

# AirVision

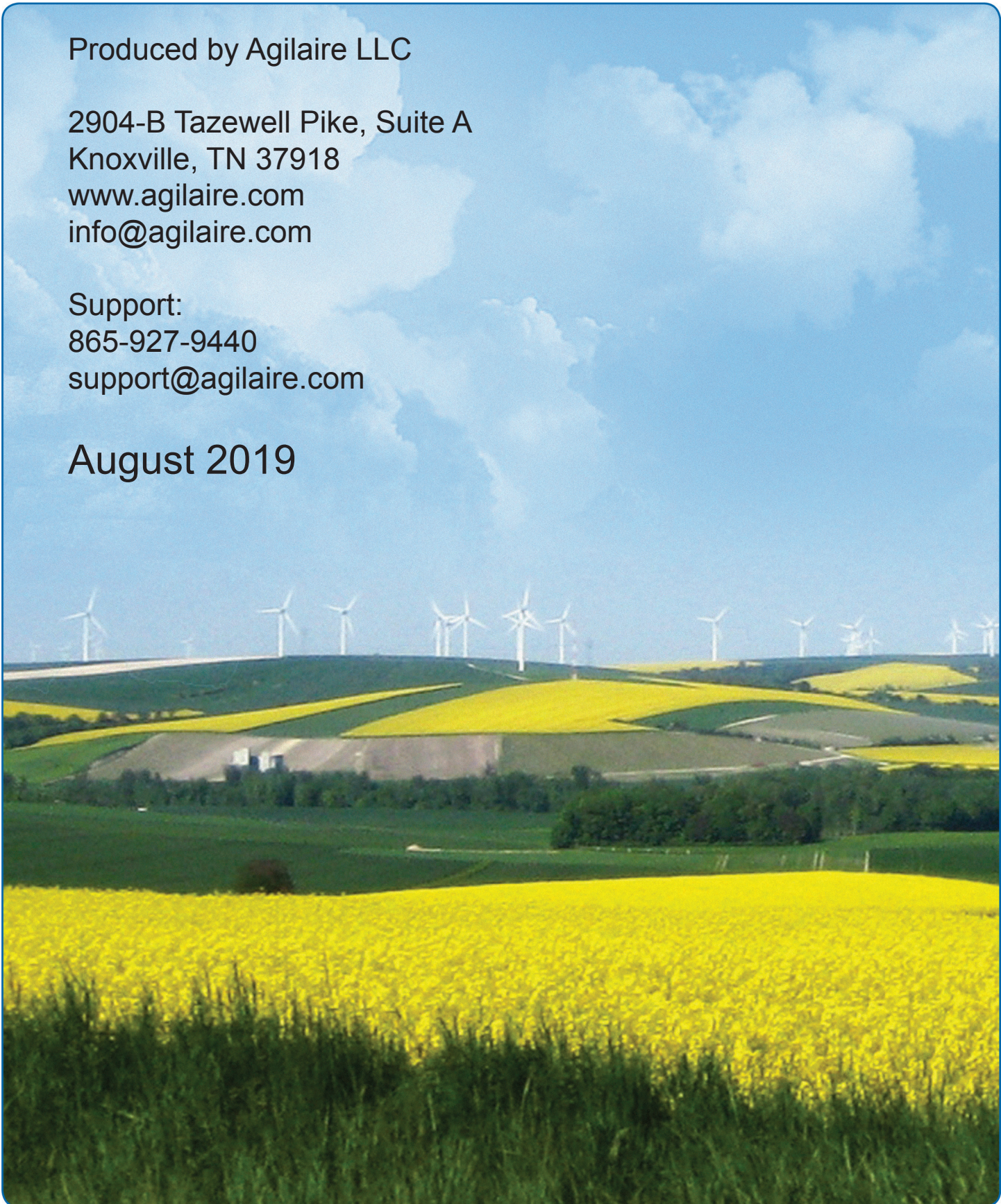


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<b>Introduction to AirVision Concepts</b>	<b>10</b>
Open Data Acquisition and Import	10
Combined Data Editing and QA Tools	10
Post-processing/Workflow	11
User-defined Shortcuts For Communication Activities	12
Sophisticated Data Relationships	12
<b>Chapter 1 Installing AirVision</b>	<b>13</b>
Installing Microsoft .NET Framework	14
Installing SQL Server	15
Installing the AirVision Database	15
Installing the AirVision Server	21
Running Standard or Enterprise SQL Server 2008 or 2012	21
Running SQL Server Express	21
Installing the AirVision Client on Secondary Computers	22
Logging In to AirVision	22
Accessing Profiles After Logging In	23
<b>Chapter 2 Configuring AirVision</b>	<b>24</b>
Configuring System Preferences	26
Importing (Converting) E-DAS Data	27
Site and Parameter Setup	28
Adding and Editing Sites	28
Adding and Editing Parameters	31
Configuring Parameter Templates	35
Adding Loggers to Sites in Data Source Details	37
Text Strings in Digital I/O	38
Logger Properties Tabs	38
Channel Configuration	40
Basic Channel Information	40
Basic Channel Types	41
Meteorological Channel Types	45
CEM Channel Types	48
Adding Channels to Data Loggers	50
Special Case- External Channels	53
Validation and Flags	54
Parameter Tag Editor	57
Database Export	57
Adding Communication Routes	58



TCP/IP Routes _____	58
Adding Serial Routes for Direct Communication _____	60
Adding Remote Modems _____	61
Adding a Modem Route for Central Modem _____	62
Associating an Existing Route to a Logger _____	63
Testing Your Connection (Model 8816 / 8832 only) _____	64
Logger Download (Model 8816 / 8832 only) _____	65
Downloading Channel Configurations (8816 / 8832 Loggers) _____	66
Setting Up Calibrations _____	67
Calibration Expected Values Editor _____	68
Configuring Automatic Calibrations _____	69
Configuring Phases _____	70
Externally Initiated Calibration _____	71
Configuring Instrument Controlled Calibrations _____	73
Configuring Interactive (Menu) Calibrations _____	74
Configuring User-Initiated Calibrations _____	75
Configuring Input/Output Lines for Digital Events _____	76
Configuring Digital Timed Events _____	76
Configuring Digital Triggered Events _____	77
Configuring DI-Triggered GSI Events _____	80
Setting Up Email Services and Alarms _____	81
Scheduling Tasks _____	84
Task Scheduler _____	84
Schedule Task Wizard _____	95
Direct Instrument Polling _____	99
BAM-Specific Application Notes (Important!) _____	102
Task Display _____	103
Favorites Editor _____	104
Creating a Favorite _____	104
Favorite Detail Tab _____	104
Favorite Query Tab _____	104
Configuring Security _____	106
User Editor _____	106
My User Settings _____	107
Groups Editor _____	107
Group Permissions _____	108
GSI Driver Editor _____	109
Configuring Reports _____	110
AirNow/FTP Setup _____	111



AQI Program Editor _____	112
Frequency Distribution and Concentration Distribution Editor _____	114
Wind Rose Levels Editor _____	115
Violation of Standards Editor _____	116
<b>Chapter 3 Reports _____</b>	<b>117</b>
Criteria Pane _____	120
Filters _____	121
Additional Fields for Specific Reports _____	123
Summary Reports _____	124
Daily Summary Report _____	124
Daily Parameter Report _____	125
Monthly Report _____	126
24-Hour Averages Summary Report _____	128
8-Hour Rolling Average Report _____	129
Calibration Reports _____	130
1-Point QC Summary Report _____	130
Calibration Export _____	130
Calibration Graph Report _____	131
Calibration Results _____	132
Calibration Trend Graph _____	133
Calibration X-Bar-R Chart _____	135
Calibration Zero/Span Graph Viewer _____	135
Multi Phase Calibration Report _____	136
USEPA Zero Drift Report _____	136
The Converter Efficiency Span and Precision Reports _____	137
Statistical Reports _____	138
Concentration Distribution Report _____	138
Data Analysis _____	139
Data Completeness Report _____	140
Data Recovery Report _____	140
Frequency Distribution Report _____	141
Maximum Hourly Values _____	142
Network Data Recovery Report _____	143
Statistical Reports _____	143
AIRNow Reports _____	144
AIRNow AQSCSV Report _____	144
AIRNow Report (old "OBS Format") _____	145
AQS Reports _____	146
AQS 2.2 Text Report _____	146
AQS XML 2.2 Report / XML 3.0 Report _____	147



USEPA Reports _____	148
Precision Reporting for Gases _____	148
AQI Reports _____	149
AQI Levels Report _____	149
AQI Monthly Group Report _____	149
AQI Monthly Report _____	150
AQI Report — Current _____	151
AQI Report — Range _____	152
AQI Report — Standard _____	153
Voice AQI Report _____	153
Asset Reports (Optional, with Asset Tracking Module) _____	154
Asset Export Report _____	154
Asset History Report _____	154
Parameter Asset History Report _____	155
Configuration Reports _____	156
Analog Outputs Configuration Report _____	156
Average Alarm Report _____	156
Calibration Alarm Configuration Report _____	156
Calibration Configuration Report _____	157
Channel Configuration Report _____	158
Channel Equation Report _____	158
Digital IO Configuration Report _____	159
GSI Configuration Report _____	160
Logger Configuration Report _____	160
Math Equation Report _____	160
Notification Configuration Reports _____	161
Parameter Configuration Report _____	161
Scheduled Tasks Report _____	162
Site Configuration Report _____	163
Internal Reports _____	164
Audit Change Viewer _____	164
DB Modification History _____	165
Diagnostic Report _____	166
Exception Journal Report _____	167
Journal Message Log _____	168
Login Event History _____	168
Login Session History _____	169
Site Node Logger Status Report _____	169
Software Version Report _____	170
Table Size Information _____	171



Logger Reports _____	172
Alarm Journal _____	172
Central Messages _____	172
Input Line Status Report _____	173
Power Failure Report _____	174
Met Reports _____	175
Joint Frequency Distribution Report _____	175
Meteorological Report _____	176
Wind/Pollution Rose _____	177
PARS Reports _____	178
Accuracy Report _____	178
Precision Report _____	178
Sample Data Reports _____	179
Basic Sample Data Report _____	179
Monthly Sample Data Report _____	180
Sample Annotations Report _____	181
Sample/Hourly Daily Comparison Graph _____	182
Sample Hourly Comparison Graph _____	183
Sample Data Graph _____	184
Other Notations Reports _____	185
Annotations Report _____	185
Audit Trail Report _____	185
LogBook Report _____	186
Average Reports _____	187
Average Data Trend Report _____	187
Basic Data Report _____	188
Data with Flags _____	189
Other Reports _____	190
Cumulative Report _____	190
Site Health Report _____	191
Violation of Standards Report _____	192
<b>Chapter 4 Data Editors _____</b>	<b>193</b>
Average Data Editor _____	194
Linear Data Editor _____	195
Cell Color Codes in Flags Editor _____	196
Right-Click Options _____	197
Cross-Tab Data Editor _____	198

Matrix Data Editor _____	199
Time Series Graph _____	200
Scatter Plot Graph _____	204
Histogram _____	205
Batch Reading Updater _____	206
Annotate Data Editor _____	207
Sample Data Editor _____	208
PM Calculator in Sample Data Editor _____	209
Methods for Sample Data Handling in AirVision _____	210
The Sample Calculator _____	213
Co-Located Samplers _____	215
Enhancements To The Sample Data Editor (Version 2.10) _____	217
Calibration Data Editor _____	219
Lock/Unlock Data _____	221
LogBook Entry Editor _____	222
Cal Adjust Processor (Optional) _____	223
<b>Chapter 5 Help &amp; Support _____</b>	<b>225</b>
Agilaire Support _____	226
AirVision Manual _____	226
AV-Trend Manual _____	226
Software Release Info _____	226
Video Tutorials _____	226
<b>Chapter 6 Utilities &amp; List Editors _____</b>	<b>227</b>
Manual Poll _____	228
Link To Logger (8816 / 8832) _____	229
Purge/Archive Utilities _____	230
SQL Execution Tool _____	231
Table Import/Export _____	232
Logger Download _____	232
Manual Instrument Poll _____	233
AQS Text and XML Import _____	233
AQS XML Import Tool _____	233
AQS Text Import Tool _____	234
Fill Data Gaps _____	234
List Editors _____	235
Log Book Category Editor _____	235
Math Editors _____	236
Central Math Processor _____	236
Modem Types _____	238
Parameter Tag Editor _____	239

Unit Editor _____	240
Journal Controller _____	241
<b>Chapter 7 Optional Features _____</b>	<b>242</b>
Automatic Data Validation Processor (ADVP) _____	243
Time-specific rules (day/night, rush hour) _____	247
Suggestions for Initial ADVP Rules _____	248
File Import Configuration _____	249
Configuring File Import Templates _____	250
Creating a Template _____	251
Mapping Columns _____	252
Row-Wise Import _____	253
Enhanced File Import Tool _____	254
Flag Mapping Table _____	256
File Import Tool – Advanced Options _____	258
Advanced Tab _____	258
Back Stamp One Time Interval _____	258
Apply Null Code _____	258
Apply Flags _____	259
Processing Tab _____	259
Save In Batches _____	259
Find And Replace _____	259
P & A (PARS) Editor _____	260
PARS Precision Editor _____	260
PARS Accuracy Editor _____	262
Monitor Assessment Editors and Reports _____	265
Monitor Assessment _____	268
Annual Performance Evaluation _____	268
Duplicate Assessment Details _____	270
Field Proficiency Test Details _____	271
Flow Rate Coarse Details _____	272
Flow Rate Verification Details _____	274
National Performance Audit _____	275
One Point Quality Control _____	277
Performance Evaluation Program Details _____	278
Replicate Assessment Details _____	279
Semi-Annual Flow Rate Audit Coarse Details _____	280
Semi-Annual Flow Rate Audit Details _____	282
Monitor Assessment Reports _____	283
Annual Performance Evaluation Report _____	283
Duplicate Assessment Report _____	283
Field Proficiency Test Details Report _____	284



Flow Rate Coarse Details Report _____	284
Flow Rate Verification Details Report _____	285
National Performance Audit Report _____	285
One Point Quality Control Report _____	286
Performance Evaluation Program Details Report _____	286
Replicate Assessment Details Report _____	287
Semi-Annual Flow Rate Audit Coarse Details Report _____	287
Semi-Annual Flow Rate Audit Details Report _____	288
Data Rollup Processor _____	289
Asset Tracking & Work Task Tracking Module (Option) _____	291
Asset Tracking _____	291
Reports _____	293
Work Task Tracking _____	294
Work Item Editor (for Supervisors) _____	294
Work Items (Viewer for Site Staff) _____	295
Using the Asset Tracking Tool to Create an Enhanced Logbook _____	297
Introduction _____	297
Typical Architecture _____	297
Transferring Entries _____	298
Transfer via Sync _____	298
Transfer via Polling an 8872 _____	299
Other Ways to Automatically Create Logbook Entries _____	302
Backing Up _____	302
Browser Reporting Portal (AgileWeb) _____	303
ANT - Using the Advanced Normalization Tool Module _____	308
Overview _____	308
Setting Up Real-Time Data Correction _____	309
Linear Correction _____	309
Polynomial Correction _____	310
Linear Regression _____	310
Distance Weighted Regression _____	311
Scheduling Real-Time Correction Tasks _____	312
Manual ANT Utility _____	313
Applying a Calculated Regression from Collocation Data To Fixed Correction _____	314
Other Notes _____	314
<b>Appendix _____</b>	<b>315</b>
AQI Web Service _____	315
Data Analysis Tool _____	317
Using the Data Analysis Tool (Optional) _____	318
Saving Grid Layouts as Favorites _____	325
Chart Display _____	326

## 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 is required to be installed on Windows 7, 8 or 10, Server 2008R2, 2012 or 2016 with a recommended 8GB of RAM or more, under the administrative login of the system, with 500GB hard drive **minimum** with Intel 5 processor, but Intel 7 is recommended. Before AirVision can be installed, the following software must be installed on your computer: **SQL Server 2008R2 SP3, SQL Server 2012, SQL Server 2014, SQL Server 2016** or **SQL Express** with all available service packs, as well as **.NET Framework includes version 4.5.2**. 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, Server 2012, or Server 2016  
SQL Server 2008 R2 SP3, 2012, 2014, or 2016
- ◆ Microsoft .NET Framework versions 4.5.2.
- ◆ i7 processor or equivalent
- ◆ 8GB memory minimum
- ◆ 500GB hard drive minimum, 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, Server 2012, or Server 2016
- ◆ Microsoft .NET Framework version 4.5.2.
- ◆ i5 processor, i7 processor recommended
- ◆ 8GB memory minimum
- ◆ 500GB hard drive minimum
- ◆ 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, Server 2012 or Server 2016  
SQL Server 2008R2 SP3, 2012, 2014, or 2016
- ◆ Microsoft .NET Framework version 4.5.2.
- ◆ i5 processor, i7 processor recommended
- ◆ 8GB memory minimum
- ◆ 500GB hard drive minimum, 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, 4.0 and 4.5.2 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 4.0 and 4.5.2 must be installed.

⇒ **Important!** Although AirVision will operate with either SQL Server or SQL Express, SQL Express has a file size limit of 10G, 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 2008R2 SP3, 2012, or 2016 to avoid upgrading later.

SQL Express will stop functioning when it has reached its capacity of 10G.

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 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.

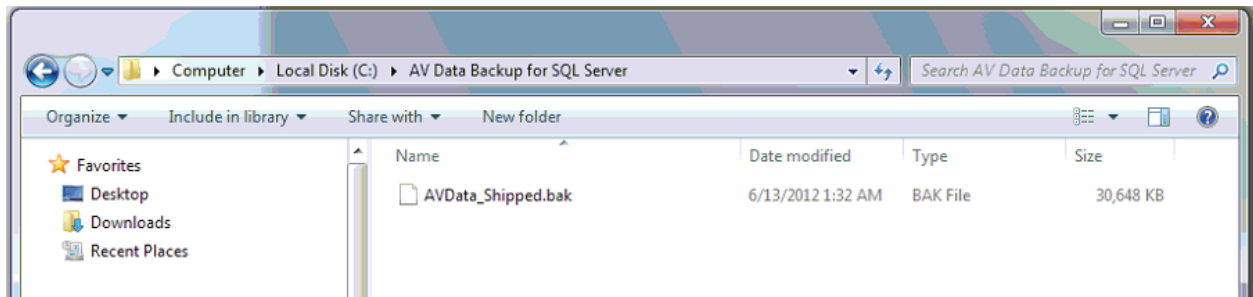
⇒ **Important!** If SQL Express is installed on the same computer as AirVision Server, the **SQL Express login name** must be **.\SQLEXPRESS** instead of your computer name.

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.

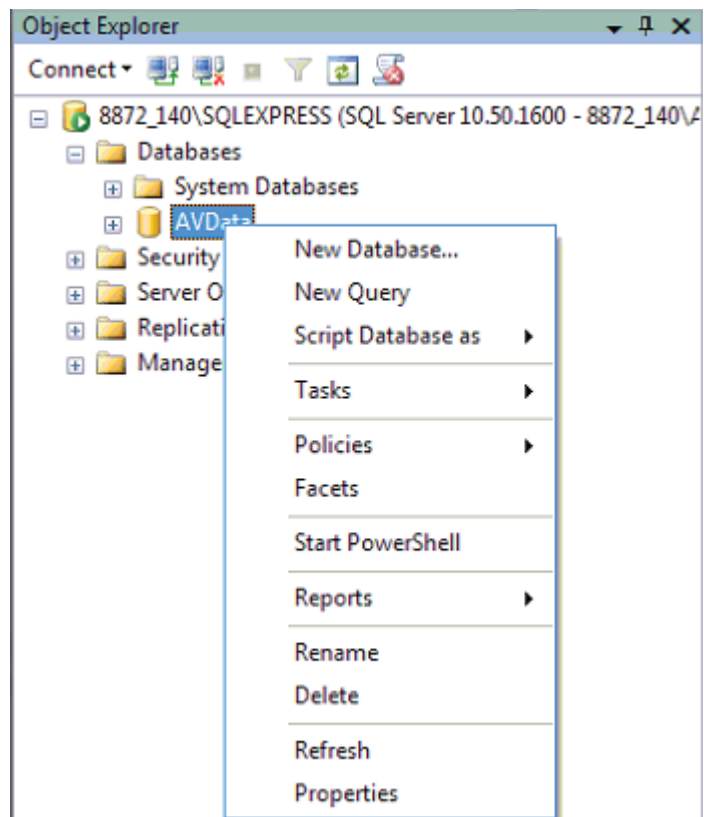
## Installing the AirVision Database

After you have installed SQL Server:

1. From the Windows **Start** menu, select **All Programs > Microsoft SQL Server** (or **Microsoft SQL Server 2008R2**) > **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.




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. The '!' button is called the ellipsis button.

Specify the source and location of backup sets to restore.

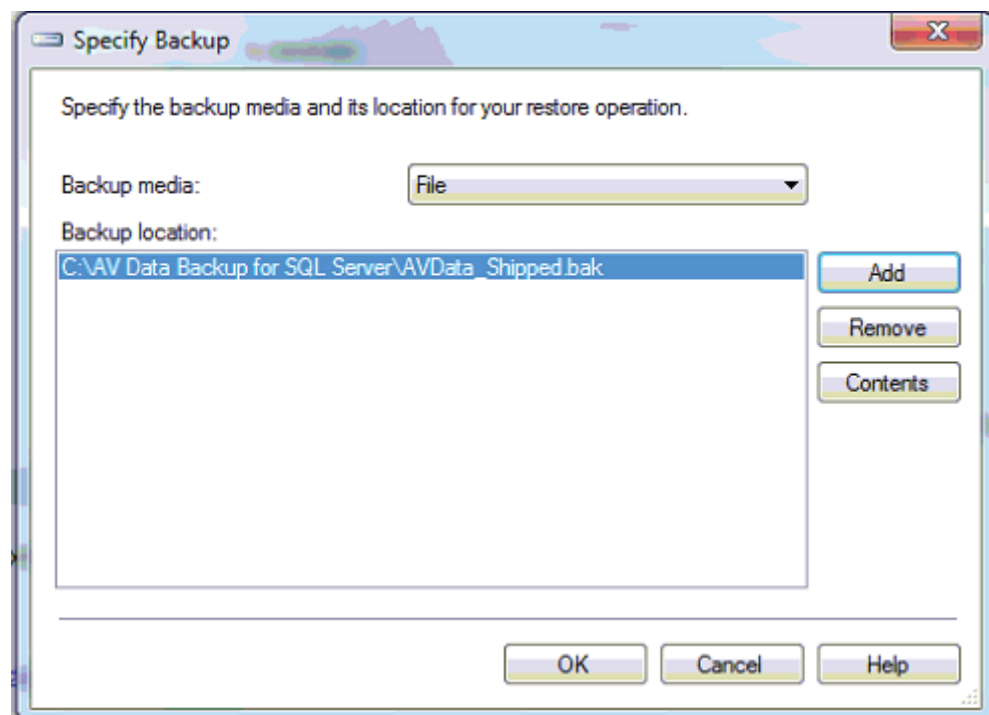
From database:

From device:  

Select the backup sets to restore:

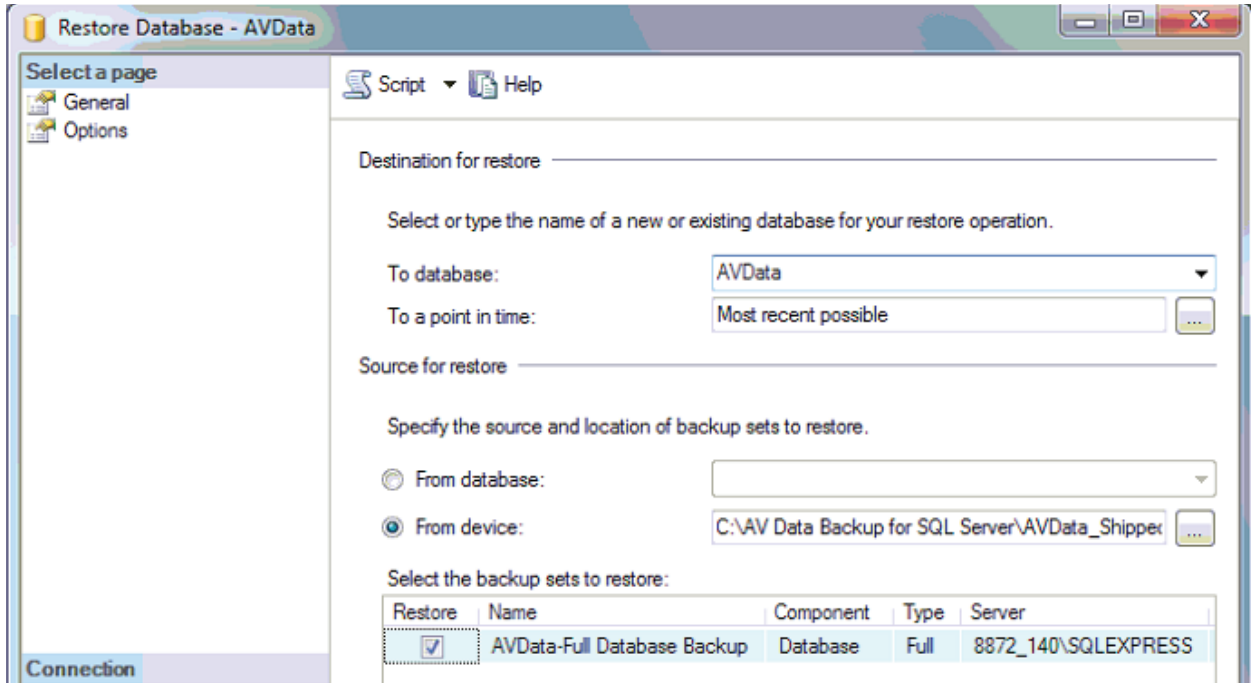
Restore	Name	Component	Type	Server	Database	Position	First LSN	Last LSN

8. Click the Add button and select the AVData\_Shipped.bak file provided by Agilaire, then click **OK**.



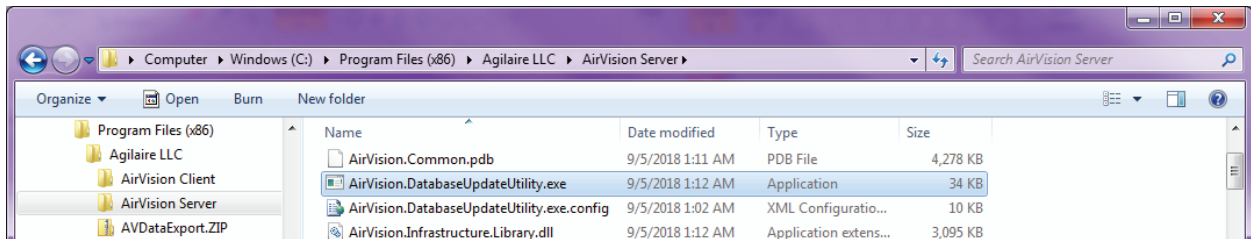


- Set the 'To database' as AVData, place a check mark in the box next to the .bak file you selected, then click **OK**.

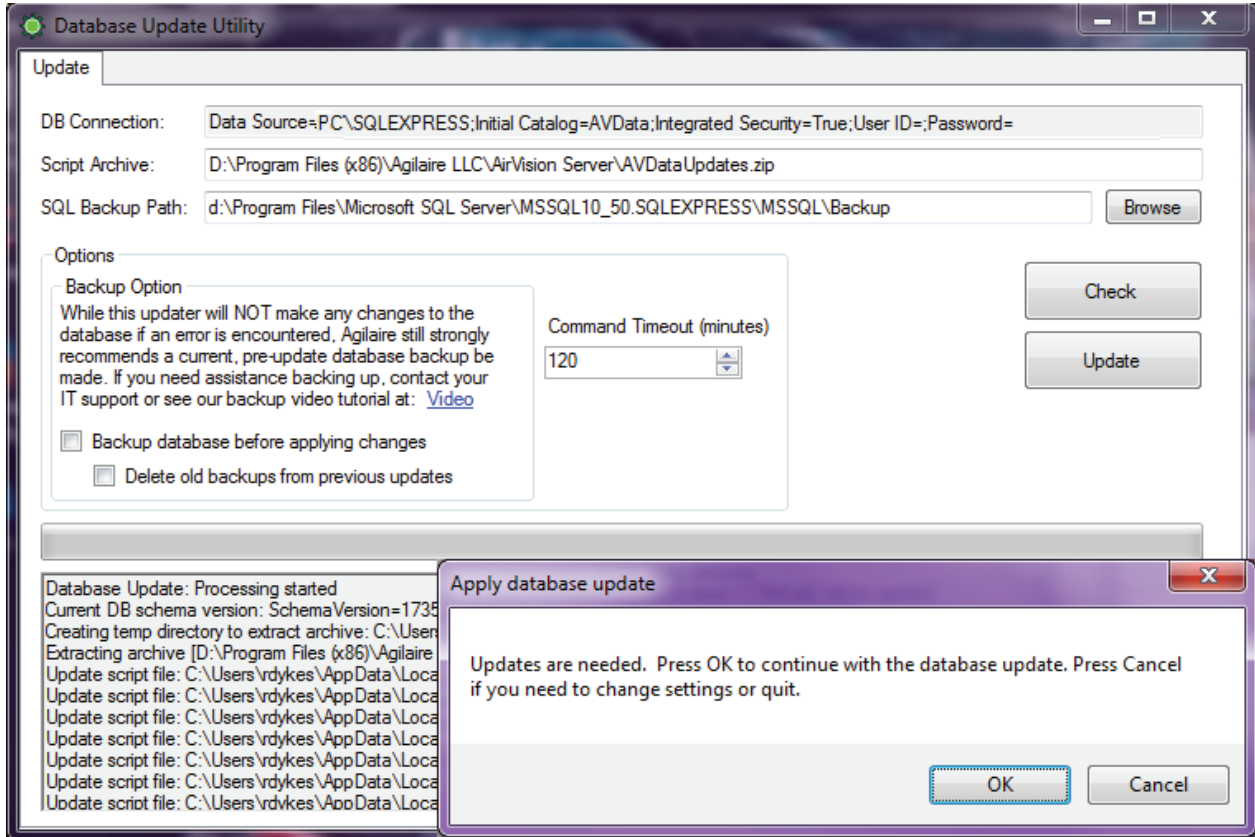


- Once the restore completes, start the AirVision Server service that you stopped in step 3.

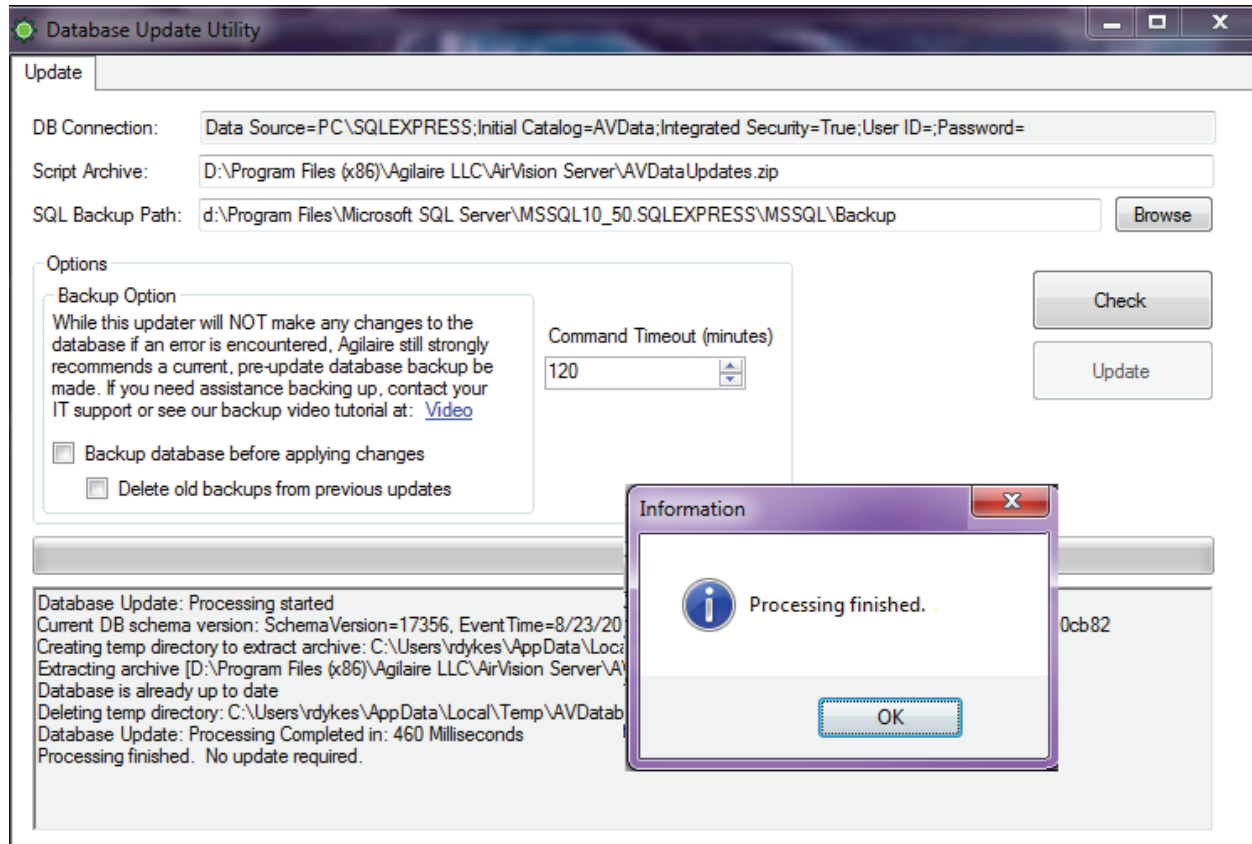
- If you are not 100% certain that your database matches the version of the software you are running, navigate to **C:\Program Files\Agilaire LLC\AirVision\Server** and launch the **AirVision.DatabaseUpdateUtility**.



12. If you have a newer version of AirVision installed than what was originally loaded on the system, the Database Update Utility will open. Click the OK button to update the database.



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



14. Click OK and the Database Update window will close.

15. Restart the AirVision Service.

16. 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 the setup.exe file to install the server part of the AirVision software.
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 and click OK.

## Running Standard or Enterprise SQL Server 2008/2012/2014/2016

After you have installed the AirVision SQL database and the AirVision Server, continue to browse the AirVision installation files. Double-click to open the folder **Client**. Within the Client folder, double-click the setup.exe file. Click **Next** in the first screen to continue.

## 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.

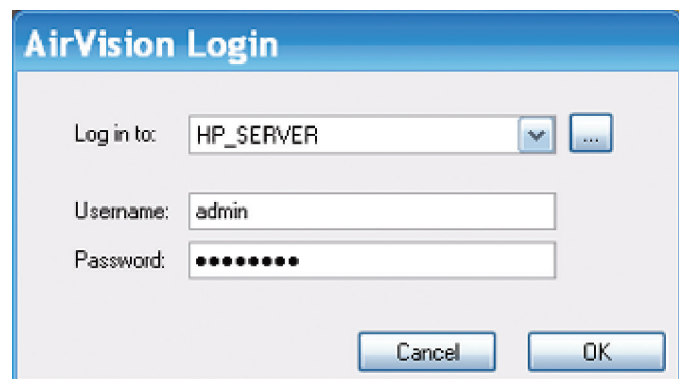
Don't make any other changes. Don't add any other characters or spaces or delete any previously existing characters or spaces because unnecessary changes can cripple the operation of the conversion utility. After you have replaced **local** with **yourcomutername\SQLEXPRESS**, save and close the file, 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.

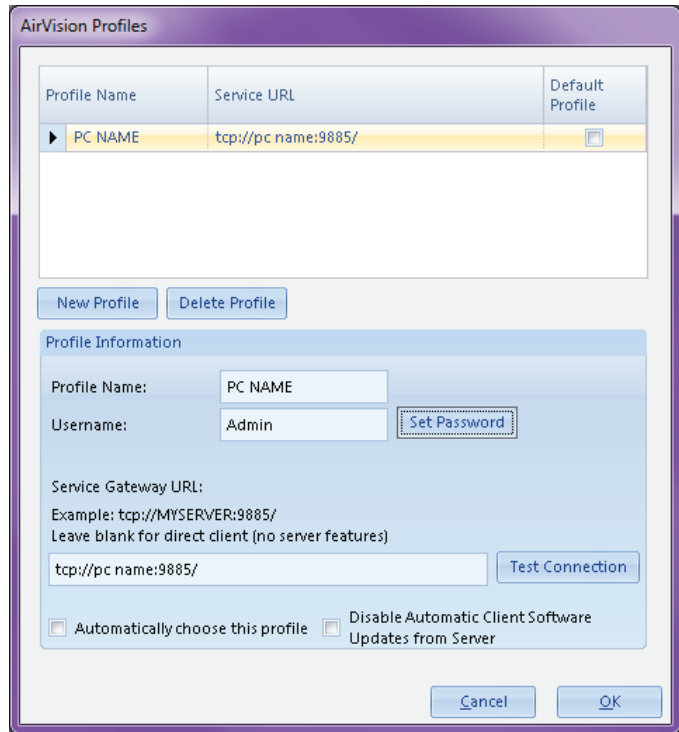


AirVision Login

In the profiles screen, click the **Add Profile** button. If your Server and Client are on the same machine, accept the default PC name. 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.

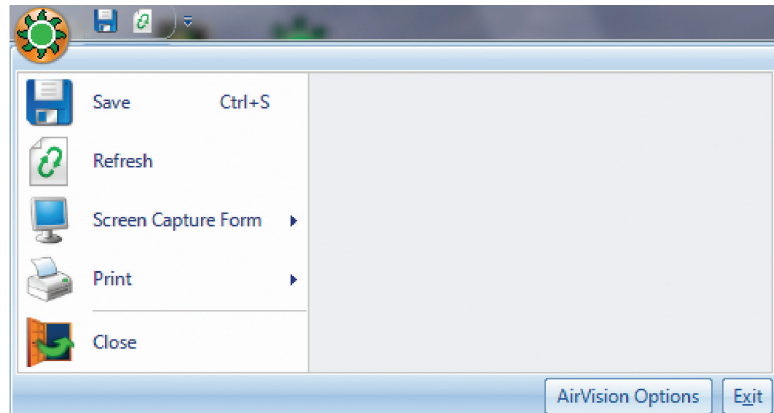


Air Vision Profiles

### 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  
*Status Displays > Task Status*
- ◆ Favorites Editor  
*Configuration Editors > Favorites Editor*
- ◆ Configuring Security  
*Configuration Editors > Security*
- ◆ GSI/Modbus Driver Editors  
*Configuration Editors > GSI/Modbus Drivers*
- ◆ Configuring Reports  
*Configuration Editors > Report Configurations*
- ◆ AIRNow/FTP Setup  
*Configuration Editors > Report Configurations*
- ◆ 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:

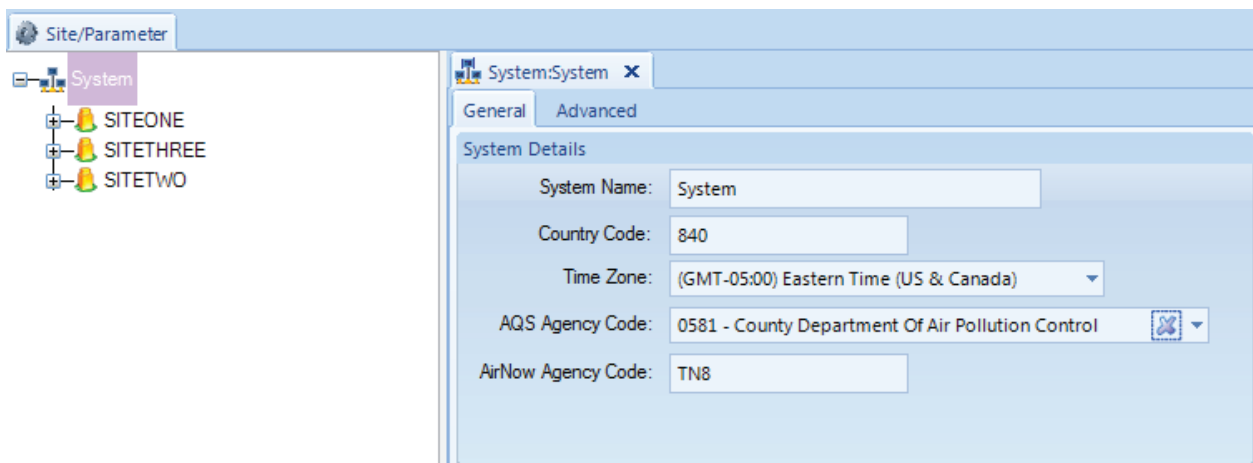
**System Name** can be left defaulted to System.

**Country Code** is defaulted to 840 for the United States.

**Time Zone** is the zone where the central polling PC is located.

**AQS Agency Code** (four digit numerical code provided by EPA, used for AQS reporting of 1-point QC checks) and can be selected from the drop down list.

**AirNow Agency Code** (three digit alpha numeric code provided by STI, used for hourly AQCSV reports to AirNow).



The screenshot displays the 'Site/Parameter' configuration editor. On the left, a tree view shows a 'System' folder containing three sub-items: SITEONE, SITETHREE, and SITETWO. The main panel is titled 'System: System' and has two tabs: 'General' and 'Advanced'. The 'General' tab is active, showing 'System Details' with the following fields:

System Name:	System
Country Code:	840
Time Zone:	(GMT-05:00) Eastern Time (US & Canada)
AQS Agency Code:	0581 - County Department Of Air Pollution Control
AirNow Agency Code:	TN8

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:**

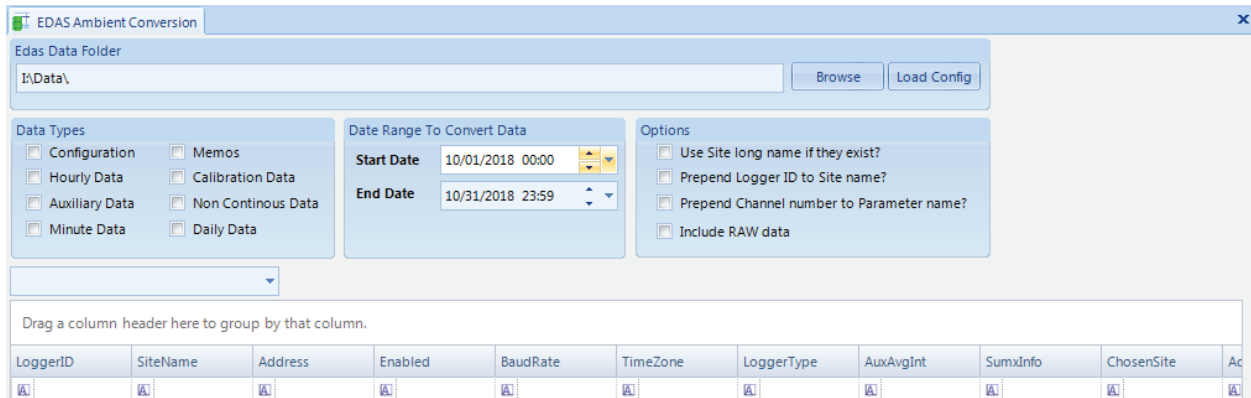
- Configuration
- Hourly Data
- Auxiliary
- Minute Data
- Calibration Data
- Non Continuous Data
- Daily Data

**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.

**General**

Name: SITEONE Description:

Abbreviation:  Time Zone: (GMT-05:00) Eastern Time (US & Canada) Enabled:

**Miscellaneous**

Latitude: (e.g., 45.04580) 33.275986 EPA Site: 7001

Longitude: (e.g., -75.4085) -111.96069 AIRNow Mnemonic: SITEONE

File Import Code:

EPA County or Tribal Code: 47 - TN, 093 - Knox

Site Group:

**Address**

Street Address 1: 1904-B

Street Address 2: Suite A

City: Knoxville

County: Knox

State Region: TN

Zip Code: 37918

**Additional Information**

Site Metatags	
Name	Value
<input checked="" type="checkbox"/> <input type="text"/>	<input type="text"/>
▶ AQCSVSiteCode	1025
SiteIdentifier	7001

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 (optional)                Brief description of the site, e.g., North Knoxville.
- ◆ Abbreviation                            This field is used for special file import formats only
- ◆ Time Zone (Required)                 Select from drop-down list the zone where the site is located.
- ◆ Enabled  
(Required for polling  
& reporting)                              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                                 Type in the four-digit site code provided by EPA.
- ◆ AIRNow Mnemonic                      Optional, used only by the now obsolete OBS format.
- ◆ File Input Code                         Single character used for file import templates in special cases only.
- ◆ EPA County or Tribal  
Code                                         Select from the drop down list the county or Tribal code provided by EPA.
- ◆ Site Group - (Optional)                Allows user to organize sites into user-defined groups (e.g., “Rural”, “Downtown”, “NCore”). Names of parameter groups must first be entered into the **Site Groups Editor** in Configuration->List Editors. Normally, this is an AirVision Server-Side function, and is only shown in the 8872 / Site AV-Trend PCs for display purposes.



- ◆ 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**.

The screenshot shows the 'Site:SITEONE Parameter:OZONE' configuration window. The fields are as follows:

- Site:** SITEONE
- Parameter:** OZONE
- Parent Parameter:** (empty)
- Parameter Group:** (empty)
- Parameter Template:** OZONE
- Apply** button
- Enabled:**  **Enable AIRNow Reporting:**  **Filter From Web Site:**
- Parameter Data Type:**
  - Average / Continuous
  - Continuous Sample
  - Sample / Non-Continuous
- Description:** Ozone PPM
- Math Equation (if Calculated):** (empty)
- EPA POC:** 1
- EPA Method:** 321
- EPA Units:** 007 - Parts per million
- EPA Parameter:** 44201 - Ozone
- Reported Digits:** 4
- Precision:** 1 **Calibration Precision:** 1
- Truncate Round Rule:**  Round  Truncate
- Reported Units:** PPM
- Analyzer Units (if different):** (empty)
- Graph Minimum:** -50.0
- Graph Maximum:** 500.0
- Calibration Span:** 1.00
- Instrument Detection Limit:** (empty)
- Limit Of Quantization:** (empty)
- Minimum Detectable Limit:** (empty)
- Practical Quantization Limit:** (empty)
- Parameter Report Order:** (empty)
- Totalize in Reports  Minimum in Reports

**Additional Information**

Parameter Metatags	
Name	Value
<input checked="" type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>
▶ AQSAgencyCode	1025
▶ ParmIdentifier	44201

Parameter Configuration from the Site/Parameter Editor in Configuration Editors

The **Parameter** screen displays the following fields:

- ◆ Site The Site you selected in the Site/Parameter tree will automatically be displayed.
- ◆ Parameter Alphanumeric characters to identify the Parameter

- ◆ **Parent Parameter**

A Parent Parameter can be designated to form relationships that can be used for drill-down in the Data Editor. For example, a primary analyzer pollutant such as NO<sub>x</sub> could be a parent and designated diagnostic parameters such as sample flow or box temperature could be children. Another example would be to assign particulate parameters as parents and metals for XRF (X-ray fluorescence) analysis as children. If the parameter has a parent parameter, select it from the drop-down list.
  
- ◆ **Parameter Group - (Optional)**

Allows user to organize parameters into user-defined groups (e.g., “Gases”, “Met”, “Particulate”, “PAMS”). Names of parameter groups must first be entered into the **Parameter Groups Editor** in Configuration->List Editors. Normally, this is an AirVision Server-Side function, and is only shown in the 8872 / Site AV-Trend PCs for display purposes.
  
- ◆ **Parameter Template**

Parameter information can be filled in automatically by selecting a Parameter Template, which will set up EPA codes and units. Basic Parameter Templates are provided in AirVision. They can also be configured in the **Parameter Template Editor**, which defines basics like units, EPA reporting codes, and graph limits. (See “Configuring Parameter Templates.”) Must be unique to each site. If you want to automatically fill in parameter information using a template, select a parameter template from the drop-down list and click **Apply**. If you have converted your data from E-DAS and the information is already filled in, you can still select a template but no NOT click Apply or AQS codes will be overwritten.
  
- ◆ **Enabled**

Check the box to enable the parameter.
  
- ◆ **Enable AIRNow Reporting**

For AIRNow parameters only, check the box to include this parameter in AIRNow reports. 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)**.
  
- ◆ **Filter from Web Site**

Check the box to filter data from website.
  
- ◆ **Parameter Data Type**

Select a data type: **Average** for continuous data, **Sample/Non-Continuous** for data that is not continuous (e.g., FRM, AirToxics, PAMS, etc).

- ◆ 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).
- ◆ Reported Digits Total number of digits, including decimal places, that will be reported to the EPA.
- ◆ 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.
- ◆ Calibration Precision Number of decimal places to the right to use for calibration report, calibration error calculations, and AQS reporting of 1-Point Precision Checks. This will allow users to specify more or less precision as desired for calibration data. It applies to calibration reports, calibration calculations, and the AQS output for 1 Point QC records. **\*\*NOTE- the logic to truncate ozone ppb to zero precision has been removed\*\***
- ◆ 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

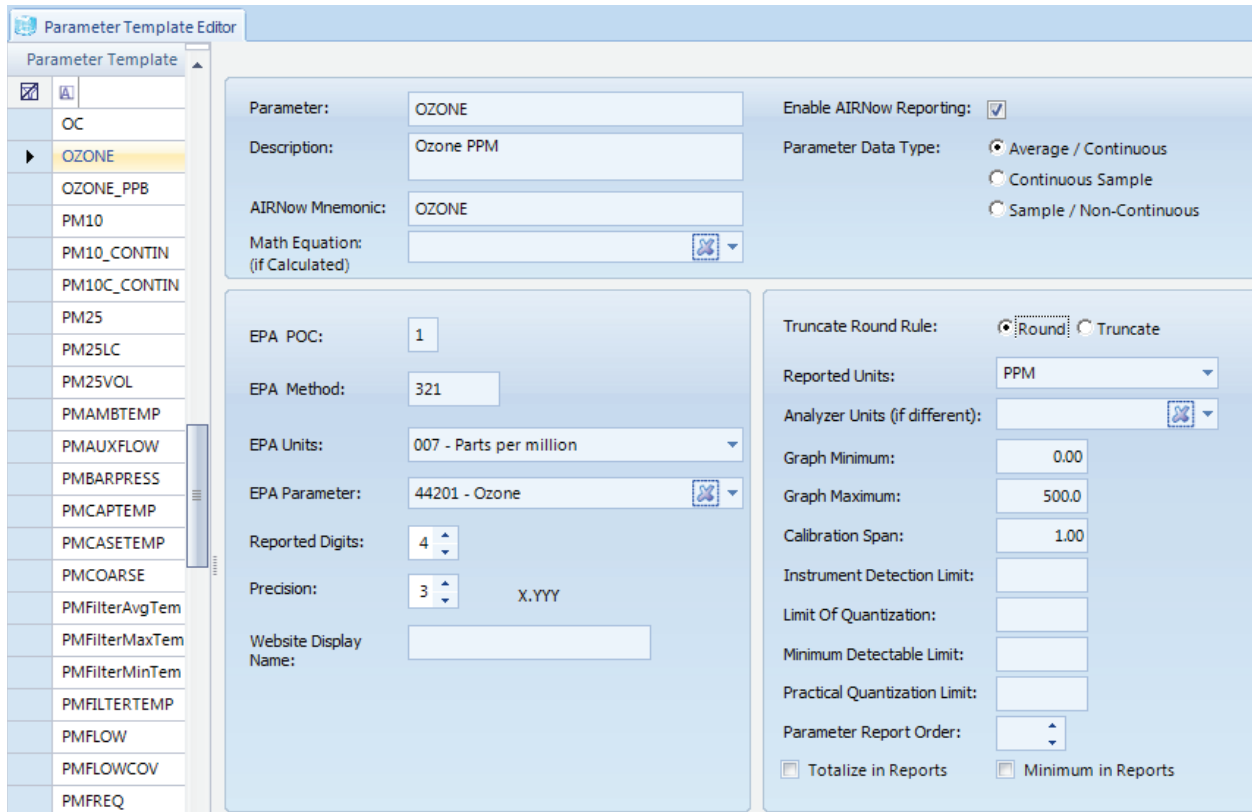
Basic **Parameter Templates** are provided by AirVision (**Configuration Editors > Site/Parameter**), such as ozone, PM10, PM25, NO2. You shouldn't have to make changes to the standard Parameter Templates unless the defaults become outdated by changing EPA regulations, but if you have unique setups you 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.
- ▶ **Note:** Existing Parameter Templates that have the Parameter Data Type marked as Sample/Noncontinuous should not be changed to Average/Continuous.





### 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 or 8864,
- ◆ 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.

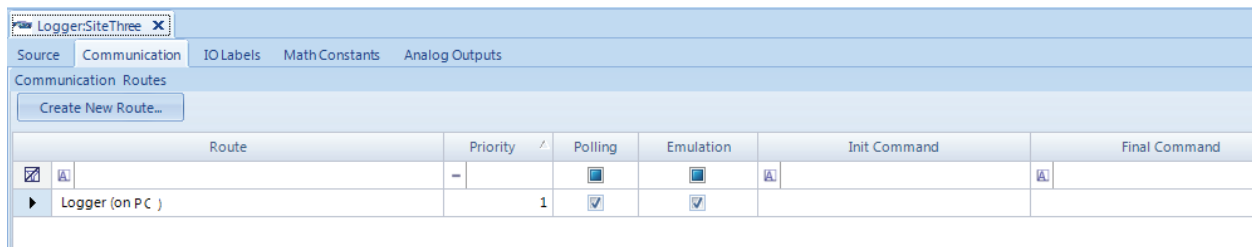
The screenshot shows the 'Logger Configuration' window for 'SITEONE'. It is divided into two main sections: 'Source Information' and 'Logger Details'.  
**Source Information:**  
 Site: SITEONE  
 Source Name: SITEONE  
 Description: (empty text area)  
 Enabled:   
 Retry Attempts: 3  
 Retry Delay: (empty field with a refresh icon)  
**Logger Details:**  
 Logger Identifier: 01  
 Logger Type: Model 8832 (dropdown menu)  
 Debounce Digital Inputs:   
 Send Central Messages to Logbook:   
 Send Chart Memos to Annotations:

Logger Configuration from Data Source Details in Configuration Editors

## Text Strings in Digital I/O

### Logger Properties Tabs

**Communications** - This tab is used in AirVision and AV-Trend to set the method by which the software communicates with an external logger (see “Adding Communication Routes”). It is not used in an 8872 for the base logger properties, and should remain blank.



**IO Labels** - This tab is used in to set the properties of the digital inputs and output lines in the data logger, and how they relate to other elements of the software. Properties include.

- ◆ **Physical Inputs / Physical Outputs:** This is only used in AirVision and AV-Trend in association with ESC 8816/8832/8864 loggers, and can help avoid download errors associated with pseudo inputs and outputs when the number of input and output cards do not match. They can be blank in most cases, and is not used with the Model 8872.
- ◆ **IO Number:** 1 through 88 inputs and outputs downloaded to the data logger.
- ◆ **Name:** 20-character label downloaded to the data logger.
- ◆ **Description:** Optional, allows for a longer description.
- ◆ **Modbus Instrument / Coil:** Leave blank for physical inputs/outputs in ESC loggers. Set for internal modules on the 8872 and for any external Modbus-capable instrument or calibrator to map pseudo-inputs and pseudo-outputs to analyzer/calibrator control or status monitoring functions. See tutorial videos under “Training” at Agilaire.com for more details on connecting to commonly used calibrators.
  - ▶ **Note:** When mapping pseudo-outputs in ESC loggers to analyzers/calibrators, the corresponding pseudo-input must be unused (and vice-versa for mapped pseudo-inputs).

- ◆ **Line State Triggering Alarm / Alarm Definition:** Used for the Advanced Alarm Feature in AirVision/CEM. See AirVision/CEM manual, Digital Alarm Trigger for details. Not used in regular ambient applications.
- ◆ **Enabled:** Check the enabled box if the label is to be downloaded to the logger.

**Math Constants** - This tab is used to set primary values and, optionally, secondary or tertiary values (switched by physical or pseudo digital inputs) of math constants (K01-K32) used by the data loggers in math equations. The math equation will use the primary value, unless the status input pattern matches that set for either the secondary or tertiary value, and a secondary/tertiary value has been set. This feature is used commonly in CEM applications for fuel factor / GCV value switching, but can also be used in ambient applications as holding registers for values updated by channel averages (e.g., holding end of hour BAM values) or values written during the calibration process (e.g., expected values read back from calibrators). See the “write to math constant” functions in the Channel Configuration->Validation and in the Calibration configuration sections.

Number	Name	Primary Value	Secondary Pattern	Secondary Value	Tertiary Pattern	Tertiary Value	Description
1	K01	-	Select Lines	-	Select Lines	-	K01
2	K02		Select Lines		Select Lines		K02
3	K03		Select Lines		Select Lines		K03
4	K04		Select Lines		Select Lines		K04
5	K05		Select Lines		Select Lines		K05
6	K06		Select Lines		Select Lines		K06
7	K07		Select Lines		Select Lines		K07
8	K08		Select Lines		Select Lines		K08
9	K09		Select Lines		Select Lines		K09
10	K10		Select Lines		Select Lines		K10
11	K11		Select Lines		Select Lines		K11
12	K12		Select Lines		Select Lines		K12
13	K13		Select Lines		Select Lines		K13
14	K14		Select Lines		Select Lines		K14
15	K15		Select Lines		Select Lines		K15
16	K16		Select Lines		Select Lines		K16

**Analog Outputs** - This tab is used to set analog output settings for the Model 8816, 8832, 8864, or 8872 loggers. Consult the Analog Outputs section/appendix in the relevant logger manuals for more details on usage.

DAC Channel Number	Channel	Interval	High Input	Low Input	High Output	Low Output	Action On Error
1	RD : [06] SO2	001m	2000	0	20	4	Hold

## Channel Configuration

“Channels” are the entities that tell a data logger (8832, 8864, 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, showing 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, 8832 or 8864 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, 8832 or 8864, 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 window with three tabs: 'Channel', 'Validation', and 'Misc'. The 'Misc' tab is active and contains a section titled 'Analog Input'. This section has five input fields with labels: 'Analog Input Number', 'High In Voltage/mA', 'Low In Voltage/mA', 'High Out Eng Units', and 'Low Out Eng Units'. Each label is followed by a text input box.



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 screenshot shows the 'GSI' configuration tab. At the top, there are three tabs: 'Channel', 'Validation', and 'GSI'. Below the tabs is a section titled 'GSI Driver Info' containing four fields: 'Driver Instrument:' (a dropdown menu), 'Driver Parameter:' (a dropdown menu), 'Serial Port:' (a dropdown menu with up/down arrows), and 'Using Dongle?' (radio buttons for 'Yes' and 'No', with 'No' selected). Below this is a section titled 'Hold Data' with the label 'Hold Data Between Updates?' and radio buttons for 'Yes' and 'No', with 'No' selected.

The screenshot shows the 'Modbus' configuration tab. At the top, there are four tabs: 'Channel', 'Validation', 'Misc', and 'Modbus'. Below the tabs is a section titled 'Modbus Info' containing two fields: 'Modbus Instrument:' (a dropdown menu) and 'Driver:' (a dropdown menu).

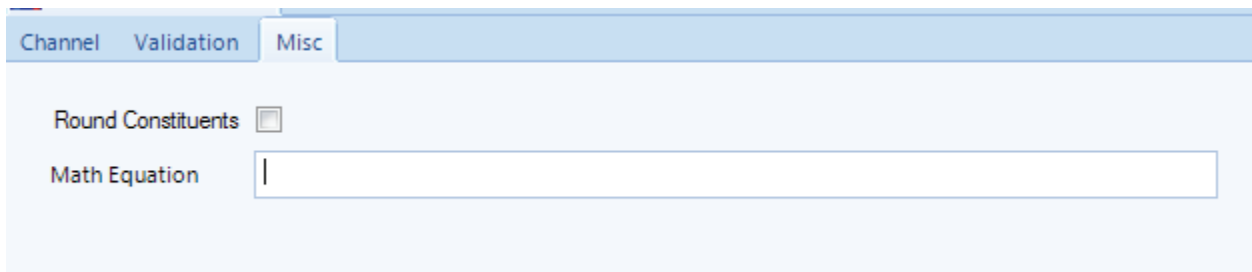
The **Math Pack channel** is useful when special functions are required. Math pack channels are used to calculate results by combining information from other channels and/or constants according to user-defined equations, such as “SO2 \* 1.3”. The allowed syntax is defined in Section X.X Math pack channels 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 text input field labeled 'Math Equation' which is 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 text input field labeled 'Math Equation' which is 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 SO<sub>2</sub> 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, 8832s and 8864s, 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.

