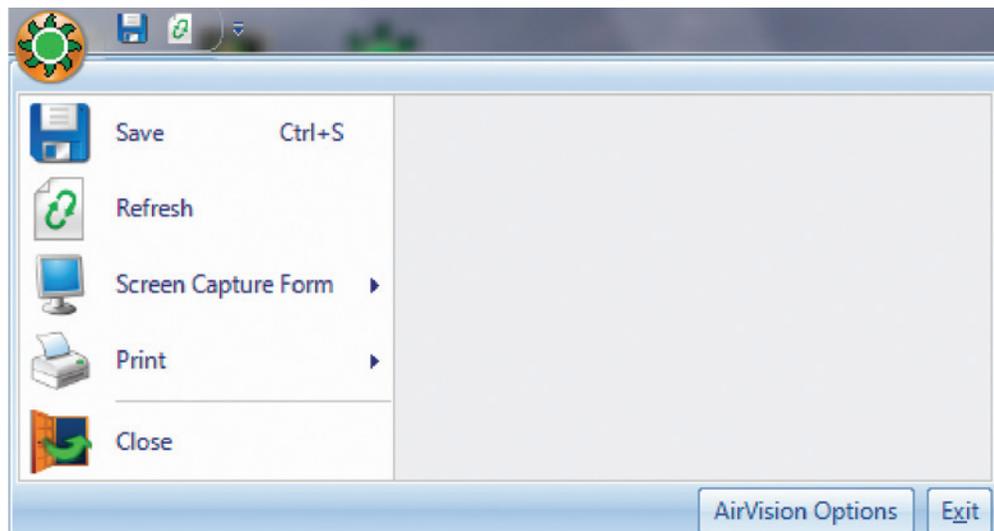
Air Vision Profiles

Text says AV-Trend

Accessing Profiles After Logging In

After you are logged into AirVision, you can access the Profiles screen by clicking the AirVision icon in the upper left corner of the screen (beside the **Save** icon). From this Profiles screen you can:

- ◆ **Save**
- ◆ **Capture** the AirVision screen
- ◆ **Print**
- ◆ **Close** the Profiles screen.
- ◆ You can also open **AirVision Options**, which brings up the same Profiles screen you saw when you logged in.
- ◆ You can close AirVision altogether by selecting the **Exit** button.



AirVision Profiles seen by clicking the AirVision icon in the upper left corner of the AirVision screen after you have logged in

Chapter 2

Configuring AirVision

AirVision provides nearly unlimited flexibility in setting up systems and configuring servers. This chapter explains how to set up the following parts of AirVision:

- ◆ Configuring System Preferences
Configuration Editors > Site/Parameter
- ◆ Importing (Converting) E-DAS Data
Utilities > EDAS Import
- ◆ Site and Parameter Setup
Configuration Editors > Site/Parameter
- ◆ Adding and Editing Sites
Configuration Editors > Site/Parameter
- ◆ Adding and Editing Parameters
Configuration Editors > Site/Parameter
- ◆ Configuring Parameter Templates
Configuration Editors > Parameter Template Editor
- ◆ Adding Loggers to Sites
Configuration Editors > Data Source Details
- ◆ Adding Channels to Data Loggers
Configuration Editors > Data Source Details
- ◆ Adding Communication Routes
Configuration Editors > Server Configuration
- ◆ Associating a Logger to a Logger Driver
Configuration Editors > Server Configuration
- ◆ Testing Your Connection
Utilities > Link to Logger
- ◆ Downloading Configurations
Utilities > Logger Download
- ◆ Setting up Calibrations
Configuration Editors > Data Source Details

Chapter 2

Configuring AirVision

- ◆ Scheduling Tasks
Configuration Editors > Task Scheduler
- ◆ Schedule Task Wizard
Configuration Editors > Task Scheduler > Run Schedule Wizard
- ◆ Task Display
Utilities > Scheduled Task Status
- ◆ Favorites Editor
Configuration Editors > Favorites Editor
- ◆ Configuring Security
Configuration Editors > Security
- ◆ GSI Driver Editors
Configuration Editors > GSI Driver Editor
- ◆ Configuring Reports
Configuration Editors > Report Configurations
- ◆ AIRNow/FTP Setup
Configuration Editors > Site/Parameter setup
- ◆ AQI Program Editor
Configuration Editors > Report Configurations > AQI Program Editor

For information about starting the AirVision Service and logging in to AirVision, see “Chapter 1 Installation.”

Configuring System Preferences

To set up system preferences, open the **Site/Parameter** screen from **Configuration Editors** and double-click the **System** icon. The System is the agency or area, such as Knox County or State of Tennessee. Typically, each agency setup will only have one System, but it is possible to set up more than one by clicking the **Add System** button. (A second system could be used to help separate, for example, air toxics or water quality data from the other quality data).

Enter the following:

System Name

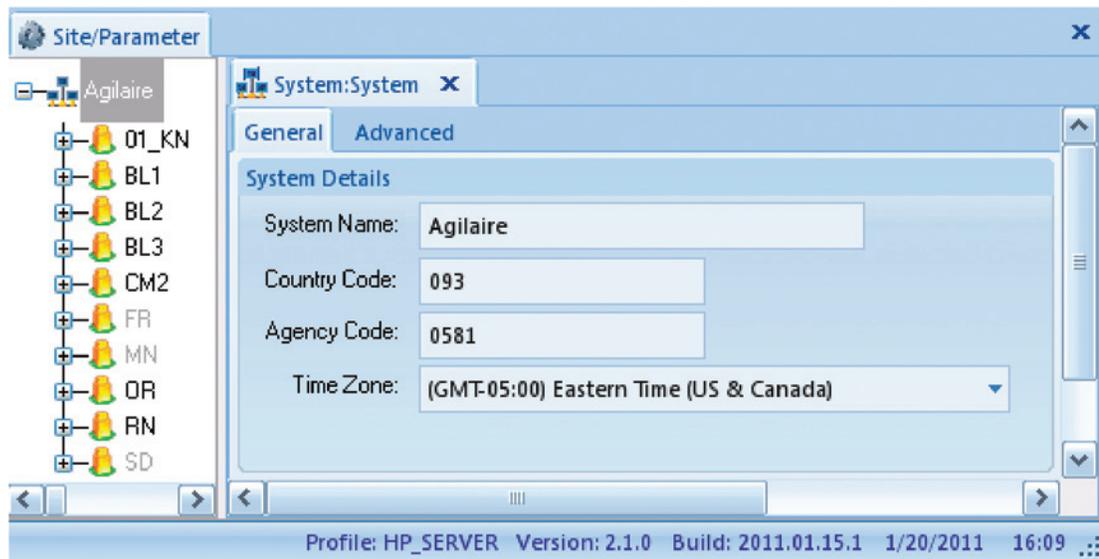
County Code (provided by EPA)

AQS Agency Code (provided by EPA, used for AQS reporting of 1-point QC checks)

AirNow Agency Code (provided by STI, used for hourly AQCSV reports to AirNow)

Time Zone.(select from a drop-down list).

Click the **Save** icon.



System Configuration from Site/Parameter Config Editor

Importing (Converting) E-DAS Data

If you will be using existing historical data from E-DAS Ambient systems, the AirVision E-DAS Import Utility (**Utilities>EDAS Import**) can convert it to AirVision data with sites and parameters configured. In the E-DAS Ambient to AirVision Conversion screen, browse to find the **E-DAS Ambient Data Directory**.

Select:

Data Type(s) to be converted:

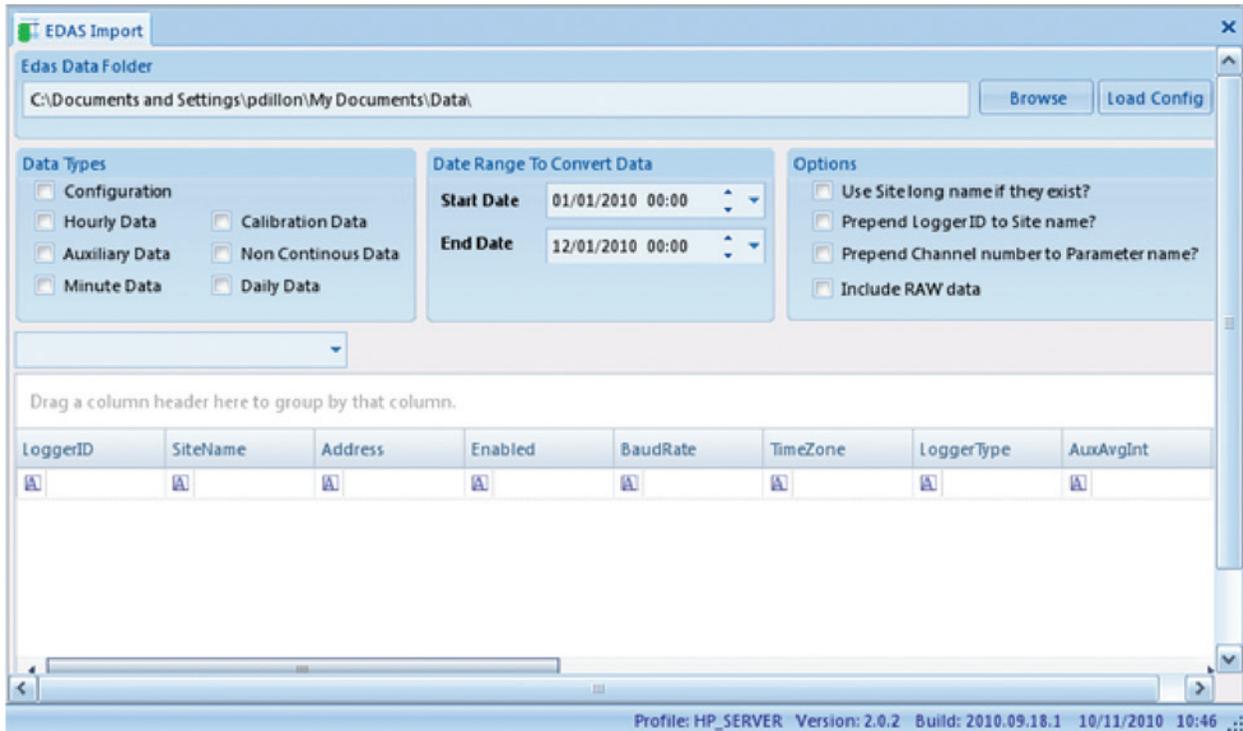
- Configuration
- Hourly Data
- Auxiliary
- Minute Data
- Calibration Data
- Non Continuous Data
- Daily Data

Date Range.

Options are:

- Use Site Long name if they exist
- Append Logger ID to front of site name
- Append Channel Number to Parameter name
- Include RAW data

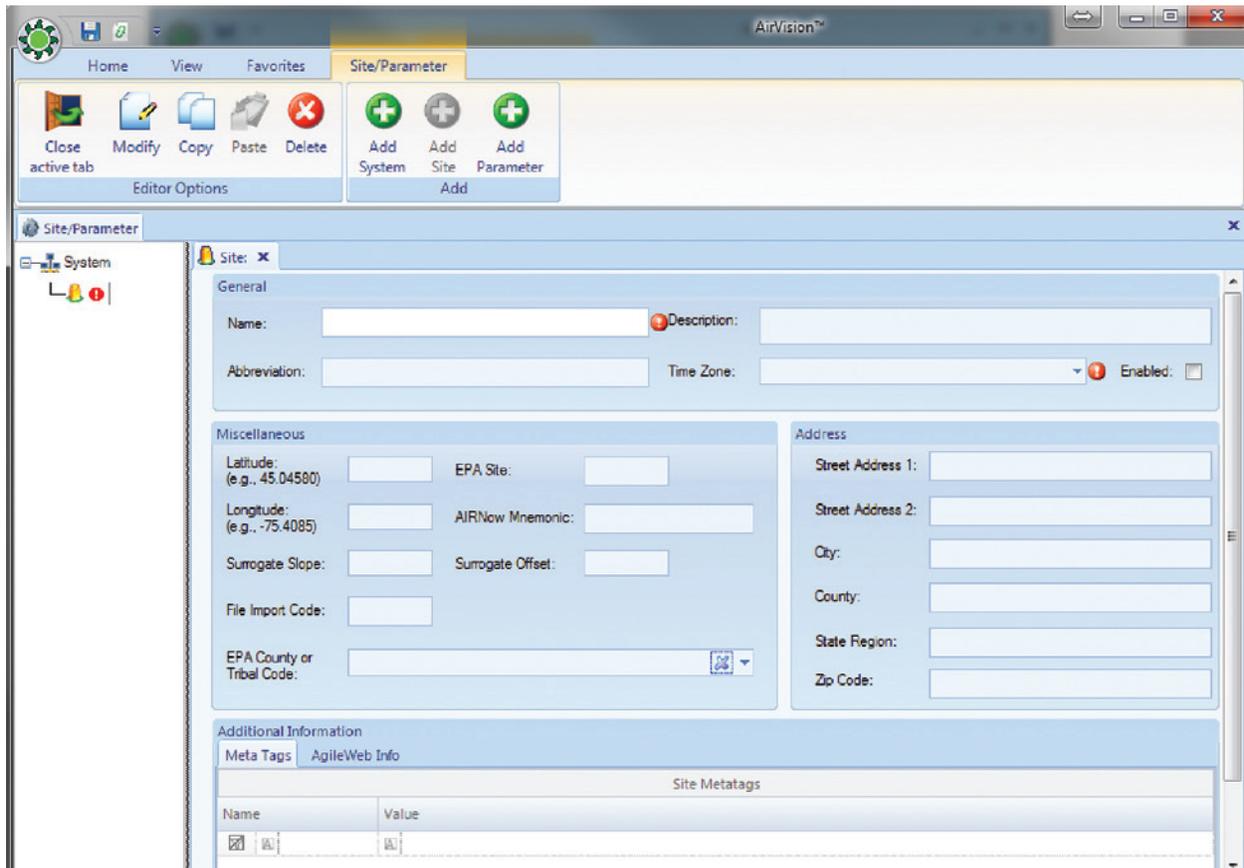
Converted data will be in your SQL database in AVData and available when you open AirVision. Some configuration information may be missing, such as central modem settings and scheduled tasks.



Converting E-DAS data to AirVision

Site and Parameter Setup

The **Site/Parameter Editor** from the **Configuration** menu allows administrators to add, edit, and delete sites and parameters. In AirVision, a Site is NOT a single data logger as it was in E-DAS. A **Site** is a logical organization of a physical monitoring area and can contain data from several sources, such as data loggers, PM samplers, and directly polled analyzers.



Site Configuration from the Site/Parameter Editor in Configuration Editors

Adding and Editing Sites

To add a site, select **Configuration Editors > Site/Parameter**, and highlight your **System name**. Click the **Add Site** button and enter a **Name** for the **Site**. To edit a Site, double-click a **Site** from the Site/Parameter tree.

To save new or edited sites, click the **Save** icon from the upper left-hand corner of the AirVision screen, or click the Agilaire icon and select **Save**. Fields in the Site Configuration Editor are described below.

The Site Editor contains the following fields for information about the site:

- ◆ Name (Required) Alphanumeric characters to refer to the site, e.g., NKnox.
- ◆ Description Brief description of the site, e.g., North Knoxville (optional).
- ◆ Abbreviation This field is used for special file import formats only.
- ◆ Time Zone (Required) Select from drop-down list.
- ◆ Enabled (Required for polling) Check the box to enable the site. If this box is not selected the site will not be polled.
- ◆ Latitude To comply with EPA standards, enter latitude in decimal format. For example, 75 degrees, 15 minutes, and 0 seconds would be entered as 75.250000. Enter up to 2 places and a minus sign if needed to the left of the decimal and up to 6 places to the right of the decimal.
- ◆ Longitude To comply with EPA standards, enter longitude in decimal format. For example, 75 degrees, 15 minutes, and 0 seconds would be entered as 75.250000. Enter up to 2 places and a minus sign if needed to the left of the decimal and up to 6 places to the right of the decimal.
- ◆ EPA Site Two-character site code provided by EPA.
- ◆ AIRNow Mnemonic Optional, used only by the now obsolete OBS format.
- ◆ Surrogate Slope Used to calculate a projected (forward rolling) eight-hour average for ozone if needed, computed with the slope/intercept formula required by EPA.
- ◆ Surrogate Offset Used to calculate a projected (forward rolling) eight hour average for ozone if needed, computed with the slope/intercept formula required by EPA.

- ◆ File Input Code Single character used for file import templates in special cases only.

- ◆ EPA County or Tribal Code County or Tribal code provided by EPA.

- ◆ Address Physical address of the Site.

- ◆ Additional Information You can add notes at the bottom of the Site Editor by clicking on the asterisk at the bottom of the screen. Enter a **Name**, for example "Distance to tree line," and a **Value**, for example "70 feet." When you have completed your entry press the **Enter** key on your computer keyboard. Your entry will be moved to the next row in the Additional Information section.

These "meta data" fields may also be used by some specialized reports or instrument polling programs. Consult your specific application notes for details and syntax.

Adding and Editing Parameters

To add a parameter configuration, select a **Site** from the **Site/Parameter** tree and click the **Add Parameter** button near the top of the AirVision screen. To edit a parameter select a **Site** and then double-click a **Parameter**.

Site: 01_KN
 Parameter:
 Parent Parameter:
 Parameter Template:
 Apply

Enabled: Enable AIRNow Reporting:
 Filter From Web Site:

Parameter Data Type:
 Average (Continuous)
 Composite Sample
 Particulate Sample

Description:
 EPA POC:
 EPA Method:
 EPA Units:
 EPA Parameter:
 Reported Digits: 4
 Precision: 1 X

Truncate Round Rule: Round Truncate
 Reported Units:
 Analyzer Units (if different):
 Graph Minimum:
 Graph Maximum:
 Calibration Span:
 Instrument Detection Limit:
 Limit Of Quantization:
 Minimum Detectable Limit:
 Practical Quantization Limit:
 Parameter Report Order:
 Totalize in Reports Minimum in Reports

Additional Information

Parameter Metatags	
Name	Value

Parameter Configuration from the Site/Parameter Editor in Configuration Editors

- ◆ Parameter Data Type Select a data type: **Average (Continuous)**, **Composite Sample**, or **Particulate Sample** (for manually entered data).

- ◆ Description Enter a brief description of the parameter (optional).

- ◆ EPA POC Enter an EPA Parameter Occurrence Code if needed. POC is used for different monitors measuring the same parameter at one site.

- ◆ EPA Method EPA sampling Method Code

- ◆ EPA Units Select EPA Units (including the EPA unit code) from the drop-down list (e.g., 007-parts per million, 015-degrees Fahrenheit).

- ◆ EPA Parameter Select a parameter (including EPA parameter codes) from the drop-down list (e.g., 44201 - Ozone).

- ◆ EPA Reported Digits Total number of digits, including decimal places, that will be reported to the EPA.

- ◆ EPA Reporting Precision Number of decimal places for reporting precision. X's and Y's to the right of the reporting precision field illustrate the format of the digits/precision, e.g., XX.YY indicates a total of four Reported Digits with a Reporting Precision of two.

- ◆ Truncate/Round Rule Determines whether data in reports will be rounded or truncated.

- ◆ Reported Units Units that will be used for reports e.g., PPM

- ◆ Analyzer Units If the analyzer units are different from the primary parameter, select analyzer units from the drop-down list. If this field is selected, the system will automatically try to determine a conversion factor based on the units and convert values during polling of a logger or import via the File Import Tool.

- ◆ Graph Minimum Lower y-axis limit for graph display

- ◆ Graph Maximum Upper y-axis limit to for graph display

- ◆ Calibration Span This field is determined by the instrument. Enter the configured calibration span value for the parameter to determine the parameter's calibration error (at the data logger).

- ◆ Instrument Detection Limit (DL) Minimum concentration of an analyte that can be measured by an instrument. The DL is an estimate of concentrations at where you can be fairly certain that the compound is present. Concentrations below this limit may not be detected. Used for air toxics measurements only (can be blank if not needed).
- ◆ Limit of Quantization (LOQ) A minimum criterion or region for quantization that should be clearly above the detection limit. The lowest concentration of an analyte in a sample that can be determined (quantitated) with acceptable precision and accuracy under the stated operational conditions of the method. Traditionally, this is approximated as 10 times the signal-to-noise (S/N) ratio.
- ◆ Minimum Detectable Limit (MDL) EPA defines the MDL as the minimum concentration of a substance that can be measured and reported with a 99% chance that the analyte concentration is greater than zero. Must be filled in for reporting Violation of Standards report for ozone.
- ◆ Practical Quantization Limit (PQL) The lowest concentration of an analyte that can be reliably measured within specified limits of precision and accuracy during routine laboratory operating conditions.
- ◆ Parameter Report Order Parameters in reports are printed in the same order that they are shown under each site. Select Parameter Report Order to change the order parameters appear in reports. Report Order only applies to Daily Summary and Monthly Reports.
- ◆ Totalize in Reports If this option is selected, Monthly Reports will show a total of data rather than an average. Totalize in Reports is most commonly used for rainfall.
- ◆ Minimum in Reports If this option is selected, Monthly Reports will show a minimum of data rather than a Maximum. Minimum in Reports is most commonly used for temperature.
- ◆ Additional Information You can add notes at the bottom of the Parameter Editor by clicking on the asterisk at the bottom of the screen. Enter a **Name**, for example “Data Last Certified,” and a **Value**, for example “9/1/2008.” To add another row when you have completed your entry, press the **Tab** key on your computer keyboard. A blank row will be displayed.

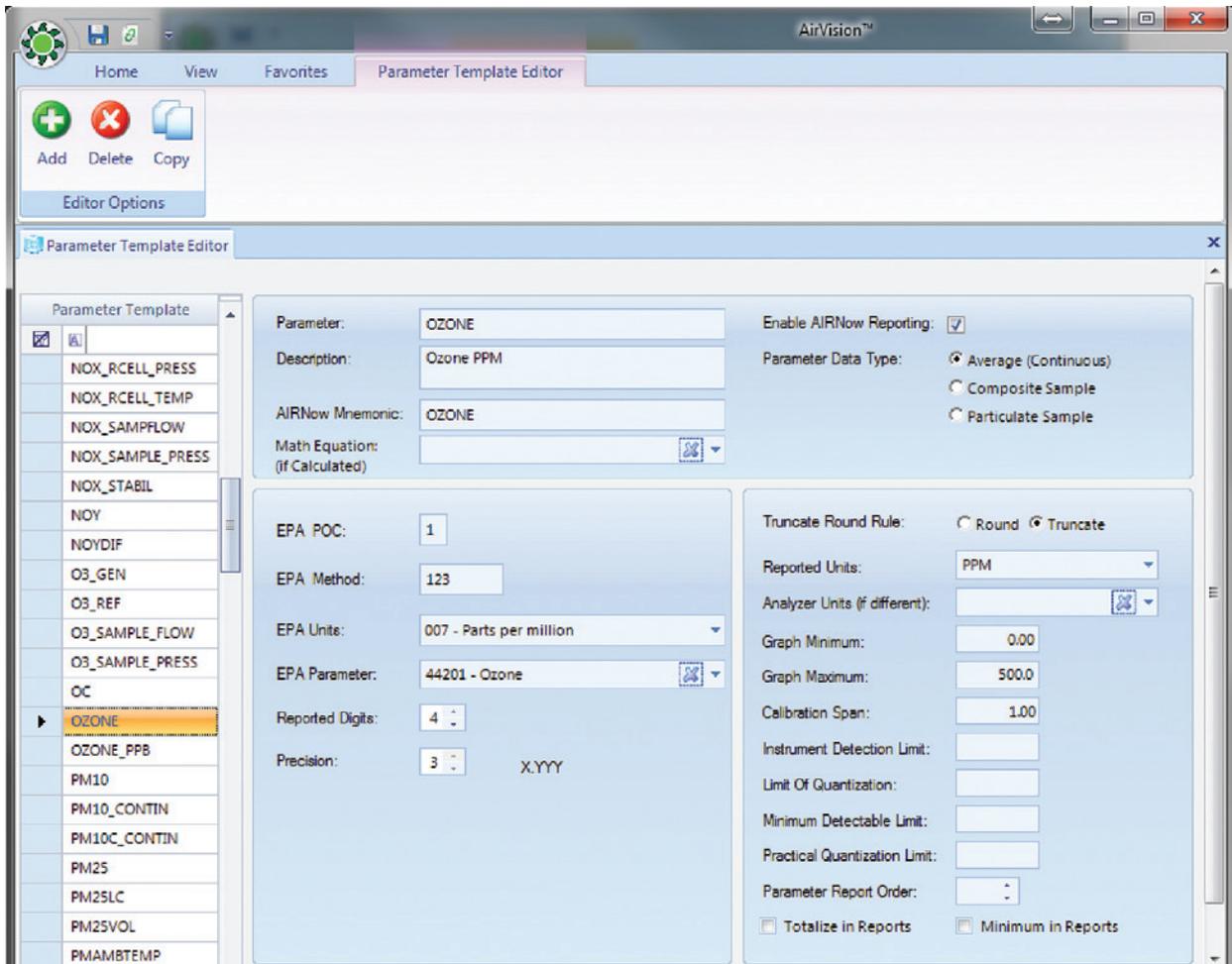
Configuring Parameter Templates

Basic **Parameter Templates** are provided by AirVision (**Configuration Editors > Site/Parameter**), such as ozone, PM10, PM25, NO2. You shouldn't have to make changes to the standard Parameter Templates unless the defaults become outdated by changing EPA regulations, but if you have unique setups you can configure new templates in **Configuration Editors > Parameter Template Editor**. The Parameter Template Editor defines basics like units, EPA reporting codes, and graph limits, and allows you to configure details for an EPA parameter type.

Parameter templates allow you to avoid repeating configurations for the same parameter at multiple sites, for example, file import templates, report setups, ADVP rules. The Parameter Template Editor allows you to enter or modify a list of parameter types that each parameter can be referenced to, so AirVision can correlate parameters with different names (e.g., O3 , OZ, OZONE). Linking parameters to parameter types makes reporting easier and eliminates the necessity to link individual site/parameter selections together (e.g., for AIRNow reporting).

All fields in the Parameter Template Editor were explained in the previous section “Adding and Editing Parameters.”

- **Note:** A Parameter Template is required for any parameter imported with the File Import Tool, E-Mail Alarms, or ADVP. File Import is the the most common reason for a user to add to the Parameter Template table.



Configuring Parameter Templates

- **Note:** The values in the template editor are only used when the "Apply" button is used in the Parameter Editor to do a one-time copy from the template. Afterwards, the values here have no effect on reports or system operation.

Adding Loggers to Sites in Data Source Details

The next step, after configuring sites and parameters, is to add **Loggers** to sites.

- ▶ **Note:** Data loggers must be added to sites **BEFORE** channels are configured. Channels are added to loggers after the loggers are set up.

Still in the **Configuration Editor**,

- ◆ select **Data Source Details**,
- ◆ select a **Site**,
- ◆ then click the **Add** button and
- ◆ select **Logger**.
- ◆ enter a **Source Name**, e.g., 01Logger, do NOT use only the 2 digit Logger ID.
- ◆ enter the **Logger ID**, e.g., 01,
- ◆ select a **Logger Type** from the drop down list, e.g., 8832,
- ◆ click **Enabled**.
- ◆ optionally, you can enter a **Description**
- ◆ check **Send Central Messages to LogBook** to automatically put polled **Central Messages** into the Logbook as Logbook entries (**Reports>Logger Reports>Central Messages**)
- ◆ click the **Save** button.

The screenshot shows the Configuration Editor interface for a logger. The window title is "Logger:Logger 01". There are four tabs: "Source", "Communication", "IO Labels", and "Math Constants". The "Source" tab is active, showing two panels: "Source Information" and "Logger Details".

Source Information:

- Site: Agilaire
- Source Name: Logger 01
- Enabled:
- Description: (empty text box)
- Retry Attempts: 3
- Retry Delay: (empty text box)

Logger Details:

- Logger Identifier: 01
- Logger Type: Model 8832
- Debounce Digital Inputs:
- Send Central Messages to Log Book:

Logger Configuration from Data Source Details in Configuration Editors

Channel Configuration

“Channels” are the entities that tell a data logger (8832, 8872) how to acquire data in real-time from an instrument to form averages, that are then passed on to *Parameters* in AirVision to store the data. Channels represent the physical side (instruments, wires, RS-232 connections, etc), while Parameters represent the logical side or “slots in the database.” It’s possible to have *Parameters* but not *Channels* if the data comes from some source other than being averaged by the data logger, such as the File Import Tool, or direct instrument polling.

The information for *Channels* is set up in Data Source Details in AirVision (or “Logger Channels” in the 8872 menu).

Basic Channel Information

In the setup of most of the channel types the Channel tab will have identical fields on the Channel tab as the Standard channel setup has, except where noted in descriptions below in this document.

The screenshot displays the 'Channel' configuration window with three tabs: 'Channel', 'Validation', and 'Misc'. The 'General' tab is active and contains the following fields:

- Associated Source:** NC01
- Channel Name:** SO2
- Parameter:** Brentwood_NCore : 02_SO2
- Channel Type:** Analog In (Standard)
- Enable Channel ?**
- Base Average:**
 - Average Interval:** 001m
 - Storage Time:** 1 Hour(s)
- Channel Number:** 2
- Round Precision:** (empty)
- Modbus Scale Factor:** 0.0000

The 'Extended Averages' section contains two sub-sections:

- Extended Average 1:**
 - Average Interval:** 005m
 - Storage Time:** 1 Hour(s)
- Extended Average 2:**
 - Average Interval:** 001h
 - Storage Time:** 3 Day(s)

Do not use spaces in the channel names and avoid using equation symbols in the channel names as these can cause problems with math channels if such channel names are used in a math equation.

When a Channel is first created the Channel Name will be displayed as Chan1, Chan2, etc. If you have already configured a parameter (recommended), when you select the associated Parameter in the top right, the name will automatically propagate over to the Channel Name field once the next field has been selected. However, channel names are limited to 8 characters (as a holdover from 8816s and 8832s), but the Channel Name can be edited.

The Channel Number will automatically be filled in with the next available number, but it can be changed by using the radio buttons to select the logical number of the channel being configured.

Set the Average Intervals for the Base, Extended1, and Extended 2 and their Storage Times. 001M data is usually setup on the Base Average. The data logger will average instantaneous readings over the Base Avg Interval, and then those base intervals are used to build the two extended intervals. To change the interval click the down arrow and select another interval type from the drop down list.

The Extended Average 1 is usually used for auxiliary data, the most common being 005M or 015M data. If the Base Average Interval is 1 minute, then the first extended average may be an auxiliary, hourly, or daily interval type (of which have to be divisible by 60 and a multiplier of the base). To change the interval click the down arrow and select another interval type from the drop down list.

The Extended Average 2 is usually used for hourly data, but can be used for daily data as Average 1 is set to hourly data. Average 2 must use a higher interval type than Average 1, and must be a multiplier of the base average. To change the interval click the down arrow and select another interval type from the drop down list.

Storage Time for all three intervals is the length of time the 8816 or 8832 data logger will store the averages (not used/visible for the 8872). Each interval has its own storage time setting which can be set between 0 to 999. Click the down arrow and select from the from down list the time span of: S = seconds, M = minutes, H = hours, D = days.

Basic Channel Types

Channel “types” define the methodology for either acquiring the data (e.g., what kind of input) and/or how the resultant average is to be calculated. The channel types supported are as follows.

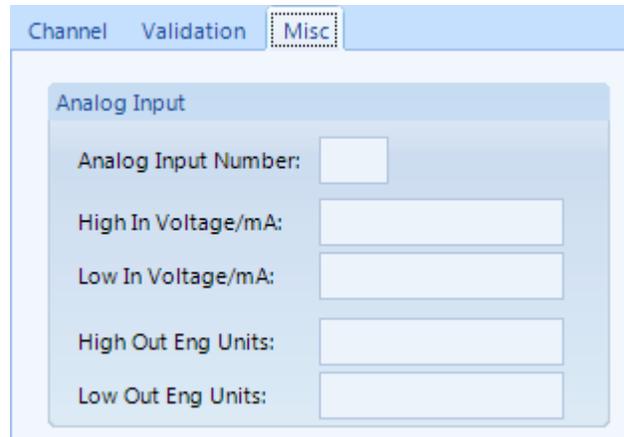
The **Analog In (Standard)** channel takes readings from a physical analog input, scales the voltage (or current) to an engineering value, and then performs a simple arithmetic average of all the values. The settings under the Misc. tab define the information required:

- ◆ The Analog Input Number specifies the physical input that the analyzer wires are connected to. The analog input number does not have to be the same as the channel number.
- ◆ For Model 8816 or 8832, The High and Low In Voltage/mA are where the Voltage or Milliamps are entered. Typical values are -10 to +10 V for a voltage card and 4 to 20 mA for a current card. For the Model 8872, the High and Low In are assumed to be the full voltage/current range set on the input module (e.g., 0-5V or 4-20mA) for that input.
- ◆ The High and Low Out Eng Units of the instrument corresponding to the High or Low Input are entered.

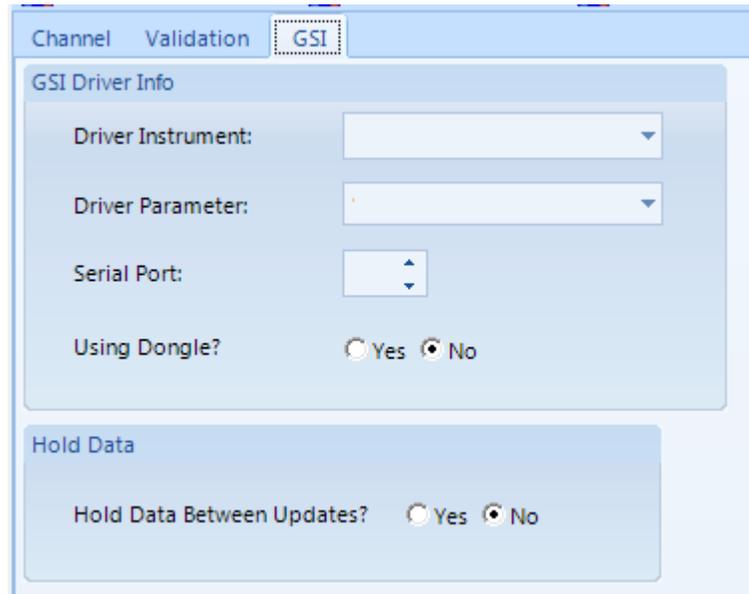
The screenshot shows a software interface with a blue header bar containing three tabs: 'Channel', 'Validation', and 'Misc'. The 'Misc' tab is selected and highlighted with a dashed border. Below the tabs is a light blue panel titled 'Analog Input'. Inside this panel, there are five rows, each with a label and a corresponding input field:

- Analog Input Number: [input field]
- High In Voltage/mA: [input field]
- Low In Voltage/mA: [input field]
- High Out Eng Units: [input field]
- Low Out Eng Units: [input field]

For example: If the high input to the data logger from the instrument is 10V when the output reading of the instrument is 50°C, then a High Input of 10V indicates a corresponding High Output of 50°C. Or if the low input to the data logger from the instrument is 0V when the low output reading of the instrument is 0°C, then a Low Input of 0V indicates a corresponding Low Output of 0°C



The **GSI or RS-232 channel** uses a serial communications interface used by the data logger to retrieve data from devices such as analyzers and digital control systems. The interface can receive data strings and stores values into GSI Channels for data collection. For these channel types, the “Misc” screen allows the user to define which RS-232 port is to be used, the type of instrument being connected, and the value within that instrument that is desired. Note that the baud rate of the RS-232 port is set in the PC Settings editor.



On the Misc tab an option is given for Hold Data Between Updates? is set to Yes or No. If Yes is selected it will use the last value received until the next value arrives, for instruments that send data infrequently. Normally, this is set to “No.”

The **Modbus channel** is used to take data from a Modbusused to take data from a Modbus-capable instrument via an Ethernet connection. A Logger Modbus Instrument needs to first be created before the Modbus channel is created so that the instrument that was created will show in the drop down list for the Modbus Instrument on the Modbus tab (similar to the GSI/RS-232 channel).



The **Math Pack channel** is useful when special functions are required. Math pack channels are used to calculate results by combining information from other channels and/or constants according to user-defined equations, such as “SO₂ * 1.3”. The allowed syntax is defined in Section X.X

On the Misc. tab Round Constituents will round to the number of places specified in the Decimal Positioner field, before the equation and average are calculated (used primarily in special CEM applications). Channel names that contain spaces cannot be used in a math pack formula.



The screenshot shows a configuration window with three tabs: 'Channel', 'Validation', and 'Misc'. The 'Misc' tab is active. Below the tabs, there is a 'Round Constituents' checkbox which is currently unchecked. Below that is a 'Math Equation' text input field, which is currently empty.

The **Average math pack** channels function like math pack channels except instead of performing calculations on instantaneous readings and then averaging the results, these channels wait until the end of an averaging interval and perform calculations on the averages. The Average Math Channel configuration screen is identical to the Math Channel configuration screen except for the channel type.



The screenshot shows a configuration window with three tabs: 'Channel', 'Validation', and 'Misc'. The 'Misc' tab is active. Below the tabs, there is a 'Round Constituents' checkbox which is currently unchecked. Below that is a 'Math Equation' text input field, which is currently empty.

The **General channel** is used to run special calculations based on the input of another channel that is already configured (e.g., analog input, Modbus, etc). The different calculation types include:

- ◆ Maximum (find highest sub-interval in a given interval, e.g., highest minute in hour)
- ◆ Minimum (same, but finding the lowest)
- ◆ Accumulate (totals sub-intervals into final average)
- ◆ Number of Valid Averages (number of sub-intervals that are valid)
- ◆ Percent Valid (similar, but result expressed as a percentage 0-100)
- ◆ Difference (calculate difference of current average from previous average)

The Maximum method is commonly used on SO₂ channels to find the highest 5 minute average in an hour, or for peak wind speeds. The Difference method is often used against a “raw” rainfall analog input to calculate the difference in the voltage to determine rainfall in an hour.

On the Misc. tab:

- ◆ Input Average Interval is the data type the general channel is to be based on, such as minute or hourly data (e.g., the “sub-interval” for the calculation).
- ◆ Input Channel Number is the channel number of the configured channel that will be the data source.
- ◆ General value Duration is the average basis for the General Channel Result.
- ◆ The Data Channel Type sets the calculation type; accumulative, maximum, minimum, number of valid runs, percent complete number of runs, or difference.
- ◆ Ignore Input Channel Flags are the flags to be ignored when verifying the validity of the current data point.
- ◆ Reset Input Status Pattern allows the user to set a digital status input pattern that, if observed, a reset will be generated to the calculation so far (e.g., previous sub-intervals will be ignored). This is not commonly used.

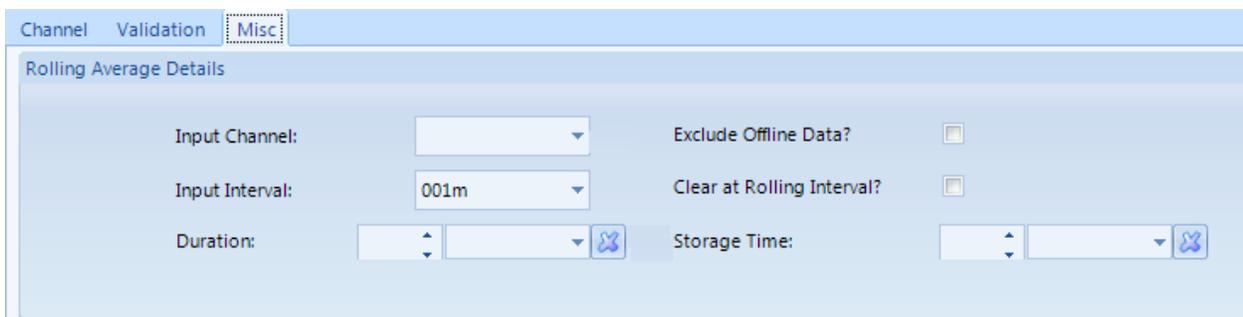
The screenshot shows the 'Misc' configuration tab for a channel. The 'Specific' section contains the following settings:

- Input Average Interval:** A dropdown menu.
- Input Channel:** A dropdown menu.
- General Value Duration:** Two spinners with a clear button (X).
- General Value Storage Time:** Two spinners with a clear button (X).
- Data Channel Type:** A dropdown menu.
- Ignore Input Channel Flag(s):** A dropdown menu with 'Channel Flags' selected.
- Reset Input Status Pattern (Max of 8):** A button labeled 'Status Pattern'.

The **Rolling channel** calculates an extended rolling average from another channel’s average, such as hourly averages rolling on the minute. The rolling average is updated when the base average is updated. For example, if the base average interval is one minute and the rolling average interval is one hour, the rolling average channel will store a new data point every minute; each data point will be an average of the previous 60 one-minute averages.

On the Misc. tab:

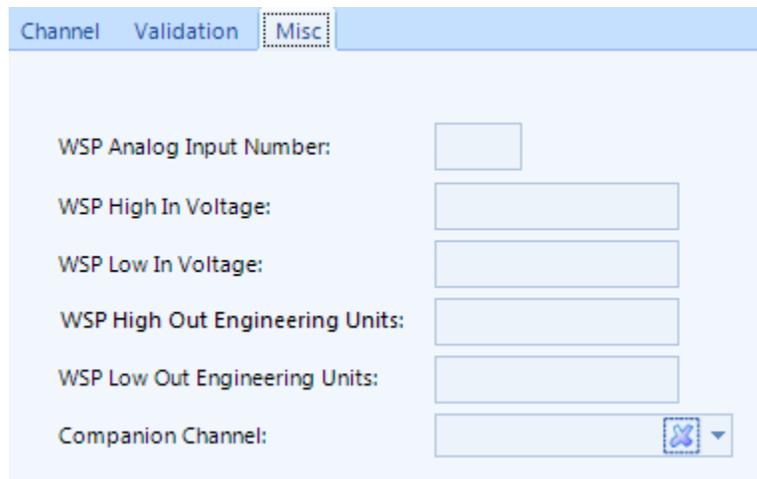
- ◆ Input Channel is the input channel number used for the rolling channel average.
- ◆ Input Interval is the data used to input into the rolling channel averages, and is the frequency at which the rolling average channel will create data.
- ◆ Duration is the length of the ‘buffer’ of input intervals used to calculate each average.



Meteorological Channel Types

The **Vector Wind Speed channel** computes average wind speed as a vectored average. A corresponding Vector Wind Direction Channel must also be configured to support the Vector Wind Speed Channel. Input types can be analog inputs, or GSI (RS-232) based sensors, with a specific channel type for each approach. For the analog input type, the “Misc” tab is similar to the Analog Input Channel, while for the GSI version, the “Misc” tab looks like the GSI channel. The main difference is the manner of calculation, handling zero crossover, 0-360 and 0-540 degree instruments, etc.

For vector wind channels, an additional input is given for the companion channel (e.g., the Vector Wind Direction Channel for VWSP, and the Vector Wind Speed Channel for VWDR). The selection is the channel number for 8816s and 8832s, while 8872s use a pick list from already configured channels.



Before this field can be filled in both the vector wind and vector speed channels have to be created and saved, then you can go back and fill in the companion channel field. Once this field has been filled in, it is very important to click out of the field so that SQL sees the field has been completed, otherwise it will not save the setting and will blank out the field when the save button is selected.

The **Vector Wind Direction channel** performs the direction part of the vector calculation, and is similar to the Vector Wind Speed channel listed above, including the Companion channel field.

The **Wind Speed channel** is configured the same as the Vector Wind Speed channel minus the Vector Wind Direction channel companion field.

The **Wind Direction channel** is configured the same as the Vector Wind Direction channel minus the Vector Wind Speed channel companion field.

The **Sigma Theta** takes the input of a wind direction channel and calculates a USEPA sigma theta (Yamartino method). For a Model 8816 or 8832, the input must be designated as an analog input, while in an 8872, the input is set to a Wind Direction or Vector Wind Direction channel. The RMS interval is the sub-interval for the root-mean-square combination of sub-intervals, and for most applications is set to 15 minutes.

Channel Validation **Misc**

RMS Average Details

Average Interval:

Storage Time:

WDR Analog Input Number:

WDR High Input (V):

WDR Low Input (V):

WDR High Output (E.U.s):

WDR Low Output (E.U.s):

The **Linear Sigma** channel takes data from an analog input to calculate a standard deviation/mathematical sigma (measure of standard deviation) of an analog input or another channel.

Channel Validation **Misc**

WDR Analog Input Number:

WDR High In Voltage:

WDR Low In Voltage:

WDR High Out Voltage:

WDR Low Out Voltage:

The **Rainfall channel** uses the meteorological input card in the 8832 logger or a status input in an 8872 (set to “Counter” mode), and calculates accumulation by counting the number of pulses received during the averaging interval, typically received from a tipping bucket rain gauge. This count is then scaled to engineering units, usually inches of rain per hour.

- ◆ The Counter Input is the number of pulses that will equal one engineering unit (normally 1).
- ◆ Channel Output is the engineering units corresponding to the number of pulses counted.

The screenshot shows a configuration window with three tabs: Channel, Validation, and Misc. The Misc tab is selected and highlighted with a dotted border. Below the tabs, there are three input fields:

- Analog Input Channel Numb... (with a small rectangular input box)
- Counter Input: (with a larger rectangular input box)
- Channel Output: (with a larger rectangular input box)

CEM Channel Types

The **Stream-Switched Averaging channel** allows the data logger to monitor one analyzer that is time-shared between two sampling trains. It forms a base average and two extended averages from another channel, and accepts data from that input channel only when an on-line digital input status is met. If this condition is not met, the data can be designated as invalid, or the data (last good reading, base average, extended average, or average) over the previous on-line period may be “held” until the on-line status condition is met. When stream switch channels are controlled by digital event programs or are calibrated using automatic calibration programs, the digital program or calibration timing may not line up exactly with the stream switch channels averaging periods. Calibrations and event programs should be configured to end a few seconds before the start of the next base average.

On the Misc. tab:

- ◆ On-Line pattern defines the status input pattern (physical or pseudo-inputs) used to define when the stream is “on” for data collection purposes.
- ◆ Offline Action defines how to handle data when the on-line pattern is not active:
 - Hold Last (instantaneous) Reading
 - Hold Last Base Average
 - Invalid (invalidate data)
- ◆ Purge Time defines how long to continue with the “offline” action when the status inputs transition from the off-line condition to the on-line condition.

The **Time On-Line and Multi-Condition TOL (Time Online) channels** allow the data logger to record when a process or generating unit is online for CEM reporting purposes. The resultant ‘average’ is typically a count of the base intervals (e.g., base average = 0 or 1, hourly averages range from 0-60, counting the number of online minutes, etc).

The basic Time On-Line channel allows the user to define an “Online Input” (status input pattern of physical and/or pseudo-inputs). When that pattern is seen as true, the TOL channel counts the process as on.

The Multi-Condition Time On-Line channel allows a more complex definition of up to three conditions, each of which can be a status input or a threshold of a channel value, for example:

“Flame On” (status input #01) is true (closed) AND

“Fuel Flow” (Modbus channel #7) is > 4 gallons/minute AND

“Stack Temperature” (analog input #7) is > 300 degF.

The screenshot shows a software interface with three tabs: 'Channel', 'Validation', and 'Misc'. The 'Misc' tab is active. Under the heading 'Specific', there are five configuration options:

- On-Line Input Status Pattern:** A button labeled 'Input Status' followed by a text input field.
- Require Full Interval:** Radio buttons for 'Yes' and 'No', with 'No' selected.
- OR Time On-Line Inputs:** Radio buttons for 'Yes' and 'No', with 'No' selected.
- TOL/Tape Output Line:** A text input field.
- TOL Multiple Output Lines Pattern:** A button labeled 'Output Pattern' followed by a text input field.

Adding Channels to Data Loggers

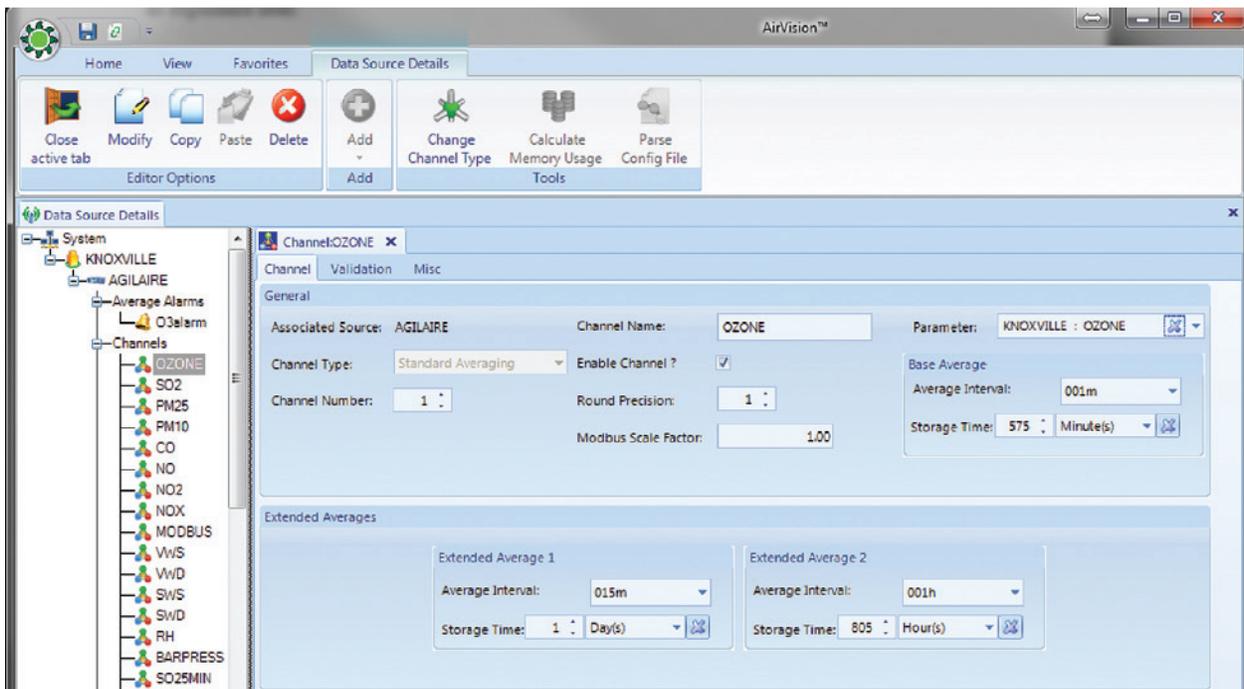
Still in the **Configuration Editor, Data Source Details**,

- ◆ select a **Logger** that has already been added to a **Site** (see “Adding Loggers to Sites”)
- ◆ click the **Add** button.
- ◆ select **Add Channels** and
- ◆ select a **Channel Type**, e.g., Standard Averaging, GSI, VWS, etc.
- ◆ select a **Channel Number** (a channel number will automatically be added in order)
- ◆ select a **Parameter**. When you select a parameter, the Channel Name will automatically be changed to match the Parameter name.

For the remainder of the prompts on the form, consult the ESC Model 8816/8832 User Manual.

- ▶ **Note:** When you first open the Channel editor the **Channel Name** will be displayed as Chan1, Chan2, etc. When you select a Parameter, the Channel Name will automatically be changed to match the Parameter name; however, you can edit the Channel Name if you choose. After the channel is downloaded to the data logger, the Channel Name will be displayed as the **Instrument Name** in the logger.
 - ◆ select an **Average Interval** and **Storage** for the **Base Average**, **Extended Average 1**, and **Extended Average 2**.
 - ◆ Click the **Save** button

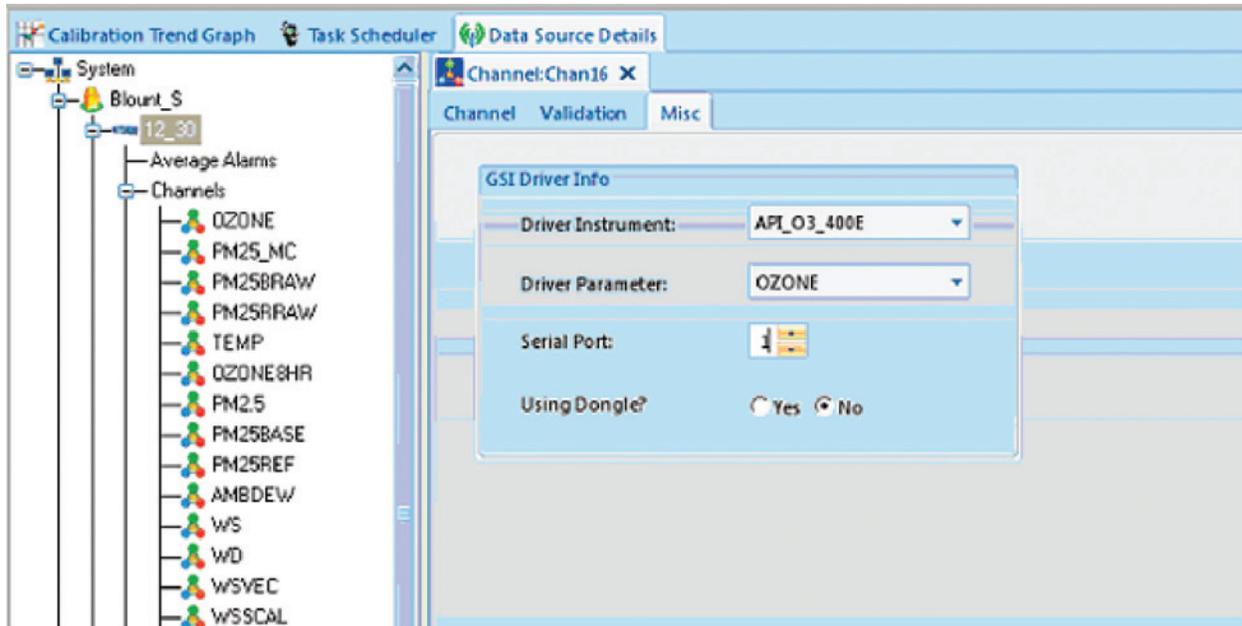
Follow the same procedure to add calibrations, average alarms, and digital event triggers, as explained later.



Adding channels to loggers in the Data Source Configuration from Configuration Editors

Two channel types are handled differently in AirVision than in previous systems; both improve on digital data acquisition integration.

- ◆ The first channel type, the GSI (Generic Serial Interface) channel, is used for RS-232 based instruments. AirVision includes a library of GSI drivers for a wide variety of instruments. Choose the instrument, the parameter, and designate which serial port is connected. Using a dongle can be designated if the instrument connection requires a hardware dongle (e.g., C-Series Analyzers in a daisy-chain configuration, or Ecotech analyzers).



GSI channel configuration

- ◆ The second channel type (and a better approach for digital data acquisition) is the Modbus channel. Designate an Instrument that has been previously configured in the Data Source Details editor, and select a parameter.

Modbus channel configuration

Like the GSI channel, AirVision simplifies the configuration process by automatically creating and downloading the data logger's server configuration file in the background. Since Modbus instruments have additional networking information that needs to be known, you must create an instance of the Modbus instrument in the Data Source Details editor before creating the Modbus channels for that instrument (this prevents the need to repeat entry of the networking information for each channel).

To create the instrument, go to the Data Source Details editor, select the appropriate data logger object in the tree, and select **Add > Logger Modbus Instrument** on the ribbon.

Misc tab in Add Modbus

You must then enter the following fields:

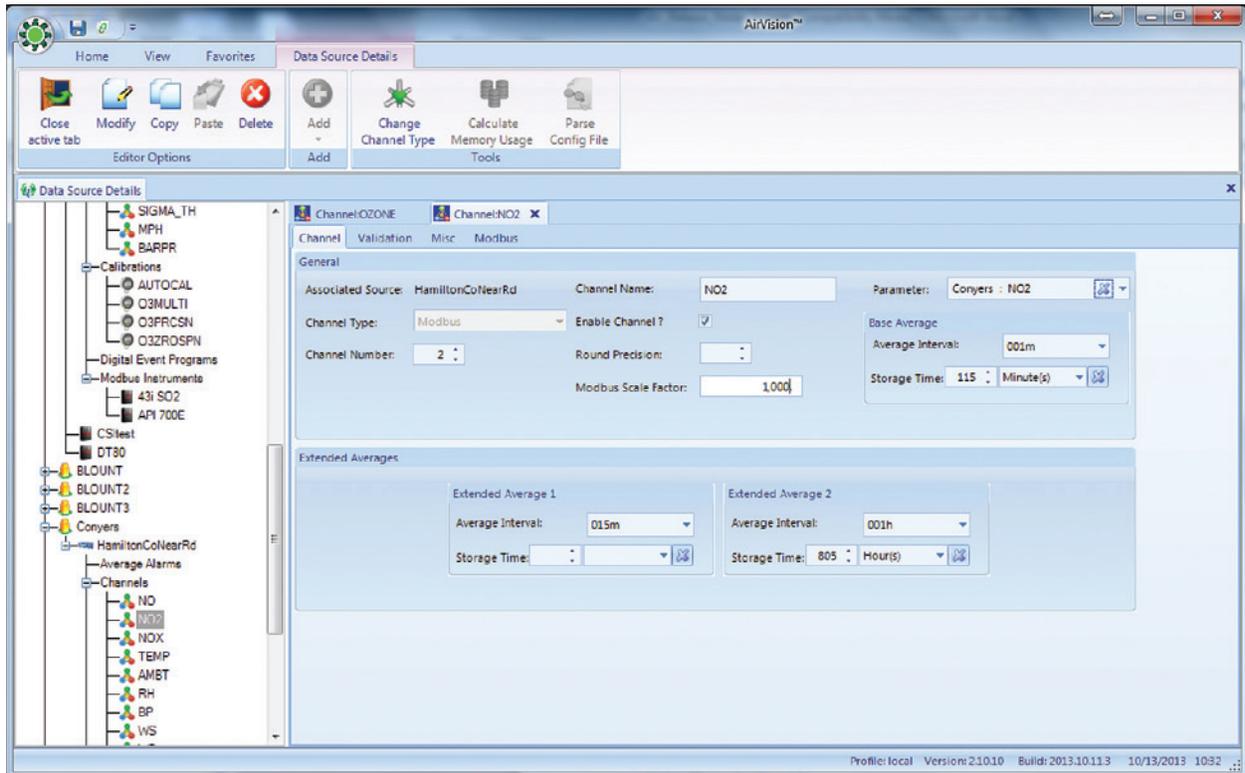
- ◆ **Instrument Name**--a user-defined label for the instrument
- ◆ **Driver Type**--select from picklist of known analyzers
- ◆ **Modbus Code**--also known as the **Modbus Device ID**, this is set in the analyzer, and is some value from 1-255
- ◆ **Modbus Command Type**--defines which Modbus command is used to read data from the analyzer (3 for TECO, 4 for API, consult instrument documentation for other brands)
- ◆ **Poll Interval**- how often data should be requested from the instrument, in tenth of a second increments. Recommended values are 20 to 30 (2 to 3 seconds), perhaps longer if analyzer has CPU limitations.
- ◆ **TCP Address**--IP address of the instrument, as viewed from the logger's perspective
- ◆ **TCP Port**--Port used by the instrument for Modbus requests, usually "502".
- ◆ **Timeout (MS)**--Designates the time the logger will wait on an instrument for a Modbus response. Typical values are 250-750 MS if an instrument starts to encounter problems with dropped readings (otherwise leave as blank/default). It is recommended this field be left blank unless analyzer communication issues are encountered.

Once the instrument is configured and saved, you can then use the **Add Channel > Modbus** in the **Data Source Details** editor. Under the **Misc** tab, select the defined analyzer and the parameter in the instrument from a picklist. If you need a parameter does not exist in the picklist, contact Agilaire Support (support@aglairecorp.com) and we will add it to your system.

Special Case- External Channels

The Model 8872 supports a new channel type "E" for External Channels. These allow the user to create a 'fake' channel associated with parameter from a directly polled instrument (e.g., BAM, E-Sampler, etc), where the logger is not doing real-time acquisition (e.g., directly polled instruments in an 8872). It exists ONLY to create a channel number for use with logger polling. The External type channel requires no other special configuration, and is ignored by the Site Node Logger process.

Modbus and GSI channels in the 8872 can use the **Modbus Scaling Factor** to convert floating point data from the instrument before using it in averages, calibrations, etc. This can be used to convert an analyzer that only provides PPB data on the Modbus link to PPM data, or similar conversions. This approach is preferred over **Analyzer Units in the logger**, since the **Analyzer Units** conversion only takes place on averages and calibration data, but causes inconsistency with other logger configuration settings (alarm limits, calibration expected values, etc).



Modbus Scaling Factor

Validation and Flags

Flags in AirVision can generally come from the data source (data logger, instrument), or applied later via data editing.

For data coming from data loggers (8816, 8832, or 8872), the flag list and sources of the flags are as follows. Flags are listed below in order of priority (from the data logger's perspective). Some flags are 'instantaneous' flags applied to readings (and visible on all resultant averages), while some flags are only applied to the particular average interval they are set for, like a high or low limit. Flags in **red** will invalidate the readings for the period the condition exists.

FLAG	TYPE	DESCRIPTION	SOURCE OF FLAG
<	Average	Insufficient data for valid average	Automatically applied by logger if less than 75% or defined % valid in Validation Settings.
>	Average	Sufficient data for valid average, but some data missing	Automatically applied by logger if > 75% (or user defined threshold) but < 100% of readings valid.
P	Instantaneous	Power failure	Power failure experienced (invalidates one base average).
D	Instantaneous	Channel Offline	Channel disabled via user interface (Logger Toolbox in 8872).
T	Instantaneous	Out Of Control due to bad Cal	Normally a CEM feature, if cal drift > OOC limit set in Calibration program, then channel invalid until a good cal is passed.
F	Instantaneous	Boiler Offline (CEM)	Normally CEM feature, boiler is considered offline based on status input pattern configured in Validation settings.
B	Instantaneous	Bad Instrument Stations	Instrument is considered offline based on configured status input pattern. Will also appear during periods of Modbus or RS-232 communication 'dropouts' between logger and instrument.
C	Instantaneous	Instrument in Calibration	Logger running calibration program affecting this instrument/channel.
M	Instantaneous	Instrument in Maintenance	Channel disabled via user interface (Logger Toolbox in 8872) or via configured status input.
O	Instantaneous	Analog Overrange	Single reading > full scale of analog range, invalidates the base average.

FLAG	TYPE	DESCRIPTION	SOURCE OF FLAG
U	Instantaneous	Analog Underrange	Single reading < negative end of full scale of analog range, invalidates the base average.
A	Instantaneous	Math Error	Error executing math pack channel equation, most commonly divide by zero.
+	Instantaneous	Maximum Reading Error	Reading > configured "Maximum Reading", invalidates the base average.
-	Instantaneous	Minimum Reading Error	Reading < configured "Minimum Reading", invalidates the base average.
R	Instantaneous	Rate of Change Error	Reading changed from one reading to another > the configured rate of change limit.
H	Average	High High Limit Exceeded	Average (e.g., 1m, 1h) value > configured limit.
L	Average	Low-Low Limit Exceeded	Average (e.g., 1m, 1h) value > configured limit.
h	Average	High Limit Exceeded	Average (e.g., 1m, 1h) value , configured limit.
l	Average	Low Limit Exceeded	Average (e.g., 1m, 1h) value < configured limit.
J	Average	High High Rate of Change	Change from previous average > set limit.
j	Average	High rate of change	Change from previous average > set limit.
V	Instantaneous	Digital Information#1	Configured status input pattern detected.
W	Instantaneous	Digital Information#2	Configured status input pattern detected.
X	Instantaneous	Digital Information#3	Configured status input pattern detected.
Y	Instantaneous	Digital Information#4	Configured status input pattern detected.
Z	Instantaneous	Digital Information#5	Configured status input pattern detected.
f	Average	Floor limit exceeded	Average < configured Floor Limit, value changed to floor value.
c	Average	Ceiling limit exceeded	Average > configured Ceiling limit, value changed to ceiling value.

The Validation settings can be found in Data Source Details (or Logger Channels in the 8872):

Average Level Validation				Information Flags	
	Base Average	Extended Average 1	Extended Average 2		
High-High Alarm Limit (H)	<input type="text"/>	<input type="text"/>	<input type="text"/>	Digital Info#1 (V) Status	<input type="button" value="Select Lines"/>
High Alarm Limit (h)	<input type="text"/>	<input type="text"/>	<input type="text"/>	Digital Info#2 (W) Status	<input type="button" value="Select Lines"/>
Low Alarm Limit (l)	<input type="text"/>	<input type="text"/>	<input type="text" value="-0.1000"/>	Digital Info#3 (X) Status	<input type="button" value="Select Lines"/>
Low-Low Alarm Limit (L)	<input type="text"/>	<input type="text"/>	<input type="text"/>	Digital Info#4 (Y) Status	<input type="button" value="Select Lines"/>
High ROC Alarm Limit (J)	<input type="text"/>	<input type="text"/>	<input type="text"/>	Digital Info#5 (Z) Status	<input type="button" value="Select Lines"/>
Low ROC Alarm Limit (j)	<input type="text"/>	<input type="text"/>	<input type="text"/>	Bad Status Inputs (B)	<input type="button" value="Select Lines"/>
Floor Limit (f)	<input type="text"/>	<input type="text"/>	<input type="text"/>	Maintenance Inputs (M)	<input type="button" value="Select Lines"/>
Floor Value	<input type="text"/>	<input type="text"/>	<input type="text"/>	Boiler Offline (CEM) (F)	<input type="button" value="Select Lines"/>
Percent Valid	<input type="text"/>	<input type="text"/>	<input type="text"/>	Max Readings (+)	<input type="text"/>
Ceiling Limit (c)	<input type="text"/>	<input type="text"/>	<input type="text"/>	Min Reading (-)	<input type="text"/>
Ceiling Value	<input type="text"/>	<input type="text"/>	<input type="text"/>	Rate of Change (R)	<input type="text"/>
Overwrite Math Constant	<input type="text"/>	<input type="text"/>	<input type="text"/>		

When settings are made in the AirVision central server, they must be downloaded to the 8816/8832 or Sync'd with the 8872 to take effect. The server ONLY stores these settings for download/sync, and does not act upon the settings in the Validation screen itself. They are used in real-time by the logger's real-time data processing engine.

Other Notes:

Note also that flags may be applied by the Automatic Data Validation Processor (ADVP) or in the Data Editor (although any data edited in the Data Editor will also have an "E" editing flag).

Other status flags that appear in the Flags Detail and that can be applied via the Editor or ADVP are as follows. None of these invalidate data (unless set to do so in the Flags Editor):

I = Invalidated Via Edited

? = Suspect Data

> = Exceedance Data

z = Zero Adjusted

Q = Quality Assured

m = Maintenance Data

a = Audit

p = Precision Check

E = Edited Data (automatically applied via any edit via Average Data Editor)

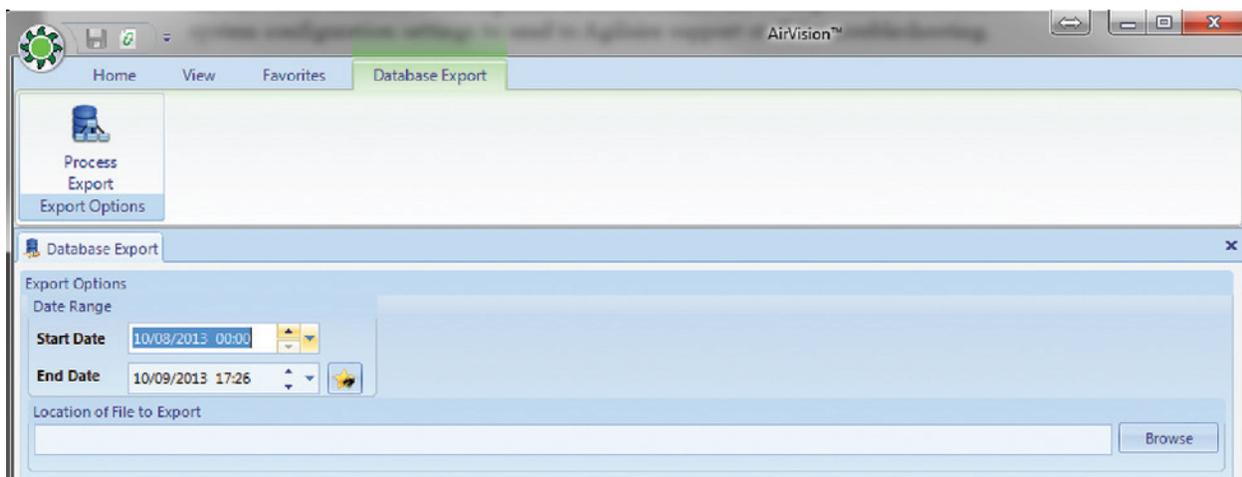
Note that some users may change the definition/label of these "Server Side Flags".

Parameter Tag Editor

The Parameter Tag Creation Tool (**List Editors>Parameter Tag Editor**) is used only to create entries in the database for parameter / average interval combinations if you want to use the Average Data Editor as the sole means of data input or to create tags for the Data Rollup Utility. It is not necessary to use this tool for parameters that are polled, imported using the File Import Tool, or manually entered through the Sample Data Editor, as AirVision creates the database tag entries automatically.

Database Export

The **Database Export tool (Utilities>Table Import/Export>Database Export)** allows a sample of the AirVision database to be exported in XML format for use by Agilaire in support and troubleshooting efforts. Select the **Browse** button in the **Location of File to Export** field and browse to the location of the XML file to be exported. The path to the file and the file name will be displayed in the export field. Click the **Process Export** button on the Ribbon. The configuration will be exported to an XML file. Keep in mind that the export only gets basic essential settings and does not export the complete configuration of the system and should not be used as a primary backup file.



Database Export tool (Utilities>Table Import/Export>Database Export)

Adding Communication Routes

The next step is to identify to the AirVision Server how to communicate with each logger by setting up Communication Routes. After you configure the **Source** in **Data Source Details** from **Configuration Editors**, click **Server Configuration** to configure a Communication Route for each logger.

TCP/IP Routes

Highlight the **Server** and click the **Add TCP** button to establish the communication route described below:

- ▶ **Note:** TCP/IP connections are easier and faster than modems.

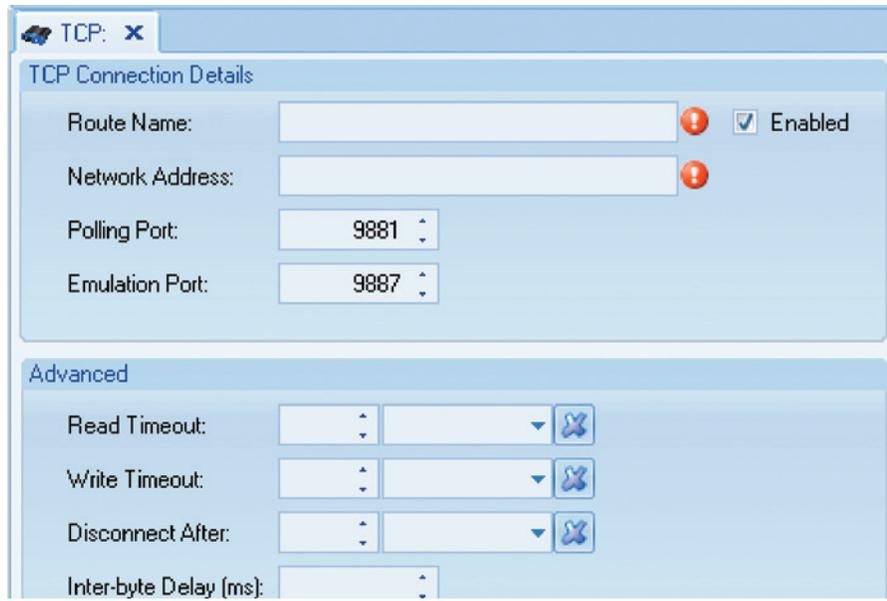
For sites with a TCP/IP connection,

- ◆ Click the **Add TCP Route** button
- ◆ Enter a **Route Name**, e.g., Agilaire,
- ◆ Enter a **Network Address**, e.g., 172.16.1.240

The defaults are set for 8832 defaults, but can be changed based on your network/route definitions:

- ◆ **Polling Port** at 9881
- ◆ **Emulation Port** at 9887. (Emulation ports are only used with the Model 8816 and 8832 data loggers.)
- ▶ **Note: Advanced Settings** should **ONLY** be modified when recommended by Agilaire support (865-927-9440 press 2 for support or email support@agilaire.com). AirVision is designed with defaults that are best for most applications.
 - ◆ **Read Timeout-** This setting overrides the default timeout period for a TCP data read.
 - ◆ **Write Timeout-** This setting overrides the default timeout period for a TCP data transmission.
 - ◆ **Disconnect After-** This setting controls the closing of a TCP connection after a period of inactivity. Normally, AirVision assumes the TCP connection should remain open for optimum polling efficiency; however, some wireless IP modems will close the connection from their end, and TCP does not allow the server to automatically detect this drop. In these cases, AirVision can be set to forcibly close and re-open the connection.
- ▶ **Note: For wireless modems**, we recommend a setting of 10-15 seconds for most applications.
 - ◆ **Inter-byte Delay (ms)-** This feature can be used to slow the inter character transmission speed, if needed.

Click the **Save** button.



Adding a TCP Route in Configuration Editors > Data Source Details or Configuration>Server Configuration

Adding Serial Routes for Direct Communication

For sites with a serial route for a direct connection,

- ◆ Highlight the **Server** and click the **Add Serial** button in **Server Configuration**
- ◆ Enter a **Route Name**, e.g., Direct,
- ◆ Enter a **Comm Port**, e.g., COM4
- ▶ **Note:** This must be in the format of 'COMx' or 'COMxx', with uppercase "COM", no spaces, the same name as found in Windows for the COM port.
- ◆ Enter a **Baud Rate** or accept the default 9600
- ◆ **Data Bits** should be 8
- ◆ **Stop Bits** should be 1
- ◆ **Parity** should be None.
- ▶ **Note: Advanced Settings** should **ONLY** be modified when recommended by Agilaire support (865-927-9440 press 2 for support or email support@agilaire.com). AirVision is designed with defaults that are best for most applications.
- ◆ **Read Timeout** overrides the default timeout period for data read..
- ◆ **Write Timeout** overrides the default timeout period for a data transmission.
- ◆ **Disconnect After** controls the closing of a connection after a period of inactivity. Normally, AirVision assumes the direct connection should remain open for optimum polling efficiency; however, AirVision can be set to forcibly close and re-open the connection.
- ◆ **Inter-byte Delay (ms)** can be used to slow the inter character transmission speed.

Click the **Save** button.

- ▶ **Note:** Communication Routes can also be added in **Configuration Editors > PC Configuration** by highlighting the **Server** icon and clicking one of the **Add** buttons.

The image shows two overlapping configuration windows. The top window is titled 'COM: x' and contains 'Serial Connection Details'. It has the following fields: 'Route Name' (empty), 'Comm Port' (empty), 'Baud Rate' (9600), 'Data Bits' (8), 'Stop Bits' (1), and 'Parity' (None). There are red warning icons next to 'Route Name' and 'Comm Port', and a checked 'Enabled' checkbox. The bottom window is titled 'Advanced' and contains: 'Read Timeout' (empty), 'Write Timeout' (empty), 'Disconnect After' (empty), and 'Inter-byte Delay (ms)' (empty). Each of these four fields has a small 'X' icon to its right.

Adding a Serial (Direct) Route in Configuration Editors > Data Source Details or Configuration>Server Configuration

Adding Remote Modems

For sites with a modem route, for the remote modem:

- ◆ Open **Server Communication** and click the **Add Modem Route** button in and select **MODEM**
- ◆ Enter a **Route Name**, e.g., Modem1
- ◆ Enter a **Phone number**, e.g.,865-927-9440
- ◆ Select a **Modem** from the drop-down list or leave the default of **Use any available modem**
- ◆ **Preferred Modem Baud Rate**. If set, AirVision will first seek a modem whose max baud rate matches this preferred speed. If none is available, it will use any of the other modems in the pool.
- ◆ Enter a number of **Redial attempts** (default is 1)
- ◆ Enter **Time between redial attempts** (default is 1 minute).
- ◆ Click the **Save** button.

The screenshot shows a configuration window titled 'MOD: x'. It is divided into three sections:

- Modem Connection Details:**
 - Route Name: [Empty text box] [Red warning icon]
 - Phone Number: [Empty text box] [Red warning icon]
 - Modem: (Use any available modem) [Dropdown arrow]
 - Preferred Modem Baud Rate: (Any) [Dropdown arrow]
 - Enabled: Enabled
- Redialing Options:**
 - Redial Attempts: [1] [Spinners]
 - Time Between Redial Attempts: [1] [Spinners] Minutes(s) [Dropdown arrow] [Close icon]
- Advanced Options:**
 - Override Serial Baud Rate: (Use default) [Dropdown arrow]
 - Override Serial Read Timeout: [Spinners] [Dropdown arrow] [Close icon]
 - Override Serial Write Timeout: [Spinners] [Dropdown arrow] [Close icon]
 - Connection Timeout: [Spinners] [Dropdown arrow] [Close icon]
 - Hang-up Idle Time: [5] [Spinners] Second(s) [Dropdown arrow] [Close icon]

Adding a Remote Modem Route in Configuration Editors > Data Source Details

- ▶ **Note: Advanced Settings** should **ONLY** be modified when recommended by Agilaire support (865-927-9440 press 2 for support or email support@agilaire.com). AirVision is designed with defaults that are best for most applications.
 - ◆ **Over ride Serial Baud Rate-** If set, AirVision will force the COM port connection to a specific speed when communicating with the modem.
 - ◆ **Over ride Serial Read Timeout-** Overrides the default timeout period for a serial transmission from the server to the remote.
 - ◆ **Over ride Serial Write Timeout-** Overrides the default timeout period for a serial response from the remote after a command has been sent.
 - ◆ **Connection Timeout-** Sets the time before a dialing attempt is aborted if the modem does not provide a valid response code indicating a connection. We recommend a setting of 10-15 seconds for most applications.
 - ◆ **Hangup Idle Time-** Sets the time before an idle modem connection is considered ready for disconnection Defaults to 5 seconds (this would be five seconds in addition to the Serial Read Timeout), but can be extended if responses from loggers are slow.

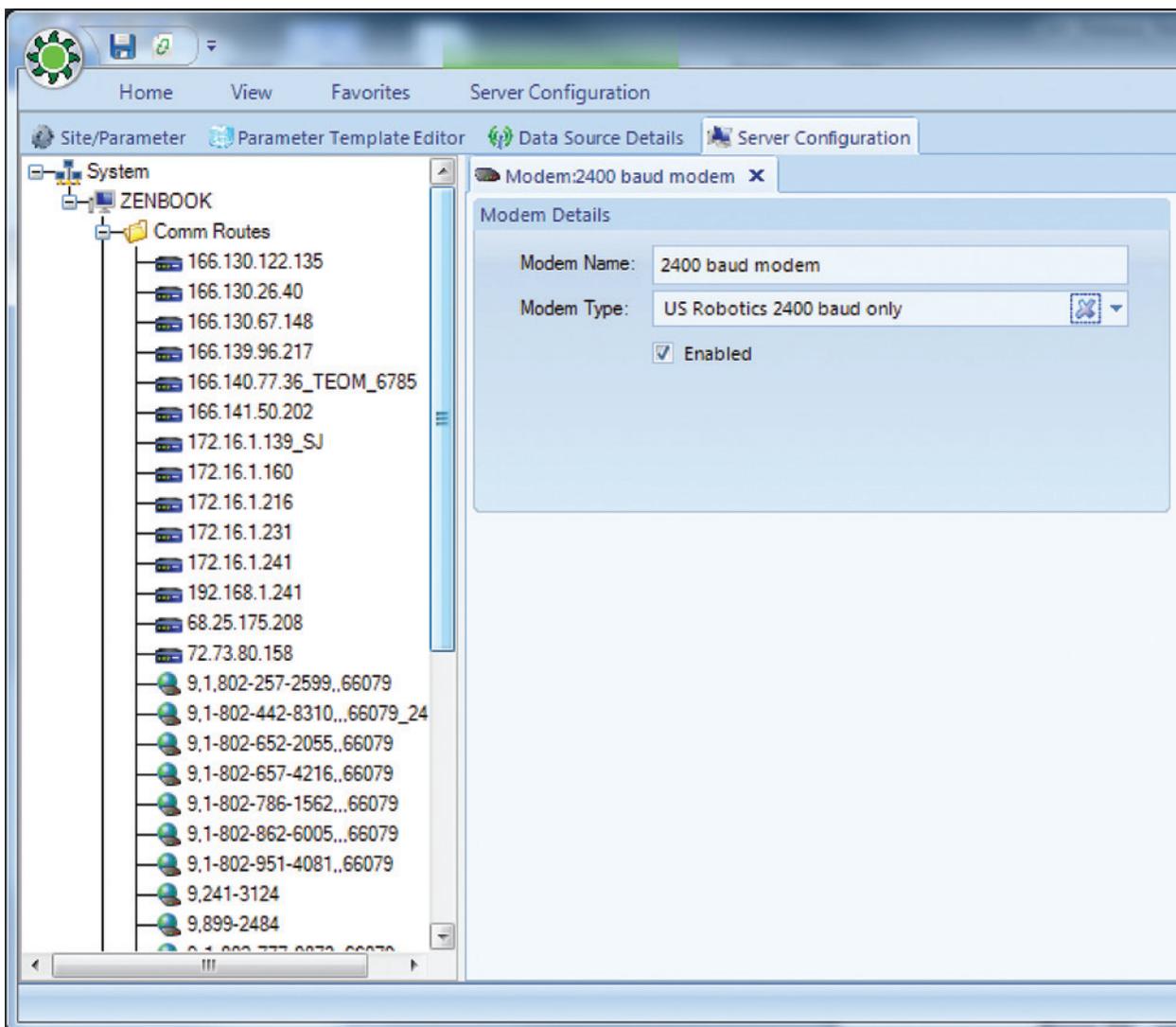
Adding a Modem Route for Central Modem

For communication via modem, add a **Modem Route** to dial out from the **Central modem** attached to your Executive PC. From **Configuration Editors > Server Configuration**:

- ◆ highlight the **COM1** icon (or COM2, COM3, etc.)
- ◆ click the **Add Modem** button.
- ◆ enter a **Modem Name** (such as Central modem)
- ◆ select a **Modem Type** from the drop down list, e.g., U.S. Robotics 28.8-33.6.