Channel Validation Misc


WDR Analog Input Number:

WDR High In Voltage:

WDR Low In Voltage:

WDR High Out Engineering Units:

WDR Low Out Engineering Units:

Companion Channel:   ▼

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

Channel Validation Misc

WSP Analog Input Number:

WSP High In Voltage:

WSP Low In Voltage:

WSP High Out Engineering Units:

WSP Low Out Engineering Units:

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

Channel Validation Misc

WDR Analog Input Number:

WDR High In Voltage:

WDR Low In Voltage:

WDR High Out Engineering Units:

WDR Low Out Engineering Units:

The **Sigma Theta** takes the input of a wind direction channel and calculates a USEPA sigma theta (Yamartino method). For a Model 8816, 8832 or 8864, 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 and 8864 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 configuration window with three tabs: 'Channel', 'Validation', and 'Misc'. The 'Misc' tab is selected. Under the 'Specific' section, there are five configuration items:

- 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

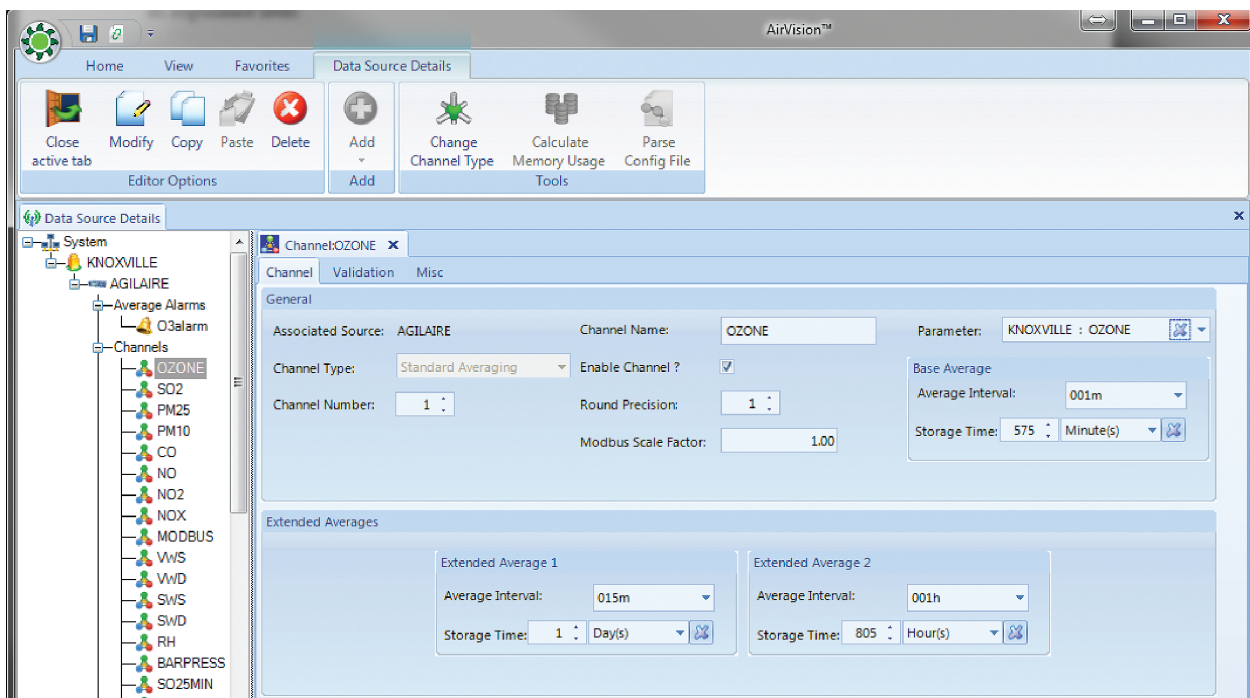
Still in the **Configuration Editor, Data Source Details**,

- ◆ 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 or ESC|8864 Data Controller User Guide.

- ▶ **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

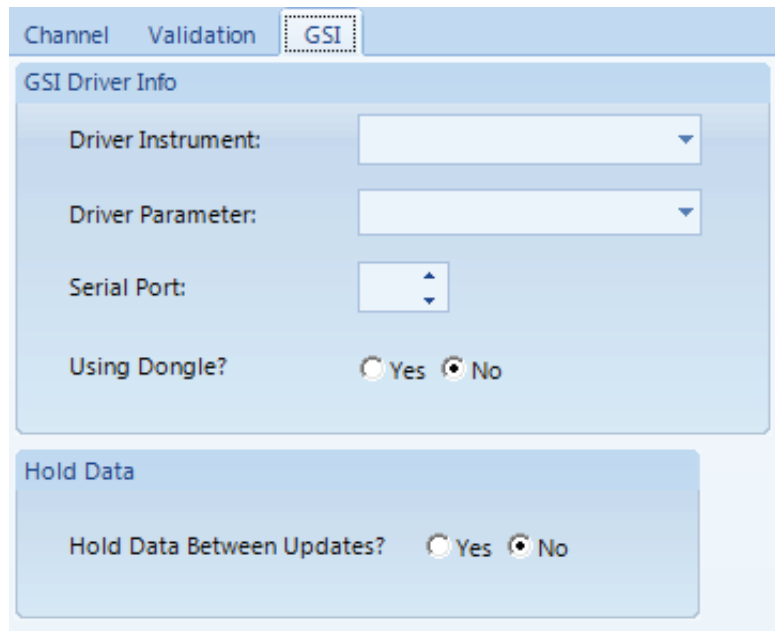
Follow the same procedure to add calibrations, average alarms, and digital event triggers, as explained later.



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

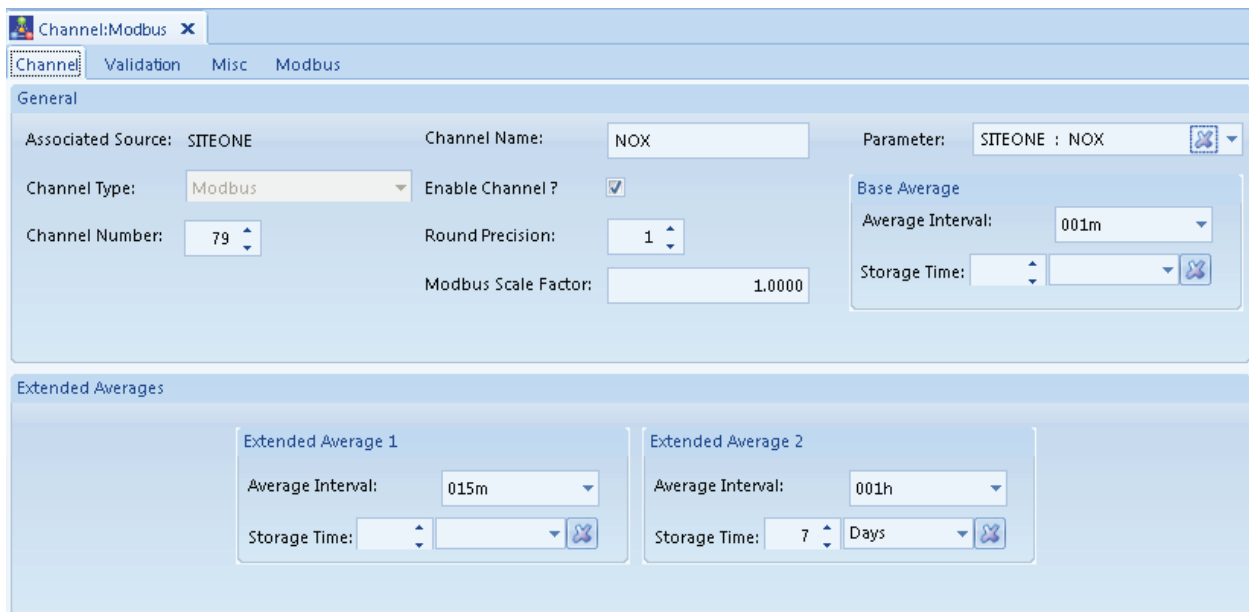
Two channel types are handled differently in AirVision than in previous systems; both improve on digital data acquisition integration.

- ◆ 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:

- ◆ **Modbus Instrument Name**--a user-defined label for the instrument
- ◆ **Instrument Model**--select from picklist of known analyzers
- ◆ **Device ID/Code**--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 (seconds)**--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.
- ◆ **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.
- ◆ **TCP Ip Address**--IP address of the instrument, as viewed from the logger's perspective
- ◆ **TCP Ip Port**--Port used by the instrument for Modbus requests, usually "502".

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](mailto: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).

The screenshot shows the configuration window for a channel named 'NOX'. The 'General' section is expanded, showing the following settings:

- Associated Source: SITEONE
- Channel Name: NOX
- Parameter: SITEONE : NOX
- Channel Type: Modbus
- Channel Number: 79
- Round Precision: 1
- Modbus Scale Factor: 1.0000
- Base Average: (empty)
- Average Interval: 001m
- Storage Time: 1 Hours

The 'Extended Averages' section is also visible, showing two configurations:

- Extended Average 1:** Average Interval: 015m, Storage Time: 2 Hours
- Extended Average 2:** Average Interval: 001h, Storage Time: 5 Days

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, 8864 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.
<b>P</b>	<b>Instantaneous</b>	<b>Power failure</b>	Power failure experienced (invalidates one base average).
<b>D</b>	<b>Instantaneous</b>	<b>Channel Offline</b>	Channel disabled via user interface (Logger Toolbox in 8872).
<b>T</b>	<b>Instantaneous</b>	<b>Out Of Control due to bad Cal</b>	Normally a CEM feature, if cal drift > OOC limit set in Calibration program, then channel invalid until a good cal is passed.
<b>F</b>	<b>Instantaneous</b>	<b>Boiler Offline (CEM)</b>	Normally CEM feature, boiler is considered offline based on status input pattern configured in Validation settings.
<b>B</b>	<b>Instantaneous</b>	<b>Bad Instrument Stations</b>	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.
<b>C</b>	<b>Instantaneous</b>	<b>Instrument in Calibration</b>	Logger running calibration program affecting this instrument/channel.
<b>M</b>	<b>Instantaneous</b>	<b>Instrument in Maintenance</b>	Channel disabled via user interface (Logger Toolbox in 8872) or via configured status input.
<b>O</b>	<b>Instantaneous</b>	<b>Analog Overrange</b>	Single reading > full scale of analog range, invalidates the base average.

FLAG	TYPE	DESCRIPTION	SOURCE OF FLAG
<b>U</b>	<b>Instantaneous</b>	<b>Analog Underrange</b>	Single reading < negative end of full scale of analog range, invalidates the base average.
<b>A</b>	<b>Instantaneous</b>	<b>Math Error</b>	Error executing math pack channel equation, most commonly divide by zero.
<b>+</b>	<b>Instantaneous</b>	<b>Maximum Reading Error</b>	Reading > configured "Maximum Reading", invalidates the base average.
<b>-</b>	<b>Instantaneous</b>	<b>Minimum Reading Error</b>	Reading < configured "Minimum Reading", invalidates the base average.
<b>R</b>	<b>Instantaneous</b>	<b>Rate of Change Error</b>	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):

When settings are made in the AirVision central server, they must be downloaded to the 8816/8832/8864 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)

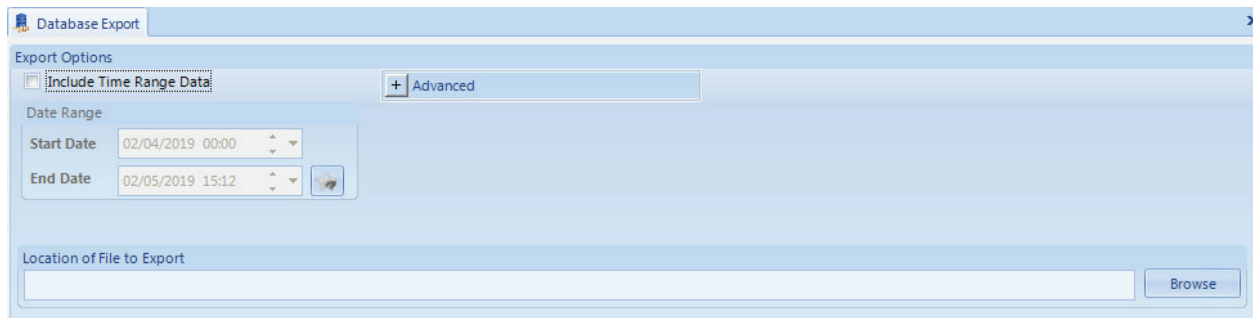
Note that some users may change the definition/label of these "Server Side Flags".

## 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.

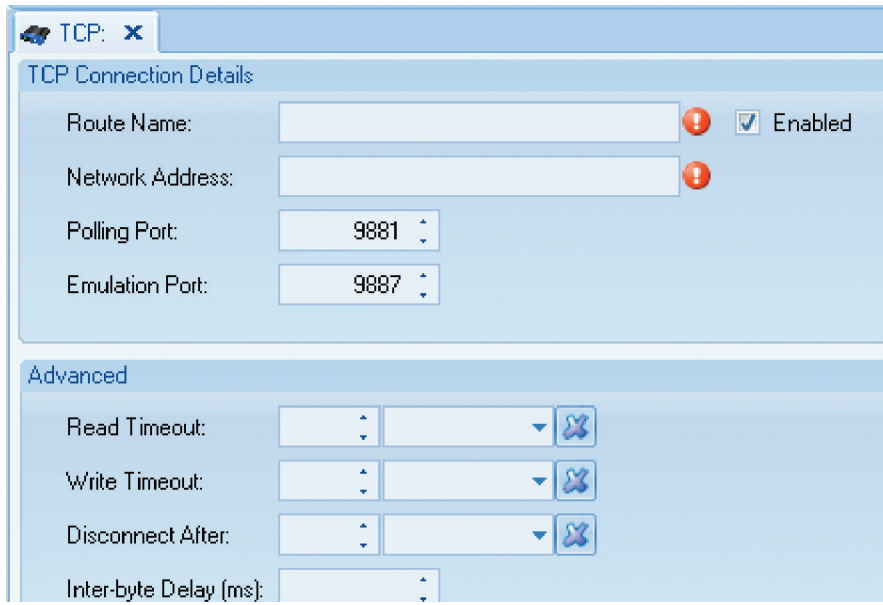
For sites with a TCP/IP connection,

- ◆ 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 for the 8816/8832 and Port 22 for the 8864. (Emulation ports are only used with the Model 8816, 8832 and 8864 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](mailto: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](mailto: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 screenshot shows two configuration windows. The top window, titled 'COM: x', contains 'Serial Connection Details' with the following fields: 'Route Name' (empty), 'Comm Port' (empty), 'Baud Rate' (9600), 'Data Bits' (8), 'Stop Bits' (1), and 'Parity' (None). There are red exclamation mark icons next to the Route Name and Comm Port fields, and a checked 'Enabled' checkbox. The bottom window, titled 'Advanced', 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] (Warning icon)
  - Phone Number: [Empty text box] (Warning icon)
  - Modem: (Use any available modem) [Dropdown menu]
  - Preferred Modem Baud Rate: (Any) [Dropdown menu]
  - Enabled:  Enabled
- Redialing Options:**
  - Redial Attempts: [1] [Spinners]
  - Time Between Redial Attempts: [1] [Spinners] Minutes(s) [Dropdown] [Close icon]
- Advanced Options:**
  - Override Serial Baud Rate: (Use default) [Dropdown]
  - Override Serial Read Timeout: [Spinners] [Dropdown] [Close icon]
  - Override Serial Write Timeout: [Spinners] [Dropdown] [Close icon]
  - Connection Timeout: [Spinners] [Dropdown] [Close icon]
  - Hang-up Idle Time: [5] [Spinners] Second(s) [Dropdown] [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](mailto: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.

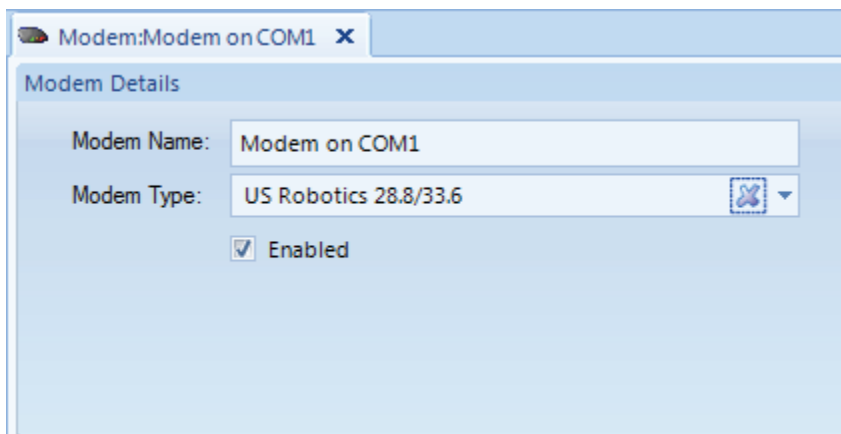
### Adding a Modem Route for Central Modem

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

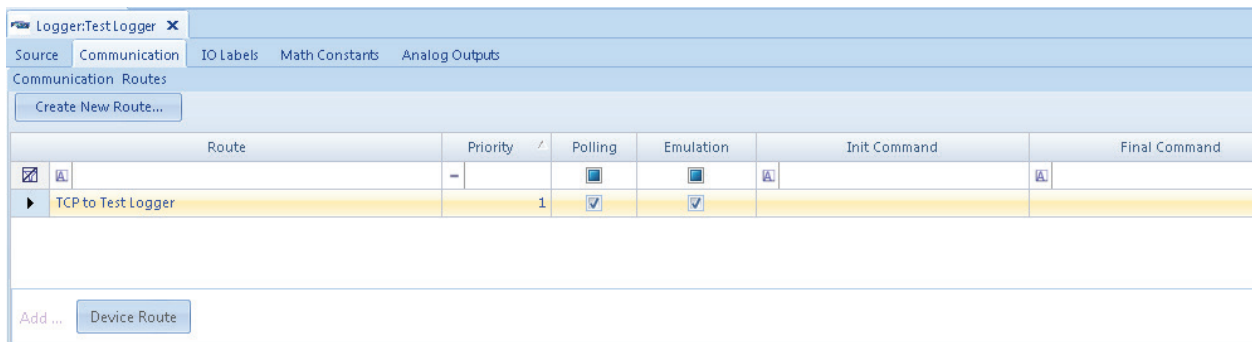
Each **logger** must be associated with a **Communication Route**. Open **Configuration Editors > Data Source Details > Logger** and select the **Communication** tab:

- ◆ 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.

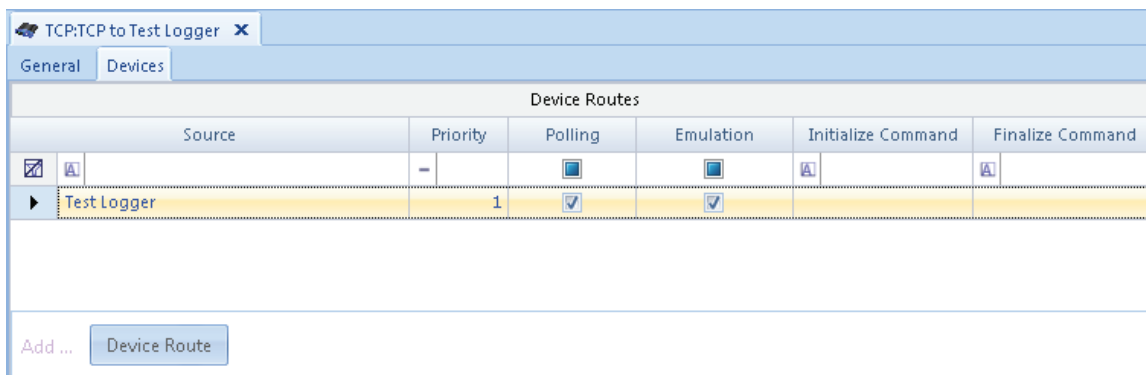
⇒ **Important:** Some configuration changes require you to restart the the AirVision Server. If a **System Restart** is necessary, you will be prompted by AirVision when you click **Save**. If you click **Yes** at the prompt, AirVision will restart the system automatically. If a required server restart 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

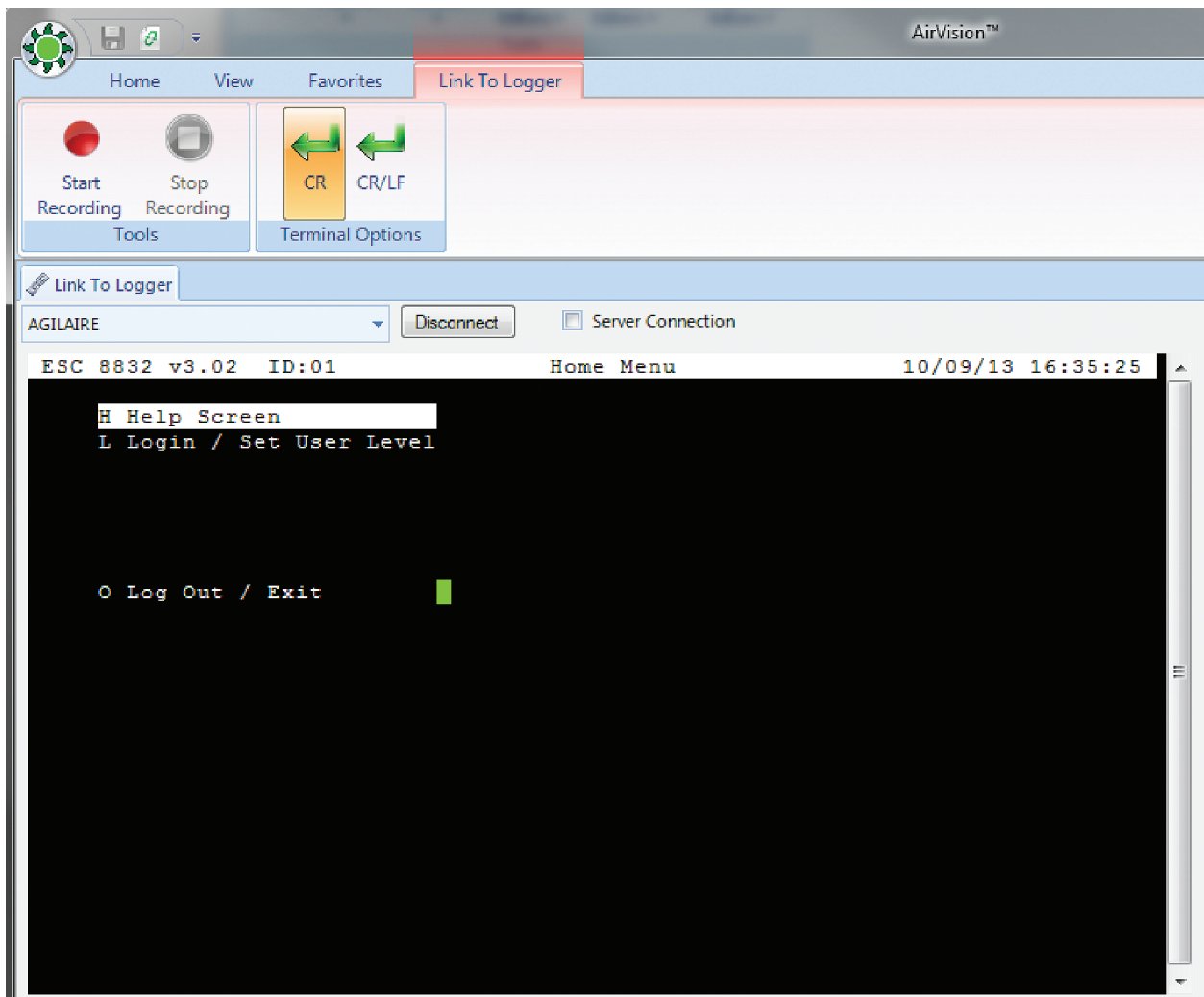
Or, the logger can be associated with the Communication Route through the Server Configuration menu by selecting the Devices tab on the Device Route, and click the Add Device Route button at the bottom of the screen.



## Testing Your Connection (Model 8816 / 8832 / 8864 only)

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. Be sure to always select **O Log Out / Exit** on the Link to Logger screen before clicking the Disconnect button.

- ◆ **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

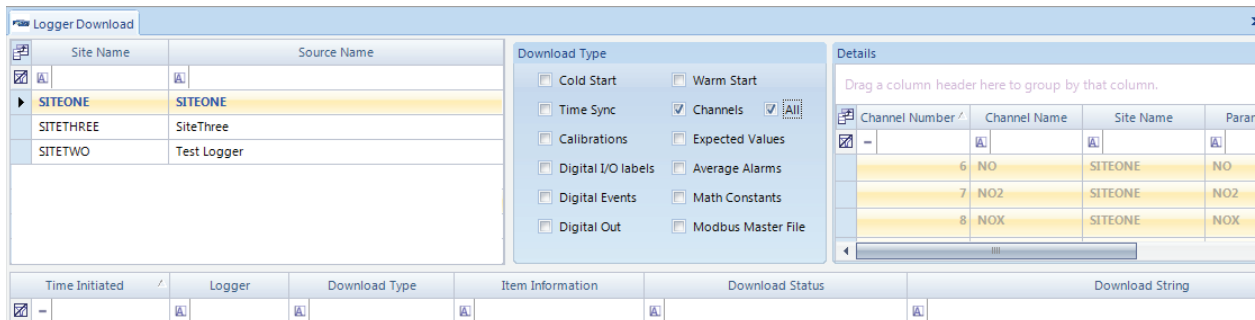
## Logger Download (Model 8816 / 8832 / 8864 only)

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.
  - Expected Values
  - 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 **Status Displays** 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 / 8864 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 **Status Displays** menu.
- ▶ **Note:** Multiple loggers can be downloaded at the same time without a cold start.

The screenshot shows the 'Logger Download' utility interface. It includes a table for selecting sites, a 'Download Type' section with various checkboxes, a 'Details' section with a table for channel selection, and a main table at the bottom for download results.

Site Name	Source Name
<input checked="" type="checkbox"/> SITEONE	SITEONE
<input type="checkbox"/> SITETHREE	SiteThree
<input type="checkbox"/> SITETWO	Test Logger

**Download Type**

- Cold Start
- Warm Start
- Time Sync
- Channels
- All
- Calibrations
- Expected Values
- Digital I/O labels
- Average Alarms
- Digital Events
- Math Constants
- Digital Out
- Modbus Master File

**Details**

Drag a column header here to group by that column.

Channel Number	Channel Name	Site Name	Param
<input checked="" type="checkbox"/> 5	CO	SITEONE	CO
<input type="checkbox"/> 6	NO	SITEONE	NO
<input checked="" type="checkbox"/> 7	NO2	SITEONE	NO2
<input type="checkbox"/> 8	NOV	SITEONE	NOV

Time Initiated	Logger	Download Type	Item Information	Download Status	Download String
<input checked="" type="checkbox"/> -					

Channel Download in Utilities > Channel Download

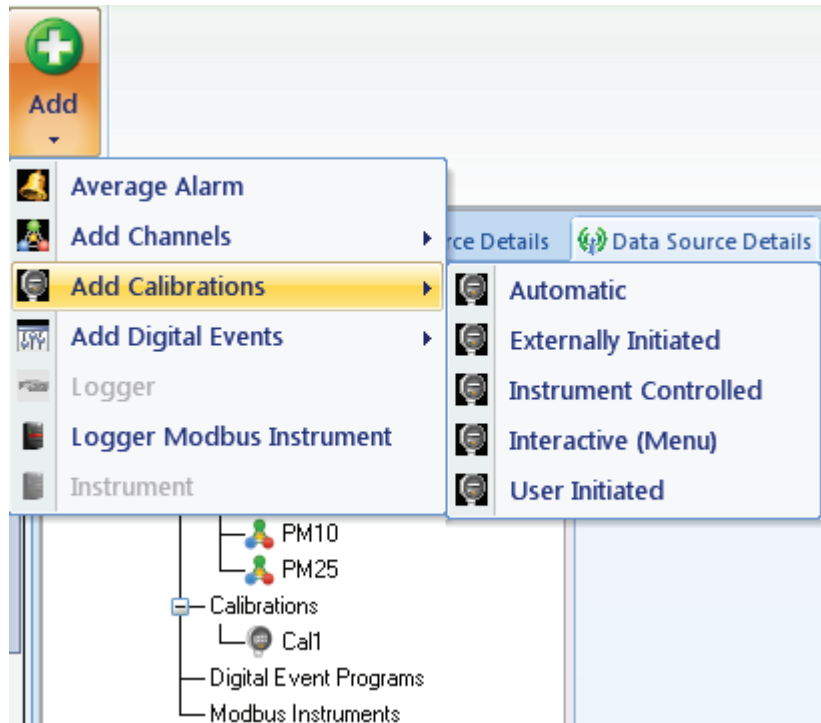
## Setting Up Calibrations

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 8816/8832/8864 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

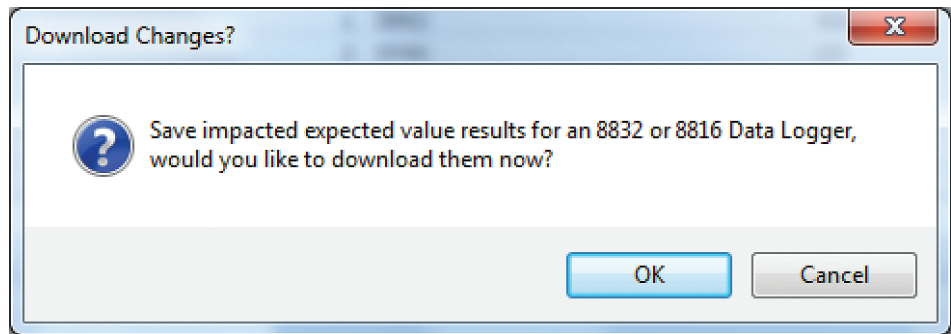
### Calibration Expected Values Editor

This mimics the “Quick Expected Values” editor in the Model 8832/8864 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.

Source Name	Sequence Name	Phase Number	Phase Name	Channel Name	Expected Value	Expected Value from Constant
SITEONE	AUTOCAL	1	ZERO	OZONE	0	
SITEONE	AUTOCAL	2	SPAN1	OZONE	10	
SITEONE	AUTOCAL	3	SPAN2	OZONE	20	
SITEONE	AUTOCAL	4	PREC	OZONE	0	
SITEONE	COCAL	1	Zero	CO	0	
SITEONE	COCAL	2	Span1	CO	10	
SITEONE	COCAL	3	Span2	CO	20	

Calibration Expected Values Editor

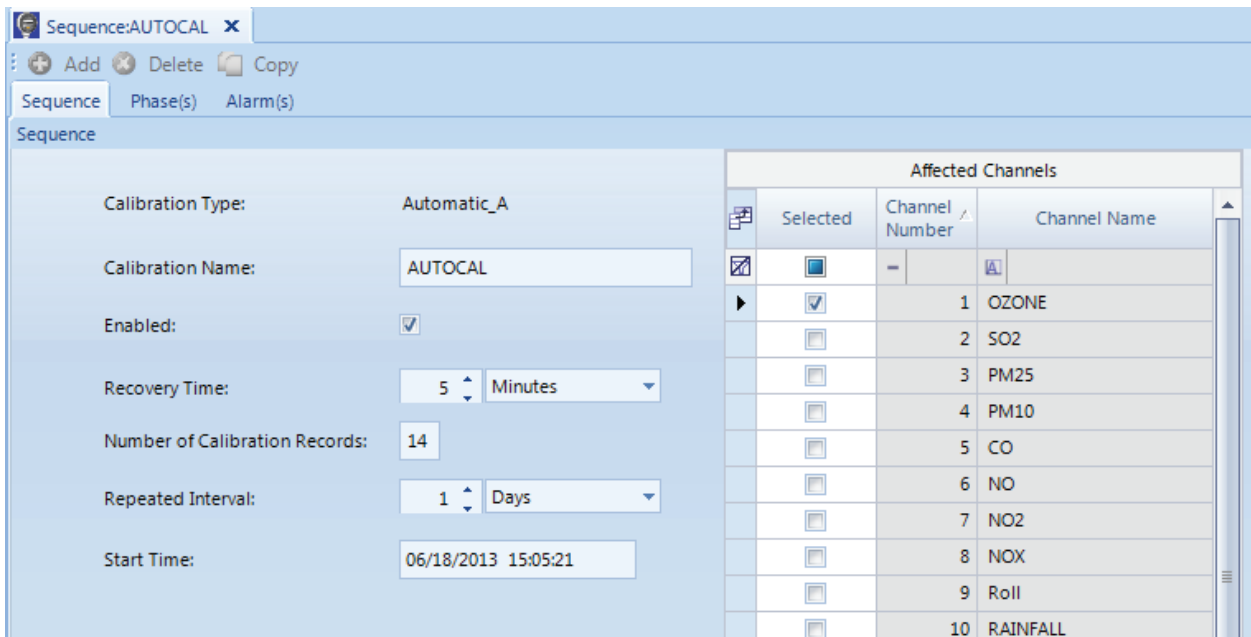
When values are saved, a pop-up window will prompt you to download changes to the data logger (8816 and 8832 only). Clicking **OK** will take you to the Logger Download form, where you can select the checkbox to only download the expected values.



## 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 (CEM)**.

The screenshot shows a software interface with two main tables. The top table is titled 'Phases' and has columns for Phase Name, Phase Number, Duration Time, Response Time, Enabled, Status Pattern, and Level. The bottom table is titled 'Phase Channels' and has columns for Channel, Expected Value, Expected Value From Constant, Write Expected Value To Constant, Write Result To Constant, Store Calibration Results, Error Method, Warning Drift Limit, Out of Control Limit, StartDate, and EndDate.

Phase Name	Phase Number	Duration Time	Response Time	Enabled	Status Pattern	Level
ZERO	1	001M	005S	<input checked="" type="checkbox"/>	Select Lines	ZERO
SPAN1	2	001M	005S	<input checked="" type="checkbox"/>	Select Lines	SPAN
SPAN2	3	001M	005S	<input checked="" type="checkbox"/>	Select Lines	SPAN
PREC	4	001M	005S	<input checked="" type="checkbox"/>	Select Lines	PREC

Channel	Expected Value	Expected Value From Constant	Write Expected Value To Constant	Write Result To Constant	Store Calibration Results	Error Method	Warning Drift Limit	Out of Control Limit	StartDate	EndDate
OZONE	0				<input checked="" type="checkbox"/>	Difference	3			

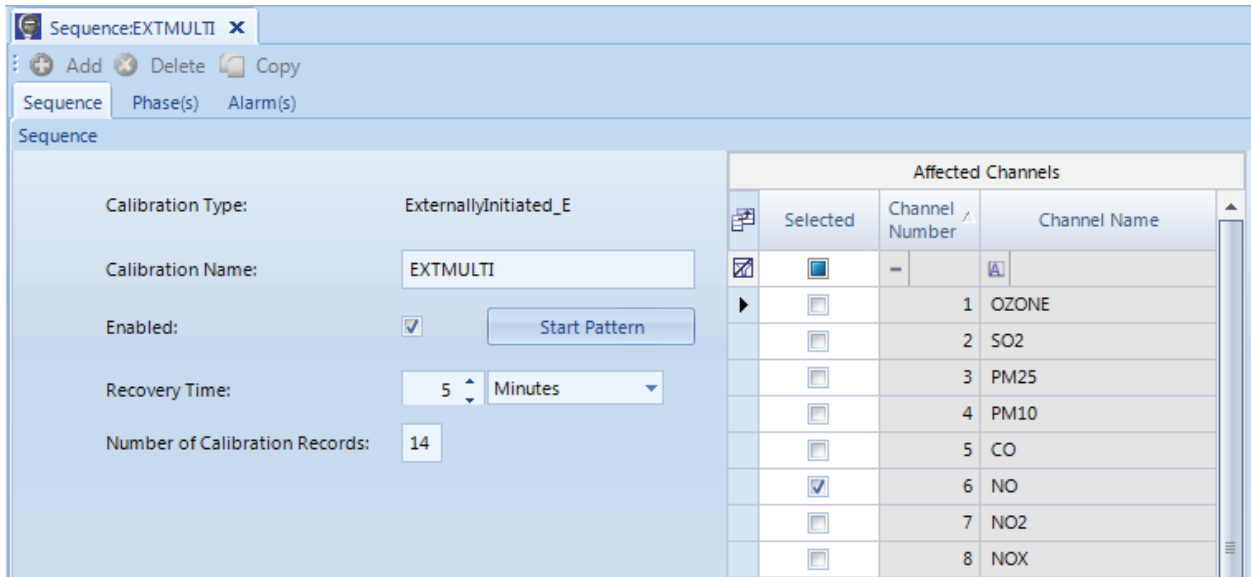
### Configuring calibration phases in Configuration Editors > Data Source Details

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

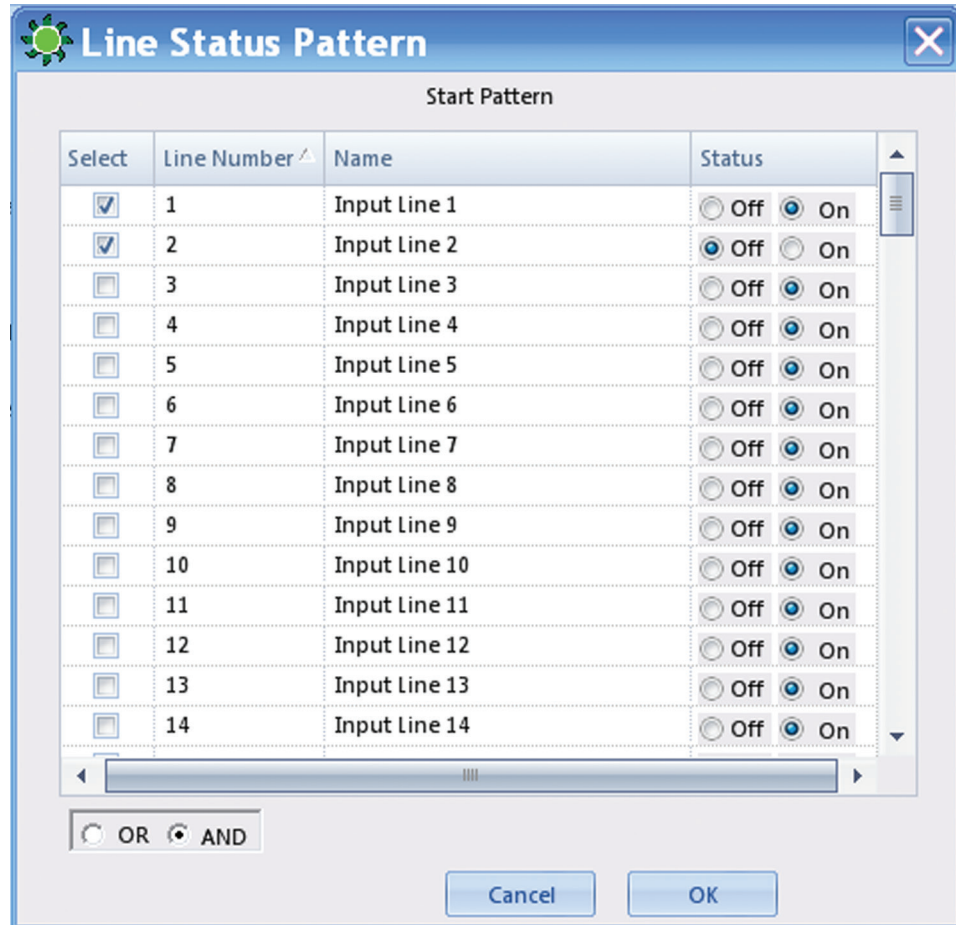
Externally initiated calibration is identical to an automatic calibration except for the way it is initiated. The sequence is started when a specified pattern of input control lines is met. To configure the **Start Pattern** (Line Status Pattern), click the **Start Pattern** button.

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.

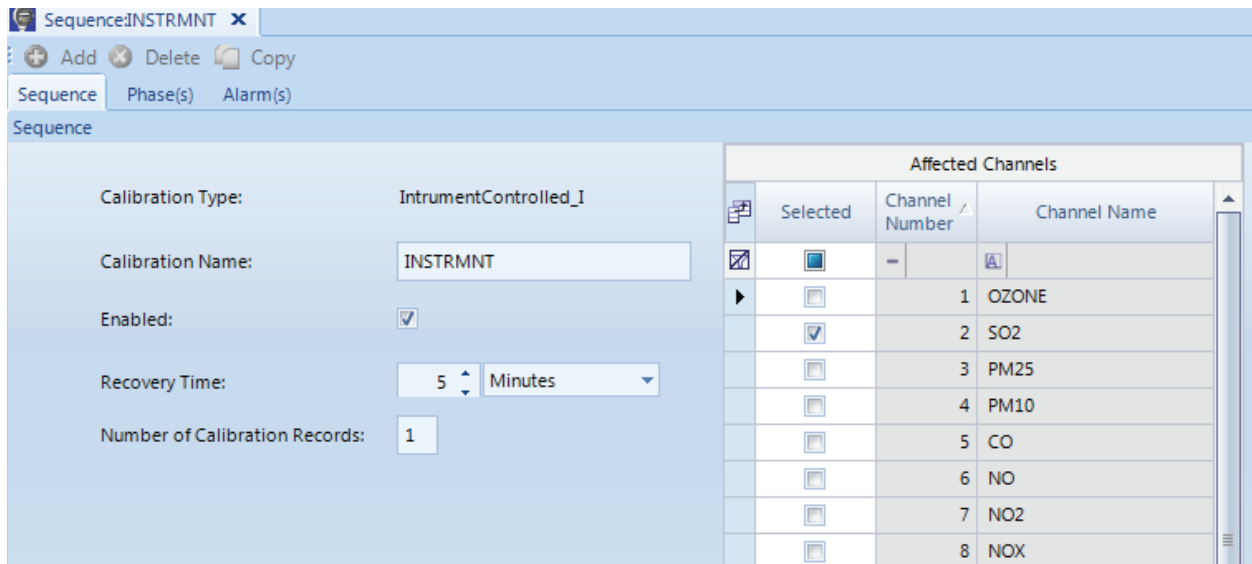


Configuring Start Pattern (Line Status Pattern) in Externally Initiated Calibrations in Configuration Editors > Data Source Details

## 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.

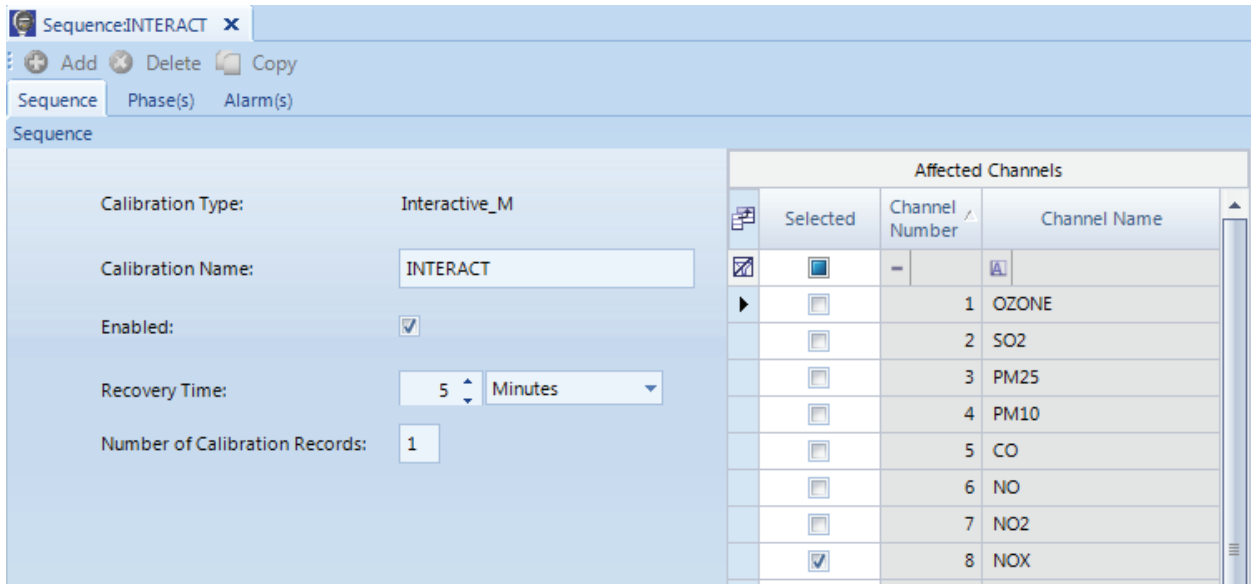


Configuring Instrument Controlled Calibrations from Configuration Editors > Data Source Details

## 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.



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.

Affected Channels		
Selected	Channel Number	Channel Name
<input checked="" type="checkbox"/>	-	A
<input type="checkbox"/>	1	OZONE
<input type="checkbox"/>	2	SO2
<input type="checkbox"/>	3	PM25
<input type="checkbox"/>	4	PM10
<input type="checkbox"/>	5	CO
<input type="checkbox"/>	6	NO
<input checked="" type="checkbox"/>	7	NO2
<input type="checkbox"/>	8	NOX

Configuring User-Initiated Calibrations

## Configuring Input/Output Lines for Digital Events

The purpose of digital event programs is to control processes from 8816, 8832 or 8864 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**.

Timed Event: Timed Event

Digital Event Details

Digital Event Program Name: Timed Event

Starting Time: 08/31/2010 17:06:39

Output Duration: 5 Seconds

Repeat Interval: 1 Days

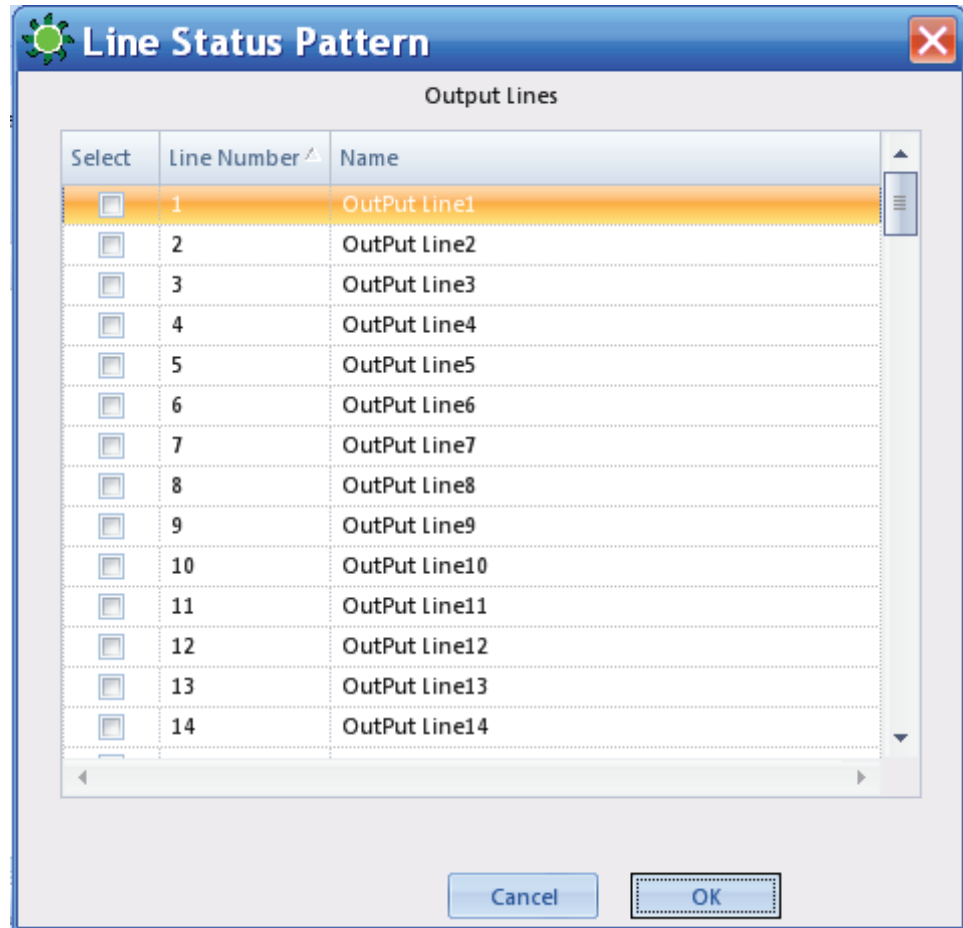
Enabled

Output Lines

Select	Calibration Name
<input type="checkbox"/>	AUTOCAL
<input type="checkbox"/>	COCAL
<input type="checkbox"/>	EXTERNAL
<input type="checkbox"/>	EXTMULTI
<input type="checkbox"/>	INSTRMNT
<input type="checkbox"/>	INTERACT
<input type="checkbox"/>	MENU
<input type="checkbox"/>	OZONE
<input type="checkbox"/>	USERCAL

Configuring Digitally Timed Events



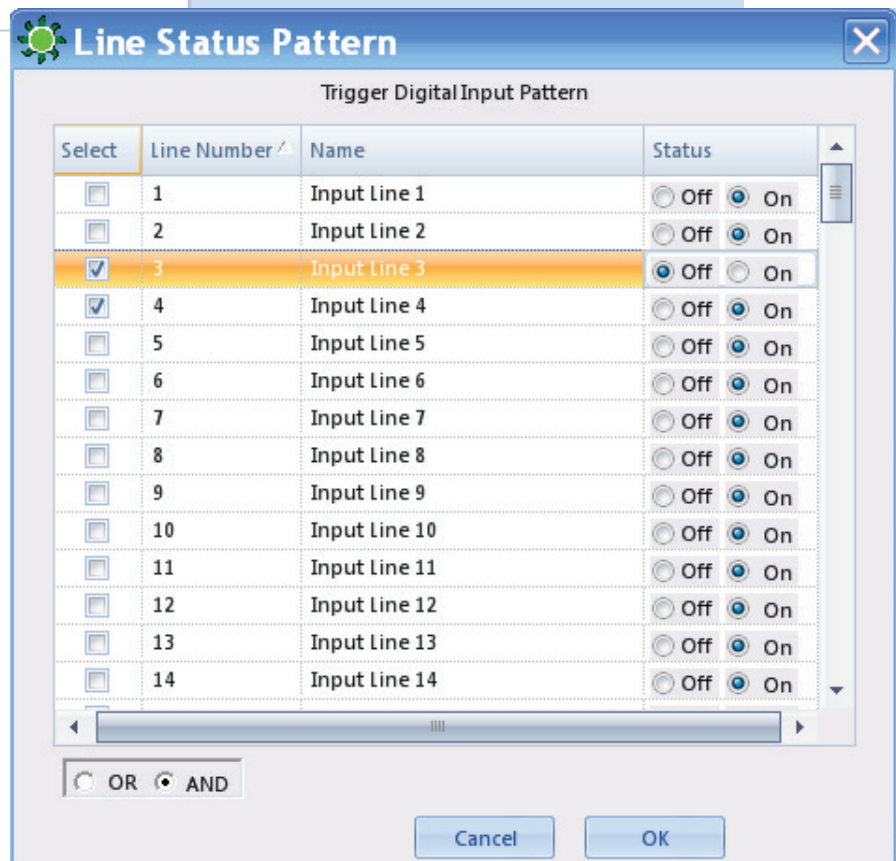
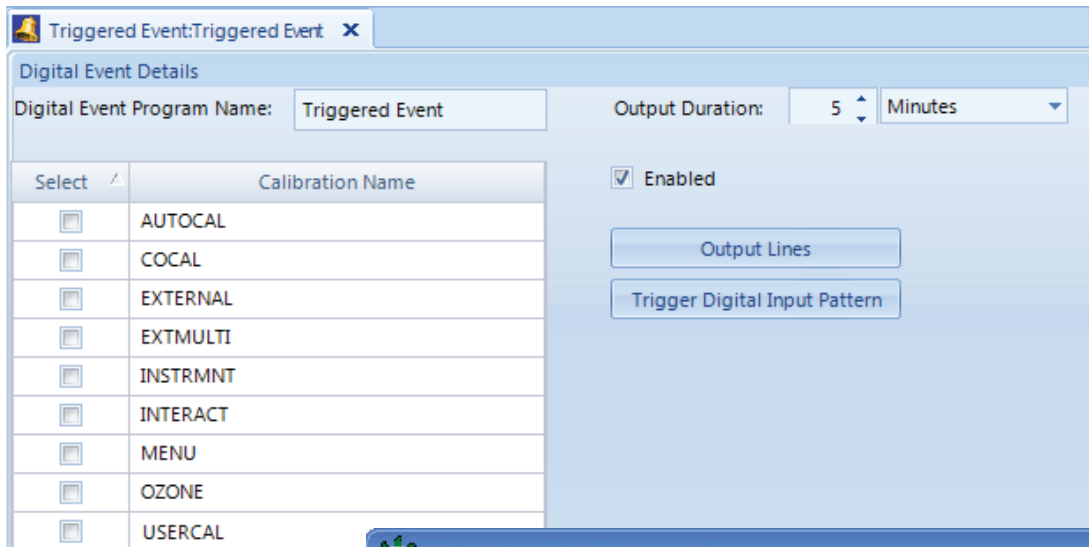


Line Status Pattern for Output Lines

### Configuring Digital Triggered Events

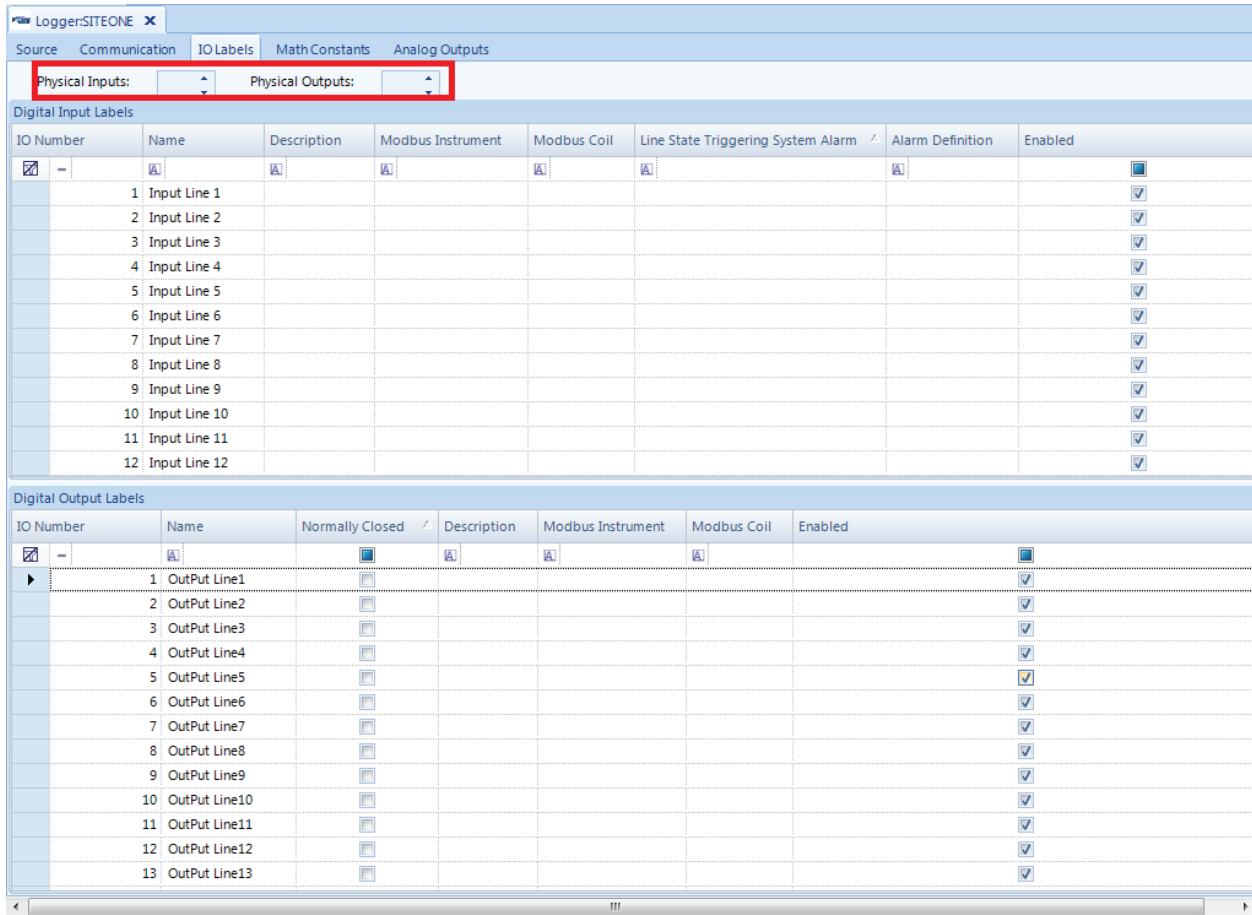
1. Highlight the **Data Logger** in **Configuration Editors > Logger Channels** tree menu.
2. Click the green **Add** button in the ribbon and select **Add Digital Events > Triggered Event**.
3. Enter a Triggered **Digital Event Program Name**, an **Output Duration** and check **Enabled**.  
After the 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

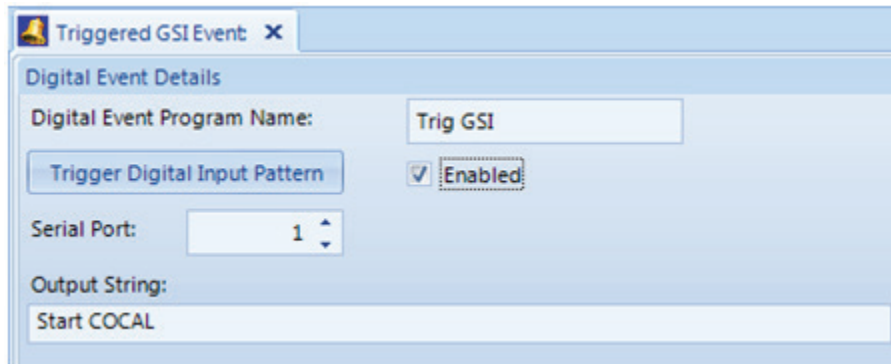
- **Note:** AirVision supports download of logger I/O labels with a different number of inputs and of outputs. If the number of input and output cards on your data logger are not equal, you may encounter some download errors when downloading the labels. If this happens, define the actual number of physical 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 Services and 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**.

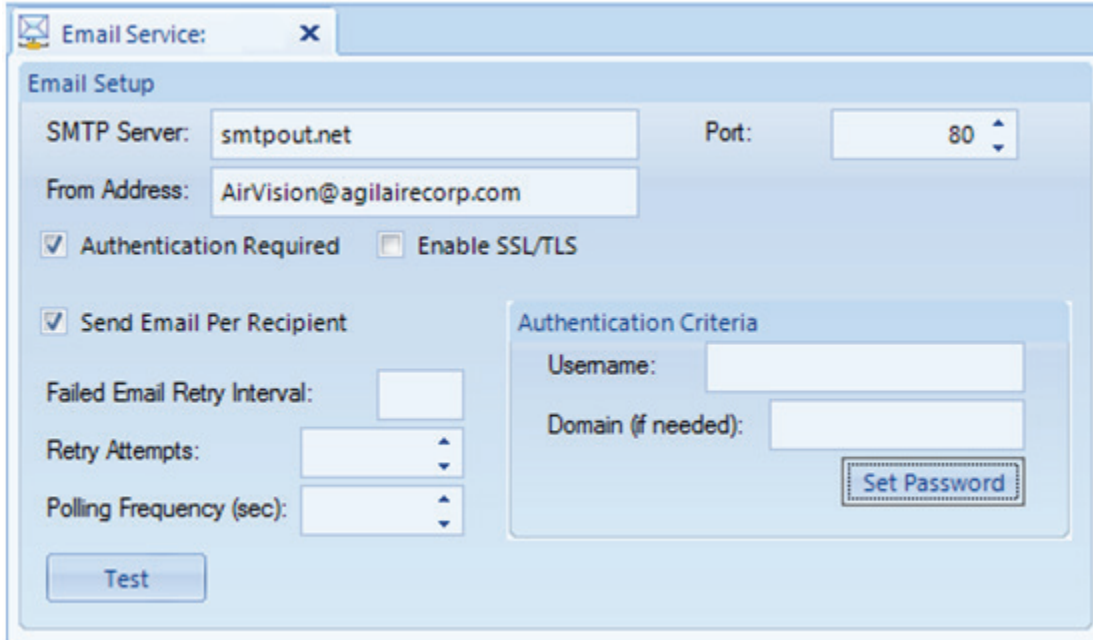
Type	Label	Address	Task Notifications	Report Notifications	Alarm Notifications	ADVP Notifications	Work Item Notifications
<input checked="" type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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](mailto: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



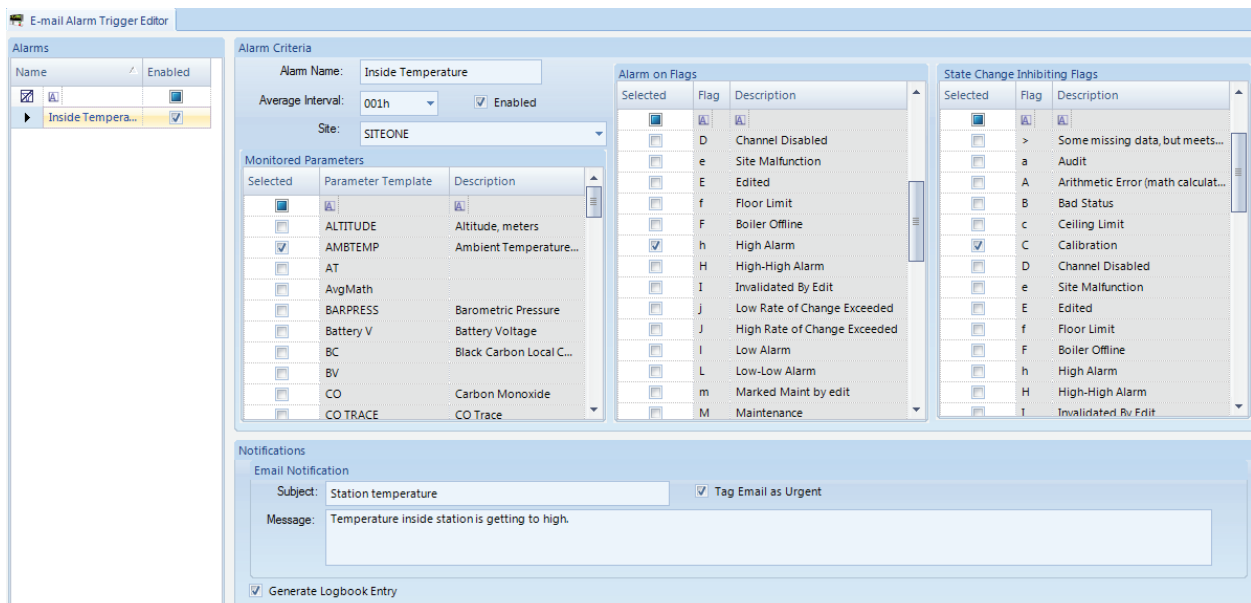
Setting up Email Service in Configuration Editors > Server Configuration > Email Service

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.

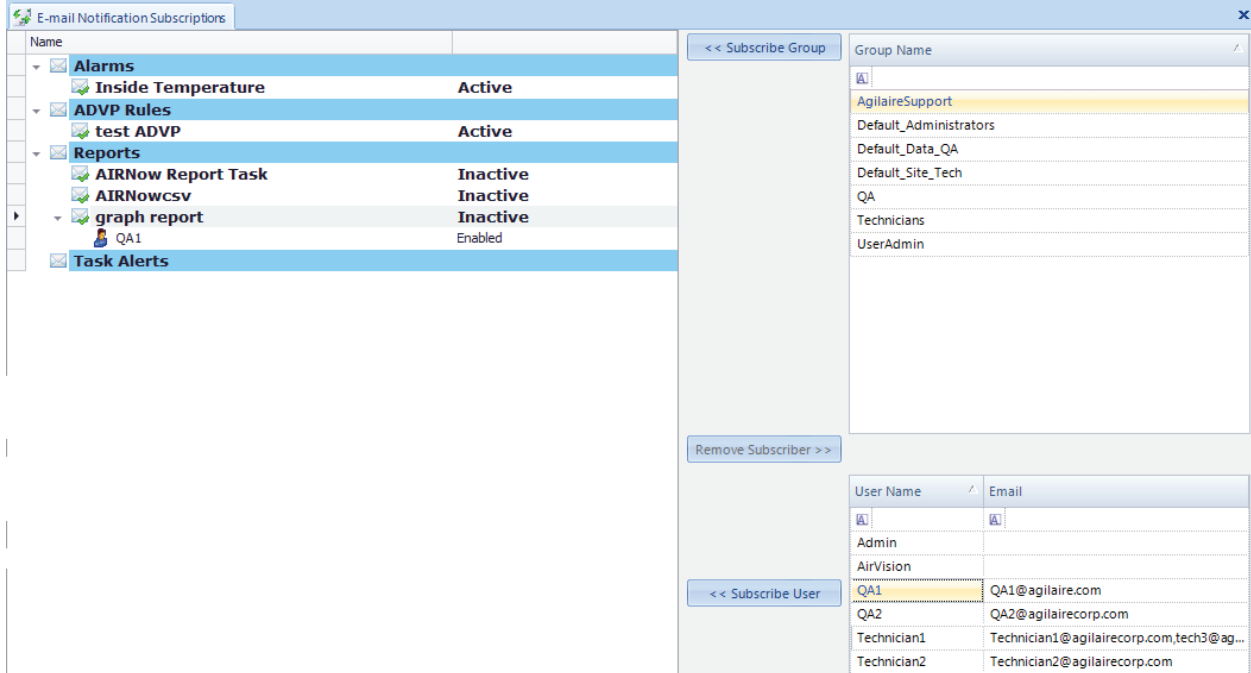
For the **Email Notification**, enter a **Subject** with or without an **Urgent Tag**, and a text **Message**.



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 is on the Ribbon at top) allows you to create grouped polling events as well as events triggered by polling.
- ◆ **Task Display (Status Displays > Task Status)** is constantly updating the 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.

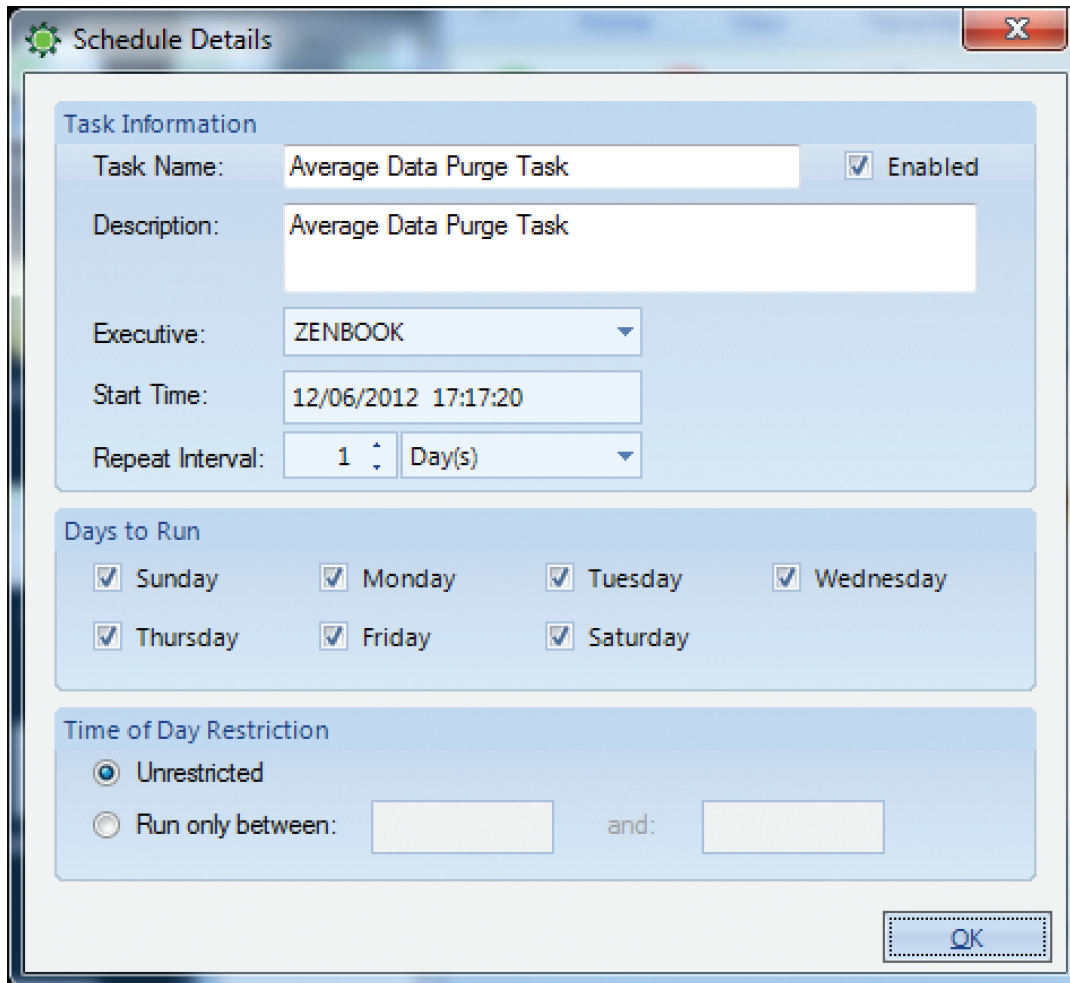


**Task Schedule Options** (Configuration Editors > Task Scheduler)

- ◆ 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.

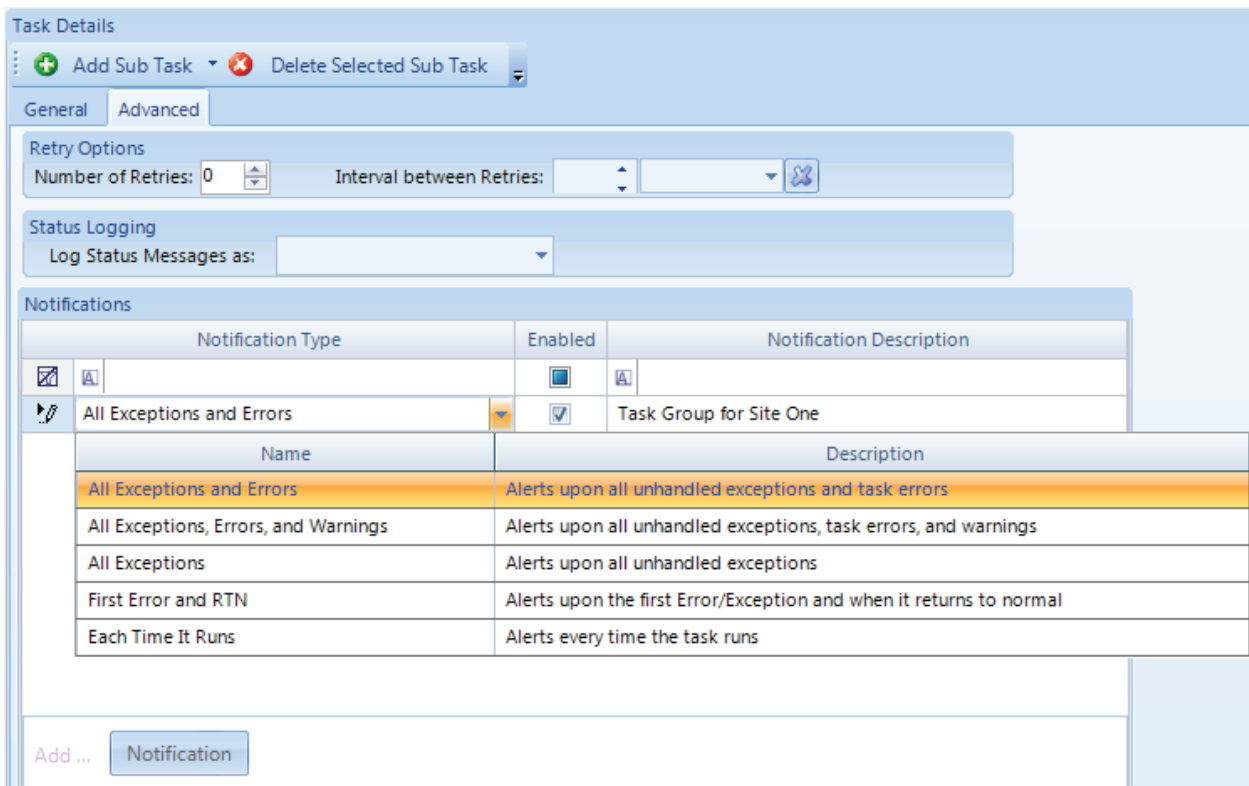


Task Scheduler showing the Advanced screen for a task  
(Configuration Editors > Task Scheduler)

- ◆ 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**.

The screenshot displays the Task Scheduler interface. At the top, there is a 'Task Scheduler' header and a 'Task Schedule' section. Below this is a 'Scheduled Task Selection' table with columns: Executive, Task Name, Task Enabled, Task Type, Start Time, Repeat Interval, and Task Description. The table lists several tasks, including 'Database Backup', 'Instrument Poll Task', 'Purge Journal Messages Task', 'Scheduled Report Task', and 'Task Group for Site One'. Below the table is a 'Task Schedule Details' section with fields for 'Executive' (Lab PC), 'Start Time' (10/03/2011 15:46:45), and 'Repeat Interval' (1 Hours). Below this is a 'Task Details' section with tabs for 'General' and 'Advanced'. The 'General' tab is active, showing 'Basic Task Information' with 'Task Name' (Instrument Poll Task) and 'Task Description' (Instrument Polling Task). Below this is 'Instrument Polling Options' with fields for 'Instrument' (EBAM), 'Instrument Poll Type' (Poll MetOne EBAM), and 'File Import Template' (BAM1020\_FIT\_Flags). There are also checkboxes for 'Save To File' and 'Extract Zip Content', and an 'Output Folder' field.

Executive	Task Name	Task Enabled	Task Type	Start Time	Repeat Interval	Task Description
Lab PC	Database Backup	<input checked="" type="checkbox"/>	SQL Execution Task	02/17/2017 01:25	1D	Creates Backup of AirVision Database
Lab PC	Instrument Poll Task	<input checked="" type="checkbox"/>	Instrument Poll Task	10/03/2011 15:46	1H	Instrument Polling Task
Lab PC	Purge Journal Messages Ta	<input checked="" type="checkbox"/>	Purge Journal Messages Tas	11/01/2012 23:15	1D	Purge Journal Messages Task
Lab PC	Scheduled Report Task	<input checked="" type="checkbox"/>	Report Task	04/25/2014 16:00	1D	Generates Report at assigned time for o
Lab PC	Task Group for Site One	<input checked="" type="checkbox"/>	Group Task	03/11/2013 11:05	1H	Processes tasks contained in task group

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' configuration window. It is divided into two main sections: 'Basic Task Information' and 'Logger Poll Options'.

**Basic Task Information:**

- Task Name:** Logger Poll Task
- Task Description:** Data Logger Polling Task
- Task Enabled:**
- Advanced Options:** A button with a plus sign and the text '+ Advanced Options'.

**Logger Poll Options:**

- Logger:** 09Logger
- Logger Command:** 56 - Average Data
- Average Interval:** 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.
- ⇒ **Important!** When deleting data 24 hours or more has to be selected for the deletion to be successful.

General **Advanced**

**Basic Task Information**

Task Name: Average Data Purge Task Task Enabled

Task Description: Average Data Purge Task

---

**Purge Options**

Archive Type: Average Data Purge Data Older than: 3 Year(s)

Archive Data Before Purging Alternate Archive Folder (On Server):

---

**Average Data Purge Options**

Interval to Purge: 001m - Minute average from instantaneous  Retain Readings During Calibrations

**Parameter Selection**

All Parameters Drag a column header here to group by that column.

Selected Parameters

Selected	Site Name	Parameter Name	Parameter Template Name
<input 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_PM25RRRAW	

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.”

**Task Details**

General **Advanced**

**Basic Task Information**

Task Name: Average Data Rollup Task Task Enabled

Task Description: Average Data Rollup Task

---

**Rollup Method**

1h to 1d

---

Drag a column header here to group by that column.

Selected	Site Name	Site Enabled	Parameter Name	Parameter Enabled	Time Interval
<input checked="" type="checkbox"/>	SITEONE	<input checked="" type="checkbox"/>	BARPRESS	<input checked="" type="checkbox"/>	001d

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.

Time Initiated	Device	Type	Item Information	Status
02/04/2019 13:57:48	SITEONE	Poll Averages With Flags 5	2/4/2019 12:00:00 AM to 2/4/2019 12:00:00 PM, 001h	Good

Time	Event Type	Thread ID	Message
2/4/2019 13:57:11.723	Communication	3	Connected to TCP Host: 172.16.1.216 on Port: 9881
2/4/2019 13:57:11.730	Communication	3	---> Requesting [SITEONE/Logger in rack (172.16.1.216:9881)]; @RD\I5600001H035000000\Y035130000&hfg\$
2/4/2019 13:57:12.190	Communication	3	<--- Response [SITEONE/Logger in rack (172.16.1.216:9881)]; @RD\I5601001H035000000245.027160&I5602001H035000000
2/4/2019 13:57:12.200	Communication	3	---> Requesting [SITEONE/Logger in rack (172.16.1.216:9881)]; @RD\acgcs\$
2/4/2019 13:57:12.643	Communication	3	<--- Response [SITEONE/Logger in rack (172.16.1.216:9881)]; @RD\I5605001H0350800001.28993022&I5606001H035080000

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** to the printer used by the AirVision Server.
  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 Scheduler' configuration window for a 'Scheduled Report Task'. At the top, 'Task Schedule Details' shows the executive as 'ZENBOOK', start time as '11/04/2013 10:18:59', and repeat interval as '1 Day(s)'. Below this, the 'Task Details' section has 'General' and 'Advanced' tabs. The 'Basic Task Information' section shows the task name 'Scheduled Report Task', a checked 'Task Enabled' box, and a description 'Generates Report at assigned time for output'. The 'Report Task Options' section shows the report set to 'Daily Summary Report' with a 'Configure Report Query' button. The 'Output Options' section is active, showing 'Printing Options' with an unchecked 'Enable Printing' checkbox and an empty 'Printer Path' field.

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

- 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:

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.

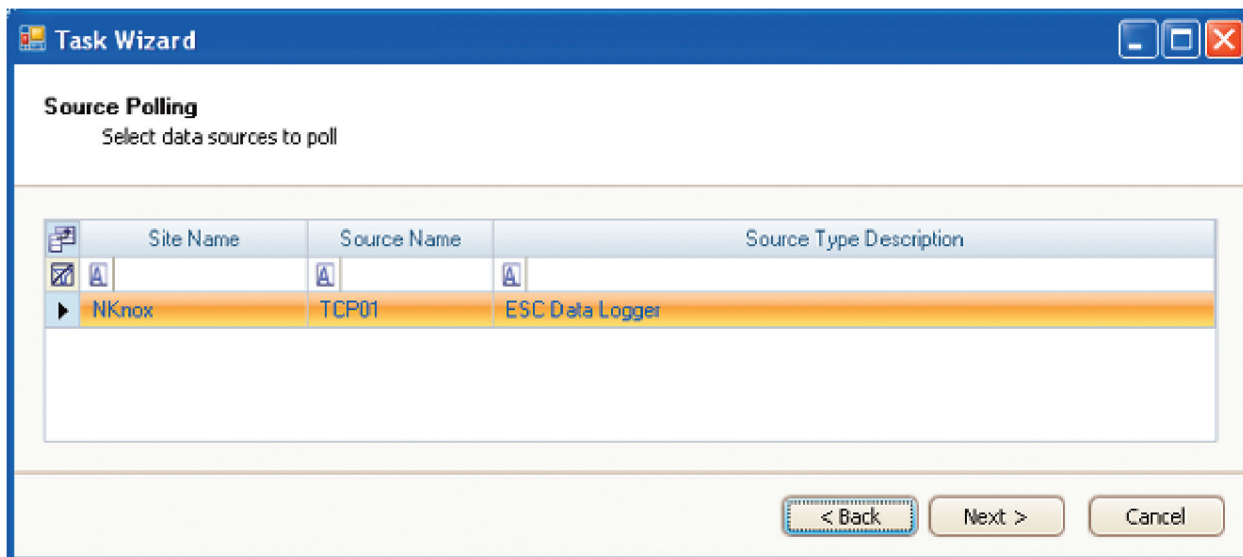
To remove a task from the Task Group select the task in the **Sub Task** section and click the **Delete Selected Sub Task** button.

## 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**.

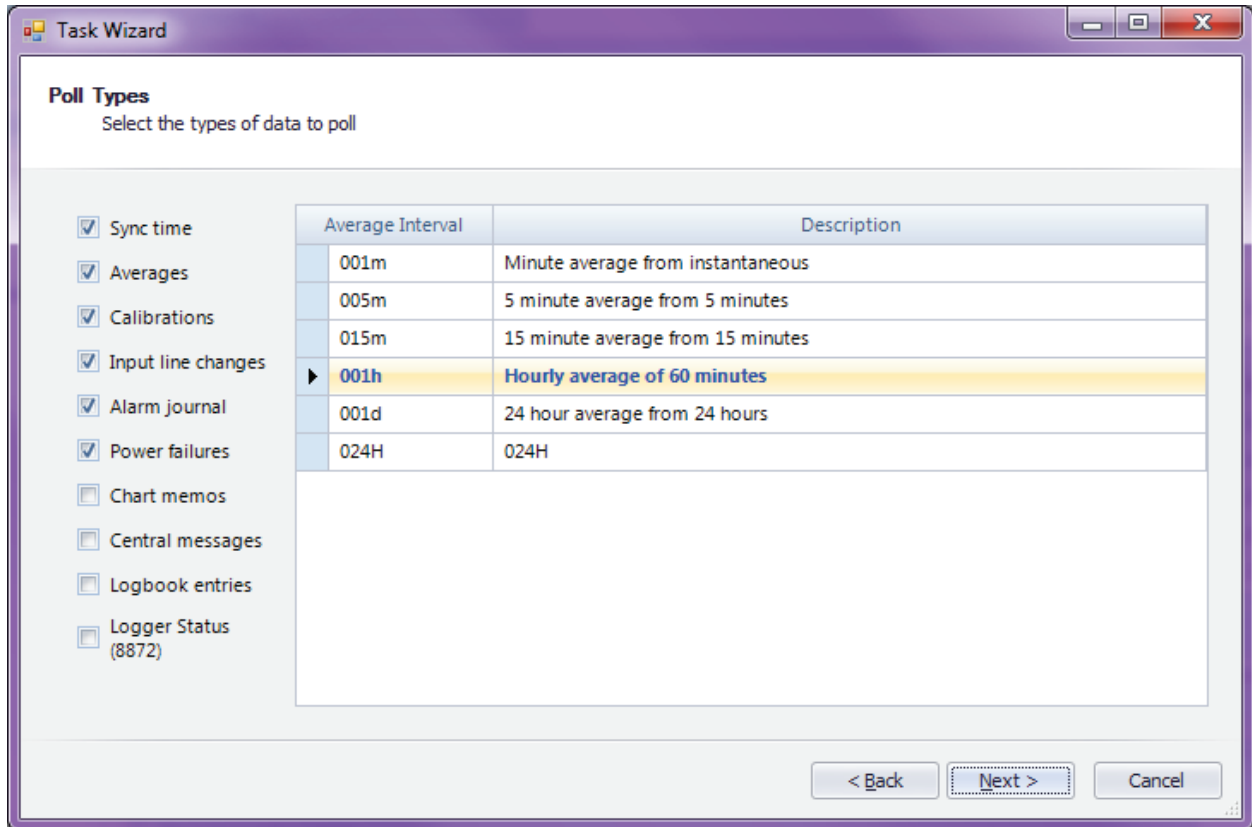


Selecting Site and Source Name in Task Scheduler Wizard (Configuration Editors > Task Scheduler > Run Schedule Wizard)

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,
- Logbook entries,
- Logger Status (8872).

Click **Next**.



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

**Task Schedule**  
Configure when this task will be executed.

When should this task start?  
11/04/2013 10:01:30

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

Which server should execute this task?  
ZENBOOK

Task Name:  
Put Task Name Here

Description:  
Poll 01\_KNOX 001h, ADVP: HighWind

< Back    Next >    Cancel

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

Select the following configurations from drop-down lists:

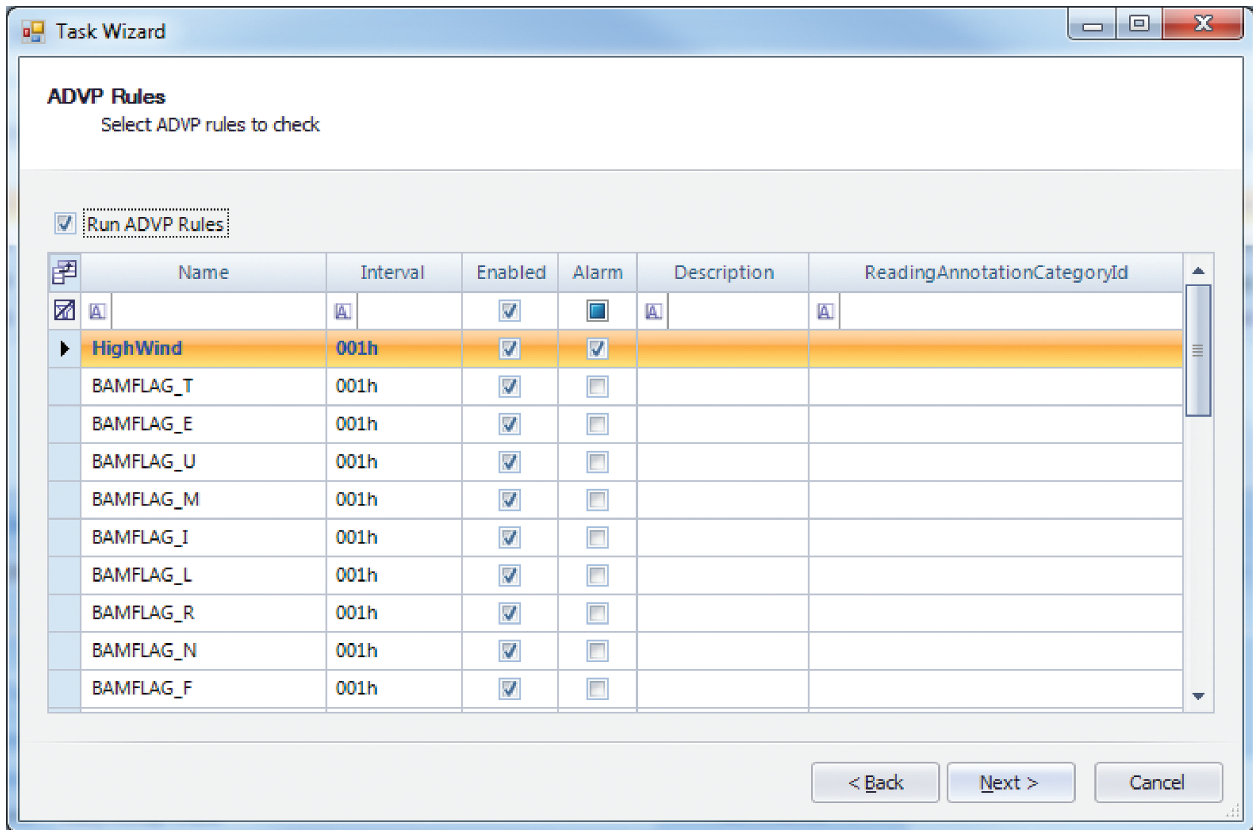
- when the task should start,
- how often it should be repeated,
- and which server should execute the task.

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**.

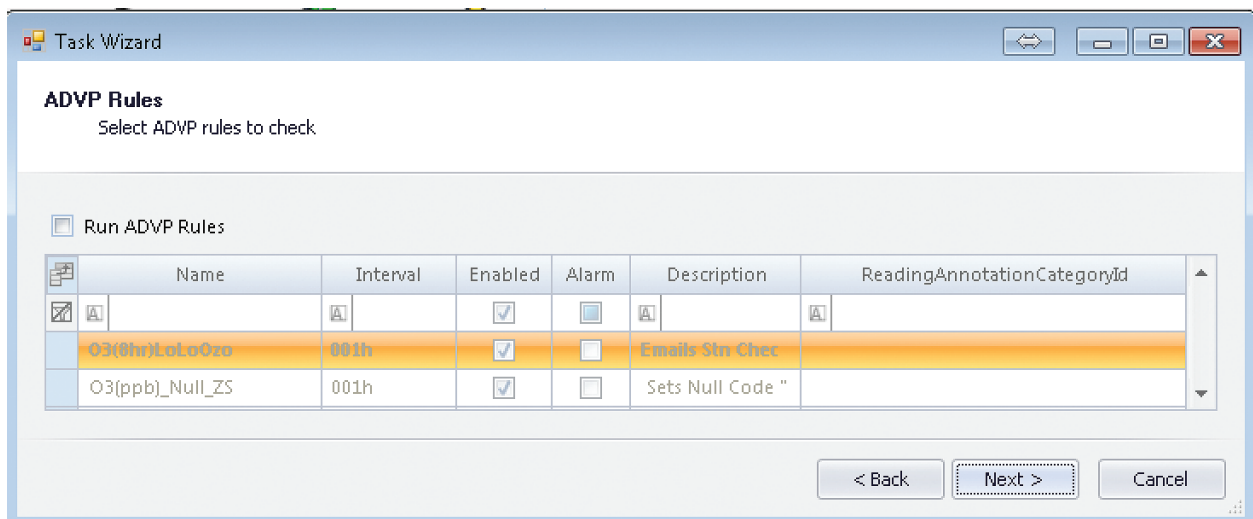


If you have the AirVision ADVP module, there is also a screen in the Task Wizard where configured ADVP rules can be selected.



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 screenshot shows a configuration window titled "Instrument: BAM1020". It has two tabs: "Source" and "Communication". The "Source" tab is active and contains two panels: "Source Information" and "Instrument Details".

**Source Information Panel:**

- Site: SITEONE
- Source Name: BAM1020
- Enabled:
- Description: (empty text box)
- Retry Attempts: 1
- Retry Delay: (empty dropdown menu)

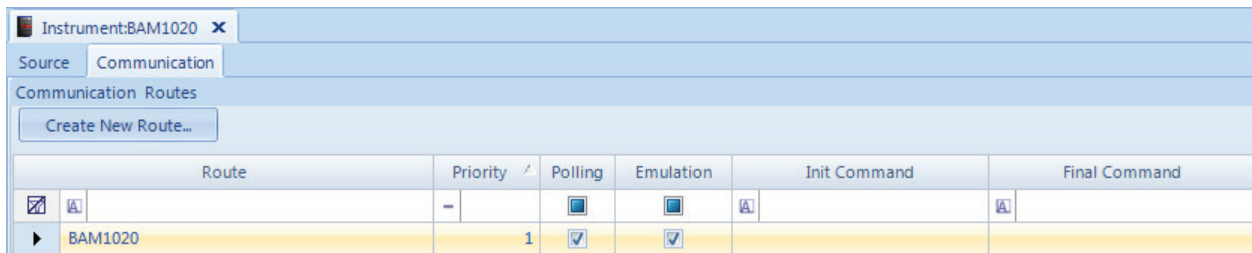
**Instrument Details Panel:**

- Instrument Type: Met One Bam 1020
- Instrument Identifier: (empty text box)
- Instrument Username: (empty text box)
- Instrument Password: (empty text box)

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 TCP Route in the Server Configuration editor. The user is provided a list of instruments configured in the Data Source Details editor or by selecting the Communication tab and adding a Device Route, then selecting the communication route from the drop down list.

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.**

**Task Details**

General | Advanced

**Basic Task Information**

Task Name: Instrument Poll Task Task Enabled

Task Description: Instrument Polling Task

**Instrument Polling Options**

Instrument: EBAM Instrument Poll Type: Poll MetOne EBAM

File Import Template: (Overrides Default for Command) BAM1020\_FIT\_Flags

**Save To File**

Save To File

Extract Zip Content

Output Folder:

Output Filename:

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,

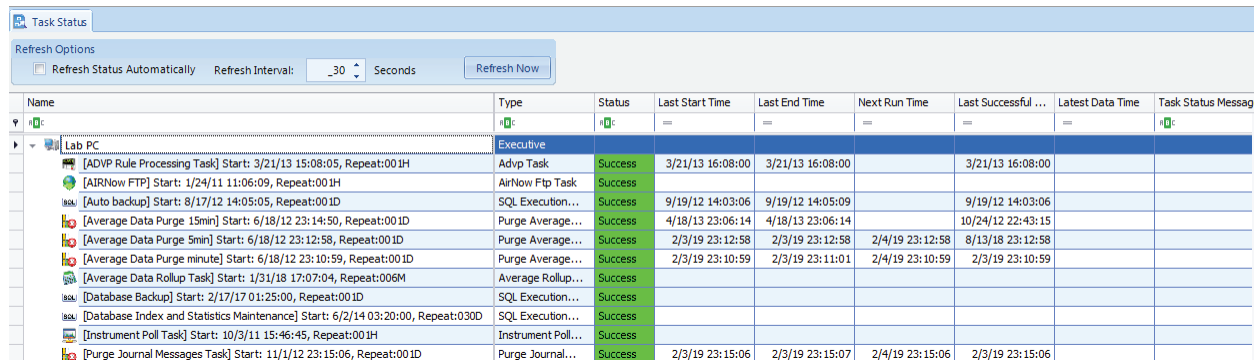
To prevent this from happening, the BAM allows the user to configure the BAM to manually set the channel order (consult the BAM-1020 manual for details).

*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 (Status Displays > Task Status)** is constantly updating the 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.



Name	Type	Status	Last Start Time	Last End Time	Next Run Time	Last Successful ...	Latest Data Time	Task Status Messag
Lab PC	Executive							
[ADVP Rule Processing Task] Start: 3/21/13 15:08:05, Repeat:001H	Advp Task	Success	3/21/13 16:08:00	3/21/13 16:08:00		3/21/13 16:08:00		
[AIRNow FTP] Start: 1/24/11 11:06:09, Repeat:001H	AirNow Ftp Task	Success						
[Auto backup] Start: 8/17/12 14:05:05, Repeat:001D	SQL Execution...	Success	9/19/12 14:03:06	9/19/12 14:05:09		9/19/12 14:03:06		
[Average Data Purge 15min] Start: 6/18/12 23:14:50, Repeat:001D	Purge Average...	Success	4/18/13 23:06:14	4/18/13 23:06:14		10/24/12 22:43:15		
[Average Data Purge 5min] Start: 6/18/12 23:12:58, Repeat:001D	Purge Average...	Success	2/3/19 23:12:58	2/3/19 23:12:58	2/4/19 23:12:58	8/13/18 23:12:58		
[Average Data Purge minute] Start: 6/18/12 23:10:59, Repeat:001D	Purge Average...	Success	2/3/19 23:10:59	2/3/19 23:11:01	2/4/19 23:10:59	2/3/19 23:10:59		
[Average Data Rollup Task] Start: 1/31/18 17:07:04, Repeat:006M	Average Rollup...	Success						
[Database Backup] Start: 2/17/17 01:25:00, Repeat:001D	SQL Execution...	Success						
[Database Index and Statistics Maintenance] Start: 6/2/14 03:20:00, Repeat:030D	SQL Execution...	Success						
[Instrument Poll Task] Start: 10/3/11 15:46:45, Repeat:001H	Instrument Poll...	Success						
[Purge Journal Messages Task] Start: 11/1/12 23:15:06, Repeat:001D	Purge Journal...	Success	2/3/19 23:15:06	2/3/19 23:15:07	2/4/19 23:15:06	2/3/19 23:15:06		

### 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

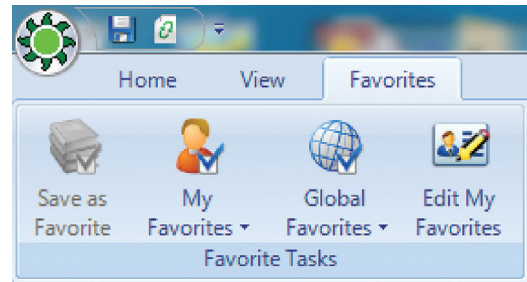
**Edit Task** - change the task settings

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

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

## 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
- ◆ **Load Data Automatically 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.

The screenshot shows the 'Favorite Query' configuration interface. It includes the following sections:

- Date Range Selection:** Radio buttons for Current Day, Current Month, Current Quarter, Current Week, Current Year, Fixed Date Range, Last Month, Last Quarter, Last Week, Lookback Days, Lookback Hours, Lookback Minutes, and Yesterday. Includes Start Date, End Date, and Look Back Intervals fields.
- Average Interval:** A table with columns 'Average Interval' and 'Description'. The '001h' interval is selected.
- Parameter Selection:** A table with columns 'Site Name', 'Parameter Name', 'Parameter Template Name', and 'Parameter Description'. It lists various parameters for 'SITEONE'.
- Query Option Switches:** A dropdown menu.
- Query String:** A text field containing a URL-like string: `DateRangeType=CurrentDay&SourceParameters=ebdeb39a-9f8e-df11-9983-444553544200&AverageIntervals=c71a20a1-43f9-dd11-9b87-001e8c005352`.
- Clear Selection:** A button to reset the query string.

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.

The screenshot shows the 'User Editor' window. On the left, a list of users includes QA1, QA2, Technician1, and Technician2. The main area is divided into sections: 'Account' with fields for User Name (QA1), Email (QA1@aglaire.com), and Language; 'Name' with fields for First, Middle, Last, and Title; and 'Contact Addresses' which is a table with columns for Type, Label, Address, and notification checkboxes (Task, Report, Alarm, ADVP, Work Item). A 'Set User Password' button is located below the account fields, and an 'Add ... Contact Address' button is at the bottom.

Type	Label	Address	Task Notifications	Report Notifications	Alarm Notifications	ADVP Notifications	Work Item Notifications
<input checked="" type="checkbox"/>	QA1	QA1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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**.

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**.

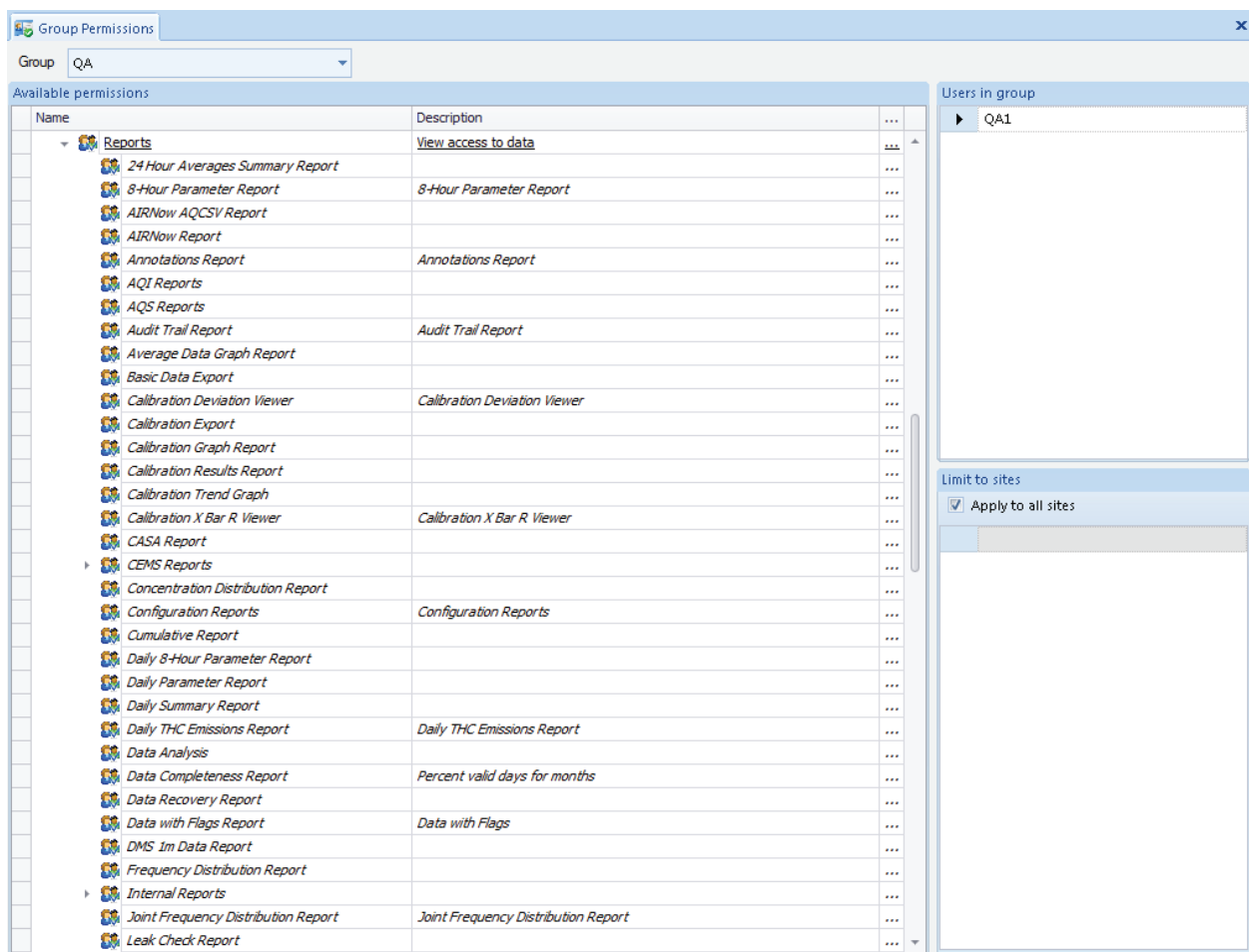
Groups Editor from Configuration Editors > Security > User Editor

## 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 (**Configuration Editors>GSI/Modbus Drivers**) 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:

### Details

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

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

Modbus Register

Data Value Format

### Autosend

Send Name (string)

Autosend Repeat Interval (1.60 seconds)

AutoSend String (string up to 8 char)

### Parsing

Parse Name (string, up to 8 char)

Parse Sync String

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:

Delimiter Chars (string)

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

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

### Advanced

Primary Driver

Input Index

In the GSI Driver Digital tab:

Details

Driver Entry Name

Associated Instruments

Coil Number

Input/Output type

Input

Output

Input Options

Discrete Input (FC=02)

Output Options

Register Output (FC=06)

Closed Value

Open Value

In the GSI Driver Instrument tab:

Instrument Name

Default Modbus TcpIp Port (integer, up to 6 digits)

Default Modbus Code (integer, 0-255)

Default Modbus Command Type (3 or 4)

Default Timeout (ms):

Supports Force Multiple Coils

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 and Joint Frequency Distribution Report (**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 > Report Configurations)**
3. Schedule **AIRNow FTP Transfer task** in **Task Scheduler (Configuration Editors)**

For **AIRNow Transfer Details** (step 2), open **AIRNow/FTP Setup** from the **Configuration > Report Configurations** menu. To add a new transfer program select the **Add FTP Program** button on the Ribbon at the top. 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:

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

Click the **Save** icon.

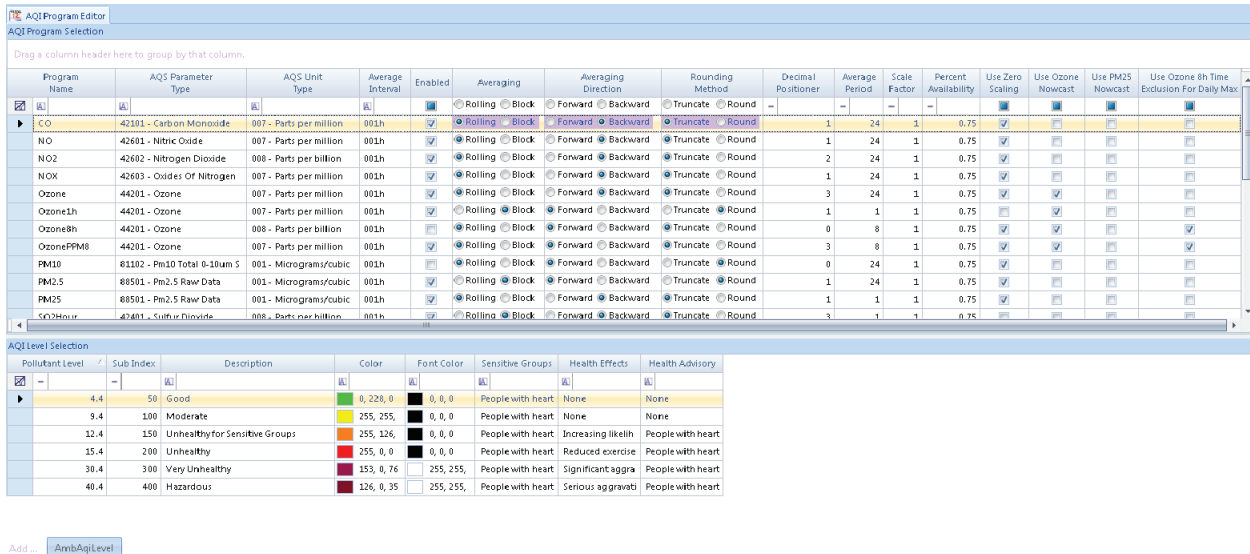
Program Name	Enabled
AgilaireMobileApp	<input type="checkbox"/>
AIRNow	<input checked="" type="checkbox"/>
other	<input type="checkbox"/>

Program Name:	<input type="text" value="AIRNow"/>	Enable?	<input checked="" type="checkbox"/>
Transfer Method:	<input type="text" value="FTP"/>	Port:	<input type="text" value="21"/>
FTP Host:	<input type="text" value="ftp.airnowdata.org"/>	AIRNow?	<input checked="" type="checkbox"/>
Directory:	<input type="text" value="incoming/data/AQSCV_Test"/>	Agency:	<input type="text" value="TN4"/>
User Name:	<input type="text" value="SHCOperator"/>	<input type="button" value="Set User Password"/>	

AIRNow FTP Setup in Configuration Editors

# AQI Program Editor



## AQI Program Editor from the Configuration menu

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, 35, 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 Ozone Nowcast**--an estimation method that uses a combination of hourly particle concentrations from previous hours to estimate the Mid-24 average.

**Use PM25 Nowcast** - The PM25 NowCast is used instead of a 24-hour block average of the current day for the calculation of the AQI until an entire calendar day of hourly data is available.

**Use Ozone 8hTime Exclusion For Daily Max** - This is the 17-hour rule that is part of the NowCast algorithm.

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.

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)

Color - Background color behind the text.

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

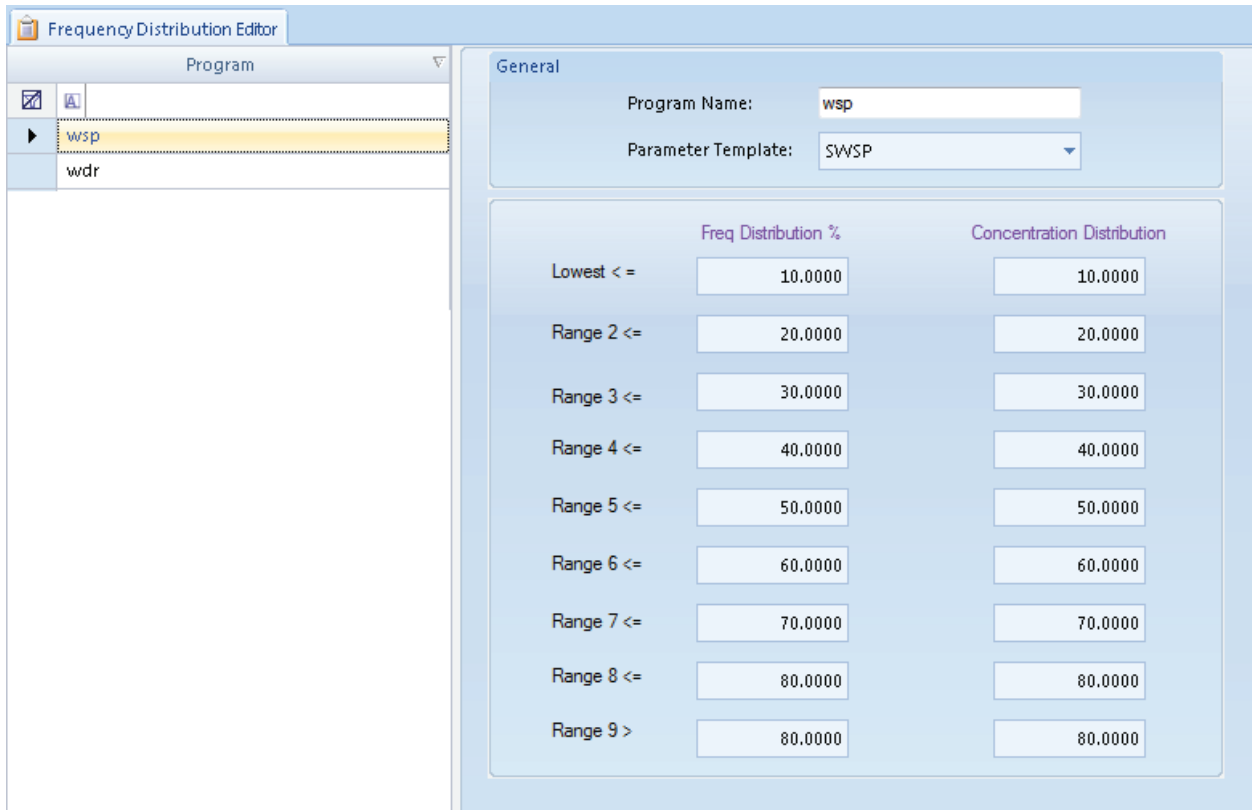
To add a pollutant level, click the asterisk at the bottom of the screen and enter values for an additional row. To cancel the addition, press the Tab key or the Escape key.

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 > Report Configurations > 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 > Report Configurations > Frequency Distribution Editor

## Wind Rose Levels Editor

In the Wind Rose Levels Editor (**Configuration Editors > Report Configurations > 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.

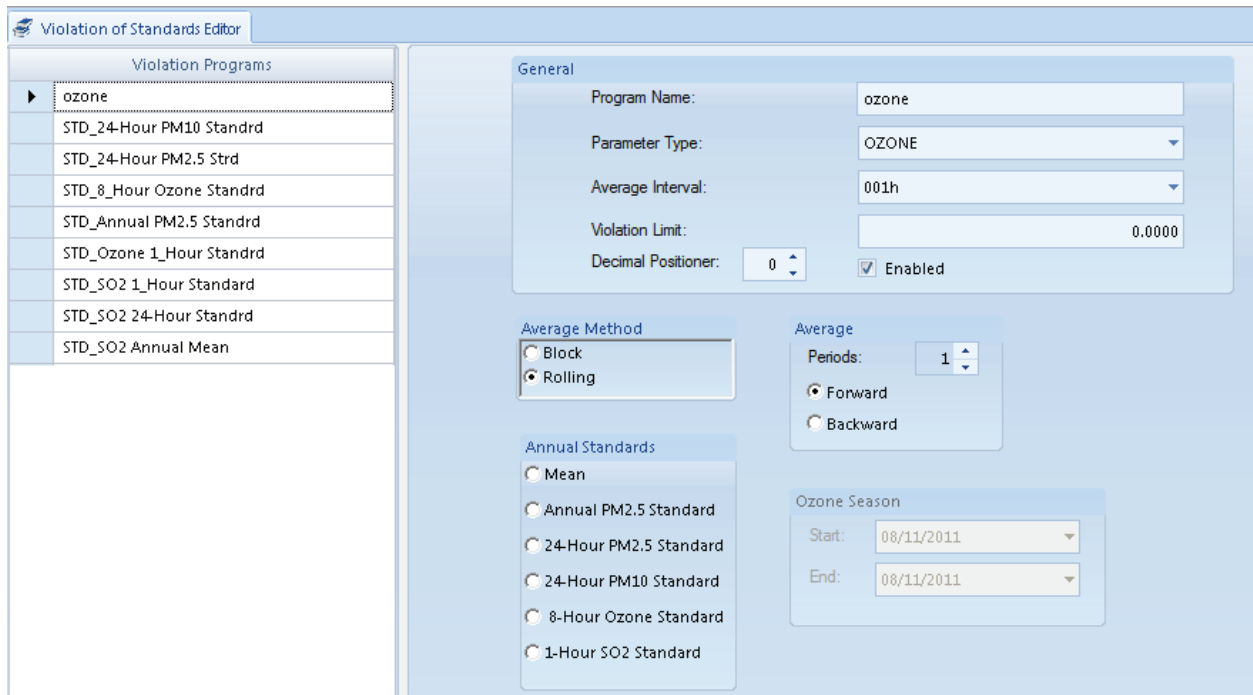
Rose Level	Limit	Plot Color
1	5.0000	0, 0, 255
2	10.0000	0, 192, 0
3	20.0000	255, 0, 255
4	30.0000	255, 128, 0
5	40.0000	255, 0, 0
6	50.0000	128, 64, 0
7	75.0000	128, 0, 0
> 7		255, 255, 0

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.

### Summary Reports

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

### Calibration Reports

- ◆ 1-Point QC Summary Report
- ◆ Calibration export
- ◆ Calibration Graph Report
- ◆ Calibration Results
- ◆ Calibration Trend Graph
- ◆ Calibration X-Bar-R Chart
- ◆ Calibration Zero/Span Graph Viewer
- ◆ Multi Phase Calibration Report
- ◆ USEPA Zero Drift Report
- ◆ The Converter Efficiency Span and Precision Reports

### Statistical Reports

- ◆ Concentration Distribution Report
- ◆ Data Analysis
- ◆ Data Completeness Report
- ◆ Data Recovery Report
- ◆ Frequency Distribution Report
- ◆ Maximum Hourly Values
- ◆ Network Data Recovery Report
- ◆ Statistical Report

### AIRNow Reports

- ◆ AIRNow AQSCSV Report
- ◆ AirNow Report (old "OBS Format")

## Chapter 3

# Reports

### AQS Reports

- ◆ AQS 2.2 Text Report
- ◆ AQS XML 2.2 Report / XML 3.0 Report

### USEPA Reports

- ◆ Precision Reporting for Gases

### AQI Reports

- ◆ AQI Levels Report
- ◆ AQI Monthly Group Report
- ◆ AQI Monthly Report
- ◆ AQI Report--Current
- ◆ AQI Report--Range
- ◆ AQI Report--Standard
- ◆ Voice AQI Report

### Asset Reports (Optional, with Asset Tracking Module)

- ◆ Asset Export Report
- ◆ Asset History Report
- ◆ Parameter Asset History Report

### Configuration Reports

- ◆ Analog Outputs Configuration Report
- ◆ Average Alarm Report
- ◆ Calibration Alarm Configuration Report
- ◆ Calibration Configuration Report
- ◆ Channel Configuration Report
- ◆ Channel Equation Report
- ◆ Digital IO Configuration Report
- ◆ GSI Configuration Report
- ◆ Logger Configuration Report
- ◆ Math Equation Report
- ◆ Notification Configuration Reports
- ◆ Parameter Configuration Report
- ◆ Scheduled Tasks Report
- ◆ Site Configuration Report

### Internal Reports

- ◆ Audit Change Viewer
- ◆ DB Modification History
- ◆ Diagnostic Report
- ◆ Exception Journal Report
- ◆ Journal Message Log
- ◆ Login Event History
- ◆ Login Session History
- ◆ Site Node Logger Status Report
- ◆ Software Version Report
- ◆ Table Size Information

## Chapter 3

# Reports

### 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

### Sample Data Reports

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

### Other Notation Reports

- ◆ Annotations Report
- ◆ Audit Trail Report
- ◆ LogBook Report

### Average Reports

- ◆ Average Data Trend Report
- ◆ Basic Data Export
- ◆ Data with Flags

### Other Reports

- ◆ Cumulative Report
- ◆ Site Health Report
- ◆ Violation of Standards

## Criteria Pane

All reports use a Criteria Pane to select a time range and list of pollutants for the 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	Current Quarter
Yesterday	Last Quarter
Current Week	Current Year
Last Week	Days Back
Current Month	Hours Back
Last Month	Minutes Back

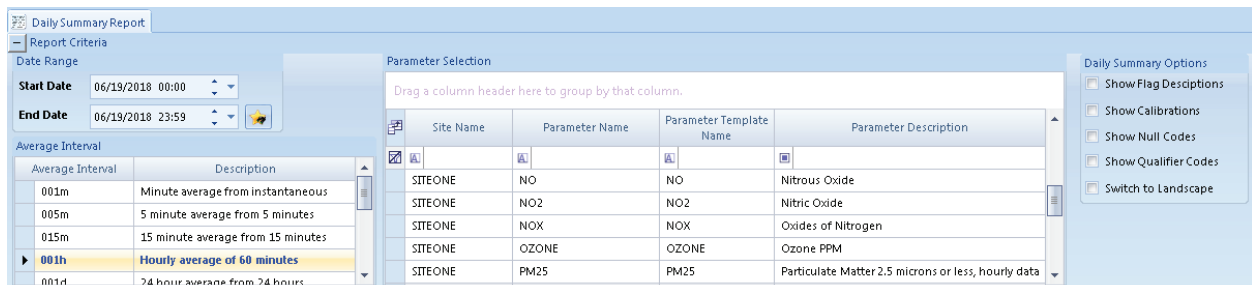
In addition, the time criteria (e.g., the star icon button) allows you to choose “shift forward one day” or “shift backward one day.” If you select one of these and hit apply, it acts similar to the “Data Forward” or “Data Backward” buttons, except always shifting by 24 hours, rather than the size of 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
- ◆ Show Null Codes
- ◆ Show Qualifier Codes
- ◆ Switch to Landscape





### Filters

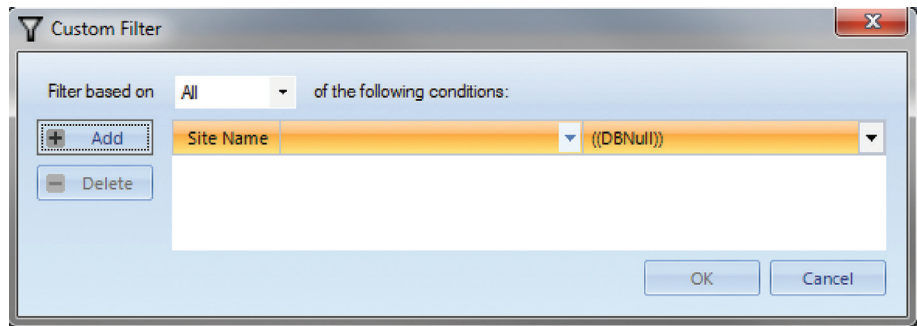
Filter fields are available in the top row of each column. Click in the row to use the filter to list a single site, parameter, or parameter template.

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 or parameter description)

Parameter Selection				
Drag a column header here to group by that column.				
	Site Name	Parameter Name	Parameter Template Name	Parameter Description
	SITEONE	NO	NO	Nitrous Oxide
	SITEONE	NO2	NO2	Nitric Oxide
	SITEONE	NOX	NOX	Oxides of Nitrogen
	SITEONE	OZONE	OZONE	Ozone PPM
	SITEONE	PM25	PM25	Particulate Matter 2.5 microns or less, hourly data

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
- 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.

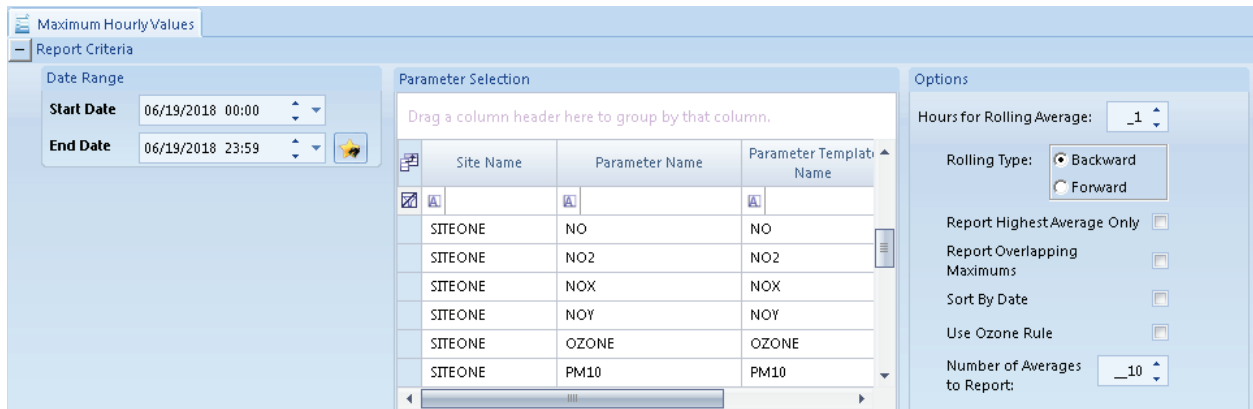
Site Name	Parameter Name	Parameter Template
	AMB_↑	
Blount_S	11_AMB_TEMP	AMBTEMP
Blount2	12_AMB_TEMP	AMBTEMP
Brainerd	03_AMB_TEMP	
Roane_Y	12_AMB_TEMP	AMBTEMP
Union	11_AMB_TEMP	AMBTEMP

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



The screenshot shows the 'Maximum Hourly Values' report configuration window. It includes a 'Date Range' section with 'Start Date' (06/19/2018 00:00) and 'End Date' (06/19/2018 23:59). The 'Parameter Selection' section features a table with the following data:

Site Name	Parameter Name	Parameter Template Name
SITEONE	NO	NO
SITEONE	NO2	NO2
SITEONE	NOX	NOX
SITEONE	NOY	NOY
SITEONE	OZONE	OZONE
SITEONE	PM10	PM10

The 'Options' section on the right includes: 'Hours for Rolling Average' (set to 1), 'Rolling Type' (Backward selected), 'Report Highest Average Only' (unchecked), 'Report Overlapping Maximums' (unchecked), 'Sort By Date' (unchecked), 'Use Ozone Rule' (unchecked), and 'Number of Averages to Report' (set to 10).

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.

## Summary 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 > Summary 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.

Date Printed: 2/4/2019 12:09

### Daily Summary Report

Site: SITEONE

6/19/2018

Interval: 001h

	NO	NO2	NOX	CO	OZONE
Time	PPM	PPB	PPM	PPM	PPM
00:00	6.224	1.203	.538	1.3	33.3
01:00	6.186	1.207	.545	1.2	33.3
02:00	6.191	1.201	.540	1.3	33.3
03:00	6.235	1.202	.538	1.3	33.3
04:00	6.224	1.206	.542	1.3	33.3
05:00	6.063	1.203	.548	C	33.3
06:00	6.100	1.207	.552	1.2	33.3
07:00	6.145	1.210	.555	1.3	33.3
08:00	6.352	1.210	.548	1.3	33.3
09:00	6.200	1.213	.553	1.3	33.3
10:00	6.258	1.209	.549	1.3	33.3
11:00	6.183	1.208	.549	1.3	33.3
12:00	6.206	1.203	.546	1.3	33.3
13:00	6.232	1.204	.544	1.3	33.3
14:00	6.125	1.205	.552	1.3	33.3
15:00	5.983	1.210	.556	1.2	C
16:00	6.341	1.207	.549	1.3 h	33.3
17:00	6.233	1.213	.552	1.3	33.3
18:00	6.198	1.211	.550	1.2	33.3
19:00	6.150	1.205	.550	1.3	33.3
20:00	6.065	1.202	.549	1.3	33.3
21:00	6.026	1.199	.547	1.3	33.3
22:00	5.901	1.192	.554	1.2	33.3
23:00	5.891	1.192	.554	1.2	33.3
Avg	6.154	1.205	.548	1.3	33.3
Max	6.352	1.213	.556	1.3	33.3
Max Time	08:00	17:00	15:00	21:00	23:00
Min	5.891	1.192	.538	1.2	33.3
Count	24	24	24	23	23
Total			13.16	29.3	

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.

### 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 > Summary 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.