Click the **Save** button. The modem will be added below the COM icon in the menu tree.

- **Note:** Communication Routes can also be added in **Configuration Editors > Server Configuration** by highlighting the **Server** icon and clicking one of the **Add** buttons.



Central Modem Configuration from Configuration Editors > Data Source Details > Communication tab > Create New Route button.

Associating an Existing Route to a Logger

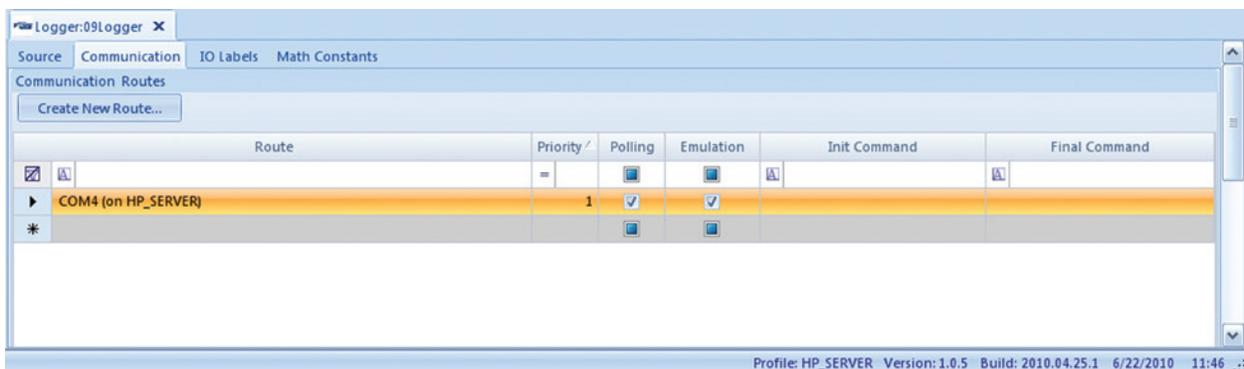
Each **logger** must be associated with a **Logger Driver**. Open **Configuration Editors > Data Source Details > Logger** and select the **Communication** tab:

- ◆ Highlight the **Route** row
- ◆ Assign a **Priority** number
- ◆ Select **Polling** and/or **Emulation** if applicable (Emulation is for linking to the logger.)
- ◆ Optionally, enter an **Initialization Command** and a **Final Command**
- ◆ Click the **Save** button.
- ◆ Click the **Save** button.

To add a new Route, click the **Create New Route** button.

⇒ **Important:** Some configuration changes require you to restart the the AirVision Server. If a **System Restart** is necessary, you will be prompted by AirVision when you click **Save**. If you click **Yes** at the prompt, AirVision will restart the system automatically. If a required server restart is not done, you will not be able to link to logger. (Two server restarts may be necessary to synchronize the network for IP-based connections.)

- ▶ **Note:** If you need to restart the system manually, open the **Utilities** menu and select **Server Restart**. Select an **Executive** in the **Server Restart** screen, then click the **Restart Executive Service** icon in the upper left corner.

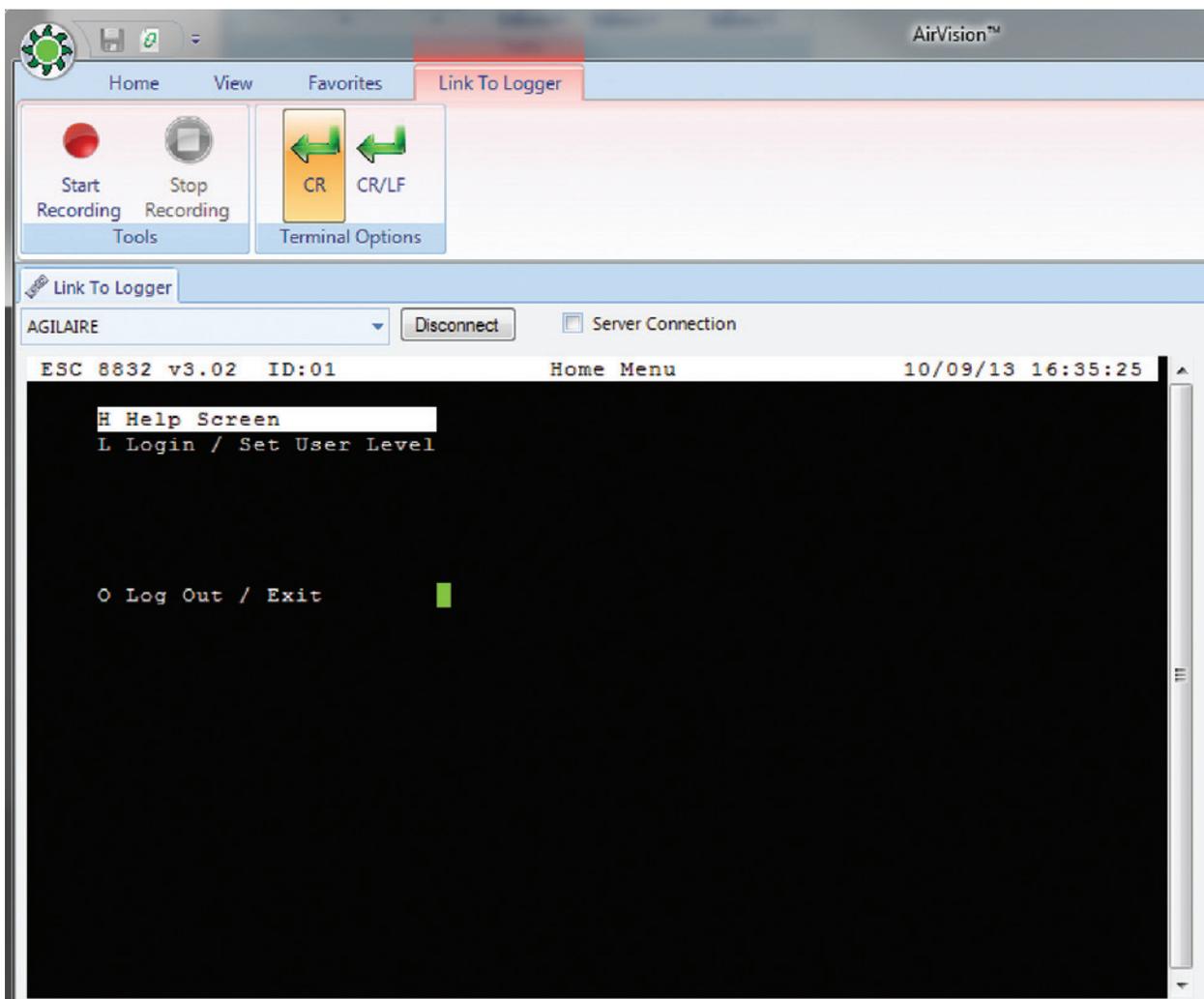


Associating Data Logger with TCP/IP connection to Driver in Configuration Editors > Data Source Details > Communication tab

Testing Your Connection

To test your connection, select **Link to Logger** from the **Utilities** menu. Select a logger from the drop-down list and click **Connect**. Linking to the logger means that your connection is good but does not ensure that you will be able to download or poll.

- ◆ **Important:** If you have not restarted the AirVision service after making configuration changes, you must restart the AirVision service before you can link to logger. Open **Utilities > Restart**. Be sure the Executive is selected and click **Restart Executive Service** in the upper left corner. Sometimes two server restarts are required to synchronize the network for IP-based connections.
- ▶ **Note:** If you need to restart the system manually, open the **Utilities** menu and select **System Restart**. Select an **Executive** in the **System Restart** screen, then click the **Restart Executive Service** icon in the upper left corner.



Testing your connection from Utilities > Link to Logger

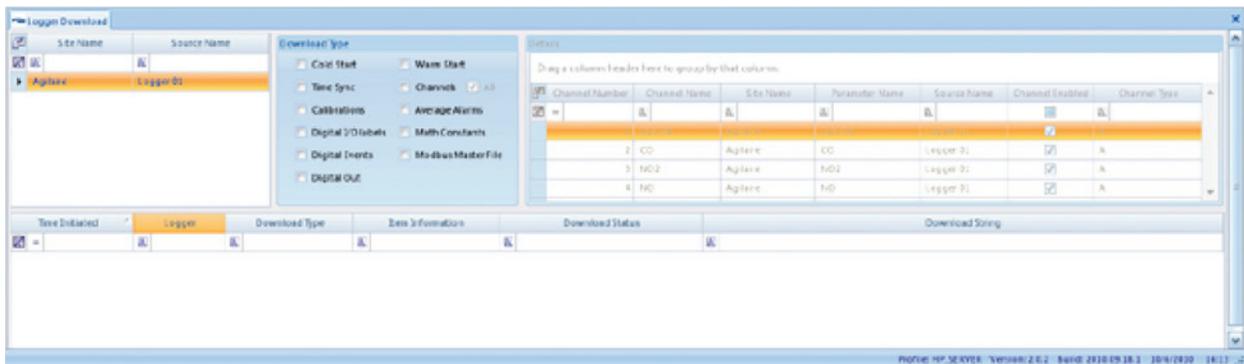
Logger Download (Model 8816 / 8832 only)

To download channel configurations:

- ◆ Open **Utilities > Logger Download**. Configuring channels was explained in the section “Adding Channels to Data Loggers.”
- ◆ Select the **Site/Source Name**
- ◆ Select the **Download Type(s)** from the following check list:
 - Cold Start
 - Time Sync
 - Calibrations
 - Digital I/O Labels
 - Digital Events
 - Digital Out
 - Warm Start
 - Channels. If you select Channels, the option to select All will be activated.
 - Average Alarms
 - Math Constants
 - Modbus Master File
- ◆ In the Details section, select rows from a table with the following columns: Channel Number, Channel Name, Site Name, Parameter Name, Source Name, Channel Enabled, and Channel Type.
- ◆ click **Download**.

The **Log Viewer** will display details of the download in the bottom section of the screen.

- ▶ **Note:** The **Log Viewer** can also be accessed directly from the **Utilities** menu.
- ▶ **Note:** Multiple loggers can be downloaded at the same time without a cold start.



Logger Download in Utilities > Logger Download

Downloading Channel Configurations (8816 / 8832 Loggers)

To download channel configurations:

- ◆ open **Utilities > Logger Download**. Configuring channels was explained in the section “Adding Channels to Data Loggers.”
- ◆ select the **Site/Source Name** and **Channels** for the **Download Type**
- ◆ click **Download**.

The **Log Viewer** will display details of the download in the bottom section of the screen.

- ▶ **Note:** The **Log Viewer** can also be accessed directly from the **Utilities** menu.
- ▶ **Note:** Multiple loggers can be downloaded at the same time without a cold start.

The screenshot displays the AirVision™ software interface. The main window is titled "Logger Download" and shows a table with columns for Site Name, Source Name, and Download Type. A table below shows the download results with columns for Time Initiated, Logger, Download Type, Item Information, and Download String. The Log Viewer at the bottom shows a list of messages with columns for Time, Event Type, and Message.

Time Initiated	Logger	Download Type	Item Information	Download String
07/27/2009 13:19	TCP01	Time Sync	Time Sync	
07/27/2009 13:20	TCP01	Standard Averaging C	Channel: 01, Parameter: 17802ONE	01ACOUNT
07/27/2009 13:20	TCP01	Standard Averaging C	Channel: 02, Parameter: 178W02	02ANONE
07/27/2009 13:20	TCP01	Standard Averaging C	Channel: 03, Parameter: 178S02	03APPM

Time	Event Type	Message
13:20:48.373	Communication	<- Response: @01abb\$
13:20:48.403	Communication	--> Requesting [TCP01] @01178S02 03APPM 001M007D001
13:20:48.523	Communication	<- Response: @01abb\$
13:20:48.573	Communication	--> Requesting [TCP01] @01178WDR 0A4DEG 001M007D001
13:20:48.713	Communication	<- Response: @01abb\$

Channel Download in Utilities > Channel Download

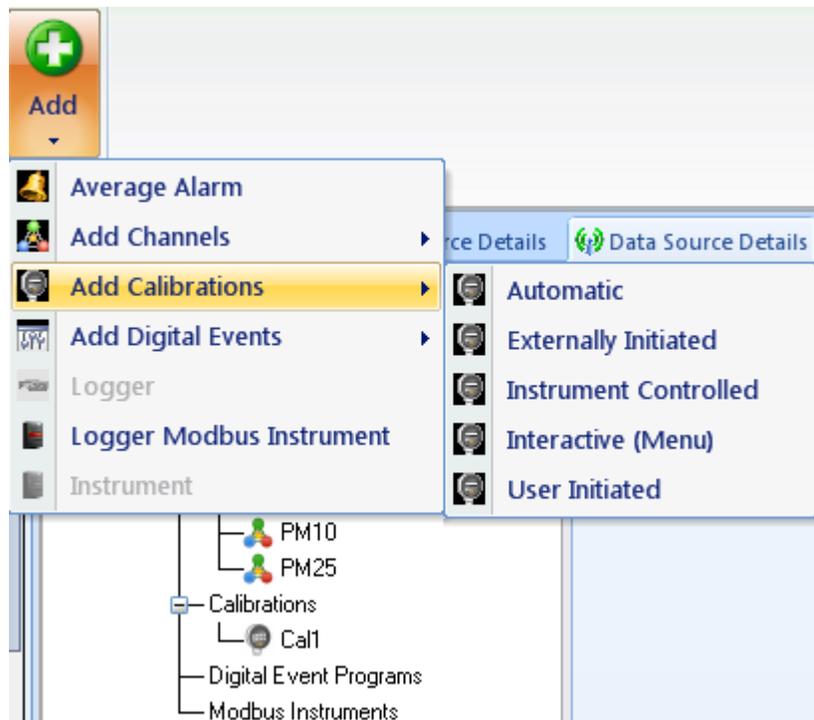
Setting Up Calibrations

To configure calibrations:

- ◆ open **Configuration Editors > Data Source Details**
- ◆ highlight the **Logger** in the tree menu
- ◆ click the small arrow under the **Add** button
- ◆ select **Calibrations** from the drop-down list
- ◆ select one of the following calibration types:
 - Automatic**
 - Externally Initiated**
 - Instrument Controlled**
 - Interactive (Menu)**
 - User Initiated**

For details about the remaining prompts, Consult the ESC Model 8816/8832 Data Logger Manual.

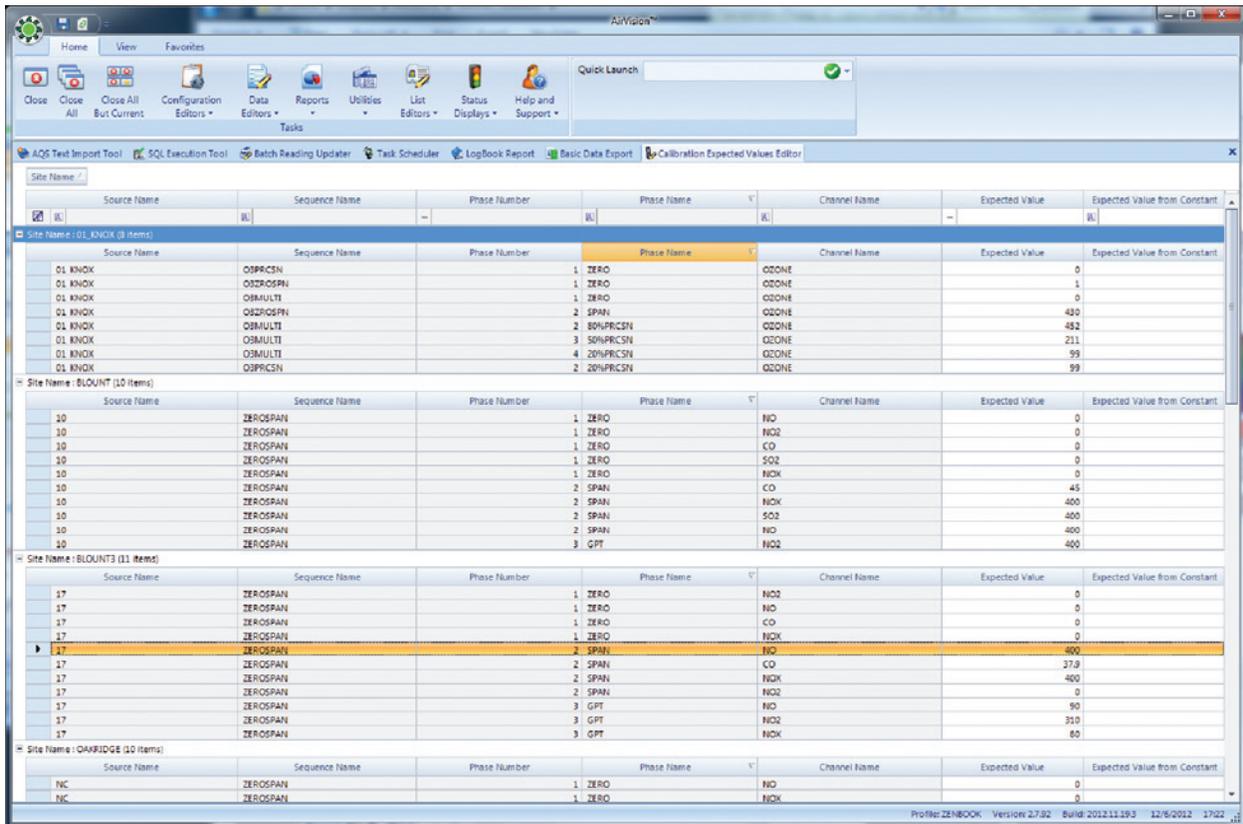
- ▶ **Note:** Configuration information must be downloaded to the data logger before a new sequence can be initiated.



Adding calibrations in Configuration Editors > Data Source Details

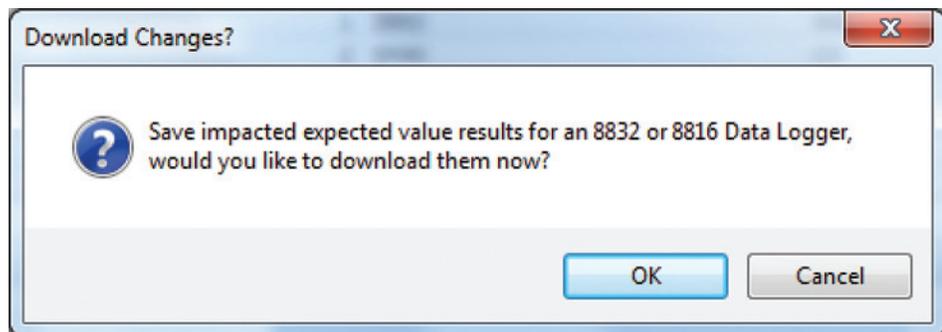
Calibration Expected Values Editor

This mimics the “Quick Expected Values” editor in the Model 8832 data logger that allows the user to quickly update target values for the calibration without sorting through the Calibration configuration editor. The system shows all configured calibrations as expandable/collapsible boxes. Once opened, columns headers can be clicked to sort by phase name, expected value, etc. for easier data entry.



Calibration Expected Values Editor

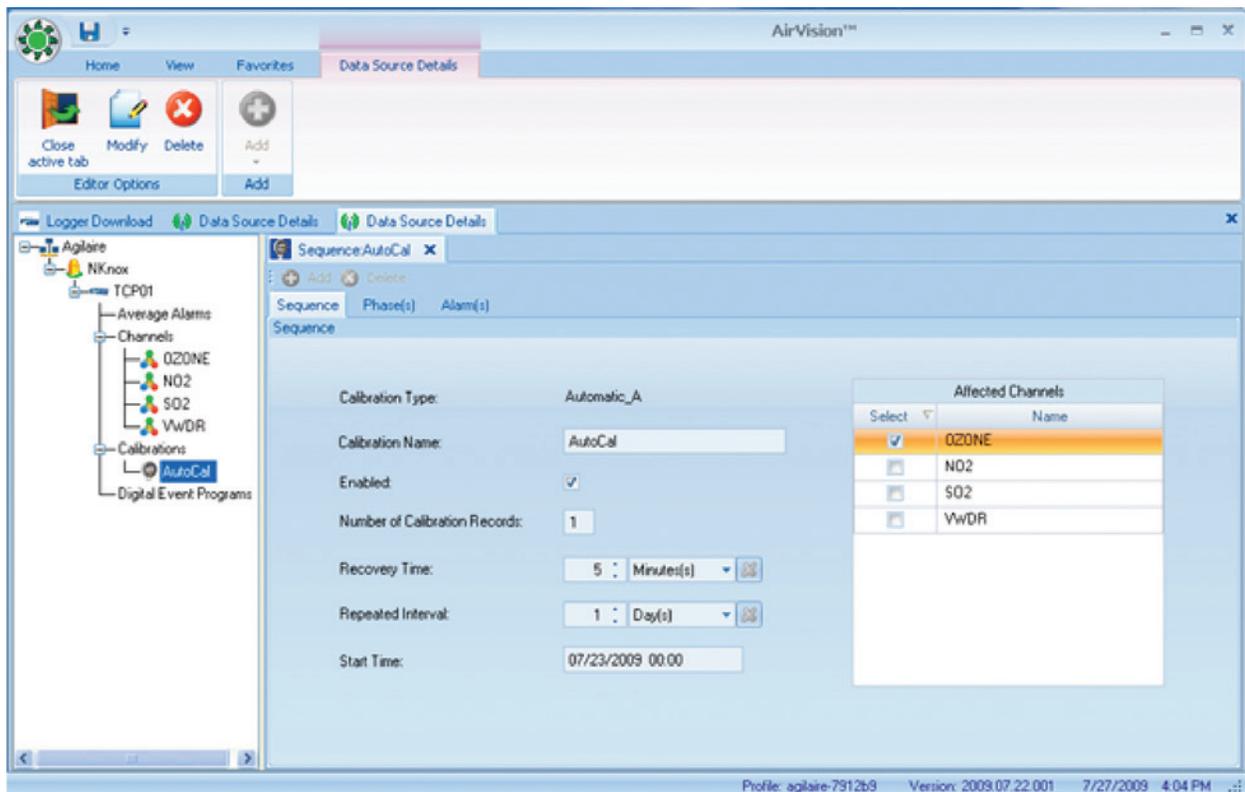
When values are saved, a pop-up window will prompt you to download changes to the data logger (8816 and 8832 only). Clicking **OK** will take you to the Logger Download form, where you can select the checkbox to only download the expected values.



Configuring Automatic Calibrations

If you configure **Automatic** Calibrations, the cal you enable will be automatically initiated by the data logger's internal clock. The Automatic Cal Sequence configuration screen has the following fields:

- ◆ **Calibration Type** will be already filled in (Automatic_A).
- ◆ **Calibration Name** is required to identify the cal program.
- ◆ Check **Enabled** if the calibration is to run.
- ◆ **Number of Calibration Records** determines how many cals the data logger will store before overwriting.
- ◆ **Recovery Time** specifies the time required to purge cal gas after phases.
- ◆ **Repeated Interval** determines how often cal sequence will repeat.
- ◆ **Start Time** determines what time cal sequence will start.
- ◆ **Affected Channels** determines which channels will be taken off-line during cal.
Select from a list of previously configured parameters.

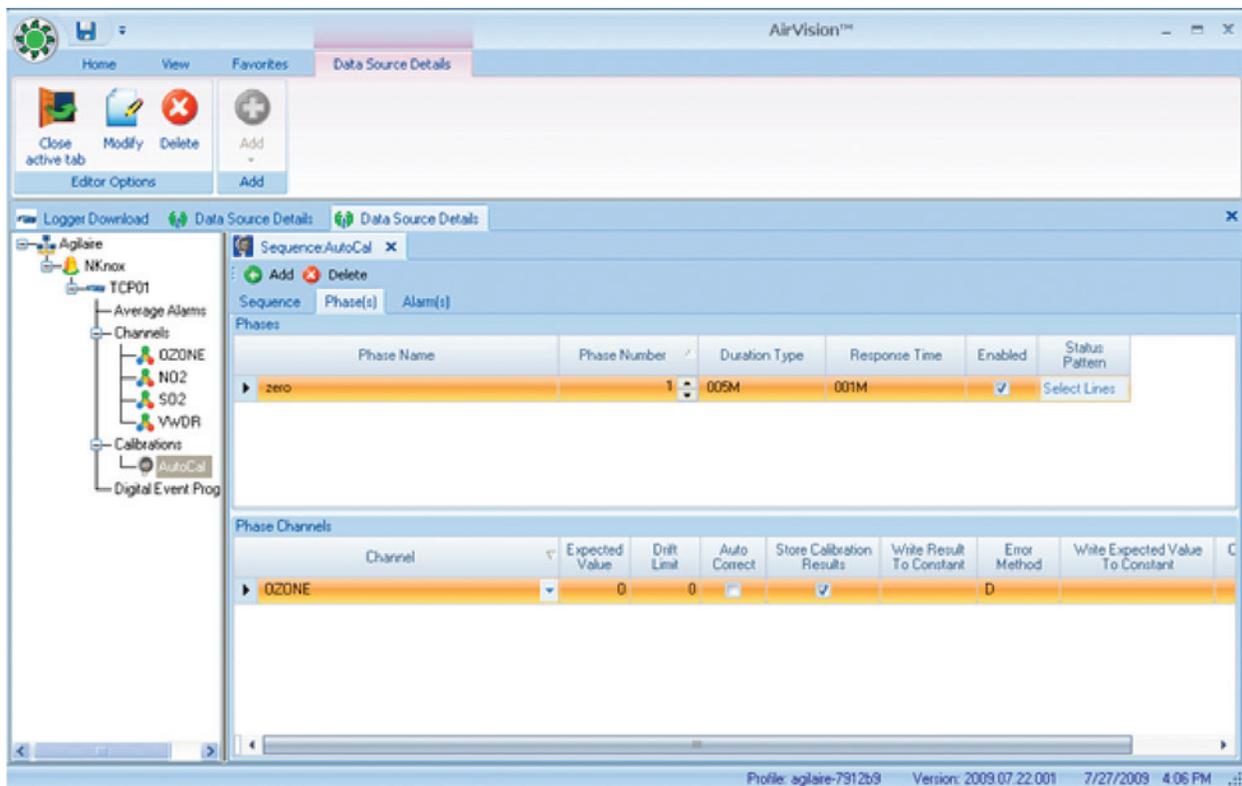


Automatic Calibration configuration in Configuration Editors > Data Source Details

Configuring Phases

To set up Phases:

- ◆ Click the **Phase(s)** tab behind the Sequence Cal tab.
- ◆ To enter a phase name, click the green **Add** button above the tabs and select **Phase** from the drop-down list. .
- ◆ Enter a **Phase Name**, **Phase Number**, **Duration Type**, **Recovery Time**, and click to **Enable**.
- ◆ To configure a Status Pattern, click the row in **Status Pattern** column and a check list of **Output Control Patterns** will come up. Note that you can only "Activate" output lines, so any lines with the "off" status will be ignored.
- ◆ After the Phase table is configured, click the green **Add** button again and select **Phase Channels**.
- ◆ Select a **Channel** from a drop-down list, and optionally enter an **Expected Value**, **Drift Limit**, **Auto Correct** (click to enable), **Store Cal Results** (click to enable), **Write Result to Constant**, **Error Method**, **Write Expected Value to Constant**, and **Out of Control Limit**.



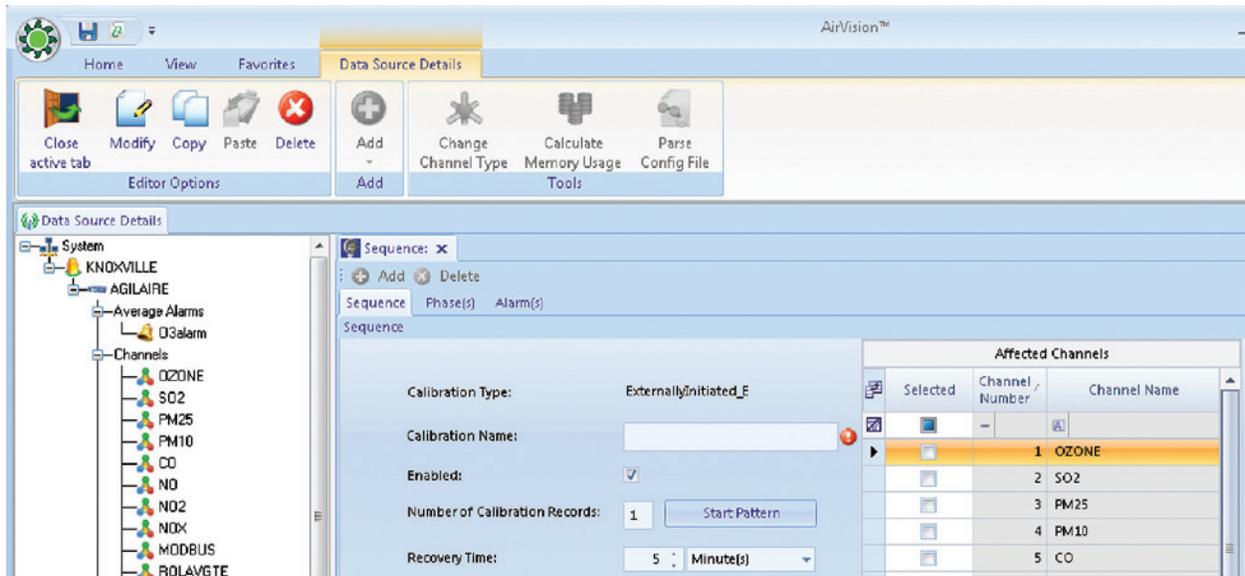
Configuring calibration phases in Configuration Editors > Data Source Details

Optionally, the user can define the Cal Level for each calibration phase using a picklist (ZERO, PREC, SPAN, 20%, etc). These levels are used by the Calibration Adjustment Tool and the AQS Precision Reporting for Gases functions, but designation of the levels are not required.

Externally Initiated Calibration

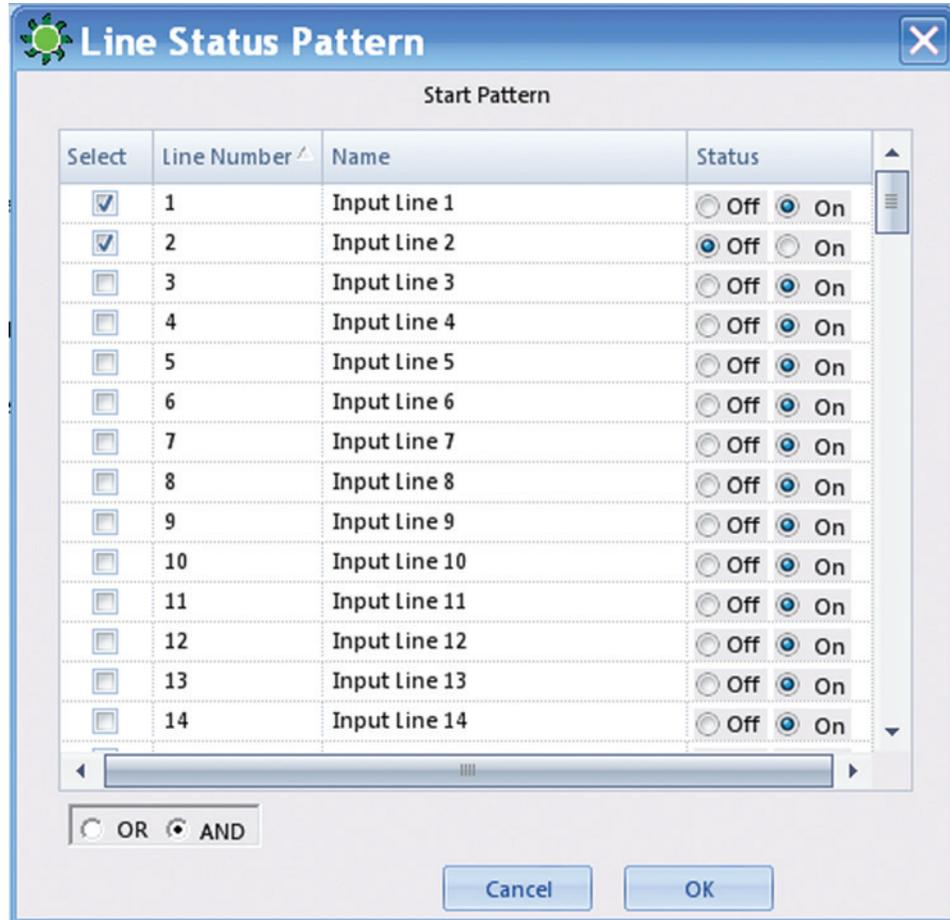
Externally initiated calibration is identical to an automatic calibration except for the way it is initiated. The sequence is started when a specified pattern of input control lines is met. To configure the **Start Pattern** (Line Status Pattern), click the **Start Pattern button**.

Individual phases are then initiated sequentially. As with an automatic calibration, the duration of each phase in the sequence can be specified.



Configuring Externally Initiated Calibrations in Configuration Editors > Data Source Details

When you click the **Start Pattern** button in the **Externally Initiation Calibration** screen, you **will see a Line Status Pattern** screen. Check the **Select** box to select an **Input Line** and select a **Status** of **On** or **Off**. The Externally Initiated Cal will begin when the **Start Pattern** is met.



Configuring Start Pattern (Line Status Pattern) in Externally Initiated Calibrations in Configuration Editors > Data Source Details

Configuring Instrument Controlled Calibrations

If you configure **Instrument Controlled** Calibrations, enabled calibrations will be initiated by the data logger when it detects a specified digital input pattern. Each phase will continue until the input line pattern changes. The Instrument Controlled Cal screen has the following fields:

- ◆ **Calibration Type** will be already filled in (InstrumentControlled_I).
- ◆ **Calibration Name** is required to identify the cal program.
- ◆ Check **Enabled** if the calibration is to run.
- ◆ **Number of Calibration Records** determines how many cals the data logger will store before overwriting.
- ◆ **Recovery Time** specifies the time required to purge cal gas after phases.
- ◆ **Affected Channels** determines which channels will be taken off-line during cal. Select from a list of previously configured parameters.

Select	Name
<input type="checkbox"/>	NO2
<input type="checkbox"/>	OZONE

Configuring Instrument Controlled Calibrations from Configuration Editors > Data Source Details

Configuring Interactive (Menu) Calibrations

If you configure **Interactive** Calibrations, enabled calcs will be controlled by a user via a menu interface. Interactive calcs are often used for highly manual procedures, such as testing opacity instruments against standard filter. Interactive Cal configuration screen has the following fields:

- ◆ **Calibration Type** will be already filled in (Interactive_M)
- ◆ **Calibration Name** is required to identify the cal program.
- ◆ Check **Enabled** if the calibration is to run.
- ◆ **Number of Calibration Records** determines how many calcs the data logger will store before overwriting.
- ◆ **Recovery Time** specifies the time required to purge cal gas after phases
- ◆ **Affected Channels** determines which channels will be taken off-line during cal. Select from a list of previously configured parameters.

The screenshot shows the 'Sequence' configuration window. The 'Calibration Type' is set to 'Interactive_M'. The 'Calibration Name' field is empty and has a red warning icon. The 'Enabled' checkbox is checked. The 'Number of Calibration Records' is set to 1. The 'Recovery Time' is set to 5 minutes. The 'Affected Channels' table lists 'NO2' and 'OZONE'.

Affected Channels	
Select	Name
<input type="checkbox"/>	NO2
<input type="checkbox"/>	OZONE

Configuring Interactive (Menu) Calibrations

Configuring User-Initiated Calibrations

Initiated calibrations are started manually by linking to the data logger. When the cal sequence is started, each phase will be initiated in order. The duration of each phase is configured with the same fields as automatic cal.

The User-Initiated Cal configuration screen has the following fields:

- ◆ **Calibration Type** will be already filled in (UserInitiated_U).
- ◆ **Calibration Name** is required to identify the cal program.
- ◆ Check **Enabled** if the calibration is to run.
- ◆ **Number of Calibration Records** determines how many cals the data logger will store before overwriting.
- ◆ **Recovery Time** specifies the time required to purge cal gas after phases.
- ◆ **Affected Channels** determines which channels will be taken off-line during cal. Select from a list of previously configured parameters.

The screenshot displays the configuration interface for a User-Initiated Calibration. The window title is 'Sequence:'. The interface includes a toolbar with 'Add' and 'Delete' buttons, and tabs for 'Sequence', 'Phase(s)', and 'Alarm(s)'. The 'Sequence' tab is active, showing the following configuration fields:

- Calibration Type: UserInitiated_U
- Calibration Name: (empty text field with a red error icon)
- Enabled:
- Number of Calibration Records: 1
- Recovery Time: 5 Minutes(s)

An 'Affected Channels' table is also visible, listing the channels to be affected during the calibration:

Select	Name
<input checked="" type="checkbox"/>	NO2
<input checked="" type="checkbox"/>	OZONE

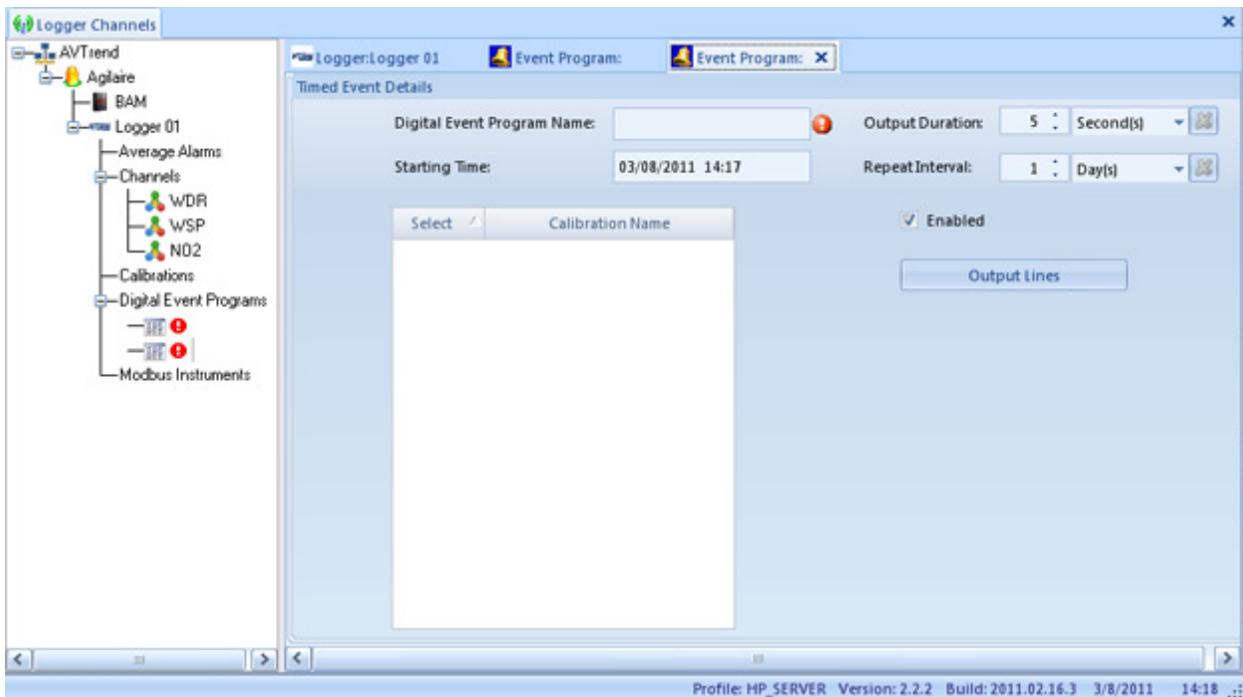
Configuring User-Initiated Calibrations

Configuring Input/Output Lines for Digital Events

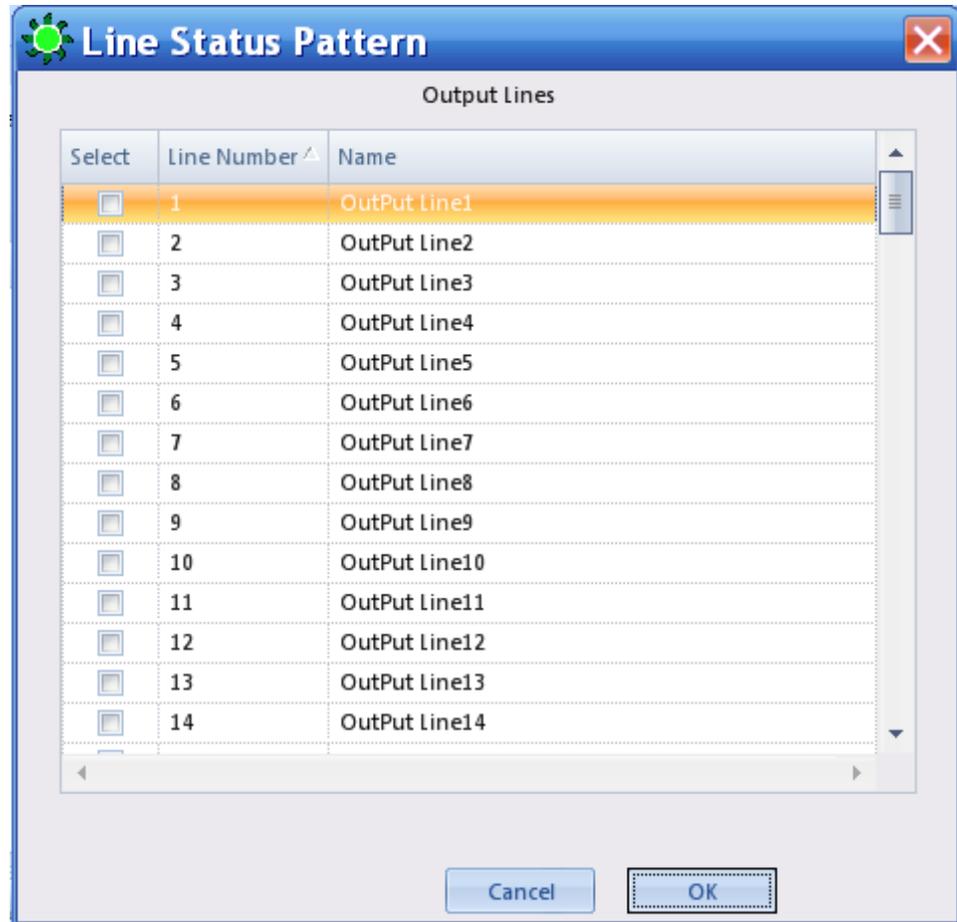
The purpose of digital event programs is to control processes from 8816 or 8832 Data Loggers. **Digitally Timed Events** will turn on specified **Output Lines** for the configured **Starting Time**, **Duration**, and **Repeat Interval**. **Digitally Triggered Events** are initiated by a digital input pattern that will turn on one or more digital output lines. The output lines will remain active for the specified duration; at the end of this time, the output lines will be turned off unless the triggering digital input pattern still matches.

Configuring Digital Timed Events

1. Highlight the **Data Logger** in **Configuration Editors > Logger Channels** tree menu.
2. Click the green **Add** button in the ribbon and select **Add Digital Events > Timed Event**.
3. Enter a **Digital Event Program Name**, a **Starting Time**, **Output Durations**, **Repeat Interval**, and check **Enabled**.
4. If the Digitally Timed Event is for a calibration, select a **Calibration Name** from the drop-down list.
5. Click the **Output Lines** button to bring up the **Line Status Pattern** screen and select a **Line Number**. Click **OK**.



Configuring Digitally Timed Events

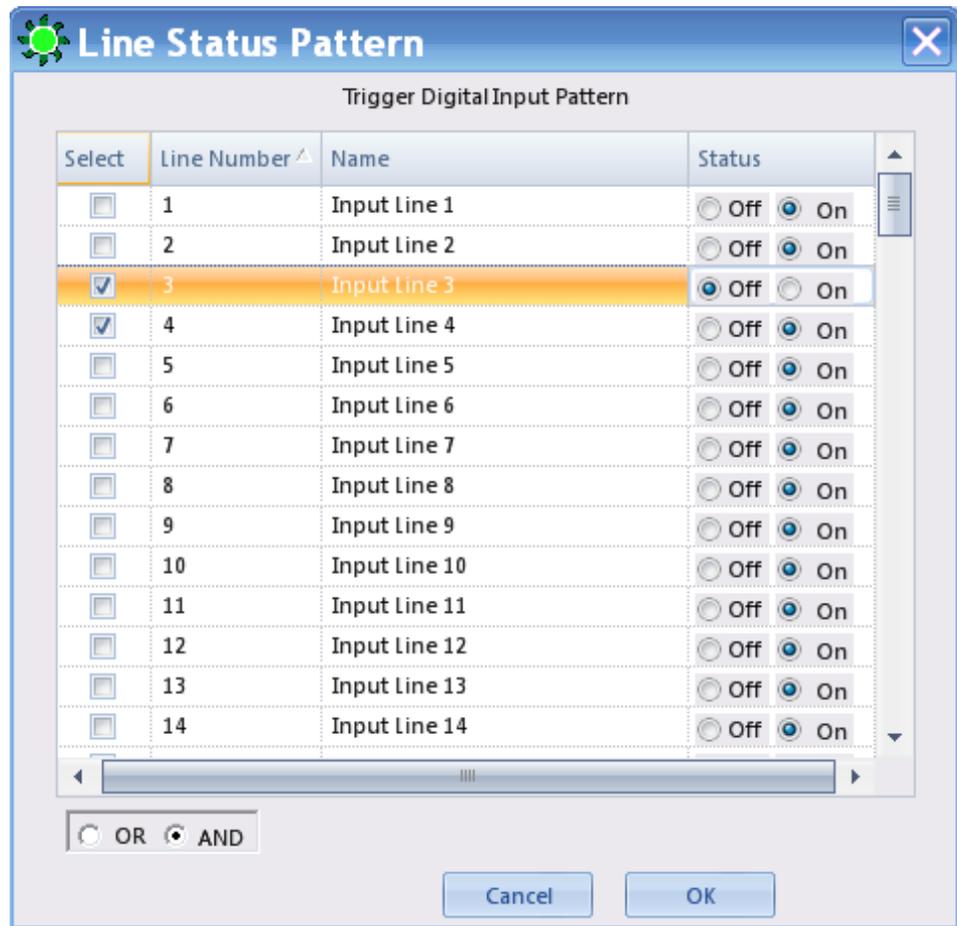


Line Status Pattern for Output Lines

Configuring Digital Triggered Events

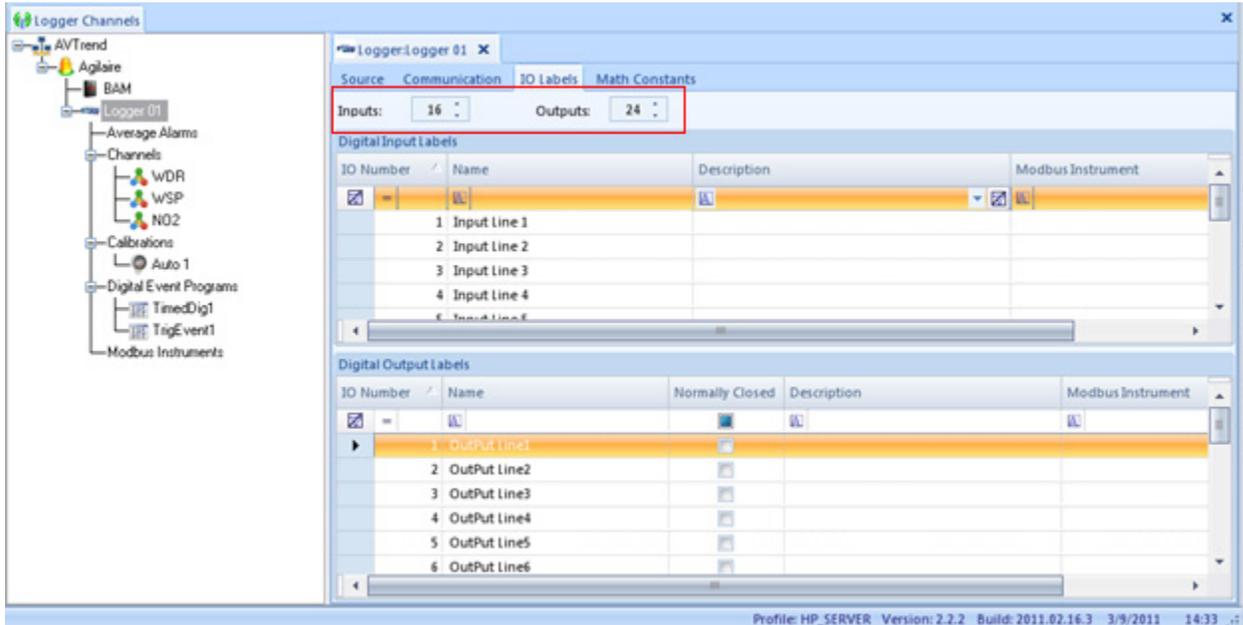
1. Highlight the **Data Logger** in **Configuration Editors > Logger Channels** tree menu.
2. Click the green **Add** button in the ribbon and select **Add Digital Events > Triggered Event**.
3. Enter a Triggered **Digital Event Program Name**, an **Output Duration** and check **Enabled**.
After the output duration time period, the program will check the digital input pattern to see if it still matches. If not, the output control lines will be switched off. If the pattern still matches, the output relays will remain on, and the duration time will begin again.
4. If the Digitally Triggered Event is for a calibration, select a **Calibration Name** from the drop-down list.
5. Click the **Output Lines** button to bring up the output **Line Status Pattern** screen and select which **Output Line or Lines** will be switched on when the triggered digital input pattern occurs. Click **OK**.

6. Click the **Trigger Digital Event Pattern** button to bring up the **Line Status Pattern** screen for Trigger Digital Input Pattern and select which **Input Line** or **Lines** turned **On** or **Off** will trigger the event and switch on the specified **Output Line(s)**.
7. In the lower left corner of the screen, select **And** or **Or**. If you select **And** (the default), the digital event program will be triggered **only if ALL** the specified conditions occur. If you select **Or**, the digital event program will be triggered if **ANY** of the specified conditions occur. Click **OK**.



Trigger Digital Input Line Status Pattern with OR/AND selection

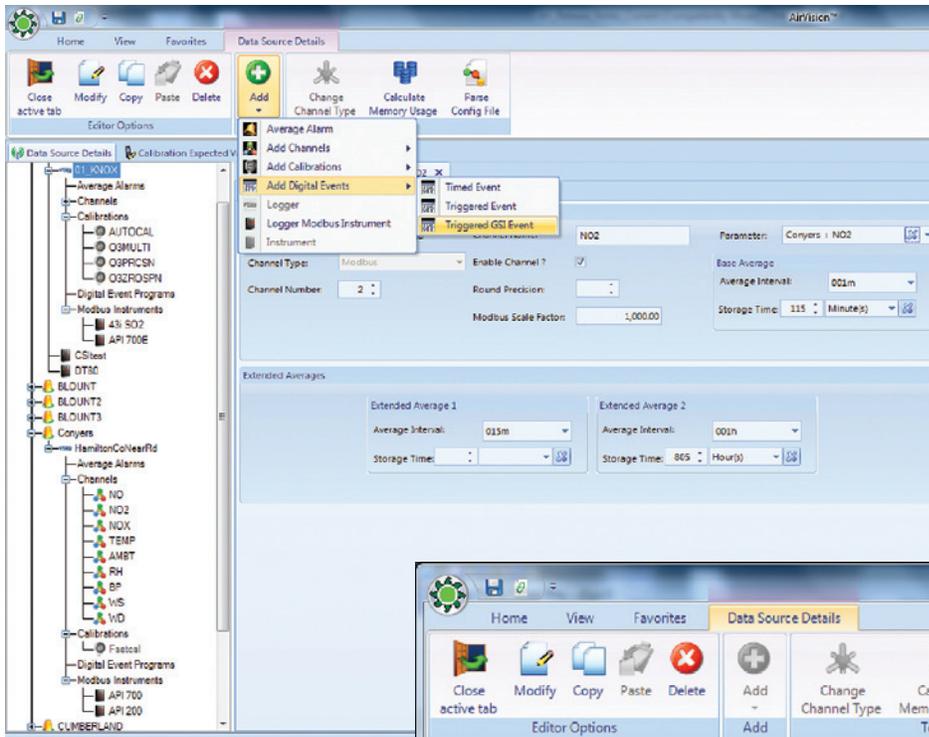
- ▶ **Note:** AirVision supports download of logger I/O labels with a different number of inputs and of outputs. If the number of input and output cards on your data logger are not equal, you may encounter some download errors when downloading the labels. If this happens, define the actual number of physical inputs and outputs using the **IO Labels** tab. If you are using pseudo inputs/outputs, do NOT accept allowing the system to change the number of labels.



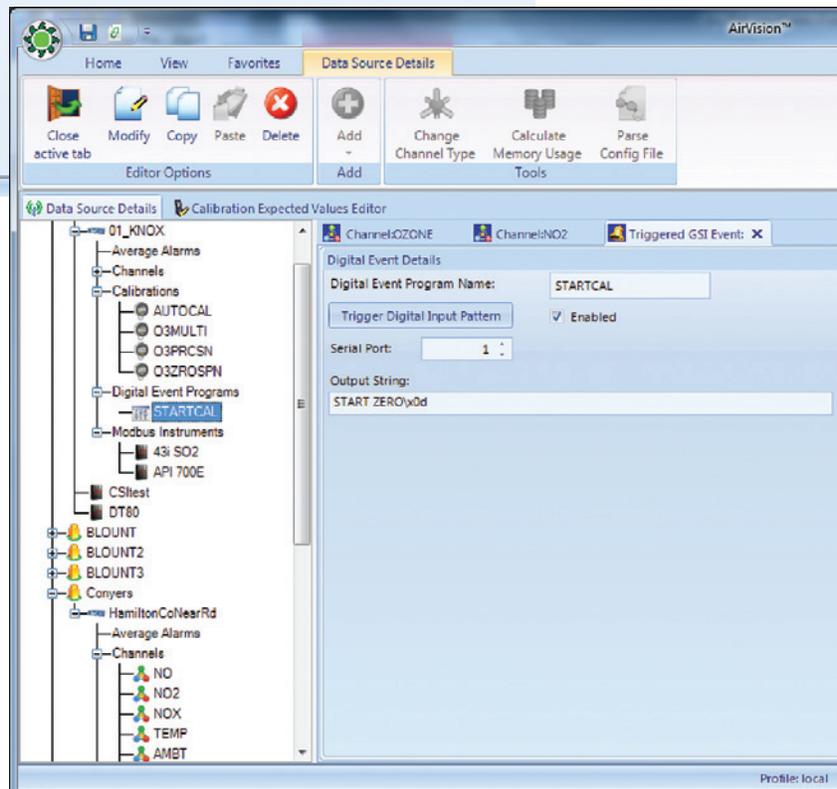
Different number of Inputs and Outputs Configuration Editors > Logger Channels > double-click Logger in tree menu > I/O Labels tab

Configuring DI-Triggered GSI Events

These events are used to send GSI strings based on the transition of a digital input (or of a pseudo DI-DO pair in the logger). Commonly, these are used to control RS-232 based calibrators or other devices. For this device, a digital input pattern is defined. When the logger sees the digital input transition to match this pattern, the GSI string is sent out the designated serial port (just once). The string is not resent until the logger goes to a non-matching input state, and then back to the matching state.



Triggered GSI Event



Digital Event details

Setting Up Email Alarms

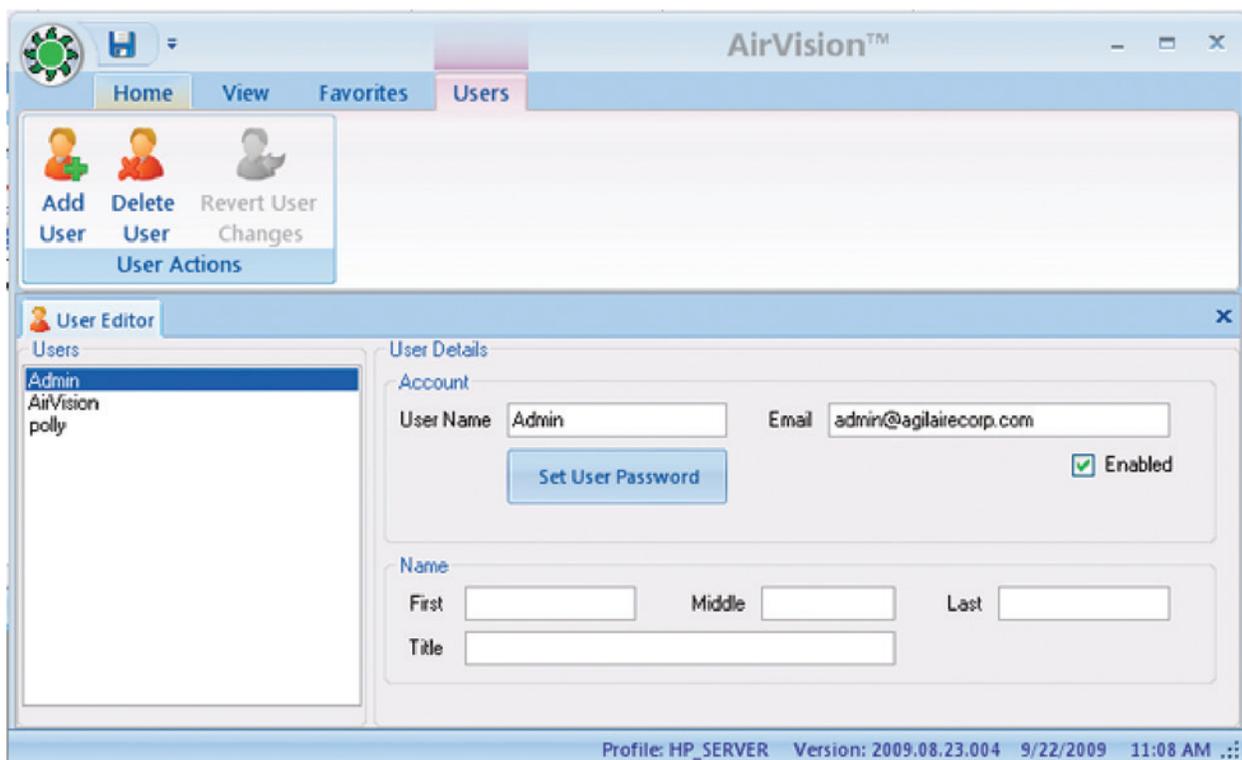
AirVision can email specific flag information (alarms), ADVP rule notices, or scheduled reports to selected recipients. To set up the email service, follow these steps:

1. Enable Email Service:

Open **Configuration Editors > Server Configuration** and double-click the **Executive** in the tree menu. Click the **Service Components** tab and be sure **Email Service Enabled** and **Auto Start** are selected. If you make changes, click **Save**.

2. Add Users and Email Addresses:

In **Configuration Editors > Security > User Editor**, click the **Add User** button and enter a **User Name**, **Email Address**, and click **Set User Password**. **Name** and **Title** are optional. Click **Save**.

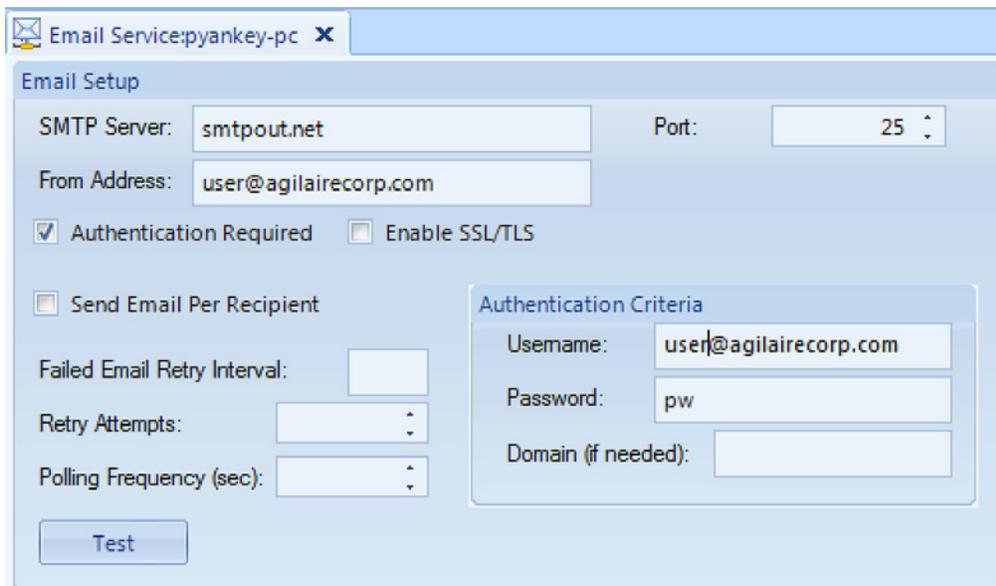


Adding Users in Configuration Editors > Security > User Editor

3. Configure SMTP settings:

In **Configuration Editors > Server Configuration**, double-click the **Email Service** icon under **Service Configuration** in the tree menu and enter the following information):

- ◆ **SMTP Server**, for example, smtpout.secureserver.net
- ◆ **Port** number
- ◆ **From Address** for the sender of email, e.g., ErrorReporting@agilaire.com
- ◆ If **Authentication** is **Required**, check the box and enter a **Username** and **Password**.
- ◆ If your mail server requires **SSL/TLS**, check the box next to **Enable SSL/TLS**.
- ◆ Check **Send email per recipient** if each recipient will receive email alarms, or leave unchecked for one email with multiple recipients shown.
- ◆ **Failed Email Retry Interval** (in seconds, minutes, or hours)
- ◆ Number of **Retry Attempts**
- ◆ **Polling Frequency** in seconds



The screenshot shows the 'Email Setup' dialog box with the following configuration:

- SMTP Server: smtpout.net
- Port: 25
- From Address: user@agilairecorp.com
- Authentication Required
- Enable SSL/TLS
- Send Email Per Recipient
- Failed Email Retry Interval: [empty]
- Retry Attempts: [empty]
- Polling Frequency (sec): [empty]
- Test button
- Authentication Criteria:
 - Username: user@agilairecorp.com
 - Password: pw
 - Domain (if needed): [empty]

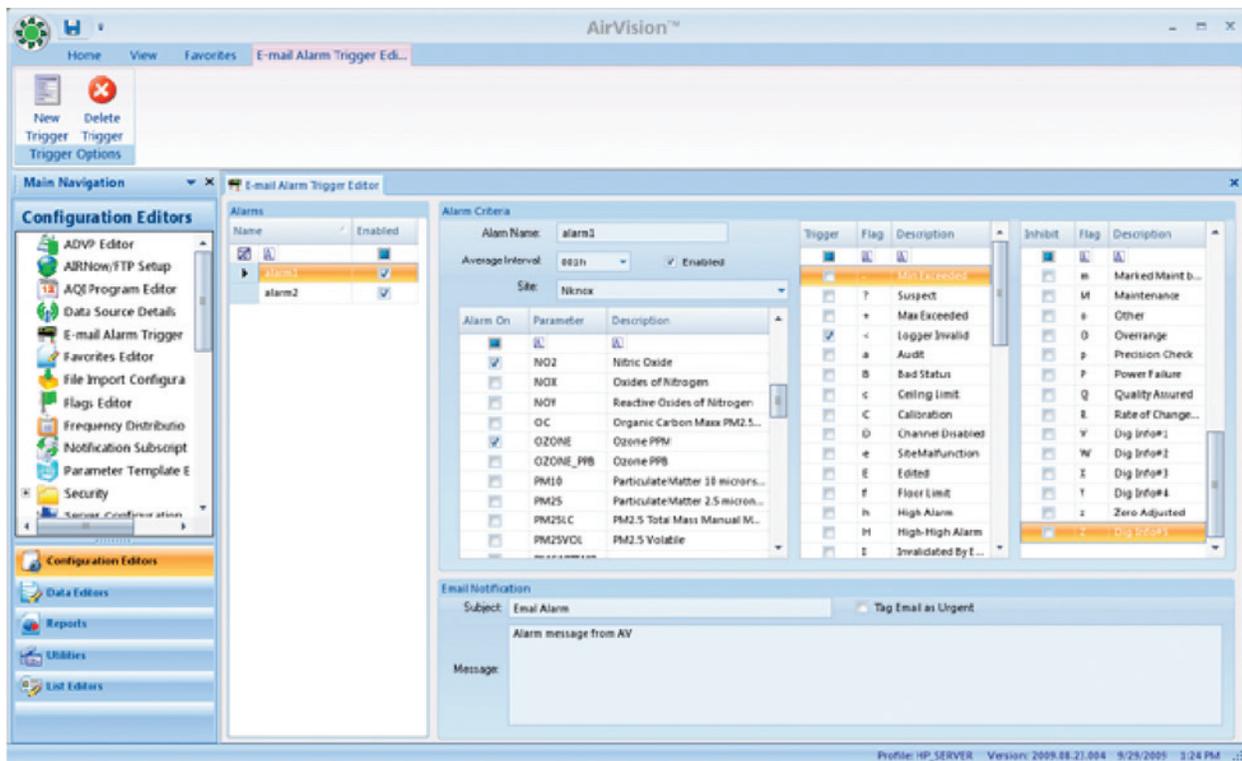
Setting up Email Service in Configuration Editors > Server Configuration > Email Service

4. Define Email Alarms:

In **Configuration Editors > Email Alarm Trigger Editor**, enter an **Alarm Name**, **Average Interval**, and a **Site**.

Select which **Parameters** to **Alarm On** (send an email alarm), which **Flags** to use as a **Trigger** for those parameters, and which **Flags to Inhibit**. For example, you could configure an email alarm to be sent for the **Parameter** ozone when an Invalid flag is set except when a Calibration is set at the same time.

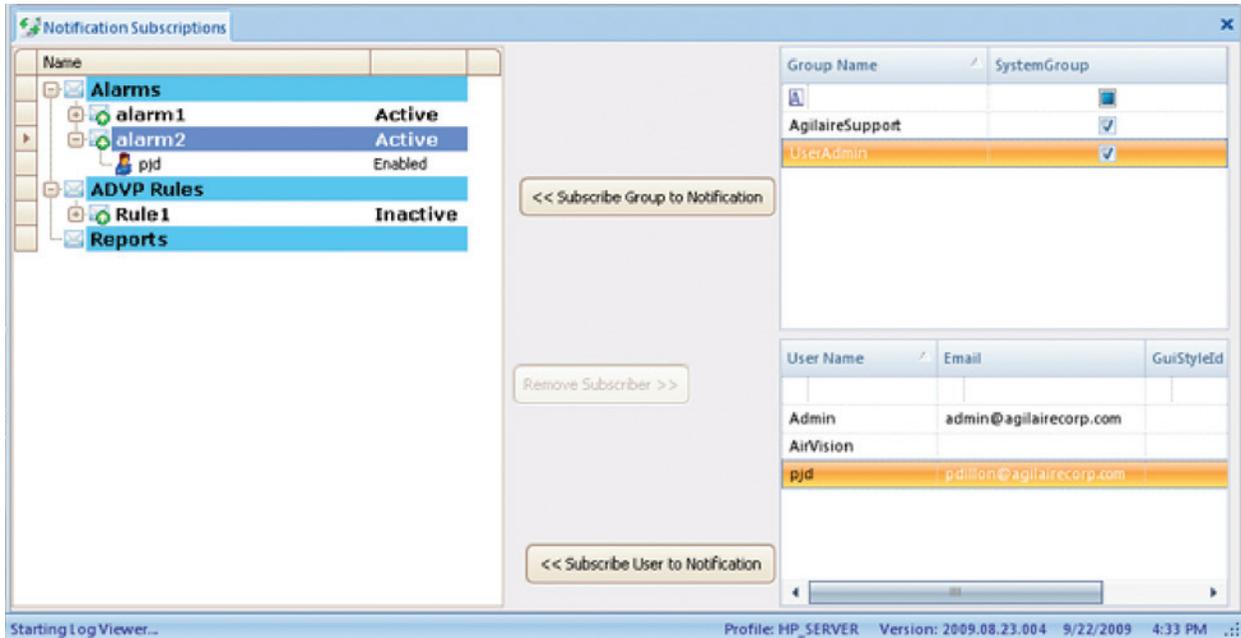
For the **Email Notification**, enter a **Subject** with or without an **Urgent Tag**, and a text **Message**.



Defining Email Alarms in Configuration Editors > Email Alarm Trigger Editor

5. Add Recipients to Notification Subscriptions: (**Configuration Editors > Notification Subscriptions**). Either entire User Groups, Individual Users, or a combination can be defined for each alarm.

Click the **Save** icon.



Adding recipients for email alarm notification from Configuration Editors > Notification Subscriptions

6. To Schedule Alarm Checks, see “Scheduling Tasks.”

Scheduling Tasks

All automatic actions in AirVision are managed by the **Task Scheduler (Configuration Editors > Task Scheduler)**, which runs as part of the background AirVision service. The following tasks can be configured in the Task Scheduler, depending on your licensed options:

- ◆ ADVP Processing Task
- ◆ AIRNow FTP Transfer Task
- ◆ Alarm Processing Task
- ◆ Average Data Purge Task
- ◆ Average Rollup Task
- ◆ Database Sync Task
- ◆ Fill Average Data Gaps Task
- ◆ Instrument Poll Task
- ◆ Journal Message Purge Task
- ◆ Logger Poll Task
- ◆ Scheduled Command Line Task
- ◆ Scheduled Report Task
- ◆ SQL Execution Task
- ◆ New Task Group

Some automatic actions in AirVision are managed by the **Task Manager**, which runs as part of the background AirVision service. The Task Manager has three user interfaces:

- ◆ **Task Scheduler (Configuration Editors > Task Scheduler)** allows you to add, review, and edit individual and grouped task events.
- ◆ **Task Wizard (Configuration Editors > Task Scheduler > Run Schedule Wizard** button in ribbon at top of screen) allows you to create grouped polling events as well as events triggered by polling .
- ◆ **Task Display (Utilities > Scheduled Task Status)** is a constantly updating display of all tasks within the system, including the last time run, next execution time, and errors experienced during the last run.

Task Scheduler

The Task Scheduler has five **Task Schedule Options**:

- ◆ Click the **Add** button to add a scheduled task from the list above.
- ◆ Click the **Delete Scheduled Item** button to delete a selected scheduled task.
- ◆ Click **Run Schedule Wizard** button to bring up the **Task Wizard**, which guides you through scheduling new tasks.



Task Schedule Options (Configuration Editors > Task Scheduler

- ◆ Click **Execute Scheduled Task Now** if you don't want to wait until the next time a selected task is scheduled to run.
- ◆ Click **Update Task Status** to bring up a utility screen that allows you to update the last polled data time for polling tasks, which determines what the start time of the next poll will be. This utility has no effect on non-polling based tasks.

The number of sections in the **Task Scheduler** varies according to the displayed task. The following sections are displayed when a **Logger Poll Task** is selected:

- ◆ **Task Schedule** displays all scheduled tasks and cannot be edited.
- ◆ **Task Schedule Details** section is where **Executive**, **Start Time**, and a **Repeat Interval** are selected.
 - ◆ An **Advanced** tab is provided next to the repeat interval to allow the user to specify if the task is only to run on certain days of the week, or only in a 'window' of certain hours of the day. This is especially useful for polling tasks.

Schedule Details

Task Information

Task Name: Average Data Purge Task Enabled

Description: Average Data Purge Task

Executive: ZENBOOK

Start Time: 12/06/2012 17:17:20

Repeat Interval: 1 Day(s)

Days to Run

Sunday Monday Tuesday Wednesday

Thursday Friday Saturday

Time of Day Restriction

Unrestricted

Run only between: and:

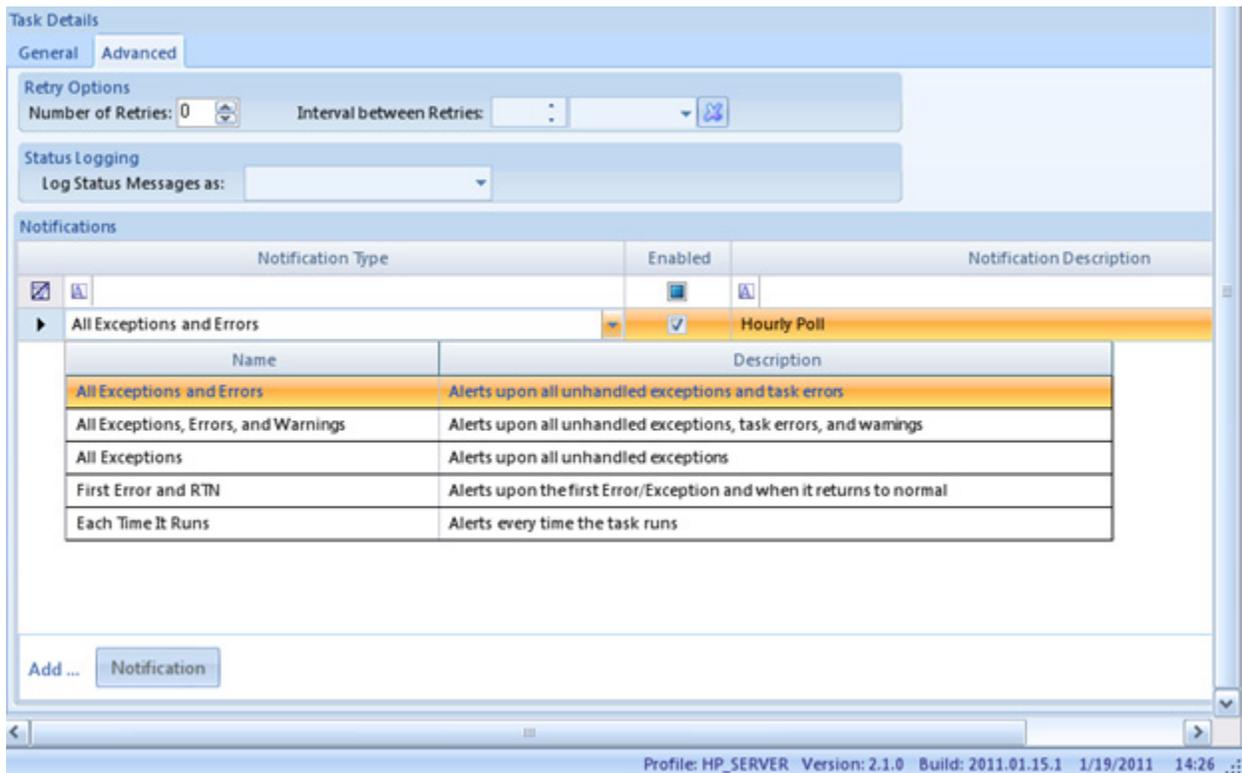
OK

Task Scheduler showing the Advanced screen for a task
(Configuration Editors > Task Scheduler)

- ◆ The **General Tab** in the **Task Details** section is where you enter a **Task Name** and a **Task Description**. **Task Enabled** must be checked in this section before you can select **Enabled** in the **Scheduled Task Selection** section.

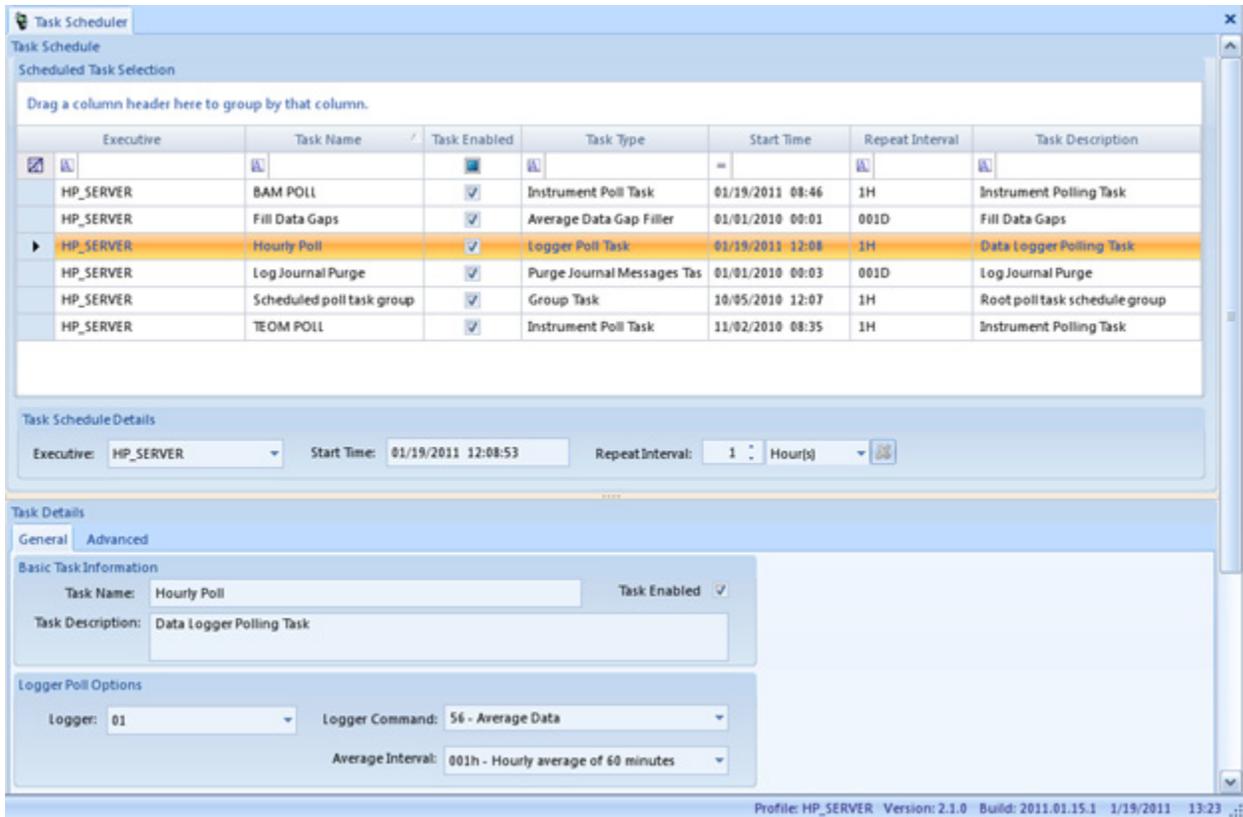
The **Advanced Options** tab in the **Task Details** section defines the **Number of Retries**, the **Interval between Retries**, and whether to **Log Status Messages** as **Off**, **Information**, **Verbose** (for a problematic task), or **Debug**.

The **Notifications** part of the **Advanced** tab allows configuration of **Notification Type** (All Exceptions and Errors; All Exceptions, Errors, and Warnings; All Exceptions; First Error and RTN (Return to Normal); or Each Time it Runs) followed by a **Description** of each Notification Type.



Task Details section of Task Scheduler showing Notification selections (Configuration Editors > Task Scheduler)

- ◆ The **Logger Poll Options** section defines the **Logger**, the **Logger Command** (e.g., Average Data), and the **Average Interval**.



Task Scheduler showing a Logger Poll Task (Configuration Editors > Task Scheduler)

To configure an individual task in the **Task Scheduler (Configuration Editors > Task Scheduler)**, click the **Add** button in the ribbon at the top of the screen and select one of the following categories:

- ◆ **ADVP Processing Task** handles tasks according to ADVP rules. ADVP reviews data against configured ADVP rules for matches, and runs configured Actions.
- ◆ **AIRNow FTP Task** handles automatic transmission of AIRNow data to EPA or other FTP servers. A selection is available in the task to designate OBS file format or the new AQCSV file format. If you need both, you would set up two tasks, most likely as part of a task group.
- ▶ **Note:** Submitting AIRNow reports consists of three steps:
 Check **Enable AIRNow Reporting** in the **Site/Parameter setup**,
 Enter **AIRNow Transfer Details** in **AIRNow/FTP Setup (Configuration Editors)**,
 Schedule **AIRNow FTP Transfer task** in **Task Scheduler (Configuration Editors)**.
- ◆ **Alarm Processing Task** reviews alarm Triggers for matches, creates email alerts, and tells AirVision when to process a particular alarm rule. If you use task groups and designate tasks to run in sequence, you can designate alarms to be processed immediately after a data poll.

The screenshot shows the 'Task Details' window for a 'Logger Poll Task'. The 'Basic Task Information' section includes a 'Task Name' field with the value 'Logger Poll Task', a 'Task Description' field with the value 'Data Logger Polling Task', and a 'Task Enabled' checkbox that is checked. Below this is a '+ Advanced Options' button. The 'Logger Poll Options' section contains three dropdown menus: 'Logger' set to '09Logger', 'Logger Command' set to '56 - Average Data', and 'Average Interval' set to '001h - Hourly average of 60 minutes'.

Logger Poll Task in Configuration Editors > Task Scheduler

◆ **Average Data Purge Task** purges or archives old data from the database. Eventually, the AirVision database will become so big that it takes a long time to back it up, so it is helpful to remove and/or save old data, in particular minute data. You can choose any average interval to be scheduled for Purge or Archive. Purged data will be permanently deleted from the database. Archived data is copied to an external file before purging. Archived data is stored with all flags and annotations and can be re-imported later. AirVision uses specialized data keys so sites and channels can be renamed or renumbered and archived data can still be correctly imported. Select the age of the data to purge: **Purge Data Older Than** a specified number of seconds, minutes, hours, days, weeks, or years. We recommend purging 1-minute data older than 1 year to keep the database within allowable size.

► **Note:** Average Data can be purged manually via the **Utilities menu>Purge Average Data**.

A checkbox option allows you to **retain data during calibrations**. If selected, any data flagged with the **C** flag will not be purged. This allows you to retain minute data from calibrations (e.g., for use in the Calibration Trend Graph's Response Plot) while still removing old minute data.