Current Date: 2/4/2019 12:06 PM

#### Daily Parameter Report

6/19/2018

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	Summary		
																											Avg	Max
CO	SITEONE	1.3	1.2	1.3	1.3	1.3	C	1.2	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.2	1.3	1.3	1.2	1.3	1.3	1.3	1.2	1.2	1.3	1.3	00
NO	SITEONE	6.224	6.186	6.191	6.235	6.224	6.063	6.100	6.145	6.352	6.200	6.258	6.183	6.206	6.232	6.125	5.983	6.341	6.233	6.198	6.150	6.065	6.026	5.901	5.891	5.154	5.352	08
NO2	SITEONE	1.203	1.207	1.201	1.202	1.206	1.203	1.207	1.210	1.210	1.213	1.209	1.208	1.203	1.204	1.205	1.210	1.207	1.213	1.211	1.205	1.202	1.199	1.192	1.192	1.205	1.213	09
NOX	SITEONE	.538	.545	.540	.538	.542	.548	.552	.555	.548	.553	.549	.549	.546	.544	.552	.556	.549	.552	.550	.550	.549	.547	.554	.554	.548	.556	15
OZONE	SITEONE	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	C	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	00

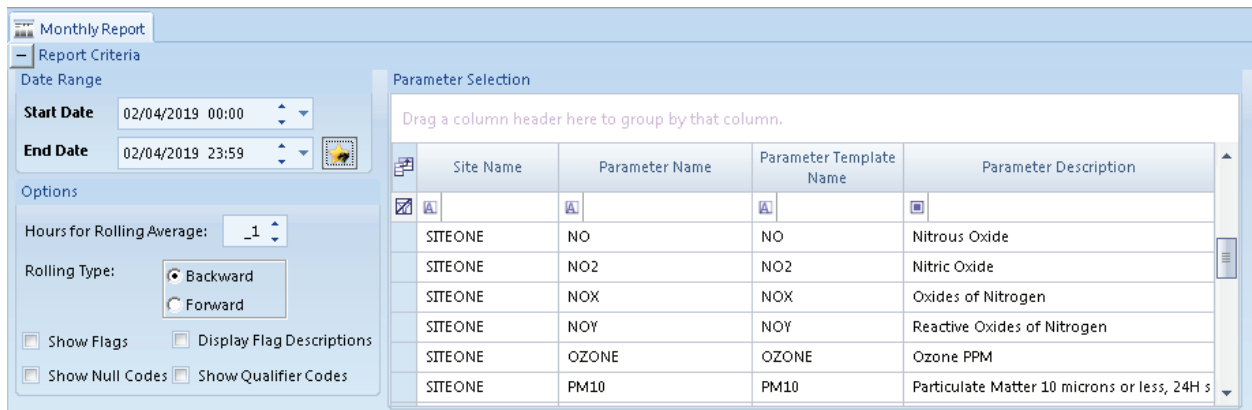
A report option is available to show null codes for invalid hours.

## 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** to be shown in the report, click the check box beside of **Show Flags**. (You may have to drag the screen divider down to see the Flags option. If you want the **Null Codes** to be shown in the report, click to the check box beside of **Show Null Codes**. If you want the **Qualifier Codes** to be shown in the report, click the check box beside of **Show Qualifier Codes**. Qualifier Codes and Null Codes can also be shown together.



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.

Current Date: 2/4/2019 10:31 AM Monthly Report  
 Site Name: SITEONE 093 : 7001 June 2018  
 Parameter: OZONE 44201 Avg Interval: 1 hour  
 Units: PPM 007 Method: 321

Day	Hours																							Summary							
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Max	Avg	RDS				
	01	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	C	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3
02	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	C	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	23
03	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	C	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	23
04	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	C	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	23
05	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	C	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	23
06	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	C	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	23
07	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	C	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	23
08	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	C	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	23
09	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	C	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	23
10	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	C	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	23
11	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	C	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	23
12	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	C	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	23
13	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	C	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	23
14	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	C	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	23
15	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	C	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	23
16	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	C	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	23
17	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	C	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	23
18	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	C	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	23
19	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	C	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	23
20	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	C	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	23
21	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	C	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	23
22	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	C	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	23
23	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	C	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	23
24	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	C	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	23
25	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	C	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	23
26	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	C	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	23
27	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	C	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	23
28	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	C	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	23
29	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	C	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	23
30	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	C	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	23
Max	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3		33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	
Avg	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3		33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	
Count	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	0	30	30	30	30	30	30	30	30	30	30	30	30	30	30	690

Monthly Report with Parameter Code

If Site Codes, and/or Parameter codes have been configured 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 qualifier codes, and whether to show flags for invalid date.

## 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.

Current Time: 02/04/2019 10:25

24 Hour Average Summary Report  
June 2018

Day	SITEONE	
	PM10 UG/M3	PM25 UG/M3
01	6.3	.6
02	6.3	.6
03	6.2	.6
04	6.3	.6
05	6.3	.6
06	6.3	.6
07	6.3	.6
08	6.3	.6
09	6.2	.6
10	6.2	.6
11	6.3	.6
12	6.3	.6
13	6.3	.6
14	6.3	.6
15	6.3	.6
16	6.3	.6
17	6.3	.6
18	6.3	.6
19	6.3	.6
20	6.3	.6
21	6.3	.6
22	6.3	.6
23	6.3	.6
24	6.3	.6
25	6.3	.6
26	6.3	.6
27	6.3	.6
28	6.3	.6
29	6.3	.6
30	6.3	.6
<b>Avg</b>	<b>6.2</b>	<b>0.6</b>
<b>Max</b>	<b>6.3</b>	<b>.6</b>
<b>Min</b>	<b>6.2</b>	<b>.6</b>
<b>Count</b>	<b>30</b>	<b>30</b>

24 Hour Average Summary Report



### 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: 1/31/2019 4:07 PM

#### 8 Hour Rolling Average Report

6/1/2018

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	HF	of	Max																						
NO	SITEONE	6.08	6.066	6.073	6.069	6.08	6.081	6.082	6.099	6.094	6.114	6.118	6.118	6.096	6.122	6.137	6.142	6.141	6.134	6.135	6.142	6.173	6.177	6.191	6.198	6.119	6.198	23

## Calibrations Reports

### 1-Point QC Summary Report

Date Printed: 07/16/2018 10:22

1-Point QC Summary Report

7/1/2018 - 7/16/2018

<u>Site</u>	<u>Parameter</u>	<u>Parameter Code</u>	<u>Unit Code</u>	<u>Method Code</u>	<u>Count</u>	<u>CV%</u>	<u>Bias%</u>	<u>Upper Probability Limit</u>	<u>Lower Probability Limit</u>
SITEONE	OZONE	44201	007	321	2	33.42	0.09	33.39	33.35

### Calibration Export

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

Site	Parameter	Sequence	Phase	Start Time	End Time	Value	Expected Value	% Error	Drift Limit %
SITEONE	CO	COCAL	Span1	29-Jan-2019 05:00:00	29-Jan-2019 05:10:00	1.3	10	86.82	
SITEONE	CO	COCAL	Span2	29-Jan-2019 05:00:00	29-Jan-2019 05:15:00	1.3	20	93.42	
SITEONE	CO	COCAL	Zero	29-Jan-2019 05:00:00	29-Jan-2019 05:05:00	1.3	0.0	1.3	
SITEONE	OZONE	AUTOCAL	PREC	29-Jan-2019 15:05:21	29-Jan-2019 15:09:21	245	0.0	24502.7	1
SITEONE	OZONE	AUTOCAL	SPAN1	29-Jan-2019 15:05:21	29-Jan-2019 15:07:21	245	10	23502.8	1
SITEONE	OZONE	AUTOCAL	SPAN2	29-Jan-2019 15:05:21	29-Jan-2019 15:08:21	245	20	22502.8	
SITEONE	OZONE	AUTOCAL	ZERO	29-Jan-2019 15:05:21	29-Jan-2019 15:06:21	245	0.0	24502.7	300

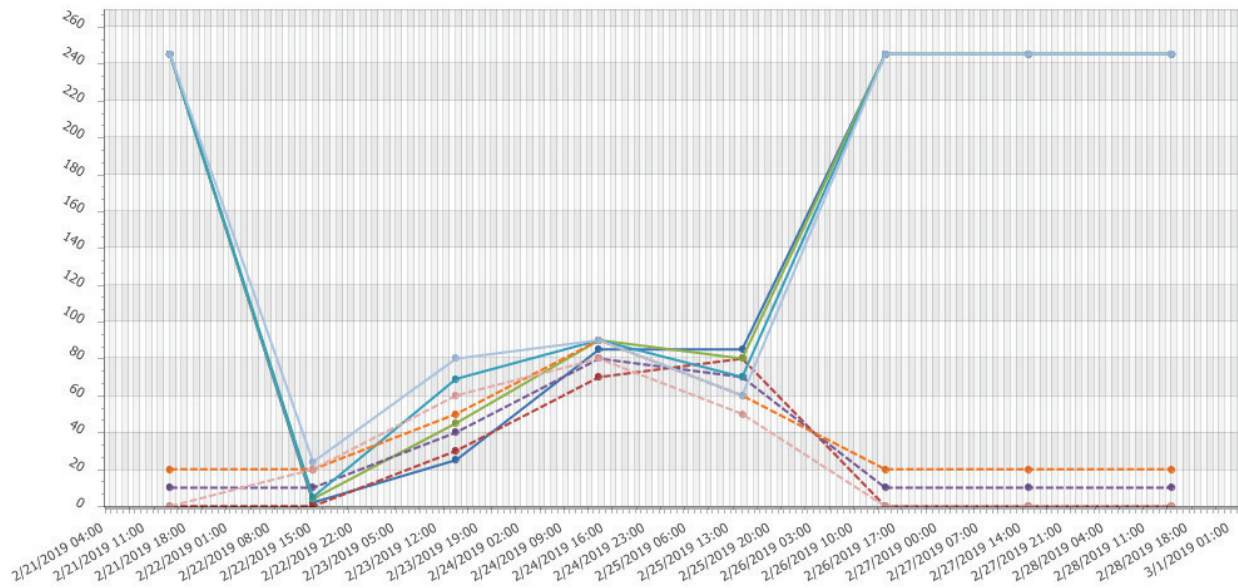
# Calibration Graph Report

Current Date: 2/28/2019 4:25 PM

## Calibration Graph Report

Site: SITEONE  
 Source: SITEONE  
 Sequence: AUTOCAL

- ZERO:OZONE:PPM - Value
- ZERO - Expected
- SPAN1:OZONE:PPM - Value
- SPAN1:OZONE:PPM - Expected
- SPAN2:OZONE:PPM - Value
- SPAN2:OZONE:PPM - Expected
- PREC:OZONE:PPM - Value
- PREC:OZONE:PPM - Expected



## Calibration Results

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

Date Printed: 01/31/2019 04:02

### Calibration Report

30-Jun-2018

<u>Site</u>	<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>	<u>Drift Warning Limit</u>
SITEONE	CO	COCAL	Zero	30-Jun-2018 05:00:00	05:05:00	1.2	*	0	1.23	
			Span1	30-Jun-2018 05:00:00	05:10:00	1.2	*	10	-8.78	
			Span2	30-Jun-2018 05:00:00	05:15:00	1.2	*	20	-18.76	

\* - Drift limit exceeded

\*\* - Out of control limit exceeded

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](mailto:support@agilaire.com) if the % error is not showing the desired result.

## Calibration Trend Graph

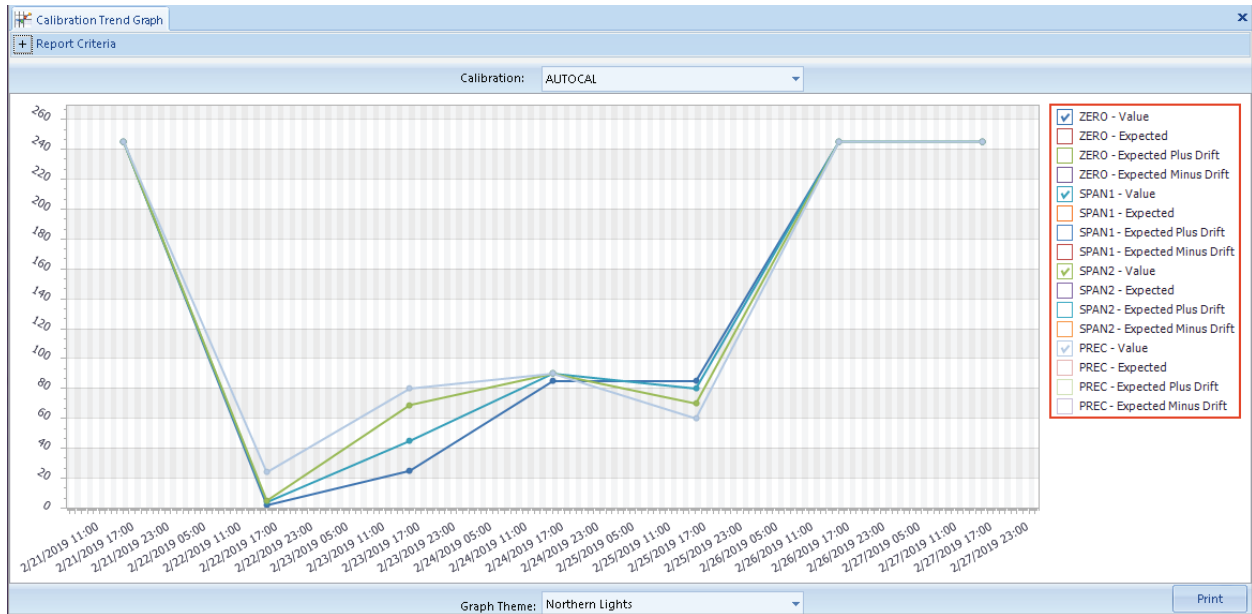
**Calibration Trend Graphs** provide a long-term view of calibration zero/span results over a user-defined period of time (month, quarter, etc). Select a **Start** and **End Date** and a **Parameter**. Click the **Generate Report** icon on the ribbon.

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

Calibration Trend Graph										
+ Report Criteria										
Drag a column header here to group by that column										
Site	Parameter	Source	Calibration	Phase Number	Phase Name	Start Date	EndDate	Expected Value	Value	Difference
▶ SITEONE	OZONE	SITEONE	AUTOCAL	1	ZERO	6/6/2018 3:05 PM	6/6/2018 3:06 PM	0	33.3672294	33.3672294
SITEONE	OZONE	SITEONE	AUTOCAL	2	SPAN1	6/6/2018 3:05 PM	6/6/2018 3:07 PM	10	33.369358	23.369358
SITEONE	OZONE	SITEONE	AUTOCAL	3	SPAN2	6/6/2018 3:05 PM	6/6/2018 3:08 PM	20	33.3514022	13.3514022
SITEONE	OZONE	SITEONE	AUTOCAL	4	PREC	6/6/2018 3:05 PM	6/6/2018 3:08 PM	0	33.3645973	33.3645973
SITEONE	OZONE	SITEONE	AUTOCAL	1	ZERO	6/7/2018 3:05 PM	6/7/2018 3:06 PM	0	33.3582305	33.3582305
SITEONE	OZONE	SITEONE	AUTOCAL	2	SPAN1	6/7/2018 3:05 PM	6/7/2018 3:07 PM	10	33.3814964	23.3814964
SITEONE	OZONE	SITEONE	AUTOCAL	3	SPAN2	6/7/2018 3:05 PM	6/7/2018 3:08 PM	20	33.3682975	13.3682975
SITEONE	OZONE	SITEONE	AUTOCAL	4	PREC	6/7/2018 3:05 PM	6/7/2018 3:08 PM	0	33.3656425	33.3656425
SITEONE	OZONE	SITEONE	AUTOCAL	1	ZERO	6/8/2018 3:05 PM	6/8/2018 3:06 PM	0	33.376213	33.376213
SITEONE	OZONE	SITEONE	AUTOCAL	2	SPAN1	6/8/2018 3:05 PM	6/8/2018 3:07 PM	10	33.3661766	23.3661766
SITEONE	OZONE	SITEONE	AUTOCAL	3	SPAN2	6/8/2018 3:05 PM	6/8/2018 3:08 PM	20	33.3867874	13.3867874
SITEONE	OZONE	SITEONE	AUTOCAL	4	PREC	6/8/2018 3:05 PM	6/8/2018 3:08 PM	0	33.349266	33.349266
SITEONE	OZONE	SITEONE	AUTOCAL	1	ZERO	6/9/2018 3:05 PM	6/9/2018 3:06 PM	0	33.366085	33.366085
SITEONE	OZONE	SITEONE	AUTOCAL	2	SPAN1	6/9/2018 3:05 PM	6/9/2018 3:07 PM	10	33.3523368	23.3523368
SITEONE	OZONE	SITEONE	AUTOCAL	3	SPAN2	6/9/2018 3:05 PM	6/9/2018 3:08 PM	20	33.3676643	13.3676643
SITEONE	OZONE	SITEONE	AUTOCAL	4	PREC	6/9/2018 3:05 PM	6/9/2018 3:08 PM	0	33.3782424	33.3782424
SITEONE	OZONE	SITEONE	AUTOCAL	1	ZERO	6/10/2018 3:05 PM	6/10/2018 3:06 PM	0	33.3740196	33.3740196
SITEONE	OZONE	SITEONE	AUTOCAL	2	SPAN1	6/10/2018 3:05 PM	6/10/2018 3:07 PM	10	33.3787765	23.3787765
SITEONE	OZONE	SITEONE	AUTOCAL	3	SPAN2	6/10/2018 3:05 PM	6/10/2018 3:08 PM	20	33.3602752	13.3602752
SITEONE	OZONE	SITEONE	AUTOCAL	4	PREC	6/10/2018 3:05 PM	6/10/2018 3:08 PM	0	33.3766632	33.3766632
SITEONE	OZONE	SITEONE	AUTOCAL	1	ZERO	6/11/2018 3:05 PM	6/11/2018 3:06 PM	0	33.3661651	33.3661651
SITEONE	OZONE	SITEONE	AUTOCAL	2	SPAN1	6/11/2018 3:05 PM	6/11/2018 3:07 PM	10	33.3899536	23.3899536
SITEONE	OZONE	SITEONE	AUTOCAL	3	SPAN2	6/11/2018 3:05 PM	6/11/2018 3:08 PM	20	33.3820266	13.3820266
SITEONE	OZONE	SITEONE	AUTOCAL	4	PREC	6/11/2018 3:05 PM	6/11/2018 3:08 PM	0	33.3867797	33.3867797
SITEONE	OZONE	SITEONE	AUTOCAL	1	ZERO	6/12/2018 3:05 PM	6/12/2018 3:06 PM	0	33.3704032	33.3704032
SITEONE	OZONE	SITEONE	AUTOCAL	2	SPAN1	6/12/2018 3:05 PM	6/12/2018 3:07 PM	10	33.3730392	23.3730392
SITEONE	OZONE	SITEONE	AUTOCAL	3	SPAN2	6/12/2018 3:05 PM	6/12/2018 3:08 PM	20	33.3730278	13.3730278
SITEONE	OZONE	SITEONE	AUTOCAL	4	PREC	6/12/2018 3:05 PM	6/12/2018 3:08 PM	0	33.3614196	33.3614196
SITEONE	OZONE	SITEONE	AUTOCAL	1	ZERO	6/13/2018 3:05 PM	6/13/2018 3:06 PM	0	33.3635215	33.3635215
SITEONE	OZONE	SITEONE	AUTOCAL	2	SPAN1	6/13/2018 3:05 PM	6/13/2018 3:07 PM	10	33.3592987	23.3592987
SITEONE	OZONE	SITEONE	AUTOCAL	3	SPAN2	6/13/2018 3:05 PM	6/13/2018 3:08 PM	20	33.3687934	13.3687934

### Raw Data

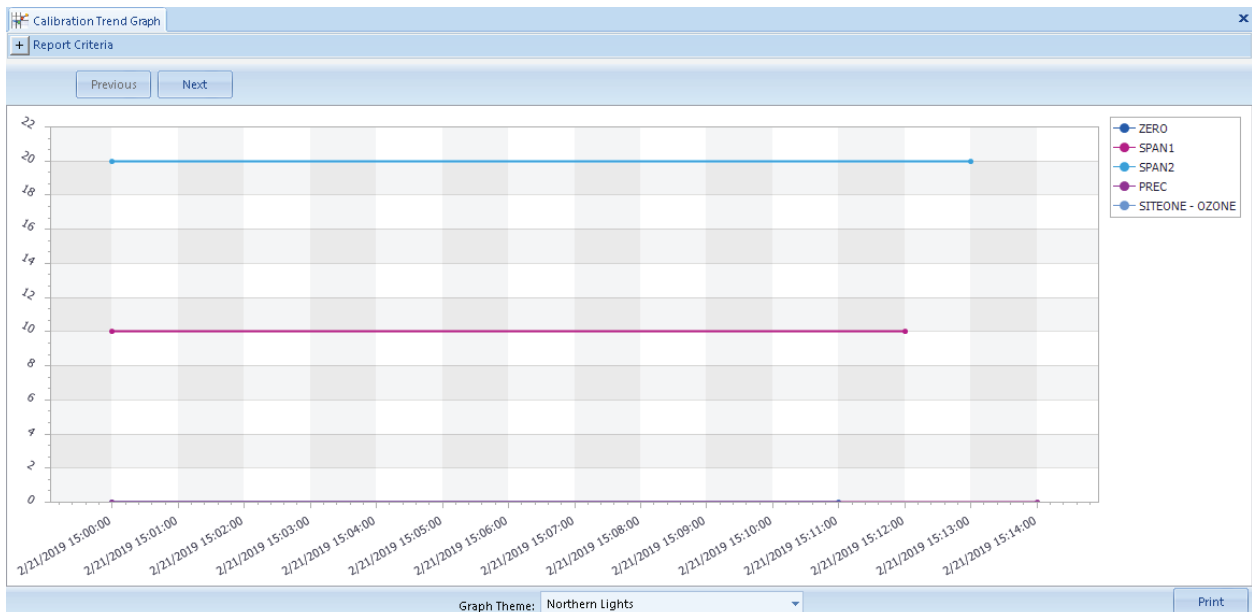
If you select **Historical Graph** you can view data in a graph. Each color represents a different phase, as shown in the legend. You can change the color scheme by selecting a **Graph Scheme** from the drop down list at the bottom of the screen.



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.

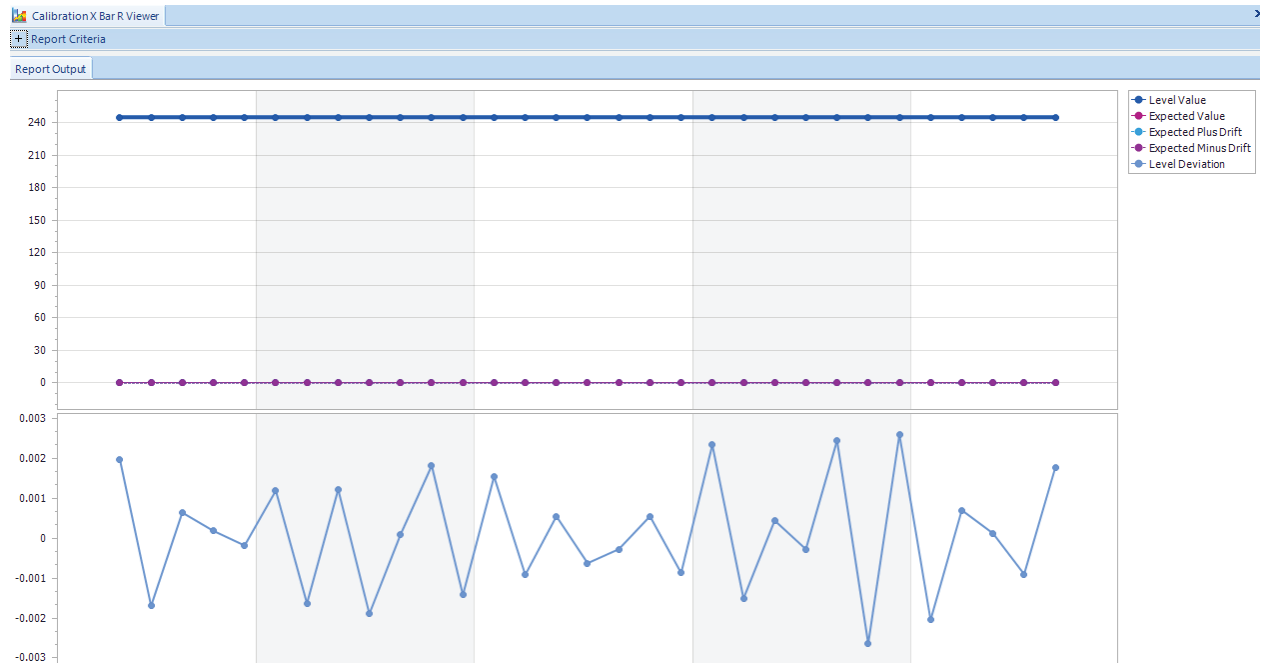
The graph has a filter at the top to define the specific calibration program to be graphed, in the event that a parameter has more than one calibration program associated with it.



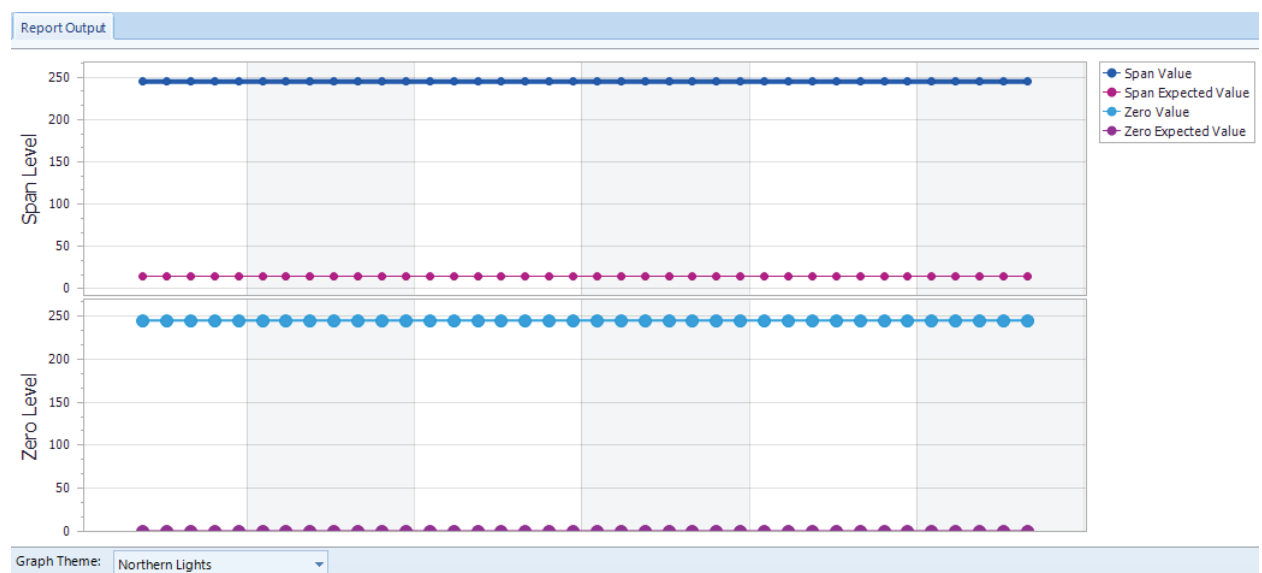
Calibration Trend Response Graph

### Calibration 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 Zero/Span Graph Viewer



### Multi Phase Calibration Report

AIRS ID Number 47 093 7001	Site Name and Location SITEONE	Date 02/07/2019 09:36	Prev Cal/Verif Date 2/6/2019 3:05:21 PM
Analyzer Model/Serial #	FSP/OTS Serial Number	FSP/OTS Cert Date	FSP Serial Number

Diagnostics	Pre	Post	Photo Display	Expected	Response	Delta	% Diff	>2%	COMMENTS
GSI			ZERO	0	245.026	245			
OZONE			SPAN1	10	245.026	235	2350.26		
SO2	7.1	7.2	PREC	0	245.027	245			
PM25	0.6	0.6							
PM10	6.6	6.6							
CO	1.3	1.3							
NO	6.3	6.332							
NO2	1.247	1.244							
NOX	0.555	0.547							
RAINFALL	0	0							

Sample Filter Changed? [ ]Yes [ ] No  
 Sample Line Changed? [ ]Yes [ ]No

Slope:   
 Intercept:   
 Correl Coeff:

FSP Cert Data  
 Slope:   
 Intercept:

### 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: 1/31/2019 3:25 PM

Zero Drift Report  
06/01/2018

Site	CO		OZONE	
	Last	14-Day	Last	14-Day
SITEONE	0	1.3 *	0	33.4*

\* - Drift Limit Exceeded



### The Converter Efficiency Span and Precision Reports

These two reports require NO, NO2, and NOY parameters to have parameter templates assigned, and the calibration sequence affecting these parameters has to have the levels defined as ZERO, SPAN, GPT\_SPAN or ZERO, PREC, GPT\_PREC.

Date Printed: 08/07/2019 12:49

#### Converter Efficiency Span Report

SITEONE

Date	NO Input	Span				Zero			Corrected Span Response		GPT			Corrected GPT Response		Cal Diff Input	Diff Delta %	Converter Efficiency %
		NO Resp.	% Diff	NOy Resp.	% Diff	NO Resp.	NOy Resp.	Diff Resp.	NO	NOy	NO Resp.	Diff Resp.	NOy Resp.	NO	NOy			
08/06/19 00:00	20	20	0	20	0	0	0	0	20	20	30	0	30	30	30	-10	-100	0

## Statistical Reports

### Concentration Distribution Report

The **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 **Configuration Editors> Report Configurations > Frequency Distribution**.

Current Date : 6/21/2009															
Current Time : 12:05 AM															
Concentration Distribution Report															
Parameter: OZONE			Avg Interval: 001h				Maximum Samples: 9363								
<u>Site</u>	<u>Samples</u>	<u>Min.</u>	<u>310</u>	<u>320</u>	<u>330</u>	<u>340</u>	<u>350</u>	<u>360</u>	<u>370</u>	<u>380</u>	<u>&gt;390</u>	<u>Max.</u>	<u>Arith. Mean</u>	<u>Geo. Mean</u>	<u>Geo. Dev.</u>
SITEONE	9363	- 1179.3	8588	0	0	8	0	0	0	0	767	505.5	18.5	32.8	7.6

## Data Analysis

Report Output						
Drop Filter Fields Here						
Report Value (Average)		Site ▲	Parameter ▲			
		▼ SITEONE				SITEONE Total
Interval ▲	Date ▲	NO	NO2	NOX	OZONE	
▼ 001h	7/1/2018 00:00:00	6.21	1.208	0.544	33.3	10.3155
	7/1/2018 01:00:00	6.035	1.205	0.551	33.3	10.27275
	7/1/2018 02:00:00	5.975	1.204	0.553	33.3	10.258
	7/1/2018 03:00:00	5.998	1.198	0.552	33.3	10.262
	7/1/2018 04:00:00	5.975	1.199	0.554	33.3	10.257
	7/1/2018 05:00:00	6.001	1.199	0.553	33.3	10.26325
	7/1/2018 06:00:00	5.988	1.2	0.553	33.3	10.26025
	7/1/2018 07:00:00	6.163	1.202	0.541	33.3	10.3015
	7/1/2018 08:00:00	6.015	1.193	0.548	33.3	10.264
	7/1/2018 09:00:00	6.099	1.202	0.547	33.3	10.287
	7/1/2018 10:00:00	6.006	1.199	0.552	33.3	10.26425
	7/1/2018 11:00:00	5.974	1.2	0.553	33.3	10.25675
	7/1/2018 12:00:00	6.028	1.2	0.552	33.3	10.27
	7/1/2018 13:00:00	6.084	1.202	0.549	33.3	10.28375
	7/1/2018 14:00:00	6.201	1.203	0.543	33.3	10.31175
	7/1/2018 15:00:00	6.16	1.2	0.547		2.635667
	7/1/2018 16:00:00	6.168	1.204	0.546	33.3	10.3045
	7/1/2018 17:00:00	6.09	1.201	0.548	33.3	10.28475
	7/1/2018 18:00:00	6.074	1.203	0.548	33.3	10.28125
	7/1/2018 19:00:00	6.075	1.197	0.548	33.3	10.28
	7/1/2018 20:00:00	6.281	1.202	0.539	33.3	10.3305
	7/1/2018 21:00:00	6.223	1.208	0.542	33.3	10.31825
	7/1/2018 22:00:00	6.132	1.206	0.548	33.3	10.2965
	7/1/2018 23:00:00	6.136	1.206	0.55	33.3	10.298
001h Total		6.087125	1.201708	0.548375	33.3	10.042032

## Data Completeness Report

Current Date : 2/7/2019

Current Time : 4:16 PM

### Quarterly Data Completeness Report

01-Jun-2018 - 30-Jun-2018

Site: SITEONE

Parameter: NO

Month	% Days of Month Meeting 75% Data Capture	Note
June	100	
Data capture met for the quarter		no

## 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

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 %

## 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 > Report Configurations > 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

### Maximum Hourly Values

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 : 1/31/2019		
Current Time : 3:19 PM		
Maximum Hourly Averages Report		
02-Jul-2017 - 02-Jul-2017		
Avg Interval: 1 Hour		Avg Type: Backward
Site: SITEONE		Parameter: NO
		Units: PPM
<u>Average</u>	<u>Date</u>	<u>Hour</u>
7.372	7/2/2017	20
7.363	7/2/2017	5
7.354	7/2/2017	21
7.349	7/2/2017	22
7.341	7/2/2017	11
7.323	7/2/2017	7
7.321	7/2/2017	6
7.304	7/2/2017	8
7.299	7/2/2017	3
7.296	7/2/2017	14

Maximum Hourly Averages Report

## 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: 1/31/2019 15:11

### Network Data Recovery Report

01-Jun-2018 - 20-Jun-2018

Site	CO	NO	NO2	NOX	OZONE
SITEONE	95.83 %	100.00 %	100.00 %	100.00 %	95.83 %
AVERAGE	95.83 %	100.00 %	100.00 %	100.00 %	95.83 %

## 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						
<b>Site:</b> SITEONE	<b>Parameter:</b> OZONE			<b>Interval:</b> 001h		
<b>Statistics</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Average</b>	<b>Mean</b>	<b>Count</b>	<b>Valid</b>
Period	0	0	0	0	0	0
History	43	77	58.5833	51.6155	72	72
Ratio	0	0	0	0	0%	0%

## AIRNow 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
840470931025,0,0,20180601T0000-0500,44201,60,,33.4,007,0,1,33.275986,-111.96069,WGS84,,,,,
840470931025,0,0,20180601T0100-0500,44201,60,,33.4,007,0,1,33.275986,-111.96069,WGS84,,,,,
840470931025,0,0,20180601T0200-0500,44201,60,,33.4,007,0,1,33.275986,-111.96069,WGS84,,,,,
840470931025,0,0,20180601T0300-0500,44201,60,,33.4,007,0,1,33.275986,-111.96069,WGS84,,,,,
840470931025,0,0,20180601T0400-0500,44201,60,,33.4,007,0,1,33.275986,-111.96069,WGS84,,,,,
840470931025,0,0,20180601T0500-0500,44201,60,,33.4,007,0,1,33.275986,-111.96069,WGS84,,,,,
840470931025,0,0,20180601T0600-0500,44201,60,,33.4,007,0,1,33.275986,-111.96069,WGS84,,,,,
840470931025,0,0,20180601T0700-0500,44201,60,,33.4,007,0,1,33.275986,-111.96069,WGS84,,,,,
840470931025,0,0,20180601T0800-0500,44201,60,,33.4,007,0,1,33.275986,-111.96069,WGS84,,,,,
840470931025,0,0,20180601T0900-0500,44201,60,,33.4,007,0,1,33.275986,-111.96069,WGS84,,,,,
840470931025,0,0,20180601T1000-0500,44201,60,,33.4,007,0,1,33.275986,-111.96069,WGS84,,,,,
840470931025,0,0,20180601T1100-0500,44201,60,,33.4,007,0,1,33.275986,-111.96069,WGS84,,,,,
840470931025,0,0,20180601T1200-0500,44201,60,,33.4,007,0,1,33.275986,-111.96069,WGS84,,,,,
840470931025,0,0,20180601T1300-0500,44201,60,,33.4,007,0,1,33.275986,-111.96069,WGS84,,,,,
840470931025,0,0,20180601T1400-0500,44201,60,,33.4,007,0,1,33.275986,-111.96069,WGS84,,,,,
840470931025,0,0,20180601T1500-0500,44201,60,,33.4,007,9,1,33.275986,-111.96069,WGS84,,,,,
840470931025,0,0,20180601T1600-0500,44201,60,,33.4,007,0,1,33.275986,-111.96069,WGS84,,,,,
840470931025,0,0,20180601T1700-0500,44201,60,,33.4,007,0,1,33.275986,-111.96069,WGS84,,,,,
840470931025,0,0,20180601T1800-0500,44201,60,,33.4,007,0,1,33.275986,-111.96069,WGS84,,,,,
840470931025,0,0,20180601T1900-0500,44201,60,,33.4,007,0,1,33.275986,-111.96069,WGS84,,,,,
840470931025,0,0,20180601T2000-0500,44201,60,,33.4,007,0,1,33.275986,-111.96069,WGS84,,,,,
840470931025,0,0,20180601T2100-0500,44201,60,,33.4,007,0,1,33.275986,-111.96069,WGS84,,,,,
840470931025,0,0,20180601T2200-0500,44201,60,,33.4,007,0,1,33.275986,-111.96069,WGS84,,,,,
840470931025,0,0,20180601T2300-0500,44201,60,,33.4,007,0,1,33.275986,-111.96069,WGS84,,,,,
840470931025,0,0,20180602T0000-0500,44201,60,,33.4,007,0,1,33.275986,-111.96069,WGS84,,,,,
840470931025,0,0,20180602T0100-0500,44201,60,,33.4,007,0,1,33.275986,-111.96069,WGS84,,,,,

AQSCV Report (AIRNow CSV Report)





## AQS Reports

### AQS 2.2 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**, **Blank Data Records**, **Monitor Assessment Records**, **Cal Precision Records**, **Zero/Span Records**, or **1-Point Cal Precision Records**. The report can now send blanks separately for Sample Data.

Report Output												
RD	I		47		093		7001		44201		1 1 007 321 20180601 00:00 33.4	
RD	I		47		093		7001		44201		1 1 007 321 20180601 01:00 33.4	
RD	I		47		093		7001		44201		1 1 007 321 20180601 02:00 33.4	
RD	I		47		093		7001		44201		1 1 007 321 20180601 03:00 33.4	
RD	I		47		093		7001		44201		1 1 007 321 20180601 04:00 33.4	
RD	I		47		093		7001		44201		1 1 007 321 20180601 05:00 33.4	
RD	I		47		093		7001		44201		1 1 007 321 20180601 06:00 33.4	
RD	I		47		093		7001		44201		1 1 007 321 20180601 07:00 33.4	
RD	I		47		093		7001		44201		1 1 007 321 20180601 08:00 33.4	
RD	I		47		093		7001		44201		1 1 007 321 20180601 09:00 33.4	
RD	I		47		093		7001		44201		1 1 007 321 20180601 10:00 33.4	
RD	I		47		093		7001		44201		1 1 007 321 20180601 11:00 33.4	
RD	I		47		093		7001		44201		1 1 007 321 20180601 12:00 33.4	
RD	I		47		093		7001		44201		1 1 007 321 20180601 13:00 33.4	
RD	I		47		093		7001		44201		1 1 007 321 20180601 14:00 33.4	
RD	I		47		093		7001		44201		1 1 007 321 20180601 15:00 AY	
RD	I		47		093		7001		44201		1 1 007 321 20180601 16:00 33.4	
RD	I		47		093		7001		44201		1 1 007 321 20180601 17:00 33.4	
RD	I		47		093		7001		44201		1 1 007 321 20180601 18:00 33.4	
RD	I		47		093		7001		44201		1 1 007 321 20180601 19:00 33.4	
RD	I		47		093		7001		44201		1 1 007 321 20180601 20:00 33.4	
RD	I		47		093		7001		44201		1 1 007 321 20180601 21:00 33.4	
RD	I		47		093		7001		44201		1 1 007 321 20180601 22:00 33.4	
RD	I		47		093		7001		44201		1 1 007 321 20180601 23:00 33.4	
RD	I		47		093		7001		44201		1 1 007 321 20180602 00:00 33.4	
RD	I		47		093		7001		44201		1 1 007 321 20180602 01:00 33.4	

AQS Text Report (Reports>AQS Text Report)

## 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**, **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.

```

Report Output:
--<AirQualitySubmissionn1:Version="3.0" xsi:schemaLocation="http://www.exchangenetwork.net/schema/AQS/Submission/3
http://www.epa.gov/ttn/airs/airsaqs/XML/Submission/3/0/EN_AQS_AirQualitySubmission_v3.0.xsd">
  <FileGenerationPurposeCode>AQS</FileGenerationPurposeCode>
  <FileGenerationDateTime>2018-07-26T12:39:30.8313592-04:00</FileGenerationDateTime>
--<FacilitySiteList>
  --<SiteIdentifierDetails>
    <StateCode>47</StateCode>
    <CountyCode>093</CountyCode>
    <FacilitySiteIdentifier>7001</FacilitySiteIdentifier>
  </SiteIdentifierDetails>
  --<MonitorList>
    --<MonitorIdentifierDetails>
      <SubstanceIdentifier>44201</SubstanceIdentifier>
      <SubstanceOccurrenceCode>1</SubstanceOccurrenceCode>
    </MonitorIdentifierDetails>
  --<RawDataList>
    --<TransactionProtocolDetails>
      <DurationCode>1</DurationCode>
      <MethodIdentifierCode>321</MethodIdentifierCode>
      <MeasureUnitCode>007</MeasureUnitCode>
    </TransactionProtocolDetails>

```

### 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:

The screenshot shows the 'Sequence:COCAL' configuration window. It contains two main tables: 'Phases' and 'Phase Channels'.

**Phases Table:**

Phase Name	Phase Number	Duration Time	Response Time	Enabled	Status Pattern	Level
Zero	1	005M	001M	<input checked="" type="checkbox"/>	Select Lines	
Span1	2	005M	001M	<input checked="" type="checkbox"/>	Select Lines	
Span2	3	005M	001M	<input checked="" type="checkbox"/>	Select Lines	

**Phase Channels Table:**

Channel	Expected Value	Expected Value From Constant	Write Expected Value To Constant	Write Result To Constant	Store Calibration Results	Error Method	Warning Drift Limit	Out of Control Limit	StartDate	EndDate
CO	0				<input checked="" type="checkbox"/>	Difference		0	0	

## AQI Reports

### AQI Levels Report

The AQI Levels 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

##### Total Days

Site Name	Good	Moderate	USG	Unhealthy	Very unhealthy	Hazardous
SITEONE	4	0	21	0	0	0
SITETHREE	8	1	20	1	0	0
SITETWO	7	0	23	0	0	0
Network	0	0	30	0	0	0

### 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	
	Peak	Pollutant																								
07	42	44	44	46	46	46	48	48	48	48	48	48	50	52	54	58	60	62	62	60	58	56	52	50	62	O3 [8h]
Max	42	44	44	46	46	46	48	48	48	48	48	48	50	52	54	58	60	62	62	60	58	56	52	50	62	O3 [8h]

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 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: 1/30/2019 4:42 PM		AQI Monthly Group Report																											
		June 2018																											
Sites: SITEONE		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	Site	
01	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	NO2	SITEONE
02	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	104	104	104	104	104	105	NO2	SITEONE		
03	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	NO2	SITEONE
04	104	104	104	104	104	104	104	104	104	104	104	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	NO2	SITEONE
05	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	NO2	SITEONE
06	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	NO2	SITEONE
07	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	NO2	SITEONE
08	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	NO2	SITEONE
09	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	104	104	104	104	104	104	104	104	104	104	105	NO2	SITEONE	
10	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	NO2	SITEONE
11	104	104	104	104	104	104	104	104	104	104	104	104	104	104	105	105	105	105	105	105	105	105	105	105	105	105	105	NO2	SITEONE
12	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	NO2	SITEONE
13	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	NO2	SITEONE
14	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	NO2	SITEONE
15	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	NO2	SITEONE
16	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	NO2	SITEONE
17	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	NO2	SITEONE
18	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	NO2	SITEONE
19	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	NO2	SITEONE
20	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	NO2	SITEONE
21	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	NO2	SITEONE
22	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	NO2	SITEONE
23	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	NO2	SITEONE
24	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	NO2	SITEONE
25	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	NO2	SITEONE
26	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	NO2	SITEONE
27	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	NO2	SITEONE
28	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	NO2	SITEONE
29	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	NO2	SITEONE
30	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	NO2	SITEONE
Max	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	NO2	SITEONE

### 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 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

Site	CO (8)		NO2 (1)		OzonePPM8 (8)	
	ppm		ppm		ppm	
	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 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

### Voice AQI Report

Voice AQI Report
Report Criteria

**Date Range**

Start Date: 01/01/2012 00:00

End Date: 01/01/2012 23:59

**Average Interval**

Average Interval	Description
008H	008H
005m	5 minute average from 5 minutes
006m	6 minute average from 6 minutes
010m	10 Minute Average from 10 Minutes
015m	15 minute average from 15 minutes
001h	Hourly average of 60 minutes

**Parameter Selection**

Drag a column header here to group by that column.

Site Name	Parameter Name	Parameter Template Name
H1	STN_WS	STN_WS
H2	O3 [8h]	OZONE_8HR
H2	O3 [ppb]	OZONE_PPB
H2	O3 [ppm]	OZONE
H2	O3 BOX TEMP	O3 BOX TEMP
H2	O3 GEN	O3 GEN
H2	O3 GEN LAMP TEMP	O3 GEN LAMP TEMP

Report Output    Report Errors

0107201413 0107201414 01 ALL

## Asset Reports (Optional, with Asset Tracking Module)

### Asset Export Report

Current Date: 3/5/2019 11:30 AM

Asset Export Report							
Site	Parameter	Logger Name	Mfr/Model	S/N:	Tag	In Service	Out of Service
SITEONE		SITEONE	Agilaire 8832	12345	test	07/02/2013	11/25/2015
SITEONE		EBAM	Agilaire 8832	12345	test	11/25/2015	
SITEONE		EBAM	MetOne EBAM	A73245	Wind	07/02/2013	
SITETWO		SiteTwo	Agilaire 8832			11/25/2015	

### 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: 1/30/2019 3:45 PM

Asset History Report			
<b>Mfr/Model:</b>	Agilaire	8832	
<b>S/N:</b>	12345		
<b>Tag:</b>	test		
<b>Purchased:</b>	07/02/2009		
<b>Status:</b>	Active		
<b>History:</b>	<u>Site</u>	<u>Starting</u>	<u>Ending</u>
		07/02/2013	11/25/2015
	SITEONE	11/25/2015	

## Asset Reports (Optional, with Asset Tracking Module)

### Parameter Asset History Report

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

**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	11/12/2013
	API	400E	2341	10/08/2013	11/12/2013
	Met One	BAM-1020 PM10	837593	11/19/2015	08/12/2016
	API	400E	2341	01/02/2018	

Configuration Reports

Analog Outputs Configuration Report

**Analog Out Configuration Report**

**SITETWO**

<u>Source Name</u>	<u>Logger Identifier</u>	<u>Channel Name</u>	<u>Dac Channel #</u>	<u>Interval Name</u>	<u>Action on Error</u>	<u>Low Input</u>	<u>High Input</u>	<u>Low Output</u>	<u>High Output</u>
SiteTwo	SC	NO	1	001h	I	10	1	100	0

Average Alarm Report

**Average Alarm Report**

**SITEONE**

<u>Parameter Name</u>	<u>Alarm Name</u>	<u>Alarm Type Name</u>	<u>Alarm Type Description</u>	<u>Priority Description</u>	<u>Flag</u>	<u>Alert on New Alarm</u>	<u>Alert on Return To Normal</u>	<u>Alert on Every Occurrence</u>
CO	CO high alarm	READING	Alarm Type Description	Normal	h	True	False	False

Calibration Alarm Configuration Report

**Calibration Alarm Report**

**SITEONE**

<u>Source Name</u>	<u>Calibration Name</u>	<u>Phase Name</u>	<u>Channel Name</u>	<u>Alarm Name</u>	<u>Auto Acknowledge Interval</u>	<u>Out of Control Limit</u>	<u>Drift Limit</u>	<u>Output Pattern</u>	<u>Alarm on Drift</u>	<u>Alarm on Out of Control</u>	<u>End on No Flag</u>
SITEONE	AUTOCAL	PREC	OZONE	Alarm1	000S	0	0	1	True	False	True
SITEONE	AUTOCAL	SPAN1	OZONE	Alarm1	000S	0	0	1	True	False	True
SITEONE	AUTOCAL	SPAN2	OZONE	Alarm1	000S	0	0	1	True	False	True
SITEONE	AUTOCAL	ZERO	OZONE	Alarm1	000S		3	1	True	False	True

## 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 SITEONE

<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>
AUTOCAL	06/18/13 15:05	001d	005M	ZERO	1	001M	005S		OZONE
	06/18/13 15:05	001d	005M	SPAN1	2	001M	005S		OZONE
	06/18/13 15:05	001d	005M	SPAN2	3	001M	005S		OZONE
	06/18/13 15:05	001d	005M	PREC	4	001M	005S		OZONE
COCAL	07/13/10 05:00	001D	005M	Zero	1	005M	001M		CO
	07/13/10 05:00	001D	005M	Span1	2	005M	001M		CO
	07/13/10 05:00	001D	005M	Span2	3	005M	001M		CO

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

## 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

#### SITEONE

Parameter Name	Source Name	Logger Id	Channel #	Channel Name	Units	Type	Intervals			Storage			Analog Input Channel	Input		Output		Hold Between Updates	Secondary Input Channel	Input Interval Name	Rolling Interval Name	General Value	
							Base	Ext 1	Ext 2	Base	Ext 1	Ext 2		High	Low	High	Low					Duration Interval	Storage Interval
OZONE	SITEONE	RD	1	OZONE	PPM	Analog In (Standard)	001m015m	001h	2D	2H	7D	01		10	0	100	0					False	
CO	SITEONE	RD	5	CO	PPM	Analog In (Standard)	001m015m	001h	1H	2H	5D	05		5	0	100	0					False	
NO	SITEONE	RD	6	NO	PPM	Analog In (Standard)	001m015m	001h	1H	2H	5D	06		1	0	100	0					False	
NOX	SITEONE	RD	8	NOX	PPM	Analog In (Standard)	001m015m	001h	1H	2H	5D	8		1	0	0	10					False	

### Validation

#### SITEONE

Parameter Name	Channel #	Channel Name	High-High Alarm Limit			High Alarm Limit			Low Alarm Limit			Low-Low Alarm Limit			High ROC Alarm Limit			Low ROC Alarm Limit					
			Base	Ext 1	Ext 2	Base	Ext 1	Ext 2	Base	Ext 1	Ext 2	Base	Ext 1	Ext 2	Base	Ext 1	Ext 2	Base	Ext 1	Ext 2			
OZONE	1	OZONE																					
CO	5	CO																					1.297
NO	6	NO																					100
NOX	8	NOX																					

### Validation, Part 2

#### SITEONE

Parameter Name	Channel #	Channel Name	Floor Limit			Floor Value			Percent Valid			Ceiling Limit			Ceiling Value			Overwrite Math Constant					
			Base	Ext 1	Ext 2	Base	Ext 1	Ext 2	Base	Ext 1	Ext 2	Base	Ext 1	Ext 2	Base	Ext 1	Ext 2	Base	Ext 1	Ext 2			
OZONE	1	OZONE																					
CO	5	CO																					
NO	6	NO																					
NOX	8	NOX																					

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

## Channel Equation Report

### Channel Equation Report

Site Name	Channel Number	Channel Name	Equation
SITEONE	20	Math pac	1+2+3=
SITEONE	24	AvgMath	K01=

## Digital IO Configuration Report

**Digital IO Configuration Report**

## SITEONE

<u>Source Name</u>	<u>IO Number</u>	<u>Input Type</u>	<u>Output Type</u>	<u>Line Name</u>	<u>Line Description</u>
Second logger	1	False	True	OutPut Line1	
Second logger	2	False	True	OutPut Line2	
Second logger	3	False	True	OutPut Line3	
Second logger	4	False	True	OutPut Line4	
Second logger	5	False	True	OutPut Line5	
Second logger	6	False	True	OutPut Line6	
Second logger	7	False	True	OutPut Line7	
Second logger	8	False	True	OutPut Line8	
Second logger	9	False	True	OutPut Line9	
Second logger	10	False	True	OutPut Line10	
Second logger	11	False	True	OutPut Line11	
Second logger	12	False	True	OutPut Line12	
Second logger	13	False	True	OutPut Line13	
Second logger	14	False	True	OutPut Line14	
Second logger	15	False	True	OutPut Line15	
Second logger	16	False	True	OutPut Line16	
Second logger	17	False	True	OutPut Line17	
Second logger	18	False	True	OutPut Line18	
Second logger	19	False	True	OutPut Line19	
Second logger	20	False	True	OutPut Line20	
Second logger	21	False	True	OutPut Line21	
Second logger	22	False	True	OutPut Line22	
Second logger	23	False	True	OutPut Line23	
Second logger	24	False	True	OutPut Line24	
Second logger	25	False	True	OutPut Line25	
Second logger	26	False	True	OutPut Line26	
Second logger	27	False	True	OutPut Line27	
Second logger	28	False	True	OutPut Line28	
Second logger	29	False	True	OutPut Line29	
Second logger	30	False	True	OutPut Line30	
Second logger	31	False	True	OutPut Line31	

# GSI Configuration Report

<b>GSI Configuration Report</b>				
API_100E/T_AltGSI				
<b>Modbus Port:</b>		<b>Supports Force Multiple Coils:</b> True		
<b>Modbus Code:</b>		<b>Default Timeout Ms:</b>		
<b>Modbus Command Type:</b>				
<u>Entry Name</u>	<u>Entry Type</u>	<u>Autosend String</u>	<u>Autosend Repeat Interval</u>	<u>Parse Sync String</u>
SAMPFLOW	P	T 100 SAMPFLOW\x0d	10s	100 SAMP FL=
SAMPPRESS	P	T 100 SAMPPRESS\x0d	10s	100 SAMP=

## GSI Entry Configuration, Part 2

API\_100E/T\_AltGSI

<u>Entry Name</u>	<u>Delimiter Characters</u>	<u>Number of Chars to Data</u>	<u>Number of Delimiters to Data</u>	<u>Number of Delimiters in String</u>	<u>Data Field Width</u>	<u>Data Field Type</u>	<u>Parse Chars In String</u>	<u>Digital IO String</u>	<u>GSI Send Name</u>	<u>GSI Parse Name</u>	<u>Modbus Register</u>	<u>Data Value Format</u>	<u>Input Index</u>
SAMPFLOW		0			4	F			ASO2SPFL	GSO2SMF	L		
SAMPPRESS		0			4	F			ASO2SMPR	GSO2SMP	R		

# Logger Configuration Report

## Logger Configuration Report

<u>Site Name</u>	<u>Source Name</u>	<u>Description</u>	<u>Id</u>	<u>Type</u>	<u>Debounce Digital Inputs</u>	<u>Met Cards</u>	<u>Analog Outputs</u>	<u>Analog Inputs</u>	<u>Digital Outputs</u>	<u>Digital Inputs</u>
SITEONE	SITEONE		01	1	False	1				
SITETHREE	SiteThree		03	1	False	1				
SITETWO	SiteTwo		02	1	False	1				

# Math Equation Report

## Central Equation Report

<u>Site Name</u>	<u>Parameter Name</u>	<u>Equation Name</u>	<u>Equation</u>
SITEONE	CO TRACE	COTRACE	CO TRACE * 10
SITEONE	Internal Math	internal math	(PM10_CONTIN)*(760/(BARPRESS*25.3971))*((RELHUM-32)*(5)/(9)+(273))/298)



Notification Configuration Reports

## Notification Configuration Report

<u>Type</u>	<u>Name</u>	<u>User</u>	<u>Group</u>
ADVP Rules	Inside Temperature		Technicians
ADVP Rules	test ADVP		QA
Reports	AIRNowcsv		QA
Reports	Scheduled ReportTask		Technicians

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.

<b>Parameter Configuration Report</b>																	
SITEONE																	
<u>Name</u>	<u>Description</u>	<u>Template</u>	<u>Method</u>	<u>Units</u>	<u>Parameter</u>	<u>AQS Codes</u>			<u>Units</u>	<u>Graph</u>		<u>Instrument Detection Limit</u>	<u>Totalize In Reports</u>	<u>Minimum In Reports</u>	<u>Report In AirNow</u>	<u>Enabled</u>	<u>POC</u>
						<u>Reported Digits</u>	<u>Prec.</u>	<u>Trunc. Rnd.</u>		<u>Minimum</u>	<u>Maximum</u>						
NO	Nitrous Oxide	NO	456	007	42601	4	3	T	PPM	1	2		False	False	True	True	1
NO2	Nitric Oxide	NO2	042	008	42602	4	3	T	PPB	0	500		False	False	True	True	1
NOX	Oxides of Nitrogen	NOX	321	007	42603	4	3	T	PPM	0	500		True	False	True	True	1

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

## 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.

---

### Scheduled Tasks Report

Task Name	Description	Enabled	Start Time	Repeat Interval
<b>Average Data Rollup Task</b>	Average Data Rollup Task	False	1/31/2018 5:07:04 PM	6M
<b>AIRNow FTP</b>	AIRNow FTP Transfer Task	False	1/24/2011 11:06:09 AM	1H
<b>Instrument Poll Task</b>	Instrument Polling Task	False	10/3/2011 3:46:45 PM	1H
<b>Task Group for Site One</b>	Processes tasks contained in task group	True	3/11/2013 11:05:05 AM	1H
Hourly	Processes tasks contained in task group	True		
Hourly	Processes tasks contained in task group	True		
Hourly	Processes tasks contained in task group	True		
Hourly	Processes tasks contained in task group	True		
Hourly	Processes tasks contained in task group	True		
Hourly	Processes tasks contained in task group	True		
Hourly	Processes tasks contained in task group	True		
<b>ADVP Rule Processing Task</b>	ADVP Rule Processing Task	False	3/21/2013 3:08:05 PM	1H
<b>AIRNow Report Task</b>	Generates Report at assigned time for output	False	4/8/2015 10:59:58 AM	1H
<b>Calculate Site Math Parameters</b>	Calculate Math Parameters	False	4/23/2015 11:03:07 AM	1H
<b>Average Data Purge minute</b>	Average Data Purge Task	True	6/18/2012 11:10:59 PM	1D
<b>Average Data Purge 5min</b>	Average Data Purge Task	True	6/18/2012 11:12:58 PM	1D

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

## 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.

## Site Configuration Report

### SITEONE:

Description:		Latitude:	33.2759 86
Abbreviation:		Longitude:	- 111.960 69
Address:	1904-B	Time Zone:	ET
City:	Knoxville	Agency Code:	TN8
County:	Knox	State Code:	47
Zip Code:	37918	CountyCode:	093
		Site Code:	7001

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

# Internal Reports

## Audit Change Viewer

Report Output							
Drag a column header here to group by that column.							
Timestamp	Table Category	Table Name	Audit Action	Modified By	Column Name	Old Value	
-							
7/3/2018 11:25:04.590		SourceParameterTemplate	INSERT	AirVision	CreatedBy		
7/3/2018 11:25:04.590		SourceParameterTemplate	INSERT	AirVision	CreatedOn		
7/3/2018 11:25:04.590		SourceParameterTemplate	INSERT	AirVision	EnableAirNowReporting		
7/3/2018 11:25:04.590		SourceParameterTemplate	INSERT	AirVision	EpaReportedDigits		
7/3/2018 11:25:04.590		SourceParameterTemplate	INSERT	AirVision	EpaReportingPrecision		
7/3/2018 11:25:04.590		SourceParameterTemplate	INSERT	AirVision	MinimumInReports		
7/3/2018 11:25:04.590		SourceParameterTemplate	INSERT	AirVision	ModifiedBy		
7/3/2018 11:25:04.590		SourceParameterTemplate	INSERT	AirVision	ModifiedOn		
7/3/2018 11:25:04.590		SourceParameterTemplate	INSERT	AirVision	ParameterName		
7/3/2018 11:25:04.590		SourceParameterTemplate	INSERT	AirVision	ReportedSourceParameter...		
7/3/2018 11:25:04.590		SourceParameterTemplate	INSERT	AirVision	SourceParameterData Type...		
7/3/2018 11:25:04.590		SourceParameterTemplate	INSERT	AirVision	SourceParameterTemplateID		
7/3/2018 11:25:04.590		SourceParameterTemplate	INSERT	AirVision	SystemTemplate		
7/3/2018 11:25:04.590		SourceParameterTemplate	INSERT	AirVision	TotalizeInReports		
7/3/2018 11:25:25.150		SourceParameterTemplate	INSERT	AirVision	CreatedBy		
7/3/2018 11:25:25.150		SourceParameterTemplate	INSERT	AirVision	CreatedOn		
7/3/2018 11:25:25.150		SourceParameterTemplate	INSERT	AirVision	EnableAirNowReporting		
7/3/2018 11:25:25.150		SourceParameterTemplate	INSERT	AirVision	EpaReportedDigits		
7/3/2018 11:25:25.150		SourceParameterTemplate	INSERT	AirVision	EpaReportingPrecision		
7/3/2018 11:25:25.150		SourceParameterTemplate	INSERT	AirVision	MinimumInReports		
7/3/2018 11:25:25.150		SourceParameterTemplate	INSERT	AirVision	ModifiedBy		
7/3/2018 11:25:25.150		SourceParameterTemplate	INSERT	AirVision	ModifiedOn		
7/3/2018 11:25:25.150		SourceParameterTemplate	INSERT	AirVision	ParameterName		
7/3/2018 11:25:25.150		SourceParameterTemplate	INSERT	AirVision	ReportedSourceParameter...		
7/3/2018 11:25:25.150		SourceParameterTemplate	INSERT	AirVision	SourceParameterData Type...		
7/3/2018 11:25:25.150		SourceParameterTemplate	INSERT	AirVision	SourceParameterTemplateID		
7/3/2018 11:25:25.150		SourceParameterTemplate	INSERT	AirVision	SystemTemplate		
7/3/2018 11:25:25.150		SourceParameterTemplate	INSERT	AirVision	TotalizeInReports		

## DB Modification History

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

<b>Database Modifications Report</b>	
<b>Schema Name</b>	dbo
<b>Name</b>	CalibrationLevelDeviation
<b>Type Description</b>	VIEW
<b>Creation Date</b>	3/15/2012 11:08:37 AM
<b>Last Modified</b>	12/4/2018 2:56:44 PM
<b>Parent Name</b>	
<b>Schema Name</b>	dbo
<b>Name</b>	ReadingAverageDataTag
<b>Type Description</b>	USER_TABLE
<b>Creation Date</b>	7/1/2010 3:55:32 PM
<b>Last Modified</b>	12/4/2018 2:56:45 PM
<b>Parent Name</b>	
<b>Schema Name</b>	dbo
<b>Name</b>	ReadingQualifierCodeDetail
<b>Type Description</b>	USER_TABLE
<b>Creation Date</b>	7/1/2010 3:55:32 PM
<b>Last Modified</b>	12/4/2018 2:56:48 PM
<b>Parent Name</b>	
<b>Schema Name</b>	dbo
<b>Name</b>	ReadingAnnotation
<b>Type Description</b>	USER_TABLE
<b>Creation Date</b>	7/1/2010 3:55:32 PM
<b>Last Modified</b>	12/4/2018 2:56:48 PM
<b>Parent Name</b>	

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

# Diagnostic Report

## Software Version Report

<b>Database Schema Timestamp</b>	1/29/2019 10:32:40 AM
<b>Database Schema Version Id</b>	b10be061-5681-4984-a05f-76322a1e836b
<b>Database Schema Version Number</b>	17723
<b>Client Database Schema Timestamp</b>	1/23/2019 10:45:43 AM
<b>Client Database Schema Version Id</b>	592e3739-d86c-403c-8154-2c3a614a2573
<b>Client Database Schema Version Number</b>	17719
<b>Client Build Timestamp</b>	1/31/2019 12:09:48 AM
<b>Client Build Version</b>	2019.01.31.1
<b>Client Product Version</b>	4.0.58
<b>Server Database Schema Timestamp</b>	1/23/2019 10:45:43 AM
<b>Server Database Schema Version Id</b>	592e3739-d86c-403c-8154-2c3a614a2573
<b>Server Database Schema Version Number</b>	17719
<b>Server Build Timestamp</b>	1/31/2019 12:14:54 AM
<b>Server Build Version</b>	2019.01.31.1
<b>Server Product Version</b>	4.0.58

## Exception Journal Report

Time Stamp	Exception Log Type	Exception Type Name	UtilityJournalMessageID	
3/5/2019 12:05:06 AM	Nested	System.Net.Sockets.SocketException	9502353d-043f-e911-8c8b-180373be2a16	
Computer Name	Windows User	Application User	Program Name	Product Version
SITEONE	SYSTEM	Admin	AirVision.WindowsService	2019.01.31.1
Assembly Name	Namespace	Type Name		
System.dll	System.Net.Sockets	NetworkStream		
Method Prototype				
Void Write(Byte[], Int32, Int32)				
Exception Message				
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)				

## Journal Message Report

Time Stamp	Computer Name	Program Name	Event Log Type	Thread Id	Message
2/26/2019 00:05:06350	SITEONE	AirVision.WindowsService	Information	18	Starting task: Task Group for Site One
2/26/2019 00:05:06377	SITEONE	AirVision.WindowsService	Information	18	Starting task: Hourly
2/26/2019 00:05:06383	SITEONE	AirVision.WindowsService	Communication	18	---> Requesting [SITEONE/Logger in rack (172.16.1.216:9881)]: @RD! 5600001H056230000 Y 056230000sibgbs
2/26/2019 00:05:06390	SITEONE	AirVision.WindowsService	Exception	18	An established connection was aborted by the software in your host machine
2/26/2019 00:05:06407	SITEONE	AirVision.WindowsService	Exception	18	Unable to write data to the transport connection: An established connection was aborted by the software in your host machine.
2/26/2019 00:05:06427	SITEONE	AirVision.WindowsService	Exception	18	Error writing to port[172.16.1.216:9881], Exception Code: COMM_FAILURE

## 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

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<b>Time Stamp</b>	<b>Exception Log Type</b>	<b>Exception Type Name</b>	<b>UtilityJournalMessageID</b>	
10/4/2010 11:03:13 AM	Nested	System.Net.Sockets.SocketException	a2142582-c8cf-df11-91bd-001731c6e8fb	
<b>Computer Name</b>	<b>Windows User</b>	<b>Application User</b>	<b>Program Name</b>	<b>Product Version</b>
HP_Server	SYSTEM	AirVision	AirVision.WindowsService	2010.09.18.1
<b>Assembly Name</b>	<b>Namespace</b>		<b>Type Name</b>	
System.dll	System.Net.Sockets		Socket	
<b>Method Prototype</b>				
Int32 Send(Byte[] buffer, Int32 offset, Int32 size, System.Net.Sockets.SocketFlags socketFlags)				
<b>Exception Message</b>				
An established connection was aborted by the software in your host machine				
<b>Exception Stack Trace</b>				
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)				

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

## 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	Thread Id	Message
2/26/2019 00:05:06350	SITEONE	AirVision.WindowsService	Information	18	Starting task: Task Group for Site One
2/26/2019 00:05:06377	SITEONE	AirVision.WindowsService	Information	18	Starting task: Hourly
2/26/2019 00:05:06383	SITEONE	AirVision.WindowsService	Communication	18	--> Requesting [SITEONE/Logger in rack (172.16.1.216:9881)]: @RD: 5600001H056230000 Y 056230000sibgbs
2/26/2019 00:05:06390	SITEONE	AirVision.WindowsService	Exception	18	An established connection was aborted by the software in your host machine
2/26/2019 00:05:06407	SITEONE	AirVision.WindowsService	Exception	18	Unable to write data to the transport connection: An established connection was aborted by the software in your host machine.
2/26/2019 00:05:06427	SITEONE	AirVision.WindowsService	Exception	18	Error writing to port[172.16.1.216:9881], Exception Code: COMM_FAILURE

Journal Message Log (Reports>Internal Reports)

## Login Event History

## Login Event History

Created On	User Name	Is System	Event	Details	Application	Client Address
2/4/2019 13:03	Admin	True	Logout	Log out for user Admin	WindowsApplication	
2/4/2019 13:03	QA1	True	Login	Login success for user QA1	WindowsApplication	1.1.1.1
2/4/2019 13:04	QA1	True	Logout	Log out for user QA1	WindowsApplication	
2/4/2019 13:04	Admin	True	Login	Login success for user Admin	WindowsApplication	1.1.1.1
2/4/2019 13:05	Admin	True	Logout	Log out for user Admin	WindowsApplication	
2/4/2019 13:05	QA1	True	Login	Login success for user QA1	WindowsApplication	1.1.1.1
2/4/2019 13:06	QA1	True	Logout	Log out for user QA1	WindowsApplication	
2/4/2019 13:06	Admin	True	Login	Login success for user Admin	WindowsApplication	1.1.1.1
2/4/2019 13:07	Admin	True	Logout	Log out for user Admin	WindowsApplication	
2/4/2019 13:07	QA1	True	Login	Login success for user QA1	WindowsApplication	1.1.1.1
2/4/2019 13:12	QA1	True	Logout	Log out for user QA1	WindowsApplication	
2/4/2019 13:12	Admin	True	Login	Login success for user Admin	WindowsApplication	1.1.1.1
2/7/2019 11:27	Admin	True	Logout	Log out for user Admin	WindowsApplication	
2/7/2019 11:27	Admin	True	Login	Login success for user Admin	WindowsApplication	1.1.1.1



Login Session History

# Login Session History

User Name	Login Date/Time	Logout Date/Time	Session Duration hh:mm:ss	Client Address
Admin	1/24/2019 09:38	1/24/2019 15:35	05:56:58	1.1.1.1
Admin	1/24/2019 15:37	1/29/2019 10:41	19:04:44	1.1.1.1
Admin	1/24/2019 15:48	1/25/2019 17:39	01:51:09	1.1.1.1
Admin	1/25/2019 12:12	1/25/2019 16:53	04:41:35	1.1.1.1
Admin	1/25/2019 16:54	2/4/2019 13:03	20:09:37	1.1.1.1
Admin	1/29/2019 10:41	1/29/2019 10:42	00:00:41	1.1.1.1
Admin	1/29/2019 10:42	1/29/2019 10:45	00:03:13	1.1.1.1
Admin	1/29/2019 10:45			1.1.1.1
QA1	2/4/2019 13:03	2/4/2019 13:04	00:00:24	1.1.1.1
Admin	2/4/2019 13:04	2/4/2019 13:05	00:01:13	1.1.1.1
QA1	2/4/2019 13:05	2/4/2019 13:06	00:00:50	1.1.1.1
Admin	2/4/2019 13:06	2/4/2019 13:07	00:00:53	1.1.1.1
QA1	2/4/2019 13:07	2/4/2019 13:12	00:04:41	1.1.1.1
Admin	2/4/2019 13:12	2/7/2019 11:27	22:14:35	1.1.1.1
Admin	2/7/2019 11:27			1.1.1.1

Site Node Logger Status Report

## Site Node Logger Status Report

Site Name	Logger	Logger Id	Free Drive Space(MB)	Drive Space Low	Database Size(MB)	Database Free Space (MB)	Database Size Warning	Status Message	SoftwareVersion
8872_634	8872_634	NS	899	Yes	10239	0	Yes	Drive space low warning!	2018.06.05.1

## Software Version Report

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

<b>Software Version Report</b>	
<b>Database Schema Timestamp</b>	1/8/2019 10:27:56 AM
<b>Database Schema Version Id</b>	1f59bd78-092a-4750-a062-ebdal0b20dac
<b>Database Schema Version Number</b>	17706
<b>Client Database Schema Timestamp</b>	12/11/2018 4:21:18 PM
<b>Client Database Schema Version Id</b>	af784d68-4b37-465e-b3f9-19488e259ade
<b>Client Database Schema Version Number</b>	17705
<b>Client Build Timestamp</b>	1/10/2019 2:14:10 PM
<b>Client Build Version</b>	2019.01.102
<b>Client Product Version</b>	4.0.36
<b>Server Database Schema Timestamp</b>	12/11/2018 4:21:18 PM
<b>Server Database Schema Version Id</b>	af784d68-4b37-465e-b3f9-19488e259ade
<b>Server Database Schema Version Number</b>	17705
<b>Server Build Timestamp</b>	1/10/2019 2:18:26 PM
<b>Server Build Version</b>	2019.01.102
<b>Server Product Version</b>	4.0.36

Software Version Report (Reports>Internal Reports)

## Table Size Information

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

<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						
<b>Site Name</b> SITEONE						
<b>Logger Identifier</b> 01		<b>Logger Name</b> Logger01				
Channel Number	Channel Name	Alarm Program Name	Alarm Start Time	Alarm End Time	Reason Code	Flag Triggering
2	test2	TEMPOUT	2/12/2008 6:08:00 AM	2/12/2008 8:43:00 AM		h
2	test2	TEMPOUT	2/12/2008 8:27:00 AM	2/12/2008 8:36:00 AM		h
2	test2	TEMPOUT	2/12/2008 8:37:00 AM	2/12/2008 8:40:00 AM		h
2	test2	TEMPOUT	2/12/2008 8:42:00 AM	2/12/2008 8:45:00 AM		h
2	test2	TEMPOUT	2/12/2008 8:49:00 AM	2/13/2008 7:05:00 AM		h
2	test2	TEMPOUT	2/12/2008 2:37:00 PM	2/12/2008 4:12:00 PM		h
2	test2	TEMPOUT	2/12/2008 8:34:00 PM	2/12/2008 9:50:00 PM		h

## 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	
<b>Site Name</b> Agilaire	<b>Site Description</b>
<b>Logger Identifier</b> 01	<b>Logger Name</b> Logger01
Message Time	Message Text
10/4/2010 11:43:10 AM	RESTART

### 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

## 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>	SITEONE	<i>Site Description</i>	
<i>Logger Name</i>	SITEONE	<i>Logger Identifier</i>	RD
<u><i>Failure Time</i></u>	<u><i>Restored Time</i></u>	<u><i>Duration (Days hh:mm)</i></u>	
20-Sep-2010 07:52	20-Sep-2010 08:17	00:25	
22-Sep-2010 11:02	22-Sep-2010 11:03	00:01	
22-Sep-2010 11:07	22-Sep-2010 11:10	00:03	
29-Oct-2010 17:35	01-Nov-2010 10:36	2	17:01
01-Nov-2010 15:20	01-Nov-2010 17:04	01:43	
02-Nov-2010 08:50	02-Nov-2010 10:38	01:47	
10-May-2011 07:53	10-May-2011 07:54	00:00	
02-Jun-2011 11:23	02-Jun-2011 11:23	00:00	
02-Jun-2011 11:24	02-Jun-2011 11:26	00:01	
02-Jun-2011 11:26	02-Jun-2011 11:27	00:00	
21-Jun-2011 22:00	22-Jun-2011 05:43	07:42	
26-Sep-2011 09:36	26-Sep-2011 09:36	00:00	

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**.

```

Current Date : 1/30/2019
Current Time : 3:11 PM

                                Joint Frequency Distribution Report
                                3/8/2010 - 6/25/2018

Site: SITEONE                                WDR Site: SITEONE
Parameter: CO                                WDR Parameter: SWD
Units: PPM

Limit  N    NNE  NE   ENE  E   ESE  SE  SSE  S   SSW  SW  WSW  W  WNW  NW  NNW  Freq.
< 1    0.01  0.01  0.01  0.01  0.01  5.21  6.23  0   0   0   0   0   0   0   0   0.01  11.50
< 2    0.23  0.17  0.05  0.01  0.03  7.11  37.43  4.74  0.44  0.93  2   7.08  10.46  6.63  2.58  8.41  88.30
< 3    0     0     0     0     0     0     0     0     0.01  0     0.01  0.01  0.01  0     0     0     .04
< 4    0.01  0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     .01
< 5    0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     .00
< 6    0.01  0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     .01
< 7    0     0     0     0     0     0.15  0     0     0     0     0     0     0     0     0     0     .15
> 7    0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     .00

Freq.  .26   .18   .06   .02   .04   12.4  43.6  4.74  .45   .93   2.01  7.09  10.4  6.63  2.58  8.42  99.98
Calm:  0.02
    
```

Joint Frequency Distribution Report

## Meteorological Report

The **Meteorological Report** shows meteorological data, such as wind direction, wind speed, temperature, rainfall, relative humidity, and stability class (based on lateral turbulence and wind speed method). Each site is shown separately for each day.

Current Time: 05/15/2019 01:28

### Meteorological Report

Site: SITEONE

5/14/2019

Interval 001h

Hour	RH	SWD	SWS
	PERCENT	DEG	MPH
00:00	0.010243	257.2	20.0
01:00	0.010457	224.9	20.0
02:00	0.010268	261.9	20.0
03:00	0.010168	256.0	20.0
04:00	0.010138	259.6	20.0
05:00	0.010056	243.1	20.0
06:00	0.00995	266.8	20.0
07:00	0.010179	269.4	20.0
08:00	0.010239	251.9	20.0
09:00	0.01053	251.9	20.0
10:00	0.010492	265.4	20.0
11:00	0.01037	246.6	20.0
12:00	0.010359	237.0	20.0
13:00	0.011221	229.8	20.0
14:00	0.01072	253.3	20.0
15:00	0.010398	272.5	20.0
16:00	0.010337	243.5	20.0
17:00	0.010968	223.2	20.0
18:00	0.011688	225.2	20.0
19:00	0.010655	271.5	20.0
20:00	0.010688	287.1	.0
21:00	0.010575	240.7	20.0
22:00	0.010619	236.5	20.0
23:00	0.010453	253.4	20.0
Max	0.011688	287.1	20.0
Min	0.00995	223.2	.0
Sigma	0.000383	16.7	4
Average	0.01049	251.1	19.1
Good	24	24	24

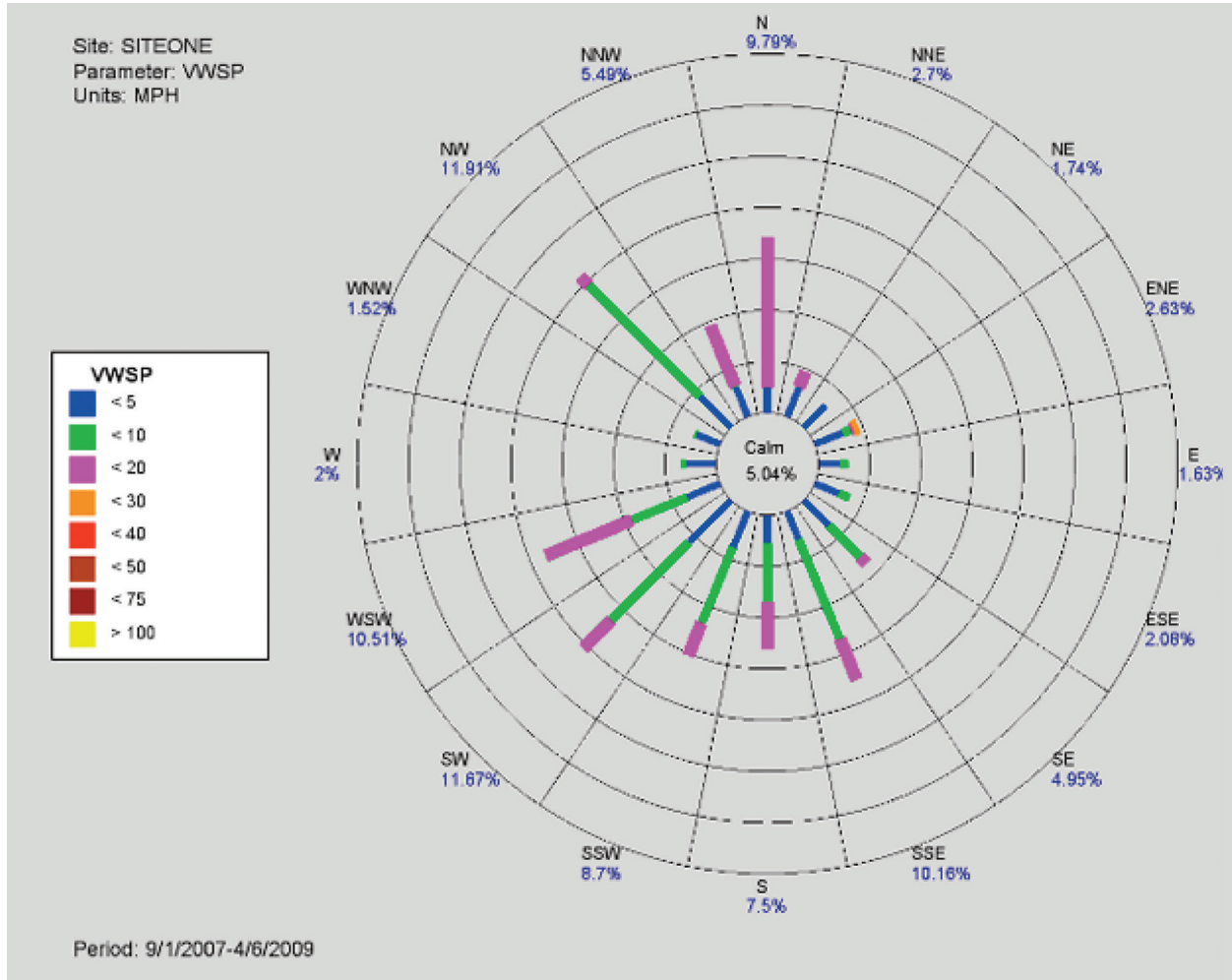
Rainfall Total:

Meteorological Report (Reports Menu)



### 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

## Accuracy Report

Current Date : 1/30/2019  
 Current Time : 3:03 PM

### Accuracy Report

Site: SITEONE Duration: 24 HOURS  
 Parameter: PM10 Date: 09-Feb-2011

Audit #: 1 Local Primary Standard: BUBBLE FLOW METER  
 Type: PE Scheduled Date: 09-Feb-2011  
 Sample Identifier: test Audit Class: FLOW  
 Local Standard Expiration: Audit Type: AUDIT BY REP ORG

#### Test Results

	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
Actual Value	1	0.076			
Indicated Value	1	0.075			
Zero/Span Value	1				

## Precision Report

Current Date : 1/30/2019  
 Current Time : 3:01 PM

### Precision Report

Site: SITEONE  
 Parameter: PM10  
 Duration: 24 HOURS

<u>Check Date</u>	<u>Id #</u>	<u>Sample Id</u>	<u>Type Id</u>	<u>Method</u>	<u>Agency Code</u>	<u>Actual Value</u>	<u>Indicated Value</u>
09-Feb-2011	1	PM	test	047	TN4	.076	.075

Sample Data Reports

Basic Sample Data Report

	SITEONE
	PM25LC
	88101
	105
24-Apr-2014 00:00	10
11-May-2014 00:00	9.4
12-May-2014 00:00	5.3
13-May-2014 00:00	10.9
14-May-2014 00:00	10.2
15-May-2014 00:00	6
16-May-2014 00:00	8.7
17-May-2014 00:00	12.1
18-May-2014 00:00	3.2
19-May-2014 00:00	6.8
20-May-2014 00:00	5.8
16-Dec-2014 00:00	67
04-May-2015 00:00	2.53
24-Nov-2015 00:00	79
01-Sep-2017 00:00	500 AA
11-Oct-2017 00:00	100

### 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 Annotations Report

Date Printed: 02/05/2019 05:20

Annotation Report  
01-Mar-2014 00:00 to 04-Feb-2019 23:59

Site: SITEONE  
Parameter: PM25LC

<u>Category</u>	<u>Date Annotated</u>	<u>User Name</u>	<u>Start</u>	<u>End</u>	<u>Annotation</u>
Audit	11-Oct-17 15:48	QA			Added Reading
Audit	11-Oct-17 15:36	QA			Added Reading
Audit	11-Oct-17 15:38	QA			Added Reading
Audit	24-Aug-18 14:11	QA			Added Reading

Sample/Hourly Daily Comparison Graph

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

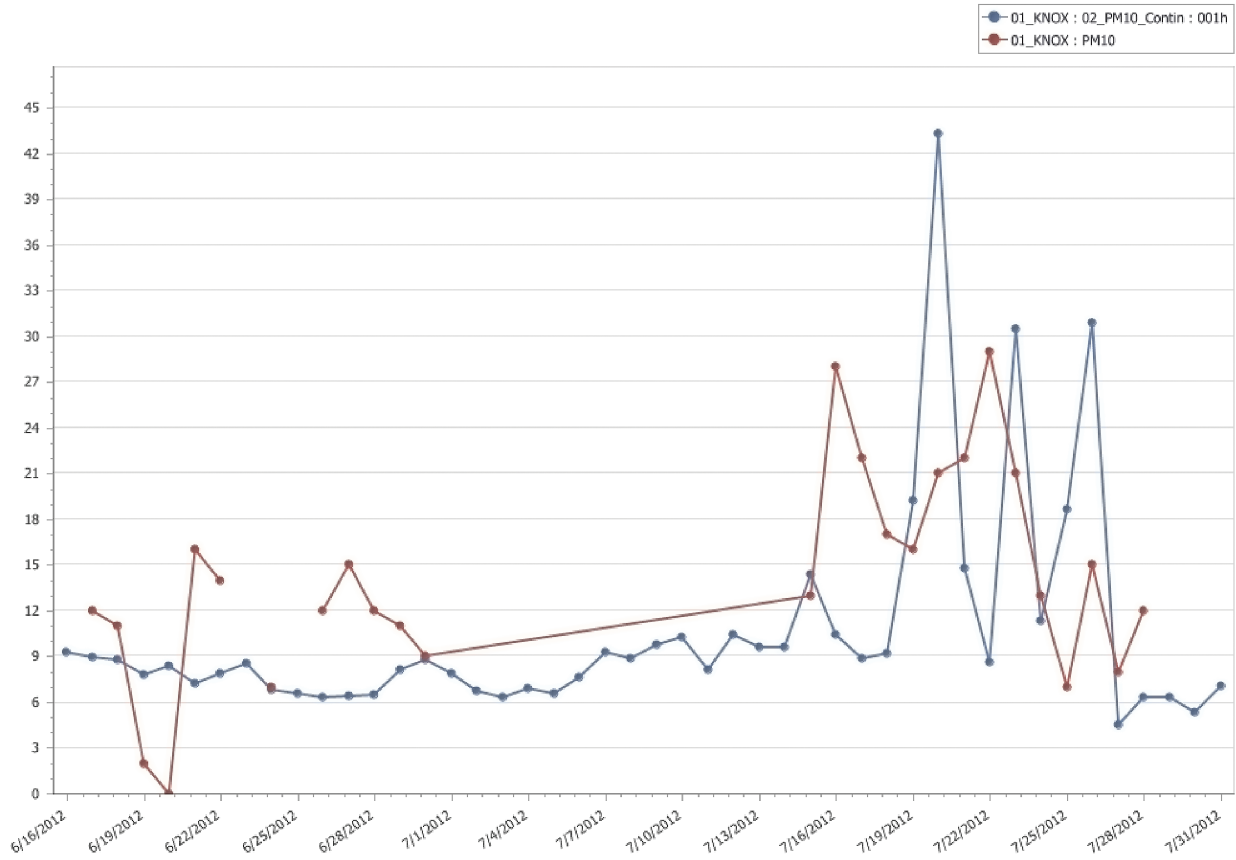
Sample/Hourly Daily Comparison

Date	01_KNOX	
	02_PM10_Conc	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 Hourly Comparison Graph

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

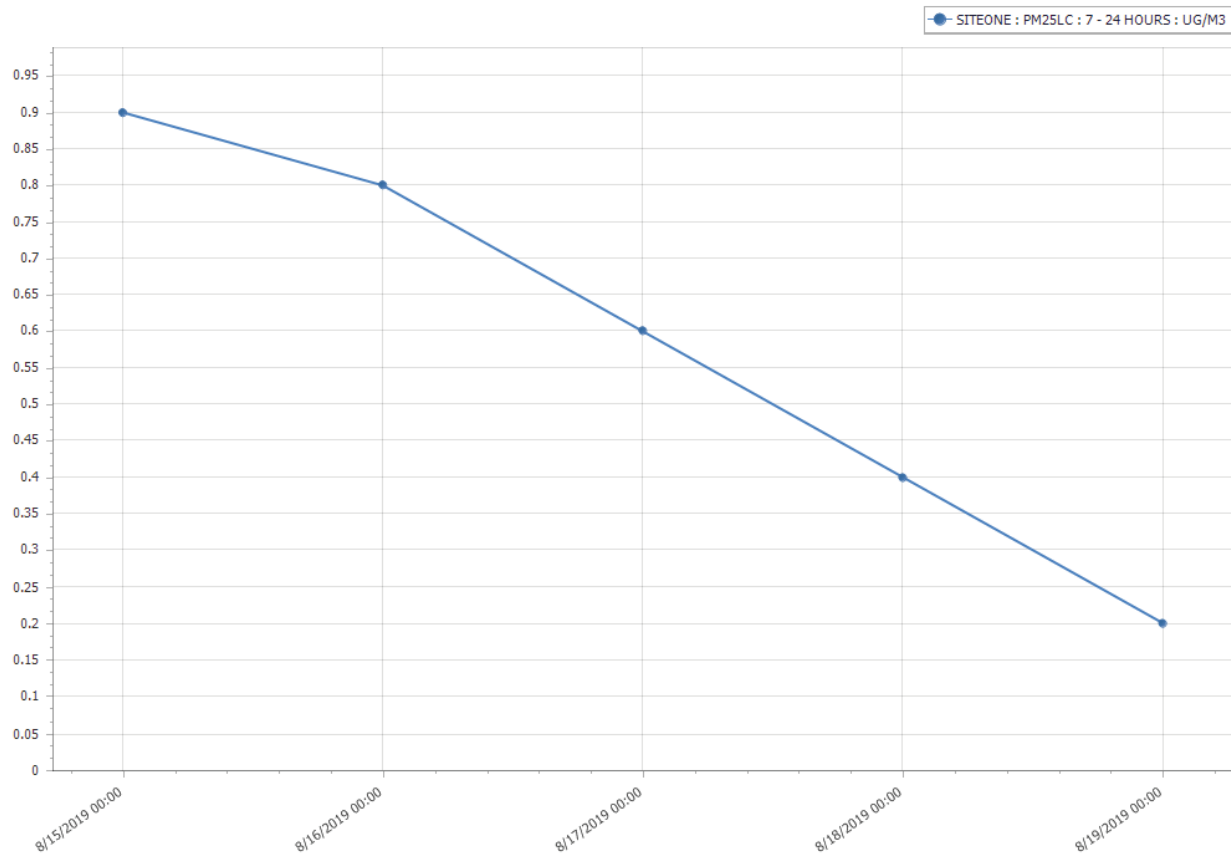
Sample/Hourly Comparison Graph



### Sample Data Graph.

Current Date: 8/19/2019 1:36 PM

#### Sample Data Graph Report





## Other Notations 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, expand **Notation Reports** 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.

Date Printed: 01/30/2019 02:58

Annotation Report  
01-Jan-2018 00:00 - 31-Mar-2018 23:59

Site: SITEONE  
Parameter: CO

Category	Date Annotated	User Name	Start	End	Annotation
Audit	16-Jan-18 15:37	AirVision	16-Jan-18 00:00	16-Jan-18 00:00	Reading Value Changed from: 1.25667405 to: 2
Audit	16-Jan-18 15:37	AirVision	16-Jan-18 01:00	16-Jan-18 01:00	Reading Value Changed from: 1.22007139 to: 2
Audit	16-Jan-18 15:37	AirVision	16-Jan-18 02:00	16-Jan-18 02:00	Reading Value Changed from: 1.218464 to: 2
Audit	16-Jan-18 15:37	AirVision	16-Jan-18 03:00	16-Jan-18 03:00	Reading Value Changed from: 1.27755557 to: 2
Audit	16-Jan-18 15:37	AirVision	16-Jan-18 04:00	16-Jan-18 04:00	Reading Value Changed from: 1.27838839 to: 2

### Annotations Report

### Audit Trail Report

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

Current Date : 1/30/2019  
Current Time : 2:52 PM

Data Audit Trail  
09-Mar-2017 - 31-Mar-2018

Site: SITEONE  
Parameter: NO  
Interval: 001h

TimeStamp	Raw Value	Final Value	Flags	Time Modified	Modified By	Annotation
10/09/2017 00:00	7		E	10/09/2017 11:09	AirVision	test
10/09/2017 00:00	7		E	10/09/2017 11:13	AirVision	test
10/09/2017 00:00	7		E	10/09/2017 11:15	AirVision	Reading Value Changed from: 7.32171714 to: 7
10/09/2017 00:00	7		E	10/09/2017 11:17	AirVision	Reading Value Changed from: 7 to: Not Specified

## 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 **Notation Reports** under 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.

```
Date Printed: 06/25/2018 05:10

                                     Logbook Report
                                     SITEONE
                                     18-Jan-2011 00:00 to 24-Jun-2018 23:59

Entered by:  AirVision
Category:    Other
Entry Time:  10/29/2012 12:30      Event Time:  10/29/2012 12:30

  Log Entry
test

-----ADDENDUM [10/29/2012 12:35:20 PM] USER [AirVision]-----
test again

Comments:
```

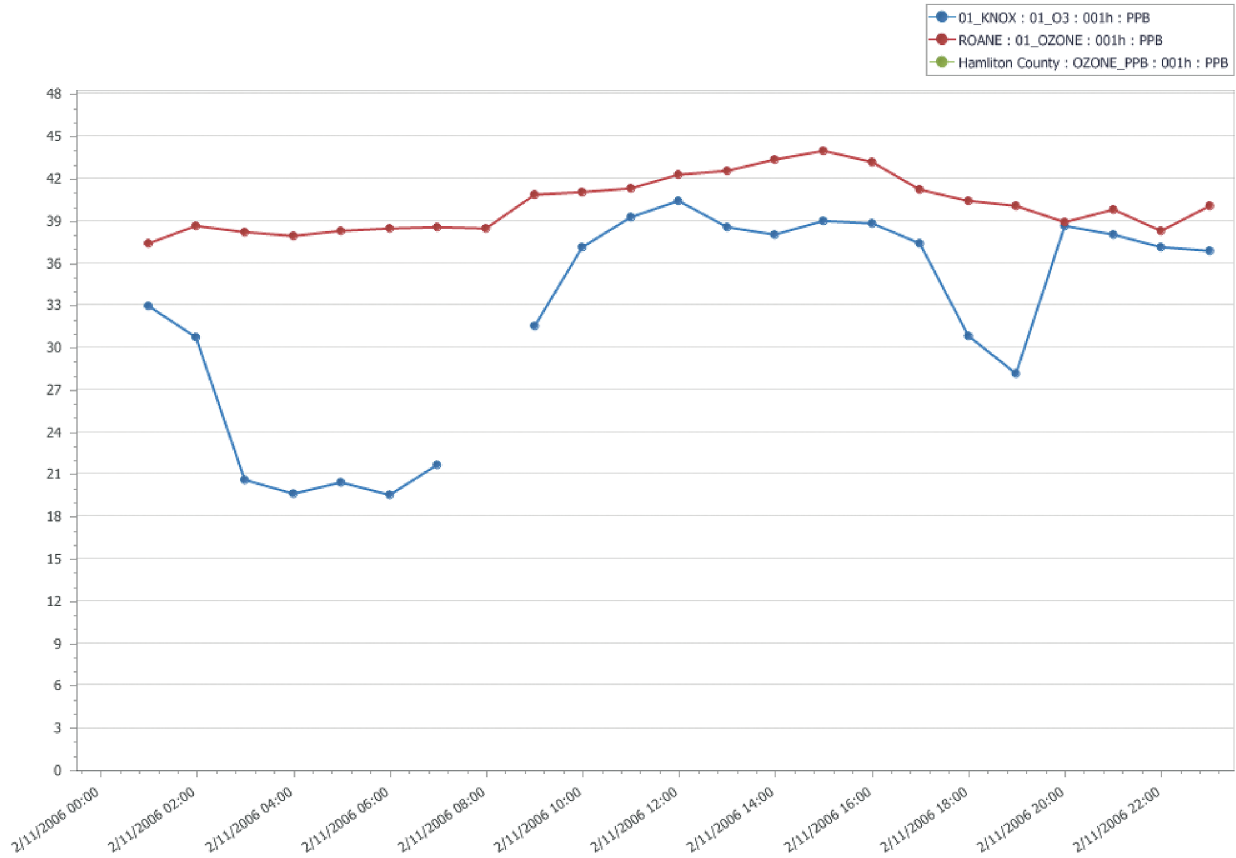
# Average Reports

## Average Data Trend 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.

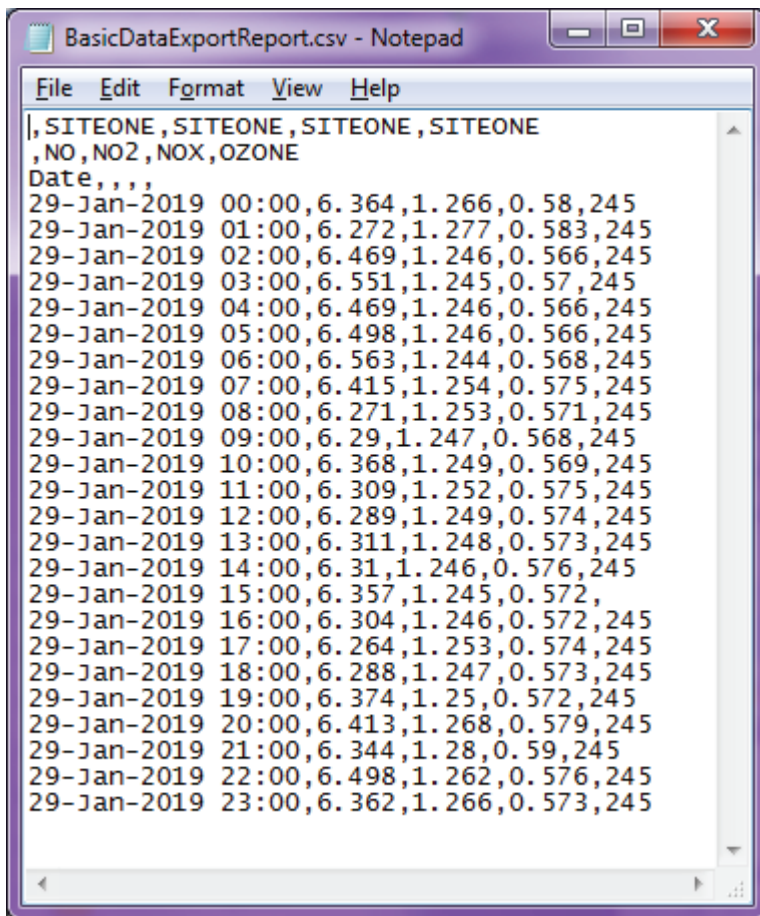
Current Date: 11/4/2013 10:30 AM

Average Data Trend Report



## 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, websites, etc. In this report, invalid data is represented as an empty value.



```
BasicDataExportReport.csv - Notepad
File Edit Format View Help
|,SITEONE ,SITEONE ,SITEONE ,SITEONE
,NO,NO2 ,NOX,OZONE
Date,,,
29-Jan-2019 00:00,6.364,1.266,0.58,245
29-Jan-2019 01:00,6.272,1.277,0.583,245
29-Jan-2019 02:00,6.469,1.246,0.566,245
29-Jan-2019 03:00,6.551,1.245,0.57,245
29-Jan-2019 04:00,6.469,1.246,0.566,245
29-Jan-2019 05:00,6.498,1.246,0.566,245
29-Jan-2019 06:00,6.563,1.244,0.568,245
29-Jan-2019 07:00,6.415,1.254,0.575,245
29-Jan-2019 08:00,6.271,1.253,0.571,245
29-Jan-2019 09:00,6.29,1.247,0.568,245
29-Jan-2019 10:00,6.368,1.249,0.569,245
29-Jan-2019 11:00,6.309,1.252,0.575,245
29-Jan-2019 12:00,6.289,1.249,0.574,245
29-Jan-2019 13:00,6.311,1.248,0.573,245
29-Jan-2019 14:00,6.31,1.246,0.576,245
29-Jan-2019 15:00,6.357,1.245,0.572,
29-Jan-2019 16:00,6.304,1.246,0.572,245
29-Jan-2019 17:00,6.264,1.253,0.574,245
29-Jan-2019 18:00,6.288,1.247,0.573,245
29-Jan-2019 19:00,6.374,1.25,0.572,245
29-Jan-2019 20:00,6.413,1.268,0.579,245
29-Jan-2019 21:00,6.344,1.28,0.59,245
29-Jan-2019 22:00,6.498,1.262,0.576,245
29-Jan-2019 23:00,6.362,1.266,0.573,245
```

### 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.

Current Date:	1/30/2019	2:24 PM	Data With Flags	
Site Name:	SITEONE		29-Jan-2019	Units:
Parameter:	CO			Avg Interval: 001h
<u>Date</u>	<u>Value</u>	<u>Flags</u>		
29-Jan-2019 00:00	1.3			
29-Jan-2019 01:00	1.3			
29-Jan-2019 02:00	1.3	h		
29-Jan-2019 03:00	1.3	h		
29-Jan-2019 04:00	1.3	h		
29-Jan-2019 05:00	1.3	<Ch		
29-Jan-2019 06:00	1.3	h		
29-Jan-2019 07:00	1.3	h		
29-Jan-2019 08:00	1.3			
29-Jan-2019 09:00	1.3			
29-Jan-2019 10:00	1.3			
29-Jan-2019 11:00	1.3			
29-Jan-2019 12:00	1.3			
29-Jan-2019 13:00	1.3			
29-Jan-2019 14:00	1.3			
29-Jan-2019 15:00	1.3	h		
29-Jan-2019 16:00	1.3			
29-Jan-2019 17:00	1.3			
29-Jan-2019 18:00	1.3			
29-Jan-2019 19:00	1.3			
29-Jan-2019 20:00	1.3	h		
29-Jan-2019 21:00	1.3			
29-Jan-2019 22:00	1.3	h		
29-Jan-2019 23:00	1.3			

## Other Reports

### Cumulative Report

Current Date: 7/16/2018 1:50 PM

#### Cumulative Report

7/1/2018 - 7/1/2018

Parameter	Units	SITEONE
NO	PPM	146.091
NO2	PPB	28.841
NOX	PPM	13.161
OZONE	PPM	768.2
PM25	UG/M3	14.4

## 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	554.2	-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	333.9	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	Entrv
----------	-----------	------------	------------	-------

#### Calibration Report

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

### 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:	PPB
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



## 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)**

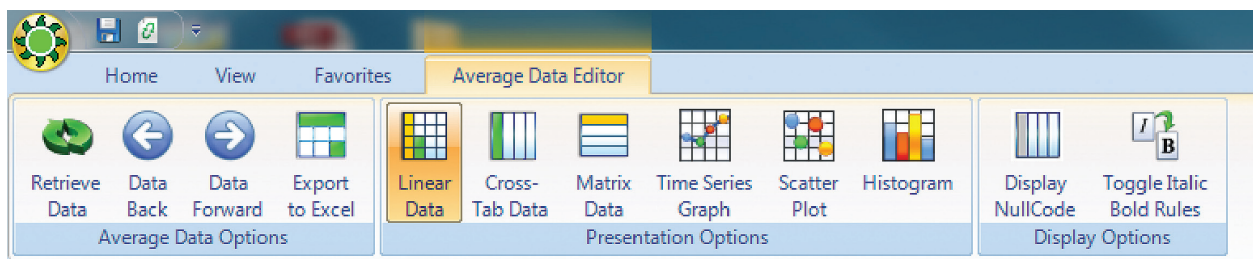
## Average Data Editor

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

Control-Keys can also be helpful for navigating when using the editor:

- ◆ **CTRL-N** for Next (Data Forward)
- ◆ **CTRL-P** for Previous (Data Back)
- ◆ **CTRL-L** to Reload data set.

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** SITEONE, **Parameter Name** CO, **Parameter Template** CO)
- ◆ 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.

Drag a column header here to group by that column.

Site	Parameter	Average Interval	Date	Value	Raw Value	AQS Null Code	Flags	Qualifier Codes	AQS Method Code	Data Grade
SITEONE	CO	001h	01/29/2019 00:00	1.3	1.29218297				321	
SITEONE	CO	001h	01/29/2019 01:00	1.3	1.26716505				321	
SITEONE	CO	001h	01/29/2019 02:00	1.3	1.31936691		h		321	
SITEONE	CO	001h	01/29/2019 03:00	1.3	1.31703099		h		321	
SITEONE	CO	001h	01/29/2019 04:00	1.3	1.3181733		h		321	
SITEONE	CO	001h	01/29/2019 05:00	1.3	1.31728976		C<h		321	
SITEONE	CO	001h	01/29/2019 06:00	1.3	1.31458933		h		321	
SITEONE	CO	001h	01/29/2019 07:00	1.3	1.29745851		h		321	
SITEONE	CO	001h	01/29/2019 08:00	1.3	1.27555744				321	
SITEONE	CO	001h	01/29/2019 09:00	1.3	1.28065463				321	
SITEONE	CO	001h	01/29/2019 10:00	1.3	1.29290332				321	
SITEONE	CO	001h	01/29/2019 11:00	1.3	1.28504217				321	
SITEONE	CO	001h	01/29/2019 12:00	1.3	1.28353397				321	
SITEONE	CO	001h	01/29/2019 13:00	1.3	1.29027807				321	
SITEONE	CO	001h	01/29/2019 14:00	1.3	1.28904668				321	
SITEONE	CO	001h	01/29/2019 15:00	1.3	1.29855688		h		321	
SITEONE	CO	001h	01/29/2019 16:00	1.3	1.28544218				321	
SITEONE	CO	001h	01/29/2019 17:00	1.3	1.27444833				321	
SITEONE	CO	001h	01/29/2019 18:00	1.3	1.27654304				321	
SITEONE	CO	001h	01/29/2019 19:00	1.3	1.2953521				321	
SITEONE	CO	001h	01/29/2019 20:00	1.3	1.30087605		h		321	
SITEONE	CO	001h	01/29/2019 21:00	1.3	1.28018364				321	
SITEONE	CO	001h	01/29/2019 22:00	1.3	1.31697619		h		321	
SITEONE	CO	001h	01/29/2019 23:00	1.3	1.29504932				321	

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:

Description:

Mapped AIRNow Code:

Mapped AQS Null Code:

Flag Type:

Back Color:

Fore Color:

Priority:

Flag	Description	Priority	Invalidates Data	Mapped AQS Null Code	Mapped AIRNow Code	Flag Type	Fore Color	Back Color
I	Invalidated By Edit	2	<input checked="" type="checkbox"/>			Validity Flag	0, 0, 0	255, 255, 0
T	Out of Control	3	<input checked="" type="checkbox"/>			Validity Flag	0, 0, 0	255, 0, 0
?	Suspect	3	<input type="checkbox"/>	TS - Holding Time or			0, 0, 0	128, 128, 0
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		Validity Flag	0, 0, 0	255, 128, 0
C	Calibration	7	<input checked="" type="checkbox"/>	AY - Q C Control Poi	B - Bad	Validity Flag	0, 0, 0	0, 255, 25
M	Maintenance	8	<input checked="" type="checkbox"/>	BA - Maintenance/R		Validity Flag	0, 0, 0	192, 255, 0
m	Marked Maint by edit	9	<input type="checkbox"/>	BA - Maintenance/R			0, 0, 0	255, 192, 0
O	Overrange	10	<input type="checkbox"/>	AN - Machine Malfu			0, 0, 0	128, 255, 0
F	Boiler Offline	11	<input type="checkbox"/>			Validity Flag	255, 255, 0	128, 128, 0
+	Max Exceeded	12	<input checked="" type="checkbox"/>	AN - Machine Malfu		Validity Flag	0, 0, 0	128, 0, 0
-	Min Exceeded	13	<input checked="" type="checkbox"/>	AN - Machine Malfu		Validity Flag	0, 0, 0	255, 192, 0
D	Channel Disabled	14	<input checked="" type="checkbox"/>			Validity Flag	0, 0, 0	0, 192, 19
A	Arithmetic Error (math calculation erro	15	<input type="checkbox"/>			Informational Fla	0, 0, 0	255, 255, 0
<	Logger Invalid	16	<input checked="" type="checkbox"/>			Validity Flag	0, 0, 0	255, 0, 0
E	Edited	20	<input type="checkbox"/>			Informational Fla	0, 0, 0	223, 255, 0
f	Floor Limit	21	<input type="checkbox"/>			Informational Fla	0, 0, 0	255, 0, 25
c	Ceiling Limit	22	<input type="checkbox"/>			Informational Fla	0, 0, 0	255, 192, 0

### Flags Editor in Configuration Editors

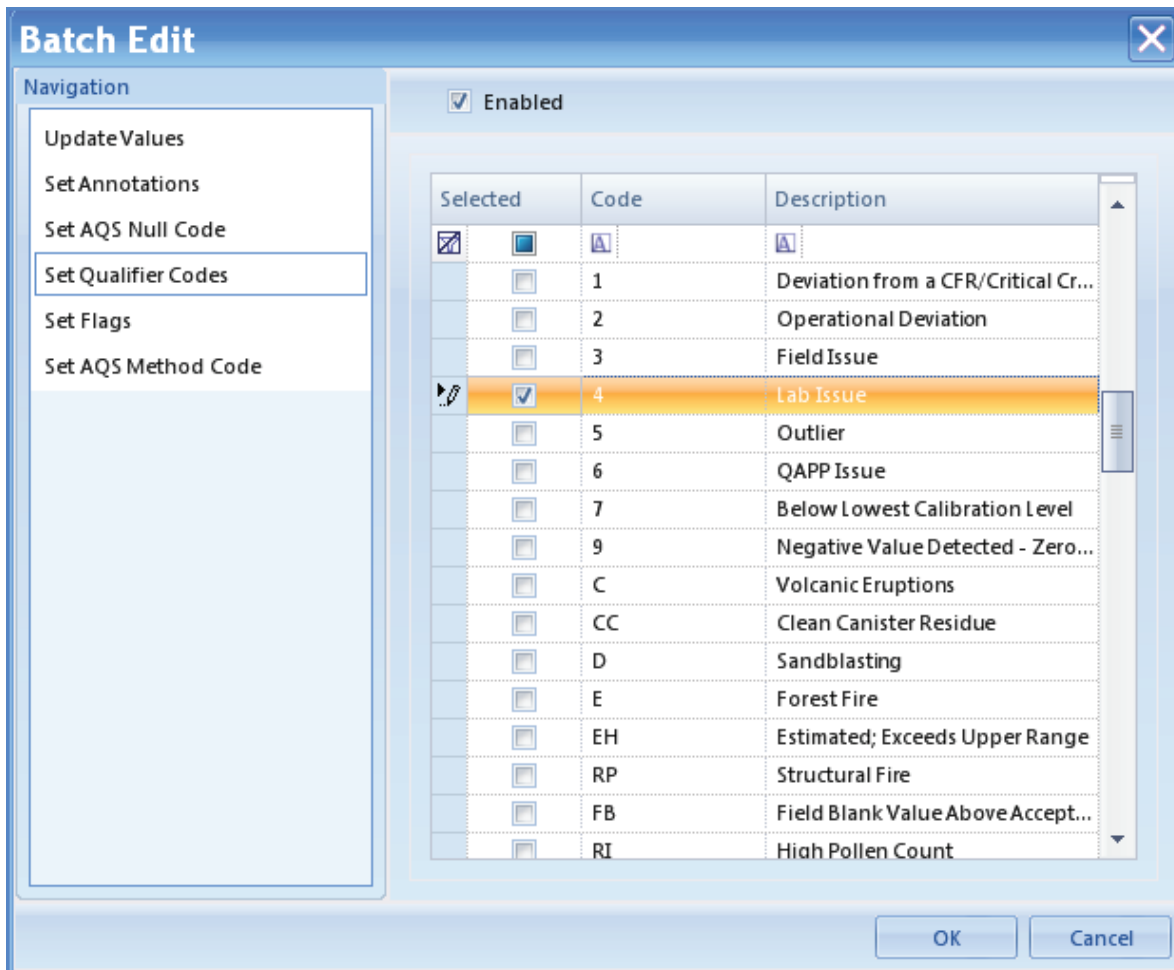
In addition, AirVision uses two font changes to represent data in the data editor:

- ◆ **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, and 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 options:

- ◆ **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

### 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.

SITEONE CO 001h	
Date	Final Value
1/29/2019 00:00	1.3
1/29/2019 01:00	1.3
1/29/2019 02:00	1.3
1/29/2019 03:00	1.3
1/29/2019 04:00	1.3
1/29/2019 05:00	1.3
1/29/2019 06:00	1.3
1/29/2019 07:00	1.3
1/29/2019 08:00	1.3
1/29/2019 09:00	1.3
1/29/2019 10:00	1.3
1/29/2019 11:00	1.3
1/29/2019 12:00	1.3
1/29/2019 13:00	1.3
1/29/2019 14:00	1.3
1/29/2019 15:00	1.3
1/29/2019 16:00	1.3
1/29/2019 17:00	1.3
1/29/2019 18:00	1.3
1/29/2019 19:00	1.3
1/29/2019 20:00	1.3
1/29/2019 21:00	1.3
1/29/2019 22:00	1.3
1/29/2019 23:00	1.3

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.

The screenshot shows the Matrix Data Editor interface. At the top is a toolbar with three groups of icons: 'Average Data Options' (Retrieve Data, Data Back, Data Forward, Day Shift Backwards, Day Shift Forward, Export to Excel), 'Presentation Options' (Linear Data, Cross-Tab Data, Matrix Data, Time Series Graph, Scatter Plot, Histogram), and 'Display Options' (Display NullCode, Toggle Italic Bold Rules). Below the toolbar is a 'Selection Criteria' section with a tree view showing 'SITEONE' expanded to show 'CO' with an interval of '001h'. The main area is a data table with columns for Date and hours 00-23. The data for 01/29/2019 shows CO values of 1.3 for most hours, with some values highlighted in red (02, 03, 04, 05, 06, 15, 20, 22, 23) and one value in a blue hatched cell (05).

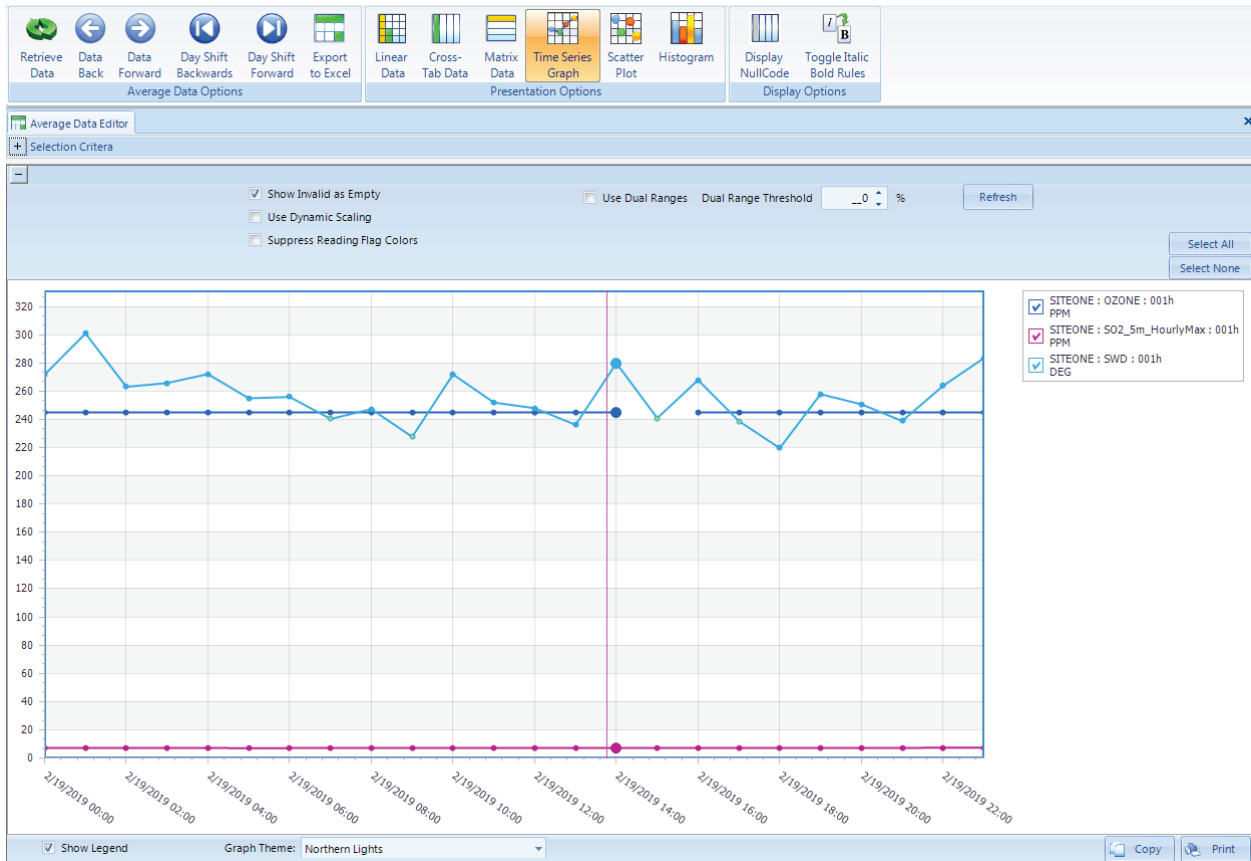
Site	Parameter	Interval																								
▶ SITEONE	CO	001h																								
	Date		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
	01/29/2019		1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3

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



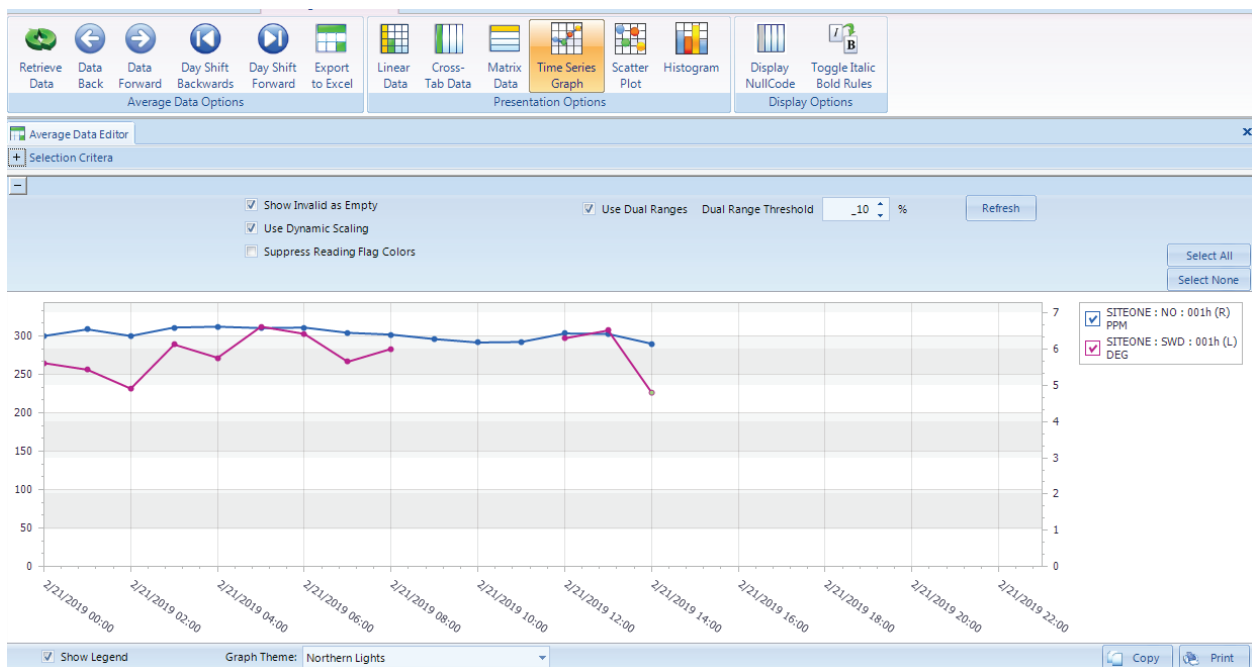
Use the mouse scroll wheel to zoom in or out; right-click and hold to drag the zoomed graph to a different data area.

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.