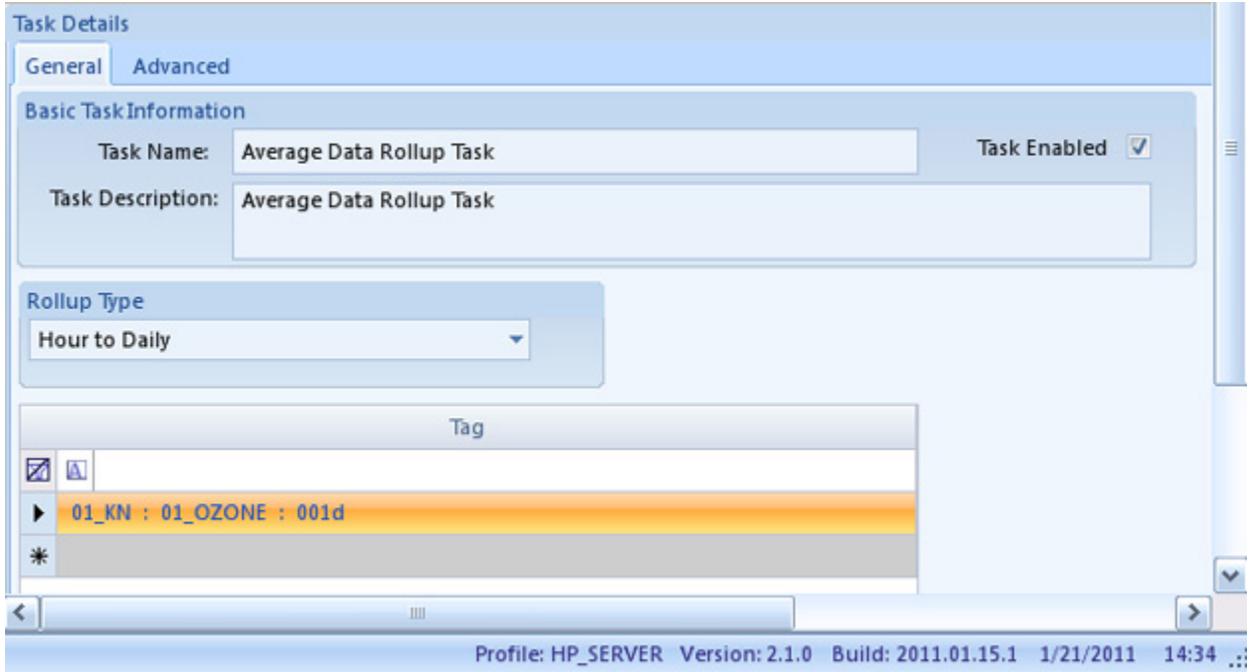
The screenshot shows the configuration interface for the 'Average Data Purge Task'. It is divided into several sections:

- General / Advanced:** The 'Advanced' tab is selected.
- Basic Task Information:**
 - Task Name: Average Data Purge Task
 - Task Description: Average Data Purge Task
 - Task Enabled:
- Purge Options:**
 - Archive Type: Average Data
 - Purge Data Older than: 3 Year(s)
 - Alternate Archive Folder (On Server):
 - Archive Data Before Purging
- Average Data Purge Options:**
 - Interval to Purge: 001m - Minute average from instantaneous
 - Retain Readings During Calibrations
- Parameter Selection:**
 - Radio buttons for 'All Parameters' (selected) and 'Selected Parameters'.
 - Instruction: 'Drag a column header here to group by that column.'
 - Table with columns: Selected, Site Name, Parameter Name, Parameter Template Name.

Selected	Site Name	Parameter Name	Parameter Template Name
<input checked="" type="checkbox"/>	01_KNOX	01_OZONE	OZONE_PP8
<input type="checkbox"/>	01_KNOX	02_PM25_MC	PM25LC
<input type="checkbox"/>	01_KNOX	03_PM25BRAW	
<input type="checkbox"/>	01_KNOX	04_PM25RRAW	

Purge or archive data in Configuration Editors > Task Scheduler

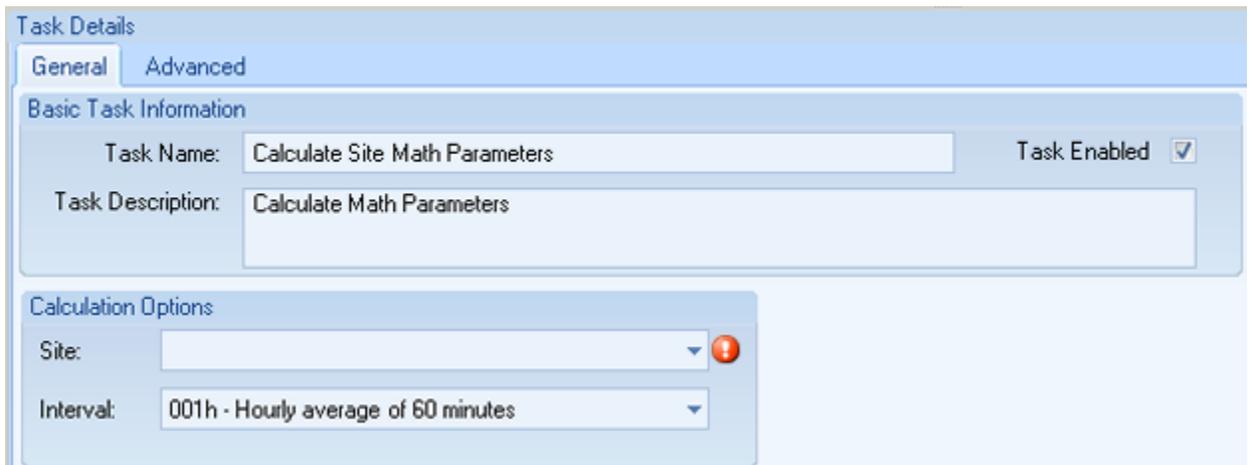
- ◆ **Average Data Rollup Task** allows shorter term averages to be rolled up into larger block or rolling averages. For more information, see “Data Rollup Processor” in Chapter 7 “Optional Features.”



Automatic Rollup Task in Configuration Editors>Task Scheduler>Add Average Rollup Task

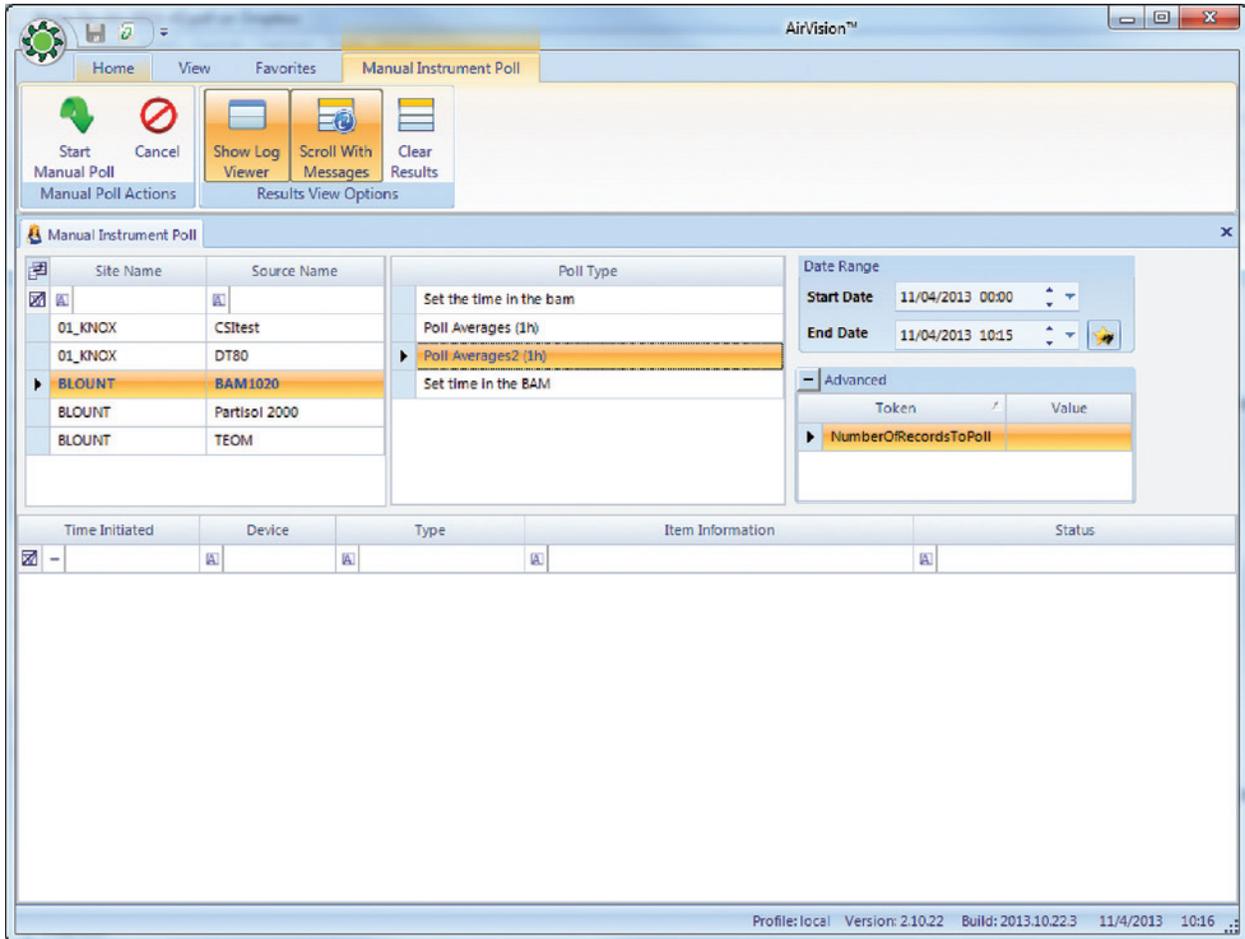
◆ **Math Task Scheduler**

The task scheduler can execute equations automatically using the **Calculate Math Parameters Type** task. This task operates on a particular site and interval combination, and seeks out all equations for which there are fully matching parameter templates. If an equation in the table can't be executed on that site for lack of parameter templates or available data, the equation is skipped.



Math Task Scheduler Details

- ◆ **Instrument Poll Task** directly polls PM Samplers and Instruments such as BAMs without using data loggers.
- ▶ **Note:** Instruments can be polled manually by selecting **Manual Instrument Poll** from the **Utilities Menu**.



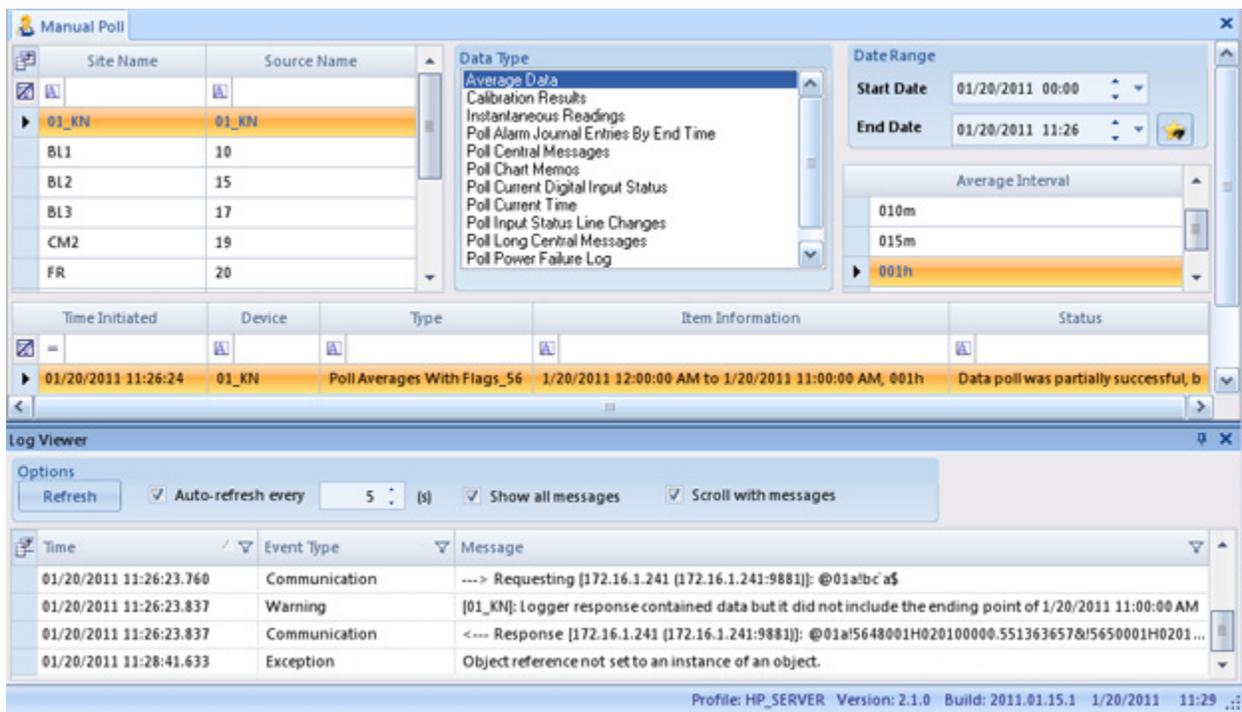
Manual Instrument Poll from Utilities Menu

- ◆ **Journal Message Purge Task** removes Event Log journal messages (internal error logs) that are older than a specified age in seconds, minutes, hours, days, weeks, or years. The purge occurs at a specified **Repeat Interval**. An option is available to **Archive Data Before Purging**.
- ▶ **Note:** Journal messages can be purged manually via the **Utilities menu>Purge Journal Messages**.
- ▶ **Note:** The Advanced tab can be used to set particular variables of some poll commands, like a number of records for instruments that do not support polling start/end times.

- ◆ **Logger Poll Task** polls a data logger at a specified Repeat Interval in seconds, minutes, hours, or days. The Task must be named and a data logger must be selected. Select a Logger Command from the following drop-down list:

- 56 Average Data
- 46 Calibration Results
- IJ Instantaneous Readings
- NP Poll Alarm Journal Entries
- JJ Poll Central Messages
- KK Poll Chart Memos
- 23 Poll Current Digital Input
- 11 Poll Hourly Averages (8800)
- DD Poll Input Status Lind
- JL Poll Log Book Entries
- JK Poll Long Central Messages
- EF Power Failure Log
- BB Synchronize Logger Time
- LL Poll Current Time

- **Note:** The logger also can be polled manually via **Utilities >Manual Poll**. Results are displayed in the **Log Viewer** below the query screen.



Manual Poll in Utilities Menu

- ◆ **Fill Average Data Gaps Task** prepopulates Average Data Records to make them continuous where data is missing. This task inserts top of the day blank records in the database to improve reporting and data query performance. Filling average data gaps is critical for optimizing the performance of AirVision reporting and has been incorporated into AirVision’s default functionality. The Fill Average Data Gaps task no longer needs to be scheduled to run.

- ◆ **Scheduled Command Line Task** can be used to automate any Windows command line function, such as NTBackup.
- ◆ **Scheduled Report Task** handles automatically printed or emailed reports. Any system can be scheduled for distribution to a designated printer and/or email recipients.
 1. Select a **Report** from the list of available reports
 2. Configure a Report Query (select average interval, sites, parameters, and time range). (This feature functions like the Favorites Editor.)
 3. If the report will be printed, select the Printing Options tab, check the **Enable Printing box**, and designate the **Printer Path**.
 4. If the report will be emailed, select the Notification Options tab, check the **Enable Email Notification box** and give the report a name that will appear in the Notification Subscriptions Editor. (Users and/or User Groups must be designated in **Configuration > Notification Subscriptions Editor**.)

The screenshot displays the 'Task Schedule Details' window for a 'Scheduled Report Task'. At the top, the 'Executive' is set to 'ZENBOOK', the 'Start Time' is '11/04/2013 10:18:59', and the 'Repeat Interval' is '1 Day(s)'. Below this, the 'Task Details' section shows the 'Task Name' as 'Scheduled Report Task' and the 'Task Description' as 'Generates Report at assigned time for output'. The 'Task Enabled' checkbox is checked. The 'Report Task Options' section shows the 'Report' set to 'Daily Summary Report' with a 'Configure Report Query' button. Under 'Output Options', the 'Printing Options' tab is active, showing the 'Enable Printing' checkbox (unchecked) and an empty 'Printer Path' field.

Scheduling printing and email notification of scheduled report in Configuration Editors > Task Scheduler

5. If the report will be saved to a location or FTP'd, select the **File Output Options tab**, then configure the desired options. If saving to a network location, the account running the AirVision Server service will need to have access to that directory. To use the FTP option, you will need an FTP program configured under **Configuration Editors > Report Configurations > AIRNow/FTP Setup**.

You must select the output file type (CSV, HTML, PDF, etc), and the base file name:

The screenshot shows the 'Report Task Options' dialog box with the following configuration:

- Report:** Daily Parameter Report
- Output Options:**
 - Output File Type: PDF
 - File Name Construction:**
 - File Output Base Name: DailyParm101
 - File Extension: PDF
 - Append Date to File Name: Append Date to Name
 - Date Format: yyyyMMddHHmm
- Save File Options:**
 - Save Report to File Enabled
 - File Output Path: x:\GroupReports
- Upload File Via FTP Options:**
 - FTP Upload Enabled
 - FTP Transfer Program: [Empty]

File Output Options tab in Scheduled Reports

You can optionally have the scheduled task append the current date/time to the file name (e.g., DailyParm200906271900). Note that Windows does not allow “/” or “:” characters in file names. This option ensures that new files do not overwrite existing files in the directory. If this option is left off, the task will overwrite the file each time the tasks runs.

You can then select either of two options:

Write to File Enabled-- select/browse to a directory folder for the destination file

FTP Upload Enabled--select from a previously configured FTP program for automatic FTP of the file to a particular server.

◆ **SQL Execution Task**

To add a **SQL Execution Task**, click the green **Add** button and select **SQL Execution Task**.

Select the Executive, Start Time, and Repeat Interval.

Name the SQL task or use the default name.

Enter the **SQL Command Text**.

Click the **Save** button.

► **Note:** SQL commands can be executed manually via **Utilities>SQL Execution Tool**.

◆ **New Task Group**

Task Groups allow multiple tasks to be grouped together in one polling process instead of multiple individual tasks. Tasks can be defined to run groups in parallel, sequentially, or as sub-tasks of other task groups to allow mixing of parallel and sequential operations. To add a new sub task to the Task Group click **Add Sub Task** button and select the task from the drop-down list. The Sub Task drop-down list has the same options as the Add task button at the top of the Task Scheduler. When you select a Sub Task, a screen will pop up asking for the following information:

Task Name displays the name of the sub task that was selected. The Task Name can be modified.

Task Description is automatically filled in.

Task Enabled must be selected if the sub task is to run under the Group Task.

Advanced Options (not required) allows the configuration of **Number of Retries** and the **Interval between Retries**.

Other fields vary according to which sub task is selected.

When you click **OK** in the pop-up screen the new sub task will be added in the **Sub Tasks** section.

Select **Execute Tasks In Parallel** in the **Group Options** section if all sub tasks are to run at the same time.

If the sub tasks are to be run sequentially, enter a number in the **Execution Order** column in the **Sub Tasks** section.

Select the **Fail Group on Error** column if you want the whole Task Group to stop running if an error occurs.

Task Type indicates the sub tasks that are part of one group task.

Edit Task allows you to make changes in the same pop-up window that came up when the **Add Sub Task** button was clicked.

To remove a task from the Task Group select the task in the **Sub Task** section and click the **Delete Selected Sub Task** button.

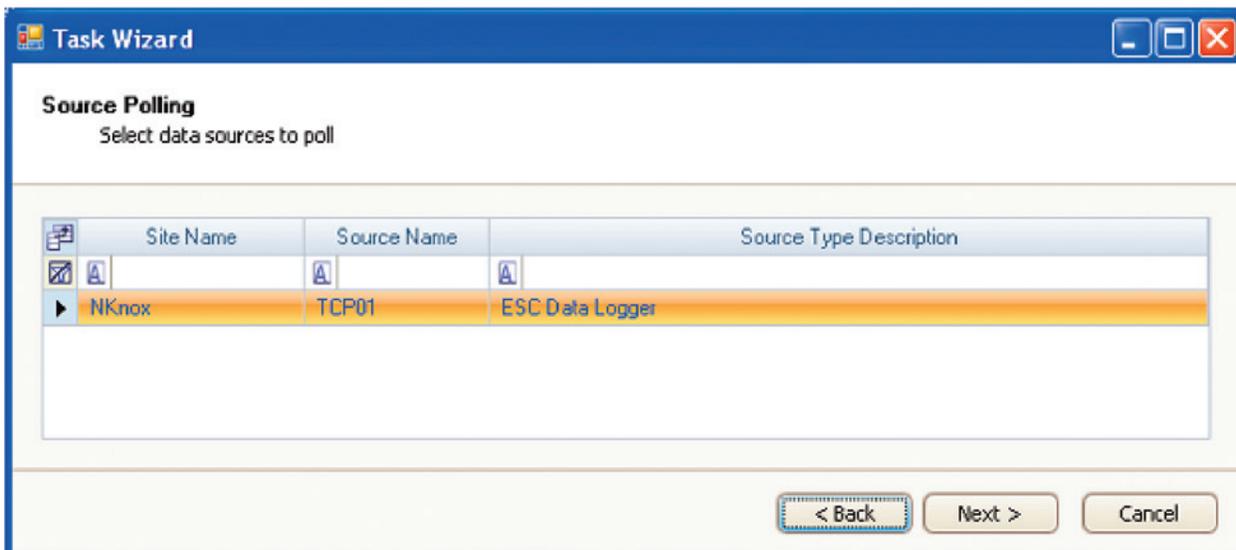
Schedule Task Wizard

The Task Wizard can be used to manage dozens of polling tasks running in a single system.

To set up task groups:

Open the **Task Wizard (Configuration Editors > Task Scheduler > Run Schedule Wizard** button on ribbon at top of screen) and click **Next**

Select **Site** and **Source** (including **Source Type Description**) and click **Next**.

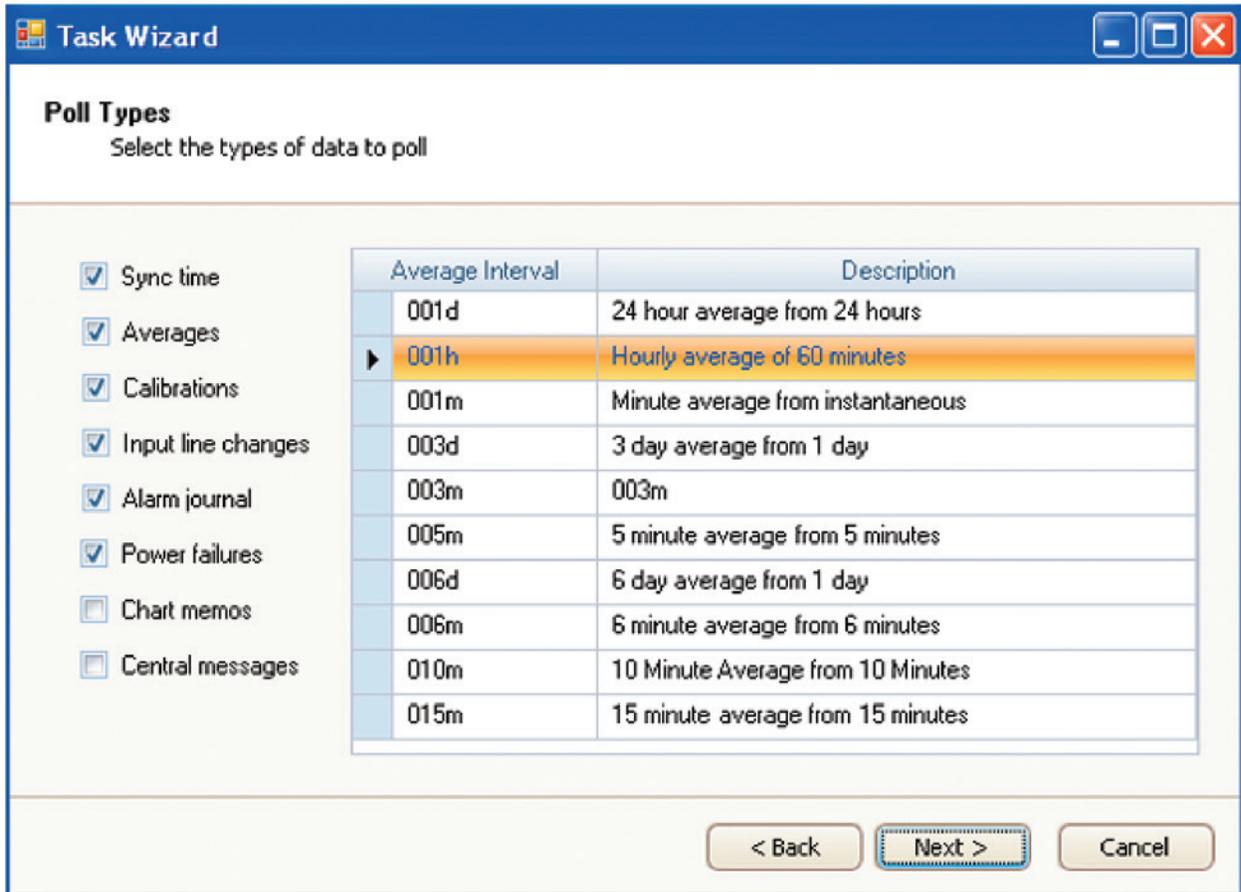


Selecting Site and Source Name in Task Scheduler Wizard (Configuration Editors > Task Scheduler > Run Schedule Wizard)

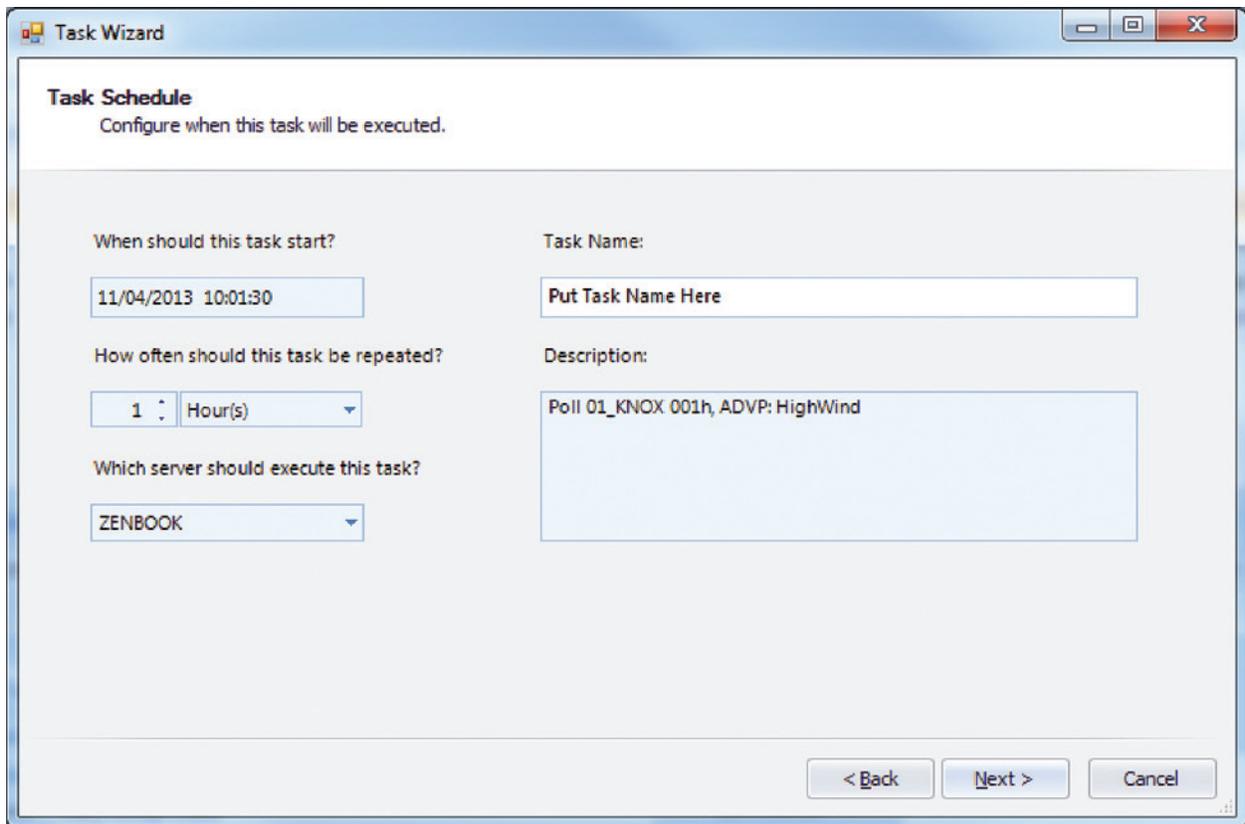
Select **Poll Types**, or types of data to poll from the following checklist:

- Sync time,
- Averages,
- Calibrations,
- Input line changes,
- Alarm journal,
- Power failures,
- Chart memos,
- Central messages.

Click **Next**.



Poll Types in Task Scheduler Wizard (Configuration Editors > Task Scheduler > Run Schedule Wizard)



The screenshot shows a window titled "Task Wizard" with a sub-header "Task Schedule" and the instruction "Configure when this task will be executed." The window contains several configuration fields:

- When should this task start?:** A text box containing "11/04/2013 10:01:30".
- Task Name:** A text box containing "Put Task Name Here".
- How often should this task be repeated?:** A spinner box set to "1" and a dropdown menu set to "Hour(s)".
- Description:** A text area containing "Poll 01_KNOX 001h, ADVP: HighWind".
- Which server should execute this task?:** A dropdown menu set to "ZENBOOK".

At the bottom right, there are three buttons: "< Back", "Next >", and "Cancel".

Task Schedule in Task Scheduler Wizard (Configuration Editors > Task Scheduler > Run Schedule Wizard)

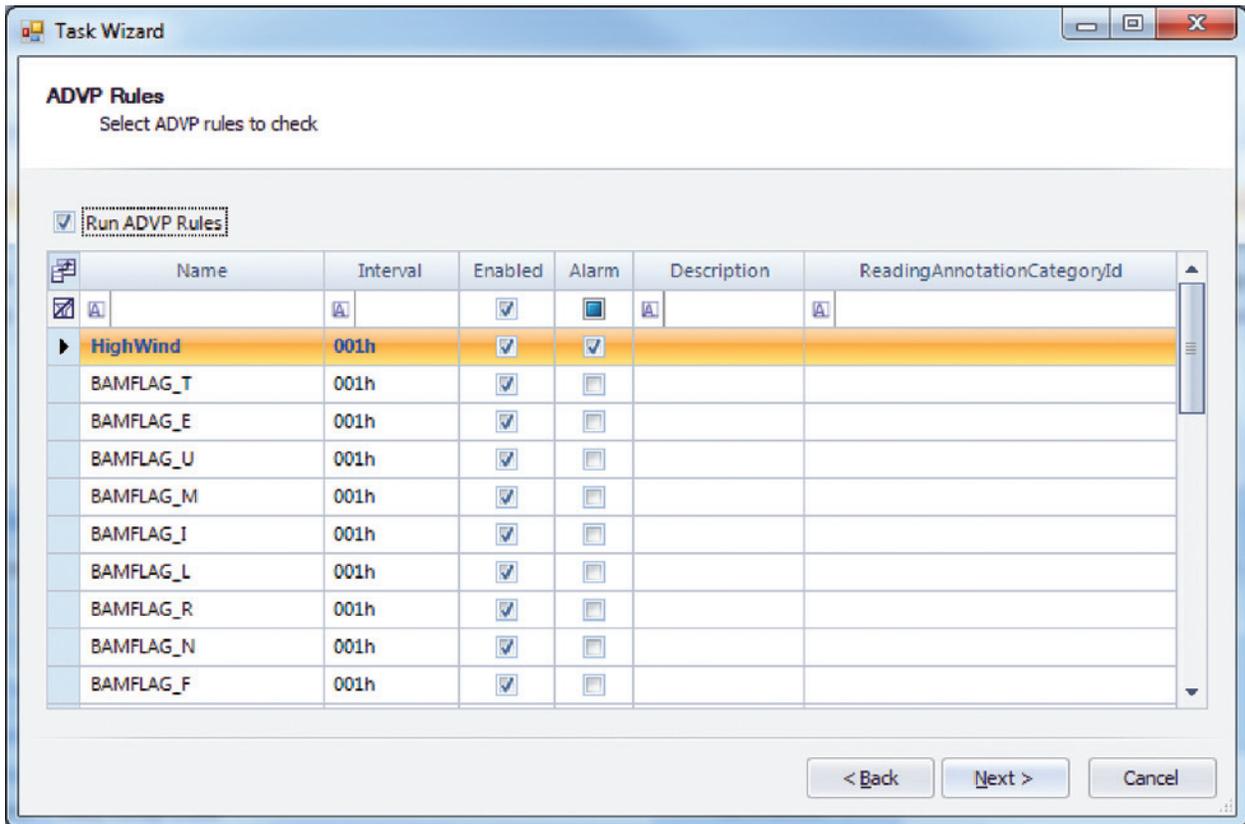
Select the following configurations from drop-down lists:
when the task should start,
how often it should be repeated,
and which server should execute the task.

The next screen will ask you to **Confirm Task Creation**. Click **Next** to save new task to database.

The last screen will say you have successfully completed the wizard. Click **Finish**.

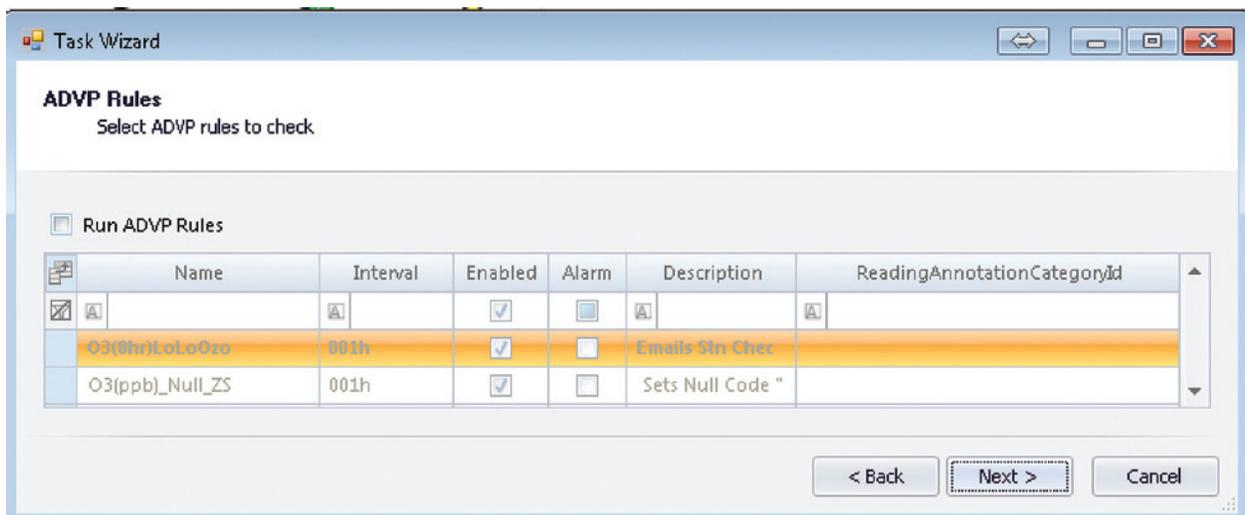
► **Note:** The **Task Wizard** can also be accessed directly from the **Utilities** menu.

If you have the AirVision ADVP module, there is also a screen in the Task Wizard where configured ADVP rules can be selected.



The user will be prompted if they wish to run any alarms or ADVP checks right after the poll has been completed.

► **Note:** The form says **ADVP**, but is used for both alarms and ADVP checks.



Direct Instrument Polling

AirVision has the capability to directly download data from BAM-1020s, TEOM 1400s, and other instruments connected via modem, wireless IP, DSL, etc. Scheduled downloads can be used in conjunction with AIRNow transfers or other real-time processes (such as ADVP data filtering, etc).

The process takes place in three steps:

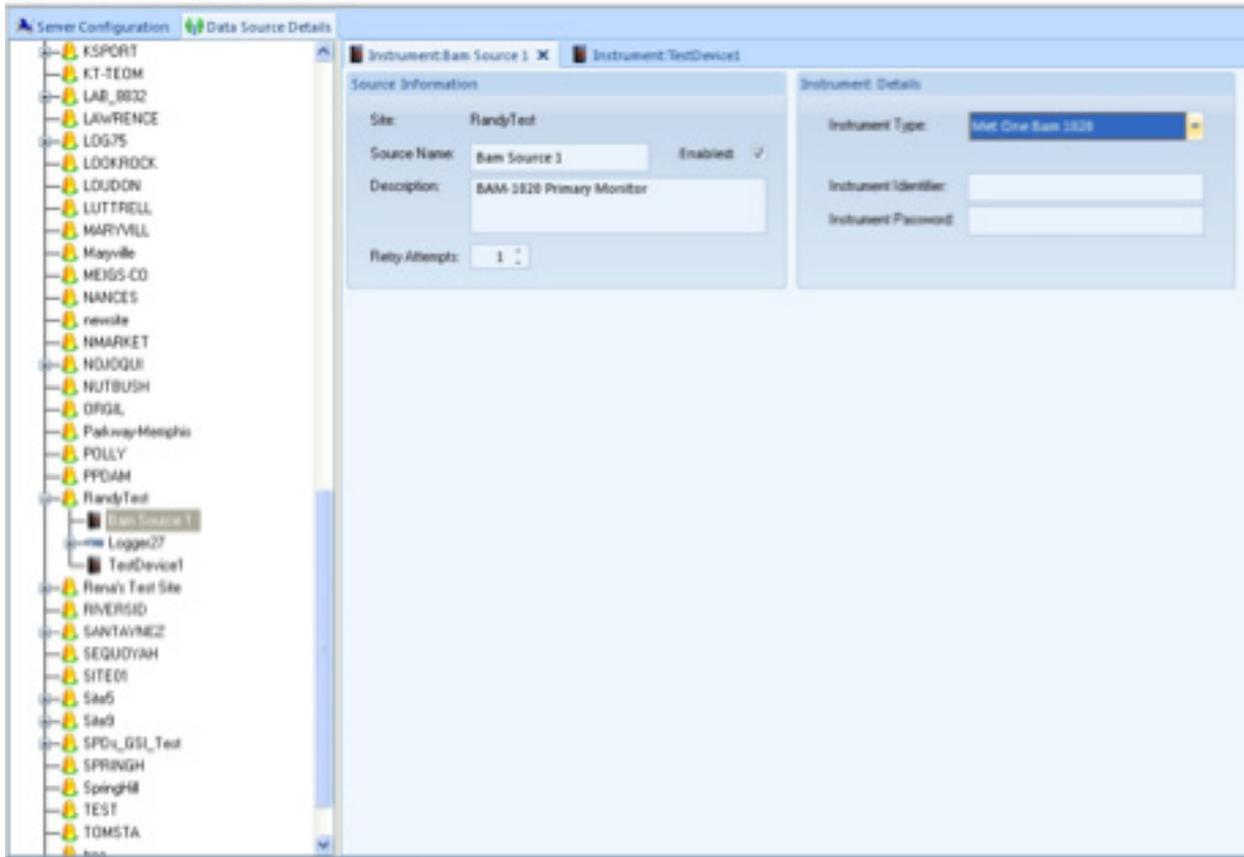
- ◆ Via a scheduled task, AirVision opens up connection to the instrument using a configured route (modem, TCP, etc).
- ◆ AirVision sends the commands to retrieve the data file in native format (some kind of delimited file).
- ◆ AirVision then runs the File Import Tool against an instrument-specific import template to import the data into the AirVision database.

This implies that the user should already have configured all of the parameters referred to in the File Import template and assigned the correct Parameter Templates in the Site/Parameter editor.

For the MetOne BAM, they are:

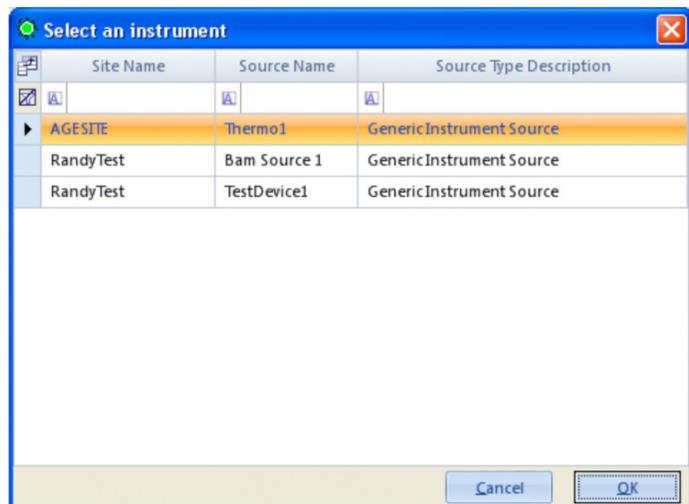
- ◆ PM25LC
- ◆ PMVOLUME
- ◆ RELHUM
- ◆ AMBTEMP

To configure the direct instrument poll using a licensed driver, the user should first add an Instrument to the Data Source Details editor, by selecting the site and using the “Add Instrument” option:

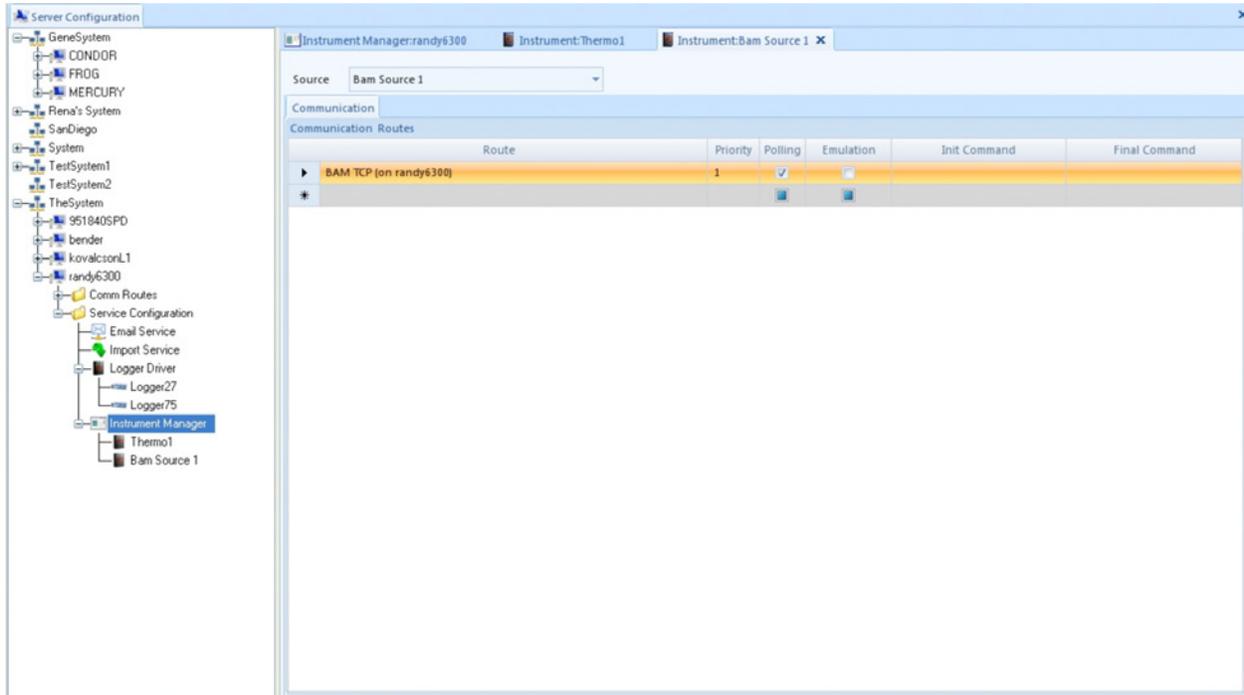


The Instrument Type should be selected, and the Source Name should be specified. The Instrument Identifier and Instrument Password should only be used for certain instrument types where this information is required (e.g., Instrument ID, usually “04” for TEOMS).

Once this is done and saved, the user should define a Modem Route or TCP Route in the Server Configuration editor. The user can then add and Instrument by selecting the Instrument Manager icon on the left side and selecting “Add Instrument”. The user is provided a list of instruments configured in the Data Source Details editor:

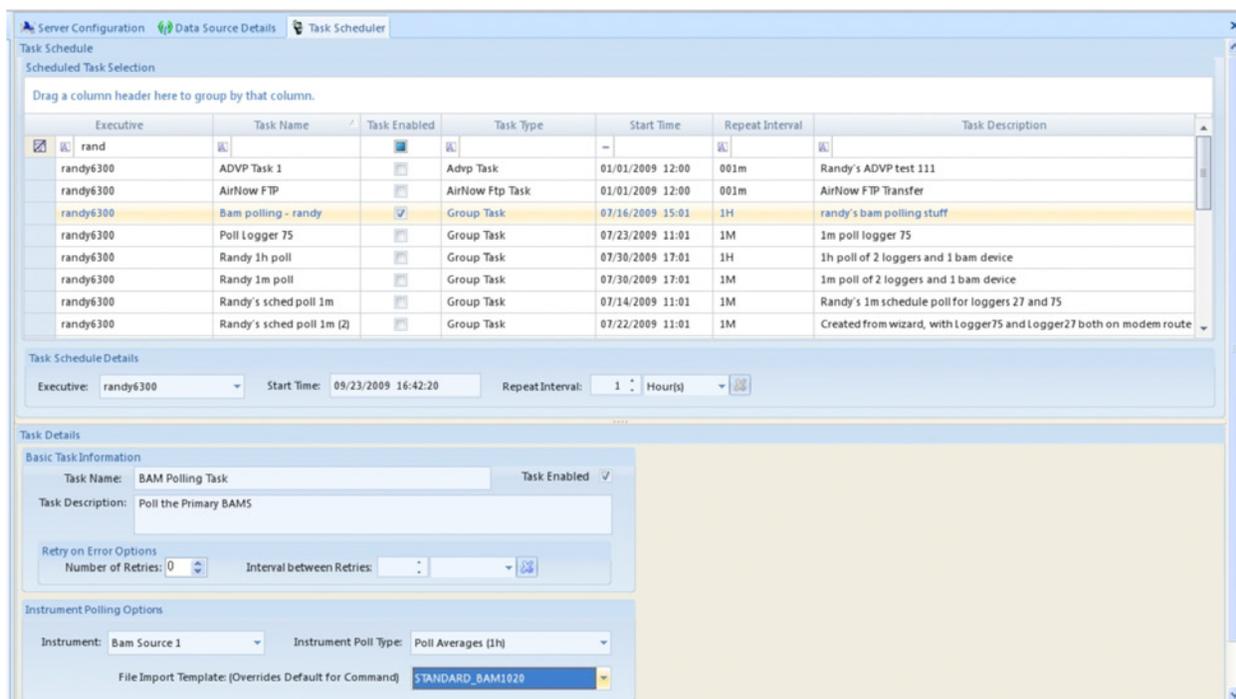


Once the appropriate instrument is selected, the user can assign the communication route to the instrument. Note that the “Initial Command” and “Final Command” options can be used to integrate code-operated-switches, if needed.



Once the appropriate instrument is selected, the user can assign the communication route to the instrument. Note that the “Initial Command” and “Final Command” options can be used to integrate code-operated-switches, if needed.

Finally, the user only needs to define the polling task to retrieve the data, using the Task Scheduler editor. **Select Add->Instrument Polling Task.**



Here the user must define:

- ◆ Executive (usually the current machine)
- ◆ Start Time and Repeat Interval (e.g., hourly for BAM)
- ◆ Task Name
- ◆ Task Description (optional)
- ◆ Number of Retries / Interval Between Retries (optional)
- ◆ Instrument (selects from list of configured instruments)
- ◆ Instrument Poll Type (choose either PollAverages1 or PollAverages2 for BAM, they both work, but are slightly different to allow some adaptation to different communication network delays).
- ◆ File Import Template to be used (e.g, BAM1020 for BAM, TEOM for TEOM, etc)

Of course, associated Parameter entries that match the desired parameters in the File Import template must be configured for the site to define the destination for the data. No “Logger” or Logger Channels need to be configured in the Data Source Details, only the Instrument.

If your instrument varies from the standard template, you can use the “Copy” function in the File Import configuration to create a custom (or even site-specific) version, and associate it in the polling task.

BAM-Specific Application Notes (Important!)

The Instrument Polling system uses a “Duplication” method for error checking responses from the BAM. In short, AirVision will ask for the same data twice, verifying that the two transmissions match exactly. This is done since the BAM response does not have a checksum at the end.

One quirk, though is that the header of the BAM can vary dynamically if its unused analog inputs (e.g. WS, WD) are allowed to float. This causes a problem with the error checking as shown below, as some columns randomly change to “no(V)” each time we request data:

Request-->

←Response:

Station, 1

Time,Conc(mg/m3),Qtot(m3),no(V),WS(MPS),no(V),RH(%),no(V),AT(C),E,U,M,I,L,R,N,F,P,D,
C,T,

02/15/13 00:00, -0.004, 0.701, 0.338, 7.0, 0.138, 14, 0.440, 0.3,0,0,0,0,0,0,0,0,0,0,0,

Request-->

←Response:

Station, 1

Time,Conc(mg/m3),Qtot(m3),WD(DEG),no(V),,no(V),RH(%),no(V),AT(C),E,U,M,I,L,R,N,F,P,D,
C,T,

02/15/13 00:00, -0.004, 0.701, 0.338, 7.0, 0.138, 14, 0.440, 0.3,0,0,0,0,0,0,0,0,0,0,0,

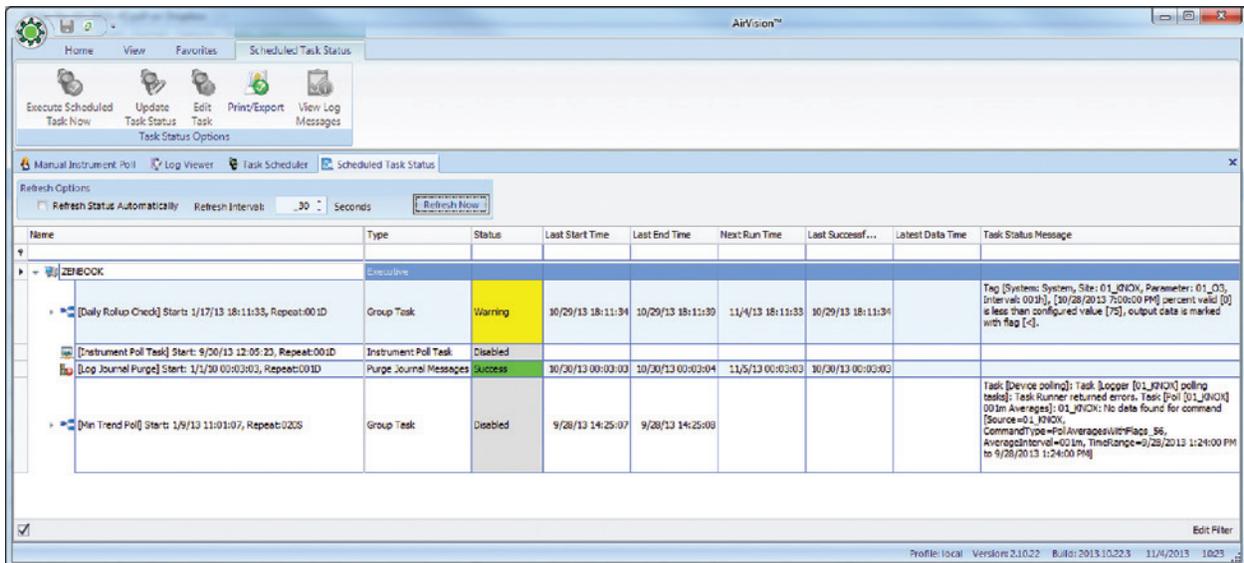
To prevent this from happening, the BAM allows the user to configure the BAM to manually set the channel order (consult the BAM-1020 manual for details).

*In general, this step must ***ALWAYS*** be done on a BAM-1020, unless the met sensor inputs are actively used and connected to instruments. Without this setting, AirVision will report “unable to get consistent results” in a poll.*

Task Display

Task Display (Utilities > Scheduled Task Status) is a constantly updating display of all tasks within the system, including the last time run, next execution time, and errors experienced during the last run.

By default, the display will not refresh, but **Refresh Status Automatically** can be selected at the top of the screen.



Task Display from Utilities > Scheduled Task Status

The user can select a particular row / task / subtask and perform certain actions with the ribbon controls:

Execute Scheduled Task Now - run the selected task, task group, or subtask immediately

Update Task Status - reset the last successful run time for the task

Edit Task - change the task settings

View Log Messages - show a filtered system log of events related only to that task

Print/Export - print / export the current task status screen.

Select the following configurations from drop-down lists:

- when the task will start,
- how often it will be repeated,
- and which server will execute the task.

The next screen will ask you to **Confirm Task Creation**. Click **Next** to save new task to database.

The last screen will say you have successfully completed the wizard. Click **Finish**.

Task Wizard

Task Schedule
Configure when this task will be executed.

When should this task start?
08/05/2009 10:01:30

How often should this task be repeated?
1 Hour(s) Repeat

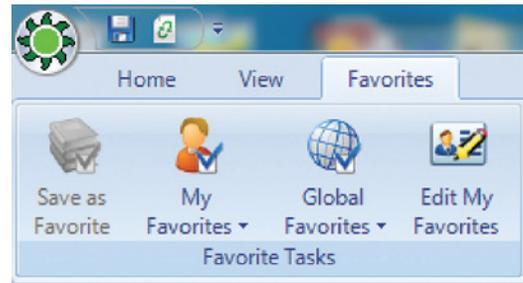
Which server should execute this task?
AGILAIRE-7912B9

< Back Next > Cancel

Task Schedule in Task Scheduler Wizard
(Configuration Editors > Task Scheduler >
Run Schedule Wizard)

Favorites Editor

AirVision simplifies regular tasks with a list of user-defined **Favorites**, which function like Favorites in Internet browsers. Favorites can be created for most menu items, including reports, editors, configurations, journals, calibration functions, file import, security settings, logger functions, emails, and task scheduling. Favorites can be saved for different sites, parameters, average intervals, and date ranges. They can be saved for all users or for one user.



Favorites menu

Creating a Favorite

To create a favorite, open **Configuration Editors > My Favorites Editor**. Click the red **Add Favorite** button on the left side of the ribbon.

Favorite Detail Tab

Under the **Favorite Detail** tab of the Favorites Editor: select a **Menu Item** from the drop-down list, enter a **Favorite Name**, enter a **Favorite Description** (optional), select a **Favorite Scope** from the drop-down list (**User** or **All Users**) and select from the following options:

- ◆ **Launch on Application Startup** to run the Favorite upon logging in to AirVision
- ◆ **Run Query on Launch** to execute data retrieval when the Favorite is selected.

Add a Favorite screen

Favorite Query Tab

Next, open the **Favorite Query** tab if it is available.

- **Note:** The Favorite Query tab will only be in the Favorites Editor after a Menu Item is selected that requires a time range, interval, and parameter(s), such as the Average Data Report and the Average Data Editor.

Select a **Date Range**, choose an **Average Interval** and select a **Parameter**. To select more than one parameter, drag the arrow in the blue left column or hold down the **Ctrl** key while you select parameters.

To save a favorite when you're in any data editor or report, complete a query, and select **Favorites** from the top menu. The ribbon bar will change to show the favorites menu.

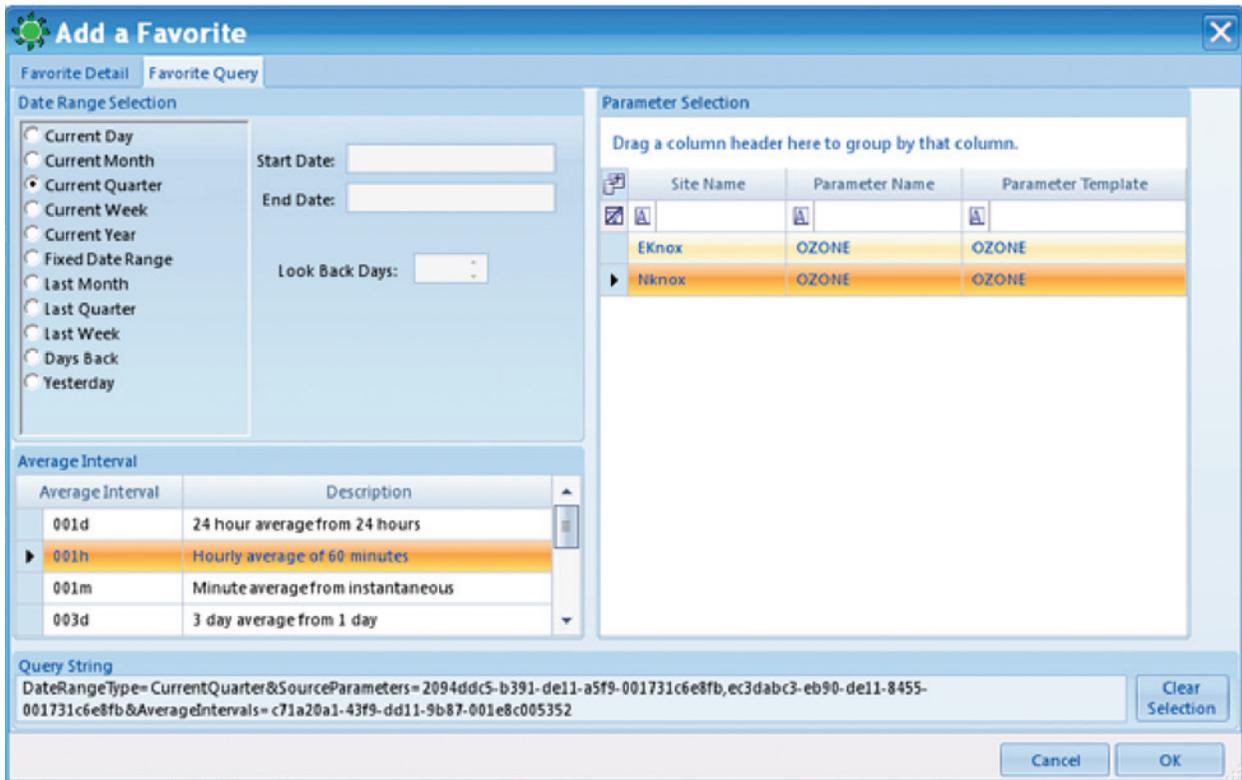
Select **Save as Favorite** to bring up the **Add a Favorite** screen.

You can also configure the **Favorite** by selecting the **Favorite Query** tab after you select **Save as Favorite**. From this screen you can adjust the site/parameter list, date range, or average interval. These values can also be adjusted later in the **Favorites Editor** in the **Configuration menu**.

To return to the ribbon controlling the current application, select the top menu function (above the ribbon), for example, Average Data Editor.

To use an existing Favorite, select **Favorites** from the top menu (above the ribbon bar), select **User Favorite** or **Global Favorites**, and the saved **Favorite**.

A copy button on the ribbon allows you to copy an existing favorite for slight modification, if needed.



Favorite Query tab from Add a Favorite

Configuring Security

User security in AirVision is set up by administrative personnel and is similar to Microsoft Windows:

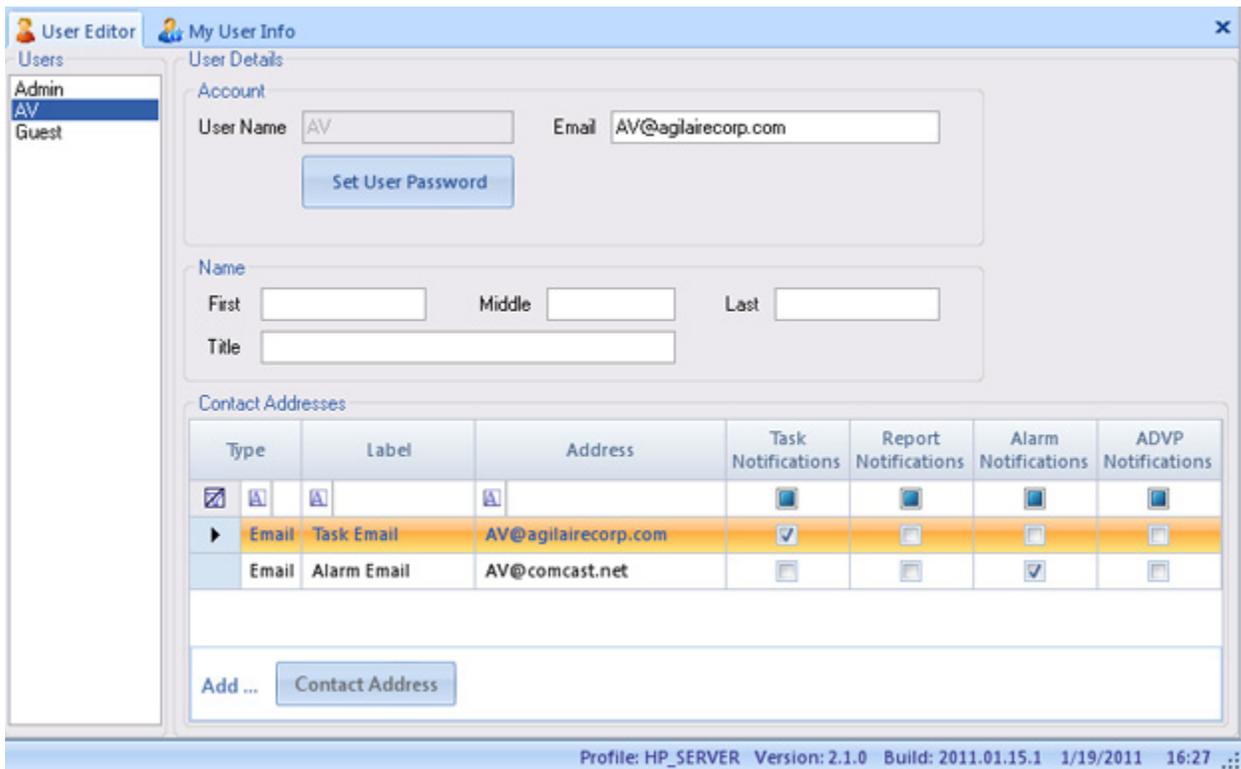
- ◆ Each system user has an identity, including a username and password
- ◆ A User may be a member of one or more User Groups
- ◆ Access and rights are assigned to User Groups

User Groups in AirVision are usually assigned by job responsibility (e.g., Data QA, Site Technicians, System Administrators). A group can optionally have its access limited to only certain monitoring sites. Users can be members of more than one **Group**, and each site can have a different access group.

User Editor

Administrators can add or delete users: open **Configuration Editors > Security > User Editor** and click **Add User** or **Delete User** button. Enter a **User Name** and **Set User Password**. Enter an **Email** address for the user .

In the **Contact Addresses** section of the screen you can click **Add Contact Addresses** and enter multiple email addresses for the same user to receive different notifications at different email addresses. Check the notifications to be emailed to each email address: Task, Report, Alarm, or ADVP. Each **Label** must have a different name or the database will not accept it.



User Editor from Configuration Editors > Security > User Editor

My User Settings

Non-administrative personnel can change their own Password, Email, and Name, but not their User Name in the **My User Settings** screen in **Configuration Editors > Security**. If a User Name needs to be changed (for example, if a name is misspelled), an Administrator would have to delete the original User Name and add a new one.

In the **Contact Addresses** section of the screen you can click **Add Contact Addresses** and enter multiple email addresses for the same user to receive different notifications at different email addresses. Check the notifications to be emailed to each email address: Task, Report, Alarm, or ADVP. Each **Label** must have a different name or the database will not accept it. Click **Save**.

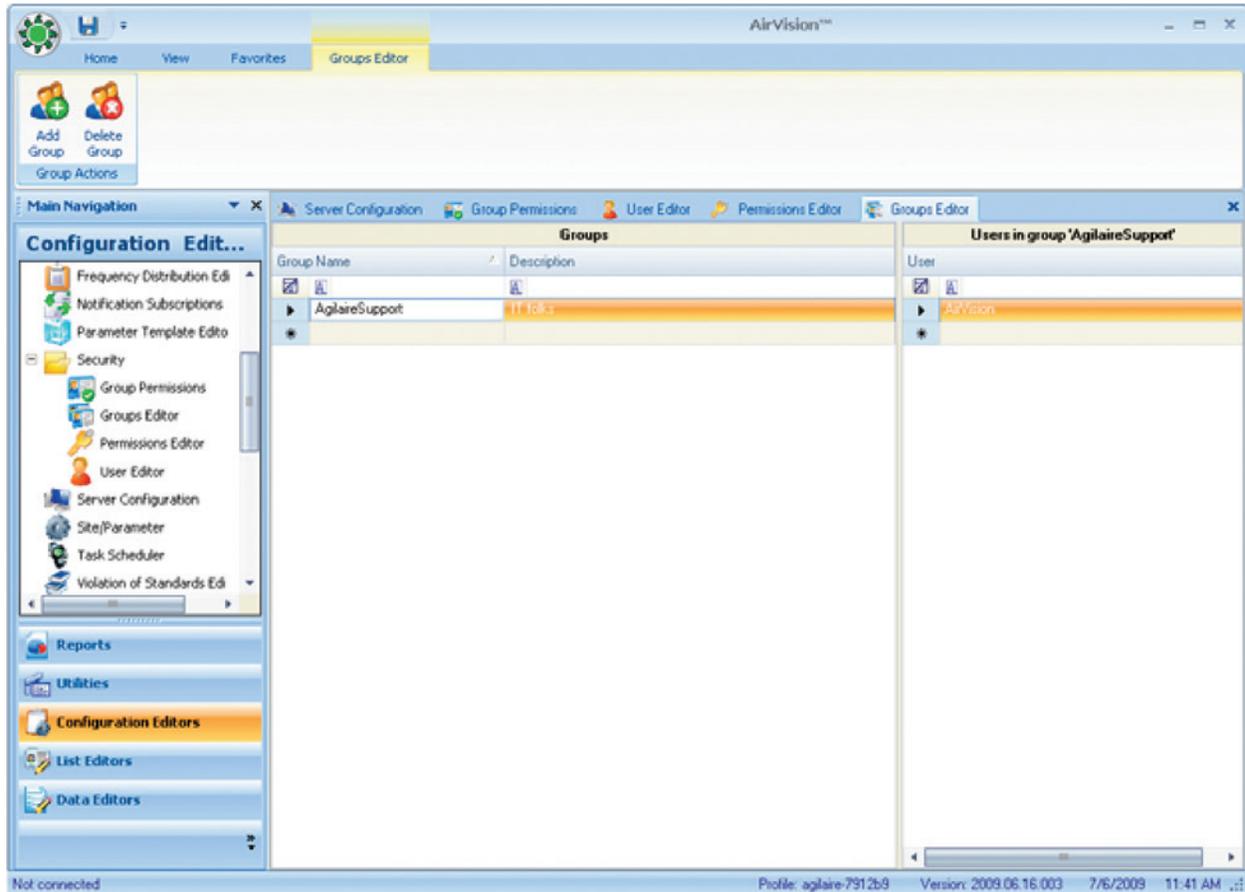
Type	Label	Address	Task Notifications	Report Notifications	Alarm Notifications	ADVP Notifications
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Email	Task Email	AV@agilairecorp.com	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	Alarm Email	AV@comcast.net	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

My User Settings screen in Configuration Editors > Security

Groups Editor

Next, create or modify groups with the **Groups Editor**. To add or delete groups, click the **Add Group** or **Delete Group** button. Select a group and add Users to that group as members of an existing or newly created group. To add a user, click on the asterisk (*) line in the right (gray) area to get a pick list of currently created users.

Click **Save**.



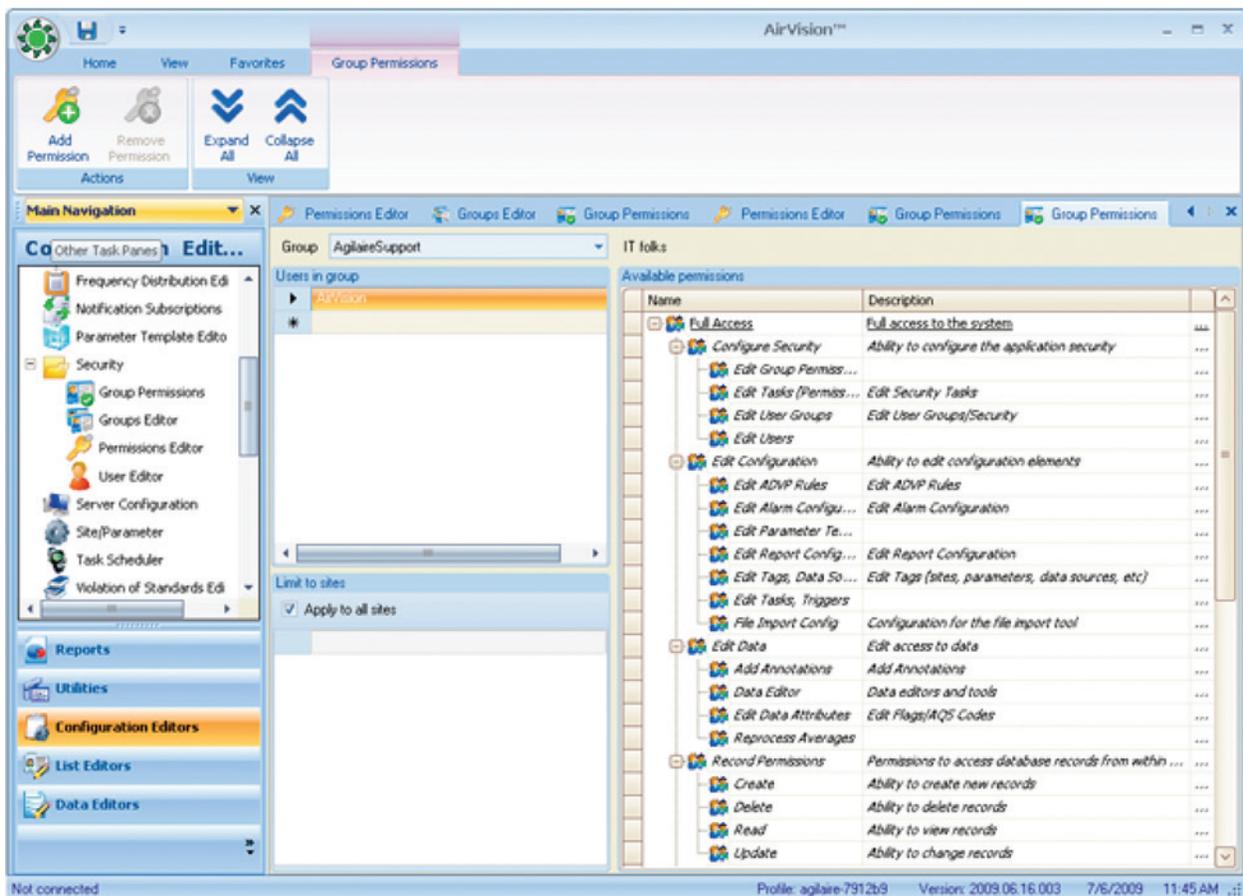
Groups Editor from Configuration Editors > Security > User Editor

Group Permissions

Finally, define the permissions for each **User Group** using the **Configuration Editors > Security > Group Permissions Editor**. Select a Group in the drop-down list. The list of configured users is displayed (and users can be added here as well). The right panel shows the various rights available in the system, and the status for the current group:

- ◆ Grayed = access disabled
- ◆ Black, underlined = access enabled
- ◆ Black, italic = access enabled by inheriting from another granted access.

In this example, access has been granted to certain Security permissions (Groups, Users, and User Groups, but not Edit Tasks). Access is granted to all configuration items at the topmost level, and all sub-tasks are permitted by inheritance. For example, to turn off Edit ADVP Rules, first remove the overall Edit Configurations permission and then add the individual permissions that we need. Expand and Collapse the tree using the buttons on the ribbon. To define a group as having site-specific access, uncheck the **Apply to All Sites** in the lower left panel, and then add sites using the list form below.



Group Permissions from Configuration Editors > Security > Group Permissions Editor

GSI Driver Editor

The purpose of the GSI Driver Editor (**Editors>GSI Driver Editor**) is to provide a way to add, delete, or modify GSI driver entries in an editor similar to the Parameter Template editor for GSI entries and GSI instruments.

The GSI Driver Editor consists of an alphabetized pick-list of existing GSI entries for modification. Two editors may be required, one for instruments and one for entries, or two sections/tabs of the forms.

Fields in the GSI Driver Entry tab include:

GSI Entry

Associated GSI Instrument and GSI Entry (pick-list of configured instruments)

Send Name (string)

Parse Name (string, up to 8 char)

AutoSend String (string up to 8 char)

Autosend Repeat Interval (1.60 seconds)

Parse Sync String

Modbus Register

Fixed or Delimited Parsing

Fixed:

Number of Chars to Data (int, up to 3 digits)

Data Field Width (int, up to 2 digits)

Number of Chars in string (int, up to 3 digits)

Delimited:

Number of Delimiter Chars (string)

Number of Delimiters of Delimiters to Data (int, up to 3 digits)

Number of Delimiters In String (int, up to 3 digits)

Data Field Type (pick-list- Hex, Binary, Float)

In the GSI Driver Instrument tab:

GSI Instrument Name

Default TCP Port (integer, up to 6 digits)

Default Modbus Code (integer, 0-255)

Default Modbus Command Type (3 or 4)

Please refer to the Agilaire GSI/Modbus Application Note for more information about GSI drivers and the definitions of these fields.

Configuring Reports

The following reports require some additional configuration to run:

- ◆ AIRNow Report (**Configuration Editors > Report Configuration > AIRNow/FTP Setup**)
- ◆ AQI Report (**Configuration Editors > Report Configuration > AQI Program Editor**)
- ◆ Frequency Distribution Report (**Configuration Editors > Report Configuration > Frequency Distribution Editor**)
- ◆ Concentration Distribution Report (**Configuration Editors > Report Configuration > Frequency Distribution Editor**)
- ◆ Violation of Standards Report (**Configuration Editors > Report Configuration > Violation of Standards Editor**)
- ◆ Wind Rose (**Configuration Editors > Report Configuration > Wind Rose Levels Editor**).

AIRNow/FTP Setup

Submitting AIRNow reports consists of three steps:

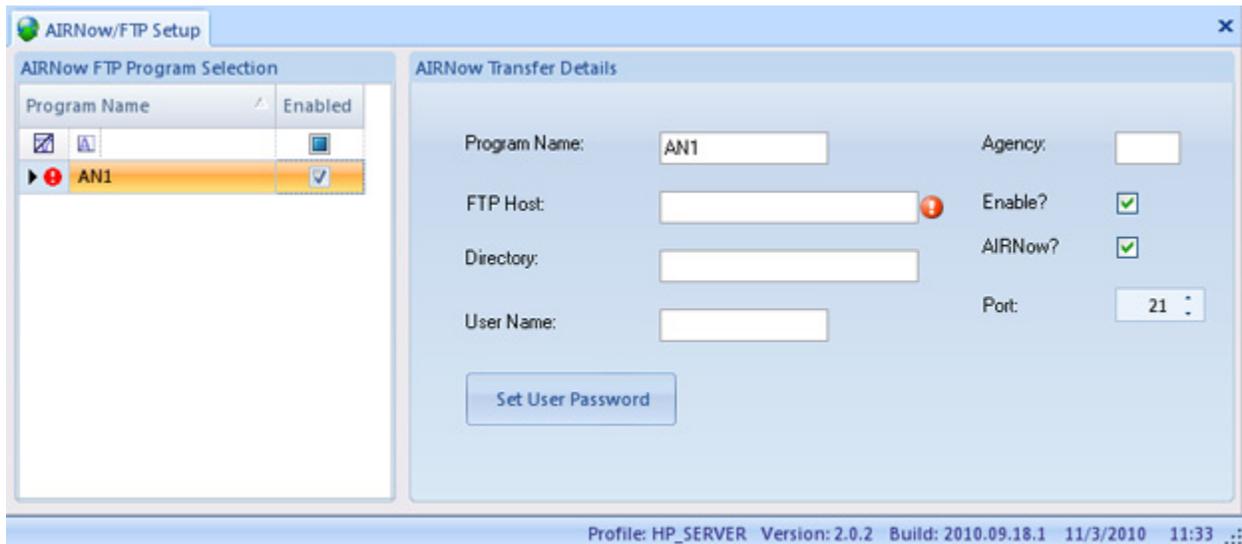
- 1 Check **Enable AIRNow Reporting** in **Site/Parameter setup (Configuration Editors)**
- 2 Enter **AIRNow Transfer Details** in **AIRNow/FTP Setup (Configuration Editors)**
- 3 Schedule **AIRNow FTP Transfer task** in **Task Scheduler (Configuration Editors)**

For **AIRNow Transfer Details** (step 2), open **AIRNow/FTP Setup** from the **Configuration** menu. To add a new transfer program select the **Add FTP Program** button on the Ribbon above the Main Navigation menu. As transfer programs are added they will appear in the **AIRNow FTP Program Selection** section. To open an existing transfer program, click the program name in the **AIRNow FTP Program Selection** section.

To set up a new AIRNow Transfer program, click the Add FTP Program button and enter the following fields:

- ◆ **Name** – The name that you choose to use to identify the transfer program.
- ◆ **FTP Host** – EPA’s FTP address provided by EPA.
- ◆ **Transfer Method** – Provides option for FTP, FTP/SSL, or SFTP (FTP over SSH).
- ◆ **Directory** – Path to the destination directory provided by EPA.
- ◆ **User Name** – User ID provided by EPA.
- ◆ **Agency** – Agency Code provided by EPA. (Used only for old OBS reports.)
- ◆ **Enable** – Enables the transfer program to function.
- ◆ **AIRNow** – Submits the report being transferred in AIRNow format.
- ◆ **Port** – **Port 21** as required by EPA.
- ◆ **Set User Password** – Clicking this button brings up a password box where you enter and confirm the password provided by EPA.

Click the **Save** icon.



AIRNow FTP Setup in Configuration Editors

AQI Program Editor

The AQI Program Editor is accessed via the Configuration menu. The **AQI Program Selection** section is a table with the following columns:

Program Name, e.g., CO, NO2, ozone8h

Parameter Type, e.g., 44201--ozone, 42602--nitrogen dioxide

AQS Unit Type, e.g., parts per billion, micrograms/cubic meter

Average Interval, e.g., 001h (hourly)

Enabled--check to enable the AQI program in the row

Averaging type, rolling or block, only relevant if the average period is >1.

Averaging Direction, forward or backward, only relevant if the average period is >1.

Rounding Method, truncate or round

Decimal Positioner, number of places to the right of the decimal

Average Period, e.g., 8 hours, 24 hours

Scale Factor is the factor by which the reading of an instrument should be multiplied to give the true final value, for example, if you need to apply a multiplication factor to data for PPM to PPB conversion before comparing against break points. Alternately, the pollutant levels can be defined within a program to match the units.

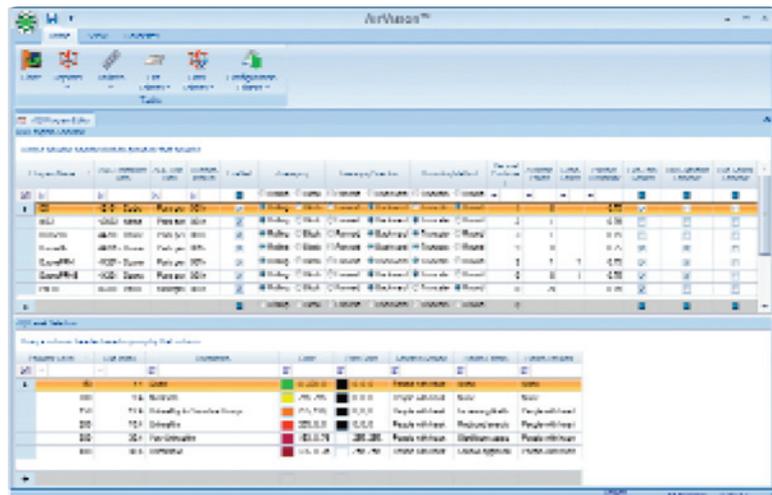
Percent Availability--percentage of valid data points required during the rolling average duration to mark the rolling average as valid

Use Zero Scaling--if selected, defines that a zero concentration value equals an AQI value of zero.

Use NowCast model--an estimation method that uses a combination of hourly particle concentrations from previous hours to estimate the Mid-24 average.

Use Reff Forecast--Computed 24 hour average using surrogate model used by USEPA's AIRNow server.

To add AQI program, click the asterisk at the bottom of the screen and enter values for an additional row. To cancel adding a program press the Tab key or the Escape key.



AQI Program Editor from the Configuration menu

Each column in the table has a button that allows you to search for a row under that heading and a button to clear all filter criteria. You can change the column order by dragging the headings to a different place. You can drag a column heading above the table to change the way the information is grouped.

The **AQI Level Selection** section is a table with the following columns:

Pollutant Level--the upper limit on an AQI value for a particular group

Sub Index--the actual data value in units

Description and color--defaults to Good (green), Moderate (yellow), Unhealthy for Sensitive Groups (orange), Unhealthy (red), Very Unhealthy (purple), and Hazardous (maroon)

Font Color--color for text (used in AgileWeb site)

Sensitive Groups and Health Effects--describes people who are most sensitive to this level of pollution and the possible health results.

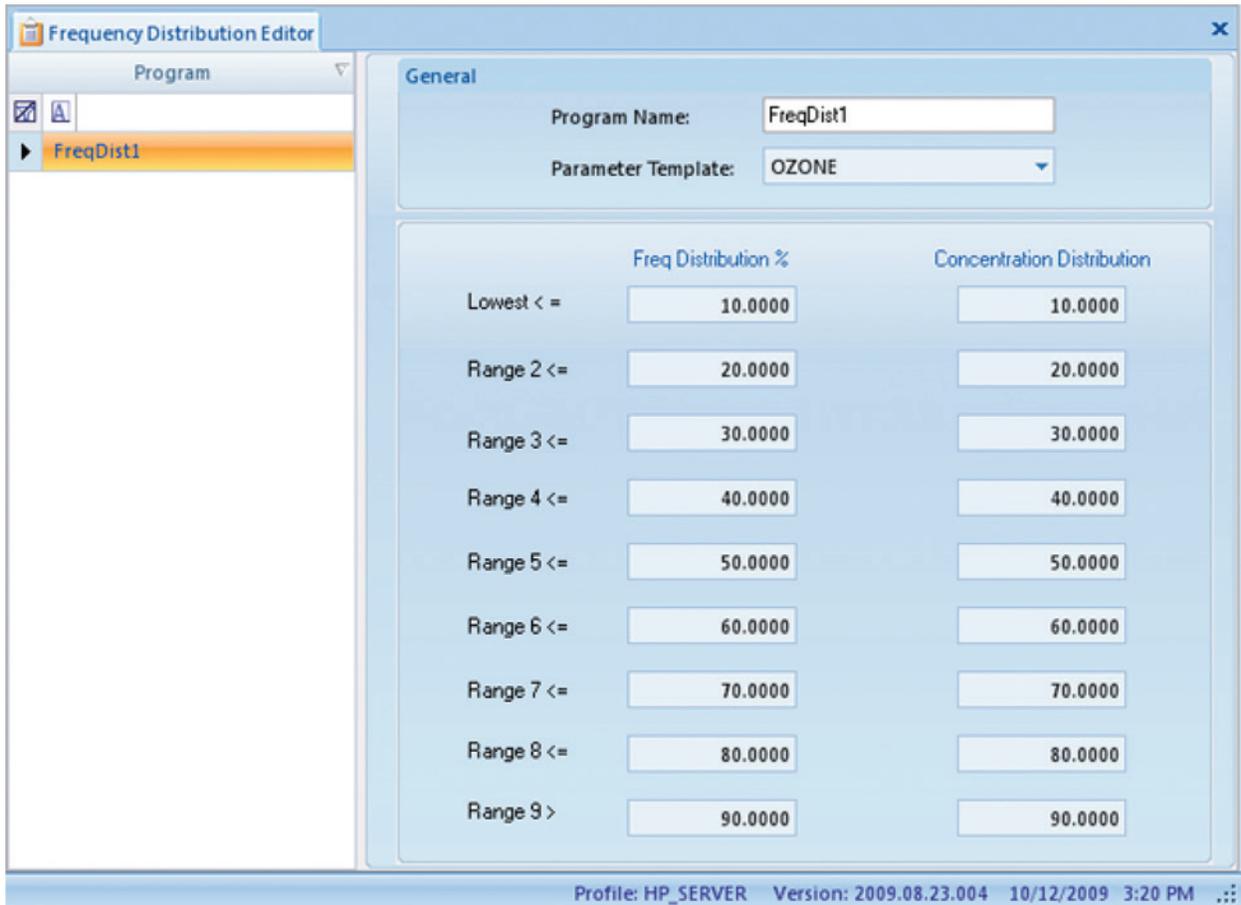
Health Advisory--advise for people at risk for this level of pollution

To add a pollutant level, click the asterisk at the bottom of the screen and enter values for an additional row. To cancel the addition, press the Tab key or the Escape key.

Each column in the table has a button that allows you to search for a row under that heading and a button to clear all filter criteria. You can change the column order by dragging the headings to a different place. You can drag a column heading above the table to change the way the information is grouped.

Frequency Distribution and Concentration Distribution Editor

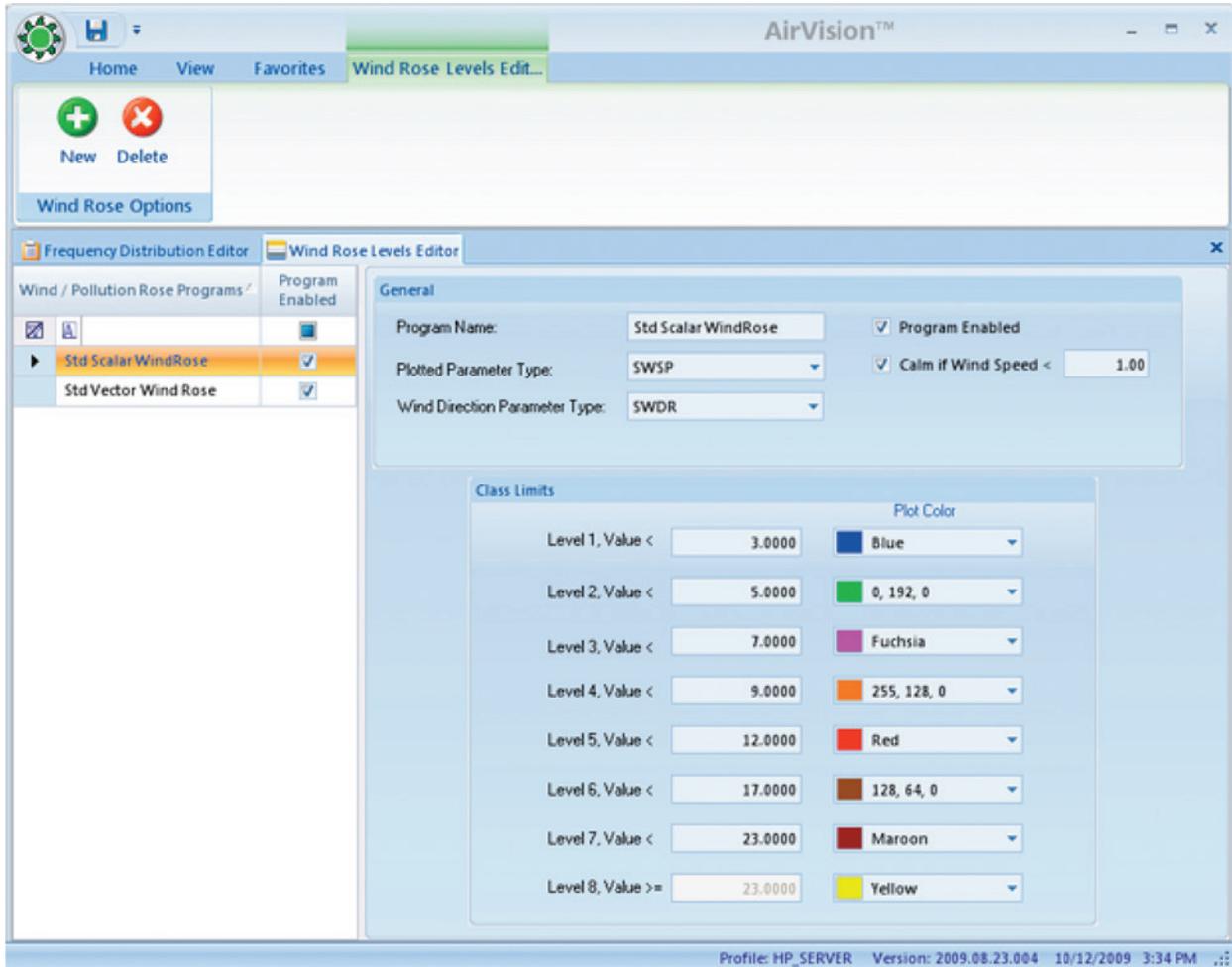
Frequency and Concentration Distribution Reports are configured in the same editor (**Configuration Editors > Frequency Distribution Editor**). You define the concentration values and statistical percentages to display in the report, with one definition entry for each Parameter Template.



Frequency and Concentration Distribution Report Editor from Configuration Editors > Frequency Distribution Report

Wind Rose Levels Editor

In the Wind Rose Levels Editor (**Configuration Editors > Wind Rose Levels Editor**) you can designate the magnitude of wind speed values and pollutant concentrations for each color and width in the rose. You can create a profile for each combination of a wind direction type (scalar or vector) wind speed, or pollutant, via the designation of Parameter Templates. This report profile applies to all sites.

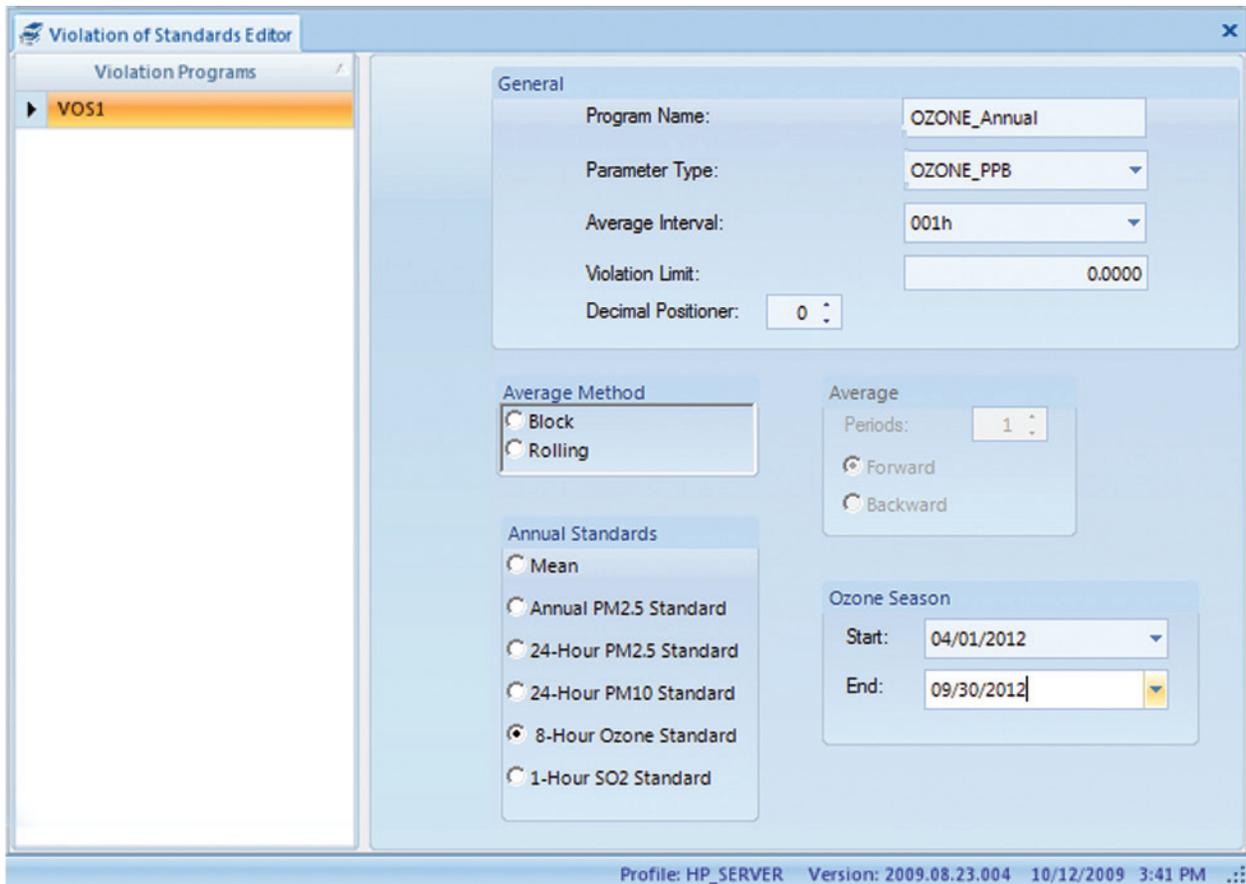


Configuring Wind/Pollution Rose Reports in Configuration Editors > Wind Rose Levels Editor

Violation of Standards Editor

In the Violation of Standards Editor (**Configuration Editors > Violation of Standards Editor**, 87), you can designate the calculation method, averaging method, and limit for any parameter template. The limits can be single averages, rolling averages, block averages, or you can choose from several standard USEPA annual and multi-year defined calculations.

For the 8-hour ozone standard, you should also designate the start and end of ozone season (or select Jan 1 – Dec 31 for year-round reporting).



Violation of Standards Editor from Configuration Editors > Violation of Standards Editor

Chapter 3

Reports

After data has been polled, either by a scheduled task (**Configuration Editor>Task Scheduler**) or manually (**Utilities>Manual Poll** or **Utilities >Manual Instrument Poll**) AirVision can be run by selecting a report from the **Reports** menu.

- ▶ **Note:** You can now add your logo to the top of Daily Summary and Monthly reports. Open the **Server directory** in the **Program directory** where AirVision is installed (typically C:\Program Files\Agilaire LLC\AirVision Server) and paste **logo.jpg** into the Server Directory (C:\Program Files\Agilaire LLC\AirVision Server\logo.jpg).

The **Reports** menu lists reports in alphabetical order with related reports grouped in folders.

Basic Reports

- ◆ Daily Summary Report
- ◆ Daily Parameter Report
- ◆ Monthly Report
- ◆ Average Data Graph Report
- ◆ 24-Hour Averages Summary Report
- ◆ 8-Hour Rolling Average Report

Calibration Reports

- ◆ Calibration Results
- ◆ Calibration Trend Graph
- ◆ Calibration X-Bar-R Chart
- ◆ USEPA Zero Drift Report

Statistical Reports

- ◆ Concentration Distribution Report
- ◆ Frequency Distribution Report
- ◆ Data Recovery Report
- ◆ Maximum Hourly Averages Report
- ◆ Network Data Recovery Report
- ◆ Statistical Reports
- ◆ Violation of Standards Report

USEPA Reports

- ◆ AIRNow AQSCSV Report
- ◆ AirNow Report (old "OBS Format")
- ◆ AQS Text Report
- ◆ AQS XML 2.2 Report / XML 3.0 Report
- ◆ Precision Reporting for Gases

AQI Reports

- ◆ AQI Monthly Report
- ◆ AQI Monthly Group Report
- ◆ AQI Report--Current
- ◆ AQI Report--Range
- ◆ AQI Report--Standard
- ◆ Voice AQI Report
- ◆ AQI Category (Levels) Report

Chapter 3

Reports

Asset Reports (Optional, with Asset Tracking Module)

- ◆ Asset History Report

Configuration Reports

- ◆ Calibration Configuration Report
- ◆ Channel Configuration Report
- ◆ Parameter Configuration Report
- ◆ Scheduled Tasks Report
- ◆ Site Configuration Report

Internal Reports

- ◆ DB Modification History
- ◆ Exception Journal Report
- ◆ Journal Message Log
- ◆ Software Version Report
- ◆ Table Size Information

Logger Reports

- ◆ Alarm Journal
- ◆ Central Messages
- ◆ Input Line Status Report
- ◆ Power Failure Report

Met Reports

- ◆ Joint Frequency Distribution Report
- ◆ Meteorological Report
- ◆ Wind/Pollution Rose

PARS Reports

- ◆ Accuracy Report
- ◆ Precision Report

Monitor Assessment Reports

- ◆ Annual Performance Evaluation
- ◆ Duplicate Assessment
- ◆ Field Proficiency Test
- ◆ Flow Rate Verification (+ Coarse version)
- ◆ National Performance Audit
- ◆ One Point Quality Control
- ◆ Performance Evaluation Program
- ◆ Replicate Assessment
- ◆ Semi Annual flow Rate Audit (+ Coarse version)

Sample Data Reports

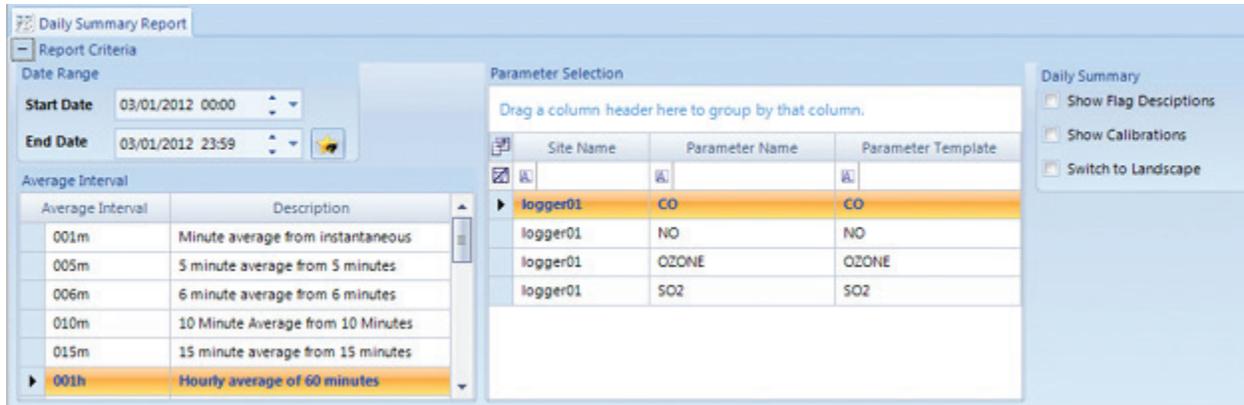
- ◆ Monthly Sample Data Report
- ◆ Sample Hourly Daily Comparison Report
- ◆ Sample Hourly Comparison Graph

Other Reports

- ◆ Annotations Report
- ◆ Audit Trail Report
- ◆ Basic Data Export
- ◆ Calibration Export
- ◆ Data with Flags
- ◆ LogBook Report
- ◆ Site Health Report

Criteria Pane

All reports use a Criteria Pane to select a time range and list of pollutants for the report.



Report Criteria pane in Reports > Daily Summary Report

You can select the **Date Range** any of the following ways:

- ◆ Manually type in a month, day, year, and time.
- ◆ Click in a date field (the month, date, year, hour, minute) and click the small up or down arrow keys to raise or lower that field (month, day, year, hour, minute). (It isn't necessary to highlight the field, just put the cursor in it.)
- ◆ Use the bigger down arrow control to bring up a **Calendar**. You can click the arrows to change the month, or click the name of the month or year to bring up a list.
- ◆ Use the **Star** button to select from a pre-defined date range:
 - Current Day
 - Yesterday
 - Current Week
 - Last Week
 - Current Month
 - Last Month
 - Current Quarter
 - Last Quarter
 - Current Year
 - Number of days back from current day

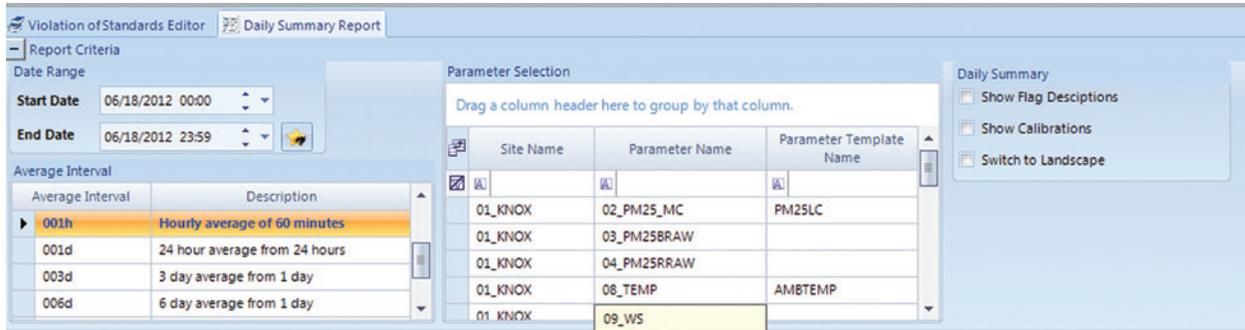
In addition, the time criteria (e.g., the star icon button) allows you to choose “shift forward one day” or “shift backward one day.” If you select one of these and hit apply, it acts similar to the “Data Forward” or “Data Backward” buttons, except always shifting by 24 hours, rather than the size of the data window. This is useful for reviewing calibration minute data for several days, where the calibration falls on the same time each day.

Scroll to select an **Average Interval** (most reports only support one average interval at a time).

Click to select a site and parameter; use standard Windows Shift-Click and Control-Click conventions to select multiple parameters.

In the **Daily Summary** section, select from the following check boxes:

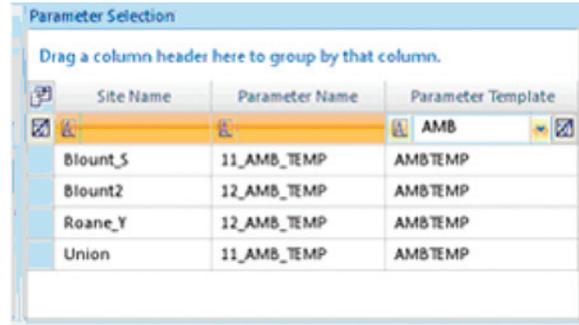
- ◆ Show Flag Descriptions
- ◆ Show Calibrations
- ◆ Switch to Landscape



Filters

Filter fields are available in the top row of each column. Click in the row to use the filter to list a single site, parameter, or parameter template.

Click the down-arrow to the right of each filter field to select a particular entry in the column. Choices in the drop-down list will be Custom, Blanks, Non-blanks, plus each entry in the column (site name, parameter names, or parameter templates)



Filter fields in Reports criteria pane

To write your own criteria, select **Custom** and configure the screen that pops up.



Custom filter criteria screen

Click the box with the letter **A** in the left side of each filter field to change the filter field from the default of **Starts With** to one of the following:

- Equals
- Does not equal
- Less than
- Less than or equal to
- Greater than or equal to
- Like
- Matches Regular Expression
- Starts with
- Contains
- Ends with
- Does not start with
- Does not contain
- Does not end with
- Does not match
- Not like

For example, if you imported E-DAS data and used the option to put the channel number in front of the channel name, you might end up with some ozone channels that were “01_OZONE” while others were “03_OZONE” and “04_OZONE”. Using the boxed “A” filter, you could search for all parameters names that contain “Ozone” and more easily select them from a large list of parameters. Using a filter makes it easy to see a Parameter Template was not set for O3_AMB_TEMP.

Parameter Selection

Drag a column header here to group by that column.

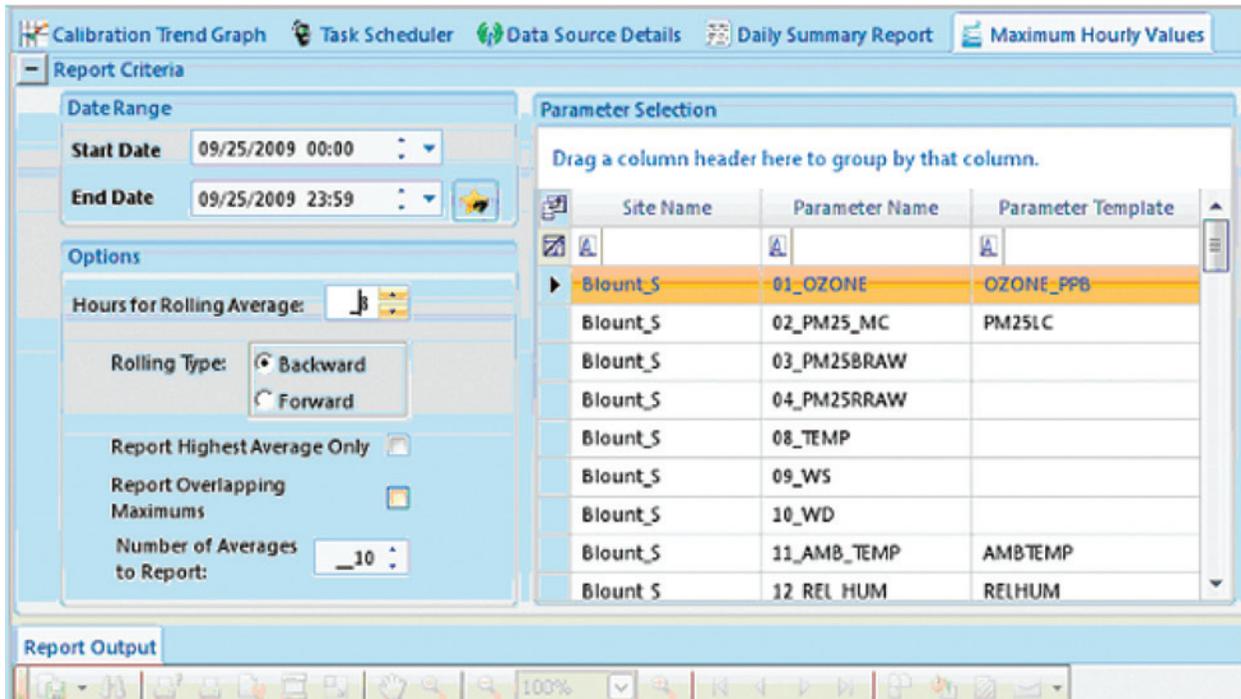
Site Name	Parameter Name	Parameter Template
Blount_5	11_AMB_TEMP	AMBTMP
Blount2	12_AMB_TEMP	AMBTMP
Brainerd	03_AMB_TEMP	
Roane_Y	12_AMB_TEMP	AMBTMP
Union	11_AMB_TEMP	AMBTMP

Using a filter to determine which parameters don't have a template

Additional Fields for Specific Reports

For some reports, the Criteria Panel is expanded with additional fields. For the Maximum Hourly Values report, additional information is needed on how the data in the report should be filtered and calculated:

- ◆ Rolling hours, and time-tagging type
- ◆ Report highest average only for any day
- ◆ Allow report of overlapping maximums (for multiple hour rolling averages)
- ◆ Number of maximum averages to report



Additional Report Criteria required for Maximum Hourly Values report

Other reports with additional criteria include:

- ◆ Wind / Pollution Rose requires you to designate which Wind Rose report profile to use.
- ◆ AQS/XML Report requires you to choose which kinds of records to be assembled.
- ◆ Concentration Distribution, Frequency Distribution, Monthly Reports all allow you to designate an N-hour rolling average as an option.

Favorites

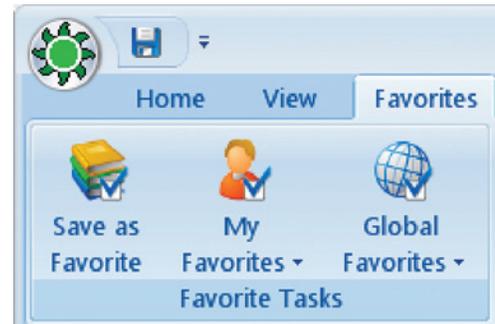
AirVision simplifies regular tasks with a list of user-defined **Favorites**, which function like Favorites in Internet browsers, such as Internet Explorer. You can save a selection of sites, parameters, average intervals, and date ranges for the **Average Data Editor** or any **Data Report**.

Favorites can be saved as a global favorite for all users, or as a favorite for an individual user. To create a favorite, go into any data editor or report, complete a query, and select **Favorites** from the top menu. The ribbon bar will change to show the favorites menu.

Select **Save as Favorite** to bring up the **Add a Favorite** screen.

Give the favorite a name, a description (optional), and select **User** or **All Users** (global) and select from the following options:

- ◆ **Launch on Application Startup** to run the Favorite upon logging in to AirVision.
- ◆ **Run Query on Launch** to execute data retrieval when the Favorite is selected.



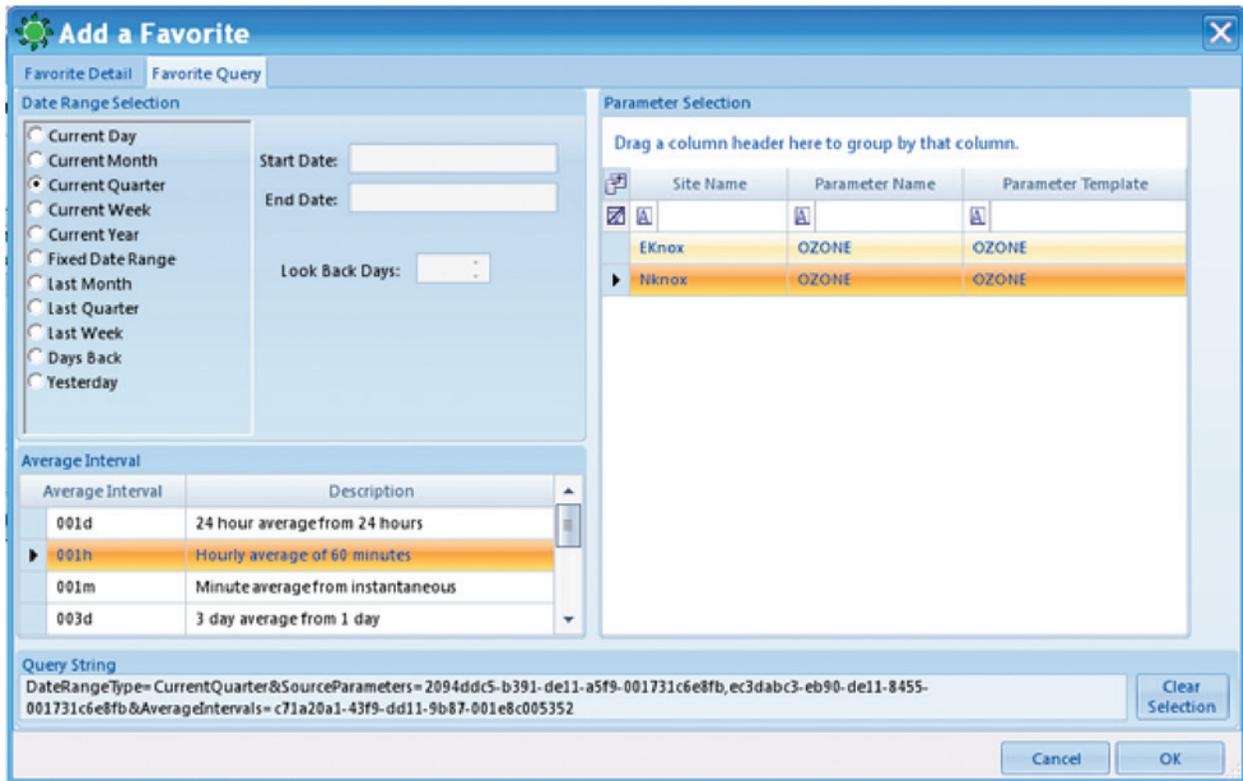
Favorites menu

Add a Favorite screen

You can also configure the **Favorite** by selecting the **Favorite Query** tab after you select **Save as Favorite**. From this screen you can adjust the site/parameter list, date range, or average interval. These values can also be adjusted later in the **Favorites Editor** in the **Configuration menu**.

To return to the ribbon controlling the current application, select the top menu function (above the ribbon), for example, Average Data Editor.

To use an existing Favorite, select **Favorites** from the top menu (above the ribbon bar), select **User Favorite** or **Global Favorites**, and the saved **Favorite**.



Favorite Query tab from Add a Favorite

Basic Reports

Daily Summary Report

The **Daily Summary Report** is usually for the daily summary of hourly data for all parameters at a site or sites, but it can also be used to report any time range or average interval. Statistics (average, maximum, minimum, and count) are at the bottom of each column. If **Totalize in Reports** is selected in the Parameter configuration, a **Total** will be displayed in the **Daily Summary Report**.

To generate a **Daily Summary Report (Reports > Daily Summary Report)**, select **Start** and **End Dates**, an **Average Interval**, **Site Name** or Names, and **Parameter Name** or Names. Click the **Generate Report** icon on the Ribbon.

Current Time: 1:38 PM				
Daily Summary Report				
Site: logger01		3/1/2012		Interval: 001h
	CO	NO	OZONE	SO2
Hour	PPM	PPM	PPM	PPM
00:00	1.19	4.528	150.000	8.595
01:00	1.19	4.535	150.000	8.597
02:00	1.19	4.543	150.000	8.598
03:00	1.19	4.553	150.000	8.599
04:00	1.19	4.561	150.000	8.601
05:00	<	4.570	150.000	8.602
06:00	1.20	4.584	150.000	8.606
07:00	1.20	4.604	150.000	8.612
08:00	1.20	4.622	150.000	8.619
09:00	1.20	4.614	150.000	8.616
10:00	1.20	4.594	150.000	8.609
11:00	1.20	4.601	150.000	8.612
12:00	1.19	4.569	150.000	8.602
Avg	1.19	4.575	150	8.605
Max	1.20	4.622	150.000	8.619
Min	1.19	4.528	150.000	8.595
Count	12	13	13	13
Total	14.34	59.478	1950	111.868

Daily Summary Report with Total

Report options are available to:

- ◆ Add Flag description page to end of report.
- ◆ Add Cal report to end of report.
- ◆ Show null codes instead of flags if invalid.
- ◆ Show qualifier codes, if present.
- ◆ Show report in landscape mode.

The Basic Data Export Report is like the Daily Summary Report, but without page breaks or summary statistics, which makes it better for Excel or database imports.

Basic Reports

Daily Parameter Report

The **Daily Parameter Report** shows a single day summary of hourly data for the entire monitoring network, grouping parameters together by the Parameter Template, but showing all sites sharing that parameter template.

Parameters that do not have a parameter template designated are not reported.

To generate a **Daily Parameter Report (Reports > Daily Parameter Report)**, select **Start** and **End Dates**, an **Average Interval**, **Site Name** or Names, and **Parameter Name** or Names. Click the **Generate Report** icon on the Ribbon.

		Daily Parameter Report																							Summary			
3/1/2006		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Avg	Max	RDS
AMTBWP	11_Roane	-9.1	-9.7	-10.8	-11.8	-12.7	-11.9	-11.9	-10.9	-9.9	-8.6	-7.4	-5.6	-4	-3	-2	-1.5	-2.1	-3.5	-4.3	-4.6	-5.3	-5.2	-5.5	-7.2	-1.5	24	
	12_Blaire	-8.4	-8.7	-9.8	-10.4	-10.4	-10.7	-11.5	-10.3	-9.9	-7.9	-6.8	-5.8	-4.6	-4.5	-4.2	-4	-4.2	-5.3	-6	-6.2	-6.2	-6.6	-7.1	-7.5	-7.3	-4	24
	Blount	-11.1	-10.4	-11	-11.9	-12.9	-13.9	-14.6	-14.1	-13	-12.2	-10.7	-8.7	-6.7	-6.2	-5.5	-4.5	-4.4	-4.4	-3.9	-3.5	-3	-3	-3.4	-3.8	-8.2	-3	24
CO	11_Roane		4	4	4	4	4	4	5	5	9	5	4	4	4	4	5	5	5	4	5	5	5	4	4	5	9	23
NO	11_Roane		1.8	6	3	5.4	1.5	2.2	7.1	5.6	4.6	11.8	5	8	4.4	6.4	11.3	5.8	9.1	5.9	7.9	8.7	16.5	11.6	8.3	6.8	16.5	23
NO2	11_Roane		5.3	7.3	19.2	31	4.2	4.9	8.7	5.1	4.2	7.8	4.4	4.2	4.3	5.5	9.6	8	13.3	8.9	14.8	21.5	23.5	13.3	21.2	10.5	23.5	23
NOX	11_Roane		8.2	9.1	23.3	27.5	6.7	7.9	16.8	11.5	9.7	17.8	10.2	12.9	9.6	12.9	22.1	14.7	23.3	15.6	23.6	31.2	40.8	26	30.6	17.9	40.8	23
OZONE_PP9	12_Blaire		55.9	57.3	41.4	41.4	40.5	38.6	39.1	40.6	40.5	40.8	40.4	40.5	41.1	41.9	42	42.1	41.4	42	42	41.2	39.4	36.8	40.3	42.1	23	
PM25LC	11_Roane	5.5	5.3	4.3	7.4	11.5	5.5	1.4	5.4	4	6.2	4.8	4.1	2.8	3.2	3.8	3.4	5.2	6	6	5.5	4.3	6.9	7.6	8.5	6.4	11.6	24
	12_Blaire	7	10.2	5.8	2.8	2.5	2.9	5	4.3	8.7	7.2	3	3.3	4.7	3.4	2	3.2	3.2	3.3	5.4	4.5	3.4	3.3	5.2	7.1	4.5	10.2	24
RAINFALL	Blount	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24
RELHUM	11_Roane	56.8	59.2	67.5	71.4	75.1	69.7	64.8	63.9	57.4	48.6	46.3	42.3	36.6	38.8	29.2	27.7	25.6	20	33.8	43.8	44	44.9	46	49.1	48.6	75.1	24
	12_Blaire	60.8	72.1	68.2	55.1	52.8	58.1	60.6	57.5	49.7	44.3	38.5	34.9	33.9	36.2	35.8	37.8	41	45.9	49.8	51.8	52.7	59.7	61.1	65.6	51.7	60.6	24
	Blount	67.9	56	55.3	65.8	58	54.4	62.2	61.7	51.2	45.6	45.2	39.7	35.5	36.6	35.7	37	37	35.9	35.3	36	34.8	39.8	35	37	45.8	67.9	24
SO2	11_Roane	4.4	5.9	15.7	15.3	3.6	3.4	3.8	3.1	4.2	2.3	3.8	7.2	4.3	1.5	1.2	1.5	1.8	3.3	4.5	4.6	5.7	4.4	4.7	4.7	15.7	23	
	12_Blaire	280.8	277	214.8	158.1	228.8	303.4	301.1	293.6	249	270.1	218.1	269	279.8	283.1	227.3	209.2	214.4	217.8	195	163.7	158.5	158.2	170.5	162.5	228.2	303.4	24
	Blount	196.4	279.4	237.1	306.8	189.1	189	153.6	131.6	125.8	140.6	94.5	133.9	178.1	195.7	181.4	184.7	151.5	144.3	148.4	147.9	195.9	161.7	131.4	144.2	165.9	279.4	24
VWSP	11_Roane	1.8	1.9	1.4	1	1.6	2.5	2.3	2.1	2.6	2	1.5	2.4	2.2	2.3	2.4	1.8	2.7	2.2	1.5	1.5	1.9	1.4	2	2.7	24		
	12_Blaire	1.9	2.1	1.9	2.2	2.1	2.6	1.4	1.7	2.6	3	3.2	2.1	3.2	4.1	3.7	4.1	3.5	3	3.3	2.8	2.4	1.8	1.3	1.2	2.6	4.1	24
	Blount	1.8	4.3	2.5	2.1	1.8	2.1	1.8	1.9	1.8	1.8	1.7	1.1	1.4	2	2.3	1.9	1.8	1.8	1.1	1.7	1.9	1	1.5	1.5	1.8	4.3	24

Daily Parameter Report

A report option is available to show null codes for invalid hours.

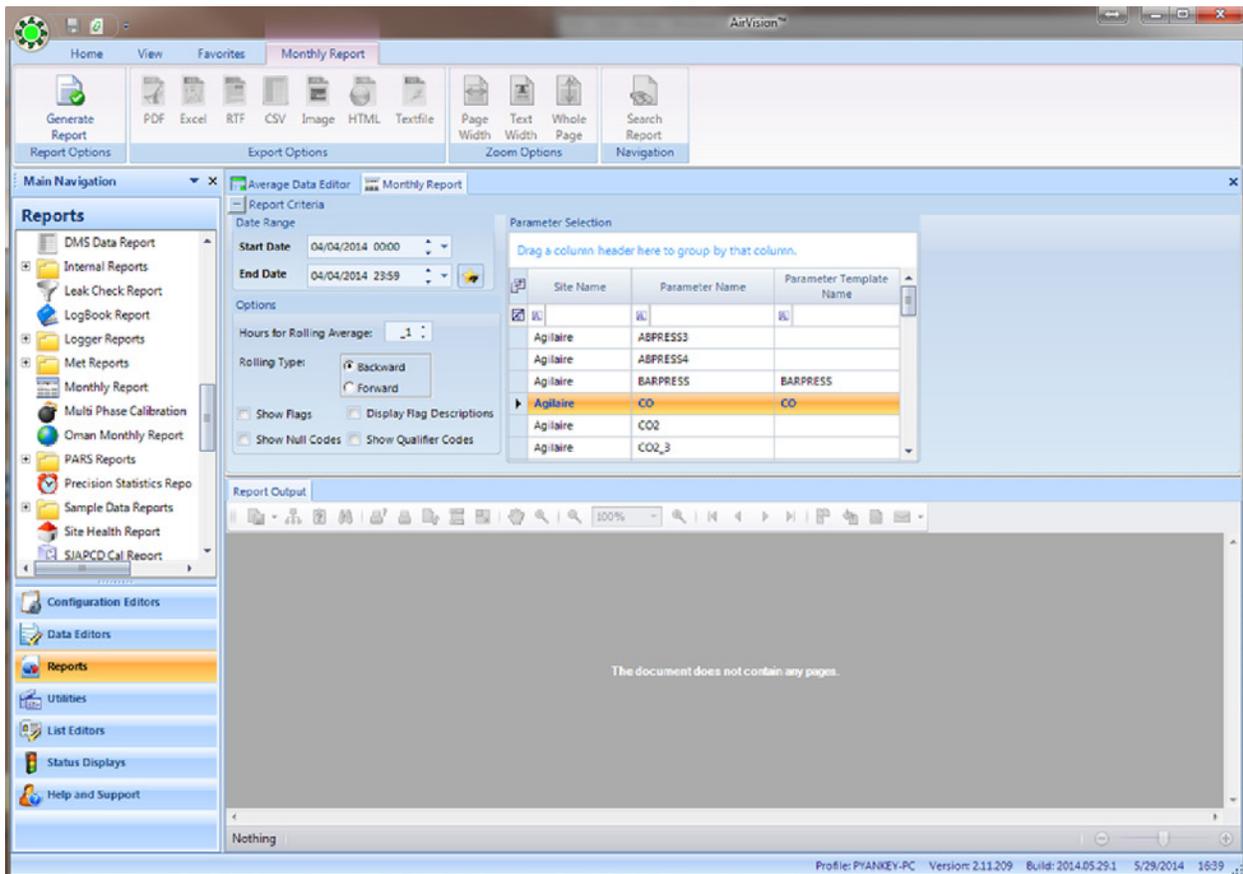
Basic Reports

Monthly Report

Monthly reports provide a matrix view of a single parameter, showing values for the entire month. Invalid or flagged data is shown with a color background or font change defining the data condition. Statistics are provided for each row (day) and column (hour).

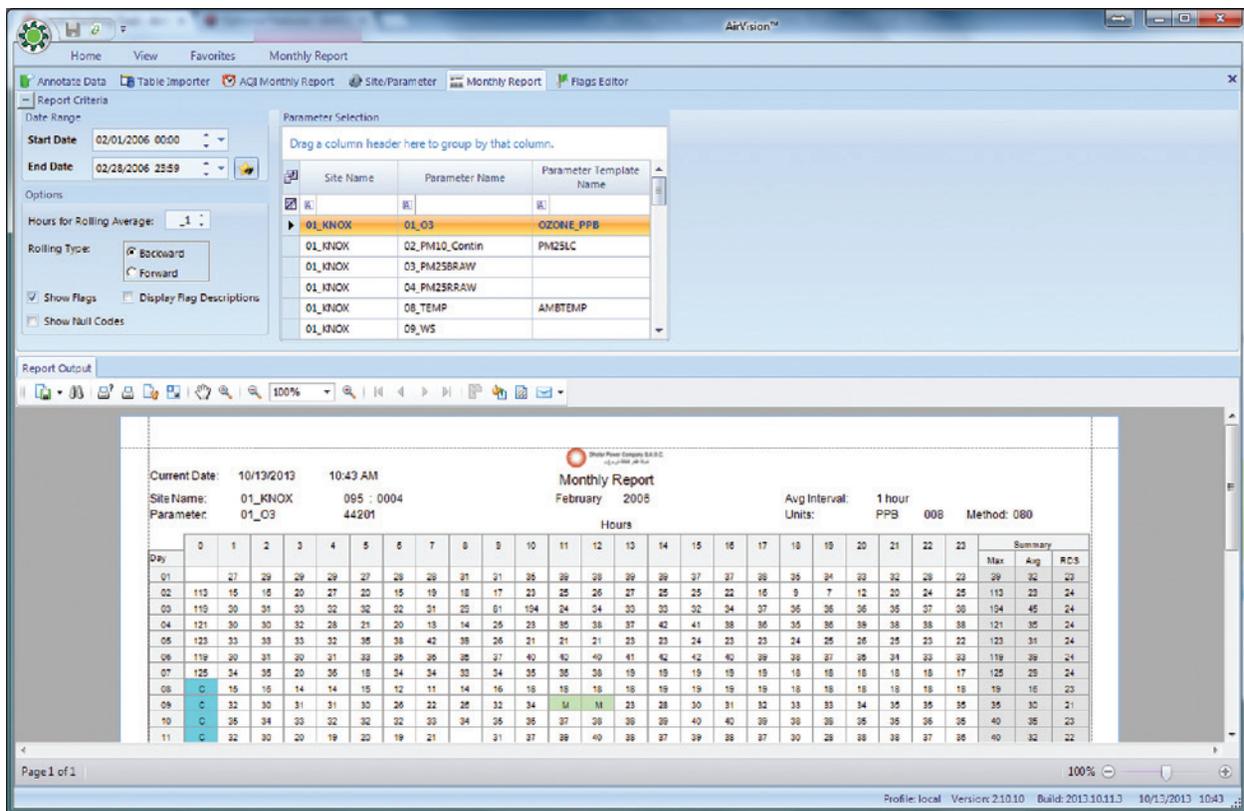
To run a **Monthly Report**:

1. Select **Reports > Monthly Report**.
2. Select a **Start** and **End** date
3. Select number of **Hours for Rolling Average**
4. Select a **Rolling Type (Backward or Forward)**
5. Select the **Parameters** that will be displayed in the report
6. If you want the **Flags Legend** to be shown in the report, click to select **Flags**. (You may have to scroll down to see the Flags option. If you want the **Null Codes** to be shown in the report, click to select **Show Null Codes**. If you want the **Qualifier Codes** to be shown in the report, click to select **Show Qualifier Codes**).



7. Click the **Generate Report** button on the Ribbon.

- **Note:** If **Totalize in Reports** was selected in **Configuration Editors > Parameter Settings**, Monthly Reports will show a total of data rather than an average.
 If **Minimum in Reports** was this option was selected in **Configuration Editors > Parameter Settings**, Monthly Reports will show a minimum of data rather than an average or a total. Totalize in Reports and Minimum in Reports are most commonly used for rainfall.



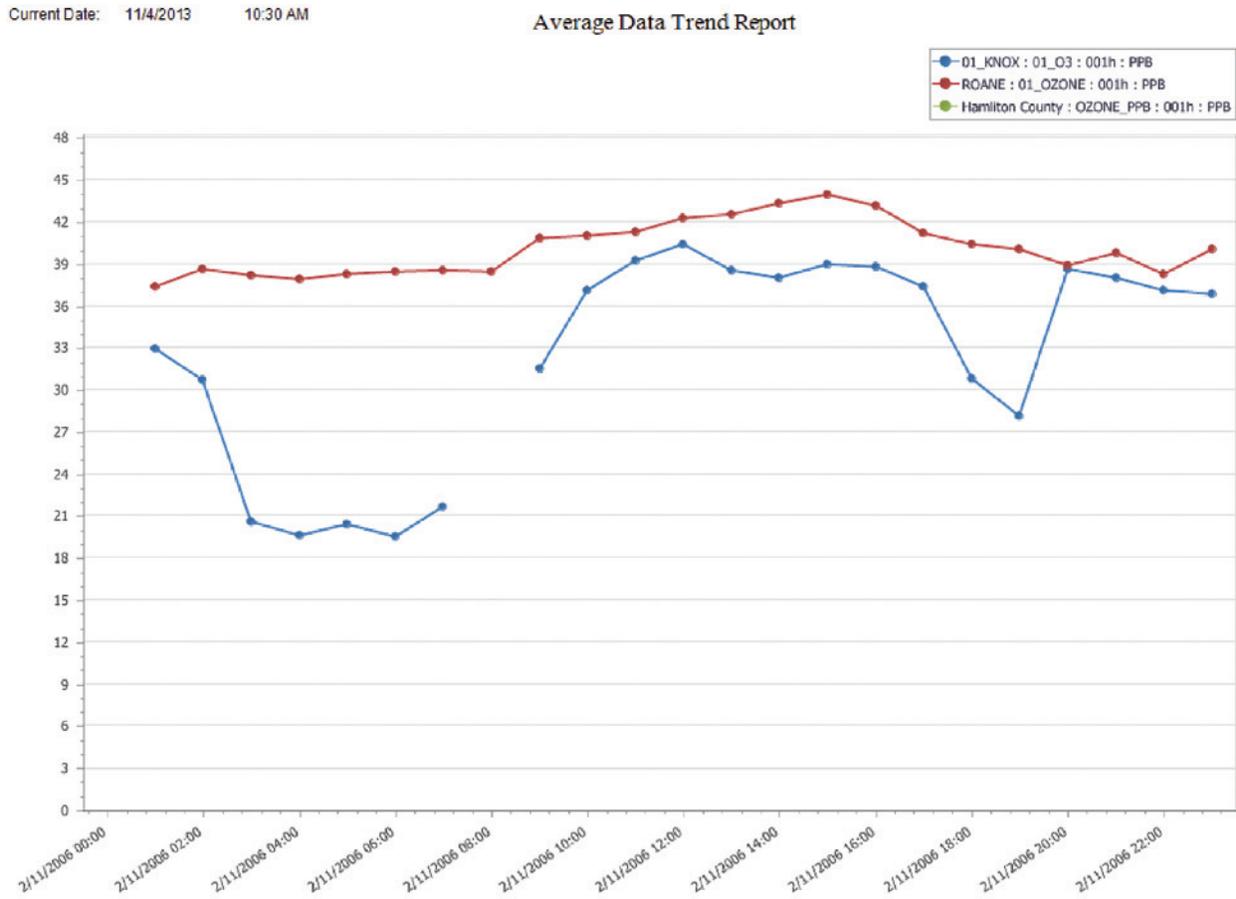
Monthly Report with Parameter Code

If Site Codes, and/or Parameter codes have been selected in the Configuration Menu they will be included in the Header. Options are provided to show null codes or flags when an invalid hour is shown on the report. These options are also available in the Scheduled Task (options). Report options are also available to add the flag legend page, show null or qualific codes, and whether to show flags for invalid date.

Basic Reports

Average Data Graph Report

This report allows access to feature similar to the graphs in the Data Editor, but for use as an automated report or for a user without permissions to the Data Editor. It supports checkbox options for dynamic scaling, show invalid as empty, etc.



Basic Reports

24-Hour Averages Summary Report

The **24-Hour Averages Report** provides a report of 24-hour averages, one month per page. This report assumes that:

- ◆ either the data logger is storing and is polled for '1d' averages,
- ◆ or that the **Data Rollup Utility** is used to create 24 hour averages from hourly data. The 24-Hour Averages Summary Report is for average data only.

Day	01_KNOX		BLOUNT3	OAKRIDGE
	02_PM25_MC	PM_TEOM	06_PM25_MC	06_PM25_MC
	UG/MB	PPB	UG/MB	UG/MB
01	5.8	29	13.1	10.1
02	14.5 P	20 P	12.3	14.6
03	12.3 D	34 M	11.8	9.8 W
04	8.5	32	11.5	9.8 W
05	6.1	28	5.9 W	3.9 W
06	<	36	.3 W	3.4 W
07	<	35	1.6 W	4.3 W
08	<	32	1.0 W	6.8
09	<	31 M	2.6 W	11.3 P
10	<	36	<	13.4
11	9.4	32	6.3 W	15.6
12	7.0	38	10.8	12.8
13	10.4	32	4.8 W	13.0
14	14.8	28	12.5	16.0
15	18.6	25	16.1	22.0
16	21.2	31	11.1 >	23.7
17	<	43 P	9.8 W	12.3 W
18	69.0	39	<	4.3 W
19	4.8	35	<	8.6
20	10.3	32	6.4 ?	9.9
21	19.9 M	23 M	13.7	18.1
22	20.3 M	27	13.0 P	23.0
23	29.4	11 M	26.1	33.6
24	7.6	39	5.2	8.7 V
25	8.9	32	3.5 W	15.3
26	4.1	38	.6 W	7.5
27	1.8	36	<	6.6 W
28	5.6	0	.0 M	13.3 V
Avg	14.1	30	8.3	12.5
Max	69.0	43	26.1	33.6
Min	1.8	0	.0	3.4
Count	22	28	24	28

24 Hour Average Summary Report

Basic Reports

8-Hour Rolling Average Report

This report is similar to the Daily Parameter Report in format, except that each of the hourly data cells are an 8-hour forward rolling average, commonly used for ozone reporting.

Current Date: 11/4/2013 10:29 AM

8 Hour Rolling Average Report

2/11/2006

Parameter	SiteName	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Grand Total		
																											Avg	Max
OZONE_PPB	D1_KNOX	23	23	22	23	26	29	32	34	37	37	38	37	35	35	35	35	34	34	35	37	37	37	37	37	32	38	24
	Hamilton County																									0	0	0
	ROANE	38.1	38.1	38.6	38.9	39.3	39.8	40.3	40.9	41.6	42.2	42.2	42.2	42	41.6	41.2	40.6	40.1	39.7	39.4	39.2	39	38.7	38.4	38.3	40	42.2	24

Calibration Reports

Calibration Results

Calibration reports show the calibration event and results for any zero/span, precision check, or other calibration program.

Current Date : 3/9/2009 Current Time : 3:47 PM <div style="text-align: center;">Calibration Report</div>							
Site:	SITEONE						
Source:	Logger01						
Date:	02-Jul-2008						
<u>Parameter</u>	<u>Sequence</u>	<u>Phase</u>	<u>Start Time</u>	<u>End Time</u>	<u>Value</u>	<u>Expected Value</u>	<u>% Error</u>
test1	TESTCAL	PHASE1	00:00:00	00:01:00	1.123	1	12.35

Calibration Report

The percentage of error is calculated as follows:

- ◆ If the **Cal Span** has not been set in the **Parameter Editor**, zero error is shown as an absolute difference, while span precision errors are shown as a % of the expected value.
 - ◆ If the Cal Span has been set in the **Parameter Editor** the errors are all shown as a % of the **Cal Span** value.
- **Note:** There are some internal options available to control the rounding/truncation logic for expected values. Contact support@agilaire.com if the % error is not showing the desired result.

Calibration Reports

Calibration Trend Graph

Calibration Trend Graphs provide a long-term view of calibration zero/span results over a user-defined period of time (month, quarter, etc). Select a **Start** and **End Date** and a **Parameter**. Click the **Generate Report** icon on the ribbon.

If you select **Raw Data Graph** from the ribbon at the top of the screen, you can view calibration data in a text table.

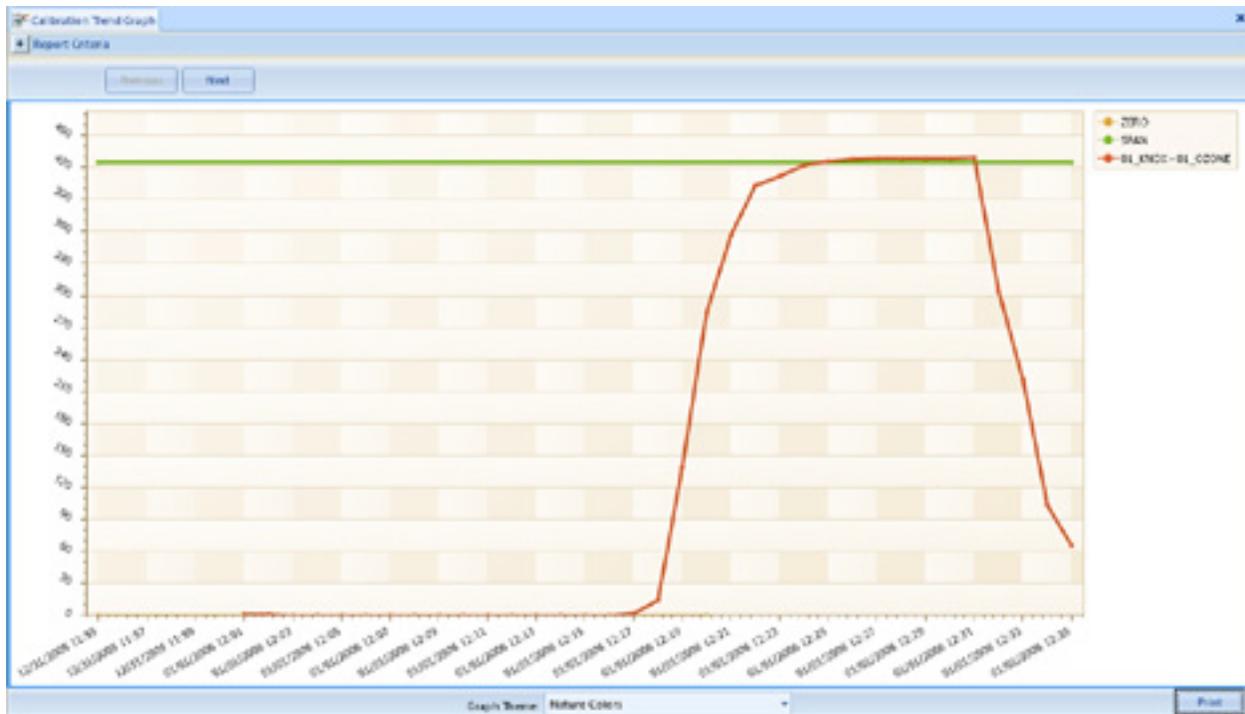
The screenshot shows the AirVision software interface. The ribbon at the top has 'Generate Report', 'Raw Data', 'Historical Graph', and 'Response Graph' options. The 'Raw Data' option is selected, and the 'Generate Report' icon is highlighted. Below the ribbon, the 'Calibration Trend Graph' window is open, showing 'Report Criteria' with 'Start Date' 06/02/2010 00:00 and 'End Date' 06/03/2010 23:59. The 'Parameter Selection' table is visible, with 'OZONE' selected for the Agilaire site. Below this, a table displays the raw calibration data.

Site	Parame...	Source	Calbrat...	Phase Number	Phase Name	Start Date	EndDate	Expected V...	Value	Difference
Agil...	OZONE	09Logger	Cal1	1	Phase0	6/2/2010 6:00 PM	6/2/2010 6:05 PM	0	0.489576...	-0.489576518
Agil...	OZONE	09Logger	Cal1	2	Phase1	6/2/2010 6:00 PM	6/2/2010 6:10 PM	2	-1.3028912	3.3028912
Agil...	OZONE	09Logger	Cal1	3	Phase2	6/2/2010 6:00 PM	6/2/2010 6:15 PM	0	0.94302392	-0.94302392
Agil...	OZONE	09Logger	Cal1	1	Phase0	6/2/2010 7:00 PM	6/2/2010 7:05 PM	0	-1.2476368	1.2476368
Agil...	OZONE	09Logger	Cal1	2	Phase1	6/2/2010 7:00 PM	6/2/2010 7:10 PM	2	0.059208...	1.940791533
Agil...	OZONE	09Logger	Cal1	3	Phase2	6/2/2010 7:00 PM	6/2/2010 7:15 PM	0	1.27934455	-1.27934455
Agil...	OZONE	09Logger	Cal1	1	Phase0	6/2/2010 8:00 PM	6/2/2010 8:05 PM	0	1.15639686	-1.15639686
Agil...	OZONE	09Logger	Cal1	2	Phase1	6/2/2010 8:00 PM	6/2/2010 8:10 PM	2	0.040419...	1.959580705
Agil...	OZONE	09Logger	Cal1	3	Phase2	6/2/2010 8:00 PM	6/2/2010 8:15 PM	0	-0.07644...	0.07644924
Agil...	OZONE	09Logger	Cal1	1	Phase0	6/2/2010 9:00 PM	6/2/2010 9:05 PM	0	1.57154619	-1.57154619
Agil...	OZONE	09Logger	Cal1	2	Phase1	6/2/2010 9:00 PM	6/2/2010 9:10 PM	2	-1.9492111	3.9492111
Agil...	OZONE	09Logger	Cal1	3	Phase2	6/2/2010 9:00 PM	6/2/2010 9:15 PM	0	0.600318...	-0.600318133
Agil...	OZONE	09Logger	Cal1	1	Phase0	6/2/2010 10:0...	6/2/2010 10:0...	0	1.54926729	-1.54926729
Agil...	OZONE	09Logger	Cal1	2	Phase1	6/2/2010 10:0...	6/2/2010 10:1...	2	0.955369...	1.044630647
Agil...	OZONE	09Logger	Cal1	3	Phase2	6/2/2010 10:0...	6/2/2010 10:1...	0	0.107580...	-0.107580579

Profile: HP_SERVER Version: 1.0.5 Build: 2010.04.25.1 6/3/2010 13:09

Historical Calibration Trend Graph

If you select **Historical Graph** you can view data in a graph. Each color represents a different phase, as shown in the legend. You can change the color scheme by selecting a **Graph Scheme** from the drop down list at the bottom of the screen.



Historical Calibration Trend Graph

If you select **Response Graph** from the ribbon at the top of the screen, you can review fine-resolution data during each calibration cycle to see instrument response. Each cal can be cycled through using the **Forward/Back** button. You can change the color scheme by selecting a **Graph Scheme** from the drop down list at the bottom of the screen.

The graph has a filter at the top to define the specific calibration program to be graphed, in the event that a parameter has more than one calibration program associated with it.

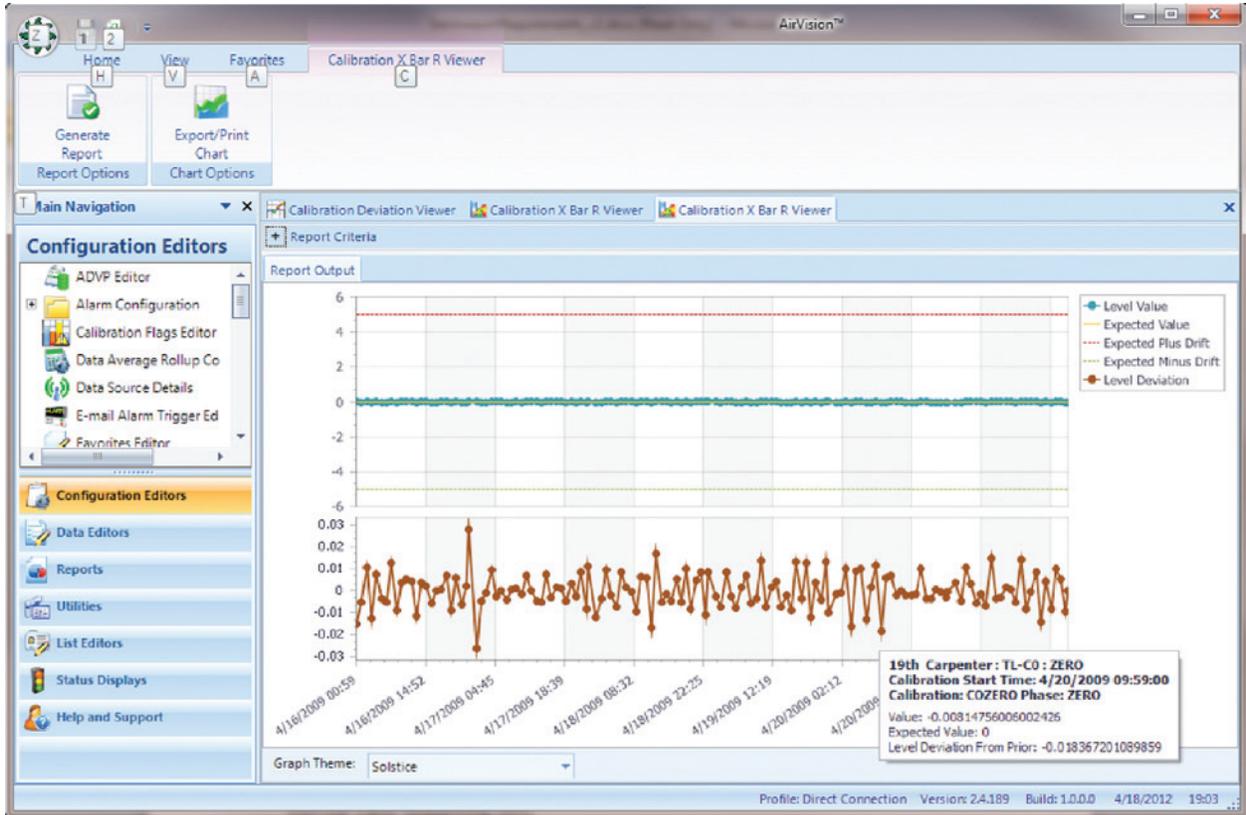


Calibration Trend Response Graph

Calibration Reports

Calibration X-Bar-R Chart

This chart provides a detailed review of a particular phase (e.g., zero, span, precision) for a particular parameter over time. The top chart shows the measured response and expected / reference value for each calibration event. If drift limits have been set, those bounds are shown as well. The bottom chart shows the value of the drift (difference) from one cal event to the next.





Calibration Reports

USEPA Zero Drift Report

This report shows zero drift calculated over the report period per USEPA guidance document (Lew Weinstock) in 2014/2015. Values in excess of the EPA defined limits is marked with a “*”.

Current Date: 1/19/2016 11:05 AM

Zero Drift Report

02/25/2006

Site	CO		NOX		OZONE_PP8		SO2	
	Last	14-Day	Last	14-Day	Last	14-Day	Last	14-Day
01_KNOXVILLE					0	0		
BLOUNT3	0.9 *	0.1						
OAKRIDGE	0.04	0.204	0.9 *	0.5 *			0.6	0.3

* - Drift Limit Exceeded

Current Date: 1/19/2016 11:05 AM

Zero Drift Report

02/26/2006

Site	CO		NOX		OZONE_PP8		SO2	
	Last	14-Day	Last	14-Day	Last	14-Day	Last	14-Day
01_KNOXVILLE					0	0		
BLOUNT3	0	0.2						
OAKRIDGE	0.39	0.964 *	0	0.4 *			0.5	0.8

* - Drift Limit Exceeded

Current Date: 1/19/2016 11:05 AM

Zero Drift Report

02/27/2006

Site	CO		NOX		OZONE_PP8		SO2	
	Last	14-Day	Last	14-Day	Last	14-Day	Last	14-Day
01_KNOXVILLE					0	0		
BLOUNT3	0.4	0.9 *						
OAKRIDGE	0.39	0.964 *	0	0.4 *			0.5	0.8

* - Drift Limit Exceeded

Current Date: 1/19/2016 11:05 AM

Zero Drift Report

02/28/2006

Site	CO		NOX		OZONE_PP8		SO2	
	Last	14-Day	Last	14-Day	Last	14-Day	Last	14-Day
01_KNOXVILLE					0	0		
BLOUNT3	0.7 *	0.1						
OAKRIDGE	0.49 *	1.944 *	0.2 *	0.1 *			0.9	1

* - Drift Limit Exceeded

Current Date: 1/19/2016 11:05 AM

Zero Drift Report

03/01/2006

Site	CO		NOX		OZONE_PP8		SO2	
	Last	14-Day	Last	14-Day	Last	14-Day	Last	14-Day
01_KNOXVILLE					999 *	1978 *		
BLOUNT3	0.3	0.2						
OAKRIDGE	0.93 *	0.062	0.2 *	0.7 *			0.1	0.7

* - Drift Limit Exceeded

Statistical Reports

Concentration Distribution Report

Concentration Distribution reports show the number of readings that fall into user-defined concentration ranges. The user defines the concentration ranges for each parameter type in the **Frequency/Concentration Report Editor**.

Concentration Distribution Report															
Parameter: OZONE		Avg Interval: 001h					Maximum Samples: 9363								
Site	Samples	Min.	310	320	330	340	350	360	370	380	>390	Max.	Arith. Mean	Geo. Mean	Geo. Dev.
SITEONE	9363	- 1179.3	8588	0	0	8	0	0	0	0	767	505.5	18.5	32.8	7.6

Concentration Distribution Report

Statistical Reports

Frequency Distribution Report

The **Frequency Distribution Report** provides a breakdown of concentration values that represent the Nth percentile of a requested data set. In the example, the 95th percentile for ozone for the given time period was 46 ppb, meaning that 95% of the ozone readings were at or below 46 ppb. The report also lists minimum, maximum, means, and deviation. The report requires that percentile ranges be set up previously for a given Parameter Template (**Configuration Editors**>**Frequency Distribution**). The report cannot be run on a parameter that does not have a Parameter template and a Frequency Distribution report configuration.

Current Date : 9/21/2009															
Current Time : 5:04 PM															
Frequency Distribution Report															
Parameter: OZONE		Avg Interval: 001h					Maximum Samples: 96								
<u>Site</u>	<u>Samples</u>	<u>Min.</u>	<u>10</u>	<u>20</u>	<u>30</u>	<u>50</u>	<u>90</u>	<u>95</u>	<u>98</u>	<u>99</u>	<u>100</u>	<u>Max.</u>	<u>Arith. Mean</u>	<u>Geo. Mean</u>	<u>Geo. Dev.</u>
SITBOME	96	0.010	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.010	0.010	0.010	1.000

Frequency Distribution Report

Statistical Reports

Data Recovery Report

The **Data Recovery report** provides a summary, by site, of each parameter and its rate of successful data capture, which allows you to summarize the reliability of the monitoring network. The **Percent Recovery** is calculated by the number of valid averages divided by the number of possible averages in the reporting period.

Current Time: 8/12/2009 4:24:19 PM		Average Interval: 001h			
Data Recovery Report					
Site Name: SITEONE					
Parameter Name	Valid Average Scans	Valid Calibration Scans	Total Valid Scans	Total Scans In Period	Percent Recovery
OZONE	1833	0	1833	8784	20.87
Total:	1833	0	1833	8784	20.87 %

Data Recovery Report

Statistical Reports

Maximum Hourly Averages Report

The **Maximum Hourly Averages report** provides the ‘N’ highest averages for any parameter for any time range, list of sites, etc. You can define the number of maximum readings, whether multiple maximums are allowed in the same day, an optional rolling average duration, and other parameters for the calculation of the maximums.

Current Date : 5/8/2009			
Current Time : 12:49 PM			
Maximum Hourly Averages Report			
Site: SITEONE		Parameter: OZONE	
Avg Interval: 1 Hour		Units: PPB	
		Avg Type: Backward	
<u>Rank</u>	<u>Average</u>	<u>Date</u>	<u>Hour</u>
1	99	07/19/2008	20
2	96	07/18/2008	2
3	89	08/13/2008	19
4	88	07/20/2008	3
5	86	05/24/2008	23

Maximum Hourly Averages Report

Statistical Reports

Network Data Recovery Report

This report shows an overall "all in one page" view of data capture/availability for the entire system. Unlike the Data Recovery Report, it will only show parameters that have a parameter template assigned to them (which allows the report to group them). Summary statistics for each parameter template group are shown at the bottom.

Current Time: 11/04/2013 10:38


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 شركة كهرباء دكا
Network Data Recovery Report
 01-Jan-2006 - 31-Mar-2006

Site		AMBTENP	BAM1020_E	BAM1020_I	BAM1020_M	BAM1020_T	BAM1020_U	BARPRESS	CALCD_O3	CO	NO	NO2
01_KNOX	28.70 %	66.46 %						18.75 %	0.00 %			
BLOUNT		0.00 %	0.00 %	0.00 %	0.00 %	0.00 %	0.00 %					
BLOUNT2	66.39 %	66.39 %						66.39 %				
BLOUNT3	66.32 %	66.67 %						66.11 %		56.71 %	61.90 %	61.90 %
CUMBERLAND	13.69 %	22.64 %						22.64 %				
OAKRIDGE	46.46 %	53.94 %						53.94 %		62.41 %	62.87 %	62.36 %
ROANE	44.33 %	66.48 %						66.48 %				
AVERAGE	39.25 %	48.80 %	0.00 %	0.00 %	0.00 %	0.00 %	0.00 %	44.72 %	0.00 %	59.66 %	62.38 %	62.13 %

Current Time: 11/04/2013 10:38


 Duke Power Company S.A.S.C.
 شركة كهرباء دكا
Network Data Recovery Report
 01-Jan-2006 - 31-Mar-2006

Site	NOX	OZONE_PPB	PM10_CONTIN	PM25	PM25LC	PMAUXFLOW	PMFLOW	PMFREQ	PMMODE	PMNOISE	PMPRESDROP
01_KNOX		67.04 %		60.60 %	59.86 %						
BLOUNT			0.00 %		0.00 %	0.00 %	0.00 %	0.00 %	0.00 %	0.00 %	0.00 %
BLOUNT3	61.90 %				59.07 %						
Hamilton County		0.00 %									
OAKRIDGE	62.87 %			66.39 %	65.42 %						
ROANE		62.73 %									
AVERAGE	62.38 %	43.26 %	0.00 %	63.50 %	46.11 %	0.00 %	0.00 %	0.00 %	0.00 %	0.00 %	0.00 %

Current Time: 11/04/2013 10:38


 Duke Power Company S.A.S.C.
 شركة كهرباء دكا
Network Data Recovery Report
 01-Jan-2006 - 31-Mar-2006

Site	PMVOLUME	RAINFALL	RELHUM	SIGTHETA	SO2	SO4	SOLARRAD	SWDR	SWSP	YWDR	VWSP
01_KNOX		28.98 %	28.98 %	29.03 %	0.00 %	1.06 %	28.98 %	28.66 %	28.66 %	28.66 %	28.66 %
BLOUNT	0.00 %		0.00 %								
BLOUNT2		66.39 %	66.39 %	66.44 %				66.39 %	66.39 %	66.39 %	66.39 %
BLOUNT3		63.08 %						66.11 %			
CUMBERLAND		22.64 %	22.64 %	22.69 %				22.64 %	22.64 %	22.64 %	22.64 %
OAKRIDGE		53.94 %	53.94 %	53.94 %				53.94 %	53.94 %	53.94 %	53.94 %
ROANE		66.48 %	66.48 %	66.57 %				66.48 %	66.44 %	66.44 %	66.44 %
AVERAGE	0.00 %	50.25 %	39.74 %	47.73 %	29.19 %	1.06 %	50.76 %	47.61 %	47.61 %	47.61 %	47.61 %

Statistical Reports

Statistical Reports

Statistical reports provide statistics for any defined time range, as well as a comparison against previous years of the same parameter and date/time range, with calculated ratios. This report is similar to the Statistical functions in the Data Editor and used to identify data that lies outside the norm.

Current Time: 5/7/2009 5:07:27 PM						
Statistical Report						
Site:	SITEONE		Parameter:	OZONE	Interval:	001h
Statistics	Minimum	Maximum	Average	Mean	Count	Valid
Period	0	0	0	0	0	0
History	43	77	58.5833	51.6155	72	72
Ratio	0	0	0	0	0%	0%

Statistical Report

Statistical Reports

Violation of Standards Report

The **Violation of Standards Reports** provide a list of time periods where user-defined standards were violated. The user defines the violation limits and calculation methods (hourly, multi-hour, or USEPA annual standards) using the **Violation of Standards** configuration editor.

Version 2.4 of AirVision includes SO₂ NAAQS calculation in the Violation of Standards Report, which offers USEPA SO₂ NAAQS calculation (requires multiple years of data to run).

Current Date : 7/20/2009			
Current Time : 4:01 PM			
Violation of Standards Report			
Ozone_PP8 8 Hour			
20-Jul-2006 00:00 - 21-Jul-2009 00:00			
Site: SITEONE	Parameter: OZONE		
Avg Interval: 8 hour	Units: PP8		
Average Type: Forward rolling	Violation Limit: 75		
<u>Rank</u>	<u>Average</u>	<u>Date</u>	<u>Hour</u>
1	86	06/22/2007	10
2	79	06/12/2007	11
3	77	08/17/2007	10

Violation of Standards Report

USEPA Reports

AIRNow AQSCSV Report

The **AIRNow AQSCV Report** supports the proposed changes for submission of data to AIRNow. The format requires a 3-digit County Code, which can be set in the **System Configuration** screen in **Configuration Editors>Site/Parameter Editor**. After all fields in the System Configuration editor have been configured, the AQSCV report can be run, scheduled, and transmitted, just like the OBS-style AIRNow report.

A **Transfer Now** button is provided to test the AIRNow transmission, or to send manual updates to the AIRNow server.

```

Report Output
777170950002,0,4,20060301T0000-0500,42101,60,,,007,0
777170950002,0,4,20060301T0100-0500,42101,60,,0.4,007,0
777170950002,0,4,20060301T0200-0500,42101,60,,0.4,007,0
777170950002,0,4,20060301T0300-0500,42101,60,,0.4,007,0
777170950002,0,4,20060301T0400-0500,42101,60,,0.4,007,0
777170950002,0,4,20060301T0500-0500,42101,60,,0.4,007,0
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777170950002,0,4,20060301T0700-0500,42101,60,,0.6,007,0
777170950002,0,4,20060301T0800-0500,42101,60,,0.5,007,0
777170950002,0,4,20060301T0900-0500,42101,60,,0.9,007,0
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777170950002,0,4,20060301T1100-0500,42101,60,,0.4,007,0
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777170950002,0,4,20060301T1800-0500,42101,60,,0.4,007,0
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777170950002,0,4,20060301T2000-0500,42101,60,,0.5,007,0
777170950002,0,4,20060301T2100-0500,42101,60,,0.5,007,0
777170950002,0,4,20060301T2200-0500,42101,60,,0.4,007,0
Profile: HP_SERVER Version: 2.1.0 Build: 2011.01.15.1 1/20/2011 17:34

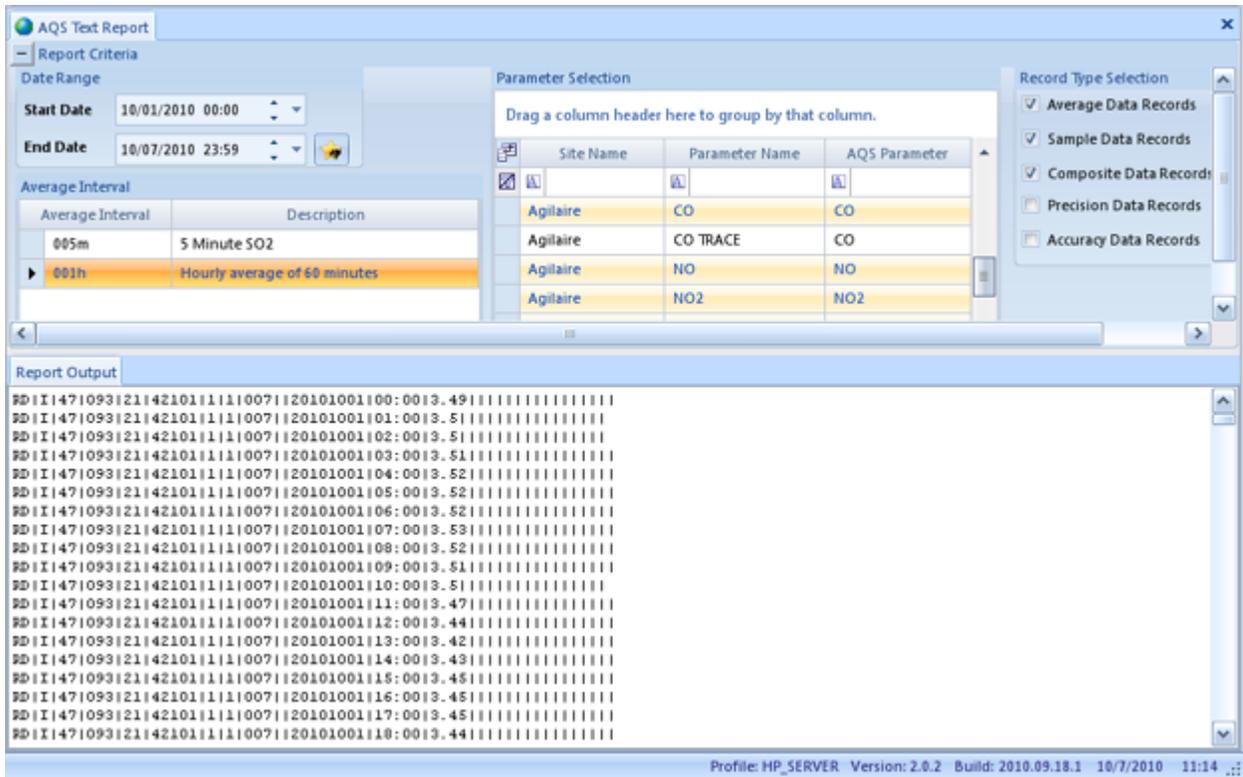
```

AQSCV Report (AIRNow CSV Report)

USEPA Reports

AQS Text Report

AQS Text Reports provide formatted data for transmission to USEPA in AQS (Re-Engineered AIRS) format. Select a **Date Range**, an **Average Interval**, **Site(s)**, **Parameter(s)**, and **Record Type(s)**: **Average Data Record**, **Sample Data Record**, **Composite Data Record**, **Precision Data Records**, and/or **Accuracy Data Records**.

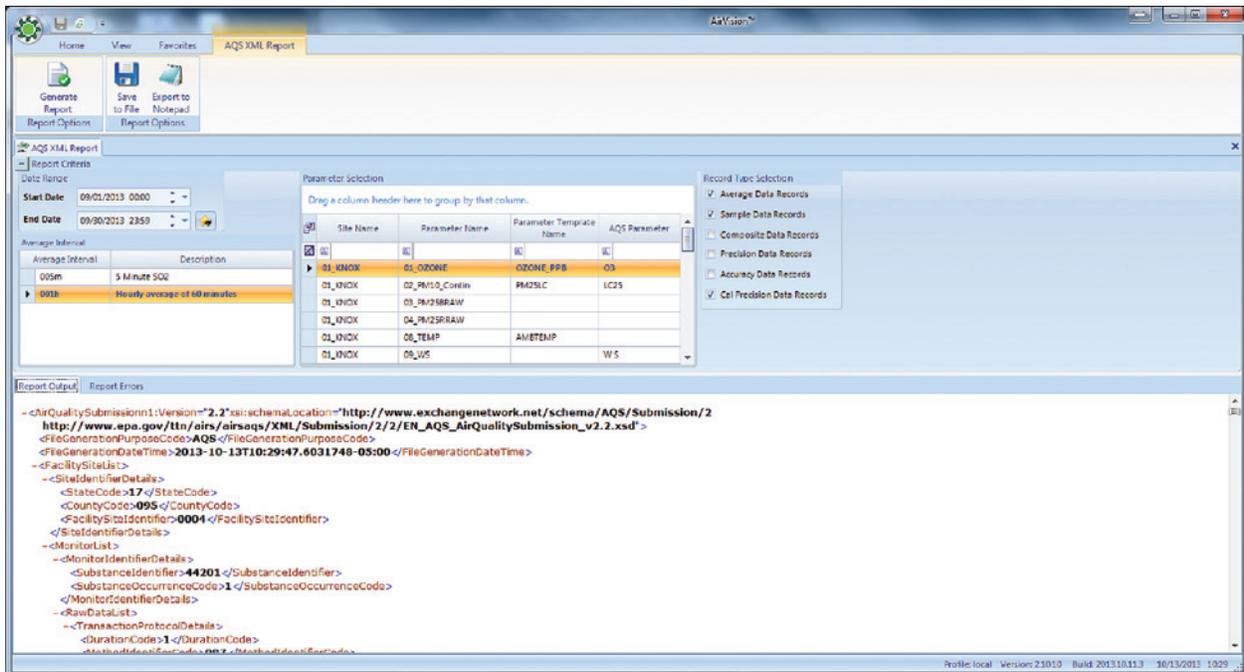


AQS Text Report (Reports>AQS Text Report)

USEPA Reports

AQS XML 2.2 Report / XML 3.0 Report

AQS XML Reports provide formatted data for transmission to USEPA in AQS XML format. You have the option to select which Record Types you want to run: **Average Data Record**, **Sample Data Record**, **Composite Data Record**, **Precision Data Records**, and **Accuracy Data Records**. Also, calibration records that have been marked with the PREC phase type can also be generated as RP records if the **Calibration Precision Records** checkbox is selected.