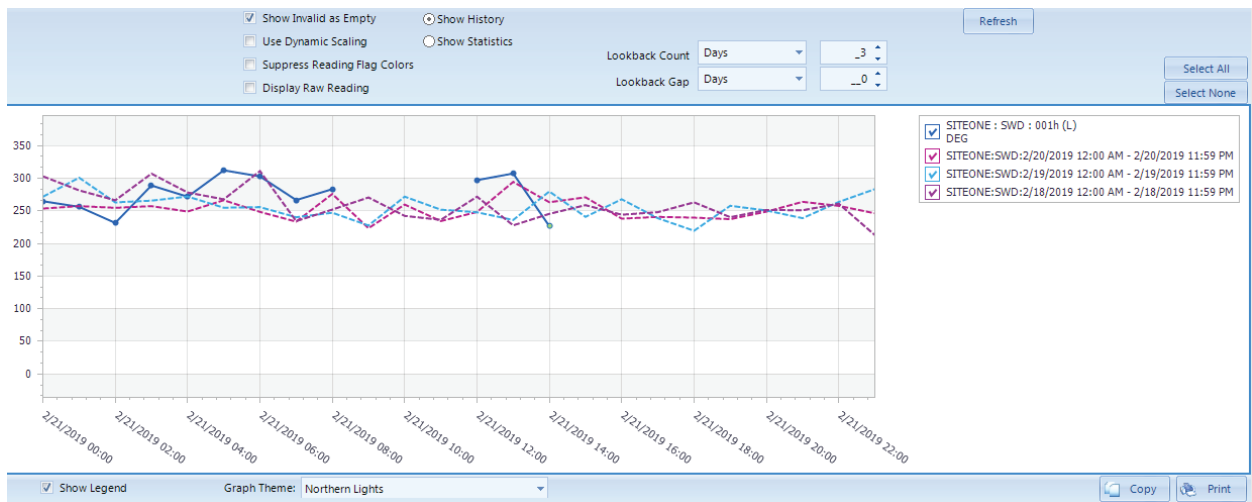
**Suppress Flag Colors** - If not selected, flagged data will be shown with “dots” with colors based on the Flag configuration. If selected, data will just be shown as the trend graph color. In both cases, hovering the cursor over the point will always show the flag, and the flag colors are still represented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



Dual Y-Axis function

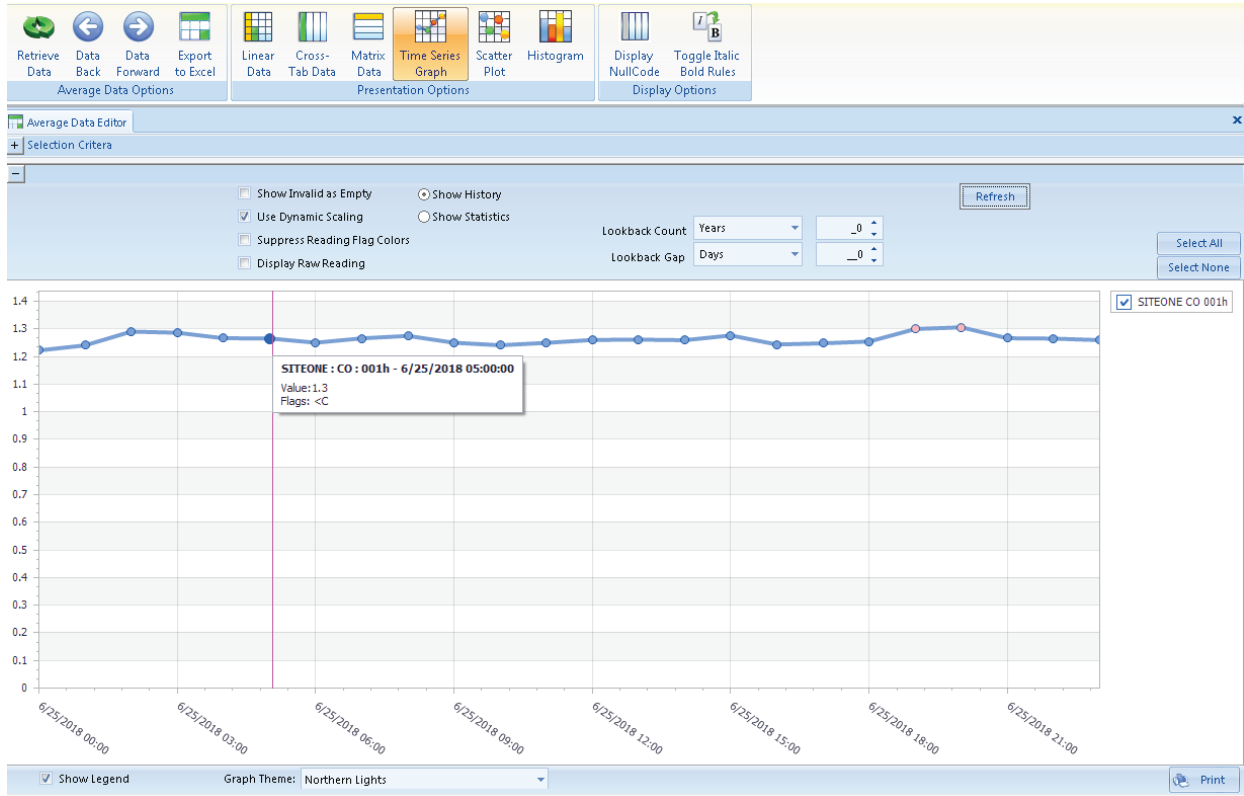
For one parameter, you can choose previous intervals to be other than one year by selecting **Show History** from the options above the graph. If you bring up the Time Series Graph in single parameter mode, you get additional options at the top of the graph:

- ◆ **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

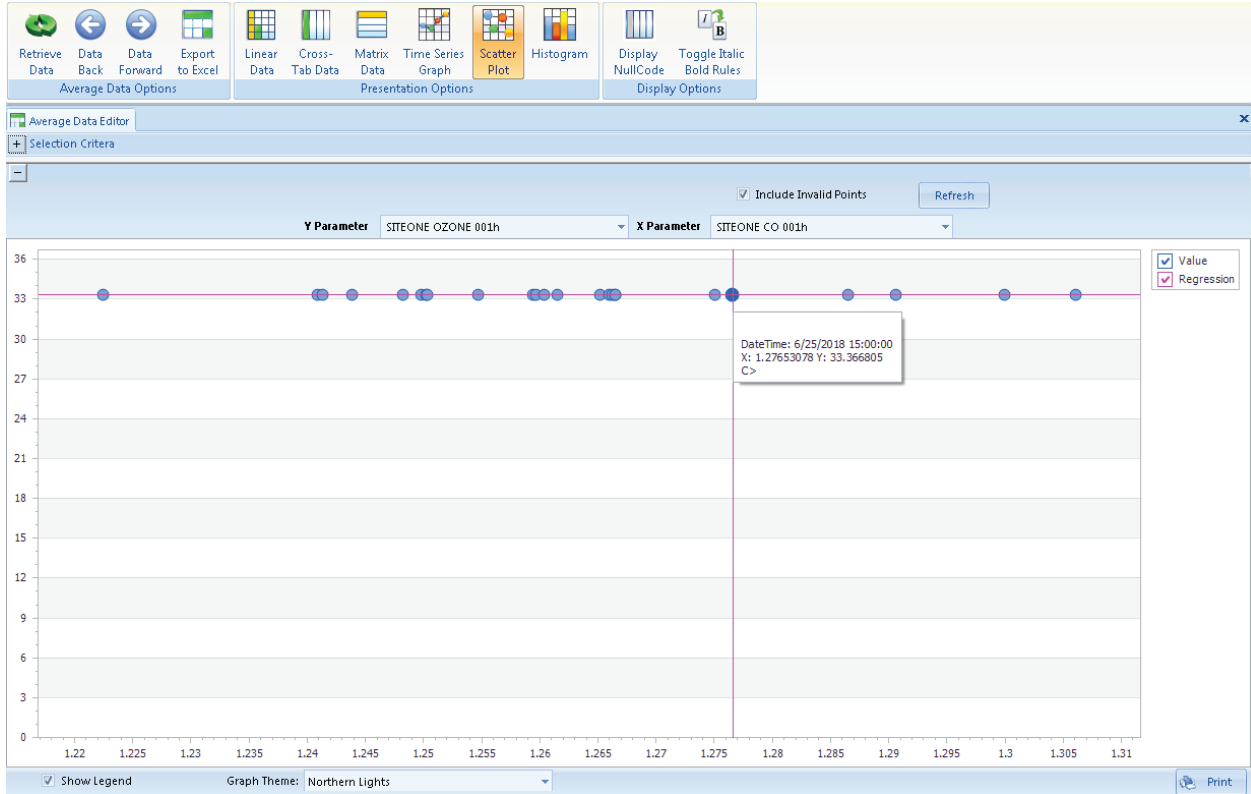
1/5/09 data at hour 00 would be compared against statistics using the following points:

- 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

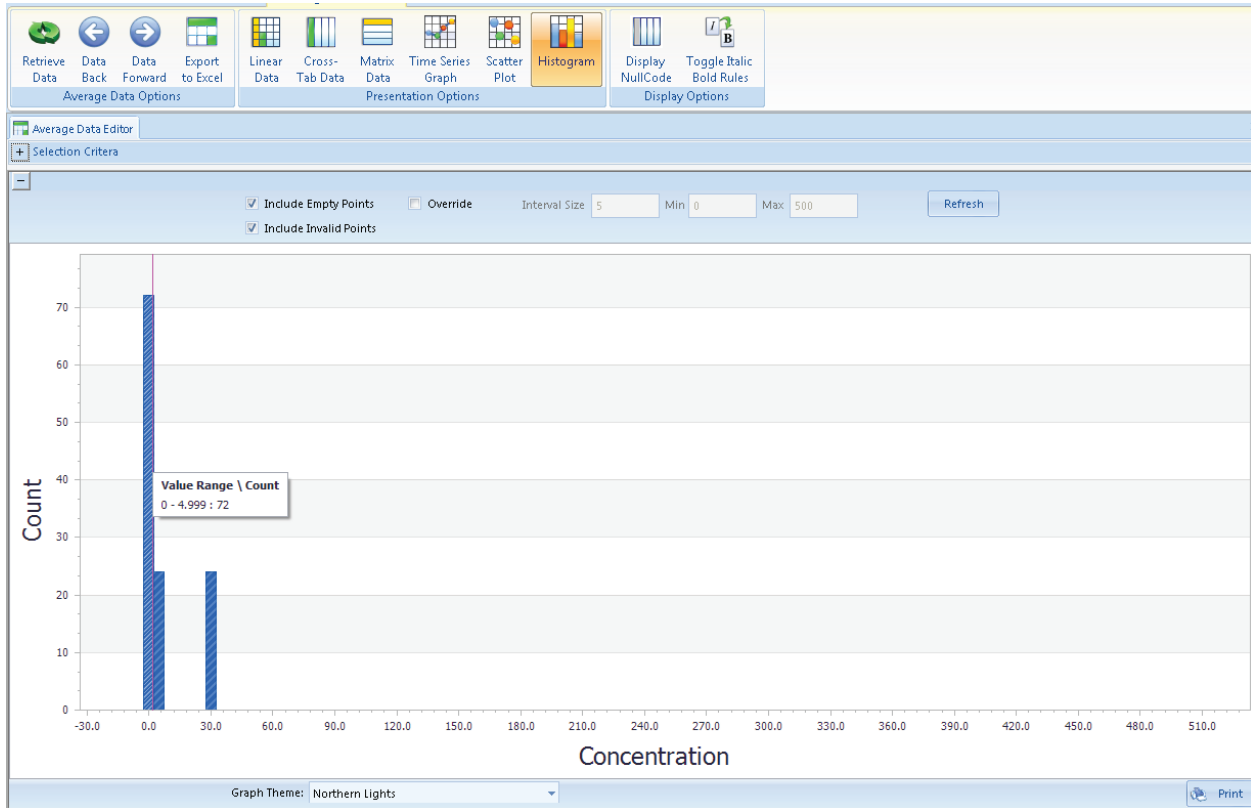
The **Scatter Plot Graph** allows any two parameters in the existing chart to be plotted in an X-Y chart. The Y axis parameter is the primary parameter and all data points are color coded according to the Data Flags color mappings to help distinguish outliers that have already been flagged.



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.

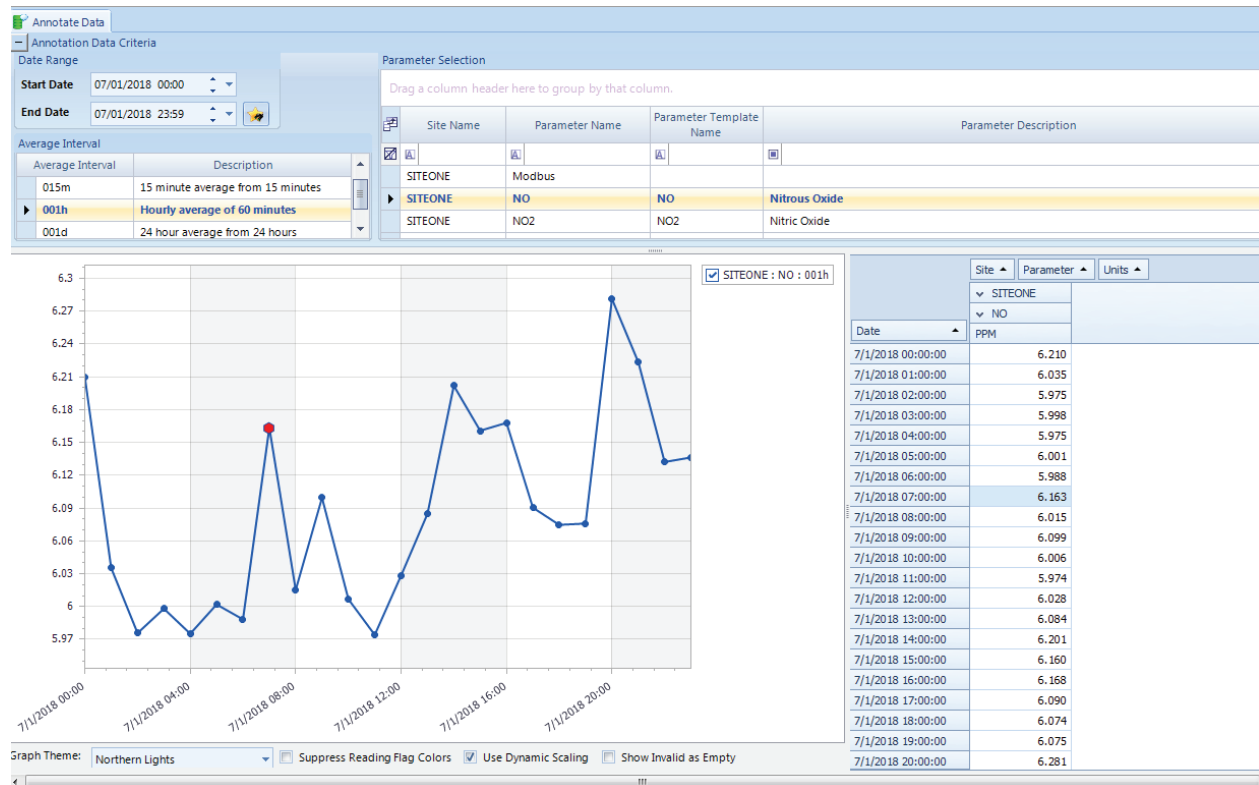


Histogram from Data Editors menu with hover over displaying date, time and data value

### 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.

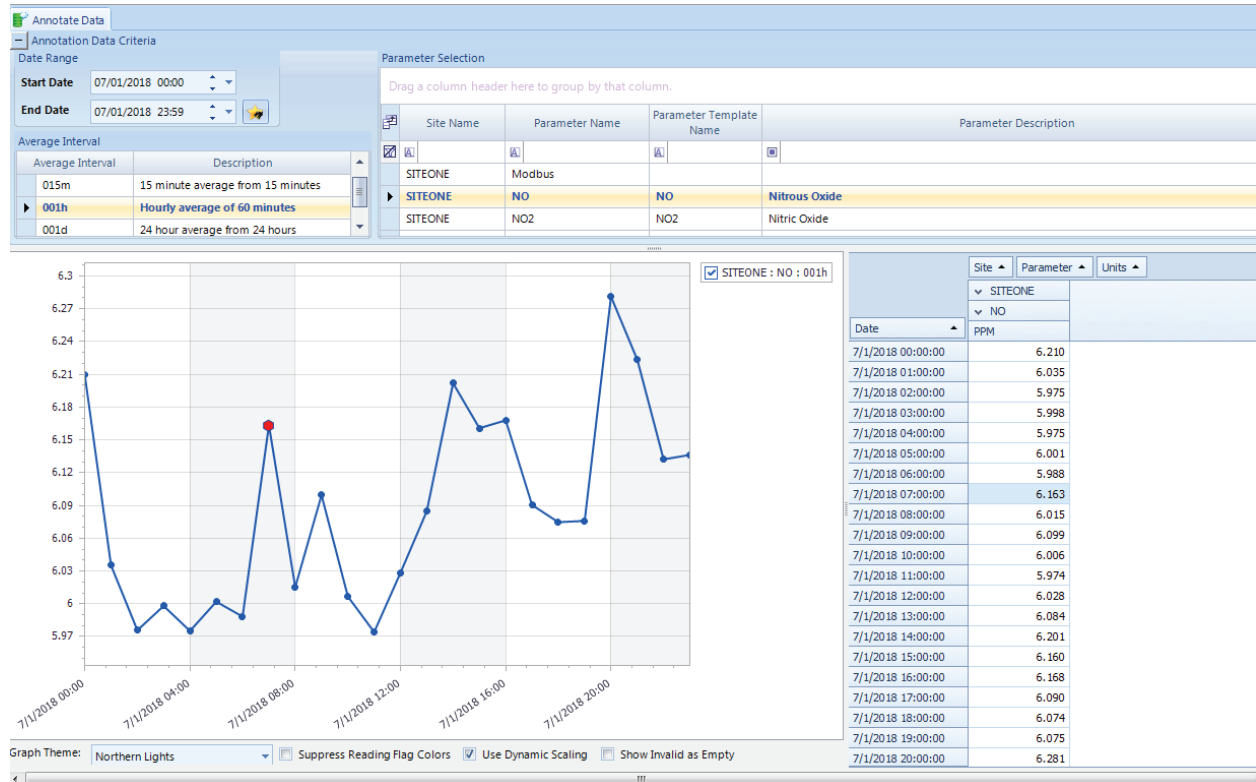


### Batch Reading Updater

### 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.

The screenshot displays the 'Sample Data Editor' window. At the top, there is a 'Selection Criteria' section. Below it is a data table with columns: Site, Parameter, Units, Sample Time, Value, Sample ID, Null Code, Qualifier Code, Frequency Code, Duration Code, Blank Type, Method Code, Creditable, and Scheduled. The table contains multiple rows of sample data for 'SITEONE' and 'PM25LC' at 'UG/M3' units, with various sample times and values. Below the table is a 'Sample Details' panel with fields for Site, Parameter, Sample Time, Sample Value, Units, Sample ID, AQS Method Code, Frequency Code, Duration Code, Blank Filter Type, Null Code, Creditable Sample, and Scheduled Sample. A 'Qualifier Code' dropdown is also present, showing '4 - Lab Issue'.

Site	Parameter	Units	Sample Time	Value	Sample ID	Null Code	Qualifier Code	Frequency Code	Duration Code	Blank Type	Method Code	Creditable	Scheduled
SITEONE	PM25LC	UG/M3	01/01/2013 00:00	5.7			4	3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	01/04/2013 00:00	14.6			4	3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	01/07/2013 00:00	23.9			4	3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	01/10/2013 00:00	3.0				3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	01/13/2013 00:00	5.2				3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	01/16/2013 00:00	5.3				3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	01/19/2013 00:00	6.6				3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	01/22/2013 00:00			AQ		3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	01/25/2013 00:00			AQ		3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	01/28/2013 00:00			AQ		3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	04/24/2014 00:00	10.0			7	3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	05/11/2014 00:00	9.4			7	3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	05/12/2014 00:00	5.3				3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	05/13/2014 00:00	10.9				3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	05/14/2014 00:00	10.2				3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	05/15/2014 00:00	6.0				3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	05/16/2014 00:00	8.7				3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	05/17/2014 00:00	12.1				3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	05/18/2014 00:00	3.2				3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	05/19/2014 00:00	6.8				3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	05/20/2014 00:00	5.8				3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

**Sample Details**

Site: SITEONE Units: UG/M3 Frequency Code: 3 - EVERY 3RD DAY Creditable Sample:  Qualifier Code: 4 - Lab Issue Description: Lab Issue

Parameter: PM25LC Sample ID: Duration Code: 7 - 24 HOURS Scheduled Sample:  Exclude From Reporting:

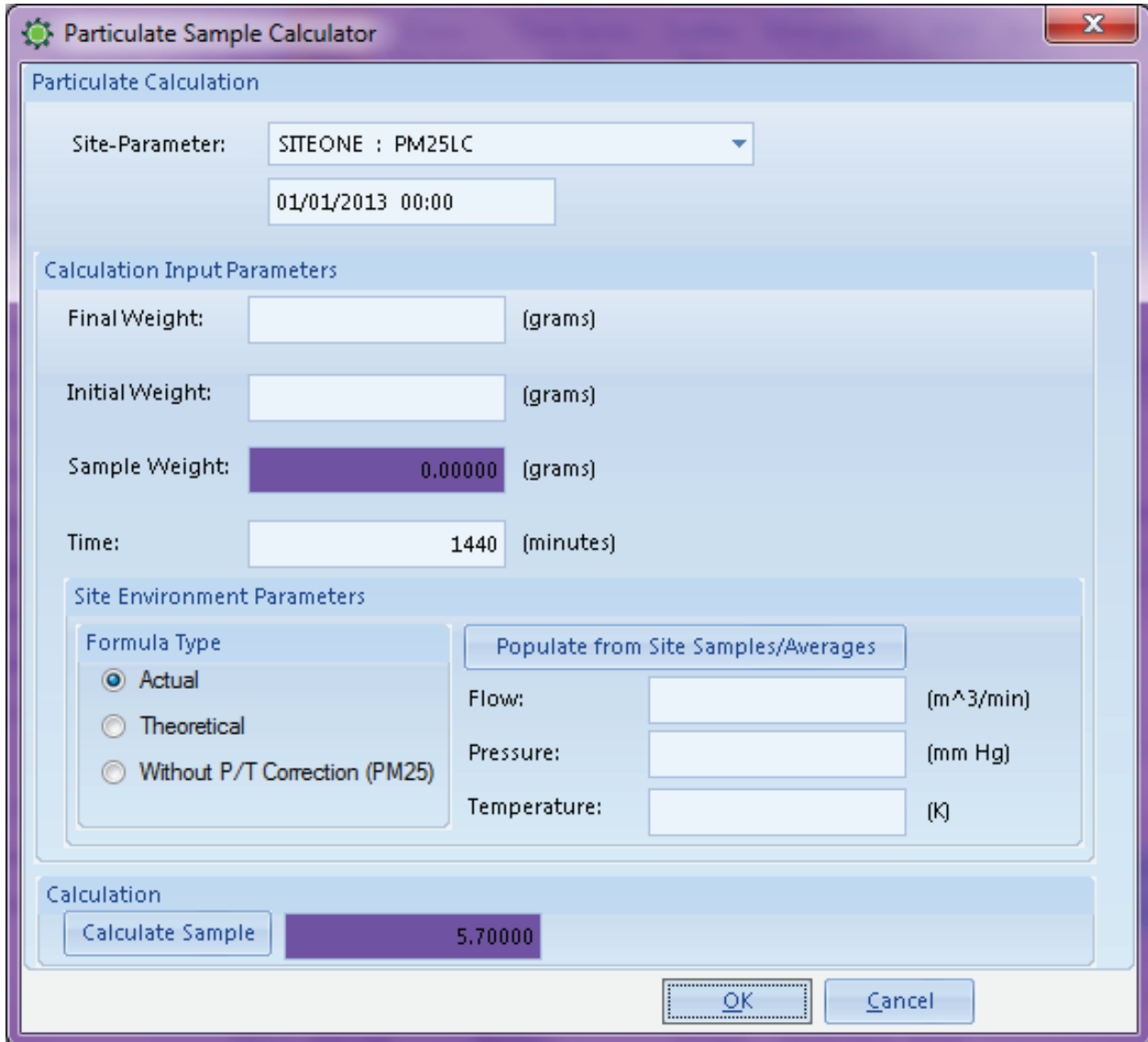
Sample Time: 01/01/2013 00:00 AQS Method Code: 145 Blank Filter Type: Null Code: Sample Value: 5.70000

### 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

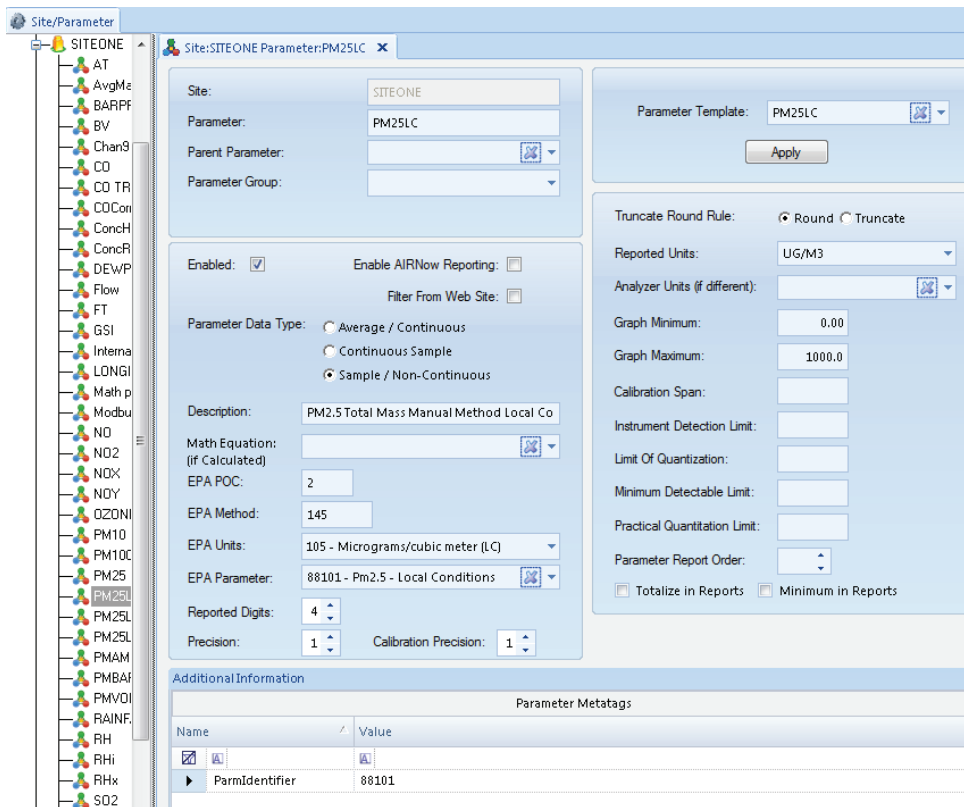
## Methods for Sample Data Handling in AirVision

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:

Column Number	Data Field	Parameter Template	Parse Format	Flag Map
1	Sample Identifier	PM25LC		
5	Date		yyyy/MM/dd	
6	Time		HH:mm	
11	Value	PMFLOWCOV		
12	Sample Total Flow	PM25LC		
13	Value	PMMINTEMP		
14	Sample Ambient Temp	PM25LC		
15	Value	PMMAXTEMP		
19	Value	PMMINBP		
20	Sample Barometric Press	PM25LC		
21	Value	PMMAXBP		
38	Value	PMSAMPTIM		

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.

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

Sample Data Editor

Selection Criteria

Drag a column header here to group by that column.

Site	Parameter	Units	Sample Time	Value	Sample ID	Null Code	Qualifier Code	Frequency Code	Duration Code	Blank Type	Method Code	Creditable	Scheduled
SITEONE	PM25LC	UG/M3	05/12/2014 00:00	5.3				3 - EVERY 3RD D	7 - 24 HOURS		145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	05/13/2014 00:00	10.9				3 - EVERY 3RD D	7 - 24 HOURS		145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	05/14/2014 00:00	10.2				3 - EVERY 3RD D	7 - 24 HOURS		145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	05/15/2014 00:00	6.0				3 - EVERY 3RD D	7 - 24 HOURS		145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	05/16/2014 00:00	8.7				3 - EVERY 3RD D	7 - 24 HOURS		145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	05/17/2014 00:00	12.1				3 - EVERY 3RD D	7 - 24 HOURS		145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	05/18/2014 00:00	3.2				3 - EVERY 3RD D	7 - 24 HOURS		145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	05/19/2014 00:00	6.8				3 - EVERY 3RD D	7 - 24 HOURS		145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	05/20/2014 00:00	5.8				3 - EVERY 3RD D	7 - 24 HOURS		145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	12/16/2014 00:00	15670.9				1 - EVERY DAY	7 - 24 HOURS		145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	05/04/2015 00:00	2.5				3 - EVERY 3RD D	7 - 24 HOURS		145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	11/24/2015 00:00	79.0				3 - EVERY 3RD D	7 - 24 HOURS		145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	ug	09/01/2017 00:00	500.0	AA			3 - EVERY 3RD D	7 - 24 HOURS	LAB - Filter	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	ug	10/10/2017 00:00					3 - EVERY 3RD D	7 - 24 HOURS	FIELD - Filte	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	ug	10/11/2017 00:00	100.0				3 - EVERY 3RD D	7 - 24 HOURS	FIELD - Filte	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Sample Details Extended Details Annotations

Site: SITEONE Units: ug Frequency Code: 3 - EVERY 3RD DAY Creditable Sample:

Parameter: PM25LC Sample ID: Duration Code: 7 - 24 HOURS Scheduled Sample:

Sample Time: 09/01/2017 00:00 AQS Method Code: 145 Blank Filter Type: LAB - Filter Not Taken to Site Exclude From Reporting:

Sample Value: 500.00000 Null Code: AA - Sample Pressure out of Limit

Qualifier Code Description

\* \*

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).

Sample Data Editor

Selection Criteria

Drag a column header here to group by that column.

Site	Parameter	Units	Sample Time	Value	Sample ID	Null Code	Qualifier Code	Frequency Code	Duration Code	Blank Type	Method Code	Creditable	Scheduled
SITEONE	PM25LC	UG/M3	01/01/2013 00:00	5.7			4	3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	01/04/2013 00:00	14.6			4	3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	01/07/2013 00:00	23.9			4	3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	01/10/2013 00:00	3.0				3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	01/13/2013 00:00	5.2				3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	01/16/2013 00:00	5.3				3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	01/19/2013 00:00	6.6				3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	01/22/2013 00:00			AQ		3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	01/25/2013 00:00			AQ		3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	01/28/2013 00:00			AQ		3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	04/24/2014 00:00	10.0			7	3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	05/11/2014 00:00	9.4			7	3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	05/12/2014 00:00	5.3				3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	05/13/2014 00:00	10.9				3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	05/14/2014 00:00	10.2				3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	05/15/2014 00:00	6.0				3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	05/16/2014 00:00	8.7				3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	05/17/2014 00:00	12.1				3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	05/18/2014 00:00	3.2				3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	05/19/2014 00:00	6.8				3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	05/20/2014 00:00	5.8				3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Sample Details   Extended Details   Annotations

Site: SITEONE   Units: UG/M3   Frequency Code: 3 - EVERY 3RD DAY   Creditable Sample:

Parameter: PM25LC   Sample ID:   Duration Code: 7 - 24 HOURS   Scheduled Sample:

Sample Time: 01/01/2013 00:00   AQS Method Code: 145   Blank Filter Type: -   Exclude From Reporting:

Sample Value: 5.70000   Null Code:   Qualifier Code: 4 - Lab Issue   Description: Lab Issue

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

The screenshot shows the 'Particulate Sample Calculator' dialog box. It is divided into several sections:

- Site-Parameter:** A dropdown menu showing 'SITEONE : PM25LC' and a date/time field showing '01/01/2013 00:00'.
- Calculation Input Parameters:**
  - Final Weight: [ ] (grams)
  - Initial Weight: [ ] (grams)
  - Sample Weight: 0.00000 (grams)
  - Time: 1440 (minutes)
- Site Environment Parameters:**
  - Formula Type:
    - Actual
    - Theoretical
    - Without P/T Correction (PM25)
  - Populate from Site Samples/Averages: [ ]
  - Flow: [ ] (m<sup>3</sup>/min)
  - Pressure: [ ] (mm Hg)
  - Temperature: [ ] (K)
- Calculation:**
  - Calculate Sample: [ ]
  - Result: 5.70000

At the bottom of the dialog are 'OK' and 'Cancel' buttons.

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.

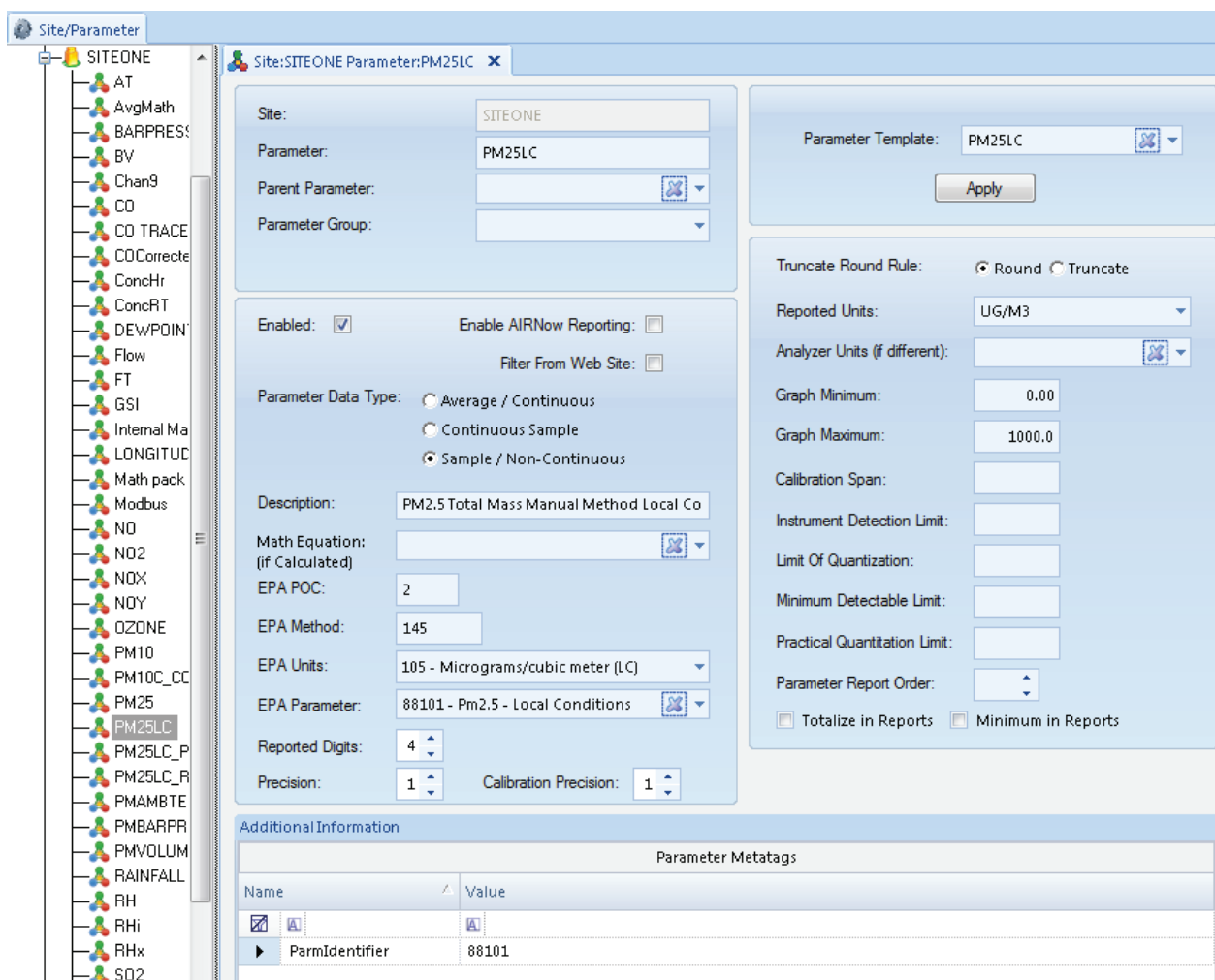
Once the flow, pressure, temperature, and tare/final weights have been entered, the “Calculate Sample” button will calculate the concentration value. “OK” will save the result.

### 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:

Report Output															
RD	I	47	093	7001	88101	2	7	105	145	20130101	00:00	5.7	3	4	
RD	I	47	093	7001	88101	2	7	105	145	20130104	00:00	14.6	3	4	
RD	I	47	093	7001	88101	2	7	105	145	20130107	00:00	13.9	3	4	
RD	I	47	093	7001	88101	2	7	105	145	20130110	00:00	3	3		
RD	I	47	093	7001	88101	2	7	105	145	20130113	00:00	5.2	3		
RD	I	47	093	7001	88101	2	7	105	145	20130116	00:00	5.3	3		
RD	I	47	093	7001	88101	2	7	105	145	20130119	00:00	6.6	3		
RD	I	47	093	7001	88101	2	7	105	145	20130122	00:00	AQ	3		
RD	I	47	093	7001	88101	2	7	105	145	20130125	00:00	AQ	3		
RD	I	47	093	7001	88101	2	7	105	145	20130128	00:00	AQ	3		
RD	I	47	093	7001	88101	2	7	105	145	20140424	00:00	10	3	7	
RD	I	47	093	7001	88101	2	7	105	145	20140511	00:00	9.4	3	7	
RD	I	47	093	7001	88101	2	7	105	145	20140512	00:00	5.3	3		
RD	I	47	093	7001	88101	2	7	105	145	20140513	00:00	10.9	3		
RD	I	47	093	7001	88101	2	7	105	145	20140514	00:00	10.2	3		
RD	I	47	093	7001	88101	2	7	105	145	20140515	00:00	6	3		
RD	I	47	093	7001	88101	2	7	105	145	20140516	00:00	8.7	3		
RD	I	47	093	7001	88101	2	7	105	145	20140517	00:00	12.1	3		
RD	I	47	093	7001	88101	2	7	105	145	20140518	00:00	3.2	3		
RD	I	47	093	7001	88101	2	7	105	145	20140519	00:00	6.8	3		
RD	I	47	093	7001	88101	2	7	105	145	20140520	00:00	5.8	3		
RD	I	47	093	7001	88101	2	7	105	145	20141216	00:00	15670.9	1		
RD	I	47	093	7001	88101	2	7	105	145	20150504	00:00	2.5	3		
RD	I	47	093	7001	88101	2	7	105	145	20151124	00:00	79	3		
RB	I	47	093	7001	88101	2	7	077	145	LAB 20170901	00:00	AA			0
RB	I	47	093	7001	88101	2	7	077	145	FIELD 20171010	00:00	ZZ			
RB	I	47	093	7001	88101	2	7	077	145	FIELD 20171011	00:00	100			



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:

The screenshot shows the 'Sample Data Editor' window. At the top, there is a 'Selection Criteria' section. Below it is a table with columns: Site, Parameter, Units, Sample Time, Value, Sample ID, Null Code, Qualifier Code, Frequency Code, Duration Code, Blank Type, Method Code, Creditable, and Scheduled. A red arrow points to the 'Value' column header. Below the table is a 'Sample Details' section with various input fields and dropdown menus for parameters like Site, Parameter, Sample Time, Sample Value, Units, Sample ID, AQS Method Code, Frequency Code, Duration Code, Blank Filter Type, Null Code, Creditable Sample, Scheduled Sample, and Exclude From Reporting. There is also a 'Qualifier Code' dropdown and a 'Description' field.

Site	Parameter	Units	Sample Time	Value	Sample ID	Null Code	Qualifier Code	Frequency Code	Duration Code	Blank Type	Method Code	Creditable	Scheduled
SITEONE	PM25LC	UG/M3	01/01/2013 00:00	5.7			4	3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	01/04/2013 00:00	14.6			4	3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	01/07/2013 00:00	13.9			4	3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	01/10/2013 00:00	3.0				3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	01/13/2013 00:00	5.2				3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	01/16/2013 00:00	5.3				3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	01/19/2013 00:00	6.6				3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	01/22/2013 00:00			AQ		3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	01/25/2013 00:00			AQ		3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	01/28/2013 00:00			AQ		3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	04/24/2014 00:00	10.0			7	3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	05/11/2014 00:00	9.4			7	3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	05/12/2014 00:00	5.3				3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	05/13/2014 00:00	10.9				3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	05/14/2014 00:00	10.2				3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	05/15/2014 00:00	6.0				3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	05/16/2014 00:00	8.7				3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	05/17/2014 00:00	12.1				3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	05/18/2014 00:00	3.2				3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	05/19/2014 00:00	6.8				3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	05/20/2014 00:00	5.8				3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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:

Selection Criteria

Drag a column header here to group by that column.

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	30.2	T8121974		3	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"/>

ManualSampleData : PM25LC - 12/20/2013 00:00:00  
 Value:44.5  
 Annotations:  
 [11/6/2013 13:37]Weather Event: Made By: Admin - Heavy snowfall up near sampler input

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.

Drag a column header here to group by that column.

Site	Parameter	Units	Sample Time	Value	Sample ID	Null Code	Qualifier Code	Frequency Code	Duration Code	Blank Type	Method Code	Creditable	Scheduled
SITEONE	PM25LC	UG/M3	01/01/2013 00:00	5.7			4	3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	01/04/2013 00:00	14.6			4	3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	01/07/2013 00:00	13.9			4	3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	01/10/2013 00:00	3.0				3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	01/13/2013 00:00					3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	01/16/2013 00:00					3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	01/19/2013 00:00					3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	01/22/2013 00:00					3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	01/25/2013 00:00					3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	01/28/2013 00:00					3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	04/24/2014 00:00					3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	05/11/2014 00:00					3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	05/12/2014 00:00					3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	05/13/2014 00:00					3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	05/14/2014 00:00					3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	05/15/2014 00:00					3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	05/16/2014 00:00	8.7				3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	05/17/2014 00:00	12.1				3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	05/18/2014 00:00	3.2				3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	05/19/2014 00:00	6.8				3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SITEONE	PM25LC	UG/M3	05/20/2014 00:00	5.8				3 - EVERY 3RD D	7 - 24 HOURS	-	145	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

- Set to Minimum Detectable Limit
- Set AQS Null Code
- Set Qualifier Codes
- View All Flags
- Set Annotations
- Delete Annotations
- Batch Edit
- Show Children
- Export to Excel
- Analyze/Export Selected
- Copy Selected to Clipboard

Sample Details | Extended Details | Annotations

Site: SITEONE Units: UG/M3 Frequency Code: 3 - EVERY 3RD DAY Creditable Sample:  Qualifier Code: Description

Parameter: PM25LC Sample ID: Duration Code: 7 - 24 HOURS Scheduled Sample:  \*

Sample Time: 01/13/2013 00:00 AQS Method Code: 145 Blank Filter Type: - Exclude From Reporting:

Sample Value: 5.20000 Null Code:

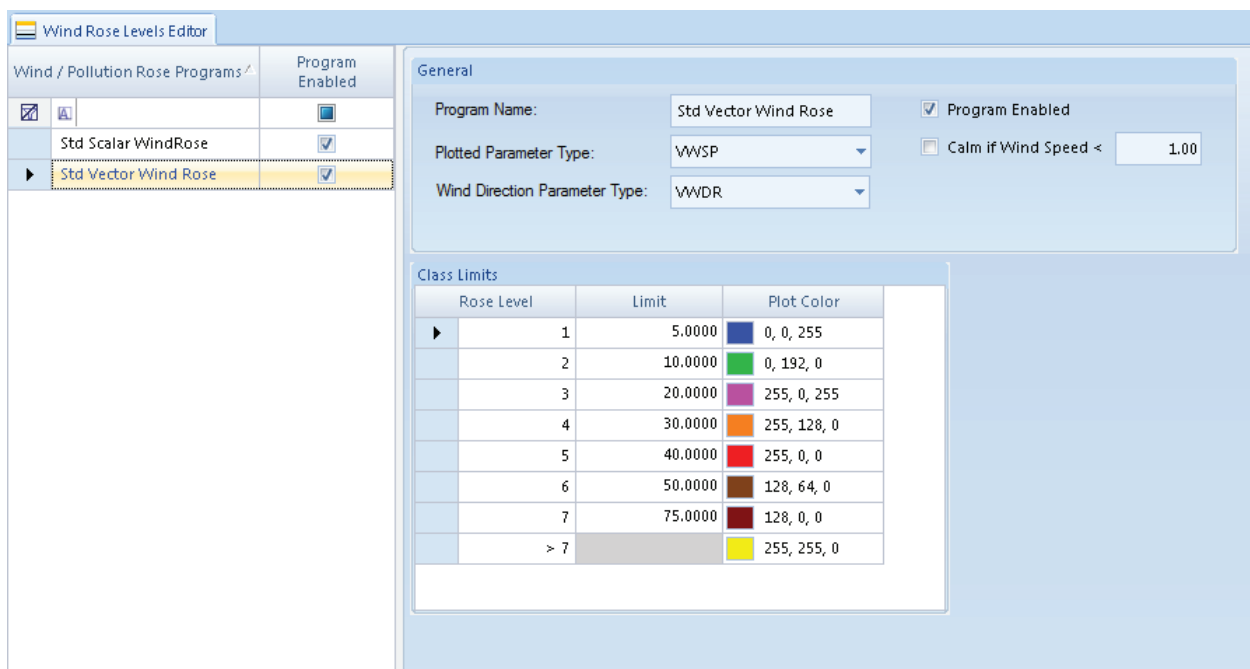
## Calibration Data Editor

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.

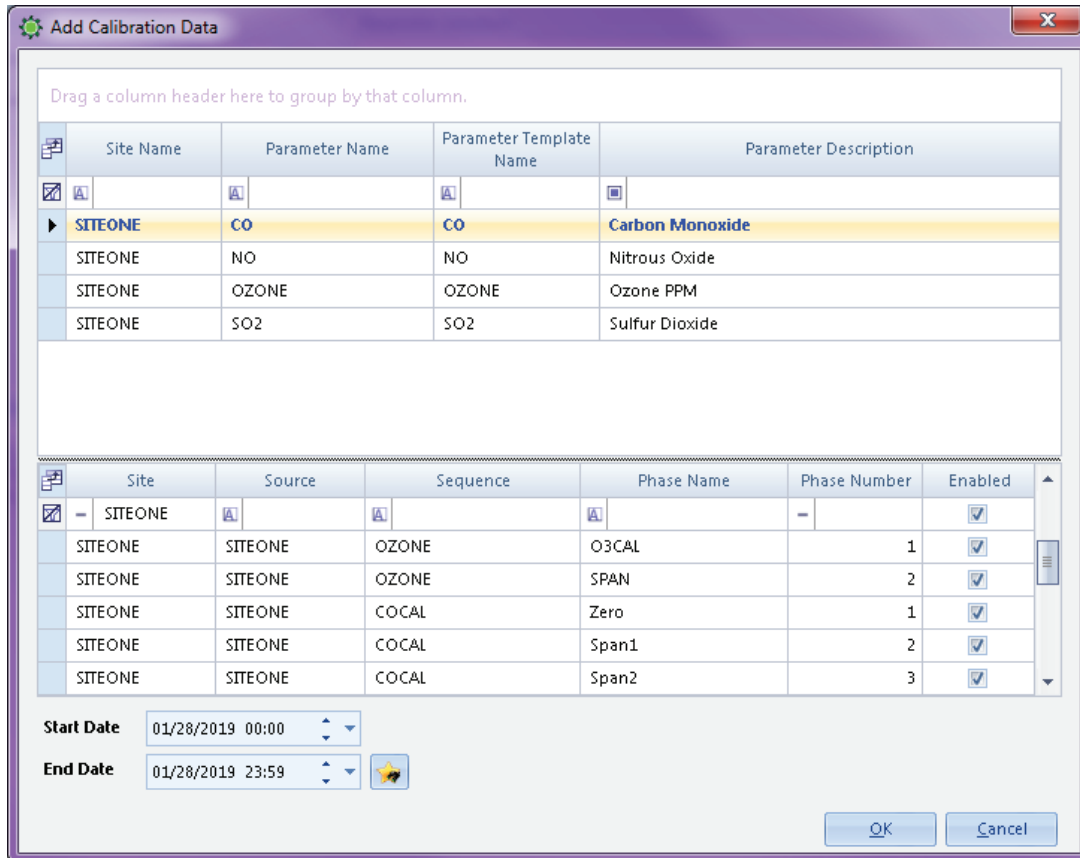
To add a new record, press the **Add** icon on the ribbon. You will be prompted for the site, parameter, calibration program and phase: The record will be created in the editor, and the remaining record characteristics can be entered. The user may also define the calibration level of a phase (ZERO, PREC, 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

The lock and unlock data is located in the Batch Reading Updater under Data Editors. Select from the query the Site and Parameter, the interval type, and the date range. Under Action to Take click the down arrow in the Action Selection field and select Set Readings Locked or Set Readings Unlocked, then click the Apply Action button on the Ribbon at the top.

The screenshot shows the 'Batch Reading Updater' interface. At the top left, there is an 'Apply Action' button with a green checkmark icon. Below it is the 'Reading Updater Options' ribbon. The main area is divided into several sections:

- Date Range:** Start Date: 05/14/2019 00:00, End Date: 05/14/2019 23:59.
- Average Interval:** A list with three options: 005m (5 minute average from 5 minutes), 015m (15 minute average from 15 minutes), and 001h (Hourly average of 60 minutes). The 001h option is selected.
- Parameter Selection:** A table with columns: Site Name, Parameter Name, Parameter Template Name, and Parameter Description. The table contains four rows:
 

Site Name	Parameter Name	Parameter Template Name	Parameter Description
SITEONE	NO	NO	Nitrous Oxide
SITEONE	NO2	NO2	Nitric Oxide
SITEONE	NOX	NOX	Oxides of Nitrogen
SITEONE	OZONE	OZONE	Ozone PPM
- Action to Take:** Action Selection: Set Readings Locked (dropdown menu). Below this is a checked checkbox labeled 'Lock Readings'.

## 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.

The screenshot displays the 'Logbook Entry Editor' interface. At the top, there is a 'Selection' section with 'Date Range' controls for 'Start Date' (01/04/2013 00:00) and 'End Date' (01/04/2013 23:59). To the right is a 'Site Selection' table with columns 'Site Name' and 'Site Description'. The table lists three sites: SITEONE, SITETHREE, and SITETWO, with SITEONE selected. Below this is the 'Logbook Data' section, which contains a table with columns: Site, Category, User Name, Entry Time, Event Time, and Entry. The table shows two entries for SITEONE: one with Category 'Test' and one with Category 'RoutineCheck'. At the bottom is the 'Logbook Entry Details' section, which includes input fields for 'Log Entry Time' (01/04/2013 11:25), 'Event Time' (01/04/2013 11:25), 'Category' (Test), 'User' (AirVision), and 'Site' (SITEONE). A large 'Entry Text' box is located at the very bottom.

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

## 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](mailto: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
SITEONE	OZONE	001h	02/02/2017 00:00:00	0.866276128	-0.858492255	1	0.007783872999999994	-0.858492255
SITEONE	OZONE	001h	02/02/2017 01:00:00	0.862524271	-0.858492255	1	0.004032015999999992	-0.858492255
SITEONE	OZONE	001h	02/02/2017 02:00:00	0.86218518	-0.858492255	1	0.003692924999999996	-0.858492255
SITEONE	OZONE	001h	02/02/2017 03:00:00	0.868993372	-0.858492255	1	0.011401117	-0.858492255
SITEONE	OZONE	001h	02/02/2017 04:00:00	0.864611208	-0.858492255	1	0.006118952999999998	-0.858492255
SITEONE	OZONE	001h	02/02/2017 05:00:00	0.860952973	-0.858492255	1	0.002460717999999992	-0.858492255
SITEONE	OZONE	001h	02/02/2017 06:00:00	0.868321955	-0.858492255	1	0.009829699999999994	-0.858492255
SITEONE	OZONE	001h	02/02/2017 07:00:00	0.853393554	-0.858492255	1	-0.005098700999999998	-0.858492255
SITEONE	OZONE	001h	02/02/2017 08:00:00	0.86802411	-0.858492255	1	0.009531854999999998	-0.858492255
SITEONE	OZONE	001h	02/02/2017 09:00:00	0.87199682	-0.858492255	1	0.013504565	-0.858492255
SITEONE	OZONE	001h	02/02/2017 10:00:00	0.864855825	-0.858492255	1	0.006363569999999999	-0.858492255
SITEONE	OZONE	001h	02/02/2017 11:00:00	0.861343264	-0.858492255	1	0.002851009000000002	-0.858492255
SITEONE	OZONE	001h	02/02/2017 12:00:00	0.861500203	-0.858492255	1	0.003007947999999993	-0.858492255
SITEONE	OZONE	001h	02/02/2017 13:00:00	0.860982477	-0.858492255	1	0.002490221999999993	-0.858492255
SITEONE	OZONE	001h	02/02/2017 14:00:00	0.866361975	-0.858492255	1	0.007869719999999997	-0.858492255
SITEONE	OZONE	001h	02/02/2017 15:00:00	0.860231816	-0.858492255	1	0.001739560999999995	-0.858492255
SITEONE	OZONE	001h	02/02/2017 16:00:00	0.861209715	-0.862505793	1	-0.001296077999999998	-0.862505793
SITEONE	OZONE	001h	02/02/2017 17:00:00	0.85914725	-0.862505793	1	-0.003358542999999994	-0.862505793
SITEONE	OZONE	001h	02/02/2017 18:00:00	0.86563301	-0.862505793	1	0.003127217000000007	-0.862505793
SITEONE	OZONE	001h	02/02/2017 19:00:00	0.858487665	-0.862505793	1	-0.004018128000000001	-0.862505793
SITEONE	OZONE	001h	02/02/2017 20:00:00	0.861819922	-0.862505793	1	-0.0006858709999999949	-0.862505793
SITEONE	OZONE	001h	02/02/2017 21:00:00	0.866914629	-0.862505793	1	0.004408836000000008	-0.862505793
SITEONE	OZONE	001h	02/02/2017 22:00:00	0.868640601	-0.862505793	1	0.006134807999999999	-0.862505793
SITEONE	OZONE	001h	02/02/2017 23:00:00	0.862768709	-0.862505793	1	0.0002629160000000057	-0.862505793

### 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 five options:

- ◆ Agilaire Support
- ◆ AirVision Manual
- ◆ AV-Trend Manual
- ◆ Software Release Info
- ◆ Video Tutorials

## Agilaire Support

Agilaire Support is a link to the Agilaire website, [www.agilaire.com](http://www.agilaire.com).

You can reach our support staff at:

email: [support@agilaire.com](mailto:support@agilaire.com)

phone: 865-927-9440, press 2

## AirVision Manual

If you select AVTrend Manual, you will see a pdf of the latest User's Manual.

You can also download the manual from our website, [www.agilaire.com](http://www.agilaire.com).

## AV-Trend Manual

If you select AVTrend Manual, you will see a pdf of the latest User's Manual.

You can also download the manual from our website, [www.agilaire.com](http://www.agilaire.com).

## Software Release Info

This option directs you to a website with information pertaining to new releases of Agilaire software.

## Video Tutorials

On the web, visit: [agilaire.com/training/video-training-resources](http://agilaire.com/training/video-training-resources)

## Chapter 6

# Utilities & List Editors

### Utilities:

- ◆ Manual Poll
- ◆ Link to Logger
- ◆ Purge/Archive Utilities
- ◆ SQL Execution Tool
- ◆ Table Import/Export
- ◆ Logger Download
- ◆ Manual Instrument Poll
- ◆ AQS XML Import Tool
- ◆ AQS Text Import Tool
- ◆ Fill Data Gaps

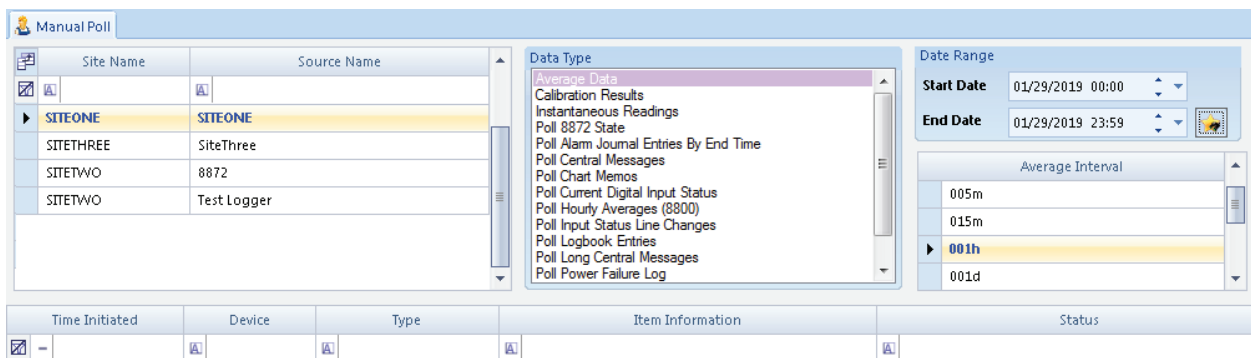
### List Editors:

- ◆ Logbook Category Editor
- ◆ Annotation Category Editor
- ◆ Math Editors
- ◆ Modem Types
- ◆ Parameter Tag Editor
- ◆ Unit Editor

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).



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).

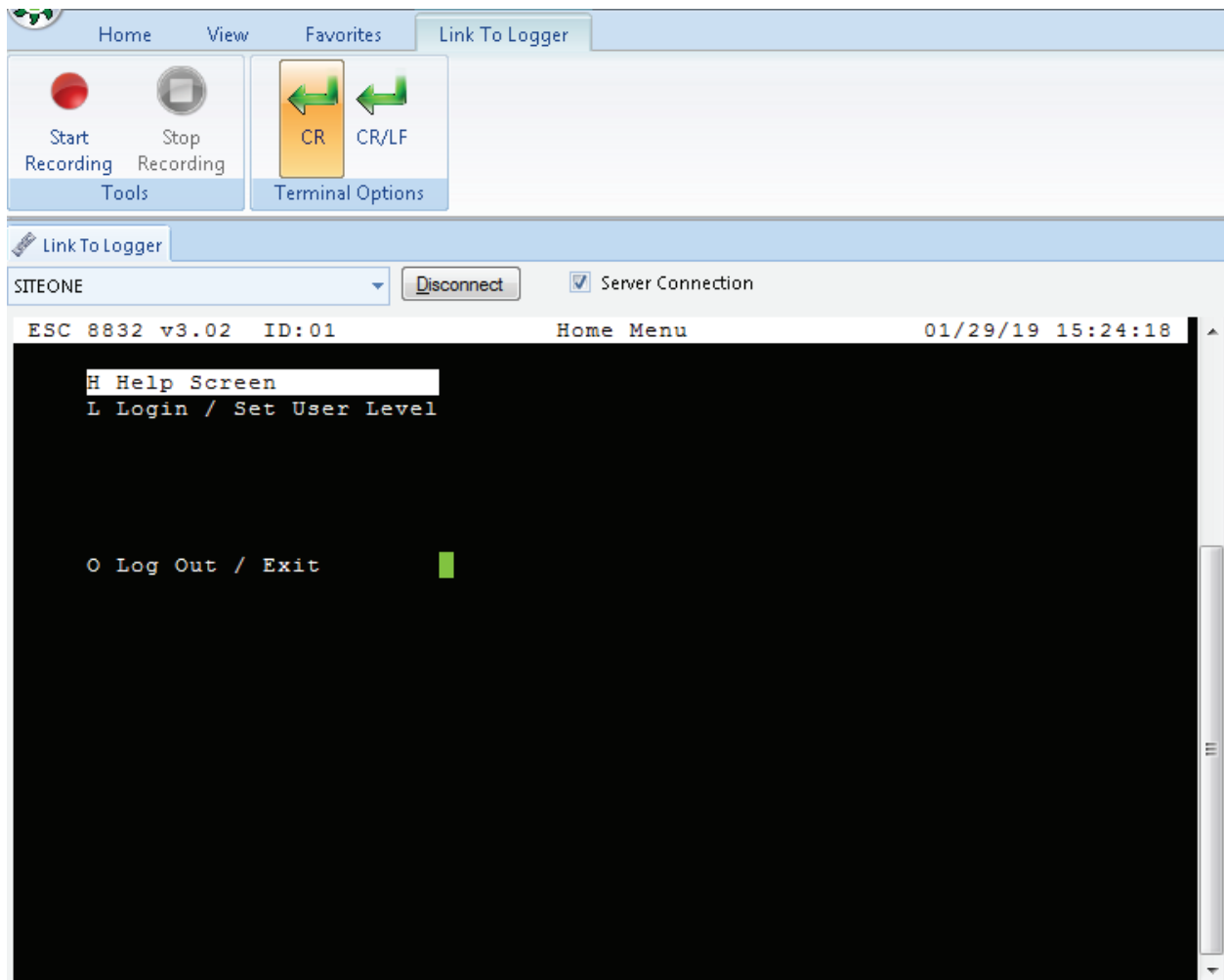
Communication commands with data loggers are listed in the bottom section of the screen, along with the Time, Event Type (Communication), and the message to the logger.

To see a detailed report of each communication, double-click a **Message** line in the lower section of the screen.

## Link To Logger (8816 / 8832 / 8864)

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" by creating a Capture.txt file.

## 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  Years

Specific Date Range Start Date: 01/29/2019 00:00 End Date: 01/29/2019 23:59

**Action to Take**

Archive Data  Archive and Purge Data  Purge Data

**Archive File Location**

Server  Local

**Average Data Selection**

Average Interval:   Retain Readings During Calibrations

**Parameter Selection**

All Parameters  Selected Parameters

Site Name	Parameter Name	Parameter Template Name	Parameter Description
SITEONE	NO	NO	Nitrous Oxide
SITEONE	NO2	NO2	Nitric Oxide
SITEONE	NOX	NOX	Oxides of Nitrogen
SITEONE	NOY	NOY	Reactive Oxides of Nitrogen
SITEONE	OZONE	OZONE	Ozone PPM
SITEONE	PM10C_CONTIN	PM10C_CONTIN	PM10 Coarse Continuous
SITEONE	PM25	PM25	Particulate Matter 2.5 microns or less, hourly data
SITEONE	PM25LC_Rollup	PM25LC	Average roll up from sample data
SITEONE	RAINFALL	RAINFALL	Rainfall, total for hour
SITEONE	RH	RELHUM	Relative Humidity

## 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.

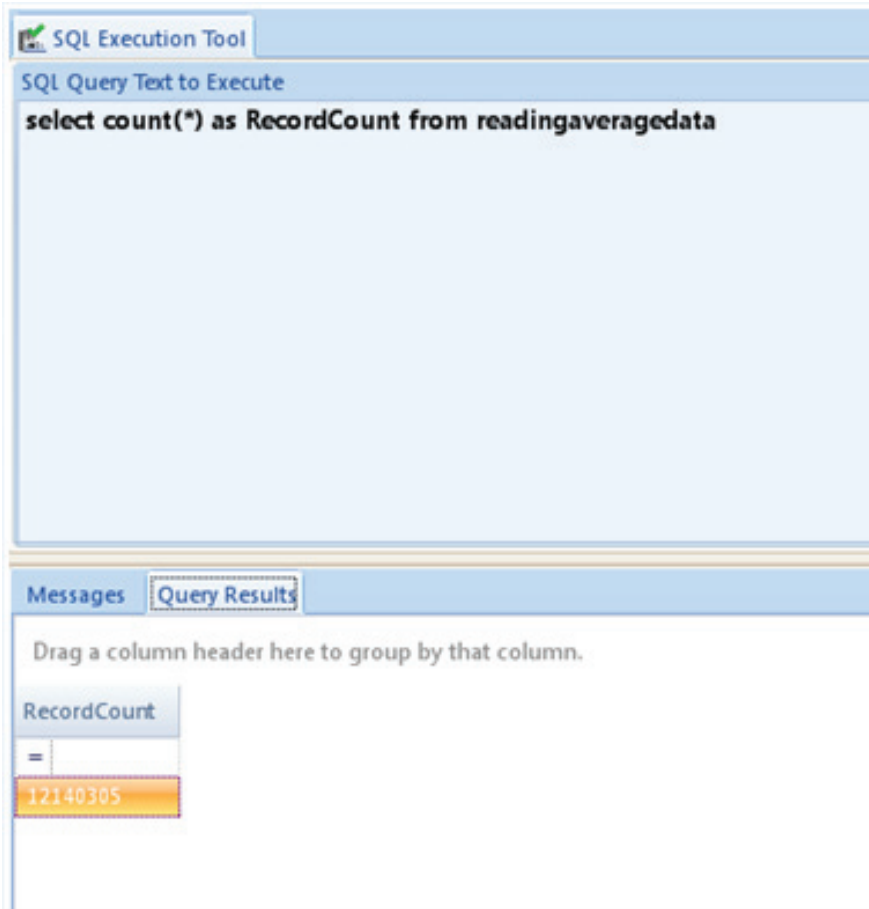
This tool provides several advantages over the administrative tools provided by Microsoft:

- 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.