AQS XML Report

For the AQS XML 3.0 Reports, the PREC records are reported as "1-Point QC Check" QA transactions.

USEPA Reports

Precision Reporting for Gases

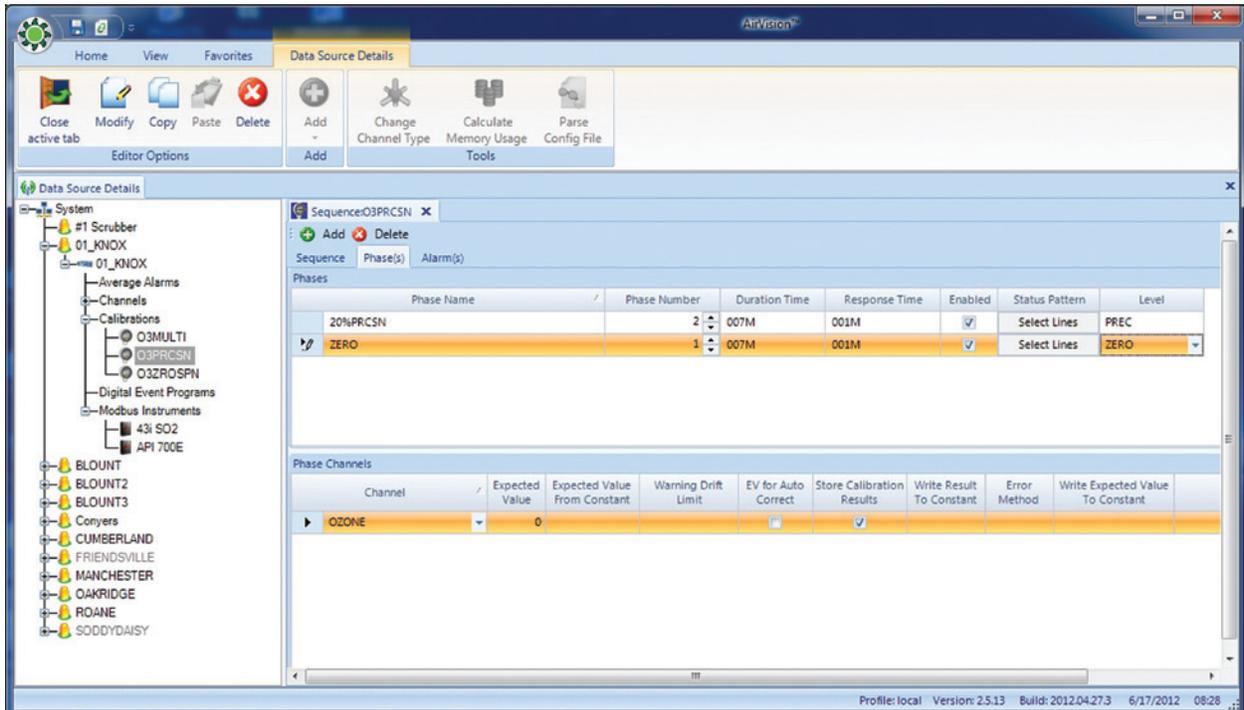
AirVision has the capability to generate precision (RP) or 1-Point QC (XML 3.0) records for calibrations that have been marked in the calibration record as a precision point. To accomplish this, a new field has been added to the Calibration Phase configuration and in the Calibration Data database to denote precision records.

To use this feature, use **Data Source Details->Logger->Calibrations->Phase**, and use the **PhaseType** field on the far right to denote the phase as a PREC phase. Other phases can be marked as ZERO, SPAN, etc if desired.

This will allow AirVision to mark future calibration records as precision points in the database. It will not affect older calibration records that have already been collected. However, those records can be adjusted using **Editors->Calibration Data**.

This function can also be used to ‘unmark’ or ‘invalidate’ bad precision runs so they are not reported in AQS.

Once collected and marked as PREC records, the AQS Reports (Text or XML) can be used to generate the desired records:



AQI Reports

AQI Monthly Report

This report provides a Monthly Report format of AQI values, with each site listed as a separate page. Each cell is color coded based on the AQI program settings.

Current Date: 11/4/2013 10:30 AM

AQI Monthly Report
February 2006

Site Name: 01_KNOX

Hours

Day	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Highest Daily AQI		
																								Peak	Pollutant		
01	24	24	25	25	26	27	28	30	31	31	31	31	31	31	30	29	27	36	33	31	30	29	27	26	26	36	01_O3
02	25	15	16	16	17	17	18	19	19	19	19	19	16	14	14	14	14	25	25	28	31	33	34	35	35	35	01_O3
03	36	28	31	49	47	48	48	48	49	44	27	28	29	29	30	31	40	39	38	37	36	36	34	49	49	01_O3	
04	31	19	19	19	19	19	21	24	26	29	31	31	31	32	32	31	31	40	40	40	39	39	38	38	40	40	01_O3
05	39	30	29	29	26	25	24	23	20	19	19	19	19	19	20	20	19	30	31	21	32	32	33	35	39	39	01_O3
06	36	27	28	29	30	31	32	32	33	34	34	34	33	33	32	31	31	39	39	38	36	36	36	35	35	39	01_O3
07	36	25	25	25	27	27	27	26	25	23	21	19	18	15	15	15	15	15	14	14	14	14	13	12	36	36	01_O3
08	11	11	12	12	12	13	13	14	14	15	15	15	15	15	15	15	15	15	17	18	19	21	23	24	24	24	01_O3
09	24	24	24	25	24	24	23	23	24	25	25	25	25	25	27	27	28	28	29	29	29	29	29	28	28	29	01_O3
10	28	28	28	28	28	29	30	31	31	31	31	32	32	32	32	32	31	31	31	30	29	26	25	23	21	32	01_O3
11	19	19	19	19	22	25	27	29	31	31	32	31	30	30	30	30	30	29	29	30	31	31	31	31	31	32	01_O3
12	31	31	31	31	31	27	23	19	14	9	8	1	1	4	8	12	16	18	21	25	28	27	28	25	31	01_O3	
13	22	22	23	23	24	24	25	26	28	30	31	31	31	30	30	30	29	28	27	26	26	26	25	25	31	01_O3	
14	24	23	23	20	18	15	14	11	9	7	5	5	5	5	5	5	5	5	7	8	10	12	13	14	24	01_O3	
15	14	15	16	17	19	21	25	28	31	33	33	31	30	26	23	19	15	13	10	9	8	8	7	6	33	01_O3	
16	6	7	8	11	14	19	24	30	35	38	41	43	43	42	38	35	34	32	32	32	33	34	36	37	43	01_O3	
17	36	36	35	34	33												36	36	36	35	34	34	33	32	36	01_O3	
18	32	32	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	32	32	31	31	30	29	33	01_O3
19	28	28	27	27	27	27	28	29	30	31	31	32	32	32	32	32	31	31	29	28	27	26	25	25	32	01_O3	
20	26	26	27	27	27	28	28	29	30	31	31	32	31	31	29	26	24	23	19	16	14	12	12	11	32	01_O3	
21	10	11	12	14	14	16	18	19	22	24	24	24	24	25	25	25	25	25	33	42	48	67	90	111	111	01_O3	
22	135	129	132	135	142	150	158	164	169	182	182	179	177	172	166	159	151	147	111	71	45	34	23	13	182	01_O3	
23	9	9	4	5	5	6	9	9	11	12	13	13	14	14	14	14	14	14	15	19	21	24	27	30	30	01_O3	
24	32	32	32	32	32	32	32	33	33	34	34	35	35	35	34	34	32	32	31	28	25	23	21	19	35	01_O3	
25	19	20	21	23	25	28	30	31	31	31	31	30	28	28	28	28	28	29	30	31	31	31	31	31	31	01_O3	
26	31	31	31	31	31	31	32	32	33	33	33	33	33	33	33	33	32	32	32	32	32	32	32	31	33	01_O3	
27	31	31	30	30	29	29	30	30	31	31	31	32	32	32	32	31	30	39	37	36	34	33	31	31	39	01_O3	
28	31	22	23	25	27	29	31	31	32	33	33	33	33	33	32	31	40	40	39	40	40	41	41	41	41	01_O3	
Max	135	129	132	135	142	150	158	164	169	182	182	179	177	172	166	159	151	147	111	71	45	34	23	13	182	01_O3	

AQI Reports

AQI Monthly Group Report

Report Criteria

Date Range
Start Date: 01/07/2012 00:00
End Date: 01/07/2012 23:59

Site Selection

Drag a column header here to group by that column.

Site Name	Site Description
G1	G1
H1	H1
H2	H2

Report Output

Current Date: 01/07/2014 2:30 PM

AQI Monthly Group Report
 January 2012

Sites: H2

Hours

Day	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Highest Daily AQI		
07	42	44	44	46	46	46	48	48	48	48	48	48	50	52	54	56	60	62	62	60	58	56	52	50	62	PM	PM
Max	42	44	44	46	46	46	48	48	48	48	48	48	50	52	54	56	60	62	62	60	58	56	52	50	62	PM	PM

This report is like the AQI Monthly Report, except multiple sites are used to create a single monthly report, with the highest value for all selected sites used for each hour.

AQI Reports

AQI Report -- Current

The **AQI Current report** provides the current Air Quality Index (AQI) for any defined date/hour for the defined site(s).

Current Date : 3/11/2009
 Current Time : 2:45 PM

Air Quality Index Report

Report period consists of 1-hour period beginning on 10/1/2007 at 00:00

Site	Ozone1h (1)		Ozone8h (8)	
	PPB		PPB	
	Avg	Index	Avg	Index
SITEONE	59	105	59.25	52

Highest AQI:

Critical Area : CLINGMAN	Critical Subindex : 105
Critical Pollutant : Ozone1h (1)	Descriptor : Unhealthy for Sensitive Groups

< - Less than 75% of averages available
 N/A - AQI is not applicable for this value

AQI--Current

AQI Reports

AQI Report -- Range

The **AQI Range report** provides the current Air Quality Index (AQI) for any date/time range.

Current Date : 10/8/2010						
Current Time : 4:04 PM						
Air Quality Index Report						
Report period is from 01-Oct-2010 00:00 to 09-Oct-2010 00:00						
	CO (8)		NO2 (1)		OzonePPM8 (8)	
	ppm		ppm		ppm	
Site	Avg	Index	Avg	Index	Avg	Index
Agilaire	4.2	48	0	N/A	3.642	N/A
Highest AQI:						
Critical Area : Agilaire			Critical Subindex : 48			
Critical Pollutant : CO (8)			Descriptor : Good			
< - Less than 75% of averages available						
N/A - AQI is not applicable for this value						

AQI--Range

AQI Reports

AQI Report -- Standard

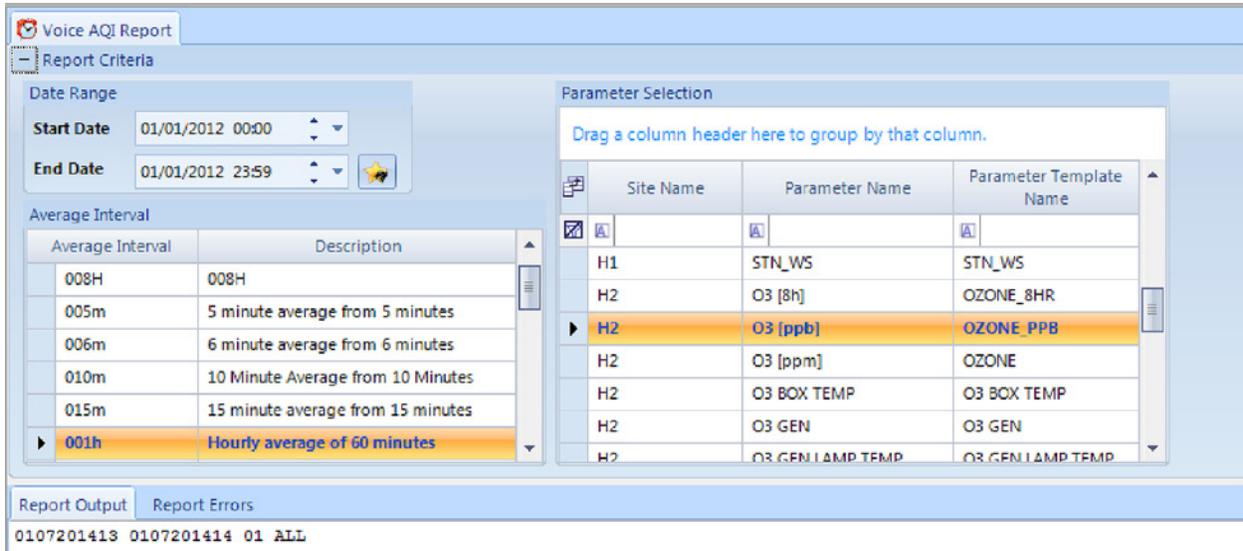
The **AQI Standard report** provides the current Air Quality Index (AQI) for any defined 24 hour period for the selected site(s).

Current Date : 10/8/2010						
Current Time : 4:39 PM						
Air Quality Index Report						
Report period consists of 24-hour period ending on 10/1/2010 at midnight						
	CO (8)		NO2 (1)		OzonePPM8 (8)	
	ppm		ppm		ppm	
Site	Avg	Index	Avg	Index	Avg	Index
Agilaire	3.5	40	0	N/A	0.005	4
Highest AQI:						
Critical Area : Agilaire			Critical Subindex : 40			
Critical Pollutant : CO (8)			Descriptor : Good			
< - Less than 75% of averages available						
N/A - AQI is not applicable for this value						

AQI--Standard

AQI Reports

Voice AQI Report



This report is used to generate Voice AQI files for the CLAIRE system. Consult application notes for details if you have CLAIRE.

AQI Category (Levels) Report

The AQI Category report gives a count of how many days the AQI was in each category range during the report period. It provides a site by site breakdown as well as a network total. The network days are based on the highest AQI category for each day across all sites.

Current Date : 5/30/2014						
Current Time : 6:51 AM						
AQI Levels Report						
Highest daily AQI levels for the period 01-May-2014 00:00 to 30-May-2014 23:00						
	<u>Total Days</u>					
<u>Site Name</u>	Good	Moderate	USG	Unhealthy	Very unhealthy	Hazardous
47th Street	4	0	21	0	0	0
Brentwood_NCore	8	1	20	1	0	0
Brentwood_Roadside	7	0	23	0	0	0
MainStreet	0	0	30	0	0	0
Paisley	5	0	24	1	0	0
Palani	7	0	22	1	0	0
Park Street	8	17	5	0	0	0
SouthStreet	15	0	15	0	0	0
Tilahani	19	0	11	0	0	0
Network	0	0	28	2	0	0

Asset Reports

Asset History Report

This report uses data from the Optional Asset Tracking Module (Chapter 3) and tracks the historical location of an asset as it moves from site to site.

Current Date: 11/4/2013 10:37 AM

Asset History Report

Mfr/Model: API T400
S/N: 77342
Purchased: 10/04/2012
Status: Active

History:	<u>Site</u>	<u>Starting</u>	<u>Ending</u>
	01_KNOX	10/01/2013	10/08/2013
	01_KNOX	10/08/2013	

Parameter Asset History Report

This report tracks the history of which assets (analyzers) have been used for a particular parameter at a particular site.

Current Date: 11/4/2013 10:37 AM

Parameter History Report

Site: 01_KNOX
Parameter: 01_O3

<u>History:</u>	<u>Manufacturer</u>	<u>Model</u>	<u>Serial #</u>	<u>Starting</u>	<u>Ending</u>
	API	T400	77342	10/01/2013	10/08/2013
	API	T400	77342	10/08/2013	

Configuration Reports

Calibration Configuration Report

To run a Calibration **Configuration Report** (**Reports > Configuration folder > Calibration Configuration Report**), select a site or sites and click the **Generate Report** icon on the Ribbon.

Calibration Configuration Report									
Agilaire									
<u>Calibration Name</u>	<u>Start Time</u>	<u>Repeat Interval</u>	<u>Recovery Time</u>	<u>Phase Name</u>	<u>Phase Number</u>	<u>Duration</u>	<u>Response Time</u>	<u>Status Pattern</u>	<u>Affected Channel</u>
Auto 1	03/10/11 00:00	001D	005M	Zero	1	005M	001M	1	NO2

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Calibration Configuration Report (Reports > Configuration folder > Calibration Configuration Report)

Configuration Reports

Channel Configuration Report

To run a **Channel Configuration Report (Reports > Configuration folder > Channel Configuration Report)**, select a **Site** or Sites and a **Parameter Name** or Parameter Names. Click the **Generate Report icon** on the Ribbon.

Channel Configuration Report																											
Agilaire																											
Parameter Name	Source Name	Logger ID	#	Channel Name	Unit	Type	Round Precision	Intervals			Storage			Analog Input Channel	Input Channel	Input		Output		Hold Between Updates	Secondary Input Channel	Input Interval Name	Rolling Interval Name	Duration Internal	Storage Internal	General Value	
								Base	Ext.1	Ext.2	Base	Ext.1	Ext.2			High	Low	High	Low								
WDR	Logge 01	01	1	WDR	DEG	S	1	00:3m	01:5m	00:1h	7D	31D	1							False							
WSP	Logge 01	01	2	WSP	KPH	F	1	00:3m	01:5m	00:1h	7D	31D	1							False							
H02	Logge 01	01	3	H02	PPM	A	1	00:3m	01:5m	00:1h	7D	31D	3							False							

Wednesday, March 16, 2011 Page 1 of 1

Channel Configuration Report (Reports > Configuration folder > Channel Configuration Report)

Configuration Reports

Parameter Configuration Report

To run a **Parameter Configuration Report**, (**Reports > Configuration folder > Parameter Configuration Report**), select a **Site** or Sites and a **Parameter Name** or Parameters Names. Click the **Generate Report** icon on the Ribbon.

Parameter Configuration Report																
Agilaire																
Name	Description	Template	Reported Digit	Precision	Unit	Graph		Instrument Detection Limit	Yestablis In	Minimum In Report	Report in AirNew	Enabled	POC	AQS Code		
						Minimum	Maximum							Method	Unit	Parameter
WDR	Wind Direction, High Level	WDR_HIGH	4	1	DEG	0	360		False	False	True	True		007		61102
WSP	Wind Speed, High Level	WSP_HIGH	4	1	KPH	0	100		False	False	True	True				61101
NO2	Nitric Oxide	NO2	4	3	PPM	0	500		False	False	True	True	1	007		42602
NO	Nitrous Oxide	NO	4	3	PPM	0	500		False	False	True	True	1	007		42601
NOX	Oxides of Nitrogen	NOX	4	3	PPM	0	500		False	False	True	True	1	007		42603

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Parameter Configuration Report, (Reports > Configuration folder > Parameter Configuration Report)

Configuration Reports

Scheduled Tasks Report

To run a **Scheduled Tasks Report**, open **Reports > Configuration folder > Scheduled Tasks Report** and the report will be displayed automatically. No query is necessary.

<i>Scheduled Task Report</i>				
<i>Task Name</i>	<i>Description</i>	<i>Enabled</i>	<i>Start Time</i>	<i>Repeat Interval</i>
Scheduled Report Task	Generates Report at assigned time for output	True	3/2/2011 11:54:02 AM	1D
Logger Poll Task	Data Logger Polling Task	True	3/3/2011 12:34:32 PM	1D

Thursday, March 17, 2011 Page 1 of 1

Scheduled Task Report (Reports > Configuration folder > Scheduled Tasks Report)

Configuration Reports

Site Configuration Report

To run a **Site Configuration Report**, (**Reports > Configuration folder > Site Configuration Report**), select a **Site** or Sites and click the **Generate Report icon** on the Ribbon.

<i>Site Configuration Report</i>			
<i>Agilaire:</i>			
Description:	main site	Latitude:	35.9605
Abbreviation:	01	Longitude:	-83.9208
Address:	2904-B	Time Zone:	EST
City:	Knoxville	Agency Code:	0581
County:	Knox	State Code:	47
Zip Code:	37918	CountyCode:	093
		Site Code:	
<i>Thursday, March 17, 2011</i>		<i>Page 1 of 1</i>	

Site Configuration Report, (Reports > Configuration folder > Site Configuration Report)

Internal Reports

DB Modification History

The **Database Modifications Report** lists all modifications that were made to the AirVision database by Agilaire.

Database Modifications Report	
Schema Name	dbo
Name	f_CreateGuidIdStringFromInteger
Type Description	SQL_SCALAR_FUNCTION
Creation Date	3/29/2010 4:18:07 PM
Last Modified	3/29/2010 4:18:07 PM
Parent Name	
Schema Name	dbo
Name	f_DateValue
Type Description	SQL_SCALAR_FUNCTION
Creation Date	3/29/2010 4:18:07 PM
Last Modified	3/29/2010 4:18:07 PM
Parent Name	
Schema Name	Reporting
Name	TableSizeInformation
Type Description	VIEW
Creation Date	3/29/2010 4:18:07 PM
Last Modified	3/29/2010 4:18:07 PM
Parent Name	
Schema Name	dbo
Name	f_GetDBServerUTCOffset
Type Description	SQL_SCALAR_FUNCTION
Creation Date	3/29/2010 4:18:08 PM
Last Modified	3/29/2010 4:18:08 PM
Parent Name	

Database Modification History Report (Reports>Internal Reports>DB Modification History)

Internal Reports

Exception Journal Report

The **Exception Journal Report** displays all AirVision Exception messages for the Date Range and Logging Type selected. Logging Types are selected from a drop-down list of the following: **Unhandled, Nested, Rethrown, Asset, and Validation.**

Exception Journal Report

Time Stamp	Exception Log Type	Exception Type Name	UtilityJournalMessageID	
10/4/2010 11:03:13 AM	Nested	System.Net.Sockets.SocketException	a2142582-c8cf-df11-91bd-001731c6e8fb	
Computer Name	Windows User	Application User	Program Name	Product Version
HP_Server	SYSTEM	AirVision	AirVision.WindowsService	2010.09.18.1
Assembly Name	Namespace		Type Name	
System.dll	System.Net.Sockets		Socket	
Method Prototype				
Int32 Send(Byte[] buffer, Int32 offset, Int32 size, SocketFlags socketFlags)				
Exception Message				
An established connection was aborted by the software in your host machine				
Exception Stack Trace				
at System.Net.Sockets.Socket.Send(Byte[] buffer, Int32 offset, Int32 size, SocketFlags socketFlags)				
at System.Net.Sockets.NetworkStream.Write(Byte[] buffer, Int32 offset, Int32 size)				
Time Stamp	Exception Log Type	Exception Type Name	UtilityJournalMessageID	
10/4/2010 11:03:13 AM	Nested	System.IO.IOException	a3142582-c8cf-df11-91bd-001731c6e8fb	
Computer Name	Windows User	Application User	Program Name	Product Version
HP_Server	SYSTEM	AirVision	AirVision.WindowsService	2010.09.18.1
Assembly Name	Namespace		Type Name	
System.dll	System.Net.Sockets		NetworkStream	
Method Prototype				
Void Write(Byte[] buffer, Int32 offset, Int32 size)				
Exception Message				
Unable to write data to the transport connection: An established connection was aborted by the software in your host machine.				
Exception Stack Trace				
at System.Net.Sockets.NetworkStream.Write(Byte[] buffer, Int32 offset, Int32 size)				
at AirVision.Services.Communication.Communicators.TcpCommunicator.Write(String command)				

Exception Journal Report (Reports>Internal Reports>Exception Journal)

Internal Reports

Journal Message Log

The **Journal Message Log** displays detailed messages about the Logging Types you select. Type selections are: **Fatal, Exception, Error, Warning, Startup, Shutdown, Information, Communication, Verbose, Debug, Timed Event, or Select all.**

Journal Message Report				
Time Stamp	Computer Name	Program Name	Event Log Type	Message Text
09/28/2010 10:02:38967	HP_Server	AirVision.Client	Exception	No connection could be made because the target machine actively refused it 172.16.1.209:8080
09/28/2010 10:03:38900	HP_Server	AirVision.WindowsService	Information	Login Request [SYSTEM], User=, ClientIP=HP_Server.172.16.1.209
09/28/2010 10:03:39513	HP_Server	AirVision.WindowsService	Information	LOGIN SUCCESSFUL [SYSTEM], User=AirVision, ClientIP=HP_Server.172.16.1.209, SessionID=35e364f9-a19e-40e7-be69-92fa909910f, UserID=b056492d-61f9-4d11-9b07-801e8c095252
09/28/2010 10:03:43873	HP_Server	AirVision.WindowsService	Information	Found 0 root level tasks
09/28/2010 10:03:50043	HP_Server	AirVision.WindowsService	Information	Login Request [USER], User=airvision, ClientIP=HP_Server.172.16.1.209
09/28/2010 10:03:50060	HP_Server	AirVision.WindowsService	Information	LOGIN SUCCESSFUL [USER], User=AirVision, ClientIP=HP_Server.172.16.1.209, SessionID=10b4b-059-4e3b-4f02-8002-89b0f0e645d, UserID=b056492d-61f9-4d11-9b07-801e8c095252

Journal Message Log (Reports>Internal Reports)

Internal Reports

Software Version Report

The **Software Version Report (Reports>Internal Reports)** displays Timestamps for **Database Schemata and Builds, Version IDs, and Software Version.**

Software Version Report	
Database Schema Timestamp	7/23/2010 3:14:16 PM
Database Schema Version Id	19d9b0d3-79b3-4401-ad5c-eda98399a07e
Database Schema Version Number	4058
Client Database Schema Timestamp	5/3/2010 1:01:22 PM
Client Database Schema Version Id	a6397b90-8a18-4ea5-8b05-954bc3d6db06
Client Database Schema Version Number	4004
Client Build Timestamp	6/26/2010 3:03:44 AM
Client Build Version	2010.06.26.1
Client Product Version	2.0.0 Alpha
Server Database Schema Timestamp	6/3/2010 1:01:22 PM
Server Database Schema Version Id	a6397b90-8a18-4ea5-8b05-954bc3d6db06
Server Database Schema Version Number	4004
Server Build Timestamp	6/26/2010 3:02:00 AM
Server Build Version	2010.06.26.1
Server Product Version	2.0.0 Alpha

Software Version Report (Reports>Internal Reports)

Internal Reports

Table Size Information

The **Table Size Information Report** lists all tables in the database and their size.

<i>Table Size Information Report</i>					
<i>Table Name</i>	<i>Rows</i>	<i>Reserved (K)</i>	<i>Data (K)</i>	<i>Index Size (K)</i>	<i>Unused (K)</i>
All Tables	24,400	29,160	24,288	4,280	592
AdvpCharacteristicRelation	12	32	8	24	0
AdvpDataCharacteristic	4	32	8	24	0
AdvpHistoricalAverage	0	0	0	0	0
AdvpLogicalJoinOperator	2	32	8	24	0
AdvpRuleCondition	0	0	0	0	0
AdvpRuleStatus	0	0	0	0	0
AdvpRuleStatusSite	0	0	0	0	0
AdvpValueComparisonType	4	32	8	24	0
AlarmAdvpParameter	0	0	0	0	0
AlarmAdvpRule	0	0	0	0	0
AlarmAdvpTask	0	0	0	0	0
AlarmTriggerFlag	0	0	0	0	0
AmbAirNowFlagDetail	6	16	8	8	0
AmbAirNowTask	0	0	0	0	0
AmbAqiLevel	63	88	56	32	0
AmbAqiProgram	10	32	8	24	0
AmbAqsBlankType	3	32	8	24	0
AmbAqsCompositeType	5	32	8	24	0
AmbAqsCountyTribalCode	3,376	784	504	248	32
AmbAqsDurationCode	23	32	8	24	0
AmbAqsFrequencyCode	31	32	8	24	0
AmbAqsNullCode	52	64	16	48	0
AmbAqsParameterCategory	4	32	8	24	0
AmbAqsParameterType	1,065	320	240	72	8
AmbAqsStateCode	57	48	8	40	0
AmbAqsUnitCode	124	56	24	32	0
AmbFrequencyDistribRange	0	0	0	0	0
AmbFrequencyDistribution	0	0	0	0	0
AmbFtpTransfer	0	0	0	0	0
AmbVosProgram	0	0	0	0	0
AmbWindRoseLevel	16	16	8	8	0
AmbWindRoseProgram	2	32	8	24	0

Table Report (Reports>Internal Reports)

Logger Reports

Alarm Journal

The **Alarm Journal** displays the Site Name, Channel Number, Channel Name, Alarm Program Name, Alarm Start/End Time, Reason Code, and Triggering Flag.

To run an **Alarm Journal**, select **Reports > Logger Reports > Alarm Journal**. In the **Report Criteria** screen, select a **Start/End Date** and a **Site/ Source Name**. Click the **Generate Report** icon. A Logger Alarm Journal Report will be displayed in the bottom section of the screen.

Logger Alarm Journal Report						
Site Name SITEONE						
Logger Identifier 01		Logger Name Logger01				
Channel Number	Channel Name	Alarm Program Name	Alarm Start Time	Alarm End Time	Reason Code	Flag Triggering
2	test2	TEMPCUT	2/12/2008 60800 AM	2/12/2008 84300 AM		h
2	test2	TEMPCUT	2/12/2008 82700 AM	2/12/2008 83600 AM		h
2	test2	TEMPCUT	2/12/2008 83700 AM	2/12/2008 84000 AM		h
2	test2	TEMPCUT	2/12/2008 84200 AM	2/12/2008 84500 AM		h
2	test2	TEMPCUT	2/12/2008 84900 AM	2/13/2008 70500 AM		h
2	test2	TEMPCUT	2/12/2008 23700 PM	2/12/2008 41200 PM		h
2	test2	TEMPCUT	2/12/2008 83400 PM	2/12/2008 95000 PM		h

Logger Alarm Journal Report

Logger Reports Central Messages

To run the **Central Messages Report**, **Poll Central Messages** must be selected in the **Task Scheduler** in one of the polling tasks. If you're polling manually, select **Central Message** as a **Data Type**. To run the report, select **Reports>Logger Reports>Central Messages**, select a date range and Source then click **Generate Report**.

Logger Central Message Report	
Site Name Agilaire	Site Description
Logger Identifier 01	Logger Name Logger01
Message Time	Message Text
10/4/2010 11:43:10 AM	RESTART

Logger Central Message Report

Logger Reports

Input Line Status Report

The **Input Line Status Report** displays Site and Logger Name, Logger ID, Line Number, Line Name, Line State, Time of Change, and Line Description.

To run an **Input Line Status Report**, select **Reports > Logger Reports > Input Line Status Report**. In the **Report Criteria** screen, select a **Start/End Date** and a **Site/Source Name**. Click the **Generate Report** icon. An **Input Line Status Report** will be displayed in the bottom section of the screen. Each site/logger is shown in a separate page.

Input Line Report				
Site Name SITEONE				
Logger Name Logger01		Logger Identifier 01		
Line Number	Line Name	Line State	Time Of Change	Line Description
4	OutPut Line4	<input checked="" type="checkbox"/>	2/5/2009 1:38:45 PM	
4	OutPut Line4	<input type="checkbox"/>	2/5/2009 1:38:46 PM	
37	OutPut Line37	<input checked="" type="checkbox"/>	5/5/2009 12:00:02 AM	
37	OutPut Line37	<input type="checkbox"/>	5/5/2009 12:05:01 AM	
37	OutPut Line37	<input checked="" type="checkbox"/>	5/6/2009 12:00:02 AM	
2	DIG002	<input checked="" type="checkbox"/>	5/6/2009 12:00:02 AM	
2	DIG002	<input type="checkbox"/>	5/6/2009 12:05:01 AM	
37	OutPut Line37	<input type="checkbox"/>	5/6/2009 12:05:01 AM	
37	OutPut Line37	<input checked="" type="checkbox"/>	5/7/2009 12:00:02 AM	
2	DIG002	<input checked="" type="checkbox"/>	5/7/2009 12:00:02 AM	
2	DIG002	<input type="checkbox"/>	5/7/2009 12:05:01 AM	
37	OutPut Line37	<input type="checkbox"/>	5/7/2009 12:05:01 AM	
37	OutPut Line37	<input checked="" type="checkbox"/>	5/8/2009 12:00:02 AM	
2	DIG002	<input checked="" type="checkbox"/>	5/8/2009 12:00:02 AM	
2	DIG002	<input type="checkbox"/>	5/8/2009 12:05:01 AM	
37	OutPut Line37	<input type="checkbox"/>	5/8/2009 12:05:01 AM	

Input Line Report

Logger Reports

Power Failure Report

The **Power Failure Report** displays Site and Logger Name, Logger ID, Failure Time and Restored Time.

To run a **Power Failure Report**, select **Reports > Logger Reports > Power Failure Report**. In the **Report Criteria** screen, select a **Start/End Date** and a **Site/ Source Name**. Click the **Generate Report** icon. A **Power Failure Report** will be displayed in the bottom section of the screen. Each site/logger is shown in a separate page.

<i>Logger Power Failure Report</i>		
<i>Site Name</i>	<i>Site Description</i>	
SITEONE	SITE 01	
<i>Logger Name</i>	<i>Logger Identifier</i>	
Logger01	01	
	<i>Failure Time</i>	<i>Restored Time</i>
	11/25/2007 12:00:00 AM	11/25/2007 12:01:00 AM
	11/25/2007 12:01:00 AM	11/25/2007 12:01:00 AM
	7/2/2008 10:56:00 AM	7/2/2008 10:56:00 AM

Power Failure Report

Met Reports

Joint Frequency Distribution Report

The **Joint Frequency Distribution (JFD) report** provides a tabular summary of the same data that is represented in the Wind/Pollution Rose report. This data correlates a wind speed or pollutant value, by programmed value ranges, with the occurrence of that data in various wind direction sectors. The JFD report may only be run against the same Wind/Pollution Rose programs created in the **Wind Rose Levels Editor**.

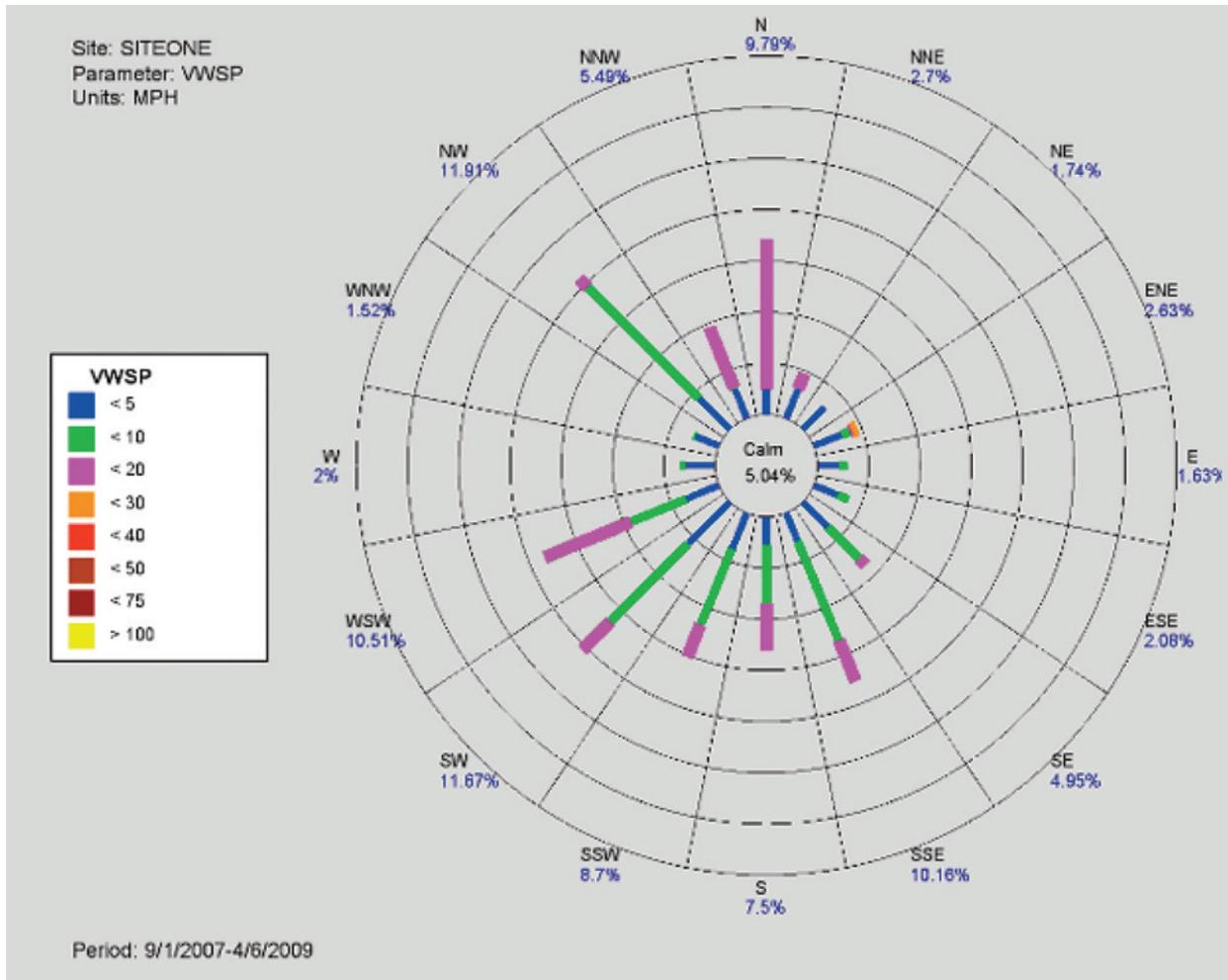
<u>Limit</u>	<u>N</u>	<u>NNE</u>	<u>NE</u>	<u>ENE</u>	<u>E</u>	<u>ESE</u>	<u>SE</u>	<u>SSE</u>	<u>S</u>	<u>SSW</u>	<u>SW</u>	<u>WSW</u>	<u>W</u>	<u>WNW</u>	<u>NW</u>	<u>NNW</u>	<u>Freq.</u>
< 5	3.94	7.43	2.93	3.53	1.37	1.27	1.81	1.49	1.45	2.25	4.06	3.97	3.49	2.99	3.17	2.99	48.14
< 10	0	0.04	0.03	0.75	0.42	0.32	1.54	3.36	3	3.8	5.02	2.7	0.79	0.39	3.72	0.19	26.07
< 20	7.65	0.76	0	0.04	0	0.01	0.43	1.34	1.69	1.12	1.2	2.15	0	0	0.27	1.45	18.11
< 30	0	0	0	0.14	0	0	0	0.11	0.01	0	0	0	0	0	0	0	0.26
< 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
< 50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
< 75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	11.59																

Joint Frequency Distribution Report

Met Reports

Wind/Pollution Rose

The **Wind/Pollution Rose** correlates wind direction data with another reading, either wind speed/magnitude, or a pollutant concentration value. The length of the line corresponds to the frequency of readings in that direction and concentration value, while the line color corresponds to the magnitude of the speed/pollutant value.



Wind/Pollution Rose

- **Note:** The values for each "class" or "level" are set in the Wind Rose Levels Editor (Chapter 2).

PARS Reports

Precision Report

The screenshot shows the 'Precision Test Editor' interface with the 'Precision Report' tab selected. The 'Report Criteria' section includes a 'Date Range' with 'Start Date' set to 01/19/2011 00:00 and 'End Date' set to 01/19/2011 23:59. The 'Parameter Selection' table is as follows:

Site Name	Parameter Name	Parameter Template Name
H2	O3 [ppb]	OZONE_PPB
H2	O3 [ppm]	OZONE

The 'Report Output' pane shows the following report content:

```

Current Date : 01/07/2014
Current Time : 2:50 PM

Precision Report

Site:      H2
Parameter: O3 [ppb]
Duration:  1 HOUR

  Check Date      Id #  Sample Id  Type Id  Method  Agency Code  Actual Value  Indicated Value
19-Jan-2011      1          087          .09        .089
    
```

Sample Data Reports

Monthly Sample Data Report

The **Monthly Sample Data Report** shows the value of the non-continuous values for each day (showing a blank for days where there is no sample). If you want the Qualifier Codes to be shown in the report, click to select **Show Qualifier Codes**.

Data in this report is only shown for parameters with Sample or Composite type, and which have a certain Parameter Template (either "PM25" or "PM10") defined.

Current Time: 8:13 PM

Monthly Sample Report
PM10
July 2011

Day	01_KNOX	BLOUNT	BLOUNT2	BLOUNT3	Summary		
					Average	Max	Count
1	14.1	14.1	14.1	14.1	14.1	14.1	4
4	12.3	12.3	12.3	12.3	12.3	12.3	4
7	19.4	19.4	19.4	19.4	19.4	19.4	4
10	27.2	27.2	27.2	27.2	27.2	27.2	4
13	21.1	21.1	21.1	21.1	21.1	21.1	4
16	18.3	18.3	18.3	18.3	18.3	18.3	4
17	17.7	17.7	17.7	17.7	17.7	17.7	4
19	11.9	11.9	11.9	11.9	11.9	11.9	4
22	14.4	14.4	14.4	14.4	14.4	14.4	4
25	14.6	14.6	14.6	14.6	14.6	14.6	4
28	13.5	13.5	13.5	13.5	13.5	13.5	4
Max	27.2	27.2	27.2	27.2	27.2	27.2	27.2
Average	16.8	16.8	16.8	16.8	16.8	16.8	16.8
Count	11	11	11	11	44	44	44

Monthly Sample Report for PM 2.5 from the Reports Menu

Sample Data Reports

Sample/Hourly Daily Comparison Graph

Current Date: 1/7/2014 2:36 PM

Sample/Hourly Daily Comparison

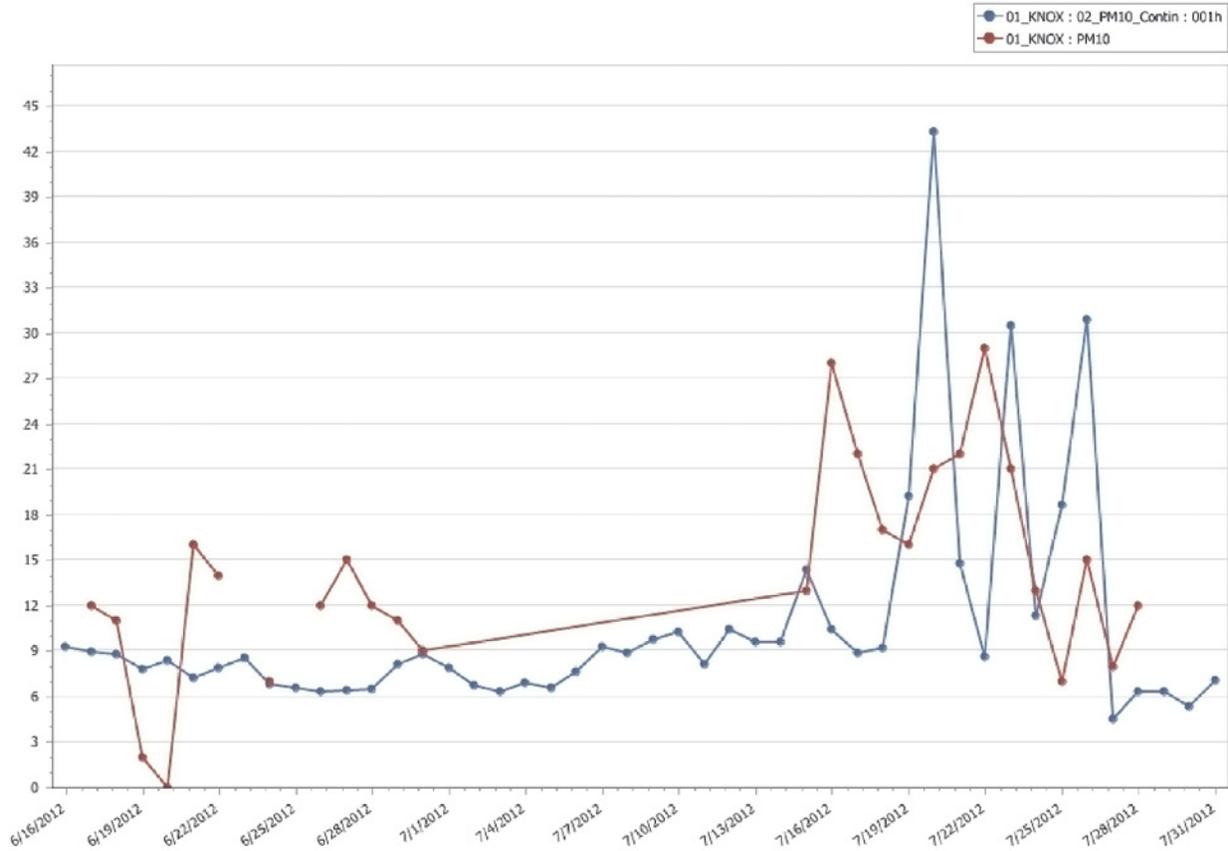
Date	01_KNOX	
	02_PM10_Contm	PM10
6/16/2012	9.2	
6/17/2012	8.9	12
6/18/2012	8.7	11
6/19/2012	7.8	2
6/20/2012	8.4	0
6/21/2012	7.2	16
6/22/2012	7.9	14
6/23/2012	8.5	
6/24/2012	6.8	7
6/25/2012	6.5	
6/26/2012	6.3	12
6/27/2012	6.3	15
6/28/2012	6.4	12
6/29/2012	8.1	11
6/30/2012	8.7	9
7/1/2012	7.8	
7/2/2012	6.7	
7/3/2012	6.3	
7/4/2012	6.8	
7/5/2012	6.5	
7/6/2012	7.6	
7/7/2012	9.3	
7/8/2012	8.8	
7/9/2012	9.8	
7/10/2012	10.2	
7/11/2012	8.1	
7/12/2012	10.4	
7/13/2012	9.6	
7/14/2012	9.6	
7/15/2012	14.3	13
7/16/2012	10.4	28
7/17/2012	8.9	22
7/18/2012	9.2	17
7/19/2012	19.2	16
7/20/2012	43.3	21
7/21/2012	14.7	22
7/22/2012	8.6	29
7/23/2012	30.4	21
7/24/2012	11.3	13
7/25/2012	18.6	7
7/26/2012	30.9	15
7/27/2012	4.5	8
7/28/2012	6.2	12
7/29/2012	6.2	
7/30/2012	5.3	
7/31/2012	7	

Sample Data Reports

Sample Hourly Comparison Graph

Current Date: 1/7/2014 2:33 PM

Sample/Hourly Comparison Graph



Other Reports

Annotations Report

The **Annotations Report** may be run on any list of parameters, for any time range. It provides a summary of all annotations it finds.

To see a report of annotations made in the **Average Data Editor**, open the **Reports** menu and select **Annotations Report**. Make the usual query selections of **Start/End Date**, **Average Interval**, and **Parameter(s)**. Click the **Generate Report** icon on the ribbon.

<u>Category</u>	<u>User Name</u>	<u>Annotation Date</u>	<u>Date</u>	<u>Annotation</u>
Instrument Failure	Admin	28-Sep-10 21:10	01-Mar-06 20:00	Lightning strike
Maintenance	New User	28-Sep-10 21:09	01-Mar-06 05:00	Replaced pump seal
Maintenance	New User	28-Sep-10 21:09	01-Mar-06 06:00	Replaced pump seal
QA Note	Fred5	28-Sep-10 21:09	01-Mar-06 09:00	Quarterly Audit
QA Note	Fred5	28-Sep-10 21:09	01-Mar-06 10:00	Quarterly Audit
QA Note	Fred5	28-Sep-10 21:09	01-Mar-06 11:00	Quarterly Audit

Annotations Report

Other Reports

Audit Trail Report

The **Audit Trail Report** provides a record of modified data.

```

Current Date : 10/19/2010
Current Time : 10:11 AM

                                Data Audit Trail
Site:      Agilaire              01-Sep-2010 - 19-Oct-2010
Parameter: NOX                    Interval: 001h


```

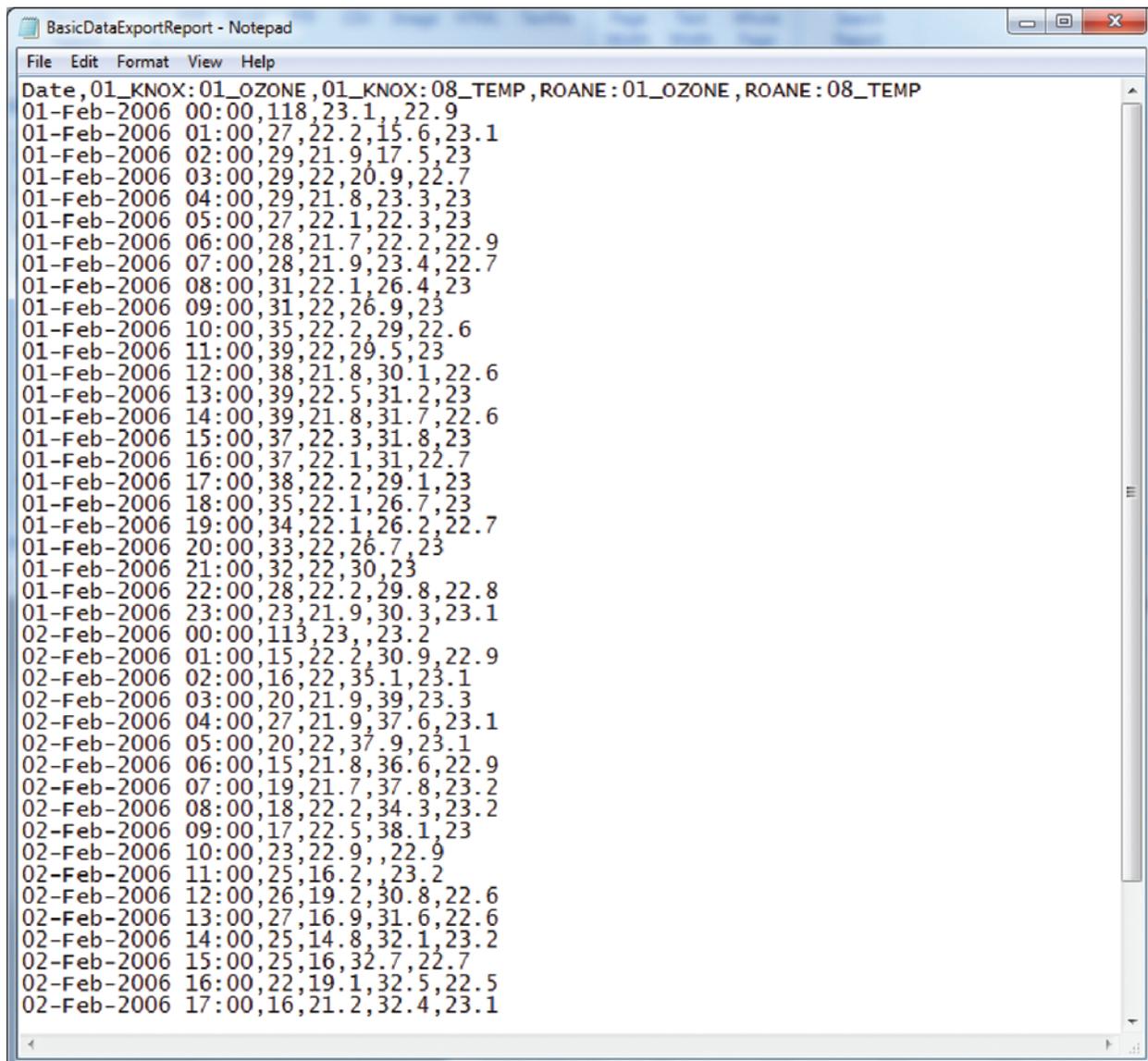
<u>TimeStamp</u>	<u>Raw Value</u>	<u>Final Value</u>	<u>Flags</u>	<u>Time Modified</u>	<u>Modified By</u>
10/04/2010 18:00	3	3		10/08/2010 11:03	AirVision
10/04/2010 19:00	3	3		10/08/2010 11:03	AirVision
10/04/2010 20:00	3	3		10/08/2010 11:03	AirVision
10/04/2010 21:00	3	3		10/08/2010 11:03	AirVision
10/04/2010 22:00	4	4		10/08/2010 11:03	AirVision
10/04/2010 23:00	4	4		10/08/2010 11:03	AirVision
10/05/2010 00:00	4	4		10/08/2010 11:03	AirVision
10/05/2010 01:00	4	4		10/08/2010 11:03	AirVision
10/05/2010 02:00	4	4		10/08/2010 11:03	AirVision
10/05/2010 03:00	4	4		10/08/2010 11:03	AirVision

Audit Trail Report

Other Reports

Basic Data Export

This report is much like the Daily Summary Report, but allows for unlimited number of sites/parameters as columns, and any number of averages as rows, without page breaks or summary data. It is ideally suited for CSV export via the task scheduler to disk or FTP, for automating data export to legacy systems, web sites, etc. In this report, invalid data is represented as an empty value.



```
BasicDataExportReport - Notepad
File Edit Format View Help
Date,01_KNOX:01_OZONE,01_KNOX:08_TEMP,ROANE:01_OZONE,ROANE:08_TEMP
01-Feb-2006 00:00,118,23.1,,22.9
01-Feb-2006 01:00,27,22.2,15.6,23.1
01-Feb-2006 02:00,29,21.9,17.5,23
01-Feb-2006 03:00,29,22,20.9,22.7
01-Feb-2006 04:00,29,21.8,23.3,23
01-Feb-2006 05:00,27,22.1,22.3,23
01-Feb-2006 06:00,28,21.7,22.2,22.9
01-Feb-2006 07:00,28,21.9,23.4,22.7
01-Feb-2006 08:00,31,22.1,26.4,23
01-Feb-2006 09:00,31,22,26.9,23
01-Feb-2006 10:00,35,22.2,29,22.6
01-Feb-2006 11:00,39,22,29.5,23
01-Feb-2006 12:00,38,21.8,30.1,22.6
01-Feb-2006 13:00,39,22.5,31.2,23
01-Feb-2006 14:00,39,21.8,31.7,22.6
01-Feb-2006 15:00,37,22.3,31.8,23
01-Feb-2006 16:00,37,22.1,31,22.7
01-Feb-2006 17:00,38,22.2,29.1,23
01-Feb-2006 18:00,35,22.1,26.7,23
01-Feb-2006 19:00,34,22.1,26.2,22.7
01-Feb-2006 20:00,33,22,26.7,23
01-Feb-2006 21:00,32,22,30,23
01-Feb-2006 22:00,28,22.2,29.8,22.8
01-Feb-2006 23:00,23,21.9,30.3,23.1
02-Feb-2006 00:00,113,23,,23.2
02-Feb-2006 01:00,15,22.2,30.9,22.9
02-Feb-2006 02:00,16,22,35.1,23.1
02-Feb-2006 03:00,20,21.9,39,23.3
02-Feb-2006 04:00,27,21.9,37.6,23.1
02-Feb-2006 05:00,20,22,37.9,23.1
02-Feb-2006 06:00,15,21.8,36.6,22.9
02-Feb-2006 07:00,19,21.7,37.8,23.2
02-Feb-2006 08:00,18,22.2,34.3,23.2
02-Feb-2006 09:00,17,22.5,38.1,23
02-Feb-2006 10:00,23,22.9,,22.9
02-Feb-2006 11:00,25,16.2,,23.2
02-Feb-2006 12:00,26,19.2,30.8,22.6
02-Feb-2006 13:00,27,16.9,31.6,22.6
02-Feb-2006 14:00,25,14.8,32.1,23.2
02-Feb-2006 15:00,25,16,32.7,22.7
02-Feb-2006 16:00,22,19.1,32.5,22.5
02-Feb-2006 17:00,16,21.2,32.4,23.1
```

Other Reports

Calibration Export

This report is used to export calibration data in a raw form, suitable for import into Excel or other external databases.

Report Criteria

Date Range

Start Date: 01/19/2011 00:00

End Date: 01/19/2011 23:59

Parameter Selection

Drag a column header here to group by that column.

Site Name	Parameter Name	Parameter Template Name
C1	STN_AT	STN_AT
H2	O3 [ppb]	OZONE_PP8
H2	O3-2 foob1	OZONE_PP8(2)

Report Output

Site	Parameter	Sequence	Phase	Start Time	End Time	Value	Expected Value	% Error	Drift Limit %
H2	O3 [ppb]	400E-IZF	400E-IZ	19-Jan-2011 05:04:46	19-Jan-2011 05:24:46	1.2	0.0	1.44	
H2	O3 [ppb]	400E-IZF	400E-IP	19-Jan-2011 05:04:46	19-Jan-2011 05:44:46	90.7	90	.82	

Other Reports

Data with Flags

This report provides a summary of data with all of the flags (not just the highest priority flag like other reports), primarily for auditing or trouble-shooting.

The screenshot displays the 'Data With Flags' report configuration and output. The 'Report Criteria' section includes a date range from 01/19/2011 00:00 to 01/19/2011 23:59 and an average interval of 001h (Hourly average of 60 minutes). The 'Parameter Selection' table shows two entries for Site Name 'H2': O3 [ppb] with template OZONE_PPB and O3 [ppm] with template OZONE. The 'Report Output' section shows a table with the following data:

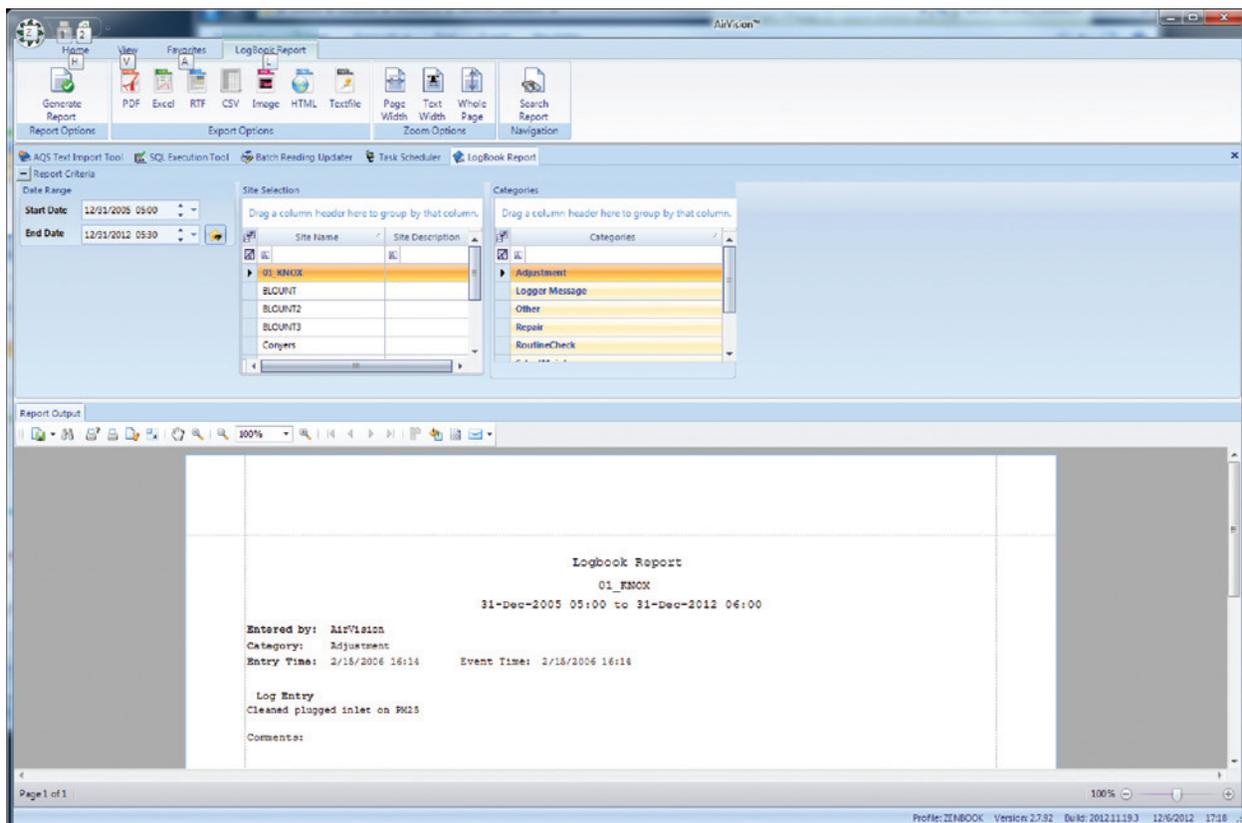
Date	Value	Flags
19-Jan-2011 00:00	18.8	
19-Jan-2011 01:00	12.7	
19-Jan-2011 02:00	7.8	
19-Jan-2011 03:00	10.7	

Other Reports

LogBook Report

The **LogBook Report** generates reports of logbook entries that were made in the **LogBook Entries Editor**. To query a LogBook Report select LogBook Report from the **Reports** menu. Select **Start** and **End Dates** and a **Site Name** from the top section of the screen and click the **Generate Report icon** in the upper left section of the screen. The user may also choose one or all **Logbook Categories** as a filter for the report.

The logbook report will be displayed in the lower section of the screen.



LogBook Report

Other Reports

Site Health Report

This report shows ranges of data for primary measurements (parameters with parameter templates), as well as diagnostic parameters (parameters with parent parameters), and a Logbook and Calibration report for all "all in one" health check of the site.

Current Date: 1/7/2014 2:33 PM

Site Health Report

Site Name: 01_KNOX
Address:

Starting Date: 15-Feb-2006 00:00
Ending Date: 16-Feb-2006 00:00

Primary Measurements:

Parameter	Max	Min	Average
01_O3	46	8	24
02_PM10_Contn	30.4	13.2	18.5
08_TEMP	23.6	21.9	22.7
13_RAINFALL	0.05	0.05	0.05
14_SOL_RAD	5542	-2.9	133.5
15_BAROMETR	746.7	742.7	743.7
21_PM2.5	30.2	13.3	18.5
41_WSVEC	2.9	0.1	1.1
43_WDVEC	353.9	2	206.8
45_SIGMA_TH	36.4	9.2	21.2
47_BARFR	-999	-999	-999
CALCD_OZONE	-999	-999	-999
PM10	-999	-999	-999
PM10_BAM24	-999	-999	-999
REL_HUM	78.4	26.1	33.1
SO2	-999	-999	-999
SO2SampleFlow	-999	-999	-999
SO4	-999	-999	-999
WD	353	2	207
WS	3.2	0.4	1.3

Secondary Measurements:

Parameter	Max	Min	Average	
21_PM2.5:24_AMBDEW	21.9	15.3	18.5	
21_PM2.5:25_DRYDEW	-999	-999	-999	
21_PM2.5:26_NOISE	1.5	0.89	1.171	
21_PM2.5:27_FILLOAD	26	23	23	
21_PM2.5:28_STATUS	1	0	0	
01_O3:O3BENCHT	-999	-999	-999	

Logbook Report

Category	User Name	Entry Time	Event Time	Entry
----------	-----------	------------	------------	-------

Calibration Report

Parameter	Sequence	Phase	Start Time	End Time	Value	Expected Value	% Error
-----------	----------	-------	------------	----------	-------	----------------	---------

Chapter 4

Data Editors

Air Vision provides the following Data Editors:

- ◆ **Average Data Editor**
- ◆ **Linear Data Editor**
 - ◆ **Cell Color Codes in Flags Editor**
 - ◆ **Right-Click Options**
- ◆ **Cross-Tab Data Editor**
- ◆ **Matrix Data Editor**
- ◆ **Time Series Graph**
 - ◆ **Scatter Plot Graph**
 - ◆ **Histogram**
- ◆ **Batch Reading Updater**
- ◆ **Annotate Data Editor**
- ◆ **Sample Data Editor**
 - ◆ **PM Calculator in Sample Data Editor**
 - ◆ **Methods for Sample Data Handling in AirVision**
- ◆ **Calibration Data Editor**
- ◆ **Lock/Unlock Data**
- ◆ **Logbook Entry Editor**
- ◆ **Cal Adjust Processor (Optional)**

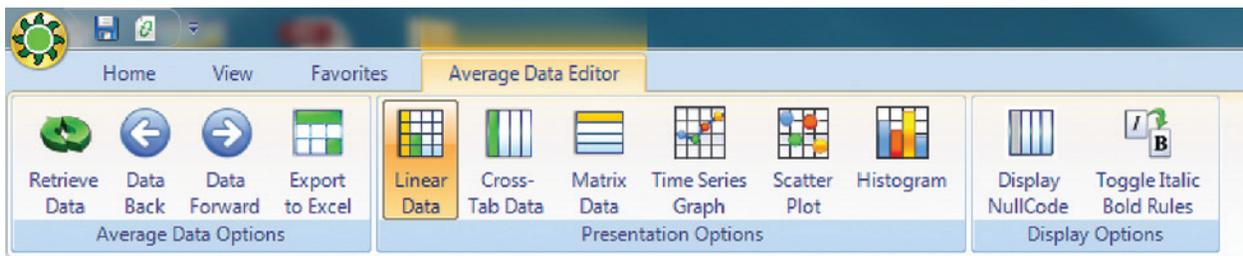
Average Data Editor

The AirVision **Average Data Editor (Data Editors > Average Data Editor)** combines multiple functions into a single tool:

- ◆ Editing details of data points
- ◆ Batch editing
- ◆ Comparison of current data with historical minimum, maximum, and mean
- ◆ Analyze/Exported

In addition, you can toggle between the following six formats by clicking buttons in the ribbon at the top of the screen:

- ◆ Linear Table (the default display)
- ◆ Cross Tab Table
- ◆ Matrix Table
- ◆ Time Series Graph (can be used for single or multiple parameters, but the historical comparison tools in this X-Y scatter plot only appear in single- parameter queries)
- ◆ Scatter Plot graph (requires queries of two or more parameters)
- ◆ Histogram (for single parameter queries)



Ribbon bar to toggle between Data Editor displays; arrows to scroll backward and forward through data

To edit data in the **Average Data Editor (Data Editors > Average Data Editor)**, enter

- ◆ **Start** and **End Date** (type dates or use arrow keys to select)
- ◆ **Average Interval** (for example, 001h Hourly average of 60 minutes)
- ◆ **Parameter Selection** (for example, **Site Name** NKNOX, **Parameter Name** NO2, **Parameter Template** NO2)
- ◆ Click the **Retrieve Data** button in the ribbon at the top of the screen

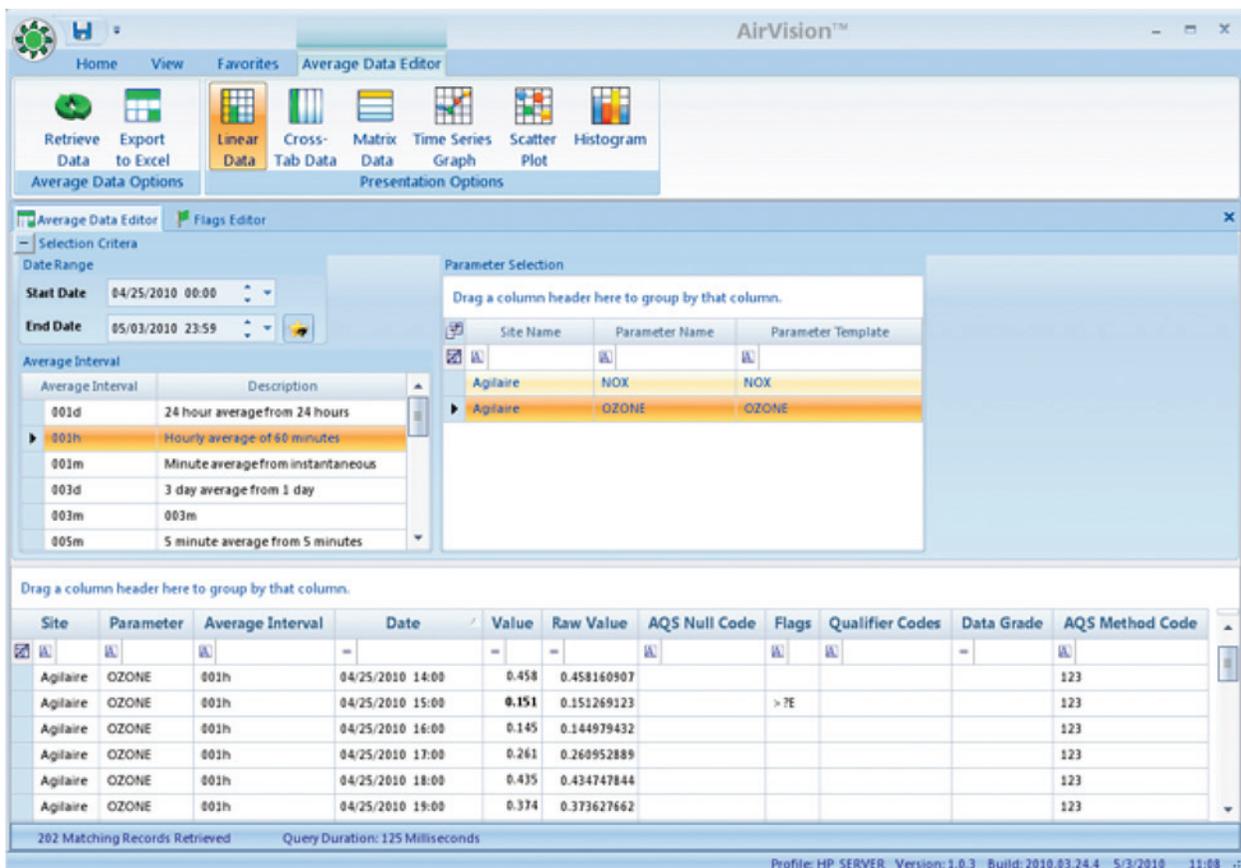
The Average Data Editor will open the **Linear Data Editor** by default. Click buttons in the ribbon to change formats. Click the **Data Back** or **Data Forward** button to jump scroll to either the previous or following data set. For example, if your initial query was for a week of data, the scroll buttons will take you backward or forward to a week of data.

Linear Data Editor

The **Linear Data Editor** allows access to all major database fields, displaying :

- ◆ Site Name, Parameter Name, Parameter Template Name
- ◆ Average Interval
- ◆ Start and End Dates
- ◆ Value (Hover the mouse pointer over data values to see any annotations.)
- ◆ Raw Value (can't be edited)
- ◆ AQS Null Codes
- ◆ Data Logger Flags
- ◆ Qualifier Codes
- ◆ AirVision Data Grade (used by ADVP or multi-level data validation tracking)

To edit data values, double-click in the Value cell or right-click to bring up a pop-up menu.



Average Data Editor from Data Editors menu

Cell Color Codes in Flags Editor

All data is color-coded based on the flag-to-color mappings listed in the **Flags Editor**. AirVision is loaded with some default mappings, but you can customize this for your system. The color mappings are global to all users for consistency.

Flags Editor

Flag: Back Color:

Description: Fore Color:

Mapped AIRNow Code: Priority:

Mapped AQS Null Code: Invalidates Data

Flag	Description	Priority	Invalidates Data	Mapped AQS Null Code	Mapped AIRNow Code	Fore Color	Back Color
<	Logger Invalid	1	<input checked="" type="checkbox"/>	AI - Insufficient Data		0, 0, 0	255, 0, 0
I	Invalidated By Edit	2	<input checked="" type="checkbox"/>	AI - Voided by Oper		0, 0, 0	255, 255,
?	Suspect	3	<input type="checkbox"/>	TS - Holding Time or		0, 0, 0	192, 192,
P	Power Failure	5	<input type="checkbox"/>	AV - Power Failure [0, 0, 0	255, 0, 0
B	Bad Status	6	<input type="checkbox"/>	AN - Machine Malfu		0, 0, 0	255, 128,
C	Calibration	7	<input type="checkbox"/>	AY - Q C Control Poi		0, 0, 0	0, 255, 25
M	Maintenance	8	<input type="checkbox"/>	BA - Maintenance/R		0, 0, 0	192, 255,
m	Marked Maint by edit	9	<input type="checkbox"/>	BA - Maintenance/R		0, 0, 0	255, 192,
O	Overrange	10	<input type="checkbox"/>	AN - Machine Malfu		0, 0, 0	128, 255,
+	Max Exceeded	12	<input type="checkbox"/>	AN - Machine Malfu		0, 0, 0	192, 192,
-	Min Exceeded	13	<input type="checkbox"/>	AN - Machine Malfu		0, 0, 0	255, 192,
D	Channel Disabled	14	<input type="checkbox"/>			0, 0, 0	0, 192, 19
E	Edited	20	<input type="checkbox"/>			0, 0, 0	223, 255,
f	Floor Limit	21	<input type="checkbox"/>			0, 0, 0	192, 255,
c	Ceiling Limit	22	<input type="checkbox"/>			0, 0, 0	255, 192,
z	Zero Adjusted	33	<input type="checkbox"/>			0, 0, 0	255, 192,
Q	Quality Assured	34	<input type="checkbox"/>			0, 0, 0	255, 192,
e	Site Malfunction	35	<input type="checkbox"/>			0, 0, 0	255, 128,
a	Audit	36	<input type="checkbox"/>	AZ - Q C Audit (AUD		0, 128, 0	0, 0, 0, 0
p	Precision Check	37	<input type="checkbox"/>	AX - Precision Check		0, 128, 0	0, 0, 0, 0
o	Other	38	<input type="checkbox"/>			0, 0, 192	0, 0, 0, 0
R	Rate of Change Exceeded	114	<input type="checkbox"/>	AN - Machine Malfu	R - Suspect Rate of C	0, 0, 0	255, 0, 25
H	High-High Alarm	115	<input type="checkbox"/>			128, 0, 12	255, 0, 0
L	Low-Low Alarm	116	<input type="checkbox"/>			128, 0, 12	255, 255,
h	High Alarm	117	<input type="checkbox"/>			192, 0, 19	255, 128,
l	Low Alarm	118	<input type="checkbox"/>			192, 0, 19	255, 255,
J	Rate of Change Alarm	119	<input type="checkbox"/>			192, 0, 19	255, 255,
V	Dig Info#1	121	<input type="checkbox"/>			0, 0, 0	255, 255,
W	Dig Info#2	122	<input type="checkbox"/>			0, 0, 0	255, 255,
X	Dig Info#3	123	<input type="checkbox"/>			0, 0, 0	255, 255,
Y	Dig Info#4	124	<input type="checkbox"/>			0, 0, 0	255, 255,
Z	Dig Info#5	125	<input type="checkbox"/>			0, 0, 0	255, 255,
>	Some Data Missing	200	<input type="checkbox"/>			0, 0, 0	255, 255,

Flags Editor in Configuration Editors

- **Note:** Many reports and editors show only the highest priority flag, so some users find it preferable to reduce the "<" flag priority to a lower value (like 15 or 100) to make other flags more visible.

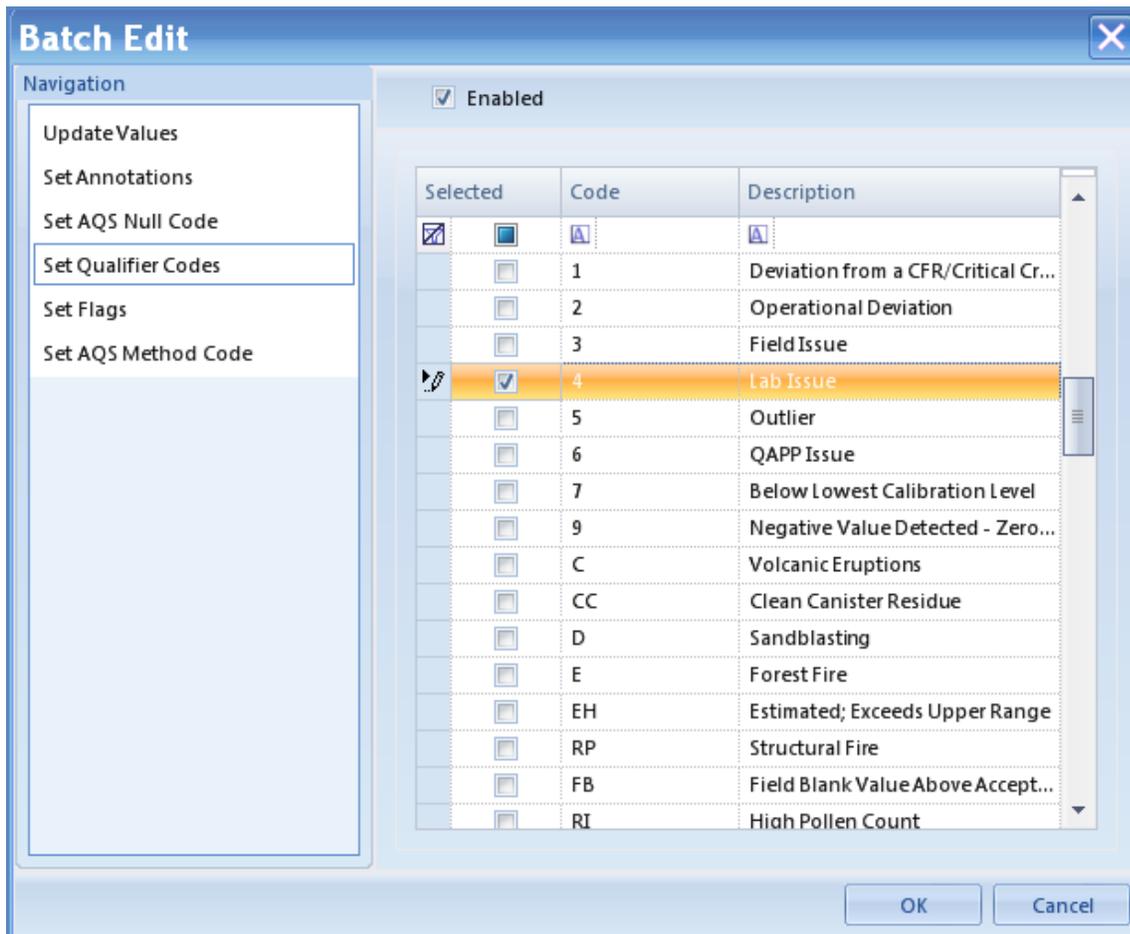
In addition, AirVision uses two font changes to represent data in the data editor:

- ◆ **Bold** values represent data that does not match the raw database (edited values)
- ◆ *Italics* values represent data that has an annotation. Hover the mouse pointer over data values to see details of annotations.

Right-Click Options

Each of the three non-graphical data editors support select, shift-select, CTRL-select, click-drag selection capabilities, and a right-click menu options. Right-click a data point in the **Value** column to bring up the following menu:

- ◆ **Restore from Raw** copies value from the raw database to the final **Value** and resets flags
- ◆ **Set to Minimum Detectable Limit** sets data value to MDL configured in Parameter Editor
- ◆ **Set AQS Code** brings up a pick list to apply new AQS null codes
- ◆ **Set Qualifier Code** brings up a selection box for AQS qualifier (exception) codes
- ◆ **View All Flags** (for single data points only) shows all data logger and system flags and allows you to change or clear flags. Multiple flags can be displayed in each cell.
- ◆ **Set Annotations** brings up an annotation screen so you can add an annotation
- ◆ Before you can use the **Batch Editor**, two or more data **Values** must be selected. In the **Batch Edit** screen, **Enabled** must be selected for each option to activate that option.



Batch Edit with Set Qualifier Codes Enabled

Batch Edit provides the following functions:

Update Values

Scale two or more selected data values as **$mX+b$** (Original Value times a Multiplier plus a Constant Value), for example, divide by 10 and clear the suspect flag.

Set Annotations

Set AQS Null Code

Set Qualifier Codes

Set Flags

If you select **Set Flags**, you have the option to **Update Children Flags**.

Set AQS Method Code

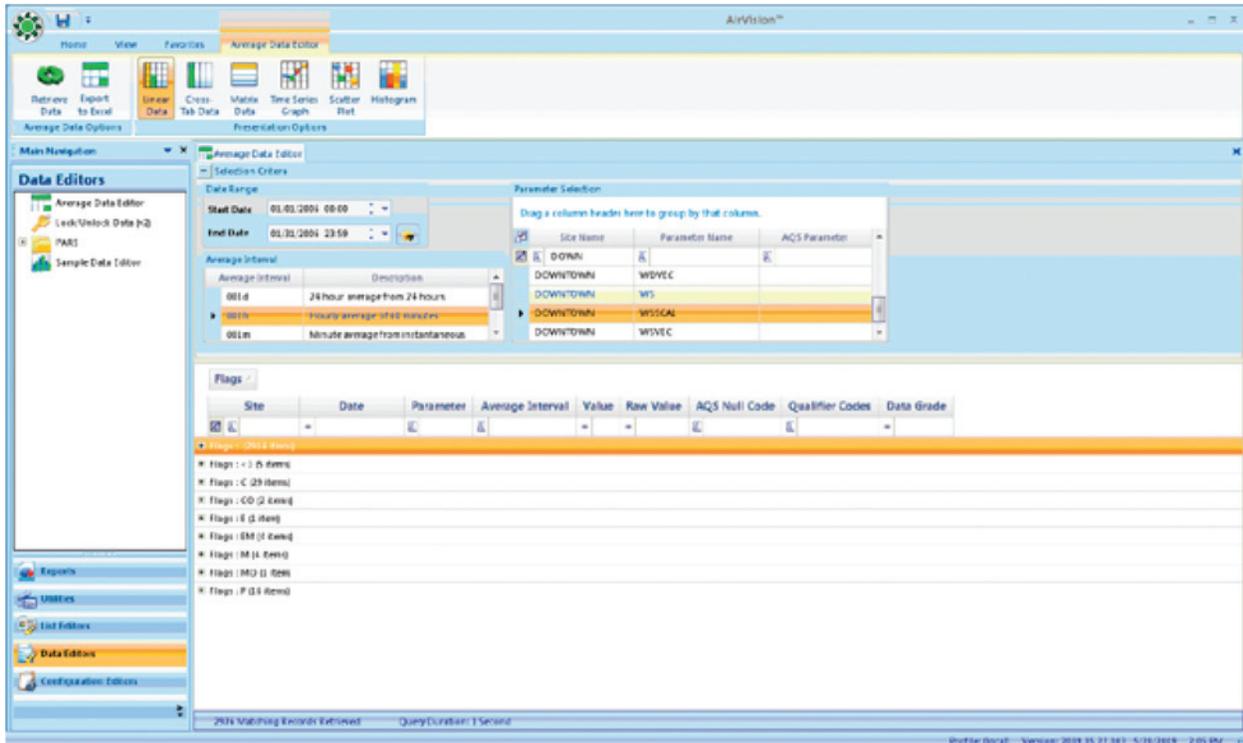
- ◆ **Show Children** brings up another instance of the Data Editor with the selected parameters and time range for the **Child** parameter(s) of the selected parameter. This function requires that **Parent-Child Parameter** relationships are configured in **Configuration Editors > Site/Parameter**.
- ◆ **Drill Down Interval** allows you to drill down to minute averages from hourly averages.
- ◆ **Export to Excel** exports the selected data range to an Excel document, including color, font, and layout details. This right-click option is different from the Export to Excel button in the ribbon at the top of the screen because the button on the ribbon exports the entire data set in the data editor and the right-click option exports only selected data.

Click a column heading to sort data by a different heading, for example to group data according to flags. Default is to sort by date.

Click-hold-drag columns to change the order of columns or to drag a column heading to the **Drag a column header here to group by that column** area.

Cross-Tab Data Editor

The **Cross-Tab Data Editor** shows Parameters as columns and sequences rows by date/time in ascending order and provides the same right-click menu as the Linear Data Editor.

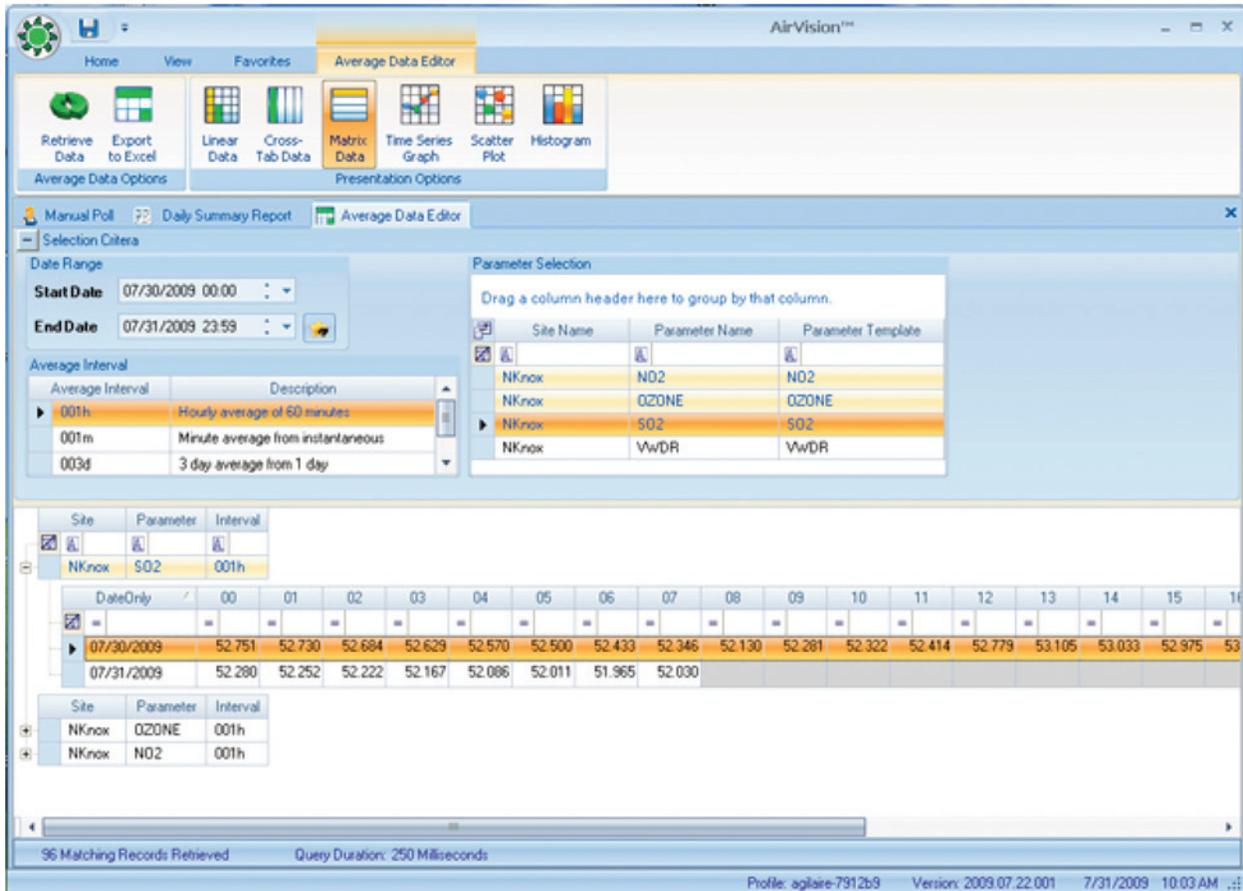


Cross-Tab Data Editor from Data Editors menu

- **Note:** You can sort data by any column by clicking on a column header. You can find all flagged data easily. Each group can then be expanded and individually sorted. When you change editor modes, the groupings are not kept. Also, you can click-hold-and-drag columns to change the order, and click-drag columns to the **Drag a column header here to group** area to group data. If you do this accidentally or change your mind, you can drag it back.

Matrix Data Editor

The **Matrix Data Editor** presents data in a format similar to the monthly report. If you select multiple parameters, they are grouped with a plus (+) symbol for expansion.

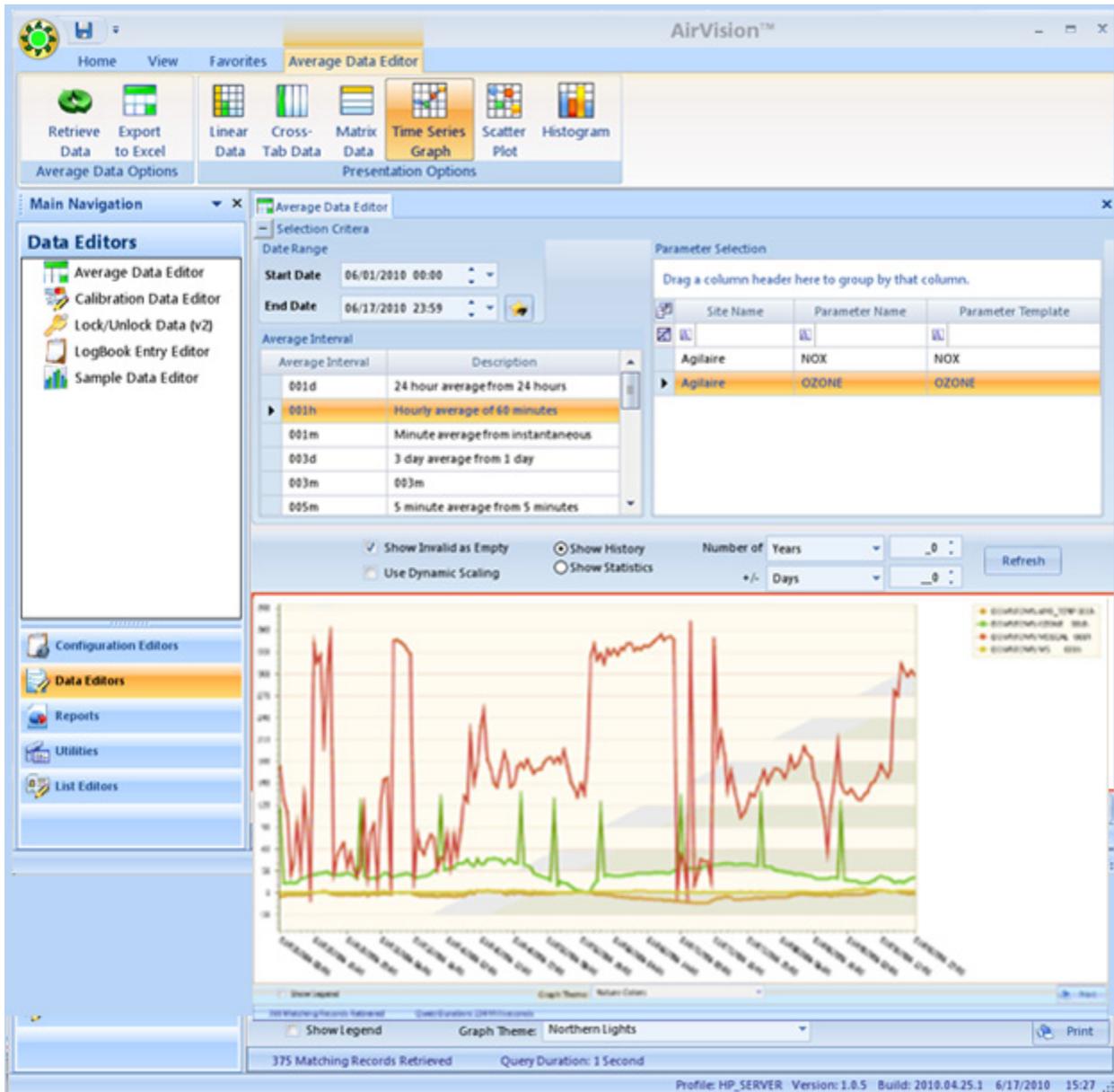


Matrix Data Editor from Data Editors menu

Time Series Graph

You can generate the **Time Series Graph** in two modes, for one or more parameters. In multi-parameter mode, you can group different parameters together for any time period. With the tools at the bottom of the screen, you can change the color scheme, remove or restore the legend, and print the graph.

The minus (-) sign in the upper left corner of the screen minimizes the selection criteria to make more room for the graph.



Time Series from Data Editors menu with multiple parameters selected

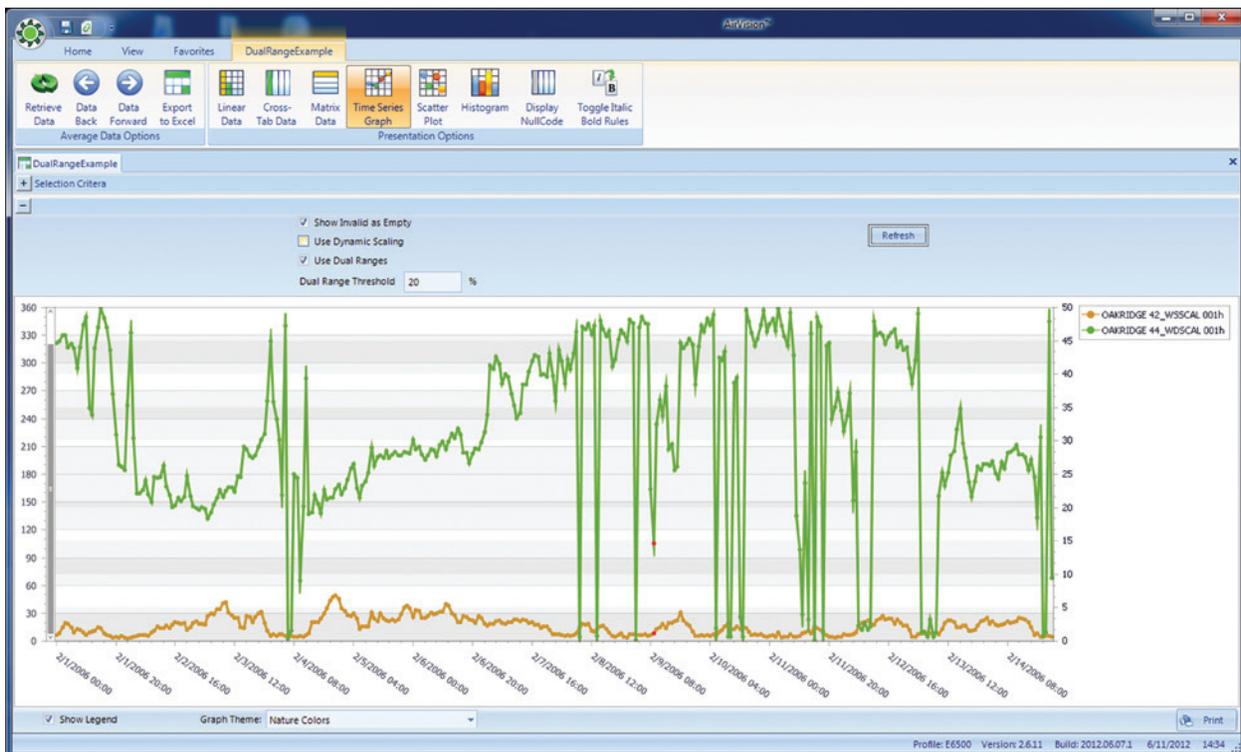
Use the mouse scroll wheel to zoom in or out; right-click and hold to drag the zoomed graph to a different data area.

Hover the cursor over a data point to see the specific date, time, and data value. If there is a flag on the data point the flag will also be displayed.

You can toggle between hiding or showing invalid data (e.g., data during calibration, maintenance, or analyzer failures).

When graphing parameters with two dramatically different full scale ranges, you may choose to use the **Dual Y-Axis Scale** option. When choosing this option, you must also choose the percentage (e.g., 10%, 20%) of the full scale range that is used as the 'breakpoint' for the secondary Y-axis. A value of 20% is common. Note that this function requires that Graph Maximum and Graph Minimum be set in the Parameter configuration. Graphs that have any parameters without limits configured cannot use the Dual Y-Axis function.

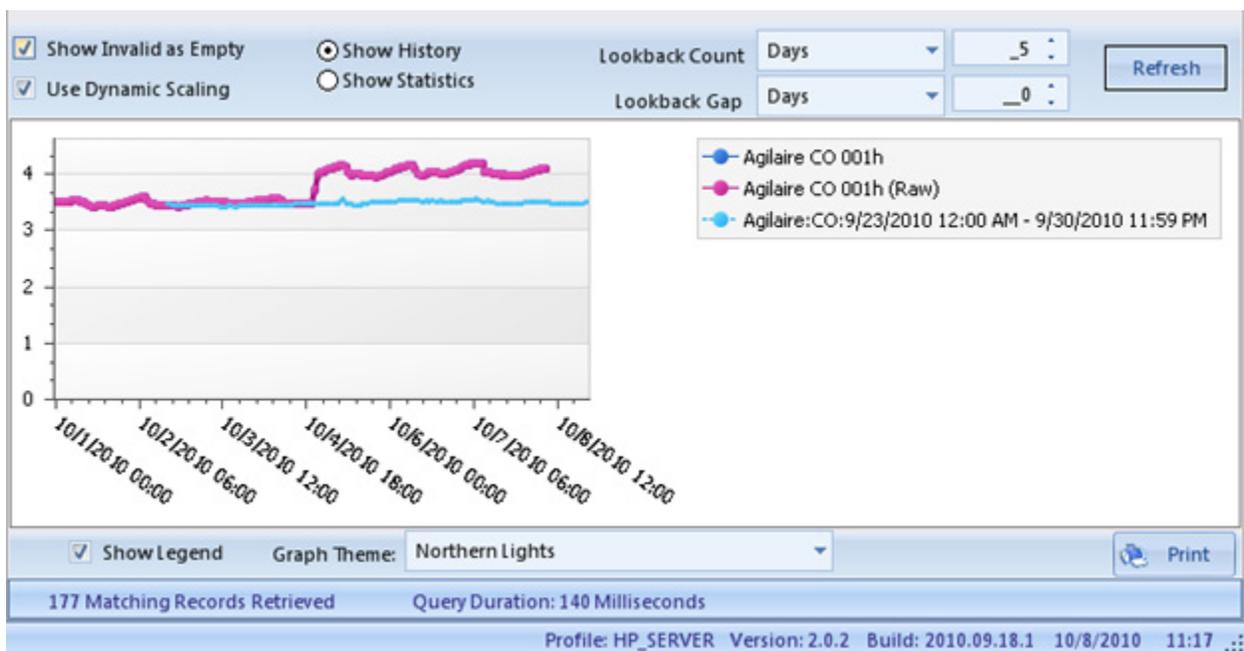
Suppress Flag Colors - If not selected, flagged data will be shown with “dots” with colors based on the Flag configuration. If selected, data will just be shown as the trend graph color. In both cases, hovering the cursor over the point will always show the flag, and the flag colors are still represented in the tabular/grid display.



Dual Y-Axis function

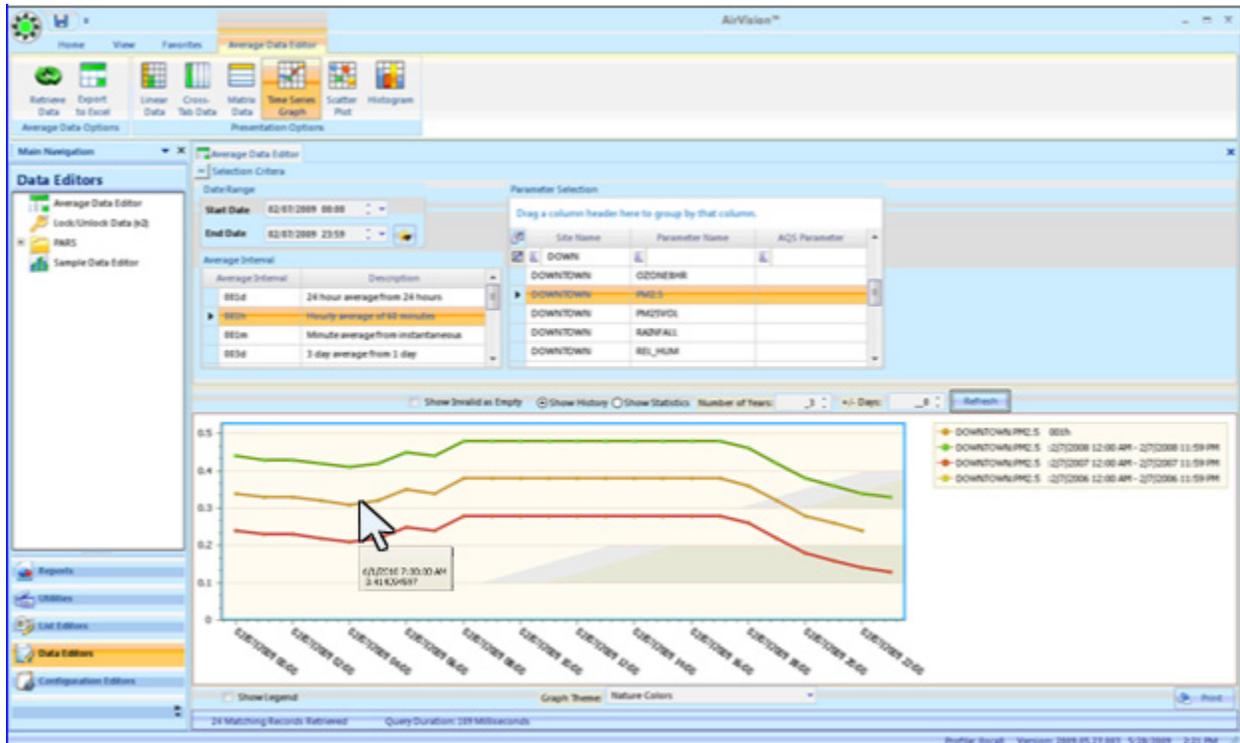
For one parameter, you can choose previous intervals to be other than one year by selecting **Show History** from the options above the graph. If you bring up the Time Series Graph in single parameter mode, you get additional options at the top of the graph:

- ◆ **Show Invalid as Empty**
- ◆ **Use Dynamic Scaling**
- ◆ **Show History** displays N previous years of data alongside main graph
- ◆ **Show Statistics** displays cumulative statistics of N previous years--min, max, avg
- ◆ **Lookback Count** select number of years, months, or days from the drop-down list
- ◆ **Lookback Gap** select number of years, months, or days from the drop-down list
- ◆ **Refresh** button must be clicked to show any changes to selections.



Time Series Graph with a single parameter selected

If the database contains data from previous years for the same parameter, those previous years can be graphed in the Time Series Graph alongside the current data by selecting **Show History** and the number of years you want to graph. Each previous year is graphed individually. Select **Refresh** to update the graph.



Time Series Graph with a single parameter and Show History option and hover over displaying date, and time data value

The **+/- Days** selector can be used to compile nearby days for the same hour into the comparison statistics. An example of how this is applied would be:

Current Data = 1/15/09,. Number of Years = 3, +/- Days = 1

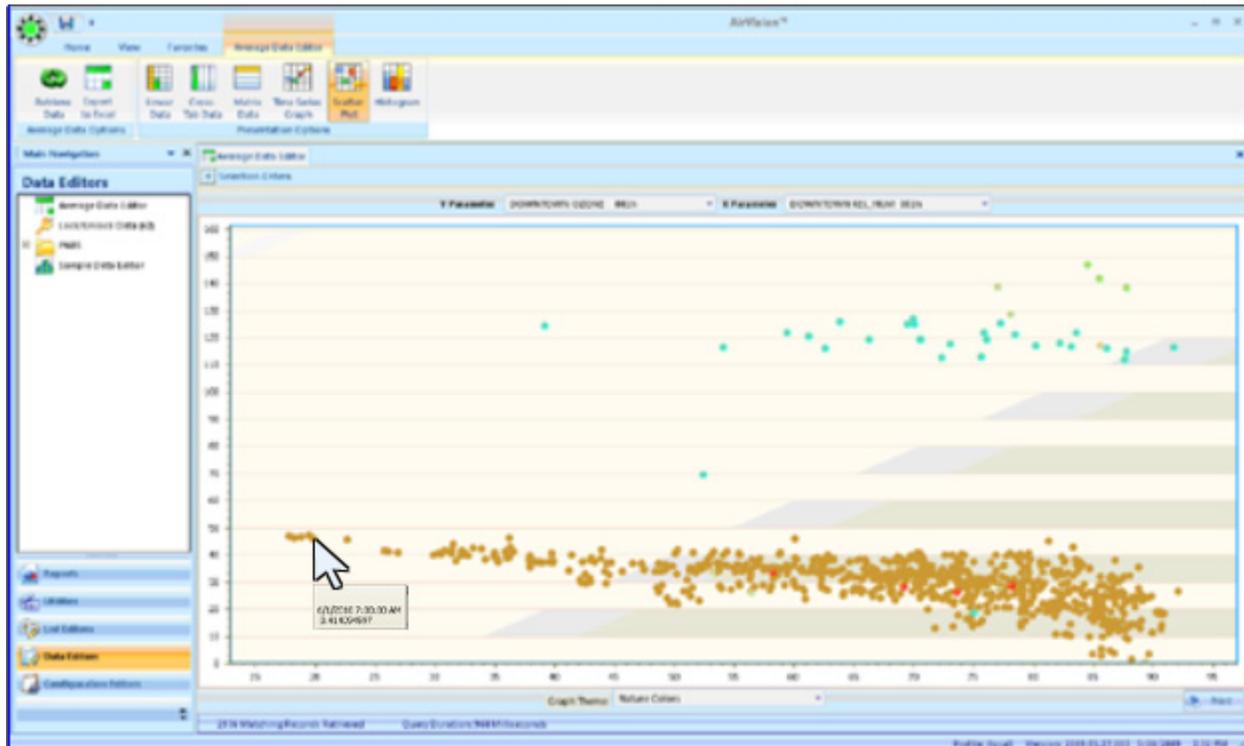
1/5/09 data at hour 00 would be compared against statistics using the following points:

- 1/4/06, hour 00
- 1/5/06, hour 00
- 1/6/06, hour 00
- 1/4/07, hour 00
- 1/5/07, hour 00
- 1/6/07, hour 00
- 1/4/08, hour 00
- 1/5/08, hour 00
- 1/6/08, hour 00

Obviously, selection of a large data set with a long look back period and large skews can be very processor intensive for the client and the SQL server for large data sets. Agilaire recommends this tool be used for data sets of roughly a week or less.

Scatter Plot Graph

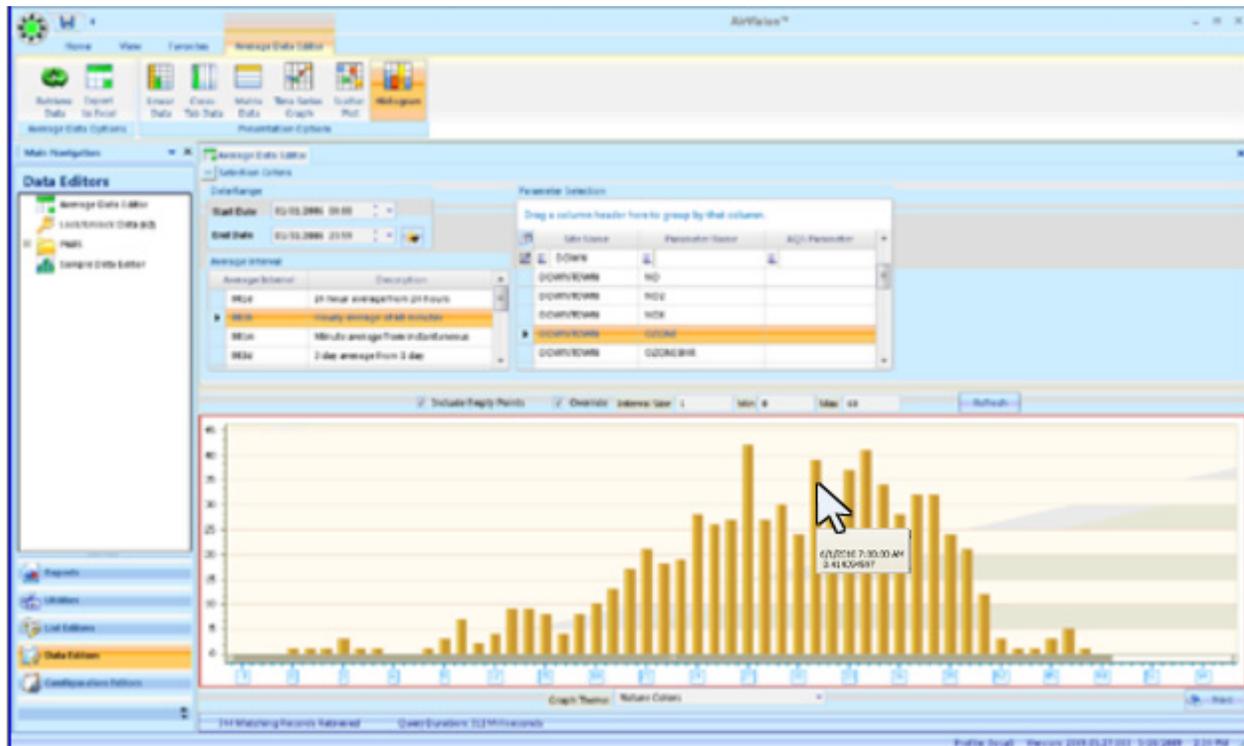
The **Scatter Plot Graph** allows any two parameters in the existing chart to be plotted in an X-Y chart. The Y axis parameter is the primary parameter and all data points are color coded according to the Data Flags color mappings to help distinguish outliers that have already been flagged.



Scatter Plot Graph from Data Editors menu with hover over displaying date, time and data value

Histogram

The **Histogram** provides a graph of the distribution of values for the entire data set, but it is designed to display only one parameter at a time, so be careful not to use multiple parameters. The default graph uses the graph maximum/minimum from **Configuration Editors > Site/Parameter**, but you can check **Override** to set a custom max/min specifically for the X axis of this graph.

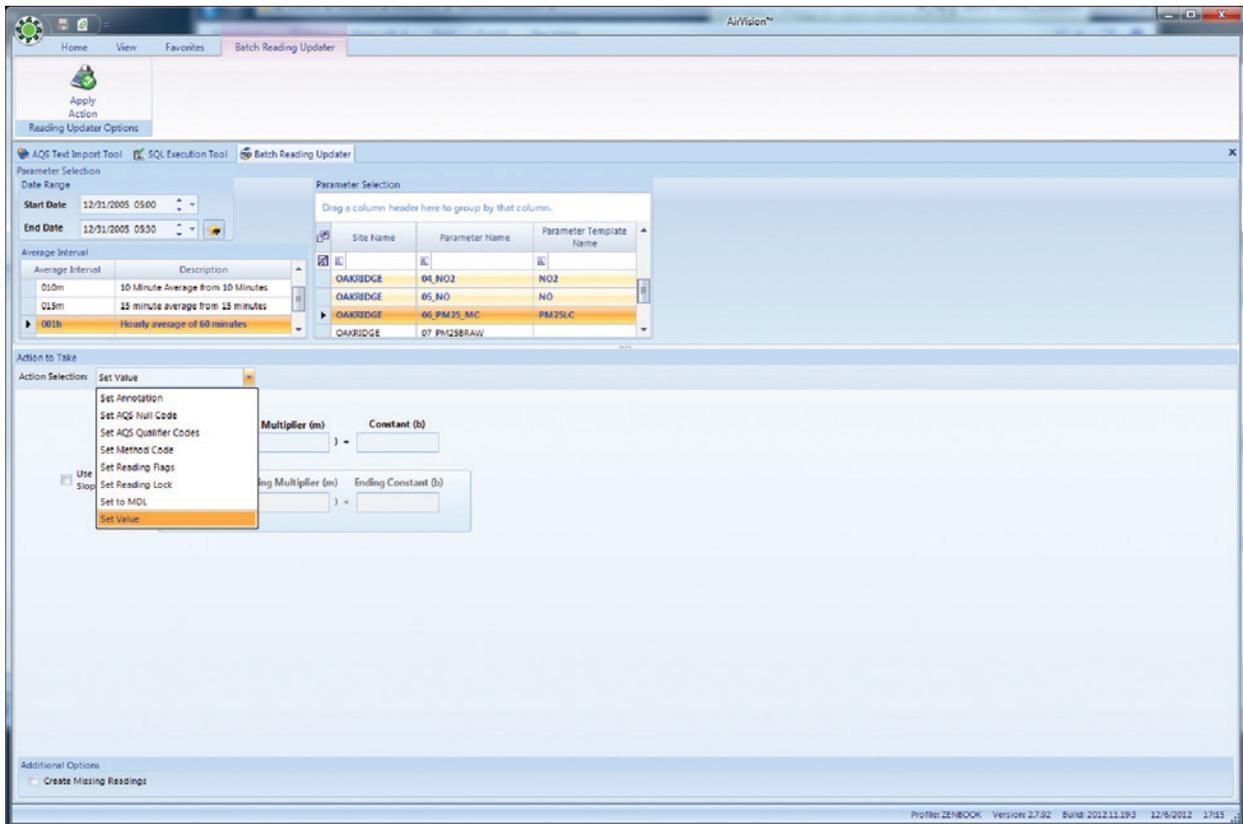


Histogram from Data Editors menu with hover over displaying date, time and data value

Batch Reading Updater

This editor allows the user to do ‘blind’ edits on very large data sets without having to retrieve the data into memory in the Average Data Editor. The user simply selects the sites, parameters, time period, and the required action, much like the Batch Edit options in the Average Data Editor.

This tool also offers the option to “lock” data and prevent future edits until the data has been unlocked (again, using the Batch Edit tool). Locked data appears in the Average Data Editor with a padlock icon beside it.

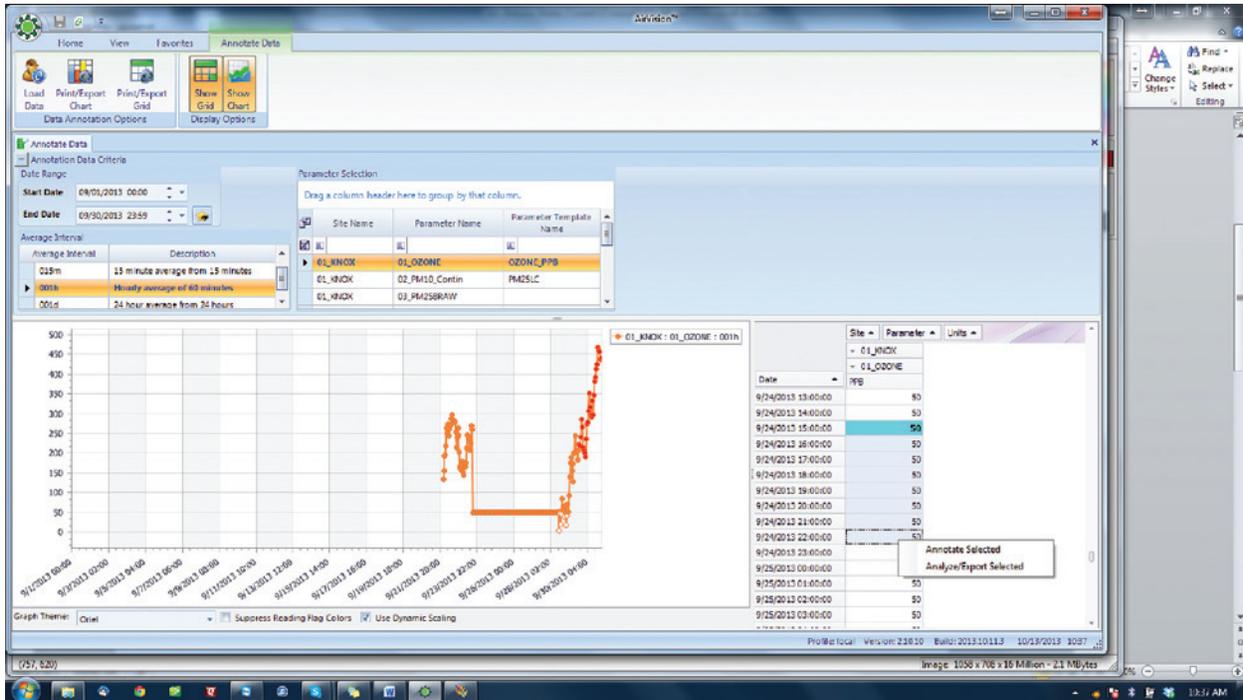


Batch Reading Updater

Annotate Data Editor

This editor allows only for the graphical review and annotation of data. It is designed to be used with the Security and Group Permissions system to give limited access to the data only for the purpose of entering annotation notes.

Like the regular editor, the user can query specific site/parameters and date time ranges, and see a split screen of graphical and tabular data. The user can then drag-select, shift-select, or CTRL-select a range of data points, and right-click to enter annotations.



Sample Data Editor

The **Sample Data Editor** allows manual entry of PM filter, air toxics samples, or other non-continuous data.

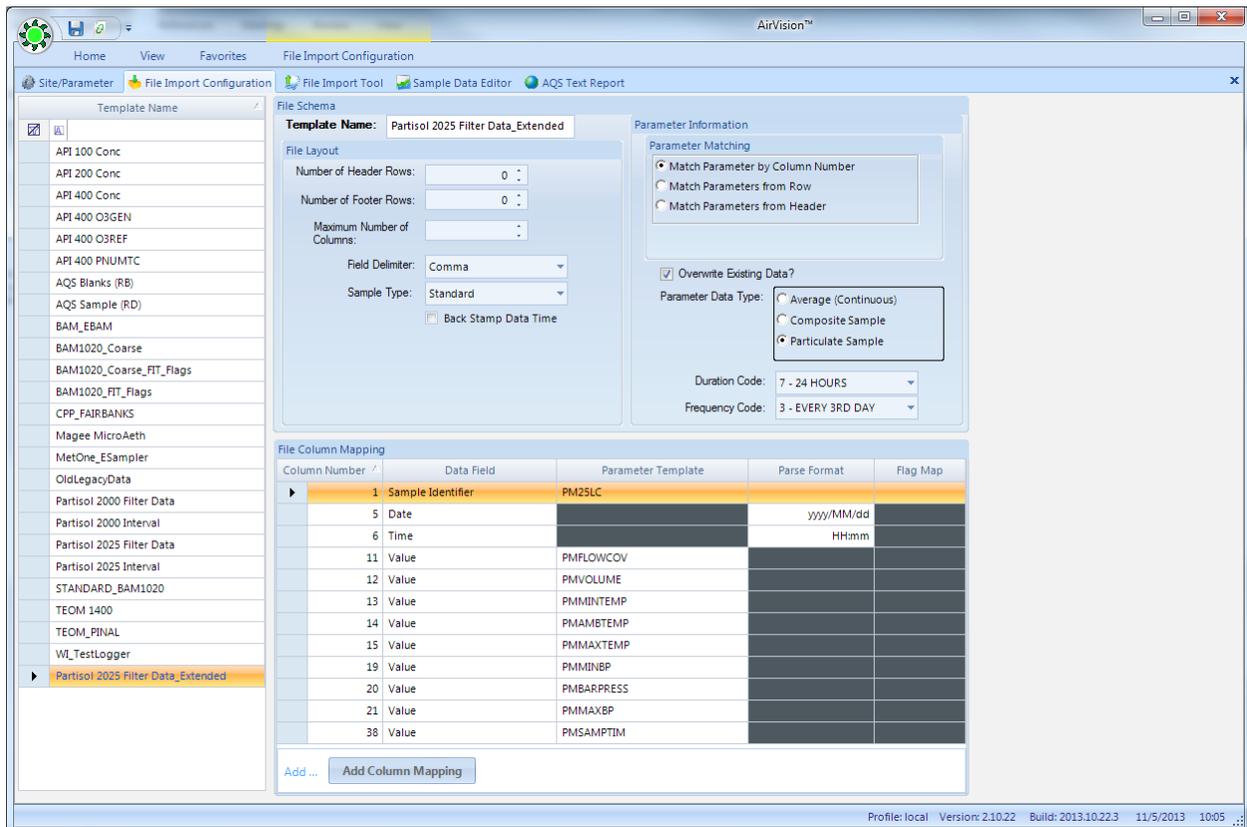
⇒ **Important!** The parameter must have been configured in the Site/Parameter Table as either a (Particulate) Sample or Composite data type parameter for it to appear as a selection in the sample data editor.

To create a new sample data record, use the **Add** button on the ribbon. The required fields will be marked to the right with a red “!” icon.

You can optionally select a special blank type (field blank, lab blank) for appropriate notation in AQS reporting. You can also define the sample as a Scheduled Sample, whether it is considered a Creditable Sample, and also select to have the sample marked as non-reportable. The Sample Identifier is a free-form field to be used for the filter ID or some other ID code to trace the sample.

The editor can also be used to retrieve and edit previous samples using the date range selection tool and the **Retrieve Data** toolbar icon.

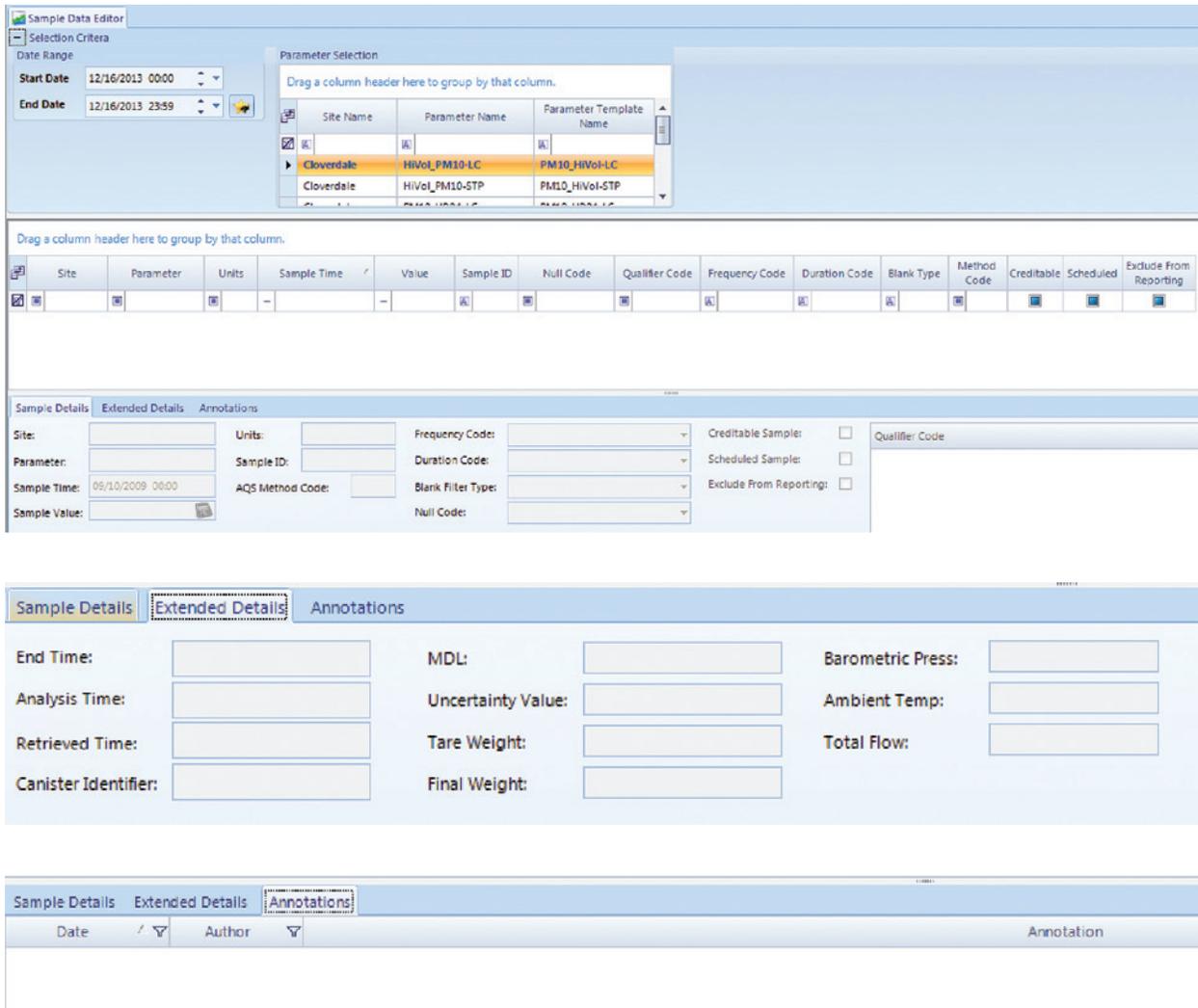
Sample data can also be imported automatically using the optional File Import Tool.



Sample Data Editor

PM Calculator in Sample Data Editor

A **PM Calculator** can be accessed from the Sample Data Editor by clicking the icon within the Sample Value field.



PM Calculator accessed from the Sample Data Editor

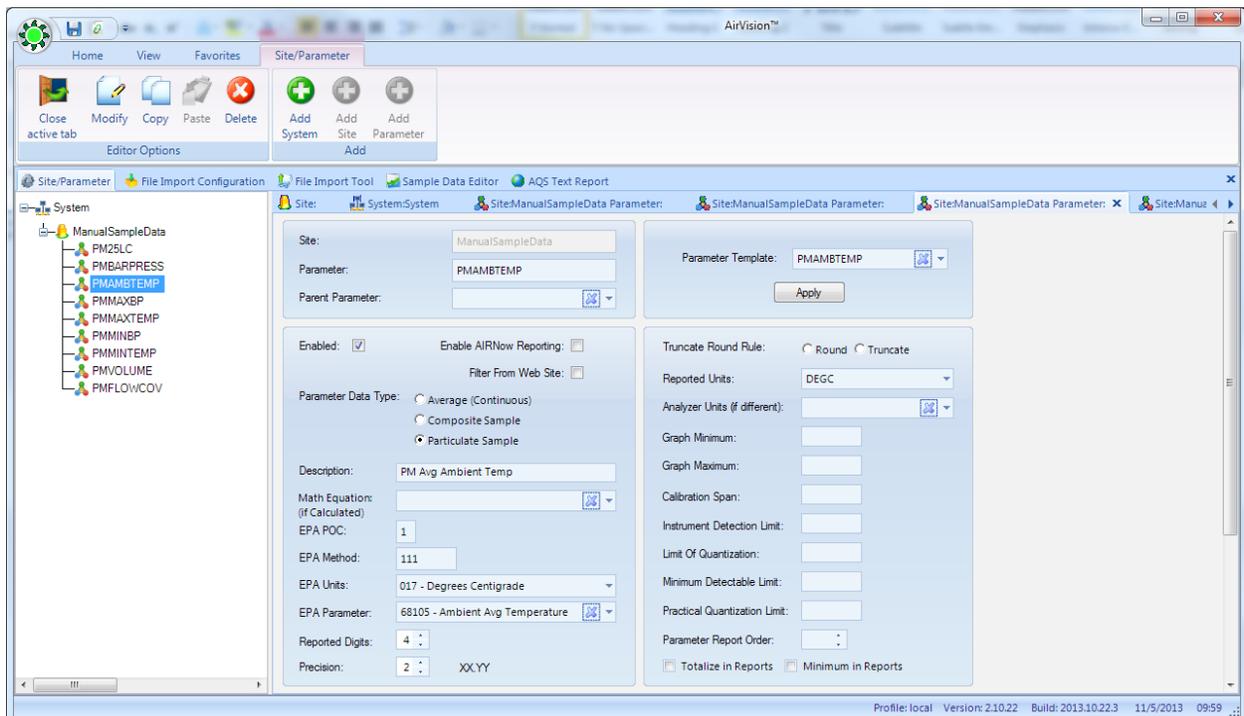
Methods for Sample Data Handling in AirVision

Manual filter/sample data can be handled in several different ways in AirVision, primarily depending on some of the options elected. These include:

1. Manual data entry of filter data through the Sample Data editor (base system)
2. Import of PM filter data files through File Import Tool, with follow-up editing for weights / lab data
3. Automatic polling of FRM samplers (using Direct Instrument Poll drivers) for Filter Data records, with follow-up editing for weights / lab data
4. Combining methods 2 or 3 with File Import Tool for final lab results.

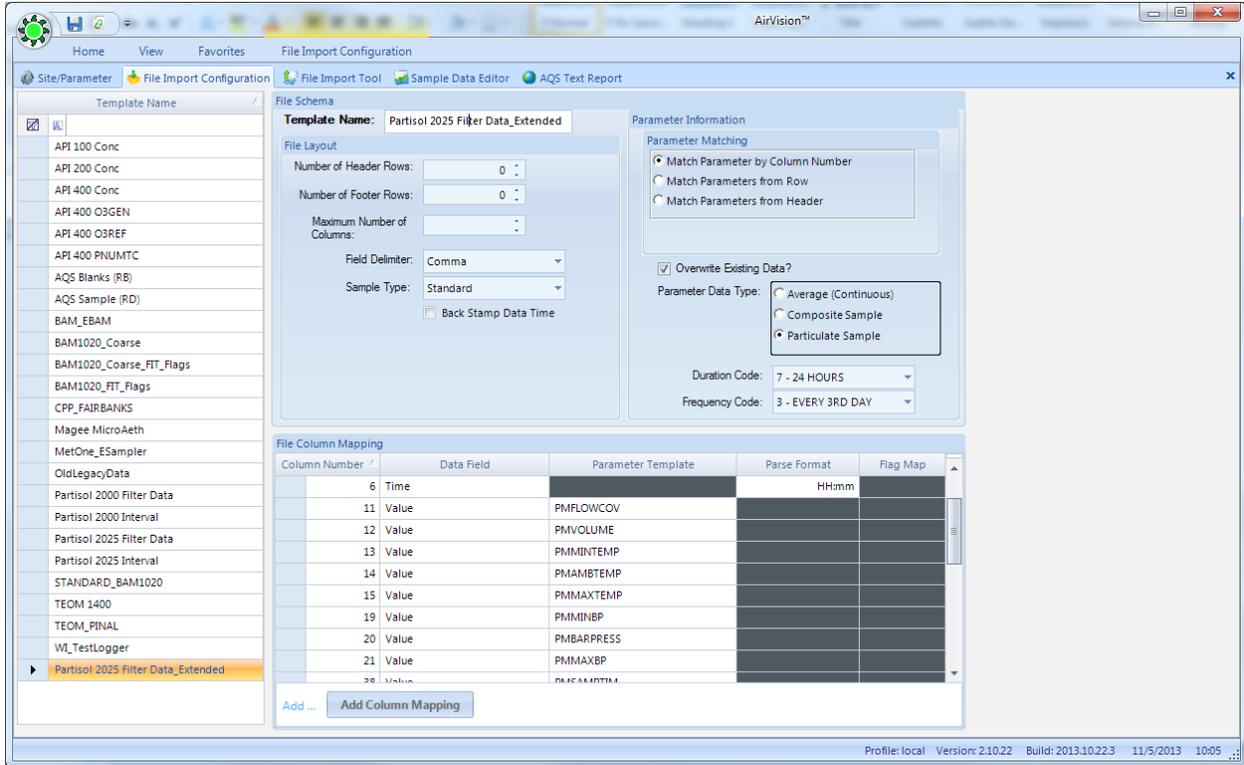
This section will focus on methods 2 and 3, as the other methods follow easily from a study of the setups of these methods.

First, we consider the Site/Parameter setup. In most cases, we want to report to AQS the PM concentration value itself, as well as average ambient temperature, barometric pressure, and volume. We may also want to report min/max temperature, min/max barometric pressure, and flow covariance. For this document, we will call this “Extended AQS Reporting”. We would set up site/parameter records for each entry we wish to report to AQS.



► **Note:** *If you do not report average flow/temp/pressure to AQS, they can still be imported using the File Import Tool, but a Parameter record does not need to be configured at this point. For this document, we will call this the “Basic AQS Reporting”.*

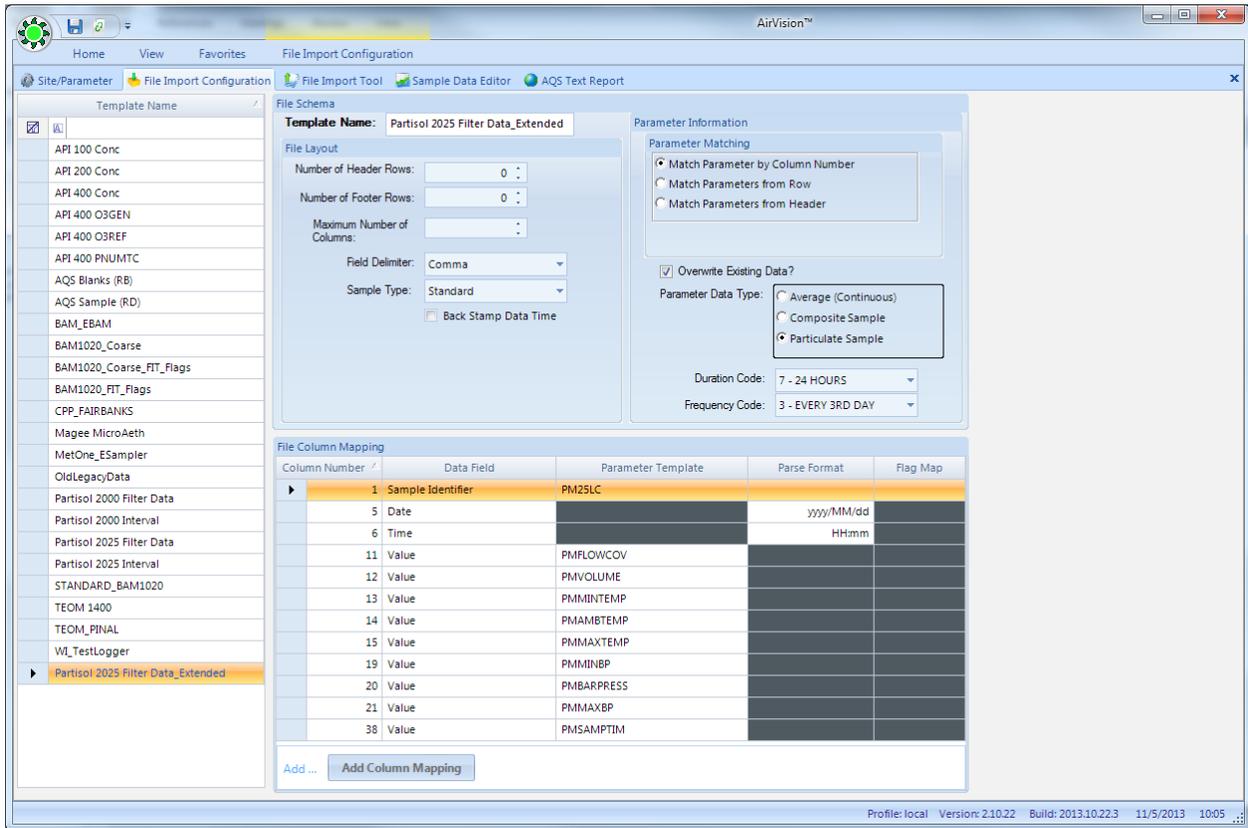
Next, we consider the File Import Template we will use for either manual file import, or connected to the Direct Instrument Poll of our FRM sampler. If we want to use the Basic AQS Reporting method, we can use the default Partisol templates already packaged in the system. These map the pressure, temperature, and flow fields to sub-records inside the PM sample record:



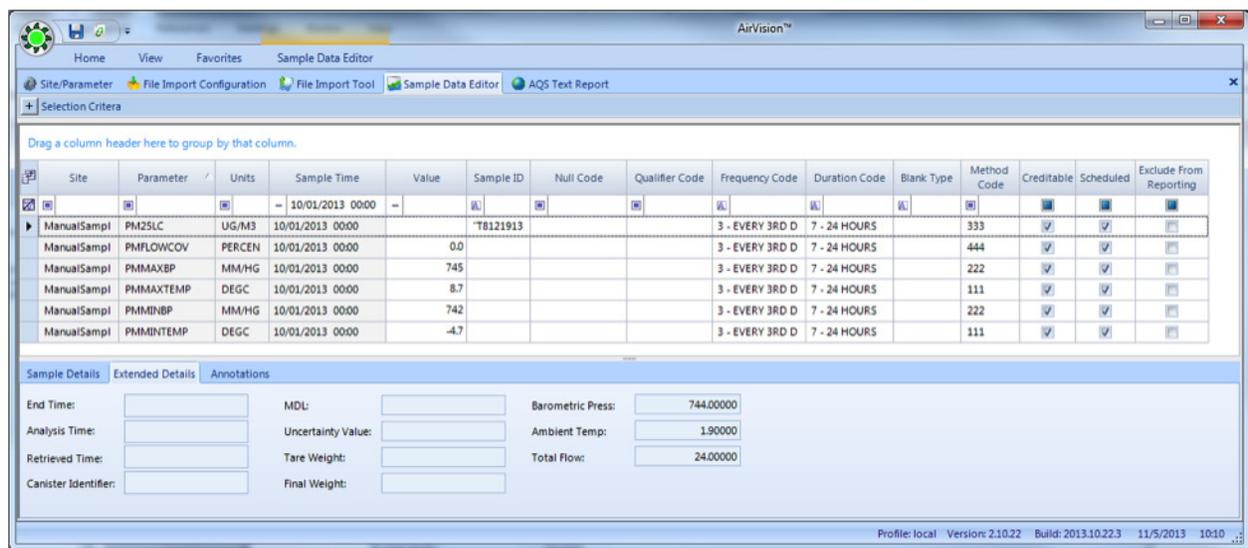
► **Note:** *If you want to report PM10 instead of PM25, you can use the “Copy” function on the ribbon to create a duplicate parameter template and change the parameter template from PM25 to PM10.*

Note that the flow, temperature, and pressure are data fields **within** the PM25LC sample record. They are not stored separately as parameter records, and thus in this method, AQS records cannot be generated independently for those measurements.

To do so, we would use the Extended AQS Reporting method, and choose one of the new “Extended” file import templates:

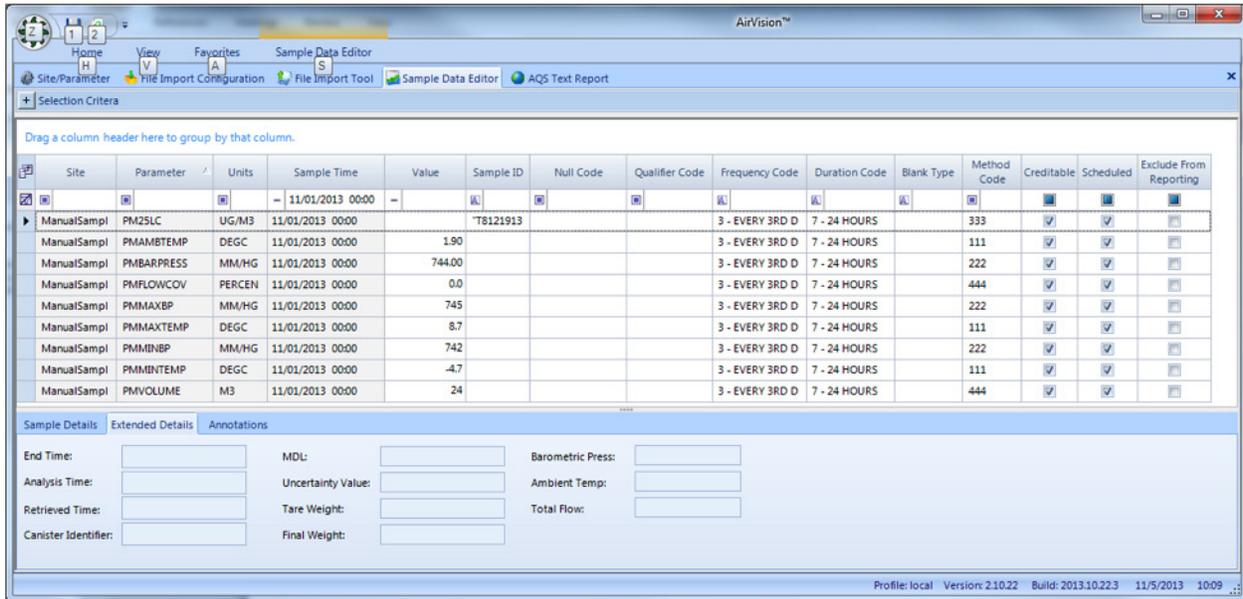


Here, you can see in this case, each field is matched to the parameter template to direct imported data into the individual parameter. Once we have imported the data or polled the instrument to get the data in, we can open the Sample Data Editor and see the results.



In this example, we have used the Basic mode template. You see that the pressure, temp, and flow are not available as individual records, but exist in the Extended Details of the PM25 record, and are available to the Sample Data calculator (but not to AQS reporting).

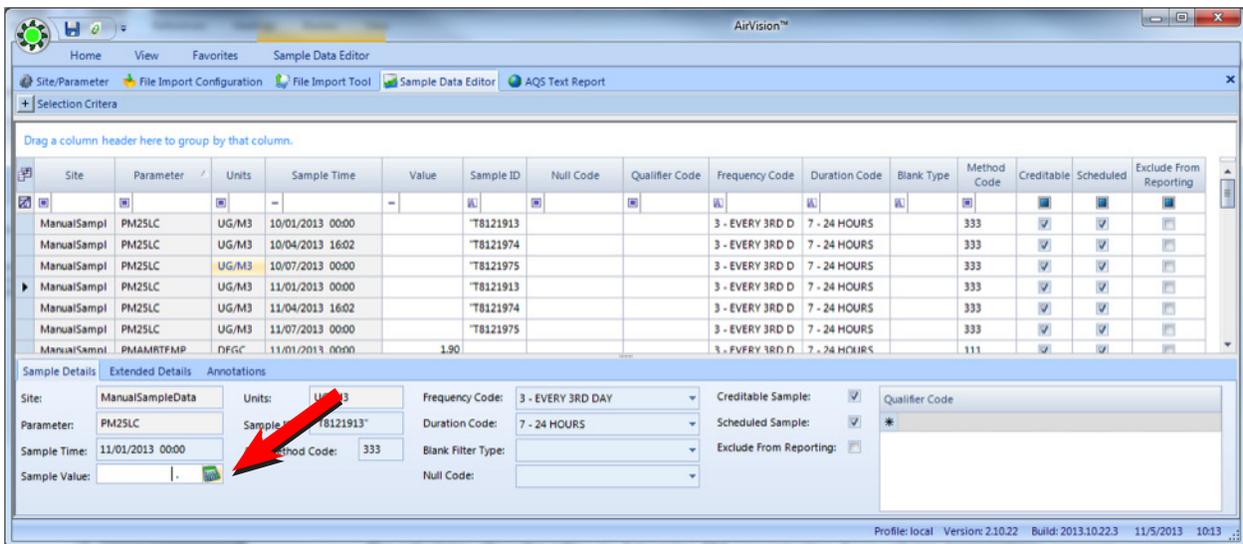
If we use the Extended template, our records would look like this:



Here, the flow, pressure, temp data are all available for AQS reporting, but not stored as fields within the PM25 record. But that's OK, we can still access that data when using the Calculator.

The Sample Calculator

The calculator allows the editor to determine PM concentration from volume, temperature, pressure, and tare/final weight data manually entered into the editor (users with the File Import Tool have the option, of course, to directly import the concentration data).



When you click the calculator button, a popup screen will appear for data entry:

Here, all data can be manually entered, and “Calculate Sample” used to calculate the concentration. If using the Basic method, the flow, pressure, and temperature will already be populated from the meta data in the main PM data record.

For the Extended method, flow/pressure/temperature data can be filled using the “Populate from Site Samples/Averages” button. The algorithm AirVision uses to fill these records are as follows:

1. Try to find sample data records with the same date/time from parameters with the parameter templates PMVOLUME, PMBARPRESS, and PMAMBTEMP.
2. If these do not exist, try to find hourly data records for that day with parameter templates ??, ??, ??, and create 24-hour totals/averages from those parameters.

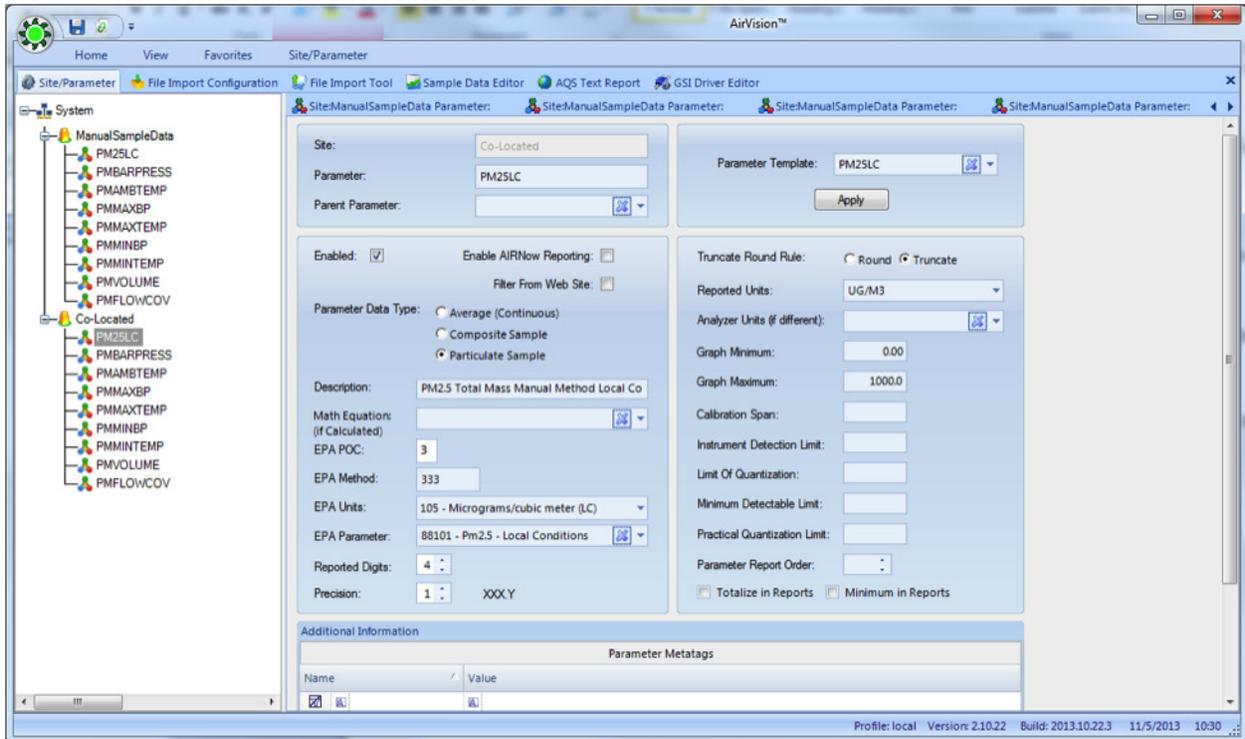
Once the flow, pressure, temperature, and tare/final weights have been entered, the “Calculate Sample” button will calculate the concentration value. “OK” will save the result.

Co-Located Samplers

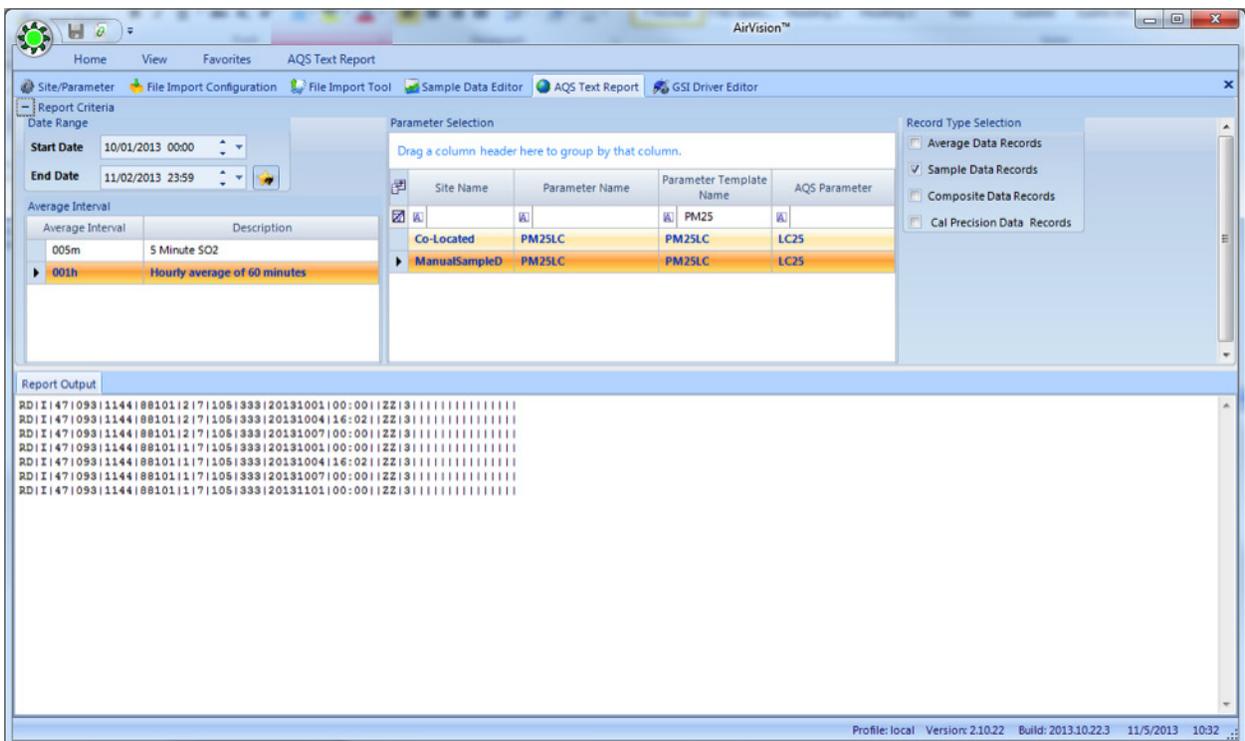
In the Basic mode, it would be easy to copy a File Import Template and create alternate templates and alternate Parameter Templates (e.g., PM25LC_2, PMAMBTEMP_2, etc).

Because the calculator has some elements hard-coded to particular parameter templates, using the Extended mode can be problematic for co-located samplers configured at the same site.

For this reason, it may be easier for the user to configure a secondary “pseudo site” to represent a co-located sampler. The co-located site can have the same site/county code, and a similar list of parameters (and use the standard parameter templates). In this case, the only difference would be the Site Name, and the POC settings in the parameters:



In this case, the parameter just appears in AQS as the same site, with a different POC code:

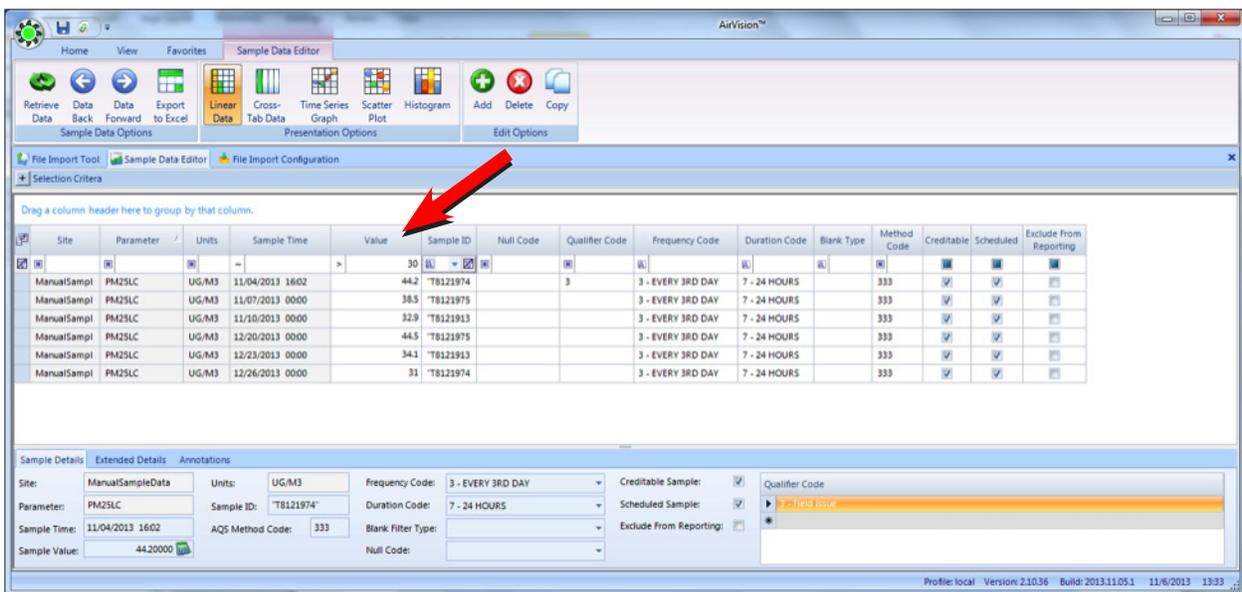


Enhancements To The Sample Data Editor (Version 2.10)

The following enhancements were made to the Sample Data Editor:

- ◆ Additional fields were added to the meta data of the records, and to the File Import Tool:
 - Tare/Final Weight
 - End Time
 - Analysis Time
 - Cannister ID
 - MDL, Uncertainty Values

Note that the Sample Data Editor supports sorting and filtering on these fields in the Linear Mode:



Thus, the user can easily search for PMFLOW under a certain value, flow covariance over a certain limit, etc, or just filter the samples based on Blank Type or Null Code.

The editor also supports selection of data points and the ability to add annotations to the data, much like the Average Data Editor, including italic marking of data points, and mouse-hover over to see the annotations:

Site	Parameter	Units	Sample Time	Value	Sample ID	Null Code	Qualifier Code	Frequency Code	Duration Code	Blank Type	Method Code	Creditable	Scheduled	Exclude From Reporting
ManualSampl	PM25LC	UG/M3	11/04/2013 16:02	30	T8121974			3 - EVERY 3RD DAY	7 - 24 HOURS		333	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ManualSampl	PM25LC	UG/M3	11/07/2013 00:00	38.5	T8121975			3 - EVERY 3RD DAY	7 - 24 HOURS		333	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ManualSampl	PM25LC	UG/M3	11/10/2013 00:00	32.9	T8121913			3 - EVERY 3RD DAY	7 - 24 HOURS		333	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ManualSampl	PM25LC	UG/M3	12/20/2013 00:00	44.5	T8121975			3 - EVERY 3RD DAY	7 - 24 HOURS		333	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ManualSampl	PM25LC	UG/M3	12/23/2013 00:00	34.1	T8121913			3 - EVERY 3RD DAY	7 - 24 HOURS		333	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

The Sample Data Editor also provides right-click options on selected data points for several functions like the Average Data Editor, including a Batch Edit function.

Sample Details

Site: ManualSampleData Units: UG/M3

Parameter: PM25LC Sample ID: T8121975

Sample Time: 12/20/2013 00:00 AQ5 Method Code: 333

Sample Value: 44.50000

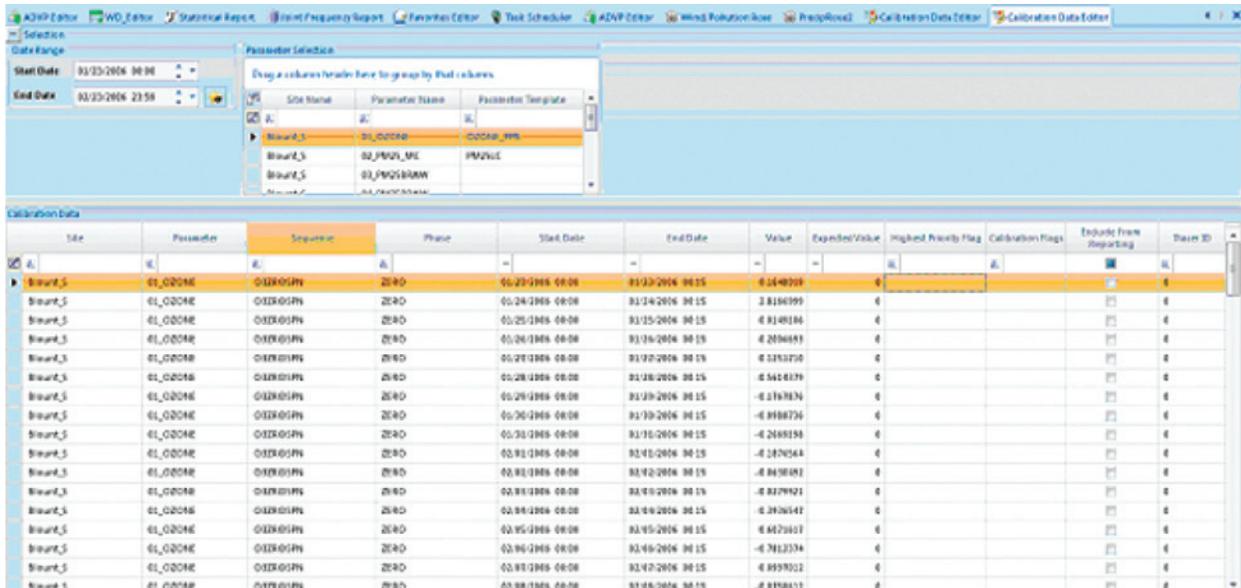
Calibration Data Editor

The **Calibration Data Editor** can be used to correct errors in calibration records collected from the data logger, or to add new records (e.g., to reflect a manually collected calibration).

To edit existing records, select the appropriate site/parameter and date range, and use the **Retrieve Data** ribbon icon.

You can edit dates, times, values, expected values, bottle/tracer IDs, or mark the record as non-reportable. However, there is no provision to delete a record.

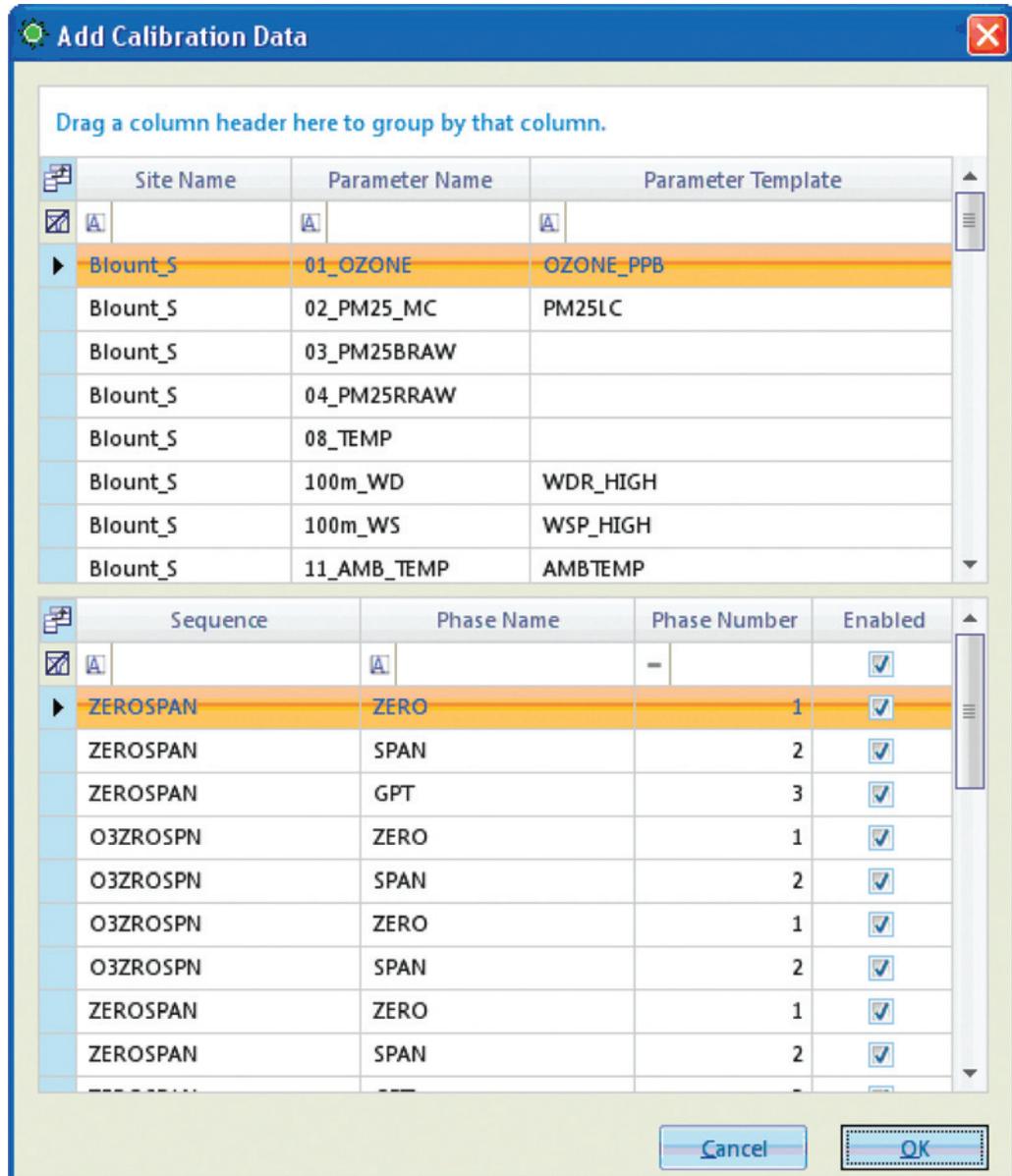
To add a new record, press the **Add** icon on the ribbon. You will be prompted for the site, parameter, calibration program and phase: The record will be created in the editor, and the remaining record characteristics can be entered. The user may also define the calibration level of a phase (ZERO, PREC, etc). This is used primarily by the Cal Adjustment Tool and the AQS Precision Report function. The level will normally be added automatically by the system if the cal level is defined in Data Source Details for the cal phase, but the Cal Editor allows for updating old records or correcting data.



Calibration Data Editor

To add a new calibration record, press the **Add** icon on the ribbon. You will be prompted for the site, parameter, calibration program and phase:

The record will be created in the editor, and the remaining record characteristics can be entered.



Adding Calibration Data in the Calibration Data Editor via the Add button on the ribbon

Lock/Unlock Data

This feature will be available in later versions of AirVision.