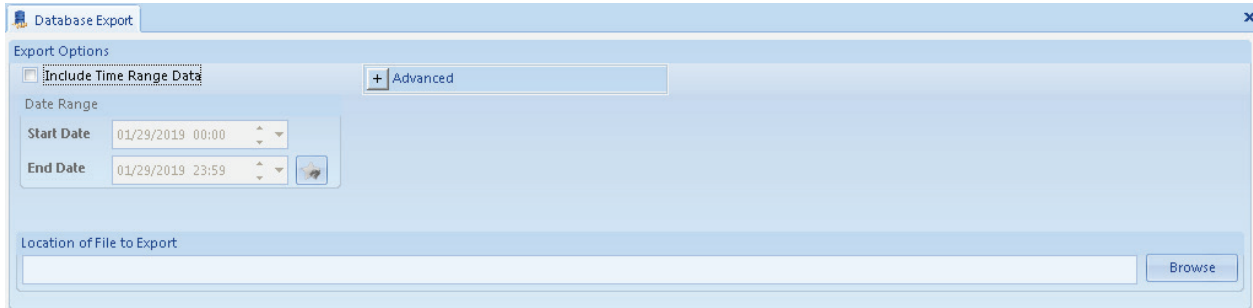
Via the ribbon, the user can load a file of SQL statements, execute the statement, and save the results to a file.



## 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.

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.

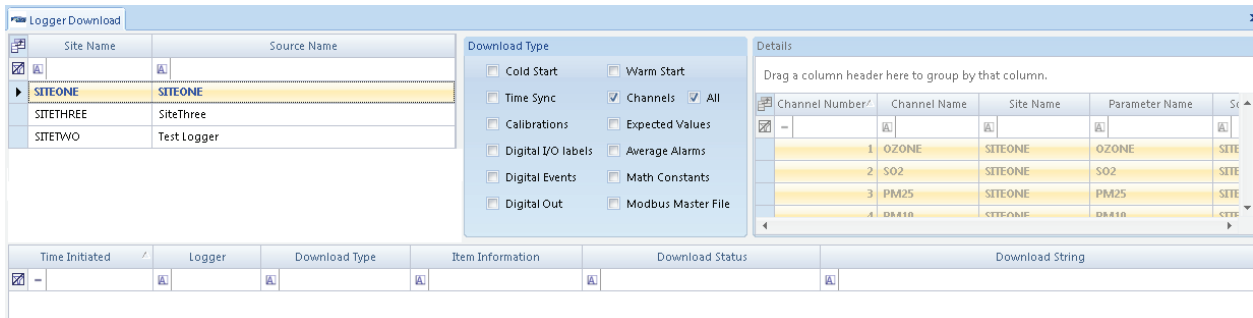


## Logger Download

The **Logger Download** utility allows AirVision to remotely configure a Model 8816, 8832 or 8864 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).

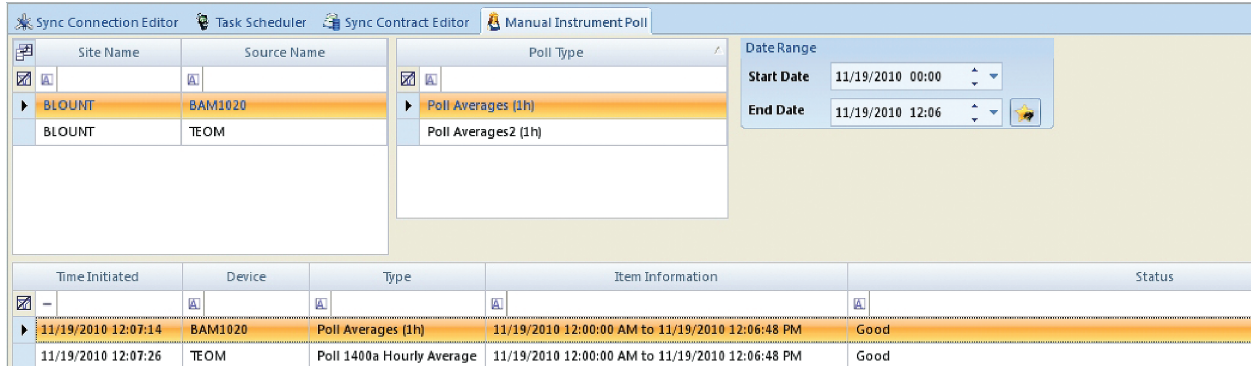
For the Model 8872, a bidirectional synchronization process replaces the one-way download. Consult the Model 8872 manual for more details.





## 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:



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.

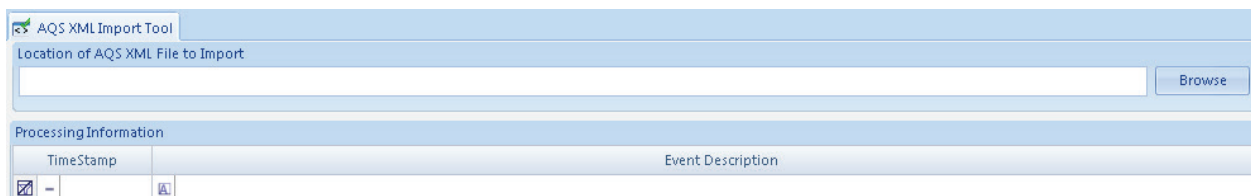
## AQS XML Import Tool

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

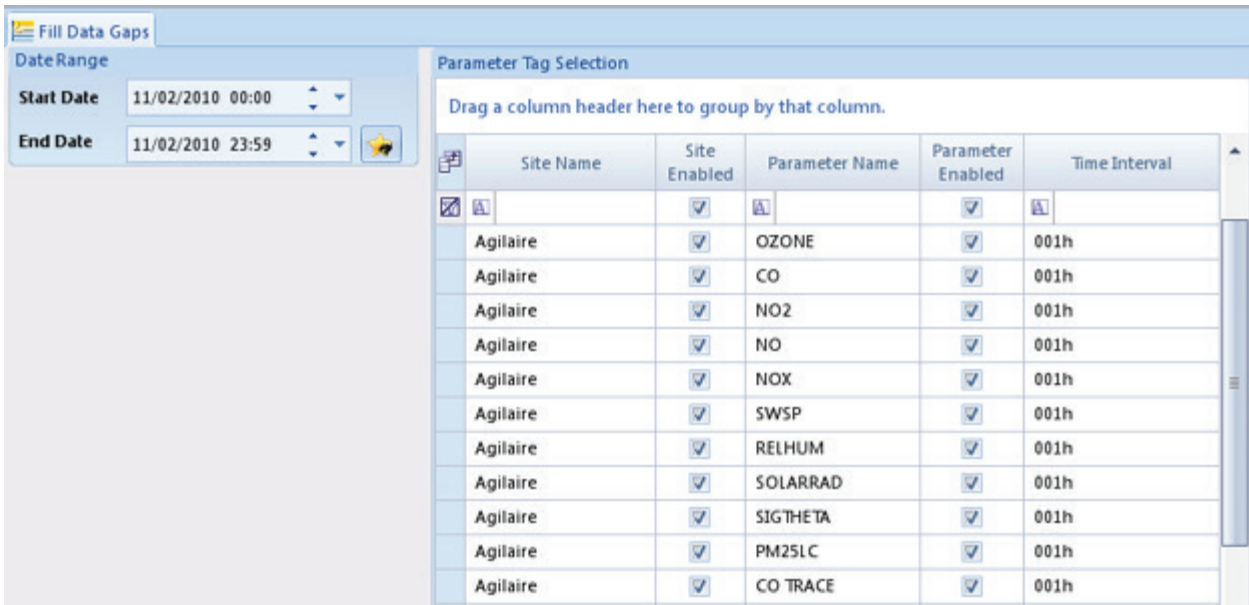


AQS Text Import Tool from Utilities menu

## 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

- ◆ Annotation Category editor
- ◆ Log Book Category Editor
- ◆ Math (if enabled)
  - Math Constants Editor
  - Math Equation Editor
- ◆ Modem Types
- ◆ Parameter Group Editor
- ◆ Parameter Tag Editor
- ◆ Site Group Editor
- ◆ Unit Editor

List Editors display items in these categories. Access to the List Editors is controlled by Administrative personnel in the Securities 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	
Category Name	
<input checked="" type="checkbox"/>	Adjustment
<input type="checkbox"/>	Alarm
<input type="checkbox"/>	Asset
<input type="checkbox"/>	Logger Message
<input type="checkbox"/>	Other
<input type="checkbox"/>	QA
<input type="checkbox"/>	Repair
<input type="checkbox"/>	RoutineCheck
<input type="checkbox"/>	SchedMaintenance
<input type="checkbox"/>	Test
<input type="checkbox"/>	Weather

*	
---	--

Logbook Category Editor

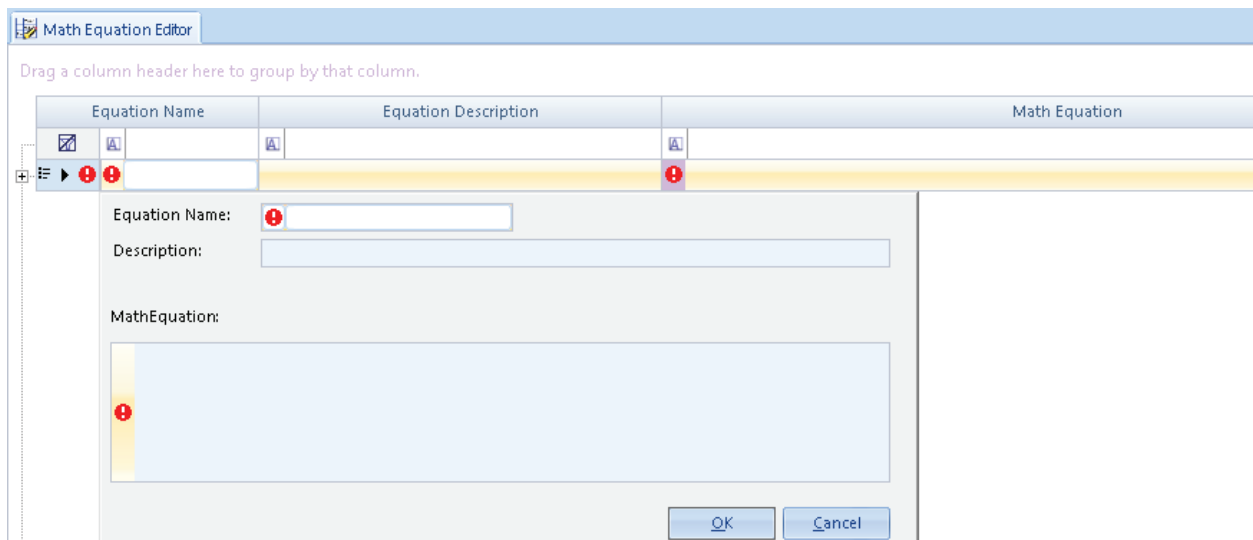
## Math Editors

### 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 Types							
Modem Description	BPS	Command Mode String	Guard Time (ms)	Dial Command String	Hangup Command String	Online Mode String	Initialization String
US Robotics V.92	57600		2000		ATH0		AT&C1&D0&H1&J0&K0M1Q0E0V1S0=0
US Robotics 14.4	14400		2000		ATH0		AT&F0&W0V1Q0E0M1S2=4357=8050=1
US Robotics 28.8/33.6	33600		2000		ATH0		AT&C1&D0&H1&J0&K0M1Q0E0V1S0=0
US Robotics 1200 baud only	1200		2000		ATH0		AT&C1&D0&H1&J0&K0M1Q0E0V1S0=0&P
Hayes Std 9600	9600		2000		ATH0		ATV1Q0E0M1S2=4357=8050=1
US Robotics 2400 baud only	2400		2000		ATH0		AT&C1&D0&H1&J0&K0M1Q0E0V1S0=0&P
Zoom 14.4	14400		2000		ATH0		ATV1Q0E0M1S2=4357=8050=1
US Robotics 4800 baud only	4800		2000		ATH0		AT&C1&D0&H1&J0&K0M1Q0E0V1S0=0&P
ZoomFax V.34 Plus	33600		2000		ATH0		AT&C1&D0&K0Q0E0V1S0=0
US Robotics 9600 baud only	9600		2000		ATH0		AT&C1&D0&H1&J0&K0M1Q0E0V1S0=0&P
Practical Periph 14.4	14400		2000		ATH0		AT&F&WV1Q0E0M1S2=4357=8050=1
Multitech MT2834	33600		2000		ATH0		AT&F&C1&D0&E0&E4&E11&E14&Q1E0Q

### 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	Average Interval
Agilaire : CO	001h - Hourly average of 60 minutes
Agilaire : CO TRACE	001h - Hourly average of 60 minutes
Agilaire : NO	001h - Hourly average of 60 minutes
Agilaire : NO2	001h - Hourly average of 60 minutes
Agilaire : NOX	001h - Hourly average of 60 minutes
Agilaire : OZONE	001h - Hourly average of 60 minutes
Agilaire : PM25LC	001h - Hourly average of 60 minutes
Agilaire : RELHUM	001h - Hourly average of 60 minutes
Agilaire : SIGTHETA	001h - Hourly average of 60 minutes
Agilaire : SOLARRAD	001h - Hourly average of 60 minutes
Agilaire : SWSP	001h - Hourly average of 60 minutes

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.

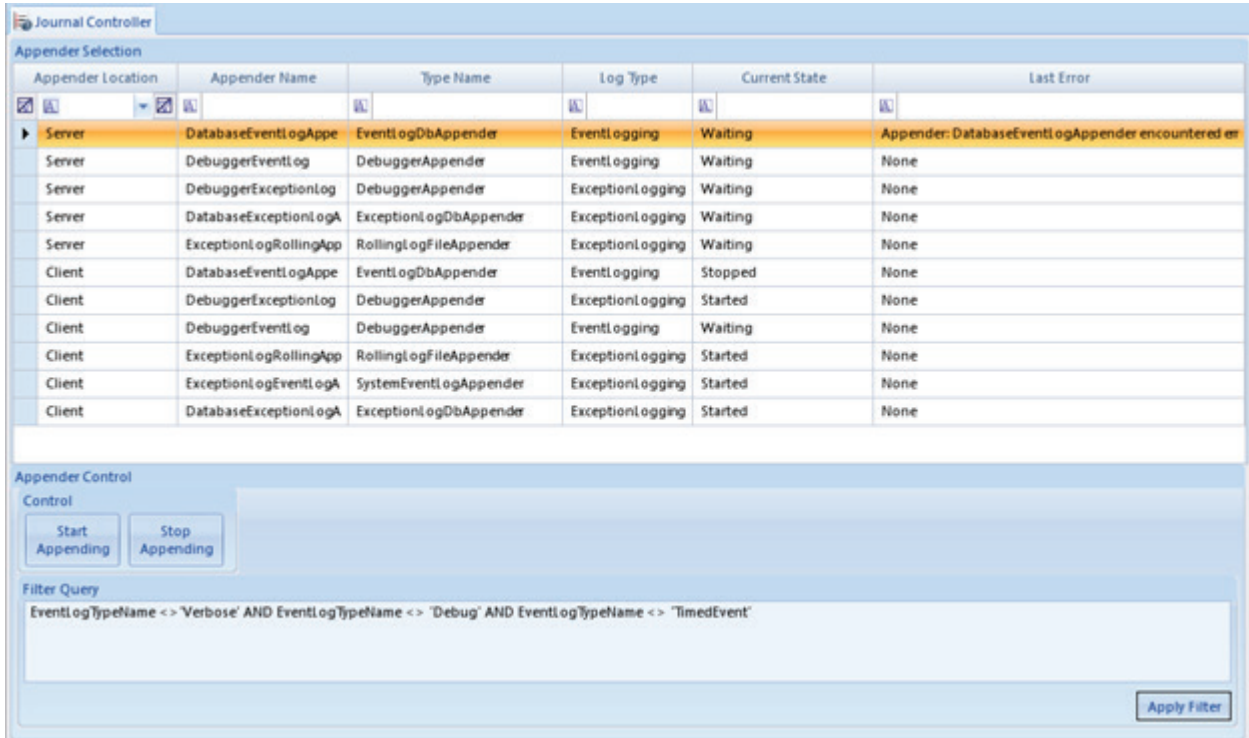
Unit Editor					
Unit Name	Unit Type	Slope	Intercept	Description	
<input checked="" type="checkbox"/>	<input type="text" value="LPM"/>	<input type="text" value="Flow Rate"/>	<input type="text" value="1"/>	<input type="text" value="0"/>	<input type="text" value="Liters per minute"/>
<input type="checkbox"/>	<input type="text" value="L/M"/>	<input type="text" value="Flow Rate"/>	<input type="text" value="1"/>	<input type="text" value="0"/>	<input type="text" value="Liters per minute"/>
<input type="checkbox"/>	<input type="text" value="MVOLTS"/>	<input type="text" value="Voltage"/>	<input type="text" value="0.001"/>	<input type="text" value="0"/>	<input type="text" value="Millivolts"/>
<input type="checkbox"/>	<input type="text" value="Langleys"/>	<input type="text" value="Solar Radiation"/>	<input type="text" value="0.001434"/>	<input type="text" value="0"/>	<input type="text" value="Langleys per hour"/>
<input type="checkbox"/>	<input type="text" value="M/SEC"/>	<input type="text" value="Speed"/>	<input type="text" value="3.6"/>	<input type="text" value="0"/>	<input type="text" value="meters per second"/>
<input type="checkbox"/>	<input type="text" value="MG/M3"/>	<input type="text" value="Mass Concentration"/>	<input type="text" value="1000"/>	<input type="text" value="0"/>	<input type="text" value="milligrams per cubic meter"/>
<input type="checkbox"/>	<input type="text" value="INHG"/>	<input type="text" value="Pressure"/>	<input type="text" value="25.4"/>	<input type="text" value="0"/>	<input type="text" value="inches mercury"/>
<input type="checkbox"/>	<input type="text" value="%FS"/>	<input type="text" value="Unknown"/>	<input type="text" value="1"/>	<input type="text" value="0"/>	<input type="text" value="Percent Full Scale"/>
<input type="checkbox"/>	<input type="text" value="None"/>	<input type="text" value="Unknown"/>	<input type="text" value="1"/>	<input type="text" value="0"/>	<input type="text" value="Alternate One Description"/>
<input type="checkbox"/>	<input type="text" value="COUNT"/>	<input type="text" value="Unknown"/>	<input type="text" value="1"/>	<input type="text" value="0"/>	<input type="text" value="Count"/>
<input type="checkbox"/>	<input type="text" value="DEG"/>	<input type="text" value="Temperature"/>	<input type="text" value="1"/>	<input type="text" value="0"/>	<input type="text" value="Degrees"/>
<input type="checkbox"/>	<input type="text" value="DEGC"/>	<input type="text" value="Temperature"/>	<input type="text" value="1.8"/>	<input type="text" value="0"/>	<input type="text" value="Degrees Celsius"/>
<input type="checkbox"/>	<input type="text" value="DEGF"/>	<input type="text" value="Temperature"/>	<input type="text" value="1"/>	<input type="text" value="32"/>	<input type="text" value="Degrees Farenheit"/>
<input type="checkbox"/>	<input type="text" value="Hz"/>	<input type="text" value="Frequency"/>	<input type="text" value="1"/>	<input type="text" value="0"/>	<input type="text" value="Hertz"/>
<input type="checkbox"/>	<input type="text" value="INCHES"/>	<input type="text" value="Distance"/>	<input type="text" value="1"/>	<input type="text" value="0"/>	<input type="text" value="Inches"/>

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](mailto: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**
- ◆ **Monitor Assessment Reports**
- ◆ **Data Rollup Processor**, which allows shorter term averages to be rolled up into larger block or rolling averages.
- ◆ **Asset Tracking & Work Task Tracking Module (Option)**, 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.
- ◆ **ANT - Using the Advanced Normalization Tool Module**

## 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)

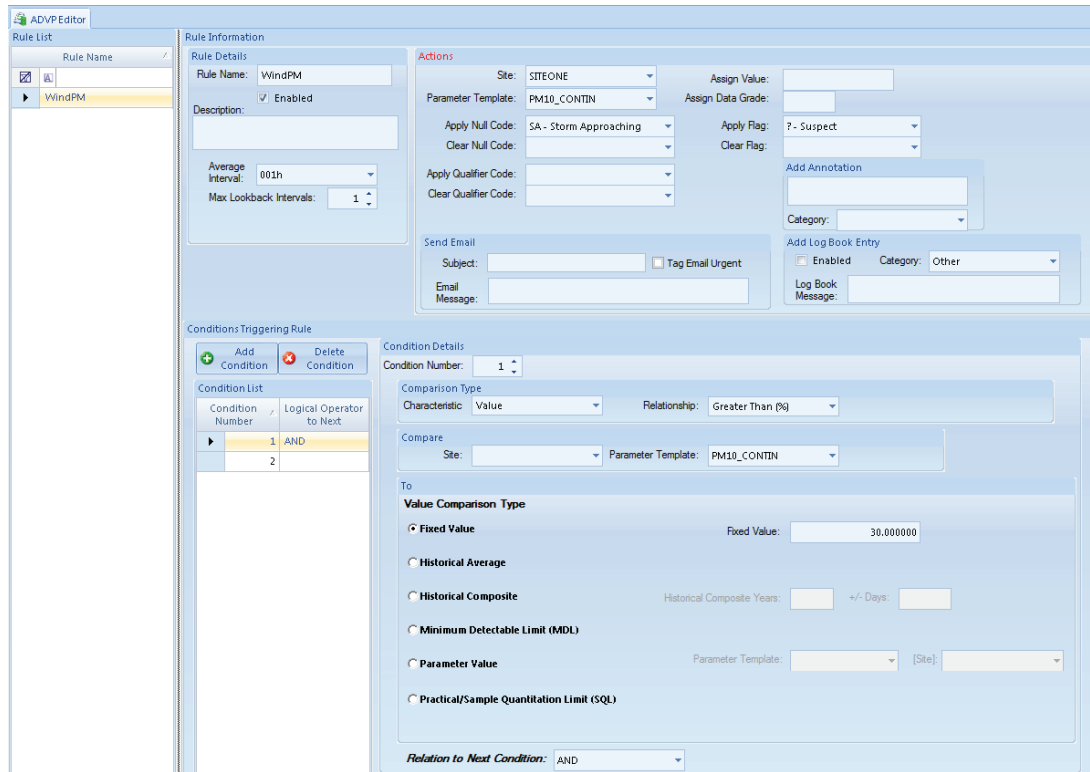
in other words, having Condition 3 and 4 as true would cause the action to be taken.

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%.

Condition Details

Condition Number: 1

Comparison Type

Characteristic: Variance (%) Relationship:

Compare

Site: SITEONE Parameter Template: CO

To

Comparison Type

Comparison Value:

Relation to Next Condition:

#### 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.

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.

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:

Condition Details

Condition Number: 1

Comparison Type

Characteristic: Value Relationship: Greater Than (%)

Compare

Site: [ ] Parameter Template: Time

To

**Value Comparison Type**

Fixed Value Fixed Value: 0.100000

Historical Average

Historical Composite Historical Composite Years: [ ] +/- Days: [ ]

Minimum Detectable Limit (MDL)

Parameter Value Parameter Template: Sunrise [Site]: [ ]

Practical/Sample Quantitation Limit (SQL)

Relation to Next Condition: 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 Schema**

**Template Name:**

**File Layout**

Number of Header Rows:

Number of Footer Rows:

Minimum Number of Columns:

Field Delimiter:

Sample Type:

**Existing Data**

Do Not Modify Existing Data

Update Field Values

Reset Record And Overwrite

**Parameter Information**

**Parameter Matching**

Match Parameter by Column Number

Match Parameters from Row

Match Parameters from Header

Parameter Data Type:  Average / Continuous  
 Sample / Non-Continuous  
 Calibration

Average Interval:

File Column Mapping

Advanced
Processing

Column Number	Data Field	Parameter Template	Parse Format	Flag Map
1	Date/Time		M/d/yyyy h:mm:ss tt	
3	Value	PM10_CONTIN		
4	Value	PM25LC		
5	Value	PM10C_CONTIN		
7	Value	AMBTEMP		
12	Value	BARPRESS		
17	Value	PMFLOW		

### 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 Configuration**) allows for the importation of data from a variety of data sources, including:

- ◆ Manual import from files on disk
- ◆ Automated import from files transferred to the server (e.g., via FTP or automatically written via another program)
- ◆ Data coming in through the Direct Poll system from instruments (e.g, Partisols, BAM, T640, TEOM, Comet Cloud Service, small sensors, etc).

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 most basic implementation File Import Tool assumes that data is arranged using different parameters as columns and different points in time as rows, and typically always data for one site in a file. This arrangement matches most instrument outputs, filter data sets, and other commonly accessed data. The 'row-wise' feature of the File Import Tool (discussed later in this chapter) 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 circle with a white 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, such as header information without 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, such as footer information without data). Even if the value is zero, this value has to be edited to be saved.
- ◆ **Field Delimiter** options include:
  - Comma
  - Comma with Quotes (e.g., “blah1”, ”blah2”, etc)
  - Tab
  - Space (each space being one delimiter)
  - Whitespace (any combination of tabs/spaces = one delimiter)
  - Semicolon
  - Pipe
  - Non-printable (non-printable ASCII data)
- ◆ **Sample Type** - Generally, you will use “Standard” unless directed to use a specific customized import type. Note that “SampleIDKey” should be used for lab data files to import additional data into an existing sample data record, where the lab file only has the SampleIdentifier / SampleID to connect the imported data to the existing data.
- ◆ **Parameter Data Type** - Average (Continuous), Sample/Non-Continuous, or Calibration Data. For continuous data, you will be asked for the Average Interval. For Sample/Non-Continuous data, you have the option to define the following for AQS reporting:
  - Duration Code
  - Frequency Code
  - Blank Type (if all data imported from this template is considered blank data)

Optional fields are:

- ◆ **Maximum Number of Columns** - if the number of columns is variable in a file, this can be set to tell file import to stop after a certain number of columns, so errors will not be encountered.
- ◆ **Parameter Matching**
  - Match Parameter by Column Number – lets you define the Nth column to be associated with a certain field or parameter.
  - Match Parameters By Header – lets you search for a specific string in the header to identify which column has a certain field or parameter
  - Match Parameters From Row – (discussed later in chapter)

## 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). If you have selected “Match Parameter From Header”, this field is replaced by “Parameter Match Name”, in which case you should enter the exact string in the header to associate with the Data Field.
- ◆ **Data Field** Select one of the following from a drop-down list:  
**Date, Time, or Date And Time.** For these selections, you will be asked to enter:  
**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.  
**Value** (to map to a parameter). For this you will be asked to enter:
- ◆ **Parameter Template** can be selected from a drop-down list of all parameter templates. Other Data field options include (some only valid for Sample Data):
  - AQS Null Code
  - AQS Method Code
  - AQS Qualifier Code
  - Flags (See “Flag Mapping” below)

For sample data, you may also map Data Fields to:

- Tare Weight
- Final Weight
- Sample Total Flow
- Sample Ambient Temp, Barometric Pressure
- Sample Analysis Date, Time, or Date/Time
- Sample Retrieved Date, Time, or Date/Time
- Sample End Date, Time, or Date/Time
- Uncertainty Value
- Peak Area, Retention Time
- Minimum Detectable Limit
- Uncertainty Value

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.

## Row-Wise Import

The File Import Tool supports a ‘row-wise’ import method to better handle certain file 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:

In row-wise import, 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.

For example, a file might provide concentrations using the following layout:

```
x, x, x, x, Site1, Acetelyne, x, x, x, 041, 20180412, 14:00, 44.5, x, 7
x, x, x, x, Site1, Benzene, x, x, x, 041, 20180412, 14:00, 12.3, x, 7
x, x, x, x, Site2, Acetelyne, x, x, x, 041, 20180412, 14:00, 9.2, x, 7
x, x, x, x, Site2, Benzene, x, x, x, 041, 20180412, 14:00, 14.5, x, 7
x, x, x, x, Site2, Propane, x, x, x, 041, 20180412, 14:00, 2, x, 7
```

In the file, the site and parameter names may not exactly match the site and parameter names in AirVision, so we create a mapping system by adding MetaTags to the sites and parameters called SiteIdentifier, ParmIdentifier and 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. The key for the Site editor is SiteIdentifier, and the key for the Parameter editor is ParmIdentifier. The value should be the name as it appears in the data file (e.g., “Site1” and “Acetelyne”).

Once this is done, set up a template to look for that particular string in the file.

## Enhanced File Import Tool

AirVision has significantly enhanced the **File Import Configuration (Configuration Editors > File Import Configuration)** 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:

The screenshot shows the 'File Import Configuration' dialog box. The 'File Schema' section includes a 'Template Name' field set to 'API T640 1HR'. Under 'File Layout', there are fields for 'Number of Header Rows' (1), 'Number of Footer Rows' (0), 'Minimum Number of Columns', 'Field Delimiter' (Comma), and 'Sample Type' (Standard). The 'Existing Data' section has three radio buttons: 'Do Not Modify Existing Data', 'Update Field Values', and 'Reset Record And Overwrite' (which is selected). The 'Parameter Information' section includes 'Parameter Matching' with three radio buttons: 'Match Parameter by Column Number' (selected), 'Match Parameters from Row', and 'Match Parameters from Header'. Below this is 'Parameter Data Type' with three radio buttons: 'Average / Continuous' (selected), 'Sample / Non-Continuous', and 'Calibration'. An 'Average Interval' dropdown is set to '001h'.

File Column Mapping				
Column Number	Data Field	Parameter Template	Parse Format	Flag Map
1	Date/Time		M/d/yyyy h:mm:ss tt	
3	Value	PM10_CONTIN		
4	Value	PM25LC		
5	Value	PM10C_CONTIN		
7	Value	AMBTEMP		
12	Value	BARPRESS		
17	Value	PMFLOW		

Example of File Import Configuration

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” on page 253-254)
- ◆ AQS Method Code
- ◆ AQS Null Codes
- ◆ Qualifier Code (one)

The Enhanced File Import Configuration 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:

Column Number	Data Field	Parse Format	Flag Map
5	SiteIdentifier from meta tag		
6	ParmIdentifier from meta tag		
10	AQS Method Code		
11	Date	yyyyMMdd	
12	Time	HH:mm	
13	Value		
15	AQS Frequency Code		

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

- **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 presense/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 Editor					
Flag Mappings					
Flag Map Name	Mapping Type		Description		
<input checked="" type="checkbox"/> <input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
▶ BAM1022Status	DecBinary		BAM Flag		
BAMFLAG_C	Binary		Count Error		
BAMFLAG_D	Binary		Membrane Density		
BAMFLAG_E	Binary		External Reset		
BAMFLAG_F	Binary		Flow Out of Limits		
BAMFLAG_I	Binary		Internal CPU Err		
BAMFLAG_L	Binary		Power Fail		
BAMFLAG_M	Binary		Maint/Calibration		
BAMFLAG_N	Binary		Nozzle Stuck/Delta-T		
BAMFLAG_P	Binary		Pressure Drop		
BAMFLAG_R	Binary		Reference Membrane Err		
BAMFLAG_T	Binary		Tape Break		
BAMFLAG_U	Binary		Telemetry Fault		
CPP	Hex		CPP flags		
* <input type="text"/>					
Flags					
Incoming Bit Number	Map to Reading Flag	Inhibit Flag	Test Absence Of Flag	Annotation Text	
<input checked="" type="checkbox"/> - <input type="text"/>	<input type="text"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="text"/>	
▶ 0	B	<input type="checkbox"/>	<input type="checkbox"/>	Tape Break	
1	?	<input type="checkbox"/>	<input type="checkbox"/>	Beta Detector	
2	?	<input type="checkbox"/>	<input type="checkbox"/>	Sensor Range Outside Limits	
3	B	<input type="checkbox"/>	<input type="checkbox"/>	Tape Advance	
4	B	<input type="checkbox"/>	<input type="checkbox"/>	Flow Failure	
5	B	<input type="checkbox"/>	<input type="checkbox"/>	Nozzle Failure	
6	B	<input type="checkbox"/>	<input type="checkbox"/>	Digital Link Failure	
7	P	<input type="checkbox"/>	<input type="checkbox"/>	Power Failure	
8	?	<input type="checkbox"/>	<input type="checkbox"/>	Short Sample	
9	M	<input type="checkbox"/>	<input type="checkbox"/>	Maintenance	
* <input type="text"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="text"/>	

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.

## File Import Tool – Advanced Options

The File Import Templates have several advanced options, which were initially created in support of EPA's PAMS auto-GC monitoring program. They are detailed here, but users should carefully test any other implementations using these advanced features, using small data sets, to ensure the desired result.

### Advanced Tab

**File Schema**

Template Name: Airpointer 1m

**File Layout**

Number of Header Rows: 1

Number of Footer Rows: 0

Minimum Number of Columns:

Field Delimiter: Comma

Sample Type: Standard

**Existing Data**

Do Not Modify Existing Data

Update Field Values

Reset Record And Overwrite

**Parameter Information**

**Parameter Matching**

Match Parameter by Column Number

Match Parameters from Row

Match Parameters from Header

Use Header Row #: 1

Parameter Data Type:  Average / Continuous

Sample / Non-Continuous

Calibration

Average Interval: 001m

**File Column Mapping** | **Advanced** | Processing

Back Stamp Data Time One Interval

Adjust Time Back:

Apply Null Code:

**Apply Flags**

Selected	Flag	Description
<input checked="" type="checkbox"/>	A	A
<input type="checkbox"/>	-	Min Exceeded
<input type="checkbox"/>	?	Suspect
<input type="checkbox"/>	+	Max Exceeded
<input type="checkbox"/>	<	Logger Invalid
<input type="checkbox"/>	>	Some Data Missing
<input type="checkbox"/>	a	Audit
<input type="checkbox"/>	A	Arithmetic Error (math calculation err...
<input type="checkbox"/>	B	Bad Status

### Back Stamp One Time Interval

This replaces the previous **back stamp data** selection in the main screen. All data will be time-tagged with a time equal to the time in the file import tool, minus one average interval. This is commonly used to take hourly data tagged as 01:00 to 24:00 back to EPA standard time tags (00:00 to 23:00).

### Apply Null Code

Applies the selected null code to all imported data. For example, if the imported file contains all audit data (and nothing else), an audit null code can be automatically applied to the data. For PAMS, this is used for CAL (daily upscale checks) to apply the AY or other appropriate null code.

## Apply Flags

Applies the selected AirVision flag to all imported data. For PAMS, this is used to also apply the **C<** flag to the CAL data sets, or **B** to blank data sets.

## Processing Tab

The screenshot shows the 'Processing' tab of the File Import Tool. It is divided into two main sections: 'Batch Processing' and 'Find and Replace'. In the 'Batch Processing' section, the 'Save In Batches' checkbox is checked, and the 'Rows Per Batch' dropdown is set to 1. The 'Continue On Error' checkbox is unchecked. In the 'Find and Replace' section, there is a warning 'Regular Expression syntax is required' and two empty text input fields for 'Find Expression' and 'Replacement'.

### Save In Batches

In previous versions, the File Import Tool would not insert data if any particular row encounter a formatting or other error. In addition, a long file with thousands of rows would wait until processing before insertion into SQL. The File Import Tool now gives you the option to process a certain number of rows (even just one) and have the system save the results after that number of rows have been processed.

If a file routinely has errors in rows, the Save In Batches could be used with Rows = 1, and Continue on Error checked, in which case it will skip the bad rows and process all good rows.

### Find And Replace

This function allows for strings in the file to be substituted before processing. This can be used to provide the File Import Tool with consistent input for flags, or to remove bad data that could otherwise halt substitution.

Example: A file provides **XXXX.X** in a numeric field when data is invalid. This would cause an error on the row, and other parameters on the row might not be imported. A search and replace to replace **XXXX.X** with **-9999** could allow import to continue, and ADVP or manual editing could be used later to mark the **-9999** values as invalid.

Note that this system uses regular expression (“regex”) language, a programming syntax that is documented online, one example being <https://www.rexegg.com/regex-quickstart.html>

In the example above, the regex would be as follows:

This screenshot is similar to the previous one but shows the 'Find and Replace' section populated. The 'Find Expression' field contains the text 'XXXX.X' and the 'Replacement' field contains '-9999'. The 'Regular Expression syntax is required' warning is still present.

## 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 follows the model of the old PARS editors:

**Flow Rate Verification Details**

**Selection**  
 Date Range  
 Start Date: 02/05/2019 00:00  
 End Date: 02/05/2019 23:59

**Parameter Selection**  
 Drag a column header here to group by that column.

Site Name	Parameter Name	Parameter Template Name	Parameter Description
SITEONE	PM25	PM25	Particulate Matter 2.5 microns or less, hourly data
SITEONE	PM25LC	PM25LC	PM2.5 Total Mass Manual Method Local Conditions
SITEONE	PM25LC_POC1	PM25LC	PM2.5 Total Mass Manual Method Local Conditions

**Test Selection**  
 Drag a column header here to group by that column.

Site	Parameter	Monitor Method Code	Assessment Date	Assessment Identifier	AQS Unit Code	Exclude From Reporting
SITEONE	PM25LC	145	02/05/2019 16:24	1	105 - Micrograms/cubic meter (LC)	<input type="checkbox"/>

**Monitor Assessment Type:** Flow Rate Verification

**Assessment Details**  
 Assessment Date: 02/05/2019 16:24  
 Performing Agency: 0581 - Knox County Department Of Air Pollution Control  
 Assessment Identifier Number: \_1  
 Exclude From Reporting

**Monitor Information**  
 Monitor Parameter: SITEONE : PM25LC  
 AQS Unit Code: 105 - Micrograms/cubic meter (LC)  
 Comment:

**Recorded Values**  
 Monitor Value:  Assessment Value:

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 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 interval is '001h - Hourly average of 60 minutes'.
- Table:** A table with columns 'Site Name', 'Parameter Name', 'Parameter Template Name', and 'AQ3 Parameter'. The first row is highlighted in orange.
- Report Output:** A text area showing XML data for the selected site and parameter.

The table data is as follows:

Site Name	Parameter Name	Parameter Template Name	AQ3 Parameter
01_KNOXVILLE	PM25LC	PM25LC	LC25
BAMTEST	PM25LC	PM25LC	LC25
BLOUNT	PM25LC	PM25LC	LC25
CUMBERLAND	PM25LC	PM25LC	LC25
NC Test	PM25LC	PM25LC	LC25

The XML report output is:

```

</SiteIdentifierDetails>
-<MonitorList>
+<MonitorIdentifierDetails>
-<MonitorAssessmentResults>
  <ActionCode>1</ActionCode>
  <MonitorAssessmentType>Flow Rate Verification</MonitorAssessmentType>
  <PerformingAgencyCode>0806</PerformingAgencyCode>
  <AssessmentDate>2016-01-19</AssessmentDate>
  <AssessmentIdentifier>1</AssessmentIdentifier>
  -<FlowRateVerificationDetails>
    <MeasureUnitCode>119</MeasureUnitCode>
    <MonitorFlowRateValue>0.662</MonitorFlowRateValue>
    <AssessmentFlowRateValue>0.664</AssessmentFlowRateValue>
  </FlowRateVerificationDetails>
</MonitorAssessmentResults>
</MonitorList>
</FacilitySiteList>
    
```

At the bottom right, the status bar shows: Profile: local Version: 2.14.130 Build: 20160105.2 1/19/2016 11:00

## Monitor Assessment

The Monitor Assessment tests are run outside of the software. The information from those tests have to be hand entered into the Monitor Assessment editor by the user. The Monitor Assessment data records can also be selected to be outputted on the AQS 3.0 XML report.

To open each assessment editor, expand Monitor Assessment from the Data Editors menu, and single click the editor's name. The editor's tab will open on the right side of the screen.

To add new test information to each editor, select the **Add Assessment button** on the Ribbon at the top. It will put blank fields in each section on the right side of the screen, which are described below.

To open an existing test in each editor, single click the blue square on the left side of the site and parameter to highlight the row listed in the Parameter column in the Test Selection section. As you select a site and parameter, the fields in the other three sections will change to reveal the settings for that parameter.

To delete an existing test from each editor, single click the blue square on the left side of the site and parameter to highlight the row listed in the Parameter column in the Test Selection section that you want to remove. Select the **Delete Assessment button** on the Ribbon at the top. It will not prompt you to make sure you want to delete. Once the delete button is selected the template is immediately removed from the list.

After putting in new entries or making any changes in the editors, select the disk icon on the Quick Access Toolbar at the very top to save the new settings before exiting this screen.

## Annual Performance Evaluation

### Assessment Details section

**Assessment Date** – Click down arrow and select the date the test was run from the drop down a calendar.

**Assessment Identifier Number** – Use the radio buttons to enter in the number of the test that was performed.

**Performing Agency** – Click the down arrow and select the proper agency from the drop down List, but it should auto-fill if the agency code has been entered in under the System in the Site/Parameter screen.

**Exclude From Reporting** – Check the box if the record is to be excluded on the AQS XML report.

**Monitor Information section**

**Monitor Parameter** – Click the down arrow and select a site and parameter from the drop down a list.

**Monitor Method Code** – Enter in the method code of the main monitor, but should auto-fill when the Monitor Parameter is selected.

**AQS Unit Code** – Click the down arrow and select a site and parameter from the drop down a list, but should auto-fill when the Monitor Parameter is selected.

**Recorded Values section**

**Monitor Concentration** – Enter in the value(s) that was the result of the test.

**Assessment Concentration** – Enter in the value(s) that was the result of the test.

Annual Performance Evaluation

Test Selection

Drag a column header here to group by that column.

Site	Parameter	Monitor Method Code	Assessment Date	Assessment Identifier	AQS Unit Code	Exclude From Reporting	Performing Agency
SITEONE	PM25LC	145	05/08/2015 16:01	1	105 - Micrograms/cubic meter (LQ)	<input type="checkbox"/>	0581 - Knox County Depa
SITEONE	PMVOLUME		11/19/2015 16:57	1	065 - Cubic meter	<input type="checkbox"/>	0581 - Knox County Depa
EAST	PM25LC	145	11/19/2015 16:58	1	105 - Micrograms/cubic meter (LQ)	<input type="checkbox"/>	0581 - Knox County Depa

Monitor Assessment Type: Annual PE

Assessment Details

Assessment Date: 05/08/2015 16:01      Assessment Identifier Number: 1

Performing Agency: 0581 - Knox County Department Of Air Pollution Control       Exclude From Reporting

Monitor Information

Monitor Parameter: SITEONE : PM25LC

Monitor Method Code: 145      AQS Unit Code: 105 - Micrograms/cubic meter (LQ)

Recorded Values

	1	2	3	4	5
Monitor Concentration	100.00000	200.00000	300.00000	400.00000	500.00000
Assessment Concentration	150.00000	250.00000	350.00000	450.00000	550.00000
	6	7	8	9	10
Monitor Concentration	600.00000	700.00000	800.00000	900.00000	1,000.00000
Assessment Concentration	650.00000	750.00000	850.00000	950.00000	1,050.00000

## Duplicate Assessment Details

### Assessment Details section

**Assessment Date** – Click down arrow and select the date the test was ran from the drop down a calendar.

**Assessment Identifier Number** – Use the radio buttons to enter in the number of the test that was performed.

**Performing Agency** – Click the down arrow and select the proper agency from the drop down List, but it should auto-fill is the agency code has been entered in under the System in the Site/Parameter screen.

**Exclude From Reporting** – Check the box if the record is to be excluded on the AQS XML report.

### Monitor Information section

**Monitor Parameter** – Click the down arrow and select a site and parameter from the drop down a list.

**Monitor Method Code** – Enter in the method code of the main monitor, but should auto-fill when the Monitor Parameter is selected.

**AQS Unit Code** – Click the down arrow and select a site and parameter from the drop down a list, but should auto-fill when the Monitor Parameter is selected.

**Recorded Values section** – Enter in the value(s) that was the result of the test.

Duplicate Assessment Details

Test Selection

Drag a column header here to group by that column.

Site	Parameter	Monitor Method Code	Assessment Date	Assessment Identifier	AQS Unit Code	Exclude From Reporting	Performing Agency
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-	-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
▶ SITEONE	PM25LC	145	05/08/2015 16:02	-	1 - 105 - Micrograms/cubic meter (LC)	<input type="checkbox"/>	0581 - Knox County Department Of Air Po

Monitor Assessment Type: Duplicate

Assessment Details

Assessment Date: 05/08/2015 16:02

Performing Agency: 0581 - Knox County Department Of Air Pollution Control

Assessment Identifier Number: \_1

Exclude From Reporting

Monitor Information

Monitor Parameter: SITEONE : PM25LC

Monitor Method Code: 145      AQS Unit Code: 105 - Micrograms/cubic meter (LC)

Recorded Values

1	2	3	4	5
<input type="text" value="0.20000"/>	<input type="text" value="0.30000"/>	<input type="text" value="0.40000"/>	<input type="text" value="0.50000"/>	<input type="text" value="0.60000"/>

## Field Proficiency Test Details

### Assessment Details section

**Assessment Date** – Click down arrow and select the date the test was run from the drop down a calendar.

**Assessment Identifier Number** – Use the radio buttons to enter in the number of the test that was performed.

**Performing Agency** – Click the down arrow and select the proper agency from the drop down List, but it should auto-fill is the agency code has been entered in under the System in the Site/Parameter screen.

**Exclude From Reporting** – Check the box if the record is to be excluded on the AQS XML report.

### Monitor Information section

**Monitor Parameter** – Click the down arrow and select a site and parameter from the drop down a list.

**Monitor Method Code** – Enter in the method code of the main monitor, but should auto-fill when the Monitor Parameter is selected.

**AQS Unit Code** – Click the down arrow and select a site and parameter from the drop down a list, but should auto-fill when the Monitor Parameter is selected.

### Recorded Values section

**Monitor Value** – Enter in the value that was the result of the test.

**Assessment Value** – Enter in the value that was the result of the test.

The screenshot displays the 'Field Proficiency Test Details' form. At the top, there is a 'Test Selection' section with a table listing test records. Below this, the 'Monitor Assessment Type' is set to 'Field PT'. The 'Assessment Details' section includes fields for 'Assessment Date' (05/08/2015 16:03), 'Assessment Identifier Number' (1), 'Performing Agency' (0581 - Knox County Department Of Air Pollution Control), and an 'Exclude From Reporting' checkbox. The 'Monitor Information' section shows 'Monitor Parameter' (SITEONE : PM25LC), 'Monitor Method Code' (145), and 'AQS Unit Code' (105 - Micrograms/cubic meter (LQ)). The 'Recorded Values' section contains 'Monitor Value' (506.00000) and 'Assessment Value' (600.00000).

Site	Parameter	Monitor Method Code	Assessment Date	Assessment Identifier	AQS Unit Code	Exclude From Reporting	Performing Agency
▶ SITEONE	PM25LC	145	05/08/2015 16:03	1	105 - Micrograms/cubic meter (LQ)	<input type="checkbox"/>	0581 - Knox County Department Of Air Po

Monitor Assessment Type: Field PT

Assessment Details

Assessment Date: 05/08/2015 16:03      Assessment Identifier Number: 1

Performing Agency: 0581 - Knox County Department Of Air Pollution Control       Exclude From Reporting

Monitor Information

Monitor Parameter: SITEONE : PM25LC

Monitor Method Code: 145      AQS Unit Code: 105 - Micrograms/cubic meter (LQ)

Recorded Values

Monitor Value: 506.00000      Assessment Value: 600.00000

## Flow Rate Coarse Details

### Assessment Details section

**Assessment Date** – Click down arrow and select the date the test was ran from the drop down a calendar.

**Assessment Identifier Number** – Use the radio buttons to enter in the number of the test that was performed.

**Performing Agency** – Click the down arrow and select the proper agency from the drop down List, but it should auto-fill is the agency code has been entered in under the System in the Site/Parameter screen.

**Exclude From Reporting** – Check the box if the record is to be excluded on the AQS XML report.

### PM10 Monitor Information section

**PM10 Parameter** – Click the down arrow and select a site and parameter from the drop down a list.

**PM10 Method Code** – Enter in the method code of the main monitor, but should auto-fill when the Monitor Parameter is selected.

**FlowUnit Code** – Click the down arrow and select a site and parameter from the drop down a list, but should auto-fill when the Monitor Parameter is selected.

### PM2.5 Monitor Information section

**PM2.5 Parameter** – Click the down arrow and select a site and parameter from the drop down a list.

**PM2.5 Method Code** – Enter in the method code of the main monitor, but should auto-fill when the Monitor Parameter is selected.

### Assessment Results section

**Monitor Flow Rate** – Enter in the value that was the result of the test.

**Assessment Flow Rate** – Enter in the value that was the result of the test.



**Flow Rate Coarse Details**

Test Selection

Drag a column header here to group by that column.

Site	Parameter	Monitor Method Code	Assessment Date	Assessment Identifier	AQS Unit Code	Exclude From Reporting	Performing Agency
▶ SITEONE	PM10C_CONTIN	123	11/24/2015 15:32	-	1 001 - Micrograms/cubic meter (25 C)	<input type="checkbox"/>	0581 - Knox County Departme

Monitor Assessment Type: **Flow Rate Verification for PMc**

**Assessment Details**

Assessment Date: 11/24/2015 15:32      Assessment Identifier Number:

Performing Agency: 0581 - Knox County Department Of Air Pollution Control       Exclude From Reporting

**PM10 Monitor Information**

PM10 Parameter: SITEONE : PM10C\_CONTIN

PM10 Method Code: 123      Flow Unit Code: 001 - Micrograms/cubic meter (25 C)

**PM2.5 Monitor Information**

PM2.5 Parameter: SITEONE : PM25LC

PM2.5 Method Code: 145

**Assessment Results**

	PM10	PM2.5
Monitor Flow Rate	<input type="text" value="10.00000"/>	<input type="text" value="30.00000"/>
Assessment Flow Rate	<input type="text" value="20.00000"/>	<input type="text" value="40.00000"/>

## Flow Rate Verification Details

### Assessment Details section

**Assessment Date** – Click down arrow and select the date the test was ran from the drop down a calendar.

**Assessment Identifier Number** – Use the radio buttons to enter in the number of the test that was performed.

**Performing Agency** – Click the down arrow and select the proper agency from the drop down List, but it should auto-fill is the agency code has been entered in under the System in the Site/Parameter screen.

**Exclude From Reporting** – Check the box if the record is to be excluded on the AQS XML report.

### Monitor Information section

**Monitor Parameter** – Click the down arrow and select a site and parameter from the drop down a list.

**AQS Unit Code** – Click the down arrow and select a site and parameter from the drop down a list, but should auto-fill when the Monitor Parameter is selected.

### Recorded Values section

**Monitor Value** – Enter in the value that was the result of the test.

**Assessment Value** – Enter in the value that was the result of the test.

**Flow Rate Verification Details**

Test Selection

Drag a column header here to group by that column.

Site	Parameter	Monitor Method Code	Assessment Date	Assessment Identifier	AQS Unit Code	Exclude From Reporting	Performing Agency
<input checked="" type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>
SITEONE	PM25LC	145	05/08/2015 15:59	1	105 - Micrograms/cubic meter (LQ)	<input type="checkbox"/>	0581 - Knox County Department Of Air Po

Monitor Assessment Type: Flow Rate Verification

**Assessment Details**

Assessment Date: 05/08/2015 15:59

Assessment Identifier Number: 1

Performing Agency: 0581 - Knox County Department Of Air Pollution Control

Exclude From Reporting

**Monitor Information**

Monitor Parameter: SITEONE : PM25LC

AQS Unit Code: 105 - Micrograms/cubic meter (LQ)

**Recorded Values**

Monitor Value: 900.00000

Assessment Value: 756.00000

## National Performance Audit

### Assessment Details section

**Assessment Date** – Click down arrow and select the date the test was ran from the drop down a calendar..

**Assessment Identifier Number** – Use the radio buttons to enter in the number of the test that was performed.

**Performing Agency** – Click the down arrow and select the proper agency from the drop down List, but it should auto-fill is the agency code has been entered in under the System in the Site/Parameter screen.

**Exclude From Reporting** – Check the box if the record is to be excluded on the AQS XML report.

### NPAP Assessment Details section

**NPAP Assessment Type** – Click the down arrow and select BOA (Back of the Analyzer ) or TTP (Through the Sampling Inlet or Probe ) from the drop down list..

**NPAP Method Code** – Enter in the method code of the NPAP.

### Monitor Information section

**Monitor Parameter** – Click the down arrow and select a site and parameter from the drop down a list.

**Monitor Method Code** – Enter in the method code of the main monitor, but should auto-fill when the Monitor Parameter is selected.

**AQS Unit Code** – Click the down arrow and select a site and parameter from the drop down a list, but should auto-fill when the Monitor Parameter is selected.

### Recorded Values section

**Monitor Concentration** – Enter in the value(s) that was the result of the test.

**Assessment Concentration** – Enter in the value(s) that was the result of the test.

National Performance Audit

Test Selection

Drag a column header here to group by that column.

Site	Parameter	Monitor Method Code	Assessment Date	Assessment Identifier	AQS Unit Code	Exclude From Reporting	Performing Agency
▶ SITEONE	PM25LC	145	05/08/2015 15:57	1	105 - Micrograms/cubic meter (UQ)	<input type="checkbox"/>	0581 - Knox County Department Of Air Pol

Monitor Assessment Type: NPAP

Assessment Details

Assessment Date: 05/08/2015 15:57

Assessment Identifier Number: 1

Performing Agency: 0581 - Knox County Department Of Air Pollution Control

Exclude From Reporting

NPAP Assessment Details

NPAP Assessment Type: TIP

NPAP Method Code: 123

Monitor Information

Monitor Parameter: SITEONE : PM25LC

Monitor Method Code: 145

AQS Unit Code: 105 - Micrograms/cubic meter (UQ)

Recorded Values

	1	2	3	4	5
Monitor Concentration	200.00000	300.00000	400.00000	500.00000	600.00000
Assessment Concentration	225.00000	325.00000	425.00000	525.00000	625.00000
	6	7	8	9	10
Monitor Concentration	700.00000	800.00000	900.00000	1,000.00000	2,000.00000
Assessment Concentration	725.00000	825.00000	925.00000	1,025.00000	2,025.00000

# One Point Quality Control

## Assessment Details section

**Assessment Date** – Click down arrow and select the date the test was ran from the drop down a calendar.

**Assessment Identifier Number** – Use the radio buttons to enter in the number of the test that was performed.

**Performing Agency** – Click the down arrow and select the proper agency from the drop down List, but it should auto-fill is the agency code has been entered in under the System in the Site/Parameter screen.

**Exclude From Reporting** – Check the box if the record is to be excluded on the AQS XML report.

## Monitor Information section

**Monitor Parameter** – Click the down arrow and select a site and parameter from the drop down a list.

**Monitor Method Code** – Enter in the method code of the main monitor, but should auto-fill when the Monitor Parameter is selected.

**AQS Unit Code** – Click the down arrow and select a site and parameter from the drop down a list, but should auto-fill when the Monitor Parameter is selected.

## Recorded Values section

**Monitor Value** – Enter in the value that was the result of the test.

**Assessment Value** – Enter in the value that was the result of the test.

The screenshot displays the 'OnePoint Quality Control' web application interface. At the top, there is a 'Test Selection' section with a table listing assessment records. Below this, the 'Monitor Assessment Type' is set to '1-Point QC'. The 'Assessment Details' section includes fields for 'Assessment Date' (05/04/2015 10:20), 'Assessment Identifier Number' (1), 'Performing Agency' (0581 - Knox County Department Of Air Pollution Control), and an 'Exclude From Reporting' checkbox. The 'Monitor Information' section shows 'Monitor Parameter' (SITEONE : PM25LC), 'Monitor Method Code' (145), and 'AQS Unit Code' (105 - Micrograms/cubic meter (LQ)). The 'Recorded Values' section contains 'Monitor Value' (2.53000) and 'Assessment Value' (4.00000).

Site	Parameter	Monitor Method Code	Assessment Date	Assessment Identifier	AQS Unit Code	Exclude From Reporting	Performing Agency
▶ SITEONE	PM25LC	145	05/04/2015 10:20	1	105 - Micrograms/cubic meter (LQ)	<input type="checkbox"/>	0581 - Knox County Department Of Air Po

Monitor Assessment Type: 1-Point QC

Assessment Details

Assessment Date: 05/04/2015 10:20      Assessment Identifier Number: 1

Performing Agency: 0581 - Knox County Department Of Air Pollution Control       Exclude From Reporting

Monitor Information

Monitor Parameter: SITEONE : PM25LC

Monitor Method Code: 145      AQS Unit Code: 105 - Micrograms/cubic meter (LQ)

Recorded Values

Monitor Value: 2.53000      Assessment Value: 4.00000

## Performance Evaluation Program Details

### Assessment Details section

**Assessment Date** – Click down arrow and select the date the test was ran from the drop down a calendar.

**Assessment Identifier Number** – Use the radio buttons to enter in the number of the test that was performed.

**Performing Agency** – Click the down arrow and select the proper agency from the drop down List, but it should auto-fill is the agency code has been entered in under the System in the Site/Parameter screen.

**Exclude From Reporting** – Check the box if the record is to be excluded on the AQS XML report.

### Monitor Information section

**Monitor Parameter** – Click the down arrow and select a site and parameter from the drop down a list.

**Monitor Method Code** – Enter in the method code of the main monitor, but should auto-fill when the Monitor Parameter is selected.

**AQS Unit Code** – Click the down arrow and select a site and parameter from the drop down a list, but should auto-fill when the Monitor Parameter is selected.

### Performance Evaluation section

**Sampler Type** – Click the down arrow and select Independent or Collocated from the drop down list.

**Sampler Concentration** – Enter in the value that was the result of the test.

Performance Evaluation Program Details

Test Selection

Drag a column header here to group by that column.

Site	Parameter	Monitor Method Code	Assessment Date	Assessment Identifier	AQS Unit Code	Exclude From Reporting	Performing Agency
SITEONE	PM25LC	145	05/08/2015 16:06	1	105 - Micrograms/cubic meter (LC)	<input type="checkbox"/>	0581 - Knox County Department Of Air Po

Monitor Assessment Type: PEP

Assessment Details

Assessment Date: 05/08/2015 16:06

Assessment Identifier Number: 1

Performing Agency: 0581 - Knox County Department Of Air Pollution Control

Exclude From Reporting

Monitor Information

Monitor Parameter: SITEONE : PM25LC

Monitor Method Code: 145

AQS Unit Code: 105 - Micrograms/cubic meter (LC)

Performance Evaluation

Sampler Type: Independent

Sampler Concentration: 675.00000

## Replicate Assessment Details

### Assessment Details section

**Assessment Date** – Click down arrow and select the date the test was ran from the drop down a calendar.

**Assessment Identifier Number** – Use the radio buttons to enter in the number of the test that was performed.

**Performing Agency** – Click the down arrow and select the proper agency from the drop down List, but it should auto-fill is the agency code has been entered in under the System in the Site/Parameter screen.

**Exclude From Reporting** – Check the box if the record is to be excluded on the AQS XML report.

### Monitor Information section

**Monitor Parameter** – Click the down arrow and select a site and parameter from the drop down a list.

**Monitor Method Code** – Enter in the method code of the main monitor, but should auto-fill when the Monitor Parameter is selected.

**AQS Unit Code** – Click the down arrow and select a site and parameter from the drop down a list, but should auto-fill when the Monitor Parameter is selected.

**Recorded Values section** – Enter in the value that was the result of the test.

Replicate Assessment Details

Test Selection

Drag a column header here to group by that column.

Site	Parameter	Monitor Method Code	Assessment Date	Assessment Identifier	AQS Unit Code	Exclude From Reporting	Performing Agency
SITEONE	PM25LC	145	05/08/2015 16:07	1	105 - Micrograms/cubic meter (LQ)	<input type="checkbox"/>	0581 - Knox County Department Of Air Polli

Monitor Assessment Type: Replicate

Assessment Details

Assessment Date: 05/08/2015 16:07

Assessment Identifier Number: 1

Performing Agency: 0581 - Knox County Department Of Air Pollution Control

Exclude From Reporting:

Monitor Information

Monitor Parameter: SITEONE : PM25LC

Monitor Method Code: 145

AQS Unit Code: 105 - Micrograms/cubic meter (LQ)

Recorded Values

1	2	3	4	5
0.35400	0.36800	0.37000	0.37500	0.38000

## Semi-Annual Flow Rate Audit Coarse Details

### Assessment Details section

**Assessment Date** – Click down arrow and select the date the test was ran from the drop down a calendar.

**Assessment Identifier Number** – Use the radio buttons to enter in the number of the test that was performed.

**Performing Agency** – Click the down arrow and select the proper agency from the drop down List, but it should auto-fill is the agency code has been entered in under the System in the Site/Parameter screen.