LogBook Entry Editor

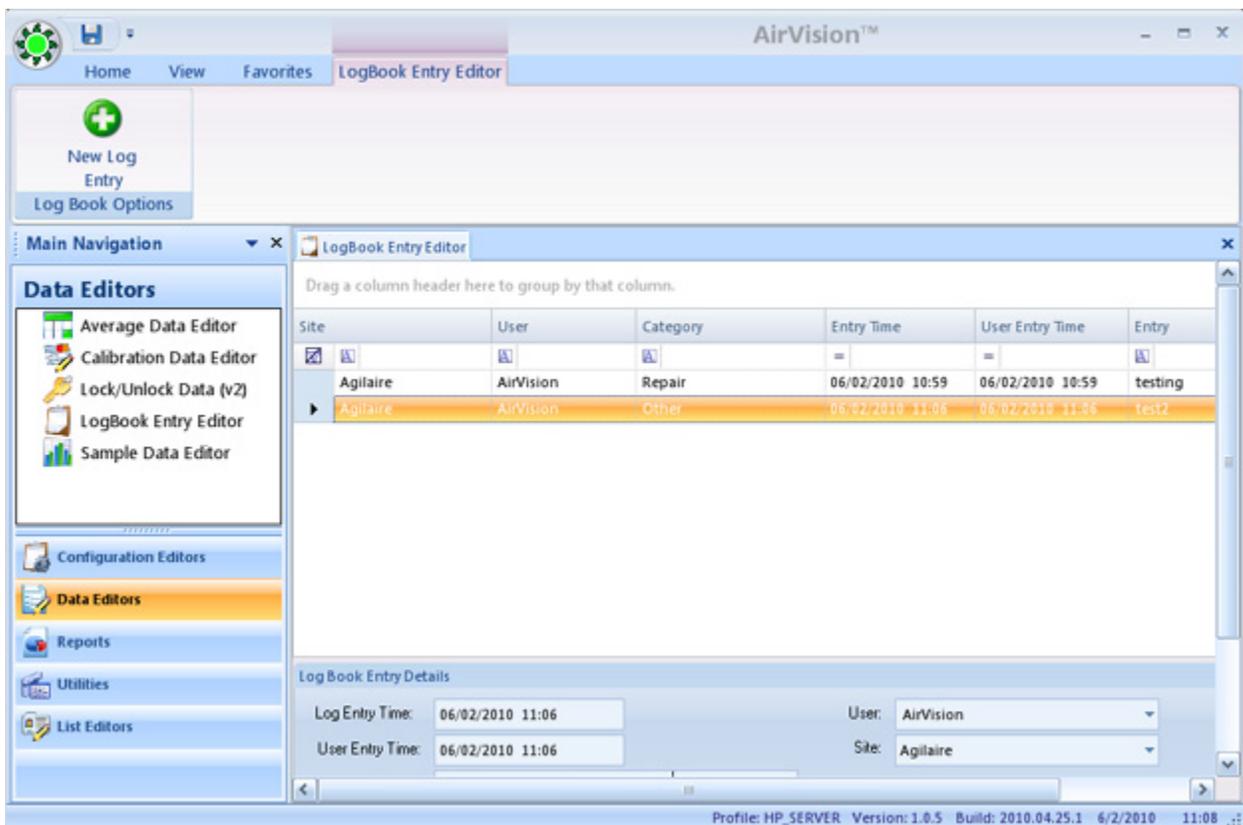
The **LogBook Entry Editor** allows you to make entries in a logbook that can then be seen in LogBook Reports. To make a logbook entry, open **LogBook Entry Editor** from the Editors menu.

Click the **New Log Entry** button in the upper left corner of the screen

In the bottom section of the screen enter a **Log Entry Time**, **User Entry Time**, select a **Category** from the drop-down list or select **New Category** and enter a different category, select a **User** and a **Site** from the drop-down lists

Enter the LogBook message in the **Entry Text** box and click **Save**.

The new entry information will be displayed in a row in the top section of the screen.



Adding LogBook entries in the LogBook Entry Editor from the Editors menu

By default, the logbook entries do not accept changes or addendums after the record has been saved. A system option is available to allow addendums to be made. To enable this, contact support@agilaire.com.

Cal Adjust Processor (Optional)

The **Cal Adjust Processor Tool** allows you to apply zero adjustments or zero/span adjustments to data based on calibration results and expected value. Note: This tool is optional and not normally enabled, but can be enabled by contacting support@agilaire.com.

Note that AirVision will look for calibration records that have been marked ZERO and SPAN by the Cal Level defined in Data Source Details for the cal phase. If these records are not marked, AirVision attempts to identify zero and span data via the phase name. Note that the Calibration Data Editor allows for updating old records or correcting data.

To use the Cal Adjust Tool, select a **Data Range and Parameter(s)**. The tool can run on multiple sites/parameters, but review of the results can be confusing, so it may be preferable to use the tool with one parameter at a time at first. The filter fields could also be used to filter results for multiple site/parameters.

Once selected, choose **Analyze** from the toolbar. The screen will show the number of points found that can be correlated with calibration data. The bottom part of the report shows the current values and the proposed changes.

Site Name	Parameter Name	Interval	Date	Original Value	Offset	Slope	Adjusted Value	Difference
01_KNOX	01_OZONE	001h	02/14/2006 00:00:00	127.068413009551	0.248131766915321	0.942199127403117	112.261111021177	-0.7778701917425
01_KNOX	01_OZONE	001h	02/14/2006 01:00:00	31.1398239135742	0.248131766915321	0.9423946994135	29.5790484112398	-1.55997550233444
01_KNOX	01_OZONE	001h	02/14/2006 02:00:00	30.0210704803467	0.248131766915321	0.942199127403117	28.5196159444587	-1.50145433578796
01_KNOX	01_OZONE	001h	02/14/2006 03:00:00	29.0599231719971	0.248131766915321	0.942003384846884	27.6082869562615	-1.45163621573561
01_KNOX	01_OZONE	001h	02/14/2006 04:00:00	28.013088263184	0.248131766915321	0.941607642326652	26.6166329711022	-1.3964552521611
01_KNOX	01_OZONE	001h	02/14/2006 05:00:00	27.350513336182	0.248131766915321	0.941611899788419	25.8070601035719	-1.3632912304625
01_KNOX	01_OZONE	001h	02/14/2006 06:00:00	26.6427154541016	0.248131766915321	0.941416157250186	25.3154780560116	-1.32273739808999
01_KNOX	01_OZONE	001h	02/14/2006 07:00:00	25.7966156005859	0.248131766915321	0.941220414711954	24.5138478183076	-1.2827676822733
01_KNOX	01_OZONE	001h	02/14/2006 08:00:00	26.3327178955078	0.248131766915321	0.941024672173721	25.0132353968007	-1.3194825582711
01_KNOX	01_OZONE	001h	02/14/2006 09:00:00	27.6323165893555	0.248131766915321	0.940828929635489	26.2307323847878	-1.4015842045677
01_KNOX	01_OZONE	001h	02/14/2006 10:00:00	28.2205028539936	0.248131766915321	0.940633187097256	26.7785425152084	-1.44196033818514
01_KNOX	01_OZONE	001h	02/14/2006 11:00:00	28.4760284423828	0.248131766915321	0.940437444559023	27.0132758243363	-1.46275261804649
01_KNOX	01_OZONE	001h	02/14/2006 12:00:00	28.302059173584	0.248131766915321	0.940241702050791	26.8440801229136	-1.45797905067036
01_KNOX	01_OZONE	001h	02/14/2006 13:00:00	28.8358631134033	0.248131766915321	0.940045959482558	27.3402918728549	-1.49557124054838
01_KNOX	01_OZONE	001h	02/14/2006 14:00:00	29.1877021789551	0.248131766915321	0.939850216944325	27.6652749199634	-1.52242725899165
01_KNOX	01_OZONE	001h	02/14/2006 15:00:00	29.4481048583984	0.248131766915321	0.939654474406093	27.9042016179982	-1.54390324040028
01_KNOX	01_OZONE	001h	02/14/2006 16:00:00	30.5194301605225	0.248131766915321	0.93945873186786	28.9048547110166	-1.61457544950591
01_KNOX	01_OZONE	001h	02/14/2006 17:00:00	30.8345680236816	0.248131766915321	0.939262989329627	29.1948295217515	-1.63973850193015

Calibration Adjust Processor

The changes depending on the modes set on the right part of the ribbon:

Adjust for Span-Deselect this if you only want to do a zero correction.

Sliding Scale- If span correction is adjusted, you may optionally choose to have the slope factor linearly interpolated between each cal (e.g., if the slope correction on cal#1 is 1.1, and the slope correction on cal #2 is 1.05, then the hourly data at the midpoint would have a slope correction of 1.075, the hour closest to cal#1 would be 1.1, the hour closest to cal#2 is 1.05, etc).

Apply Forward- If selected, cal corrections are applied using the calibration results going forward in time (default). If de-selected, corrections are applied going backwards from each calibration.

If you change the mode, you will need to select the **Analyze** button again to see the new proposed changes.

Once you are satisfied, you may click the **Apply** button to make the changes to the database. Any data changed will be marked with the 'z' (Cal Adjusted) data flag, and the data is locked from second calibration adjustments. If the user wishes to return to original, the user can use the Batch Edit function in the Average Data Editor to return the data to original form.

Chapter 5

Help & Support

Agilaire's Help and Support menu offers four options:

- ◆ Agilaire Support
- ◆ AirVision Manual
- ◆ Video Tutorials
- ◆ Software Release Info

Agilaire Support

Agilaire Support is a link to the Agilaire website, www.agilaire.com. You can reach our support staff at: email: support@agilaire.com
phone: 865-927-9440, press 2

AirVision Manual

If you select AirVision Manual, you will see a pdf of the latest User's Manual. You can also download the manual from our website, www.agilaire.com.

Video Tutorials

On the web, visit: agilaire.com/training/video-training-resources

Software Release Info

This option directs you to a web site with information pertaining to new releases of Agilaire software.

Chapter 6

Utilities & List Editors

Utilities:

- ◆ Manual Poll
- ◆ Link to Logger
- ◆ Task Status Display
- ◆ Purge/Archive Utilities
- ◆ SQL Execution Tool
- ◆ Table Import/Export
- ◆ Logger Download
- ◆ Manual Instrument Poll
- ◆ AQS Text and XML Import
- ◆ AQS XML Import Tool
- ◆ AQS Text Import Tool
- ◆ Fill Data Gaps

List Editors:

- ◆ Log Book Category Editor
- ◆ Math Editors
- ◆ Central Math Processor
- ◆ Modem Types
- ◆ Parameter Tag Editor
- ◆ Unit Editor
- ◆ Journal Controller

This section documents the items in the Utilities menu not covered previously in Installation and Setup (e.g., Manual Polling, Link to Logger) or in the Optional Features (File Import Tool, Manual ADVP).

Manual Poll

The AirVision **Manual Poll** allows users to select sites, sources, average intervals, or data types (Calibration, Input Line Charge, Alarm, Central Message, Chat Memo, Power Failure). The Date Range can be selected, as well as whether to Show Log Viewer and/or Scroll with Messages. Multiple polling events can be queued. When all have been selected in the top section of the screen, click Poll to retrieve results or Cancel to abort the poll (Figure below).

The screenshot displays the 'Manual Poll' utility in the AirVision software. The interface includes a menu bar, a toolbar with various utility options, and a main configuration area. The configuration area allows users to select a site (e.g., '09 logger'), a source, a data type (e.g., 'Average'), and an average interval (e.g., '001h'). It also includes date range selection and checkboxes for 'Show Log Viewer' and 'Scroll With Messages'. Below the configuration area is a table showing the results of the poll, including the time initiated, the logger used, the type of data, and the status of the poll. The bottom section of the window is the 'Log Viewer', which provides options for refreshing and auto-refreshing logs, and displays a list of communication events with their respective times and messages.

Time Initiated	Logger	Type	Item Information	Status
03/23/2010 13:15:25	09 logger	Average	001h, 3/23/2010 12:00:00 PM	No data found
03/23/2010 13:15:29	09 logger	Average	001h, 3/23/2010 11:00:00 AM	Good
03/23/2010 13:15:30	09 logger	Average	001h, 3/23/2010 10:00:00 AM	Good
03/23/2010 13:15:30	09 logger	Average	001h, 3/23/2010 9:00:00 AM	Good
03/23/2010 13:15:31	09 logger	Average	001h, 3/23/2010 8:00:00 AM	Good
03/23/2010 13:15:31	09 logger	Average	001h, 3/23/2010 7:00:00 AM	Good

Time	Event Type	Message
03/23/2010 13:17:16.673	Communication	---> Requesting [09 direct]: @09I5600001H060050000 Y 060050000&ekfm\$
03/23/2010 13:17:16.830	Communication	<--- Response: @09aI5601001H060050000.494486510&khgn\$
03/23/2010 13:17:16.860	Communication	---> Requesting [09 direct]: @09I5600001H060040000 Y 060040000&eifm\$
03/23/2010 13:17:17.000	Communication	<--- Response: @09aI5601001H060040000.445290952&klfgh\$
03/23/2010 13:17:17.033	Communication	---> Requesting [09 direct]: @09I5600001H060030000 Y 060030000&egfm\$
03/23/2010 13:17:17.157	Communication	<--- Response: @09aI5601001H060030000.505006074&jhgy\$
03/23/2010 13:17:17.190	Communication	---> Requesting [09 direct]: @09I5600001H060020000 Y 060020000&eefm\$
03/23/2010 13:17:17.313	Communication	<--- Response: @09aI5601001H060020000.496571242&kdgb\$
03/23/2010 13:17:17.343	Communication	---> Requesting [09 direct]: @09I5600001H060010000 Y 060010000&ecfm\$
03/23/2010 13:17:17.470	Communication	<--- Response: @09aI5601001H060010000.611499369&kkgc\$
03/23/2010 13:17:17.517	Communication	---> Requesting [09 direct]: @09I5600001H060000000 Y 060000000&eafm\$

In Version 1.0.3 or higher, multiple loggers can be selected for a single manual poll request.

When the poll has started, the results will be displayed in the second section of the screen, including the Time Initiated (when the poll began), Logger ID, Data Type, Item Information (average interval, date, and time), and Status (No Data Found, Good, or Finished).

Communication commands with data loggers are listed in the bottom section of the screen, along with the Time, Event Type (Communication), and the message to the logger.

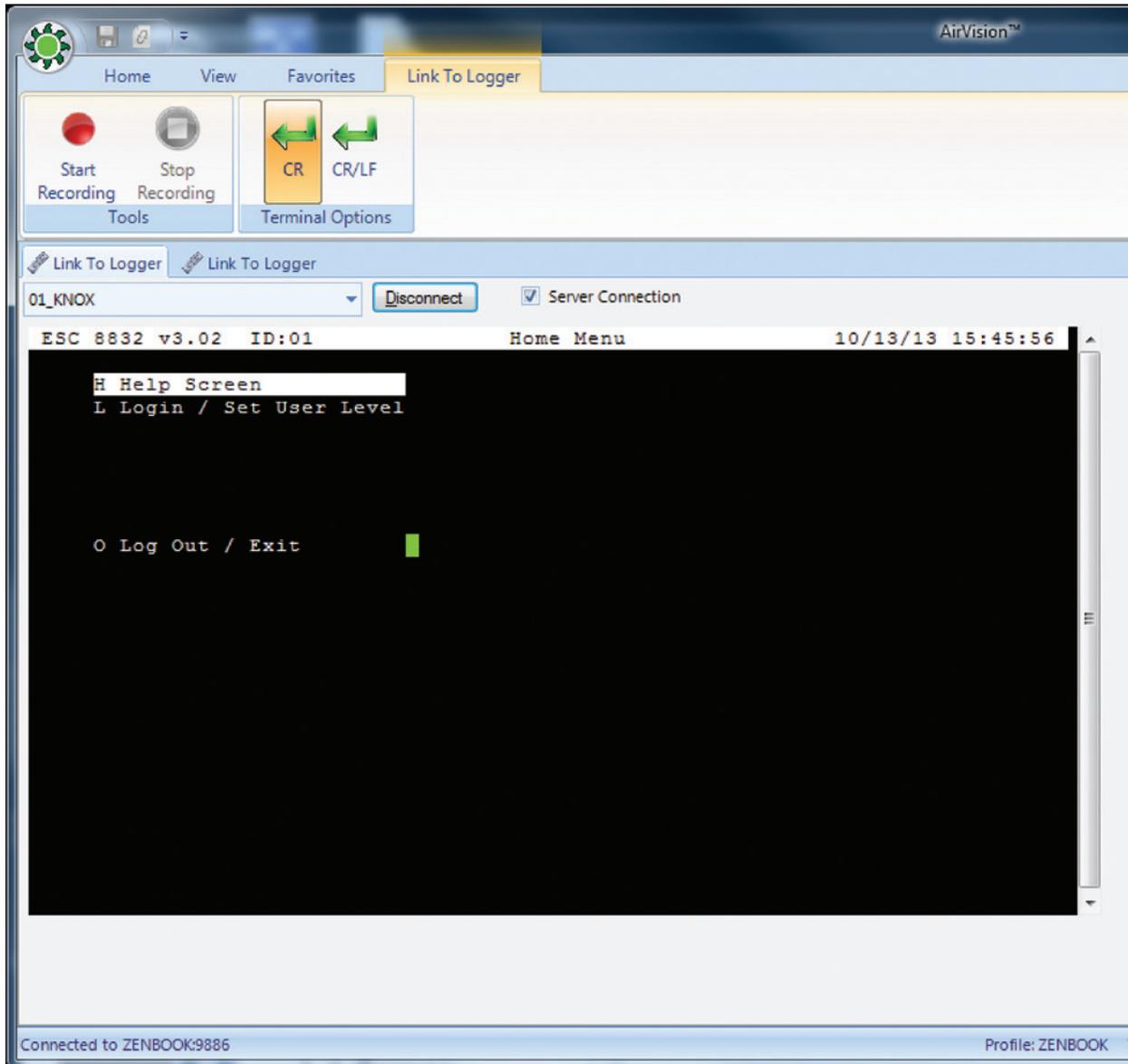
To see a detailed report of each communication, double-click a **Message** line in the lower section of the screen.

At this time a manual poll does not update the 'last successful poll time' in the automatic polling tasks. Agilaire is designing a feedback mechanism for manual polls to optionally update last poll times in Version 2.

Link To Logger (8816 / 8832)

Select a logger from the drop-down list and click **Connect**. Click **Disconnect** to exit.

Connection should be nearly instant for IP-based connections, modem connections will require additional time for dial-up, negotiation, etc.



Server Connection - if checked, connection will be made via the server PC, usually required for modem connections. If unchecked (for TCP connections), the connection will be made directly from the Client PC. (This may not be allowed by some firewalls.)

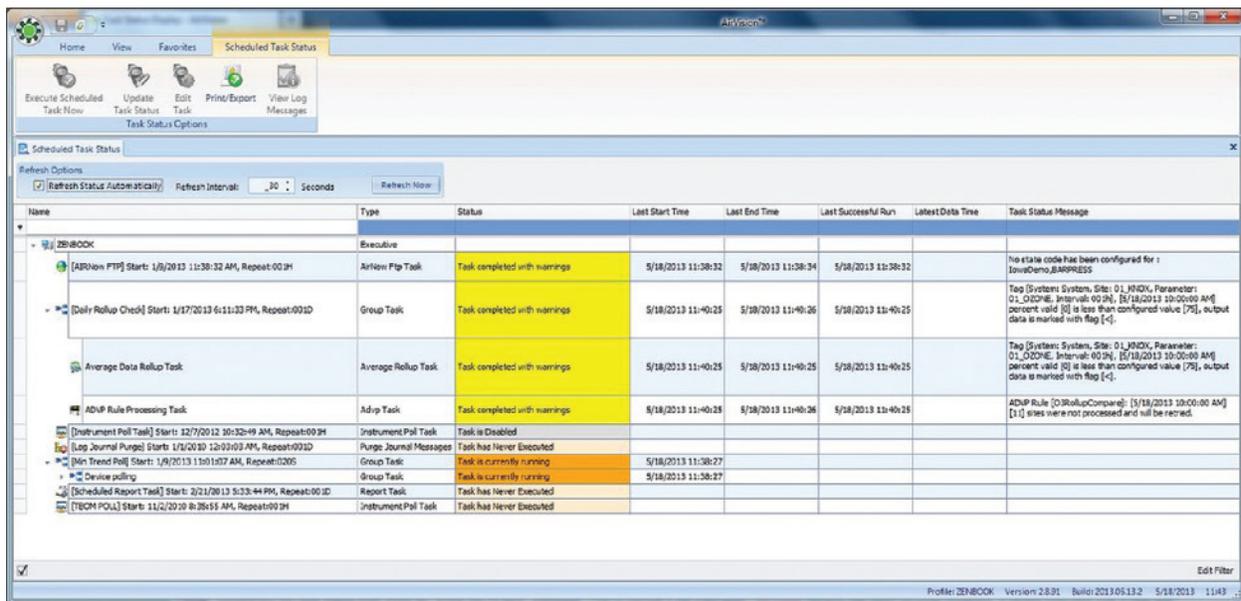
Record - allows the Link to Logger session to be recorded, ideal for recording configuration "dumps".

Task Status Display

This display provides an overview of all scheduled tasks (polling, reports, ADVP / alarms, etc), their most recent run time, and the results of the last run. By default, the display does not automatically update, but it can be configured to refresh at a user-defined interval.

Individual grouped functions can be expanded by pressing the "+" button next to any task.

You may also use the filter fields above to filter down to a particular task type or name (e.g., "Rollup" or "Poll"). The Task Status Message also has a scrollable field / scroll bar for very long status messages.



- **Note:** Sometimes the task status may show an "entity out of sync" message. This is normal if the Executive / AirVision service has been recently restarted. It simply indicates that a task was interrupted and could not log a final status, and this message will clear at the next task run time.

From the menu, several options are available.

- ◆ **Execute Scheduled Task** – initiates a selected / highlighted task from the status pane below
- ◆ **Update Task Status** – allows modification of last data time
- ◆ **Edit Task** – launches an editing window
- ◆ **Print/Export** – allows the status window to be saved or printed
- ◆ **View Log Messages** – Allows filtering and exporting of entries from the status display, showing log records only related to the selected task.



Purge/Archive Utilities

This function allows for the Purge and Archive functions to be run manually (they can also be run automatically via the Task Scheduler).

Note that selecting **Archive Data** will copy data from database to an external (XML) file that can be stored and re-imported later, while **Purge Data** will delete the data permanently. Users will typically want to use the **Archive and Purge Data** option as this will generate back up files before the deletion occurs.

It is recommended that the user purge non-essential fine resolution (e.g., 1-minute) data for best performance, typically data older than 3 to 24 months, depending on internal procedures.

Separate functions exist for purging/archiving annotations, log book entries, average data, calibration data, digital line data, journal messages (internal system log), and notifications. It is recommended that the Journal Message log be routinely purged through the task scheduler (entries older than 1 month).

To use, the user need only select the desired function (archive, purge, or both), the location for the archive files to be stored, the average interval to be purged, and (if desired) the specific sites/parameters to be archived/purged.

Note that other data (calibration, power failures) are not purged, as they take up very little space.

Purge / Archive Date Criteria

Data Older Than 3 Year(s)

Specific Date Range
 Start Date: 01/01/2009 00:00
 End Date: 04/30/2009 23:59

Action to Take

Archive Data Archive and Purge Data Purge Data

Archive File Location

Server Local
 c:\quarterlypurge.dat Browse

Average Data Selection

Average Interval: 001m - Minute average from instantaneous

Parameter Selection

All Parameters Selected Parameters

Drag a column header here to group by that column.		
Site Name	Parameter Name	Parameter Template
<input checked="" type="checkbox"/>	Blount_S	01_OZONE
	Blount_S	02_PM25_MC
	Blount_S	03_PM25BRAW
	Blount_S	04_PM25RRAW
	Blount_S	08_TEMP
	Blount_S	09_WS
	Blount_S	10_WD

SQL Execution Tool

This tool allows for the user to execute SQL statements against the database. Because this is a high-level function, it is recommended that this menu item be set using the Security Tools to only be accessible by the system administrator.

This tool provides several advantages over the administrative tools provided by Microsoft:

- Access is limited to the AirVision database only (makes IT administrators happy)
- Query results can be exported to Excel or XML

The most common use would be execution of update scripts or "canned" scripts provided by Agilaire's support staff.

Via the ribbon, the user can load a file of SQL statements, execute the statement, and save the results to a file.

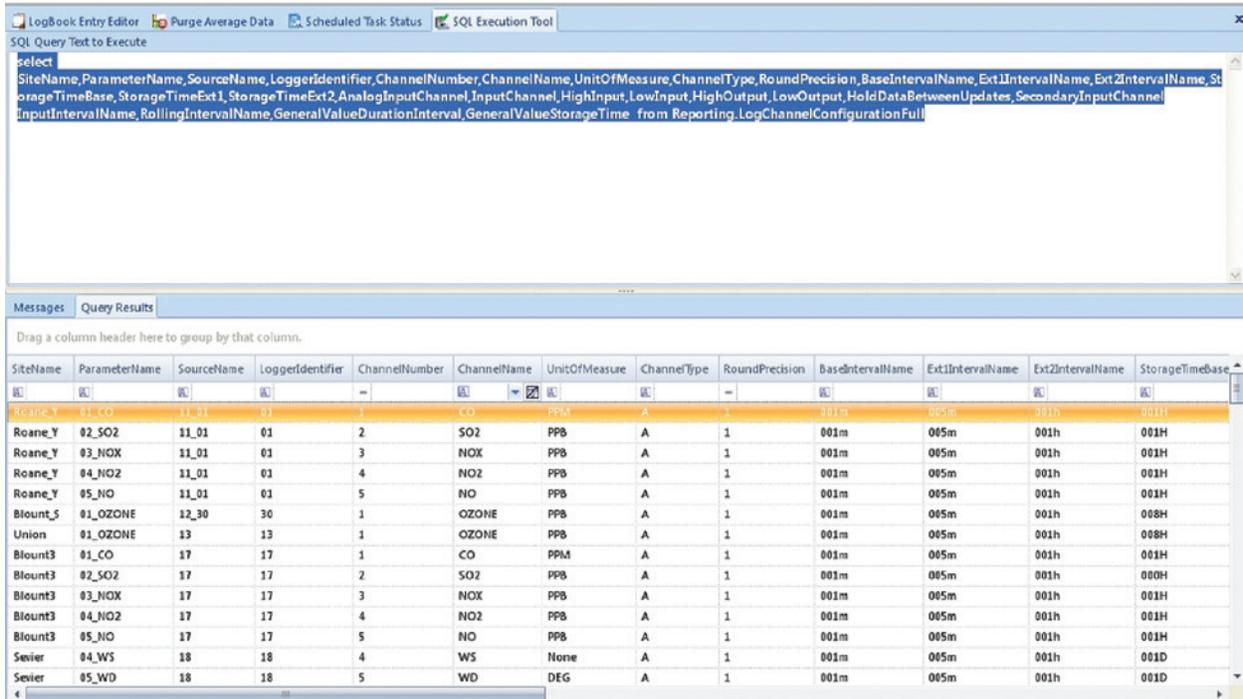
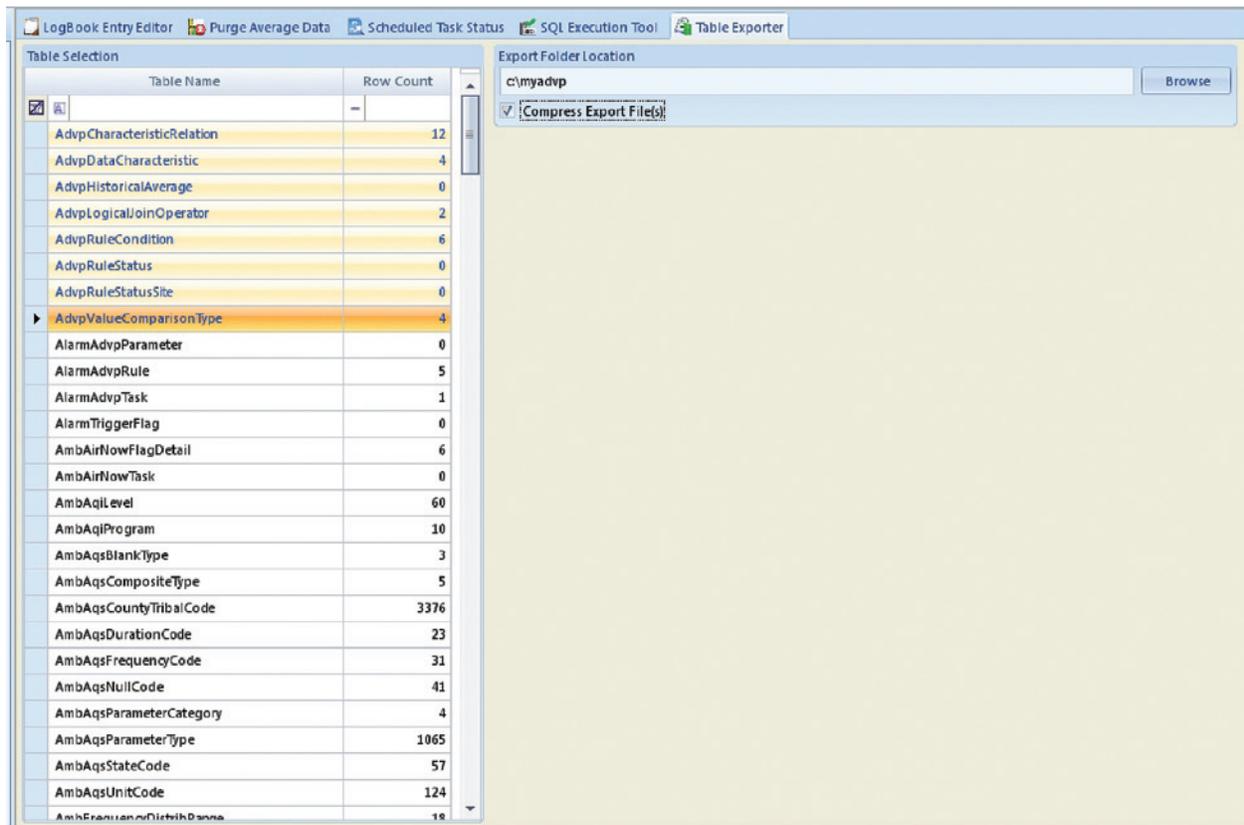


Table Import/Export

This tool allows any table in the AirVision database to be exported in XML format and re-imported. It is most useful for copying out the system configuration settings for archive purposes or for transmission to Agilaire support staff for troubleshooting.

Version 1.0.1 provides for a one-button export of the Configuration settings.

To use, select the table(s) desired, designate the desired destination folder, and use the **Process Export** function. Note that one file is created for each table, so an export of multiple tables is best contained in a designated folder.

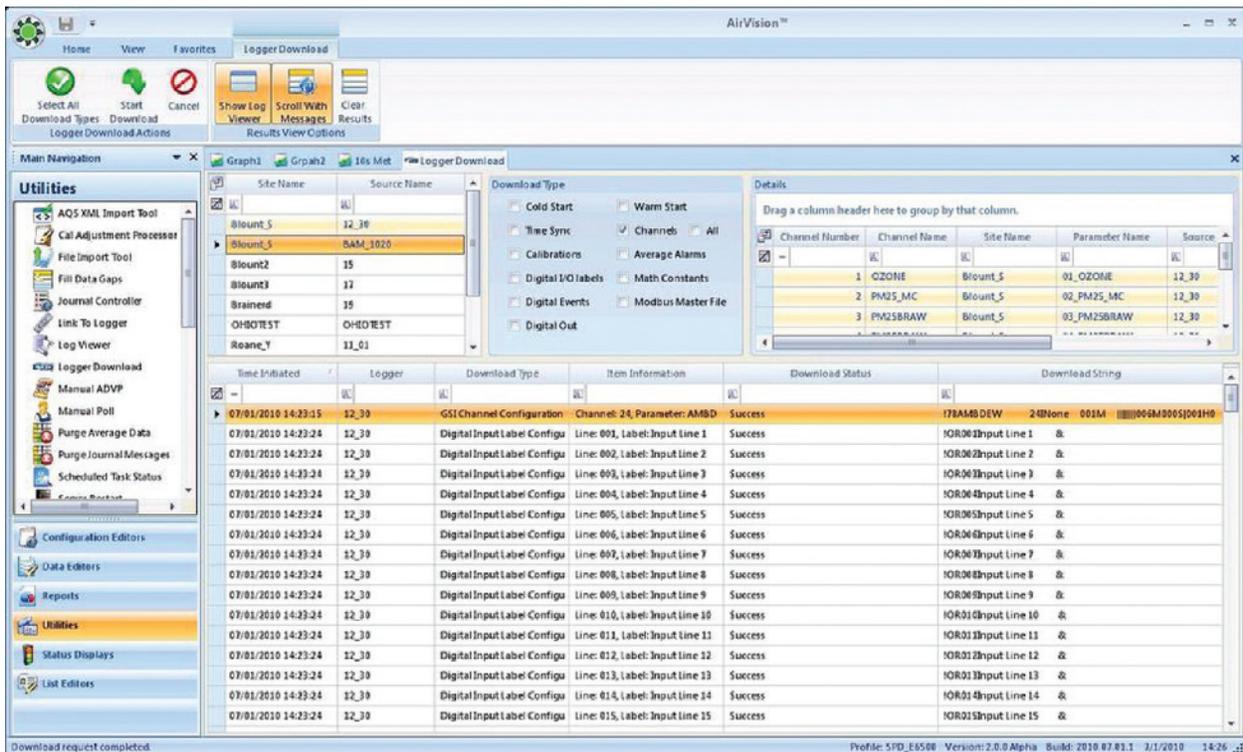


Logger Download

The **Logger Download** utility allows AirVision to remotely configure a Model 8816 or Model 8832 data logger by sending down information regarding channels, calibrations, alarm limits, etc.

The user need only select what items are to be downloaded, and which site(s) are to be downloaded to. The utility will open the communications, send the information, and report the status ('Success' or an error code with description).

For the Model 8872, a bidirectional synchronization process replaces the one-way download. Consult the Model 8872 manual for more details.



Manual Instrument Poll

Directly polled instruments can be manually polled as well. Using the **Utilities->Manual Instrument Poll** to select the instrument and time range to be polled:

Time Initiated	Device	Type	Item Information	Status
11/19/2010 12:07:14	BAM1020	Poll Averages (1h)	11/19/2010 12:00:00 AM to 11/19/2010 12:06:48 PM	Good
11/19/2010 12:07:26	TEOM	Poll 1400a Hourly Average	11/19/2010 12:00:00 AM to 11/19/2010 12:06:48 PM	Good

A summary of the results is given as the instrument is polled.

AQS Text and XML Import

AirVision supports the import of AQS files (RD and RB transactions) in both text and XML format. The utility needs only be pointed to the file on disk and executed.

The import tool compares Site Codes, Parameter Codes, and POCs with the Parameter Configuration to find the correct site and parameter to associate with the imported data records.

Note that the XML tool only runs currently on average data records, while the text tool can also support sample data records.

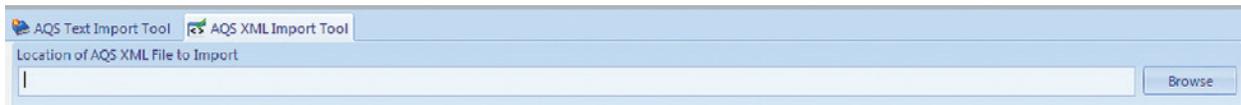
AQS XML Import Tool

AQS XML Data is imported by matching the codes in the file with the codes set in the sites and parameters so data is imported to the correct location in the database.

To run the **AQS XML Import Tool** from the Utilities menu.

Click the **Browse** button to bring up a Select Import File box to locate the AQS XML file that you want to import. Once the file has been selected, the file name and path will be displayed.

Select the Process Import button on the left side on the Ribbon above the Main Navigation menu.



AQS XML Import Tool from Utilities menu

AQS Text Import Tool

The AQS Text Import Tool works much like the AQS XML import tool, but can also import sample data records (the XML Import tool is currently limited to just averaged data). The import tool compares Site Codes, Parameter Codes, and POCs with the Parameter Configuration to find the correct site and parameter to associate with the imported data records



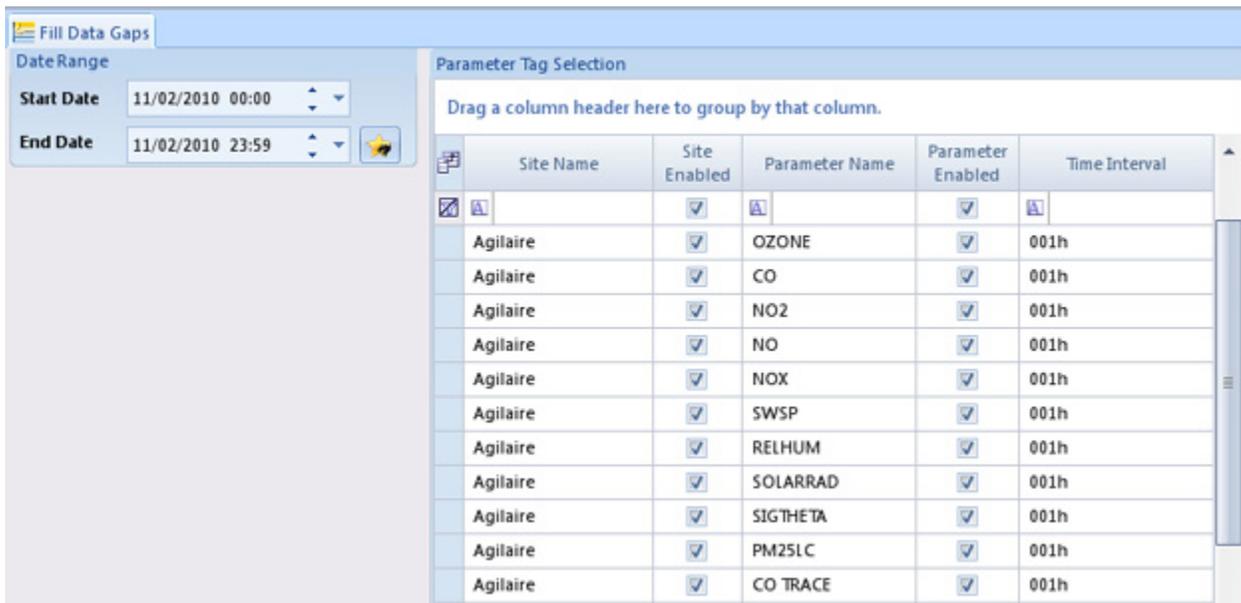
AQS Text Import Tool from Utilities menu

- **Note:** Only RD transactions are imported. Site details, RP/RA/QC records may not be imported with the AQS Import tools.

Fill Data Gaps

The **Fill Data Gaps** utility from the **Utilities** menu generates empty data records that are placeholders to ensure data is continuous in reports even where data is missing. Logic within the Air-Vision application has been revised and improved, resulting in no need for the Fill Data Gaps to be set up as a scheduled task.

In the Fill Data Gaps screen, select the **Start** and **End** Dates, select the sites and parameters to be enabled, and click the **Create Data** button on the Ribbon above the Main Navigation menu. The range of the query will determine how long the process requires. When it is finished the progress bar will disappear.



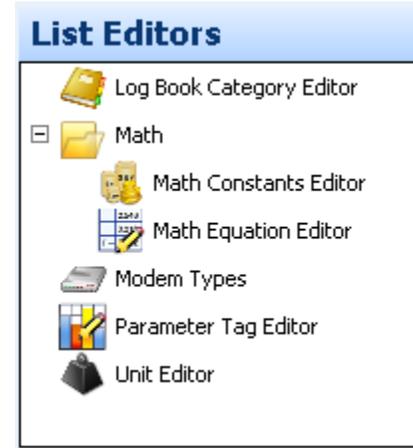
Fill Data Gaps from the Utilities menu

List Editors

The AirVision List Editors Menu consists of four items:

- ◆ Log Book Category Editor
- ◆ Math
 - Math Constants Editor
 - Math Equation Editor
- ◆ Modem Types
- ◆ Parameter Tag Editor
- ◆ Unit Editor

List Editors display items in these categories. Access to the List Editors is controlled by Administrative personnel in the Securities Menu



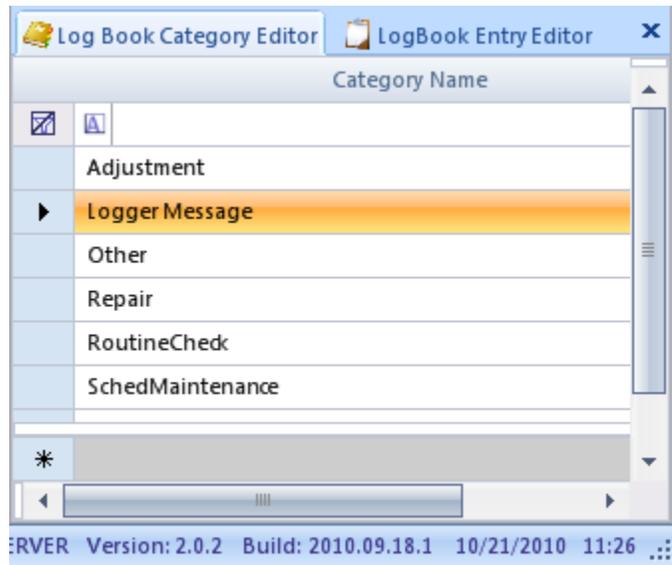
List Editors Menu

Log Book Category Editor

Selection of a Log Book Category is required when you make an entry in the **LogBook Entry Editor (Data Editors>LogBook Entry Editor)**.

When you make an entry in the LogBook Entry Editor, you can either click in the category line and select from the drop-down list, or you can select New Category and write your own category. New categories will be saved in the list when you click the **Save** button. The default Log Book Categories are: Adjustment, Logger Message, Other, Repair, Routine Check, and Scheduled Maintenance.

New Categories can also be added in the **LogBook Category Editor** from the **List Menu**, which displays all **Category Names**. To add a **Log Book Category**, click on the **asterisk** on the bottom line and enter the category, then click the **Save** icon.



Logbook Category Editor

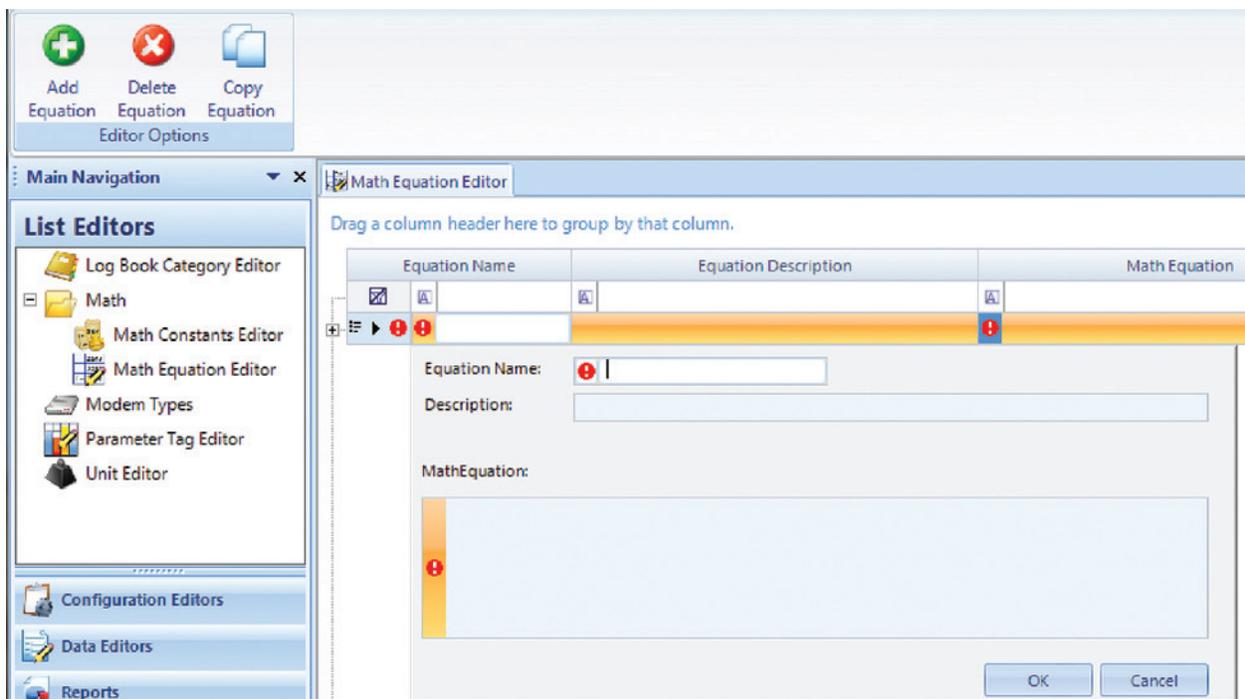
Math Editors

Central Math Processor

AirVision includes the capability to perform mathematical calculations at the server, either on a manual basis, or as a scheduled task. To perform these calculations, you will need to define the mathematical calculation to be made in the Math Equation Editor (**List Editors > Math > Math Equation Editor**). Each equation is given a name to reference (e.g., “SO2_Adjustment”) which is then referenced in the math utility or the Task Scheduler.

Equations may act on any defined average interval, and must reference Parameter Templates, rather than specific site/parameter combinations. This allows a general equation to be configured once, and used for multiple sites without having to repeat the same equation.

To create a new equation, open **List Editors > Math > Math Equation Editor** and click the **Add Equation button**. Enter the **Equation Name** (required), and optional **Description**, and then the **equation**. The equation takes the form of parameter template names, operators, and functions. Parenthesis are supported.



Math Equation Editor from List Editors

Binary operators (operators on two variables) include:

- * Multiply
- / Divide
- + Add
- Subtract
- % Modulo (remainder)

Other binary and Uniary functions (functions that operate on one variable or one result of another embedded equation) include:

Name	Description	Usage
Abs	Returns the absolute value of a specified number.	Abs(-1)
Acos	Returns the angle whose cosine is the specified number.	Acos(1)
Asin	Returns the angle whose sine is the specified number.	Asin(0)
Atan	Returns the angle whose tangent is the specified number.	Atan(0)
Cos	Returns the cosine of the specified angle.	Cos(0)
Exp	Returns e raised to the specified power.	Exp(0)
Log	Returns the logarithm of a specified number.	Log(1, 10)
Log10	Returns the base 10 logarithm of a specified number.	Log10(1)
Max	Returns the larger of two specified numbers.	Max(1, 2)
Min	Returns the smaller of two numbers.	Min(1, 2)
Pow	Returns a specified number raised to the specified power.	Pow(3, 2)
Round	Rounds a value to the nearest integer or specified number of decimal places. The mid number behaviour can be changed by using EvaluateOption.RoundAwayFromZero during construction of the Expression object.	Round(3.222, 2)
Sign	Returns a value indicating the sign of a number.	Sign(-10)
Sin	Returns the sine of the specified angle.	Sin(0)
Sqrt	Returns the square root of a specified number.	Sqrt(4)
Tan	Returns the tangent of the specified angle.	Tan(0)
Truncate	Calculates the integral part of a number.	Truncate(1.7)

⇒ **Important!** These equations MUST be referred to by the case-specific version of the equation. You must use “Max(x,y)”, not “MAX(x,y).”

For equations, Information flags are not propagated, while Validity flags are propagated from constituent channels. Consult the Flags Editor for details on which flags are considered Informational and Validation flags.

Modem Types

Modem Types in the **List Editors Menu** lists all the modem types that are available in the drop-down list when you add a **Modem** and select a **Modem Type** in **Configuration Menu>Server Configuration**. New **Modem Types** can be added in the **List Editors Menu** by clicking on the **asterisk** on the bottom line of the list.

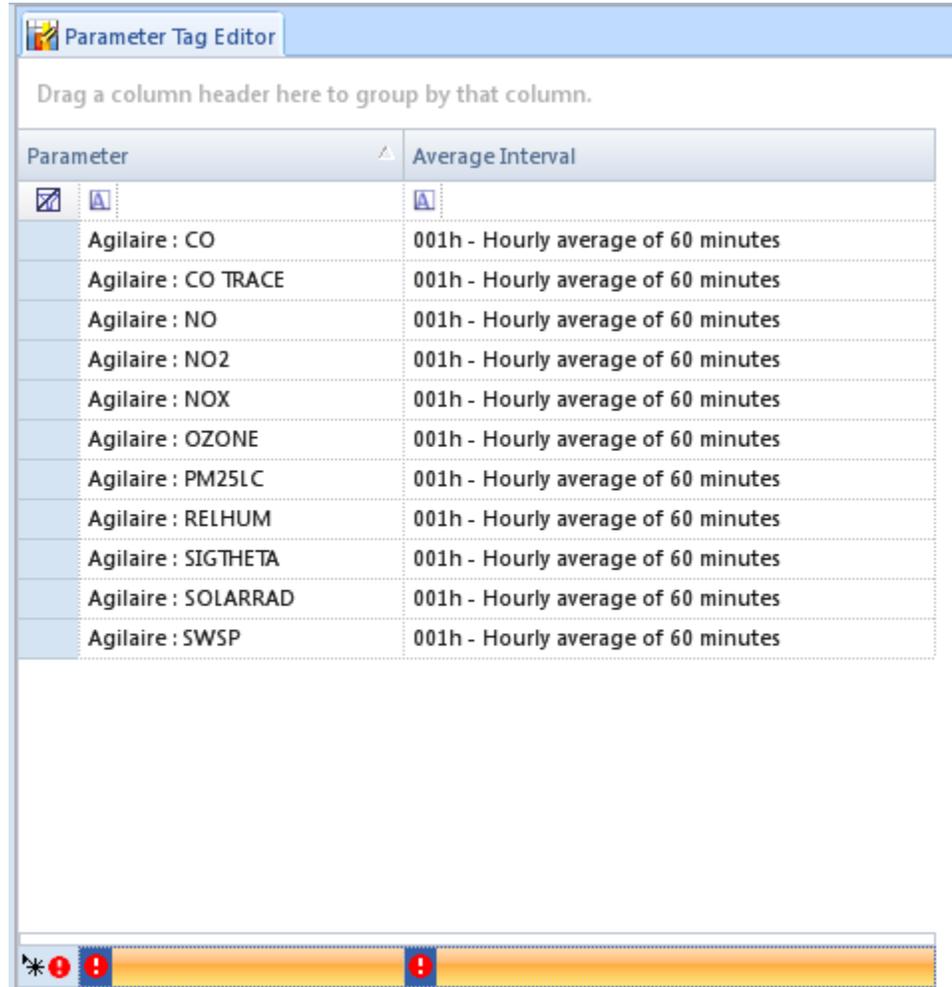
Modem Description	BPS	Command Mode String	Guard Time (ms)	Dial Command String	Hangup Command String	Online Mode String	Initialization String
Hayes Std 9600	9600				ATH0		ATV1Q0E0M1S2=4357=8050=1
Multitech MT2834	33600				ATH0		ATB&C1&D0&E0&F4&H11&I14&J1E0Q0V1X4%N5\$BA1
Practical Periph 14.4	14400				ATH0		ATB&F&WV1Q0E0M1S2=4357=8050=1
US Robotics 1200 baud only	1200				ATH0		ATB:C1&D0&H1&J0&K0M1Q0E0V1S0=0&N2
US Robotics 14.4	14400				ATH0		ATB:F0&W0V1Q0E0M1S2=4357=8050=1
US Robotics 2400 baud only	2400				ATH0		ATB:C1&D0&H1&J0&K0M1Q0E0V1S0=0&N2
US Robotics 28.8/33.6	33600				ATH0		ATB:C1&D0&H1&J0&K0M1Q0E0V1S0=0
US Robotics 4800 baud only	4800				ATH0		ATB:C1&D0&H1&J0&K0M1Q0E0V1S0=0&N4
US Robotics 9600 baud only	9600				ATH0		ATB:C1&D0&H1&J0&K0M1Q0E0V1S0=0&N6
US Robotics V.92	57600				ATH0		ATB:C1&D0&H1&J0&K0M1Q0E0V1S0=0
Zoom 14.4	14400				ATH0		ATV1Q0E0M1S2=4357=8050=1
ZoomFax V.34 Plus	33600				ATH0		ATB:C1&D0&K0Q0E0V1S0=0
*							

Profile: HP_SERVER Version: 2.0.2 Build: 2010.09.18.1 10/21/2010 11:55

Modem Types in the List Editors Menu

Parameter Tag Editor

The **Parameter Tag Editor** in the List Editors Menu lists all the parameter tags in AirVision. To add another Parameter Tag, click on the asterisk in the bottom line of the menu and add a tag.



Parameter Tag Editor in the List Editors Menu

Unit Editor

The **Unit Editor** in the **List Editors Menu** lists **Units** used in AirVision, the **Unit Type**, **Slope**, **Intercept**, and **Description**. To add a Unit, click on the asterisk on the bottom line.

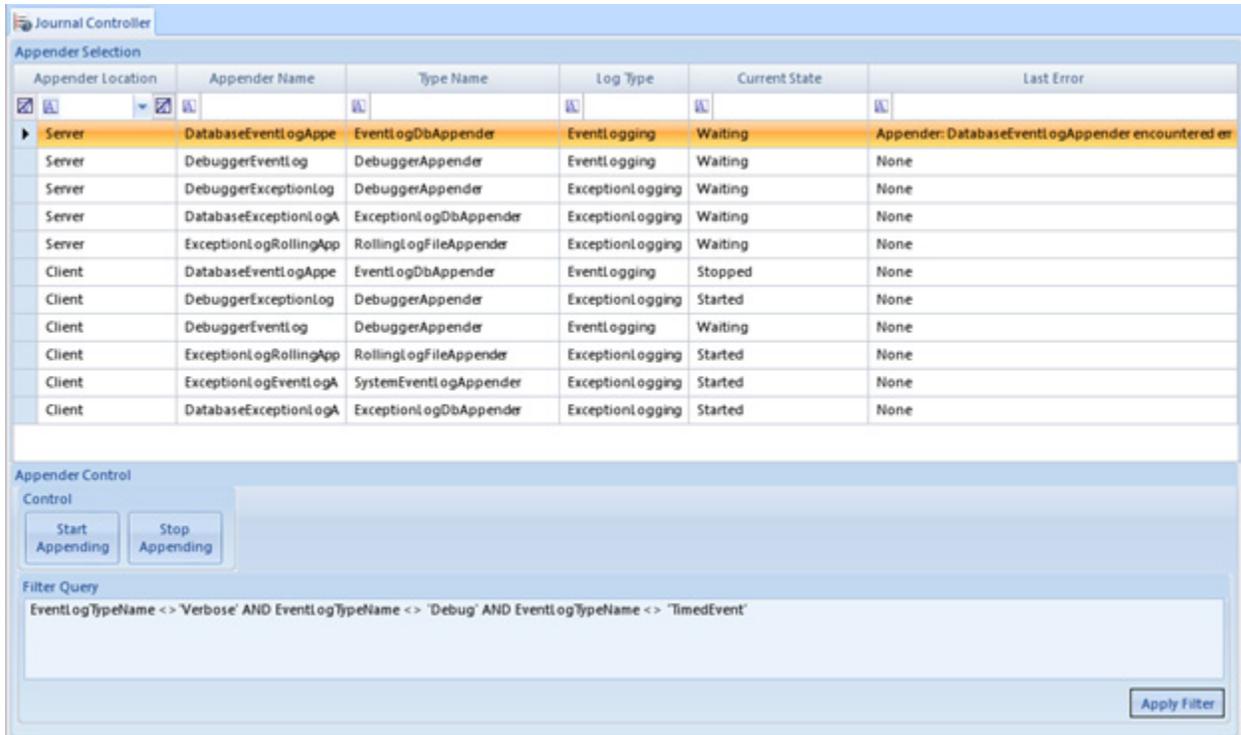
Unit Name	Unit Type	Slope	Intercept	Description
LPM	Unknown	1	0	Liters per minute
L/M	Unknown	1	0	Liters per minute
MVOLTS	Unknown	1	0	Millivolts
Langleys	Solar Radiation	0.001434	0	Langleys per hour
M/SEC	Speed	3.6	0	meters per second
MG/M3	Mass Concentration	1000	0	milligrams per cubic meter
INHG	Pressure	25.4	0	inches mercury
%FS	Unknown	1	0	Percent Full Scale
None	Unknown	1	0	Alternate One Description
COUNT	Unknown	1	0	Count
DEG	Temperature	1	0	Degrees
DEGC	Temperature	1.8	0	Degrees Celsius
DEGF	Temperature	1	32	Degrees Farenheit
Hz	Unknown	1	0	Hertz
INCHES	Distance	1	0	Inches
INH2O	Pressure	1.868	0	Inches Water
KPH	Speed	1	0	Kilometers per hour
KW/M2	Solar Radiation	1	0	1000 watts per square meter
M3	Unknown	1	0	Cubic Meters
* !	!	!	0 !	0

Profile: HP_SERVER Version: 2.0.2 Build: 2010.09.18.1 10/21/2010 15:12 ..

Unit Editor in List Editors Menu

Journal Controller

The **Journal Controller** is generally for use by Agilaire support only. It is used to control the detail of the System Log.



Journal Controller in Utilities menu

A ribbon selection is available to **Enable/Disable Debug Messages**. When enabled, the System Log will show more detail about polling, calculations, tasks and other server activity.

Chapter 7

Optional Features

AirVision can provide additional features according to the terms of your contract with Agilaire. For more information, contact Agilaire at 927-9440 or info@agilaire.com.

This chapter describes the following features:

- ◆ AirVision's optional patented **Automatic Data Validation Processor (ADVP)**
- ◆ **File Import Configuration Editor**, which enables you to develop a File Import Template for the File Import Tool
- ◆ **Configuring File Import Templates**
- ◆ **Enhanced File Import Tool** in AirVision 2.3 handles new data types better, especially for PM lab samples and Air Toxics.
- ◆ **P & A (PARS) Editor**, which allows administrative personnel to create data records that are used later to submit RA (accuracy) and RP (precision) records to the Air Quality System (AQS).
- ◆ **Monitor Assessment Editors and Reports**
- ◆ **Data Rollup Processor**, which allows shorter term averages to be rolled up into larger block or rolling averages.
- ◆ **Asset Tracking Tool**, provides an easy way to create history records for analyzers, samplers, and data loggers.
- ◆ **Browser Reporting Portal**, allows web browsers to be used as an interface into AirVision to generate, view, and download reports without requiring the installation of the AirVision Client.

Automatic Data Validation Processor (ADVP)

AirVision's optional patented Automatic Data Validation Processor (ADVP) allows an unlimited number of logical rules to be applied to data, resulting in data that is flagged, graded, annotated, coded, and/or emailed to designated users.

Each ADVP rule consists of two main components: a **trigger** and a resultant **action**. If the conditions of the trigger are met for a given data point, the action is taken; if not, nothing happens, and the next rule is evaluated. A trigger consists of a number of conditions linked by logical combination (e.g., AND/OR).

The following is an example of a data rule:

If Ozone is greater than 50 ppb and the ambient temperature is less than 72 degrees F, then mark the data suspect.

The **trigger** is composed of the following two conditions:

If Ozone is greater than 50 ppb (Condition #1)
AND
the ambient temperature is less than 72 degrees F (Condition #2)

The **action** is:

mark the data suspect data

► **Note:** multiple AND/OR links are evaluated in sequential order. For example, a four-condition trigger such as:

Condition 1: 1 > 2 link AND
Condition 2: 2 > 3 link: OR
Condition 3: 3 > 4 link: AND
Condition 4:

Is evaluated as follows:

(((Condition1 AND Condition 2) OR Condition 3) AND Condition 4)

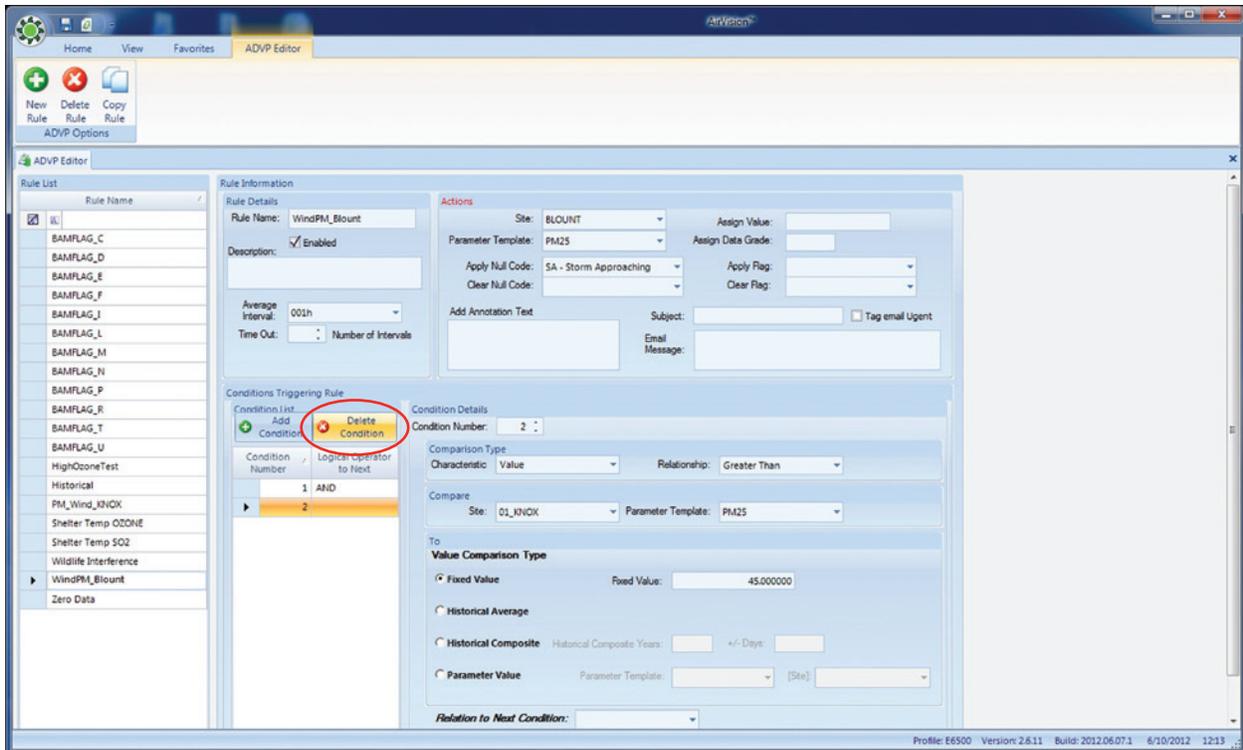
in other words, having Condition 3 and 4 as true would cause the action to be taken.

Each trigger condition uses a Parameter Template, and optionally can be associated with a particular site. If the site field is left blank, the rule is applied to all sites with parameters that match the templates.

Example: To do a simple wind vane stuck rule, you could point at the parameter template for WDR and set the trigger condition to be Variance, Less Than, 5%.

To create the rule, click the **New Rule** button on the ribbon, and we give the rule a name and enable it. Designate the average interval, and hit the **Save** button to add the first condition by clicking the **Add Condition** button at the bottom.

Fill in the first condition and select **Variance** for the **Characteristic**, set the **Relationship** to **Less Than**, and designate the **Parameter Template** to apply. Finally, set the limit for the comparison to 5%.



► **Note: Delete Condition** button can be used to remove a condition that is no longer desired.

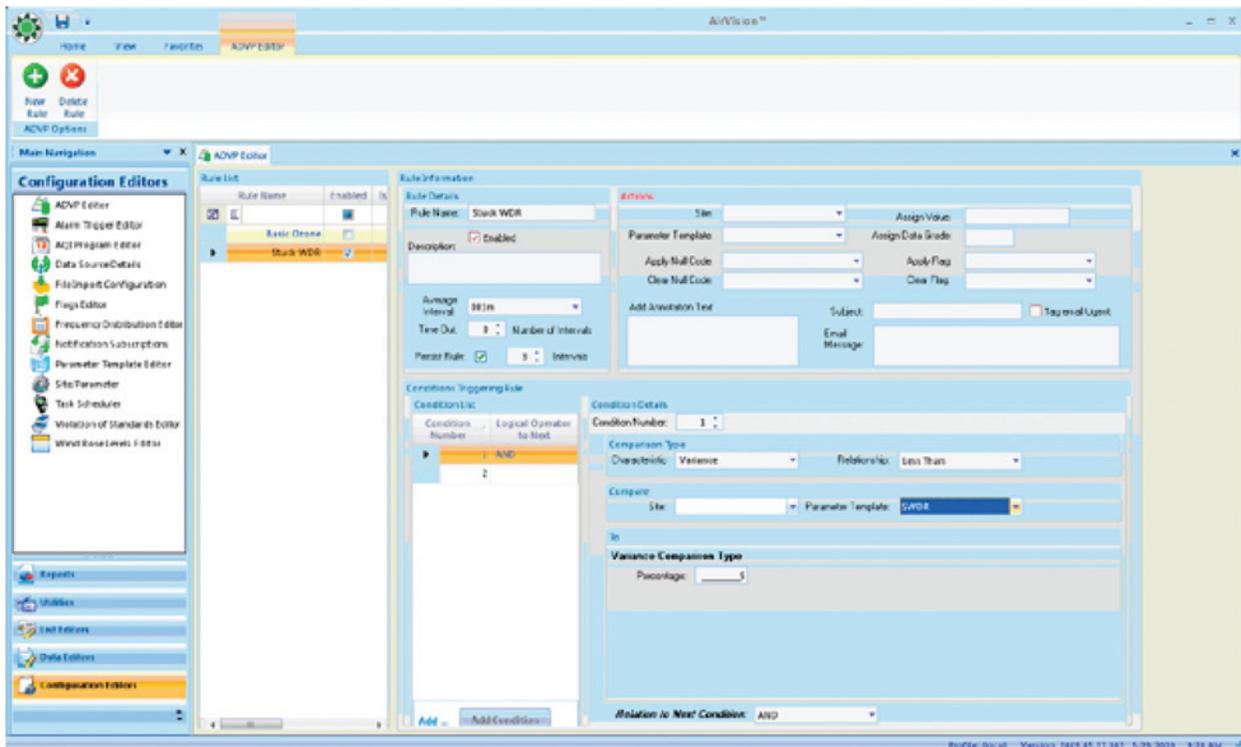
The trigger condition can use certain characteristics and make certain comparisons:

Characteristic	Comparisons Allowed	Compared To
Average Value	Greater Than Less Than Equals Differs Greater Than Differs Less Than	Another Parameter (Template), same site or specified site. Historical Average (fixed historical averages- see end of chapter) Historical Composite (a dynamic average of previous years of the same date/hour, similar to the Historical Composite used in the Average Data Editor).
Flag	Contains Doesn't Contain	List of logger/system flags
Annotation	Contains Doesn't Contain	User-defined text
Variance (change from a previous average value)	Greater Than Less Than Equal To	User-defined percentage

Example: To do a simple wind vane stuck rule, you could point at the parameter template for WDR and set the trigger condition to be Variance, Less Than, 5%.

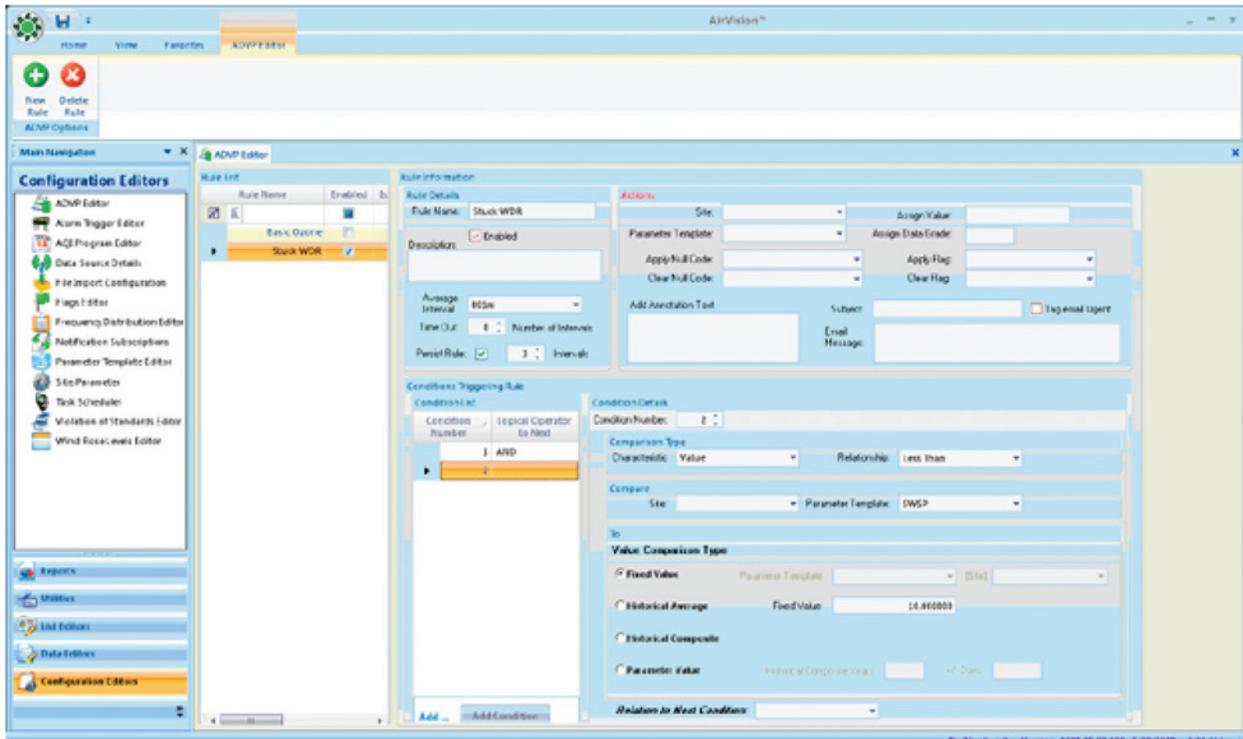
To create the rule, click the **New Rule** button on the ribbon, and we give the rule a name and enable it. Designate the average interval, and hit the **Save** button to add the first condition by clicking the **Add Condition** button at the bottom.

Fill in the first condition and select **Variance** for the **Characteristic**, set the **Relationship** to **Less Than**, and designate the **Parameter Template** to apply. Finally, set the limit for the comparison to 5%.



Stuck Wind Direction Program in ADVP Editor

The rule can be further improved by adding another condition that the wind direction be below a value, for example, 10 mph, to avoid cases of steady winds accidentally triggering the rule. Set the **Relation to Next Condition** at the bottom to **AND**, and use **Add Condition** to create, filling in the values and designated WSP for the comparison parameter template. Since you are using parameter templates, this one rule can be applied to all sites where WSP and WDR labeled parameter exist.



Further improving the ADVP setup

Actions can consist of any or all of the previous steps, and they can be applied to any parameter (template), not necessarily the one that triggered the rule:

- ◆ Assign a Fixed Value
- ◆ Apply a Flag
- ◆ Clear a Flag
- ◆ Apply a Null Code
- ◆ Clear a Null Code
- ◆ Add Qualifier Code
- ◆ Add Annotation Text
- ◆ Assign a data Grade (1 .. 10)
- ◆ Send an Email via Subscriptions Notifications

The action can be applied to any parameter at the same site, or a specific site can be designated (most likely approach). In the previous example, you could mark data invalid and set the null code AW for Wildlife Damage. You could optionally email QA, in case the sensor failed.

Actions

Site:

Parameter Template: VWDR

Apply Null Code: AW - Wildlife Damage

Clear Null Code:

Apply Qualifier Code:

Clear Qualifier Code:

Add Annotation Text

Category:

Assign Value:

Assign Data Grade:

Apply Flag: I - Invalidated By Edit

Clear Flag:

Subject: Stuck WDR Sensor Tag Email Urgent

Email Message: Review WDR sensor for temporary (wildlife) or permanent damage. If permanent, clear AW code and re-code.

Setting Null Code and emailing QA as a result of ADVP rule

Time-specific rules (day/night, rush hour)

Agilaire is planning to expand the ADVP to include time-specific rules. For the current version of AirVision, Agilaire recommends using the Math Pack function in the data logger to use HRDAY() to determine the hour of the day, daytime, nighttime, etc. It is also possible to use the JULDAY() function in an equation to add a seasonal adjustment factor to HRDAY(), or to directly calculate sunrise/sunset.

For example, you could go to <http://www.arachnoid.com/lutusp/sunrise/>, put in your location, and get a table of sunrise and sunset times. (You will need to know your latitude and longitude before you can generate the table). In Excel, you can use a graph trendline to develop a Math Pack equation to calculate sunrise and sunset times for any given day. For Knoxville, TN, the equation might look like:

$$\text{SUNSET} = 5\text{E-}09 * \text{JDAY}()^3 - 6\text{E-}06 * \text{JDAY}^2 + 0.0015 * \text{JDAY}() + 0.7102$$

$$\text{SUNRISE} = 3\text{E-}06 * \text{JDAY}^2 - 0.0012 * \text{JDAY} + 0.3466$$

$$\text{TIME} = \text{HRDAY}() + \text{MINHR}() / 60$$

You can then add conditions to determine day/night conditions, such as illustrated below:

The screenshot shows the 'Condition Details' window. At the top, 'Condition Number' is set to 3. The 'Comparison Type' section has 'Characteristic' set to 'Value' and 'Relationship' set to 'Greater Than'. The 'Compare' section has 'Site' as an empty dropdown and 'Parameter Template' set to 'TIME'. The 'To' section has 'Value Comparison Type' with four options: 'Fixed Value', 'Historical Average', 'Historical Composite', and 'Parameter Value' (which is selected). For 'Parameter Value', 'Parameter Template' is 'SUNRISE' and '[Site]' is an empty dropdown. 'Historical Composite Years' and '+/- Days' are empty text boxes. At the bottom, 'Relation to Next Condition' is set to 'AND'.

Adding conditions to determine day/night

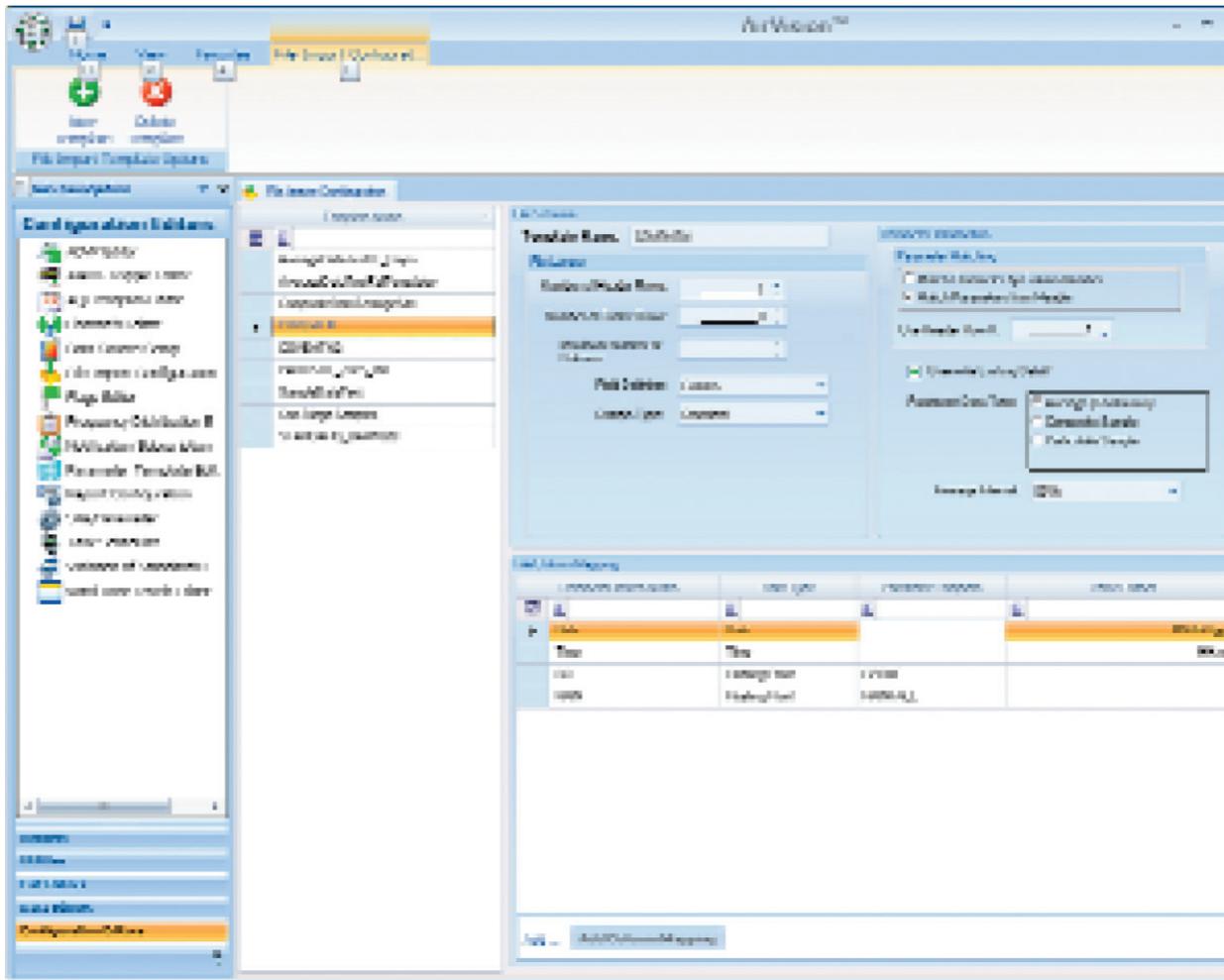
Another condition for TIME < SUNSET can be added as well.

Suggestions for Initial ADVP Rules

- ◆ Flagging high pollutant values when environmental conditions would not allow those values, e.g., high ozone during low temperature.
- ◆ Flagging abnormal solar radiation during nighttime or rainfall
- ◆ Detecting stuck met sensors (frozen sensor, birds perching)
- ◆ Cross-flagging instrument diagnostic values to invalidate/mark suspect primary analyzer readings.
- ◆ Comparing nearby sites for similar parameters (ambient temperature, pollutant readings) and marking large differences as suspect.
- ◆ Checking sigma theta conditions against average wind speed, solar radiation, vertical wind speed, etc.
- ◆ Noting high PM concentrations during firework events, such as Fourth of July (Julian day = 185 in non-leap years)

File Import Configuration

AirVision allows you to create an import template for each site. Each template contains the actual hard links to the parameter/average interval combination (e.g, dbs ID). To configure an import template:



File Import Configuration

- ◆ From the **Configuration Editors** select **File Import Configuration** and either select a previously configured template from the sidebar or click the **New Template** button from the upper section of the screen.
- ◆ In the **File Schema** section:
 - ◆ Enter a **Template Name** and select the **Number of Header Rows** to skip before parsing data and the **Number of Footer Rows** to ignore at the end of file.
 - ◆ Select a **Maximum Number of Columns** to allow
 - ◆ Select a **Field Delimiter** to determine how imported data is delimited (comma or pipe)
 - ◆ Select a **Sample Type** (**Standard** or a particular custom type)

- ◆ Select whether parameters will be matched by **Column Number** or **Header Name** or **Row**.
- ◆ Click the check box if you want to **Overwrite Existing Data** during the file import. This selection only applies when using the manual **File Import** function in the **Utilities** menu; it does not apply to File Imports performed by the Instrument Polling system.
- ◆ Select a **Parameter Data Type--Average (Continuous)** with an **Average Interval**, **Composite Sample** with a **Composite Type**, or **Particulate Sample** with the **Duration and Frequency Codes**. An appropriate drop-down list will be displayed according to the data type selected.
- ◆ In the **File Column Mapping** section, column headings include **Data Type**, **Parameter Template**, and **Parse Format**. **Parameter Match Name** and **Column** vary according to which type of Parameter Matching was selected in the Parameter Information section.
- ◆ To add a column mapping row, click the **Add Column Mapping** button at the bottom of the screen. A blank row will be added to the table.

Click the **Save** icon in the upper left corner of AirVision to save changes to the database.

Configuring File Import Templates

AirVision's File Import Tool (**Configuration Editors > File Import Tool**) automates data import from a variety of data sources. AirVision allows you to define a template describing the layout of particular files so files can be automatically imported into the database. With this system, particulate and laboratory data can be copied into a folder to be imported into AirVision.

The standard File Import Tool assumes that data is arranged using different parameters as columns and different points in time as rows. This arrangement matches most instrument outputs, filter data sets, and other commonly accessed data. The Advanced File Import Tool (Version 2 of AirVision) is used where each data point exists as an independent row, with columns representing different aspects of that data point (value, null code, sample time), as with air toxics data.

To eliminate the need to create individual templates for each site (to define site/parameter associations), the File Import tool maps columns to Parameter Templates, not any individual site/parameter combination. Thus a single template can be applied to any site in the system. However, you must have a parameter template defined for each column that you want to import, either one of the AirVision defaults or one you add through the Template Editor.

Creating a Template

AirVision is pre-loaded with some common instrument templates (BAM-1020, Thermo TEOM and Partisol 2025 FRM interval data). To create a new template, open **Configuration Editors > File Import Configuration**.

Click the **New Template** button on the ribbon to create a new template. Red exclamation point icons (!) indicate the following required fields in the **File Schema** section of the screen:

- ◆ **Template Name**
- ◆ **Number of Header Rows** (rows to skip before importing data). Even if the value is zero, this value has to be edited to be saved.
- ◆ **Number of Footer Rows** (rows at the end of the file to skip). Even if the value is zero, this value has to be edited to be saved.
- ◆ **Field Delimiter** (comma or pipe)
- ◆ **Sample Type** (select "Standard" unless you have a customized driver)
- ◆ **Parameter Data Type** Average (Continuous), Composite Sample, or Particulate Sample

Optional fields are:

- ◆ **Maximum Number of Columns**
- ◆ **Parameter Matching** (match parameters by column number or header)
- ◆ **Overwrite Existing Data** If selected, an import will overwrite data that is already in the database. If de-selected, the import will skip data points where data already exists.
- ◆ Based on the **Parameter Data Type**, select one of the following:
 - Average Interval** (for Average/Continuous Data)
 - Composite Type** (for Composite Data)
 - Duration and Frequency Code** (for Particulate Sample).

After the basic template is completed, **Save** the template to enable the “Add Column Mapping” button at the bottom. Column Mapping cannot be done until the base template is saved.

Mapping Columns

If you want imported data to go in specific columns, save the File Schema entries (top half of the screen) and click the **Add Column Mapping** button at the bottom of the screen. Enter the following information:

- ◆ **Column Number** for each column in the file where you want data to be imported.
Not every column needs to be configured (e.g., if you only want columns 1, 2, and 5 out of a 10-column file, only those 3 records need to be configured).
- ◆ **Data Type** Select one of the following from a drop-down list:
 - Date**
 - Time**
 - Date and Time**
 - Floating Point Value** (to map to a parameter)
- ◆ **Parameter Template** can be selected from a drop-down list of all parameter templates only if you selected Floating Point Value for the Data Type
- ◆ **Parse Format** can be selected for date and/time data only (not floating point); for example, MM/dd/yyyy HH:mm. Select from a drop-down list.

Click the **Add Column Mapping** button to add another record.

To delete a column mapping record, select the row and press the **Delete** key on the **keyboard**.

To delete an entire File Import Template, select it from the **Template Name** section of the screen and click the **Delete** button in AirVision.

Save the template again. Use the **Manual File Import** tool to test your file import template.

Enhanced File Import Tool

In Version 2.3, AirVision significantly enhanced the **File Import Tool (Configuration Editors > File Import Tool)** to better handle new data types, primarily meta data for PM lab sample data and AirToxics data.

In the original model, the File Import Tool assumed each row in the file contained data for different parameters, and could only import the numerical values for that data, as in the following example:

File Schema

Template Name: BAM1020_Coarse

File Layout

Number of Header Rows: 2

Number of Footer Rows: 0

Maximum Number of Columns: :

Field Delimiter: Comma

Sample Type: Standard

Back Stamp Data Time

Parameter Information

Parameter Matching

- Match Parameter by Column Number
- Match Parameters from Row
- Match Parameters from Header

Overwrite Existing Data?

Parameter Data Type: Average (Continuous)
 Composite Sample
 Particulate Sample

Average Interval: 001h

File Column Mapping

Column Number	Data Field	Parameter Template	Parse Format	Flag Map
1	Date/Time		MM/dd/yyyy HHmm	
3	Value	PM10_CONTIN		
4	Value	PM25LC		
5	Value	PM10C_CONTIN		
6	Value	PMVOLUME		
10	Value	BARPRESS		
11	Value	RELHUM		
13	Value	AMBTEMP		

Add ...

Example of File Import Tool before AirVision Version 2.3

In the Enhanced Tool, the ‘several parameters on one row’ templates have been enhanced to be able to denote that columns represent additional data properties for the parameter data point, including:

- ◆ Flags (see “Flag Mapping Table” below)
- ◆ AQS Method Code
- ◆ AQS Null Codes
- ◆ Qualifier Code (one)

The screenshot shows the 'File Schema' configuration window. The 'Template Name' is 'PM_LAB'. The 'File Layout' section includes: Number of Header Rows (0), Number of Footer Rows (0), Maximum Number of Columns (empty), Field Delimiter (Comma), Sample Type (Standard), and a checkbox for 'Back Stamp Data Time'. The 'Parameter Information' section includes: Parameter Matching (Match Parameter by Column Number selected), Overwrite Existing Data? (checked), Parameter Data Type (Average (Continuous) selected), and Average Interval (001h).

Below the configuration sections is the 'File Column Mapping' table:

Column Number	Data Field	Parameter Template	Parse Format	Flag Map
1	Date/Time		MM/dd/yyyy HH:m	
2	Value	PM25LC		
3	AQS Method Code	PM25LC		
4	AQS Null Code	PM25LC		
4	Qualifier Code	PM25LC		

At the bottom, there is an 'Add ...' button and an 'Add Column Mapping' button.

Enhanced File Import Tool in the Utilities menu

The Enhanced File Import Tool also includes the capability to do ‘row-wise’ import, where a single row represents a single data point, with several additional properties associated with that single data point. This is a common case for air toxics data. In this mode, it is even common to have the same file represent multiple sites and parameters, so it is necessary to create a key string for each site/parameter to match the identifier that is used within the imported file.

First, go into the **Site/Parameter** editor and use the ‘Metatags’ editor at the bottom of the Site form and the Parameter form to identify the string in the imported file. Once this is done, set up a template to look for that particular string in the file:

File Schema

Template Name: AirToxics

File Layout

Number of Header Rows: 1

Number of Footer Rows: 0

Maximum Number of Columns: :

Field Delimiter: Space

Sample Type: Standard

Back Stamp Data Time

Parameter Information

Parameter Matching

Match Parameter by Column Number

Match Parameters from Row

Match Parameters from Header

Overwrite Existing Data?

Parameter Data Type:

Average (Continuous)

Composite Sample

Particulate Sample

Duration Code: 7 - 24 HOURS

Frequency Code: R - EPISODIC SAMPLING

File Column Mapping

Column Number	Data Field	Parse Format	Flag Map
1	Date/Time	MM/dd/yyyy HH:mm	
2	Site Identifier from meta tag		
3	Param Identifier from meta tag		
4	Sample Identifier		
5	Canister Identifier		
6	Final Weight		
7	Tare Weight		
8	Final Weight		
9	Sample Total Flow		
10	Sample Ambient Temp		
11	Sample Barometric Press		
12	Sample Retrieved Date/Time	MM/dd/yyyy HH:mm	
▶ 13	Sample Analysis Date/Time	MM/dd/yyyy HH:mm	
14	Uncertainty Value		

Add ... Add Column Mapping

Template for File Mapping

Available Fields include:

- ◆ Site / Parameter Identifier (by meta tag)
- ◆ Flag
- ◆ Final Value
- ◆ Tare / Final Weight
- ◆ Sample Volume, Temp, Barometric Pressure
- ◆ Null Code, Qualifier Code
- ◆ Sample ID, Cannister ID
- ◆ Parameter Occurrence Code (POC)
- ◆ Sample Retrieved Date, Time, Date/Time
- ◆ Sample Analyzed Date, Time, Date/Time
- ◆ Minimum Detectable Value
- ◆ Uncertainty
- ◆ Frequency Code
- ◆ Duration Code
- ◆ Sample End Date, Time, Date/Time

File Schema

Template Name: PM_LAB

File Layout

Number of Header Rows: 0

Number of Footer Rows: 0

Maximum Number of Columns:

Field Delimiter: Comma

Sample Type: Standard

Back Stamp Data Time

Parameter Information

Parameter Matching

Match Parameter by Column Number

Match Parameters from Row

Match Parameters from Header

Overwrite Existing Data?

Parameter Data Type: Average (Continuous)

Composite Sample

Particulate Sample

Average Interval: 001h

File Column Mapping

Column Number	Data Field	Parameter Template	Parse Format	Flag Map
1	Date/Time		MM/dd/yyyy HHmm	
2	Value	PM25LC		
3	AQS Method Code	PM25LC		
4	AQS Null Code	PM25LC		
4	Qualifier Code	PM25LC		

Add ...

Enhanced File Import Tool in the Utilities menu

- **Note:** To import the POC, a meta tag must be created at the bottom of the parameter record that uses 'POCIdentifier' in the "Name" field, with the POC Value set to 1, 2, 3, etc.

Flag Mapping Table

Some devices provide data flags in the form of a string, which can be mapped into AirVision’s standard flags. Supported formats include:

- ◆ Binary string (e.g., “1101010”, where each digit represents presence/absence of a flag)
- ◆ Hex (e.g., “1F0A”, where each hex char represents a 4-bit binary map, each bit = 1 flag)
- ◆ Decimal Binary (e.g., “1024”, where if the decimal number is converted to binary, each bit represents a possible flag)
- ◆ String (e.g., “FD<”, where each character represents a flag, but does not map equally to AirVision’s standard flag table).

By allowing the user to create a table to map the instrument’s particular flags to AirVision’s flags, each Flag Mapping Table can be referenced in the File Import Tool to map that column and its content into AirVision flags (**Configuration Editors > Flag Mapping Editor**).

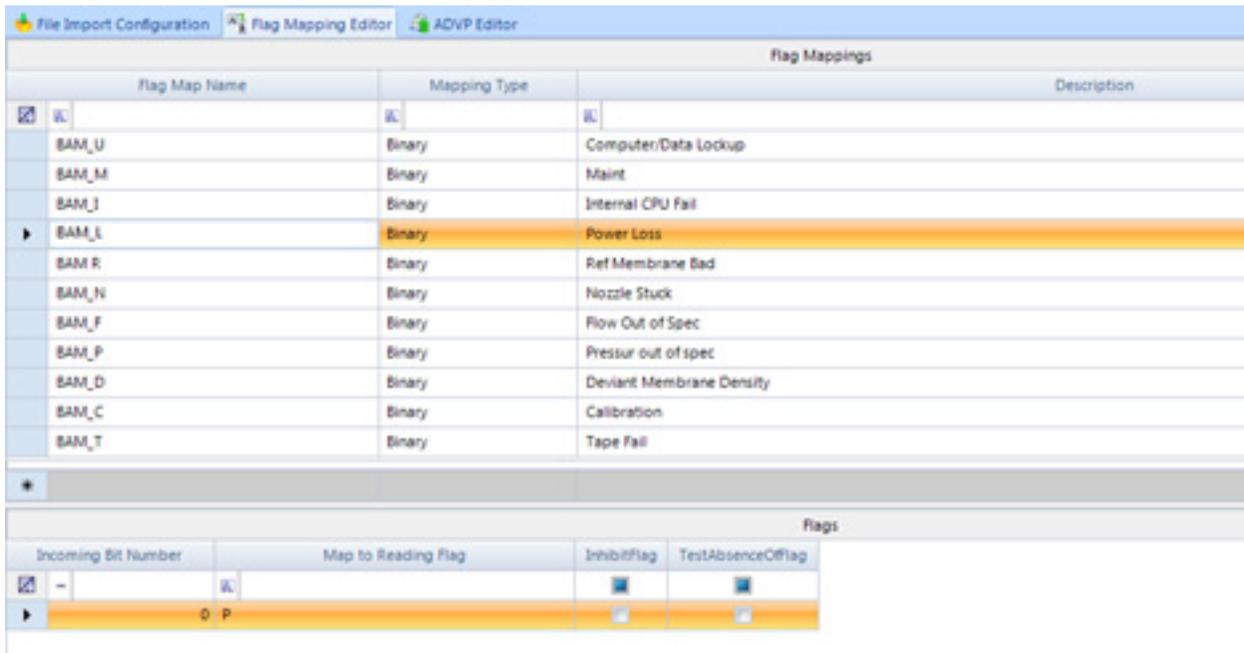
For example, the Met One BAM provides a series of “1” and “0” fields to represent flags in the BAM.

Station, 1

Time,Conc(mg/m3),Qtot(m3),no(V),WS(MPS),WS(MPS),RH(%),Delta(C),WS(MPS),E,U,M,I,L,R,N,F,P,D,C,T,

02/06/09 12:00, 0.380, 0.000, 0.189, 2.5, 2.2, 31, 52.7, 35.9,0,0,1,0,0,0,0,1,0,0,0,1,

Since each column maps to a different flag, we actually have to create multiple Flag Map table entries and map each column to its own flag map. Example:



Flag Mapping Table

However, Met One is considering an 'all in one' field, where the commas are removed and the binary pattern is given in one column, e.g.:

Station, 1

Time,Conc(mg/m3),Qtot(m3),no(V),WS(MPS),WS(MPS),RH(%),Delta(C),WS(MPS),FLAGS

02/06/09 12:00, 0.380, 0.000, 0.189, 2.5, 2.2, 31, 52.7, 35.9,001000010001,

This makes the flag map table easier--only one entry. Note that we define bit 0 as the rightmost bit, and bit N as the leftmost bit, which is actually the opposite of the way the old string is listed.

P & A (PARS) Editor

Precision and Accuracy (P & A), formerly Precision and Accuracy Reporting System (PARS), is a utility that allows administrative personnel to create data records that are used later to submit RA (accuracy) and RP (precision) records to the Air Quality System (AQS). P&A is collected to ensure that data collected at monitoring sites is of high quality. Systems of checks produce data that reflects the results of these evaluations. Data edited in the PARS Editor will not be published on the public website; the PARS Editor is a tool for administrative access only.

PARS Precision Editor

Precision checks are determined by performing repeated measurements of ambient-level “calibration” gases at two-week intervals for continuous analyzers, or by obtaining duplicate results from collocated samplers for manual methods. The Precision Data record is uniquely identified by the combination of monitor and date.

Precision records have a single value for each record representing Actual and Indicated values with Indicated values coming from a co-located sampler/analyzer similar to the primary (actual reading) analyzer. The Precision Report displays a daily listing of reported precision data in a tabular format. The report displays the sample values entered into the system and then calculates a percent difference between the reported values, consistent with the requirements of OAQPS (Office of Air Quality Planning and Standards) Quality Assurance guidelines.

The PARS Precision Editor lists parameters in a table along with their **Duration Code**, **Precision Check Date**, and **Precision Identifier Number**. The parameter that is selected (by clicking **Select** in the left column of the table) will be displayed below the table with the following information:

Precision Test Information

- ◆ Precision Check Date: The calendar date for which the accuracy audit information pertains.
- ◆ Precision Identifier Number: A sequentially assigned number used to identify a particular precision check from others, when multiple checks are performed on the same day
- ◆ Precision Sample Identifier: The unique identity (ID) number of the reference sample used to challenge the instrument
- ◆ Precision Type Identifier: Describes the type of precision test performed
- ◆ Audit Agency Code: Agency responsible for performing a role for the monitor

Monitor Information

- ◆ Parameter: The code assigned to the parameter measured by the monitor. (A “monitor” in AQS represents not a device but the pollutant measured by a device.) Parameters may be pollutants or non-pollutants.
- ◆ Duration Code: The length of time (interval) used to acquire raw samples that are analyzed by monitors
- ◆ Parameter Type: A description of the type of parameter (e.g., ozone)
- ◆ Unit Code: AQS code for the standard parameter unit (e.g., ppm)

- ◆ **POC: Parameter Occurrence Code (or Pollutant Occurrence Code)**, an identifier used to distinguish between multiple monitors at the same site that are measuring the same parameter. For example, the first monitor established to measure carbon monoxide (CO) at a site could have a POC of 1. If an additional monitor is established at the same site to measure CO, that monitor could have a POC of 2. However, if a new instrument is installed to replace the original instrument used as the first monitor, that would be considered the same monitor and it would still have a POC of 1. For criteria pollutants, data from different sampling methods should only be stored under the same POC if the sampling intervals are the same and the methods are reference or equivalent. For sites where duplicate sampling is being conducted by multiple agencies or by one agency with multiple samplers, multiple POCs must be utilized to store all samples. For non-criteria pollutants, data from multiple sampling methods can be stored under the same POC if the sampling intervals are the same and there is only one sample for the time reported. If multiple open path monitors are reporting data for the same parameter, each open path would be assigned a different POC.
- ◆ **Actual Method Code:** Identifies the particular method for collecting and analyzing a precision check value
- ◆ **State Code:** A Federal Information Processing Standards (FIPS) code that identifies one of the 50 states, U. S. territories, Washington, DC, or foreign countries. For batch loading data formats only, it may be set to TT to indicate that the County Code/Tribal Code field contains a Tribal Code.
- ◆ **County/Tribal Code:** A Federal Information Processing Standards (FIPS) code that identifies a county, or other geo-political entity, such as tribe, parish or independent city. For foreign countries, it identifies the geo-political equivalent to U. S. states, such as Mexican states or Canadian provinces.
- ◆ **Site Code:** A numeric identifier (ID) that uniquely identifies each air monitoring site within a county, and if it is a tribal site, within all counties included in a tribal area. There is no requirement that Site IDs be assigned continuously or in any particular order. Regional or local organizations are thus free to allocate Site IDs in any way they choose, as long as there is no duplication within a county or the counties that include a common tribal area.

A specific Site ID is associated with a specific physical location and address. Any change in address requires a new Site ID to be assigned. This address change could include a change from the roof of one building to another. A change in location on the same roof should not normally require a new Site ID. Although an address change would routinely mean a new Site ID, some changes that do not change the site's location in respect to surrounding sources and its measurement scale would require no change. An EPA regional office should be consulted for assistance in determining whether a new site ID is required. If a new Site ID is needed for a site not operated by the air pollution control agency, that agency should be contacted to assist in the ID assignment, to ensure that the ID is unique within the county and, if appropriate, the adjoining counties sharing a common tribal area. In other words, when a new Site ID is assigned, it must be different from any other Site ID already existing for that combination of State Code and County Code and Tribal Area.

Collocated Monitor

- ◆ Collocated Parameter: The code assigned to the duplicate sampler that is paired with the primary monitor (i.e., routine monitor) to determine precision and accuracy data
- ◆ Collocated POC: The Parameter Occurrence Code (POC) of the duplicate sampler. Only applies to collocated data where the duplicate value is a recorded daily raw data point.
- ◆ Indicated Method Code: Identifies the particular method for collecting and analyzing a precision check value.

Test Results

- ◆ Actual Value: For precision and accuracy data the actual value is the concentration produced from the primary sampler (i.e., routine monitor) in a collocated sampler pair.
- ◆ Indicated Value: The measurement recorded by a monitor for a standard gaseous concentration with which it has been challenged.

PARS Accuracy Editor

Accuracy assessments indicate the agreement between an analyzer measurement and a known audit standard concentration for continuous analyzers, or the agreement between an observed value and a known or reference value for manual methods. An Accuracy Data record is uniquely identified by the combination of monitor, audit class, accuracy type, date, and Accuracy Audit ID Number.

Accuracy records are similar to calibration--up to five runs that categorize “Actual” values and “Indicated” values. Actual values are from the primary analyzer, while Indicated values are from some other external reference device. The Accuracy Report provides an output of raw accuracy value pairs and their percent differences. The data is grouped by Parameter, Tribal Area or State, and Reporting Organization.

The PARS Accuracy Editor lists parameters in a table along with their **Duration Code**, **Accuracy Date**, and **Accuracy Audit Number**. The parameter that is selected (by clicking **Select** in the left column of the table) will be displayed below the table with the following information:

Accuracy Test Information

- ◆ Accuracy Date: The calendar date for which the accuracy audit information pertains.
- ◆ Accuracy Audit Number: A sequentially assigned number used to identify a particular precision check from others, when multiple checks are performed on the same day
- ◆ Accuracy Type: A description of the type of accuracy test performed
- ◆ Local Primary Standard: A description of the source of the local primary standards
- ◆ Local Standard Expiration Date: The expiration date for the local primary standard
- ◆ Audit Sample Identifier
- ◆ Audit Scheduled Date
- ◆ Audit Type: Description of who performed the audit and how the audit standard was certified
- ◆ Audit Class: Description of the class of audit taken at the monitor **Monitor Information**

Monitor Information

- ◆ Parameter: The code assigned to the parameter measured by the monitor. (A “monitor” in AQS represents not a device but the pollutant measured by a device.) Parameters may be pollutants or non-pollutants.
- ◆ Duration Code: The length of time (interval) used to acquire raw samples that are analyzed by monitors
- ◆ Parameter Type: A description of the type of parameter (e.g., ozone)
- ◆ Unit Code: AQS code for the standard parameter unit (e.g., ppm)
- ◆ POC: Parameter Occurrence Code or Pollutant Occurrence Code, an identifier used to distinguish between multiple monitors at the same site that are measuring the same parameter. For example, the first monitor established to measure carbon monoxide (CO) at a site could have a POC of 1. If an additional monitor were established at the same site to measure CO, that monitor could have a POC of 2. However, if a new instrument is installed to replace the original instrument used as the first monitor, that would be the same monitor and it would still have a POC of 1.
For criteria pollutants, data from different sampling methods should only be stored under the same POC if the sampling intervals are the same and the methods are reference or equivalent. For sites where duplicate sampling is being conducted by multiple agencies or by one agency with multiple samplers, multiple POCs must be utilized to store all samples. For non-criteria pollutants, data from multiple sampling methods can be stored under the same POC if the sampling intervals are the same and there is only one sample for the time reported. If multiple open path monitors are reporting data for the same parameter, each open path would be assigned a different POC.
- ◆ Method Code: Identifies the particular method for collecting and analyzing a precision check value

- ◆ **State Code:** A Federal Information Processing Standards (FIPS) code that identifies one of the 50 states, U. S. territories, Washington, DC, or foreign countries. For batch loading data formats only, it may be set to TT to indicate that the County Code/Tribal Code field contains a Tribal Code.
- ◆ **County/Tribal Code:** A Federal Information Processing Standards (FIPS) code that identifies a county, or other geo-political entity, such as tribe, parish or independent city. For foreign countries, it identifies the geo-political equivalent to U. S. states, such as Mexican states or Canadian provinces.
- ◆ **Site Code:** A numeric identifier (ID) that uniquely identifies each air monitoring site within a county, and if it is a tribal site, within all counties included in a tribal area. There is no requirement that Site IDs be assigned continuously or in any particular order. Regional or local organizations are thus free to allocate Site IDs in any way they choose, as long as there is no duplication within a county or the counties that include a common tribal area.

A specific Site ID is associated with a specific physical location and address. Any change in address requires a new Site ID to be assigned. This address change could include a change from the roof of one building to another. A change in location on the same roof should not normally require a new Site ID. Although an address change would routinely mean a new Site ID, some changes that do not change the site's location in respect to surrounding sources and its measurement scale would require no change. An EPA regional office should be consulted for assistance in determining whether a new site ID is required.

If a new Site ID is needed for a site not operated by the air pollution control agency, that agency should be contacted to assist in the ID assignment, to ensure that the ID is unique within the county and, if appropriate, the adjoining counties sharing a common tribal area. In other words, when a new Site ID is assigned, it must be different from any other Site ID already existing for that combination of State Code and County Code and Tribal Area.

Test Results

- ◆ **Zero Span Value:** A measurement obtained with gas from a zero concentration. Zero span is the observed value read from the instrument when the concentration of the specific parameter used to test the monitor was zero.
- ◆ **Levels 1-5--Actual Value:** For precision and accuracy data the actual value is the concentration produced from the primary sampler (i.e., routine monitor) in a collocated sampler pair.
- ◆ **Levels 1-5--Indicated Value:** The measurement recorded by a monitor for a standard gaseous concentration with which it has been challenged.

Monitor Assessment Editors and Reports

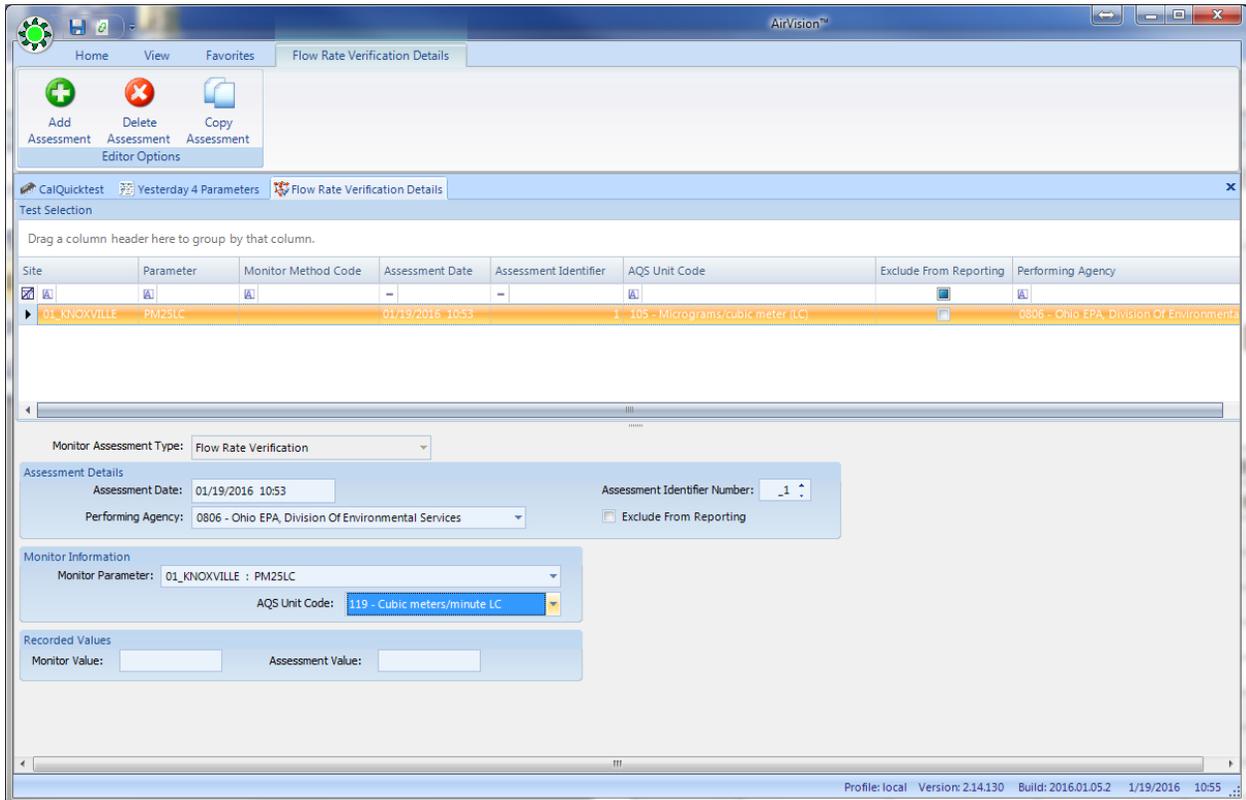
In 2015, the EPA changed the AQS transactions for QA activities from RA (Accuracy) and RP (Precision) transactions to QA transactions to cover a number of activities. AirVision added these data entry editors, AQS transactions, and basic output reports for owners of the old Precision and Accuracy Reports (PARS). The PARS module is retained for historical precision and accuracy data.

1-Point QC from Calibrations, which replaces the RP transaction for gases, is also added into the standard edition of AirVision, and works the same way (set “PREC” level in calibration configuration).

The new Monitor Assessment Editors, transactions, and reports cover the following activities:

- ◆ Executive (usually the current machine)
- ◆ Duplicate Assessment
- ◆ Field Proficiency Test
- ◆ Flow Rate Verification (+ Coarse version)
- ◆ National Performance Audit
- ◆ One Point Quality Control
- ◆ Performance Evaluation Program
- ◆ Replicate Assessment
- ◆ Semi Annual flow Rate Audit (+ Coarse version)

The data entry editors can be found under **Data Editors->Monitor Assessment**, and follow the model of the old PARS editors:



Note that the user has the opportunity to override Unit Codes if they do not match the parameter code of the monitor parameter.

To generate the transactions in AQS (XML 3.0), select **Monitor Assessment** checkbox in the AQS report. While the 1-point QC records are supported for gases in the AQS Text report, the other QA transactions are not.

The screenshot displays the AirVision software interface. At the top, there is a menu bar with 'Home', 'View', and 'Favorites'. Below the menu bar, there are buttons for 'Generate Report', 'Save to File', and 'Export to Notepad'. The main window is titled 'AQ3 3.0 XML Report' and contains several sections:

- Report Criteria:** Includes 'Start Date' (01/19/2016 0000) and 'End Date' (01/19/2016 2359).
- Average Interval:** A table with columns 'Average Interval' and 'Description'. The selected row is '001h - Hourly average of 60 minutes'.
- Parameter Selection:** A table with columns 'Site Name', 'Parameter Name', 'Parameter Template Name', and 'AQ3 Parameter'. The first row is selected.
- Report Type Selection:** A list of checkboxes for 'Average Data Records', 'Sample Data Records', 'Monitor Assurance Records', and 'Cal 1-Point QC Records'. 'Monitor Assurance Records' is checked.
- Report Output:** A text area showing XML code for the report, including tags for 'MonitorList', 'MonitorIdentifierDetails', 'MonitorAssessmentResults', and 'FlowRateVerificationDetails'.

The status bar at the bottom indicates 'Profile: local Version: 2.14.130 Build: 20160105.2 1/19/2016 11:00'.

Data Rollup Processor

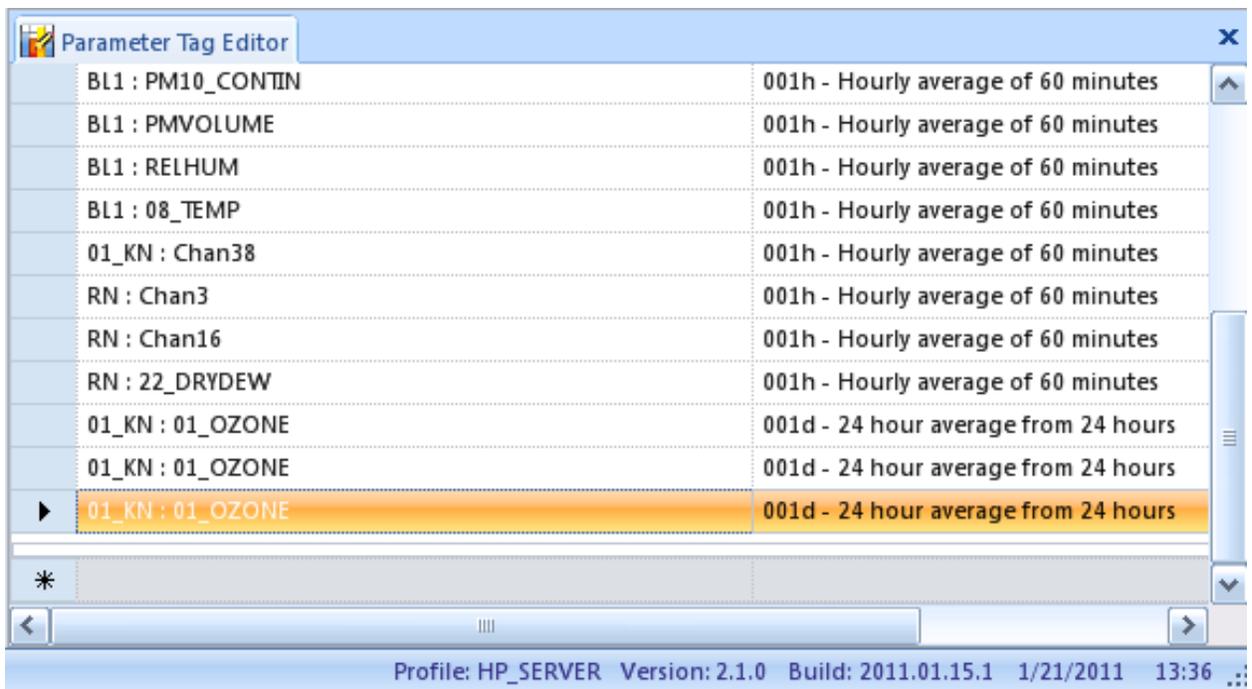
The Data Rollup Processor is an optional module, usually included as part of an Instrument Polling license. The Data Rollup Processor allows shorter-term averages to be rolled up into larger block or rolling averages. Examples of this would include:

- Re-creating hourly data from 1-minute data
- Rolling up 5-minute or other odd intervals from a directly polled instrument to hourly data
- Rolling up hourly averages to daily averages
- Creating a new parameter with an 8-hour rolling average (e.g., ozone) calculated within AirVision.

The calculation can be done both manually (**Utilities->Manual Average Data Rollup**) or it can be scheduled in **Configuration Editors>Task Scheduler**.

Before doing the calculation, set up the rollup programs and tie them to specific **Parameter Tags**. A **Tag** is a term for a combination of a parameter and an average interval (e.g., hourly ozone, 1-minute CO). The intervals are specific to the frequency at which data is inserted into the database, so the system can't distinguish between OZONE:1h that comes from a block average of minute data and OZONE:1h that is an 8-hour rolling average, updated on the hour. For rolling averages, create a new parameter in the Site/Parameter editor to store the rolling average data.

If you need to create new tags (e.g., create a daily average tag, or create the 1-hour tag for your new OZONE_8HR parameter), open **List Editors->Parameter Tag Editor**.



Create new tags in List Editors>Parameter Tag Editor

Once all the tags you need exist, use the **Configuration->Average Tag Rollup Editor** to create your new rollup programs:

Rollup Method	Input Tag	Output Tag
Hour to Daily	01_KN : 01_OZONE : 001m	01_KN : 01_OZONE : 001d
Hourly to 8-Hour Rolling	01_KN : 01_OZONE : 001h	01_KN : 01_OZONE : 001h
*		

Utilities>Manual Average Data Rollup

To run a program manually, go to **Utilities>Manual Average Data Rollup**, select the **Rollup Type**, **Date Range**, and **Parameter Tag Selection**. Click the **Process Rollup** button.

Manual Average Data Rollup

Rollup Type: Hour to Daily

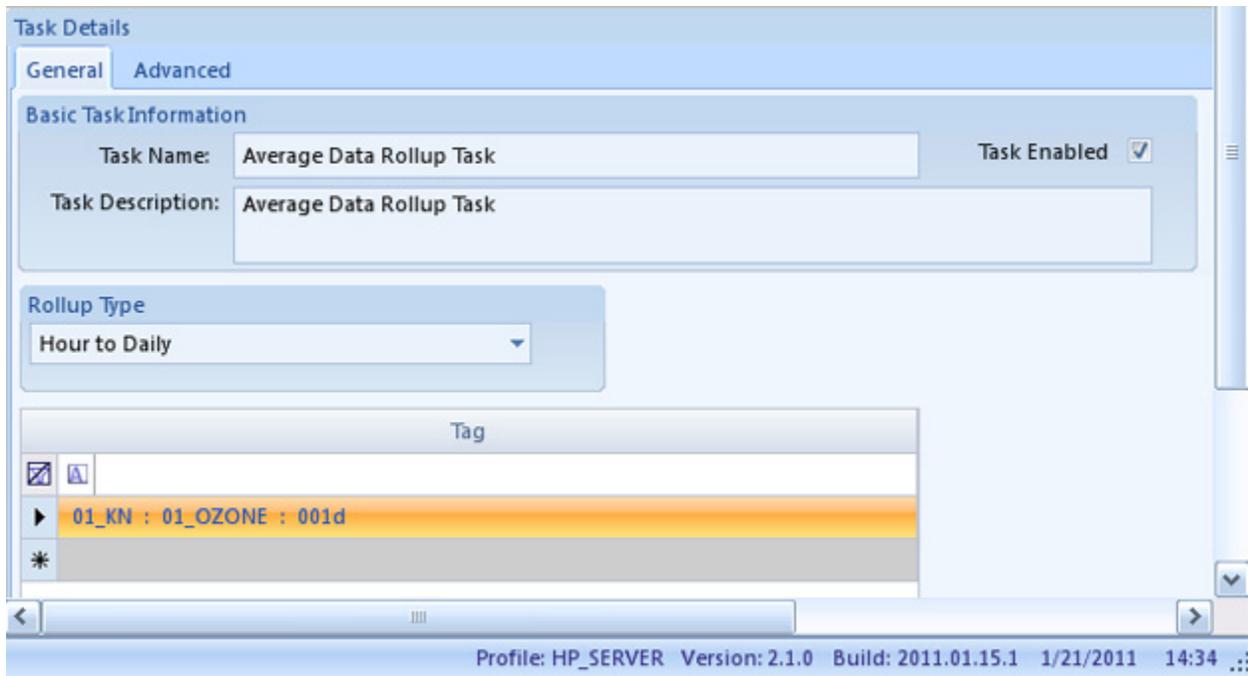
Date Range: Start Date: 01/21/2011 00:00, End Date: 01/21/2011 23:59

Parameter Tag Selection

Site Name	Site Enabled	Parameter Name	Parameter Enabled	Time Interval
01_KN	<input checked="" type="checkbox"/>	01_OZONE	<input checked="" type="checkbox"/>	001d

To run a program manually, Utilities>Manual Average Data Rollup

To run a **Rollup Task** automatically, create a new **Average RollupTask** in **Configuration Editors>Task Scheduler>Average Rollup Task**, and select an **Average Data Rollup Task**. Then select the specific **Task Type**, **Start Time**, **Repeat Interval**, and **Task Description**.



Automatic Rollup Task in Configuration Editors>Task Scheduler>Add Average Rollup Task

Asset Tracking Tool

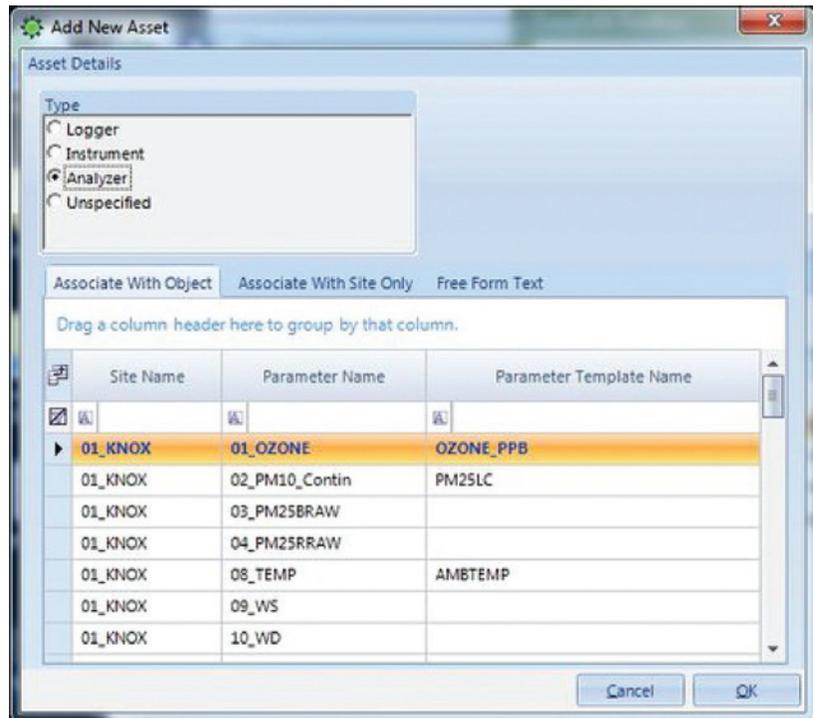
The **Asset Tracking Tool** provides an easy way to create history records for analyzers, samplers, and data loggers.

The tool allows you to create an asset entity that is defined by user-entered manufacturers, model numbers, serial numbers, etc. The asset can then be associated with a particular logger, directly polled instrument (typically a PM sampler or non-Agilaire data logger), or a measured parameter.

To create a new asset, select **Add New Asset** from the top ribbon:

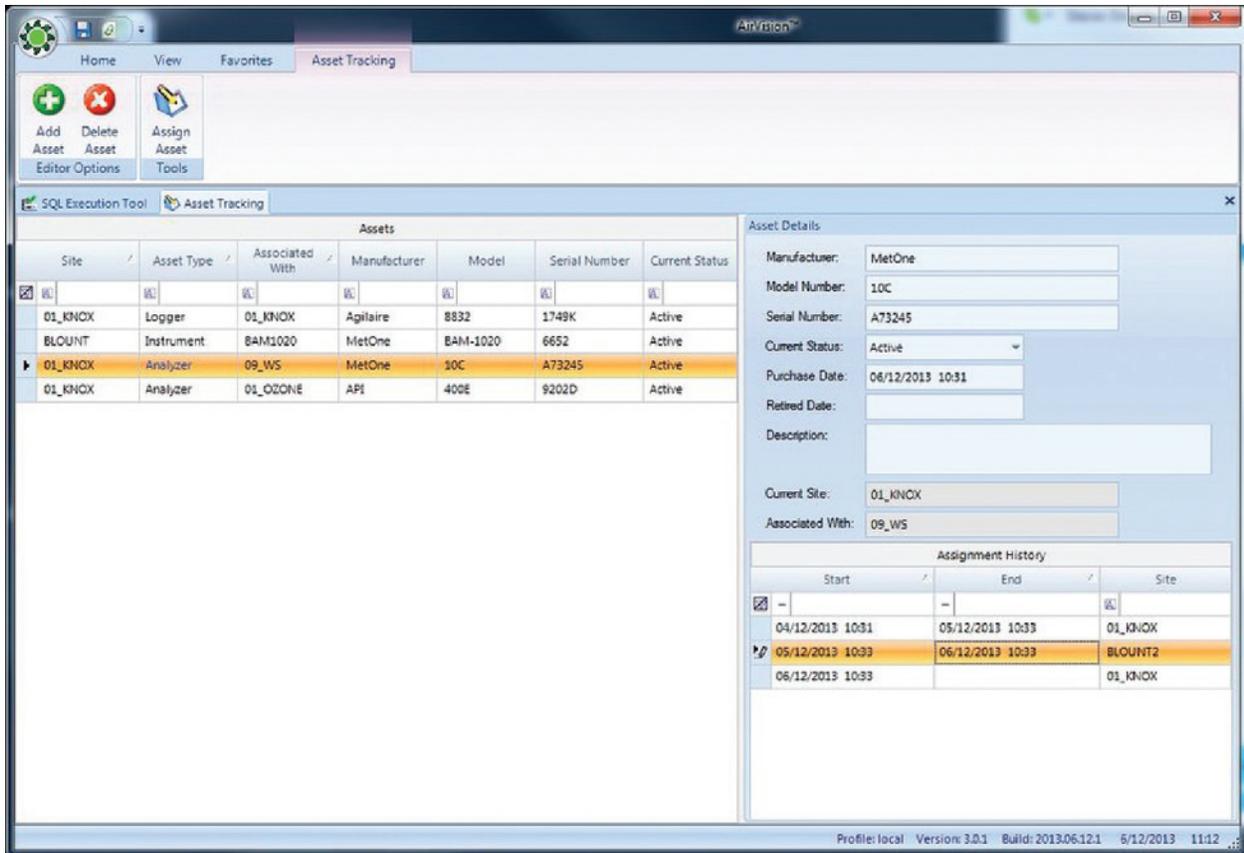
Select the type of asset you want to define:

- ◆ **Logger:** An Agilaire (or ESC) Model 8816, 8832, 8872, etc.
- ◆ **Instrument:** A directly polled instrument in Data Source Details (e.g., BAM, TEOM, API 602, or third-party logger).
- ◆ **Analyzer:** Device associated with Site/Parameter, usually through an Agilaire logger.
- ◆ **Unspecified:** Other asset (can only be associated with a Site).



As part of creating the asset, you can assign it to a logger, instrument, or parameter, based on the type of asset you chose.

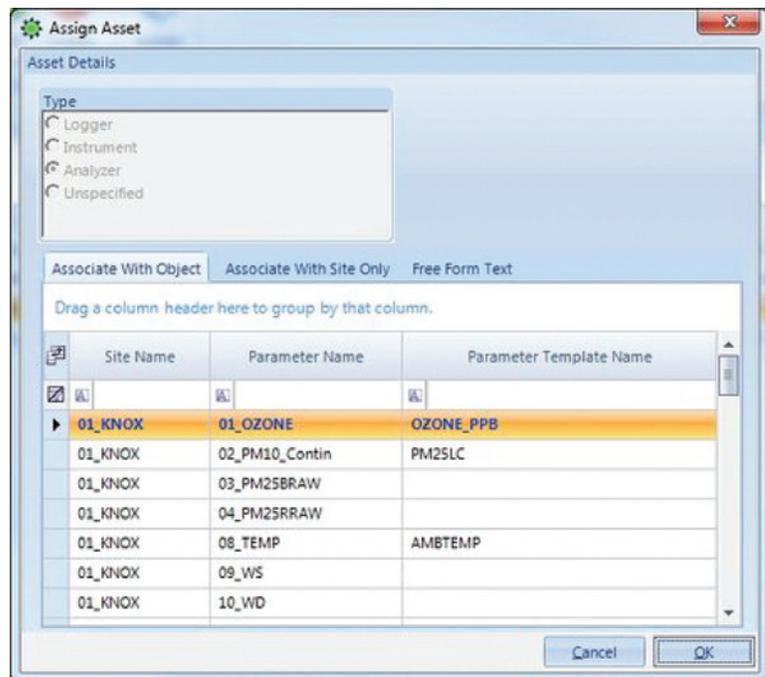
Once the asset is created, it defaults to a purchase date of the current day, but that and other properties (manufacturer, model, serial number, etc.) can be edited by selecting the row and editing on the right side pane. Once your lists of assets get large, you can use the Smart Filter fields above the left panel columns to sort and filter by the various properties (manufacturer, model, current site, etc).



To change the association (e.g., moving the asset to a new site), select the asset on the left, and click **Assign Asset** on the ribbon. You will be prompted to choose the new association. The current date will be defaulted to represent the new assignment date (and the "end date" of the previous assignment record), but these can be changed, if needed, in the editor after creating the new association.

Reports

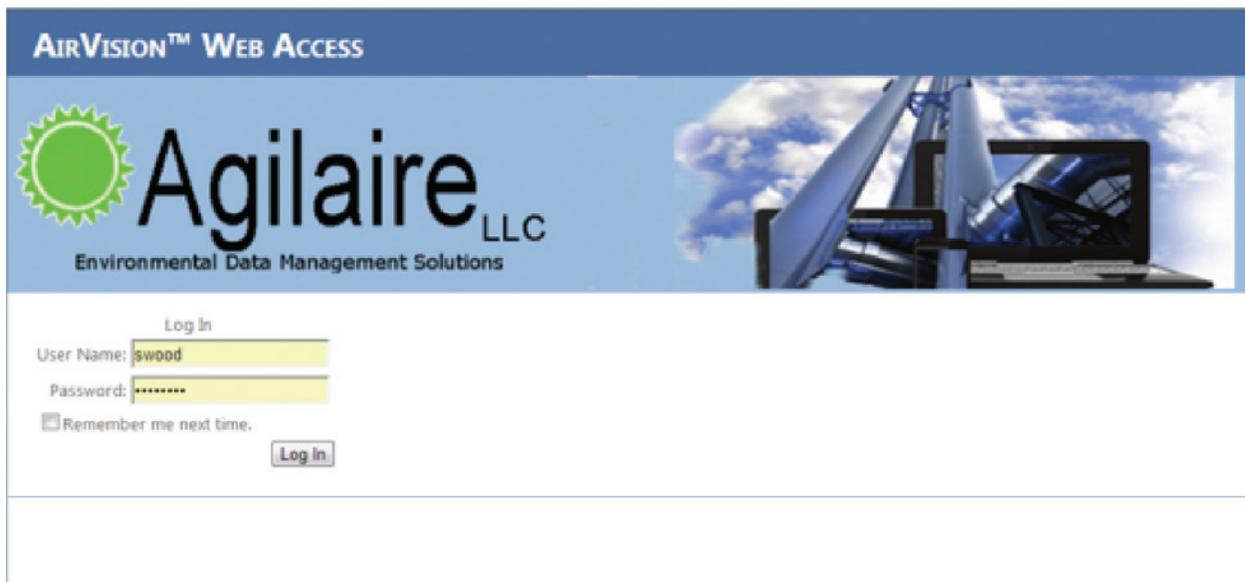
The **Asset History Report** and the **Site Asset History Report** will show, respectively, the history of an asset as it passed through different sites, and the history of assets associated with a particular site's logger/instrument/parameter records.



Browser Reporting Portal (AgileWeb)

The **Browser Reporting Portal** module allows web browsers to be used as an interface into AirVision to generate, view, and download reports without requiring the installation of the AirVision Client. This module is useful for users that only need reporting access to AirVision. It requires IIS Server (Web Services) to be installed on the machine which will be hosting the web application. That server, if not the AirVision server, will also need to be able to reach and log in to the AVData SQL database.

Users log into the portal using any of the user accounts previously set up in AirVision by the administrator.



AIRVISION™ WEB ACCESS

 **Agilaire** LLC
Environmental Data Management Solutions

Log In

User Name:

Password:

Remember me next time.

Once logged in, the user can navigate the menu of reports, as well as a help menu. Visible reports can be limited by the AirVision security/group permissions for that user.

The screenshot displays the Agilaire AirVision Web Access interface. At the top, it says "AIRVISION™ WEB ACCESS" and "Welcome swood! [Log_Out]". The Agilaire LLC logo is prominent, with the tagline "Environmental Data Management Solutions". The breadcrumb trail shows "Home > Reports > AQS Text Report". A navigation menu on the left lists various reports, with "AQS Text Report" selected. The main content area is titled "AQS Text Report" and features a date/time selector set to "013" and "23:59". Below this is a table with the following data:

Parameter Name	Parameter Description	Parameter Template Name
TEMP	AMB_TEMP, channel 12	AMBTMP
DEW	AMBDEW, channel 48	
OMETR	BAROMETR, channel 16	
PR	BARPR, channel 47	
	BC, channel 18	
	CO, channel 1	CO
HRA	COBHRA, channel 30	
DEW	DRYDEW, channel 49	
DAD	FILLOAD, channel 51	
	Hydogen sulfide	H2S
	MPH, channel 46	
C		NMHC

Once a report is selected, the familiar report criteria panel appears, also with the search fields for filtering parameter names, site names, etc.

Parameter Selection

Drag a column header here to group by that column

#	Site Name	Parameter Name	Parameter Description	Parameter Template Name
<input checked="" type="checkbox"/>	11_RUTLAND_2	AMB_TEMP	AMB_TEMP, channel 12	AMSTEMP
<input checked="" type="checkbox"/>	11_RUTLAND_2	AMBDEW	AMBDEW, channel 48	
<input checked="" type="checkbox"/>	11_RUTLAND_2	BAROMETR	BAROMETR, channel 16	
<input type="checkbox"/>	11_RUTLAND_2	BARPR	BARPR, channel 47	
<input type="checkbox"/>	11_RUTLAND_2	BC	BC, channel 18	
<input type="checkbox"/>	11_RUTLAND_2	CO	CO, channel 1	CO
<input type="checkbox"/>	11_RUTLAND_2	CO8HRA	CO8HRA, channel 30	
<input type="checkbox"/>	11_RUTLAND_2	DRYDEW	DRYDEW, channel 49	
<input type="checkbox"/>	11_RUTLAND_2	FILLOAD	FILLOAD, channel 51	
<input type="checkbox"/>	11_RUTLAND_2	H2S	Hydogen sulfide	H2S
<input type="checkbox"/>	11_RUTLAND_2	MPH	MPH, channel 46	
<input type="checkbox"/>	11_RUTLAND_2	NMHC		NMHC
<input type="checkbox"/>	11_RUTLAND_2	NO	NO, channel 5	NO

AIRVISION™ WEB ACCESS
Welcome **swood!** | [Log Out](#)




Agilaire^{LLC}

Environmental Data Management Solutions

Home > Reports > Configuration > Calibration Configuration Report

Reports ▾
Help and Support ▾

Generate Report

Calibration Configuration Report

Selection Criteria

Start Date: End Date:

Site Selection

Drag a column header here to group by that column

#	Site Name	Site Description
<input checked="" type="checkbox"/>	11_RUTLAND_2	Rutland
<input checked="" type="checkbox"/>	13_UNDERHIL	Underhill
<input type="checkbox"/>	14_WTBRYLAB	Waterbury Laboratory
<input type="checkbox"/>	16_RIVSIDE	Riverside Apartments
<input type="checkbox"/>	17_BRLNGTN3	Burlington 150 S Winooski
<input type="checkbox"/>	18_SHOREHAM	Lapham Bay Road
<input type="checkbox"/>	19_BRATBORO	Brattleboro Agway
<input type="checkbox"/>	19th & Carpenter	19th & Carpenter
<input type="checkbox"/>	20_SHORES0	Shoreham Smith Street
<input type="checkbox"/>	Ahquabi	Ahquabi
<input type="checkbox"/>	AlarmTest	
<input type="checkbox"/>	AQITest	

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Click **Generate Report** and the report is rendered on-screen. Click the toolbar above to save the report in the desired format (HTML, PDF, CSV, XLS, etc).

Report Output

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Current Date: 6/13/2013 8:02 PM

Site Name: 11_RUTLAND_2 021 : 0002

Parameter: AMBDEW

Report 2013

Avg Interval: 1 hour

Units: None

Method:

Day	0	1	2	3	4	5	6	7	8	9	10	Hours													Summary		
	13	14	15	16	17	18	19	20	21	22	23	Max	Avg	RDS													
01																										0	
02	80.4	78.2	89.4	89.4	88.8	89.5	73.0	84.4	58.8	59.7	52.8	45.5	43.4	48.8	39.9	45.4	38.1	48.7	53.8	53.7	82.1	54.5	48.9	40.4	80.4	58.5	24
03	43.9	48.0	50.3	40.1	38.9	42.6	47.8	42.3	32.1	29.5	20.3	21.4	13.8	18.0	18.8	15.5	9.2	2.2	2.7	10.7	3.8	5.9	12.8	2.2	50.3	23.7	24
04	1.0	2.0	3.0	4.0	5.0	12.7	12.9	13.8	9.3	8.3	14.7	15.9	16.8	18.3	13.5	14.0	8.2	6.5	6.2	14.8	18.2	23.5	18.7	8.4	23.5	10.8	24
05	10.5	24.7	32.8	39.1	33.1	28.7	25.5	25.4	29.8	29.2	31.0	28.1	25.7	29.7	30.0	41.7	41.1	38.7	40.7	31.3	28.2	25.1	34.1	28.0	41.7	30.8	24
06	31.3	35.3	31.8	37.9	32.8	27.2	19.1	14.1	12.4	7.2	2.7	10.9	15.1	23.3	28.0	18.3	17.8	7.4	4.4	7.8	4.4	7.8	8.8	5.1	37.9	17.0	24
07																											0
08																											0
09																											0
10																											0
11																											0
12																											0
13																											0
Max	80.4	78.2	89.4	89.4	88.8	89.5	73.0	84.4	58.8	59.7	52.8	45.5	43.4	48.8	39.9	45.4	41.1	48.7	53.8	53.7	82.1	54.5	48.9	40.4	80.4		
Avg	34.8	37.8	37.4	38.1	34.9	35.1	35.8	31.9	28.0	28.3	24.2	23.9	22.9	28.8	28.8	26.9	22.8	20.3	21.5	23.5	22.9	23.3	23.8	16.8	27.8		
Count	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5			120

Appendix

AQI Web Service

E-DAS Customers upgrading to AirVision will notice that the Access database has been replaced with the SQL Server database that now stores all data for the system. A variety of data views are available for querying the data for web publishing.

One data type that is dynamically generated but is not available in a view is the AQI. Since it is mostly used for web site publishing, we have simplified the access to that data by adding a Web Service to the regular AirVision service on the server. This web server does not require the installation of Internet Information Services (IIS). Rather, it is exposed via WCF as an http web service. Normally a developer would write a custom client application to consume it. (It should be consumable from basically any modern language that supports web services.)

There are two service methods, one which accepts a SiteID (the unique identifier) and a dateTime; the other accepts a SystemName/SiteName/DateTime in case you prefer to query it by natural keys (site name, parameter name) rather than the GUID (globally unique identifier--a special type of identifier used in software). Both return the same result.

```
SiteAQIResultData CalculateSiteAQIById Guid source  
SiteID, DateTime, aqiDateTime);
```

```
SiteAQIResultData CalculateSiteAQIByNaturalKey(string  
systemName, string siteName, DateTime, AQIDateTime);
```

The base URL is this (replace “machine name”):

[http://machinename:9888/AirVision.Services.
WebServices.AQI/AQIService/](http://machinename:9888/AirVision.Services.WebServices.AQI/AQIService/)

That is the URL that consuming clients use. Also if you pull that up in a web browser you'll get a friendly display page (although the generated link on there will be susceptible to the localhost problem, as described later).

The WSDL is located at the same address + "?wsdl", like this:

<http://machinename:9889/AirVision.Services.WebServices.AQI/AQIService/?wsdl>

The schema of the inputs/outputs are located at the base url + "?xsd=xsd0", like this:

<http://machinename:9889/AirVision.Services.WebServices.AQI/AQIService/?xsd=xsd0>

This defines the input/output data structures used by the service operations.

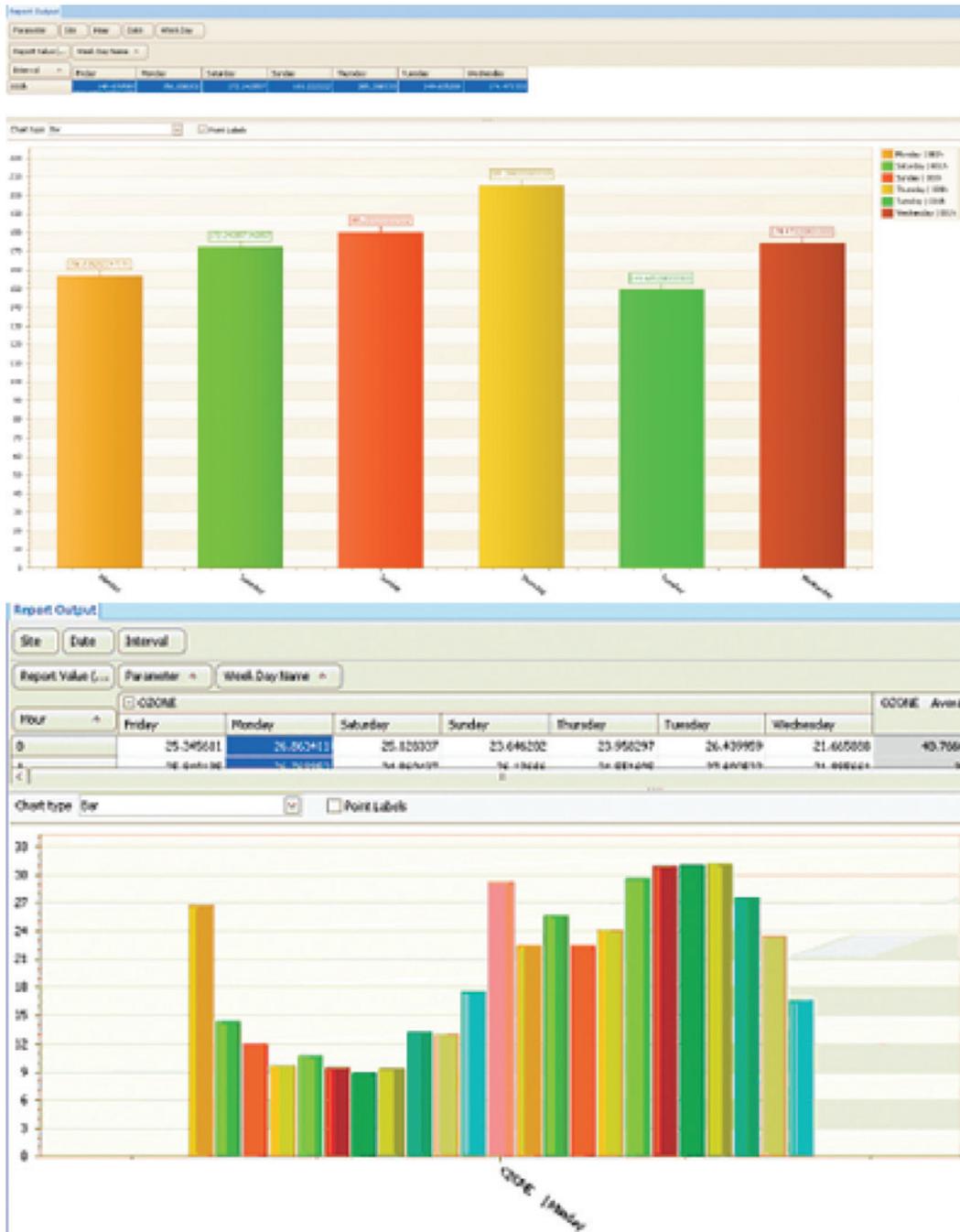
These URLs/ports (and all the other WCF options such as protocol, bindings, etc) can be changed in the service's app.config file. You can tweak it locally on your server, or the default can be updated in one in our source controls if needed.

A useful test tool called WcfTestClient.exe comes with MS VS.NET. It automatically discovers the service and lets you fill in the input arguments manually, then executes the service method, and displays the result.

However, these test tools seem to pull in the server's internal representation of the URL (e.g. <http://localhost:9889/...>) which causes problems if the client isn't on the same machine. To get around it you have to tweak the app.config of the service to have the actual machine name in there. A real app client can work with it as-is (no tweaking required), but these "automagical" test tools pull additional information from WCF to generate everything dynamically and they are the only case where the localhost issue is a problem.

Data Analysis Tool

The **Data Analysis Tool** allows the user to create ad hoc reports and graphs correlating data sets with parameters, such as hour of the day, day of the week or month, and identify composite statistics and trends. Examples below show day of the week averages and hour of the day averages for larger data sets.



Data Analysis Tool Sample Output

Using the Data Analysis Tool (Optional)

The **Data Analysis Tool (Reports > Data Analysis)** is an open system used to create reports and graphical summaries designed for a specific task based on categorization of the data. It is useful for creating unusual reports, for example “average ozone value on Tuesdays”.

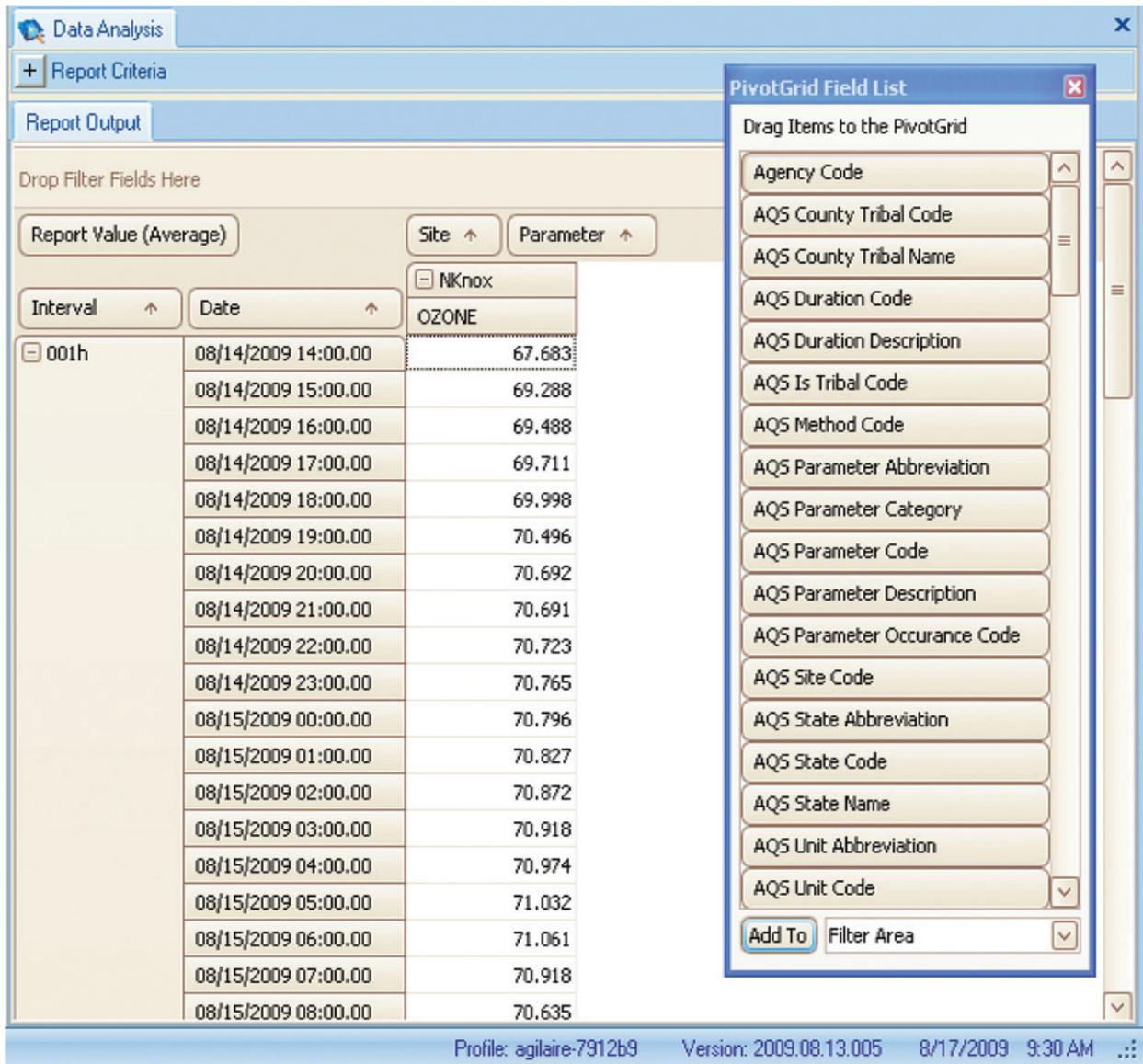
First select **Start** and **End** dates **Site/Parameter(s)**, and an **Average Interval**. The Data Analysis Tool is more useful for looking at a single parameter at a time (for one or more sites), for example, ozone for the month of August. After selecting the data range, click the **Generate Report** button on the ribbon at the top of the screen.

The screenshot shows the AirVision Data Analysis Tool interface. The ribbon at the top includes 'Generate Report', 'Print/Export Grid', 'Show Column Chooser', 'Show Row Totals', 'Show Row Grand Totals', 'Show Column Totals', 'Show Chart', and 'Print/Export Graph'. The 'Main Navigation' pane on the left shows the 'Reports' menu with 'Data Analysis' selected. The 'Data Analysis' pane on the right shows the 'Report Criteria' section with 'Report Value (Average)', 'Site' (NKnox), and 'Parameter' (OZONE) selected. The 'Report Output' section displays a table of data points.

Interval	Date	Report Value (Average)
001h	08/14/2009 14:00:00	67.683
	08/14/2009 15:00:00	69.288
	08/14/2009 16:00:00	69.488
	08/14/2009 17:00:00	69.711
	08/14/2009 18:00:00	69.998
	08/14/2009 19:00:00	70.496
	08/14/2009 20:00:00	70.692
	08/14/2009 21:00:00	70.691
	08/14/2009 22:00:00	70.723
	08/14/2009 23:00:00	70.765
	08/15/2009 00:00:00	70.796
	08/15/2009 01:00:00	70.827
	08/15/2009 02:00:00	70.872
	08/15/2009 03:00:00	70.918
	08/15/2009 04:00:00	70.974

Data Analysis Tool from Reports menu

After you generate the report, you can minimize the **Report Criteria** pane to make more space for the **Report Output** section by clicking the minus sign. Notice the gray field **Drop Filter Fields Here**. Default filters are **Site**, **Parameter**, and **Report Value (Average)**. To add more **Filter Fields**, right-click in **Drop Filter Fields** area and select **Show Field List**. (or click **Show Column Choose** on the ribbon at the top of the screen .From the pop-up list you can either select and click the **Add to Filter Area** button, or click-drag to the **Drag Filter Fields Here area**.



Data Analysis Tool with pop-up Filter Field List (Reports menu)

After you drag a new **Filter Field** to the **Drop Filter Fields Here** area (which is a “holding” area where fields are not active but available for immediate reactivation) the new field will not be activated until you drag it to the column area. After that the new field information will be displayed. The screen shot below shows the new Filter Field **Week Day Name**. Scroll to the bottom of the report to see Totals.

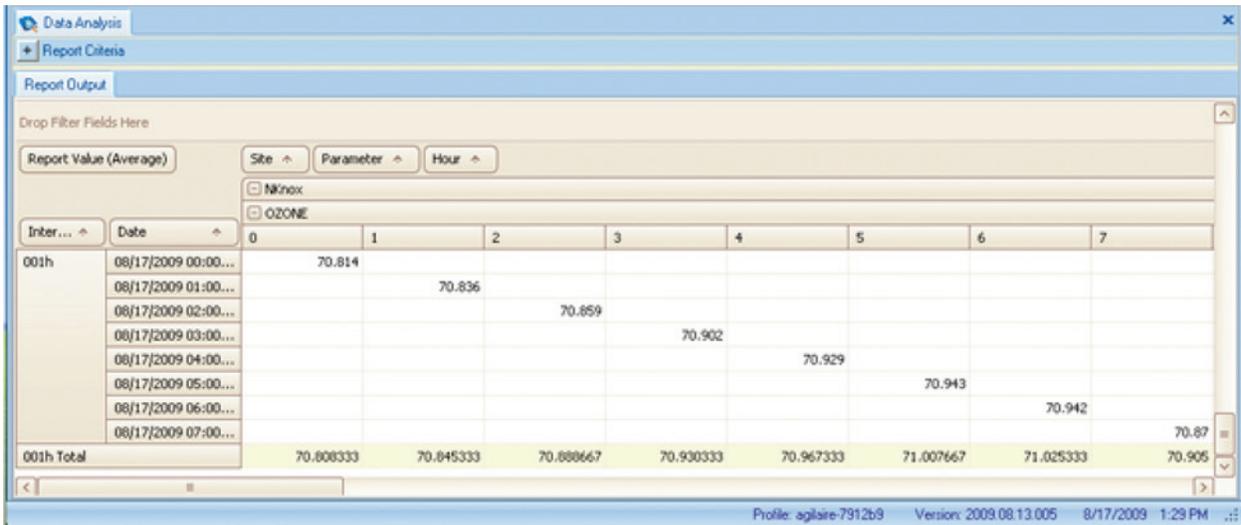
If you select **Week Day** instead of **Week Day Name**, you will get a numerically ordered display. To remove a header, right-click the header and select **Hide**. To move a header back to the inactive area, click and drag it.

The screenshot shows the 'Report Output' window of the Data Analysis Tool. The 'Drop Filter Fields Here' area contains the filter 'Week Day Name'. The report table displays OZONE data for the site 'NKnox' across various dates and times, categorized by the day of the week (Monday, Saturday, Sunday). Summary statistics (Average, Sum, Max, Min, Count) are provided for each day and a total for the entire 001h period.

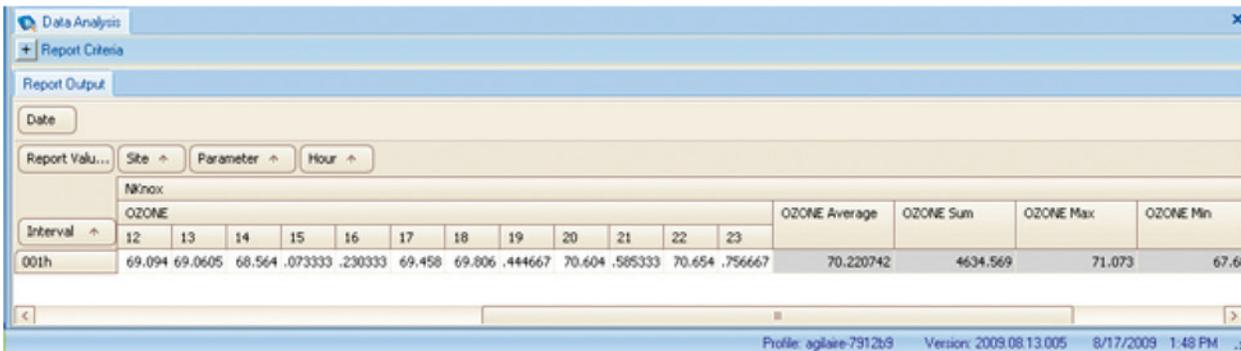
Report Value (Average)		Site	Parameter	Week Day Name	OZONE Average	OZONE Sum	OZONE Max	OZONE Min	OZONE Count
Inter...	Date	NKnox			OZONE				
		Monday	Saturday	Sunday					
001h	08/16/2009 21:00...			70.556	70.556	70.556	70.556	70.556	1
	08/16/2009 22:00...			70.643	70.643	70.643	70.643	70.643	1
	08/16/2009 23:00...			70.768	70.768	70.768	70.768	70.768	1
	08/17/2009 00:00...	70.814			70.814	70.814	70.814	70.814	1
	08/17/2009 01:00...	70.836			70.836	70.836	70.836	70.836	1
	08/17/2009 02:00...	70.859			70.859	70.859	70.859	70.859	1
	08/17/2009 03:00...	70.902			70.902	70.902	70.902	70.902	1
	08/17/2009 04:00...	70.929			70.929	70.929	70.929	70.929	1
	08/17/2009 05:00...	70.943			70.943	70.943	70.943	70.943	1
	08/17/2009 06:00...	70.942			70.942	70.942	70.942	70.942	1
	08/17/2009 07:00...	70.87			70.87	70.87	70.87	70.87	1
001h Total		70.886875	70.138417	70.192375	70.220742	4634.569	71.073	67.683	66

Data Analysis Tool with new Filter Field (in this example, Week Day Name) dragged to column area (Reports menu)

For example, if you select the **Filter Field**, you could drag the **Date field** up to the **Drag Filter Fields Here** area and deactivate the **Date column**.



Data Analysis Tool with Hour added as a new Filter Field (Reports menu)



Data Analysis Tool with the Date column deactivated (Reports menu)

In these examples, only one **Interval** was selected (001h), so you could simplify the grid further by deactivating the **Interval** column, i.e., drag it to the **Drop Filter Fields Here** area.

Report Value (Average)	Site	Parameter	Hour
Drop Row Fields Here			
NIKnox			
OZONE			
12	13	14	15
16	17	18	19
20	21	22	23
Report Value Total (Average)			
69.094	69.0605	68.564	.073333
.230333	69.458	69.806	.444667
70.604	.585333	70.654	.756667
OZONE Average			
OZONE Sum			
OZONE Max			
OZ...			
70.220742			
4634.569			
71.073			

Data Analysis Tool with the Date and Interval columns deactivated (Reports menu)

If you deactivate the **Interval column** (by dragging it to the **Drop Filter Fields Here** area), you can control how rows are displayed. For example, you could drag the **Hour** field into the **Drag Row Fields Here** area and the **Week Day Name** back into the column area.

Report Value (Average)	Site	Parameter	Week Day Name
Drop Filter Fields Here			
NIKnox			
CO Varp			
NO2			
Interval	Date	Friday	Monday
		Saturday	Sunday
		Thursday	Tuesday
		Wednesday	
		NO2 Average	NO2 Sum
001h	08/20/2009 15:00.00		
	08/20/2009 16:00.00		
	08/20/2009 17:00.00		
	08/20/2009 18:00.00		
	08/20/2009 19:00.00		
	08/20/2009 20:00.00		
	08/20/2009 21:00.00		
	08/20/2009 22:00.00		
	08/20/2009 23:00.00		
	08/21/2009 00:00.00	55.570	
	08/21/2009 01:00.00	55.558	
	08/21/2009 02:00.00	55.572	
	08/21/2009 03:00.00	55.58	
	08/21/2009 04:00.00	55.574	
	08/21/2009 05:00.00	55.568	
	08/21/2009 06:00.00	55.579	
	08/21/2009 07:00.00	55.549	
	08/21/2009 08:00.00	55.464	
001h Total		0.269988	55.567895
		55.73875	55.588875
		55.626042	55.542708
		55.442958	55.399542
		55.587258	9060.723

Data Analysis Tool with the Date and Interval columns deactivated, Hour dragged into Drag Row Fields area, and Week Day Name moved back into the column area (Reports menu)

Composite statistics for a month could be broken down by hour and day of the week or you could combine data for more than one site by using filters to break down data into different categories. If you move **Site** back to the **holding area**, the filter will be removed and data will be grouped together, which means you won't have to scroll to see a second site.

Similarly, multiple parameters could be grouped or merged, for example when ozone parameters go by different names.

The screenshot shows the 'Data Analysis' tool interface. The 'Report Output' section is active, displaying a table with the following columns: Interval, Date, Friday, Monday, Saturday, Sunday, Thursday, Tuesday, Wednesday, CO Average, CO Sum, and CO Max. The parameter is set to 'CO'. The data shows hourly CO readings from August 20, 2009, to August 21, 2009. A '001h Total' row is at the bottom of the data grid.

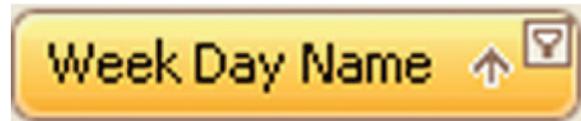
Interval	Date	Friday	Monday	Saturday	Sunday	Thursday	Tuesday	Wednesday	CO Average	CO Sum	CO Max
001h	08/20/2009 14:00:00					58.27			58.27	58.27	58.27
	08/20/2009 15:00:00					58.18			58.18	58.18	58.18
	08/20/2009 16:00:00					58.32			58.32	58.32	58.32
	08/20/2009 17:00:00					58.23			58.23	58.23	58.23
	08/20/2009 18:00:00					58.09			58.09	58.09	58.09
	08/20/2009 19:00:00					58.05			58.05	58.05	58.05
	08/20/2009 20:00:00					58.06			58.06	58.06	58.06
	08/20/2009 21:00:00					58.06			58.06	58.06	58.06
	08/20/2009 22:00:00					58.07			58.07	58.07	58.07
	08/20/2009 23:00:00					58.07			58.07	58.07	58.07
	08/21/2009 00:00:00	58.06							58.06	58.06	58.06
	08/21/2009 01:00:00	58.06							58.06	58.06	58.06
	08/21/2009 02:00:00	58.1							58.1	58.1	58.1
	08/21/2009 03:00:00	58.1							58.1	58.1	58.1
	08/21/2009 04:00:00	58.09							58.09	58.09	58.09
	08/21/2009 05:00:00	58.08							58.08	58.08	58.08
	08/21/2009 06:00:00	58.09							58.09	58.09	58.09
	08/21/2009 07:00:00	58.06							58.06	58.06	58.06
	08/21/2009 08:00:00	57.94							57.94	57.94	57.94
001h Total		58.082:05	58.283333	58.101667	58.149583	58.04125	58.1625	57.8575	58.097301	9469.86	59.03

Data Analysis Tool with the Date and Interval columns deactivated, Hour dragged into Drag Row Fields area, Week Day Name moved back into the column area, and Site moved into "holding" area (Reports menu)

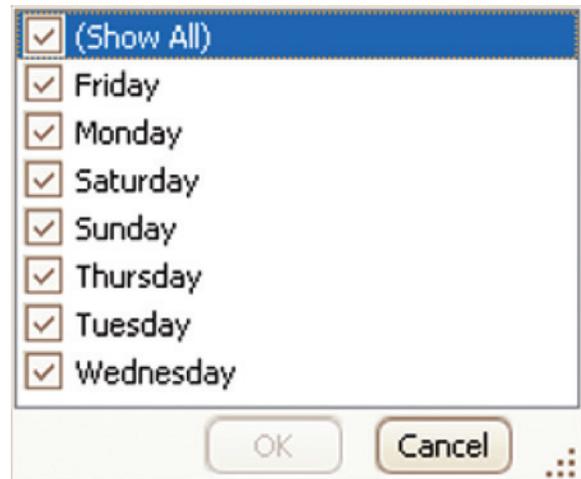
You can manipulate the way data is displayed in Data Analysis Report further as follows:

- ◆ With the cursor over a **Filter name**, click the small up or down arrow to change the sort order of that Filter.
- ◆ Hover the cursor over a **Filter name** and click the small filter icon that appears in the upper right corner. to open a pop-up list of each aspect of the Filter. In this example, you could remove weekend days from analysis; if **Hour** was selected as a filter, you could toggle settings to include only commuting hours.

If you left-click **Report Value**, you can select from the following options: **Count**, **Sum**, **Min**, **Max**, **Average** (the default), **StdDev**, **StdDevp**, **Var**, **Varp**, and **Custom**. Changing this selection can be helpful for answering questions like “What is the highest value for Monday, 9 a.m. for the entire year?”



Filter name showing arrow and filter icon



Display names for Week Day Name

Saving Grid Layouts as Favorites

The **Favorites editor** only saves the data query itself, not the changes in filters. To save an analysis layout, click **Save Grid Layout** or **Apply Grid Layout** on the ribbon at the top of the screen.

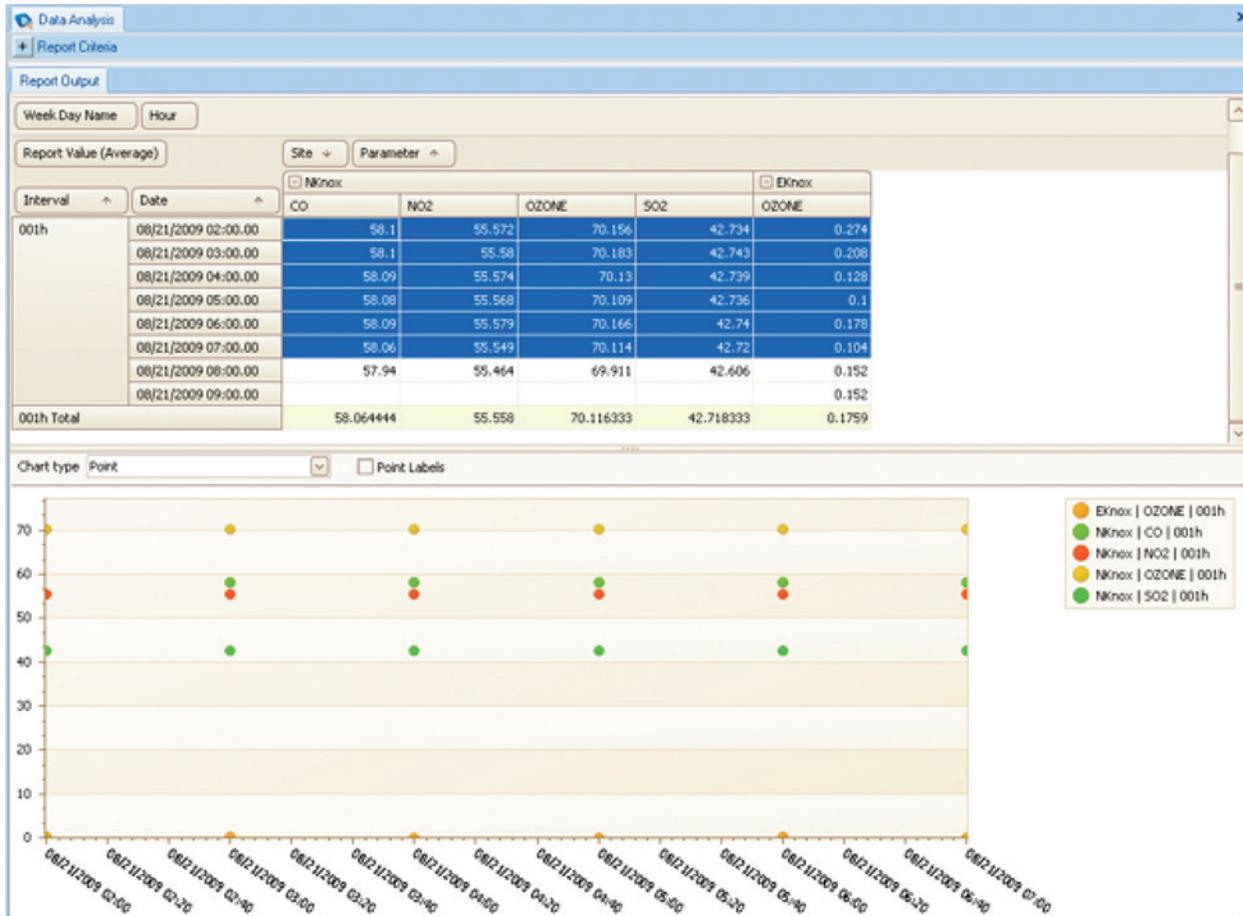


Save Grid Layout and Apply Grid Layout buttons in the ribbon at the top of the Data Analysis Report screen

Chart Display

To display the data analysis report as a chart, click the **Show Chart** button in the ribbon at the top of the page and select a row, column, or range of cells. The following figure shows a Point graph by Hour.

The **Bar graph** (shown earlier) is generally well-suited for any data selection.



Data Analysis report displaying data as a Point graph