**Exclude From Reporting** – Check the box if the record is to be excluded on the AQS XML report.

### PM10 Monitor Information section

**PM10 Parameter** – Click the down arrow and select a site and parameter from the drop down a list.

**PM10 Method Code** – Enter in the method code of the main monitor, but should auto-fill when the Monitor Parameter is selected.

**Flow Unit Code** – Click the down arrow and select a site and parameter from the drop down a list, but should auto-fill when the Monitor Parameter is selected.

### PM2.5 Monitor Information section

**PM2.5 Parameter** – Click the down arrow and select a site and parameter from the drop down a list.

**PM2.5 Method Code** – Enter in the method code of the main monitor, but should auto-fill when the Monitor Parameter is selected.

### Assessment Results section

**Monitor Flow Rate** – Enter in the value that was the result of the test.

**Assessment Flow Rate** – Enter in the value that was the result of the test.



**Semi Annual Flow Rate Audit Coarse Details**

Test Selection

Drag a column header here to group by that column.

Site	Parameter	Monitor Method Code	Assessment Date	Assessment Identifier	AQS Unit Code	Exclude From Reporting	Performing Agency
SITEONE	PM10C_CONTIN	123	07/29/2015 15:04	-	105 - Micrograms/cubic meter (LQ)	<input type="checkbox"/>	0581 - Knox County Departme

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Monitor Assessment Type: Semi-Annual Flow Rate Audit for PMc

**Assessment Details**

Assessment Date: 07/29/2015 15:04      Assessment Identifier Number: \_1

Performing Agency: 0581 - Knox County Department Of Air Pollution Control       Exclude From Reporting

**PM10 Monitor Information**

PM10 Parameter: SITEONE : PM10C\_CONTIN

PM10 Method Code: 123      Flow Unit Code: 105 - Micrograms/cubic meter (LQ)

**PM2.5 Monitor Information**

PM2.5 Parameter: SITEONE : PM25LC

PM2.5 Method Code: 145

**Assessment Results**

	PM10	PM2.5
Monitor Flow Rate	150.00000	100.00000
Assessment Flow Rate	156.00000	101.00000

## Semi-Annual Flow Rate Audit Details

### Assessment Details section

**Assessment Date** – Click down arrow and select the date the test was ran from the drop down a calendar.

**Assessment Identifier Number** – Use the radio buttons to enter in the number of the test that was performed.

**Performing Agency** – Click the down arrow and select the proper agency from the drop down List, but it should auto-fill is the agency code has been entered in under the System in the Site/Parameter screen.

**Exclude From Reporting** – Check the box if the record is to be excluded on the AQS XML report.

### Monitor Information section

**Monitor Parameter** – Click the down arrow and select a site and parameter from the drop down a list.

**Monitor Method Code** – Enter in the method code of the main monitor, but should auto-fill when the Monitor Parameter is selected.

**AQS Unit Code** – Click the down arrow and select a site and parameter from the drop down a list, but should auto-fill when the Monitor Parameter is selected.

### Recorded Values section

**Monitor Value** – Enter in the value that was the result of the test.

**Assessment Value** – Enter in the value that was the result of the test.

The screenshot shows the 'Semi Annual Flow Rate Audit Details' web application interface. At the top, there is a 'Test Selection' section with a table of data. Below this is a 'Monitor Assessment Type' dropdown set to 'Semi-Annual Flow Rate Audit'. The 'Assessment Details' section includes fields for 'Assessment Date' (11/20/2015 16:50), 'Assessment Identifier Number' (1), 'Performing Agency' (0581 - Knox County Department Of Air Pollution Control), and an 'Exclude From Reporting' checkbox. The 'Monitor Information' section includes 'Monitor Parameter' (SITEONE : PM25LC), 'Monitor Method Code' (145), and 'AQS Unit Code' (105 - Micrograms/cubic meter (LQ)). The 'Recorded Values' section shows 'Monitor Value' (100.00000) and 'Assessment Value' (110.00000).

Site	Parameter	Monitor Method Code	Assessment Date	Assessment Identifier	AQS Unit Code	Exclude From Reporting	Performing Agency
SITEONE	PM25LC	145	11/20/2015 16:50	1	105 - Micrograms/cubic meter (LQ)	<input type="checkbox"/>	0581 - Knox County Department Of Air Pollution Control

Monitor Assessment Type: Semi-Annual Flow Rate Audit

Assessment Details

Assessment Date: 11/20/2015 16:50      Assessment Identifier Number: 1

Performing Agency: 0581 - Knox County Department Of Air Pollution Control       Exclude From Reporting

Monitor Information

Monitor Parameter: SITEONE : PM25LC

Monitor Method Code: 145      AQS Unit Code: 105 - Micrograms/cubic meter (LQ)

Recorded Values

Monitor Value: 100.00000      Assessment Value: 110.00000

## Monitor Assessment Reports

### Annual Performance Evaluation Report

To run the annual performance evaluation report, expand Monitor Assessment Reports from the Reports menu, and single click the Annual Performance Evaluation Report. The Annual Performance/Evaluation Report tab will open on the right side of the screen. After making the query selection to run the report, select the Generate Report button on the Ribbon at the top. This will bring up the report below the query in the Report Output section. The report simply displays the information that has been manually entered into the Annual Performance Evaluation Monitor Assessment Editor in a report format. Each parameter for all sites is shown separately per page. Example of the report is shown below.

Current Date 11/19/2015 5:02 PM

Annual Performance Evaluation Report

**PM25LC**  
Micrograms/cubic meter (LC)

Site Name	Performing Agency	Assessment Date	Method Code	Assessment											
				Monitor Value	100	200	300	400	500	600	700	800	900	1000	
SITEONE	0581 - Knox County Department Of Air Pollution Control	2015-05-08 1601	145	Monitor Value	100	200	300	400	500	600	700	800	900	1000	
				Assessment	150	250	350	450	550	650	750	850	950	1050	
EAST	0581 - Knox County Department Of Air Pollution Control	2015-11-19 1658	145	Monitor Value											
				Assessment											

### Duplicate Assessment Report

To run the duplicate assessment report, expand Monitor Assessment Reports from the Reports menu, and single click the Duplicate Assessment Report. The Duplicate Assessment Report tab will open on the right side of the screen. After making the query selection to run the report, select the Generate Report button on the Ribbon at the top. This will bring up the report below the query in the Report Output section. The report simply displays the information that has been manually entered into the Duplicate Assessment Monitor Assessment Editor in a report format. Each parameter for all sites is shown separately per page. Example of the report is shown below.

Current Date: 11/20/2015 4:59 PM

Duplicate Assessment Report

**PM25LC**  
Micrograms/cubic meter (LC)

Site Name	Performing Agency	Assessment Date	Method Code	Assessments					
SITEONE	0581 - Knox County Department Of Air Pollution Control	2015-05-08 1602	145	0.2	0.3	0.4	0.5	0.6	

## Field Proficiency Test Details Report

To run the field proficiency test report, expand Monitor Assessment Reports from the Reports menu, and single click the Field Proficiency Test Details Report. The Field Proficiency Test Details Report tab will open on the right side of the screen. After making the query selection to run the report, select the Generate Report button on the Ribbon at the top. This will bring up the report below the query in the Report Output section. The report simply displays the information that has been manually entered into the Field Proficiency Test Details Monitor Assessment Editor in a report format. Each parameter for all sites is shown separately per page. Example of the report is shown below.

Current Date: 11/23/2015 12:31 PM

### Field Proficiency Details Report

#### PM25LC

Micrograms/cubic meter (LC)

<u>Site Name</u>	<u>Performing Agency</u>	<u>Assessment Date</u>	<u>Method Code</u>	<u>Assessment Value</u>	<u>Monitor Value</u>
SITEONE	0581 - Knox County Department Of Air Pollution Control	2015-05-08 16:03	145	600	506

## Flow Rate Coarse Details Report

To run the flow rate coarse report, expand Monitor Assessment Reports from the Reports menu, and single click the Flow Rate Coarse Details Report. The Flow Rate Coarse Details Report tab will open on the right side of the screen. After making the query selection to run the report, select the Generate Report button on the Ribbon above the Main Navigation menu. This will bring up the report below the query in the Report Output section. The report simply displays the information that has been manually entered into the Flow Rate Coarse Details Monitor Assessment Editor in a report format. Each site is shown separately per page. Example of the report is shown below.

Current Date: 11/24/2015 3:33 PM

### Flow Rate Coarse Details Report

#### SITEONE

<u>PM 10</u>						<u>PM 25</u>			
<u>Performing Agency</u>	<u>Assessment Date</u>	<u>Parameter</u>	<u>Method Code</u>	<u>Assessment Value</u>	<u>Monitor Value</u>	<u>Site and Parameter</u>	<u>Method Code</u>	<u>Assessment Value</u>	<u>Monitor Value</u>
0581 - Knox County Department Of Air Pollution Control	2015-11-24 15:32	PM10C_CONT IN	123	20	10	SITEONE PM25LC	145	40	30

## Flow Rate Verification Details Report

To run the flow rate verification report, expand Monitor Assessment Reports from the Reports menu, and single click Flow Rate Verification Details Report. The Flow Rate Verification Details Report tab will open on the right side of the screen. After making the query selection to run the report, select the Generate Report button on the Ribbon at the top. This will bring up the report below the query in the Report Output section. The report simply displays the information that has been manually entered into the Flow Rate Verification Details Monitor Assessment Editor in a report format. Each parameter for all sites is shown separately per page. Example of the report is shown below.

Current Date: 11/23/2015 3:57 PM

### Flow Rate Verifications Detail Report

#### PM25LC

Micrograms/cubic meter (LC)

<u>Site Name</u>	<u>Performing Agency</u>	<u>Assessment Date</u>	<u>Method Code</u>	<u>Assessment Value</u>	<u>Monitor Value</u>
SITEONE	0581 - Knox County Department Of Air Pollution Control	2015-05-08 15:59	145	756	900

## National Performance Audit Report

To run the national performance audit report, expand Monitor Assessment Reports from the Reports menu, and single click the National Performance Audit Report. The National Performance Audit Report tab will open on the right side of the screen. After making the query selection to run the report, select the Generate Report button on the Ribbon at the top. This will bring up the report below the query in the Report Output section. The report simply displays the information that has been manually entered into the National Performance Audit Monitor Assessment Editor in a report format. Each parameter for all sites is shown separately per page. Example of the report is shown below.

Current Date: 11/23/2015 4:17 PM

### National Performance Audit Report

#### PM25LC

Micrograms/cubic meter (LC)

<u>Site Name</u>	<u>Performing Agency</u>	<u>Assessment Date</u>	<u>Method Code</u>	<u>Ass. Id</u>	<u>NPAP Ass. Type</u>	<u>NPAP Method Code</u>	<u>Assessments</u>											
							Assessment	200	300	400	500	600	700	800	900	1000	2000	
SITEONE	0581 - Knox County Department Of Air Pollution Control	2015-05-08 15:57	145	1	TTP	123	Assessment	200	300	400	500	600	700	800	900	1000	2000	
							Monitor Value	225	325	425	525	625	725	825	925	1025	2025	

### One Point Quality Control Report

To run the one point quality control report, expand Monitor Assessment Reports from the Reports menu, and single click the One Point Quality Control Report. The One Point Quality Control Report tab will open on the right side of the screen. After making the query selection to run the report, select the Generate Report button on the Ribbon at the top. This will bring up the report below the query in the Report Output section. The report simply displays the information that has been manually entered into the One Point Quality Control Monitor Assessment Editor in a report format. Each parameter for all sites is shown separately per page. Example of the report is shown below.

Current Date: 11/23/2015 4:01 PM

#### One Point Quality Control Report

##### PM25LC

Micrograms/cubic meter (LC)

<u>Site Name</u>	<u>Performing Agency</u>	<u>Assessment Date</u>	<u>Method Code</u>	<u>Assessment Value</u>	<u>Monitor Value</u>
SITEONE	0581 - Knox County Department Of Air Pollution Control	2015-05-04 10:20	145	4	2.53

### Performance Evaluation Program Details Report

To run the performance evaluation program report, expand Monitor Assessment Reports from the Reports menu, and single click the Performance Evaluation Program Details Report. The Performance Evaluation Program Details Report tab will open on the right side of the screen. After making the query selection to run the report, select the Generate Report button on the Ribbon at the top. This will bring up the report below the query in the Report Output section. The report simply displays the information that has been manually entered into the Performance Evaluation Program Details Monitor Assessment Editor in a report format. Each parameter for all sites is shown separately per page. Example of the report is shown below.

Current Date: 11/23/2015 4:02 PM

#### Performance Evaluation Program Details Report

##### PM25LC

Micrograms/cubic meter (LC)

<u>Site Name</u>	<u>Performing Agency</u>	<u>Assessment Date</u>	<u>Method Code</u>	<u>Ass. Id</u>	<u>Sampler Type</u>	<u>Sampler Concentration</u>
SITEONE	1025 - Tennessee Division Of Air Pollution Control	2015-05-08 16:06	145	1	Independent	675

### Replicate Assessment Details Report

To run the replication assessment report, expand Monitor Assessment Reports from the Reports menu, and single click the Replicate Assessment Details Report. The Replicate Assessment Details Report tab will open on the right side of the screen. After making the query selection to run the report, select the Generate Report button on the Ribbon at the top. This will bring up the report below the query in the Report Output section. The report simply displays the information that has been manually entered into the Replicate Assessment Details Monitor Assessment Editor in a report format. Each parameter for all sites is shown separately per page. Example of the report is shown below.

Current Date: 11/23/2015 4:01 PM

#### One Point Quality Control Report

##### PM25LC

Micrograms/cubic meter (LC)

<u>Site Name</u>	<u>Performing Agency</u>	<u>Assessment Date</u>	<u>Method Code</u>	<u>Assessment Value</u>	<u>Monitor Value</u>
SITEONE	0581 - Knox County Department Of Air Pollution Control	2015-05-04 10:20	145	4	2.53

### Semi-Annual Flow Rate Audit Coarse Details Report

To run the semi annual flow rate audit coarse report, expand Monitor Assessment Reports from the Reports menu, and single click the Semi Annual Flow Rate Audit Coarse Details Report and the Semi Annual Flow Rate Audit Coarse Details Report tab will open on the right side of the screen. After making the query selection to run the report, select the Generate Report button on the Ribbon at the top. This will bring up the report below the query in the Report Output section. The report simply displays the information that has been manually entered into the Semi Annual Flow Rate Audit Coarse Details Monitor Assessment Editor in a report format. Each site is shown separately per page. Example of the report is shown below.

Current Date: 11/24/2015 3:43 PM

#### Semi Annual Flow Rate Audit Coarse Details Report

##### SITEONE

<u>Performing Agency</u>	<u>Assessment Date</u>	<u>Parameter</u>	<u>PM 10</u>			<u>Site and Parameter</u>	<u>PM 25</u>		
			<u>Method Code</u>	<u>Assessment Value</u>	<u>Monitor Value</u>		<u>Method Code</u>	<u>Assessment Value</u>	<u>Monitor Value</u>
0581 - Knox County Department Of Air Pollution Control	2015-07-29 15:04	PM10C_CONT IN		1.56	1.50	SITEONE PM25LC	145	101	100

## Semi-Annual Flow Rate Audit Details Report

To run the semi annual flow rate audit report, expand Monitor Assessment Reports from the Reports menu, and single click the Semi Annual Flow Rate Audit Details Report. The Semi Annual Flow Rate Audit Details Report tab will open on the right side of the screen. After making the query selection to run the report, select the Generate Report button on the Ribbon at the top. This will bring up the report below the query in the Report Output section.

The report simply displays the information that has been manually entered into the Semi Annual Flow Rate Audit Details Assessment Editor in a report format. Each parameter for all sites is shown separately per page. Example of the report is shown below

Current Date: 11/23/2015 4:09 PM

### Semi-Annual Flow Rate Audit Details Report

#### PM25LC

Micrograms/cubic meter (LC)

<u>Site Name</u>	<u>Performing Agency</u>	<u>Assessment Date</u>	<u>Method Code</u>	<u>Assessment Value</u>	<u>Monitor Value</u>
SITEONE	0581 - Knox County Department Of Air Pollution Control	2015-11-20 16:50	145	110	100



## 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**.

Task Details

General Advanced

Basic Task Information

Task Name: Average Data Rollup Task Task Enabled

Task Description: Average Data Rollup Task

Rollup Method

5m to 1h

Drag a column header here to group by that column.

Selected	Site Name	Site Enabled	Parameter Name	Parameter Enabled	Time Interval
<input checked="" type="checkbox"/>	SITEONE	<input checked="" type="checkbox"/>	OZONE	<input checked="" type="checkbox"/>	001h

Create new tags in List Editors>Parameter Tag Editor

Once all the tags you need exist, use the **Configuration->Data Average Rollup Configuration** to create your new rollup programs:

Rollup Method	Input Tag	Output Tag
1h to 1d	SITEONE : BARPRESS : 001h	SITEONE : BARPRESS : 001d
5m to 1h	SITEONE : OZONE : 005m	SITEONE : OZONE : 001h
*		

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.

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 & Work Task Tracking Module (Option)

### Asset Tracking

The Asset Tracking is designed to help organizations track analyzers, data loggers, major components, calibration equipment, etc.

Any asset can be added into the system and its location and history can be tracked as to where it has been and what parameters have been used to monitor so that the history will show if an analyzer has been used at a particular site and then moved to another location, etc. The tracking can also be used to look at a pollutant monitored at a particular site and see the history of the different instruments used to monitor that pollutant at that particular site.

To get started select the Asset Tracking menu under Data Editors.

Display Text	Site	Asset Type	Associated With	Manufacturer	Model	Serial Number	Asset Tag	Current Status
MetOne/EBA	SITEONE	Instrument	EBAM	MetOne	EBAM	A73245	Wind	Active

Start	End	Site
07/02/2013 12:14		SITEONE

To add an asset click the Add Asset button on the Ribbon at the top, to open the Add New Asset window. Under the Associate With Object tab there are four options that can be tracked differently and the software looks at them differently.

- ◆ A logger can be associated with a logger entity by selecting which logger in the system it will be associated with.
- ◆ An instrument can be associated with a directly polled instrument- not the same as a gas analyzer connected to a logger, but instead a directly polled BAM, Partisol, or API602, etc.
- ◆ A gas analyzer (connected to a logger) can be associated with a monitored parameter in the Site Parameter list.

- ◆ Unspecified is meant for everything else in the system. It is associated with a site so as something moves from site to site it can be tracked, but is not associated with any particular logger, monitored instrument, or parameter, etc. A good example would be a calibrator, or a flow calibration standard, cellular modem, or some other piece of equipment in the system that is not related to an AirVision entity.

Once the asset has been entered, the following fields can be entered:

- ◆ **Manufacturer and Model Number:** Any manufacturer and model number that has been previously entered will be automatically remembered so it will continue to show in the drop down list.
- ◆ The **Serial Number** is usually what is stamped on the instrument.
- ◆ The **Asset Tag** may be something specific to the organization or agency.
- ◆ **Current Status** has five options of Active, Needs Repair, Retired, Unspecified, Spare, so that the analyzer history can be tracked even though it has been removed from the system.
- ◆ The **Purchase Date** will default to the current date and time, but can be changed to the actual purchase date.
- ◆ The **Retired Date** can be entered in once the equipment has been retired, but can be left blank if it is still in use.
- ◆ A description can be entered into the **Description** field but is not required.
- ◆ For assignment to the current site, the **Start date and time** can be changed if needed, by clicking in the date field under the **Start** column, and save.
- ◆ If the **End date** is blank the tracker assumes the equipment is still in operation. When using the “Assign Asset” button on the ribbon, the current assignment record will be closed (with the end date being current date/time, but editable). A new assignment record will be opened with the current date/time as start (but editable) and no end date/time to indicate that it is the current assignment.

If needed a new analyzer can be entered in for the same pollutant at the same site with different Asset Details information and save it. It will then show in the Assets list when the first analyzer was removed from the site and the new analyzer was started up at the same site.

## Reports

There are three asset reports:

- ◆ **Asset Current Status:** Provides the list of assets, broken down by site (one site per page), with their manufacturer, serial number, and starting date/time.

Asset Current Status Report					
Site: 01_KNOX					
<u>Asset Type</u>	<u>Parameter or Site</u>	<u>Mfr/Model:</u>	<u>Serial #.</u>	<u>Starting</u>	<u>Ending</u>
Analyzer	01_O3	API 400E	2341	02-Jan-2018	
Unspecified		BGI Flow Standard	23423	22-Jan-2018	

- ◆ **Asset History Report,** which tells you where the equipment has been over a period of time.

Asset History Report					
Mfr/Model: API 400E					
S/N: 2341					
Purchased: 11/12/2013					
Status: Active					
<u>History:</u>	<u>Site</u>	<u>Starting</u>	<u>Ending</u>		
	01_KNOX	10/08/2013	11/12/2013		
	Hamilton County	11/12/2013	12/12/2013		
	01_KNOX	01/02/2018			

- ◆ **Parameter Asset History,** which shows for a monitored parameter what different instruments were used for that time.

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	11/12/2013
	API	400E	2341	10/08/2013	11/12/2013
	Met One	BAM-1020 PM10	837593	11/19/2015	08/12/2016
	API	400E	2341	01/02/2018	

## Work Task Tracking

The Work Item Editor is designed for work items to be entered (e.g., analyzer repairs, routine maintenance, etc), and the Work Item is designed for the work item to be reviewed and marked complete. Each of these menus are attached to two different security levels so that higher level security users can enter in items in the Work Item Editor and lower level security users can review and close them out in the Work Items.

### Work Item Editor (for Supervisors)

Select the Work Item Editor menu under Data Editors. To add an item click the Add Work Item button on the Ribbon at the top. Fill in the information under the Task Definition tab on the right side of the screen.

The screenshot shows the 'Work Item Editor' window. On the left is a table with columns: Task Name, Site, Enabled, Due Date, and Repeat Interval. The table contains three rows: a header row, a row for 'Run precision check at...' with Site 'SITEONE', Due Date '02/02/2016 15:19', and Repeat Interval '1W', and a row for 'test' with Site 'SITEONE' and Due Date '07/31/2015 14:46'. On the right is a configuration panel with tabs for 'Task Definition', 'Repeat', and 'Activity'. The 'Task Definition' tab is active, showing fields for Task Name ('Run precision check at site three'), Task Description ('Check is to be ran once a week'), Due Date ('02/02/2016 15:19'), Assigned To ('Technician1'), Site ('SITEONE'), Asset ('Agilaire/8832/12345/test'), Priority ('Medium'), and Category ('RoutineCheck'). There are also checkboxes for 'Enabled' and 'Notifications Enabled', both of which are checked.

If the work item repeats on a regular basis, how often or certain days of the weeks can be set under the Repeat tab on the right side of the screen.

Because a work item is assigned to a person; and that person needs to have an email setup in the User Editor menu under Security; notifications can be sent manually by selecting the Send Notifications button on the Ribbon at the top, which are sent by email to the person assigned to the work item.

Notifications can also be sent automatically by setting up a Work Item Notification Task in the Task Scheduler. Assigning what time to run and how often, what assignments to notify the user, and the time frame the work items range (number of days to look back/ahead for sending notifications).

**Task Details**

General    Advanced

**Basic Task Information**

Task Name:       Task Enabled

Task Description:

---

**Work Item Notification Details**

Notify New Assignments

Notify Upcoming Assignments

Notify Overdue Assignments

Alternate Lookback Period:

Alternate Lookahead Period:

### Work Items (Viewer for Site Staff)

The “Work Items” menu item has a separate security level, and can be enabled for a User Group associated with field staff or whatever staff would be using the work items. Once selected, the viewer will open showing all outstanding tasks, filtered by the user’s logged in account name.

**Work Items**

Task Name	Site Name	Assigned To	Due Date
<input checked="" type="checkbox"/> <input type="button" value="A"/>	<input type="button" value="A"/>	<input type="button" value="A"/>	-
▶ Run precision check	SITEONE	Technician1	02/05/2016 14:18

---

**Work Item Definition**

Task Name:

Task Description:

Assigned To:

Site:

Asset:

Priority:

Category:

---

**Status**

Due Date:

Overdue

If needed, the user can clear/alter their “Assigned To” filter to see tasks assigned to others, but they cannot reassign the task from here. Selecting each task will show details.

Once a task is complete, the user can mark it complete using the selection on the top ribbon. The current date/time is logged, and a Logbook Entry can be made (see next section). If the task is a repeating task, the next due time will be set based on the next interval date. Note that if the task is overdue, it means the task interval may be less than the normal interval.

Example:

- ◆ Task is weekly, scheduled for Thursday, January 1st.
- ◆ Task is completed on Friday, January 2nd.
- ◆ Task reschedules to next ‘weekly’ due date from January 1st to Thursday, January 8th.

*NOTE (January 2018): An option is being implemented to add a checkbox for the Work Item repeat setup to allow the reschedule to take place from the actual time of last completion.*



# Using the Asset Tracking Tool to Create an Enhanced Logbook

## Introduction

In 2015, USEPA provided additional guidelines for site logbooks, promoting electronic logbooks over paper logbooks and including the need for electronic logbooks to be:

- ◆ Indelible (cannot be edited or removed)
- ◆ Secure (backed up and retrievable in the case of file loss)
- ◆ Traceable (clearly and accurately identify who made the entries)

All of these functions had already been incorporated in the Site Logbook function in AirVision / AVTrend, but we took the opportunity to re-promote the use of the Site Logbook and to add additional capabilities through our Asset Tracking / Work Item module. This document covers the traditional use of the Standard Site Logbook, as well as the expanded capabilities with the Asset Tracking / Work Item module.

## Typical Architecture

Typically, users of the Site Logbook have a site PC running AVTrend or a Model 8872 Site Node Logger at the site which is used as the initial logbook entry point. It's also possible to simply use a Client connection to the AirVision server to make entries as well, but we will cover the former, more common use case.

In this case, the Logbook entries are made on the site PC / 8872:

The screenshot shows the 'Logbook Entry Editor' window. It is divided into several sections:

- Selection:** Includes 'Date Range' with 'Start Date' (01/04/2013 00:00) and 'End Date' (01/04/2013 23:59).
- Site Selection:** A table with columns 'Site Name' and 'Site Description'. It lists 'SITEONE', 'SITETHREE', and 'SITETWO'. 'SITEONE' is selected.
- Logbook Data:** A table with columns 'Site', 'Category', 'User Name', 'Entry Time', 'Event Time', and 'Entry'. It shows two entries for 'SITEONE': one for 'Test' and one for 'RoutineCheck', both by 'AirVision' on '01/04/2013 11:25'.
- Logbook Entry Details:** Fields for 'Log Entry Time' (01/04/2013 11:25), 'Event Time' (01/04/2013 11:25), 'User' (AirVision), and 'Site' (SITEONE). The 'Category' is set to 'Test'.
- Entry Text:** A large empty text area for the log entry.

The Logbook entry tracks both the time the entry was made, as well as allowing the user to enter an ‘event time’ different from the time the entry was made. A Category selection helps characterize the entry for later reporting, and the User name is logged.

**To meet EPA goals, it is necessary to ensure the Site PC has individual user accounts instead of a common login.** The list of usernames can be synchronized with the server using the Sync system, or the administrator can simply ensure the usernames match between the site PCs and the server.

Once the entry is made, it cannot be deleted or edited. A system UtilitySetting can allow ‘addendums’ to logbook entries (or not) using the “Addendum” button on the ribbon. The default AirVision system behavior is ‘no addendums’ (e.g., only new entries) - contact [support@agilaire.com](mailto:support@agilaire.com) to enable the addendum function.

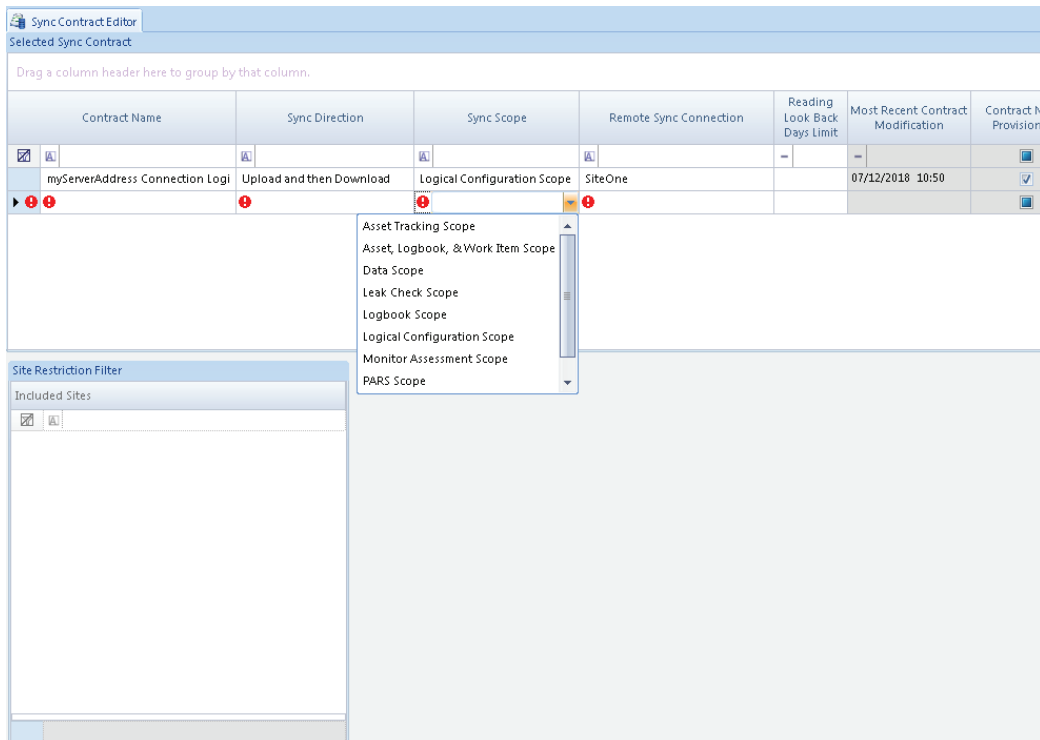
*(Note that if you don't have a Site PC or 8872, you can use the 8816/8832/8864 Central Message capabilities to create basic logbook entries, but you will not capture the username, categories, or event time).*

### Transferring Entries

Logbook entries can be moved from the Site PC / 8872 to the central server either through the Sync function, or through regular polling.

### Transfer via Sync

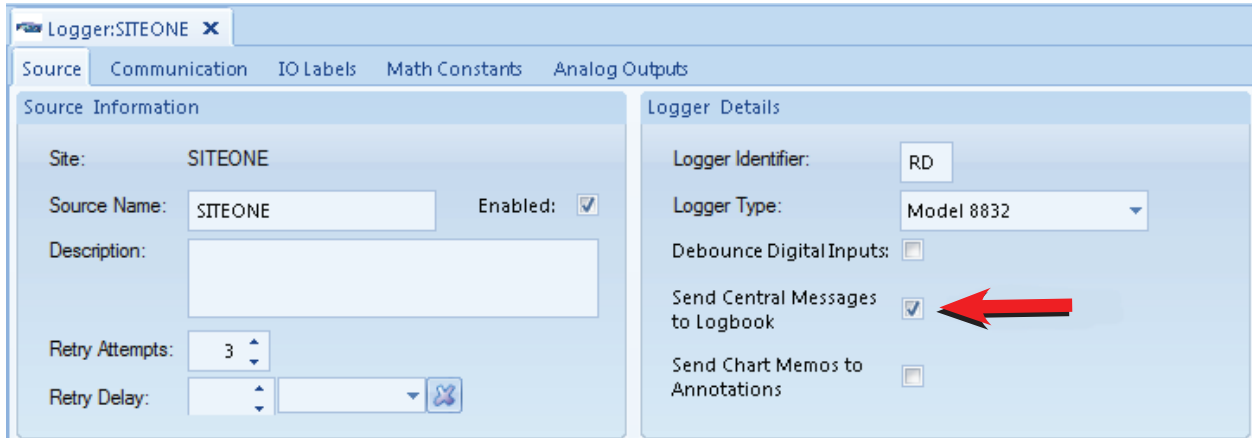
To transfer via Sync, create a contract using the “Logbook Scope” and the “Download Only” direction, using either the Sync Contract Editor or the Sync Wizard:



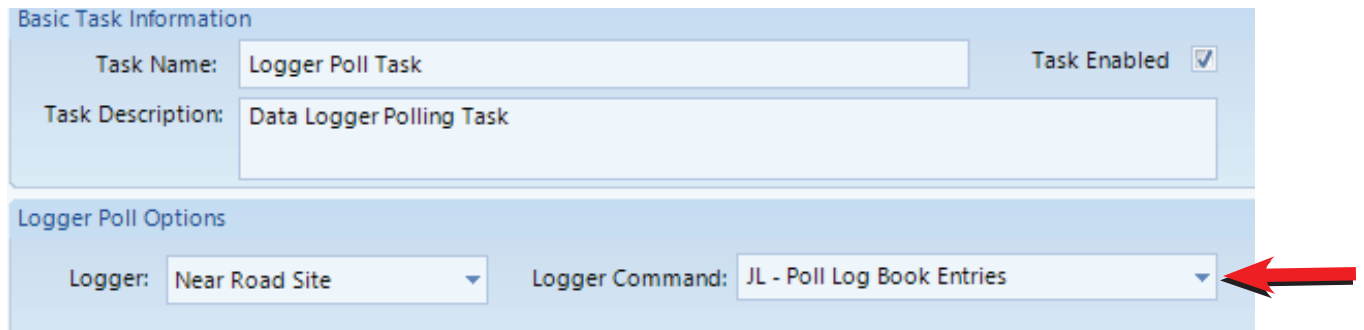
The sync can then be scheduled in the Task Scheduler as a Sync task to run every night, every X hours, etc.

### Transfer via Polling an 8872

To poll the records (more common case), you must set the Logger Properties on the server to “Send Central Messages to Logbook” via checkbox in the upper right:



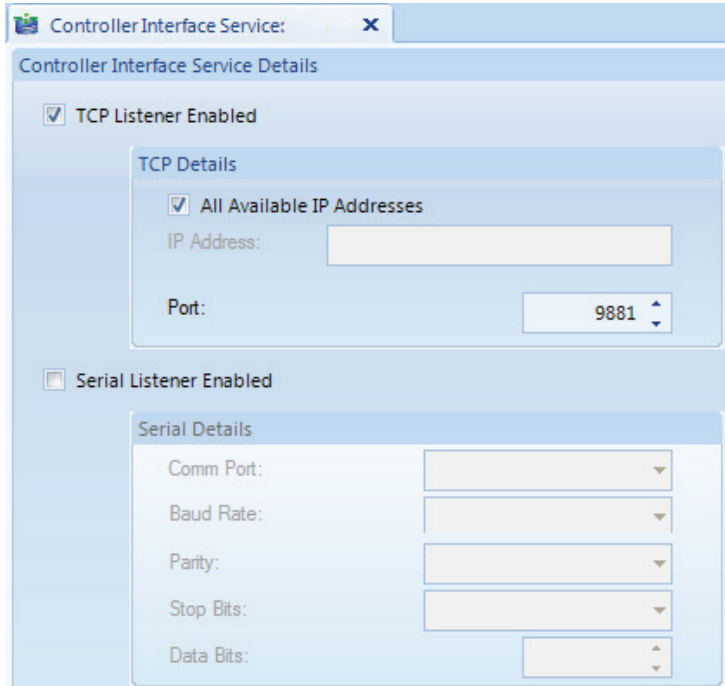
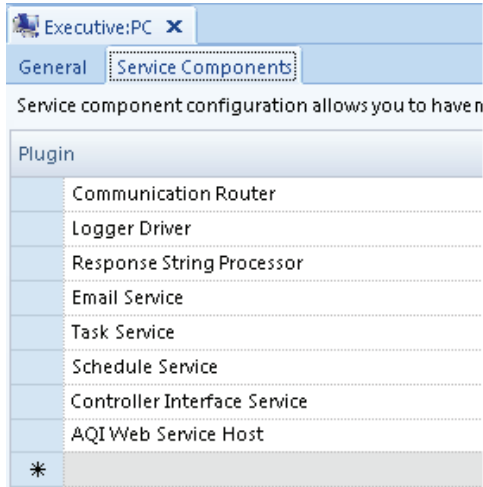
Then, simply add to your existing polling task a sub-task to poll for “JL-Poll Log Book Entries”:



AirVision will poll the 8872 for those logbook entries using the “JL” poll type, and get the user name, dates, category, and use that to create Logbook entries on the server.

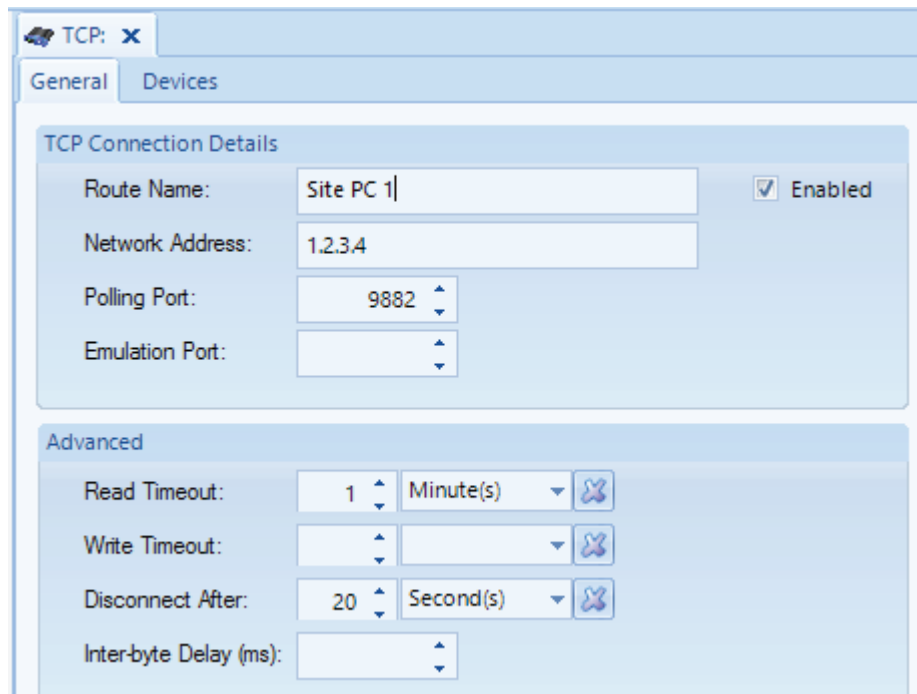
**Transfer via Polling a Site PC in parallel with an 8816, 8832 or 8864**

If your AirVision server is going to poll logbook entries from a Site PC while polling data from an 8816, 8832 or 8864 at the same site, you must enable the Controller Interface Service in AVTrend on the Site PC as a “Service Component” in “PC Settings”, and set a port value other than 9881 (9882 is recommended).

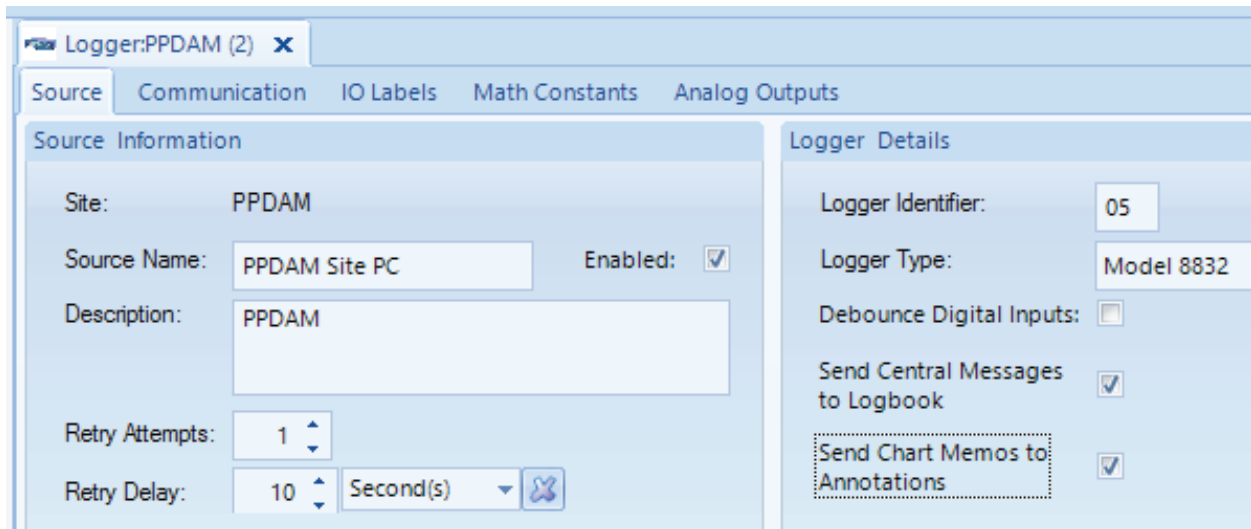


If any kind of routing or port forwarding is in place at the site via a modem/router, update those settings to route a new polling port (e.g., 9882) to reach the Site PC.

On the server, create a communication route to that PC using the port that was designated on the Site PC separate from the 8816, 8832 or 8864 you are polling.



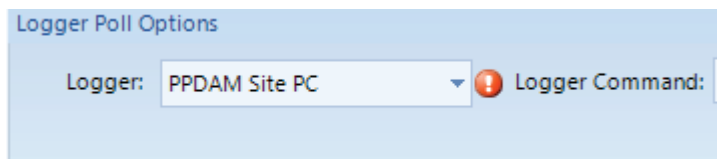
Then create a second ‘pseudo’ logger for the site in question on the server and assign it the new comm route.



Go to the Task Scheduler and locate any polling tasks for the logger. Delete or disable any tasks for ‘Central Messages’.

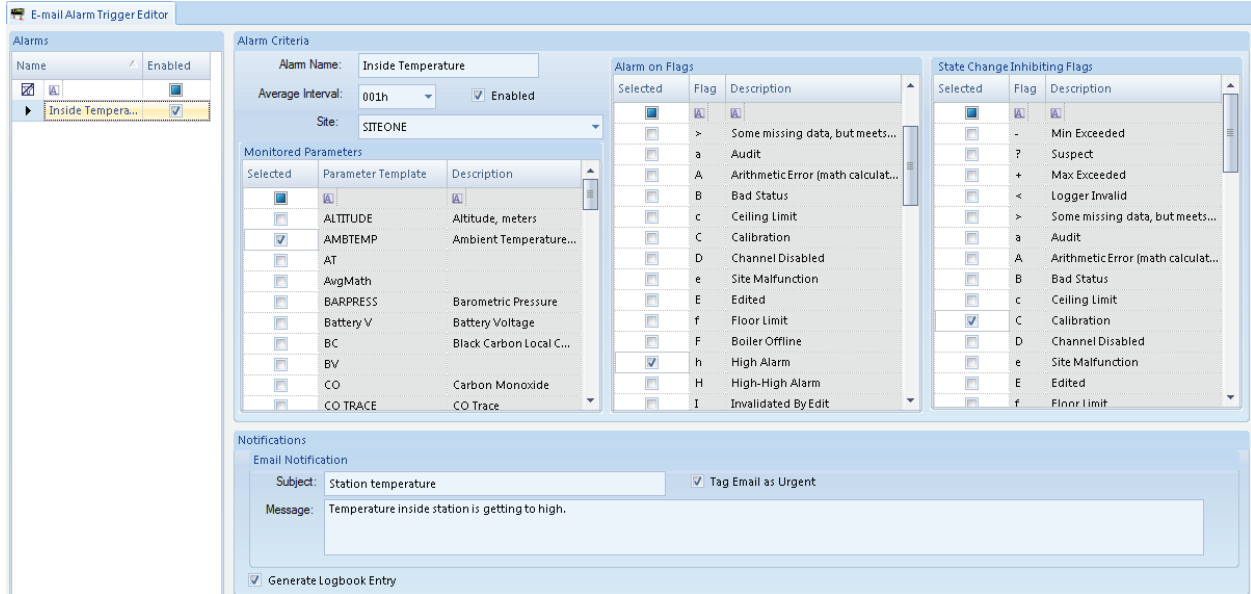
Poll [PPDAM] Long Central Messages	<input type="checkbox"/>	7	<input type="checkbox"/>	Logger Poll Task	Edit Task
Poll [PPDAM] Chart Memos	<input type="checkbox"/>	8	<input type="checkbox"/>	Logger Poll Task	Edit Task

Create a new scheduled tasks (or task groups or use the Schedule Wizard) for logger poll task type ‘JL-Poll Logbook Entries’. When doing so, select the Site PC ‘logger’ in the task configuration.



## Other Ways to Automatically Create Logbook Entries

If you are using E-mail alarms, you now have the option via a checkbox selection to automatically create logbook entries when an alarm condition is detected:



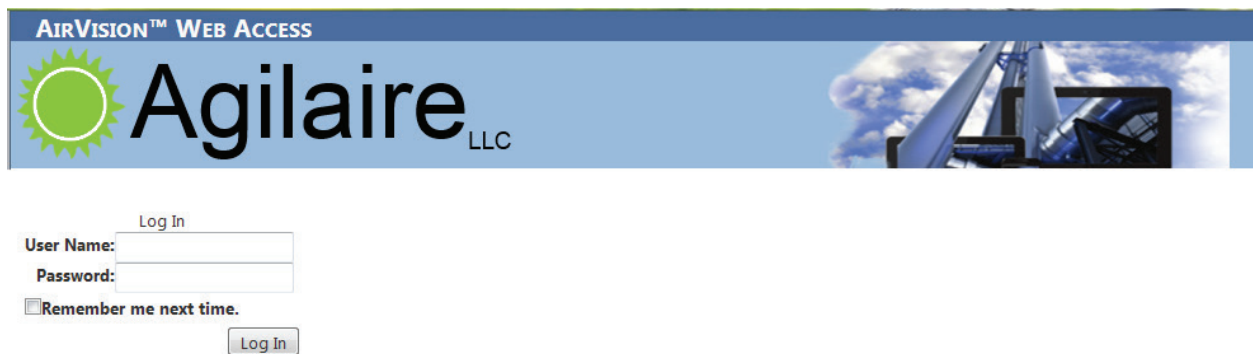
## Backing Up

If you are backing up your production AirVision database, then you are backing up your Logbook. It's as simple as that. All Logbook entries are part of the standard AirVision database and are never purged.


## 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<sub>LLC</sub>

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 shows the Agilaire AirVision Web Access interface. At the top, it says "AIRVISION™ WEB ACCESS" and "Welcome swood! [ Log Out ]". The Agilaire LLC logo is prominently displayed with the tagline "Environmental Data Management Solutions". The breadcrumb trail indicates the user is in "Home > Reports > AQS Text Report".

A dropdown menu for "Reports" is open, listing various report types. The "AQS Text Report" option is highlighted. Other visible options include "24 Hour Averages Summary Report", "8 Hour Rolling Average Report", "AIRNow AQCSV Report", "AIRNow Report", "Annotations Report", "AQI Reports", "AQS XML Report", "Audit Trail Report", "Average Data Graph Report", "Basic Data Export", "Calibration Reports", "CASA Report", "CEMS Reports", "Configuration", "Cumulative Report", "Daily Parameter Report", "Daily Summary Report", "Data With Flags", "Internal Reports", "Leak Check Report", and "LogBook Report".

The main content area is titled "AQS Text Report" and contains 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	CO8HRA, 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.

**AIRVISION™ WEB ACCESS** Welcome sword! | [Log Out](#)

**Agilaire<sub>LLC</sub>**  
Environmental Data Management Solutions

Home > Reports > Monthly Report

Reports ▾ Help and Support ▾

Generate Report

### Monthly Report

**Selection Criteria**

Start Date: 6/10/2013 00:00 End Date: 6/13/2013 23:59

Average Interval: 001h

**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: 6/13/2013 00:00      End Date: 6/13/2013 23:59

**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_BALNGTN3	Burlington 150 S Winsoski
<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	

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

Date Printed: 3/5/2019 12:50

Page 1 of 2

PDF

Daily Summary  
3/4/2019

Interval: 001h

Site: SITEONE

PM25_CONTIN	
Hour	UG/M3
00:00	2.0
01:00	.3
02:00	-1.5
03:00	-1.8
04:00	1.2
05:00	2.2
06:00	1.5
07:00	2.2
08:00	3.5
09:00	3.0
10:00	1.0
11:00	1.0
12:00	-.1
13:00	1.3
14:00	3.0
15:00	1.5
16:00	2.0
17:00	3.0
18:00	2.0
19:00	-.1
20:00	2.0
21:00	2.0
22:00	1.0
23:00	3.7
Avg	1.4
Max	3.7
Hr. of Max	23
Min	-1.8
Count	24
Total	

## ANT - Using the Advanced Normalization Tool Module

### Overview

The Advanced Normalization Tool (ANT) for Small Sensors allows real-time correction of small sensor data to make it more meaningful and accurate, using one of several correction algorithms. At the date of this manual, the correction methods are:

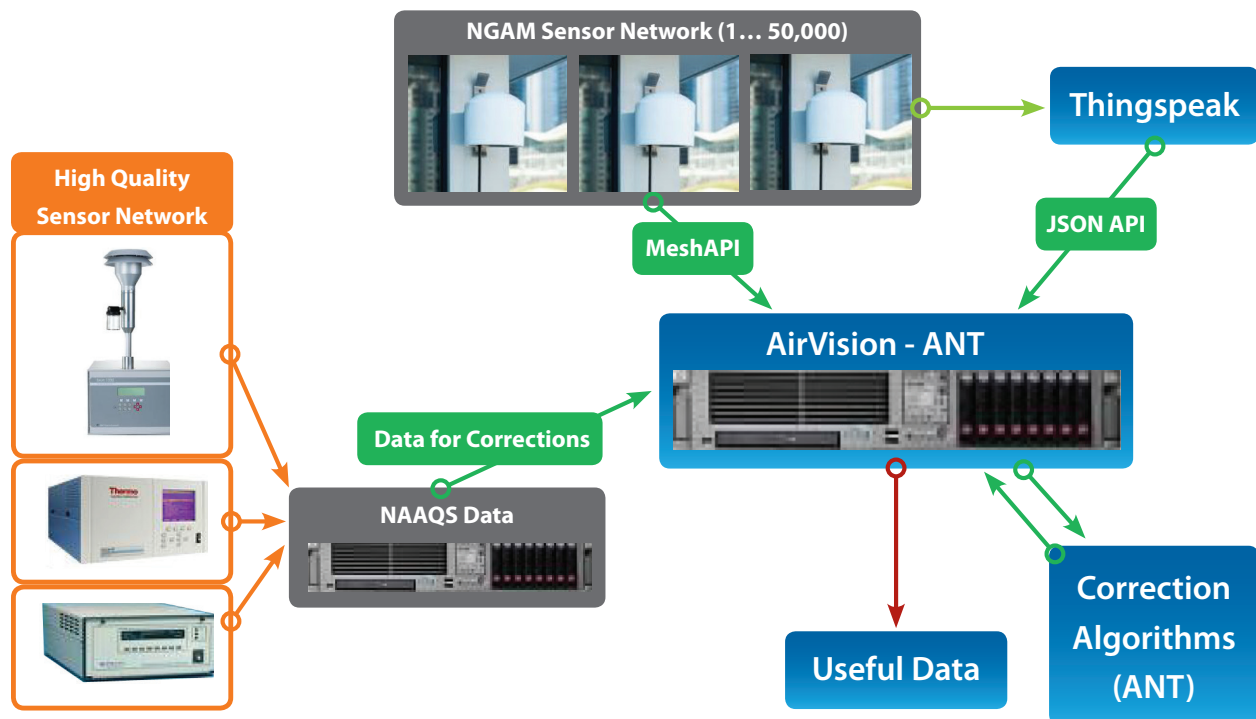
1. Fixed Linear correction ( $mX+b$ )
2. Fixed Polynomial correction ( $aX^2+bX+c$ )
3. Linear Regression from Reference Monitor ( $mX+b$ )
4. Linear Regression from Multiple Reference Monitors, Distance Weighted.

More methods can be added at a future time (e.g., machine learning) due to the modular structure of ANT.

The Advanced Normalization Tool typically is used in an environment where small sensor data is being acquired by the AirVision system in real-time, via typically:

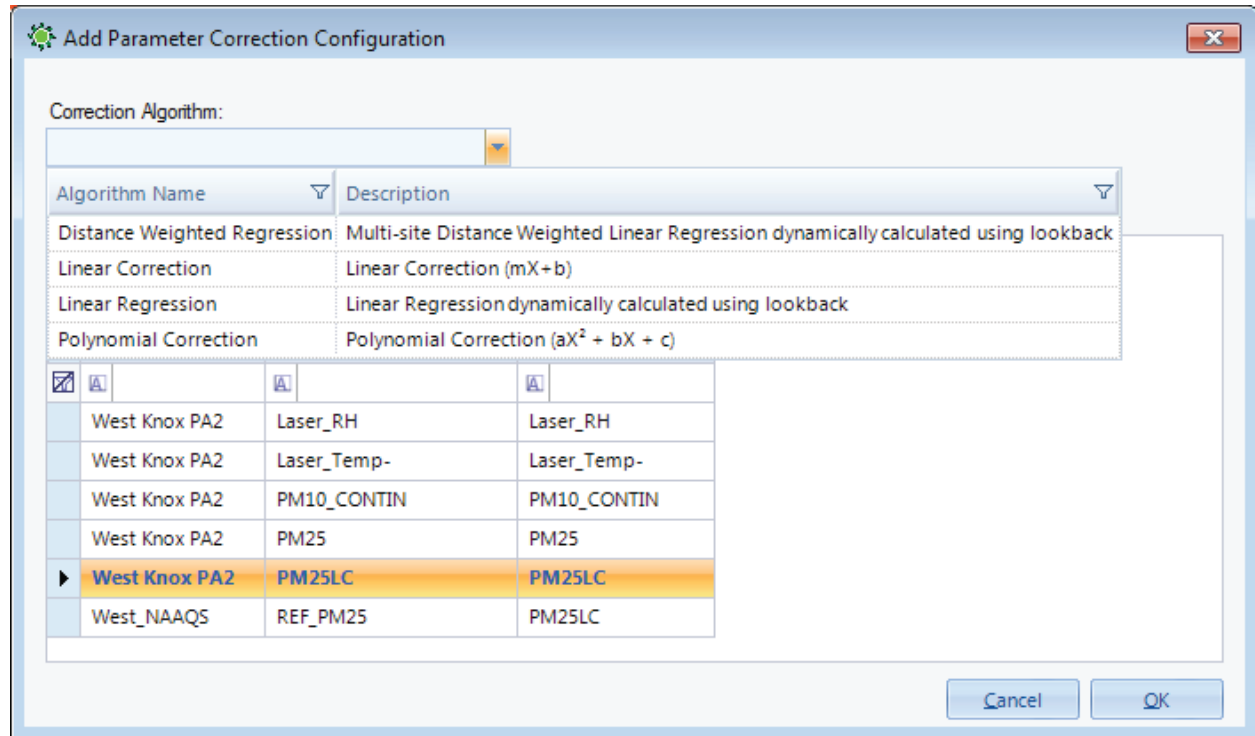
- ◆ Direct Poll Drivers
- ◆ File Import service with files being submitted from sensors via FTP or other methods
- ◆ Sensor connected to Agilaire Pi-Logger and being polled directly or via TeamSpeak.

(Other sections of the AirVision manual and application notes cover the data collection process.)



## Setting Up Real-Time Data Correction

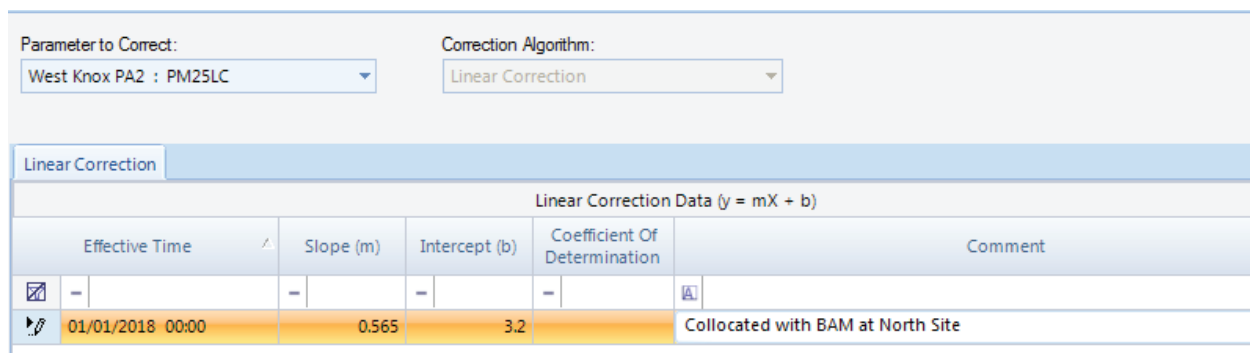
First, use Configuration->ANT Parameter Configuration to define the correction algorithm that will be used for each small sensor parameter. Use the “Add” button on the ribbon:



Select the small sensor parameter to be corrected, and the desired algorithm. The additional configuration specifics of each algorithm are as follows.

### Linear Correction

Enter the ‘m’ (slope) and ‘b’ (offset) correction factors to be applied to the readings. These would normally be derived externally through regression analysis in Excel or “R”. Factors can be updated at any time, and ANT will keep a history of the correction factors used over time. The user may also enter the Coefficient of Determination and other notes (e.g., “Collocated with BAM ad North Site”) related to the history.



### Polynomial Correction

The configuration is similar to Linear Correction, except three coefficients are entered, including an x2 coefficient.

Parameter to Correct:  Correction Algorithm:

---

ModelCoefficients Correction

ModelCoefficients Correction Data ( $y = aX^2 + bX + c$ )

Effective Time	Quadratic Coefficient (a)	Linear Coefficient (b)	Constant (c)	Coefficient Of Determination	Comment
<input checked="" type="checkbox"/> -	-	-	-	-	
<input checked="" type="checkbox"/> 01/01/1970 00:00	0.02	0.6222	-3		

### Linear Regression

The reference monitor used for the regression is assigned, as well as the number of average intervals used looking backwards as the regression data set.

Parameter to Correct:  Correction Algorithm:

---

Linear Regression

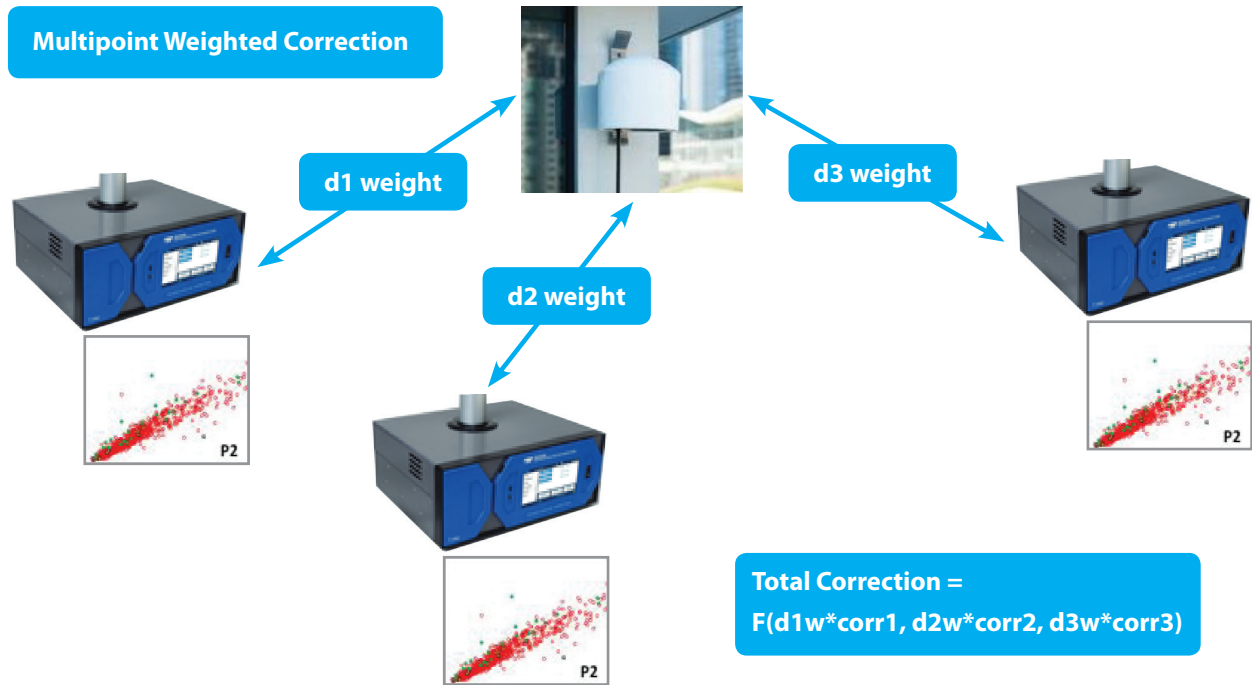
Lookback Intervals for Regression:

Reference Parameter:

In this case, when the ANT Task runs, it will look back 720 intervals (30 days in the case of hourly data) to perform the regression analysis to use for the current data point.

### Distance Weighted Regression

Similar to Linear Regression, except the user may select multiple reference monitors. The Sites specified must have latitude/longitude configured in Site/Parameter, so the distances may be calculated. By default, each regression is weighted based on the inverse of the distances squared.



Parameter to Correct: West Knox PA2 : PM25LC      Correction Algorithm: Distance Weighted Regression

Distance Weighted Regression

Lookback Intervals for Regression: 720

Reference Parameter	Weight Scaling Factor
<input checked="" type="checkbox"/> <input type="text" value="West_NAAQS : REF_PM25"/>	-
<input checked="" type="checkbox"/> <input type="text" value="West Knox PA2 : PM25"/>	

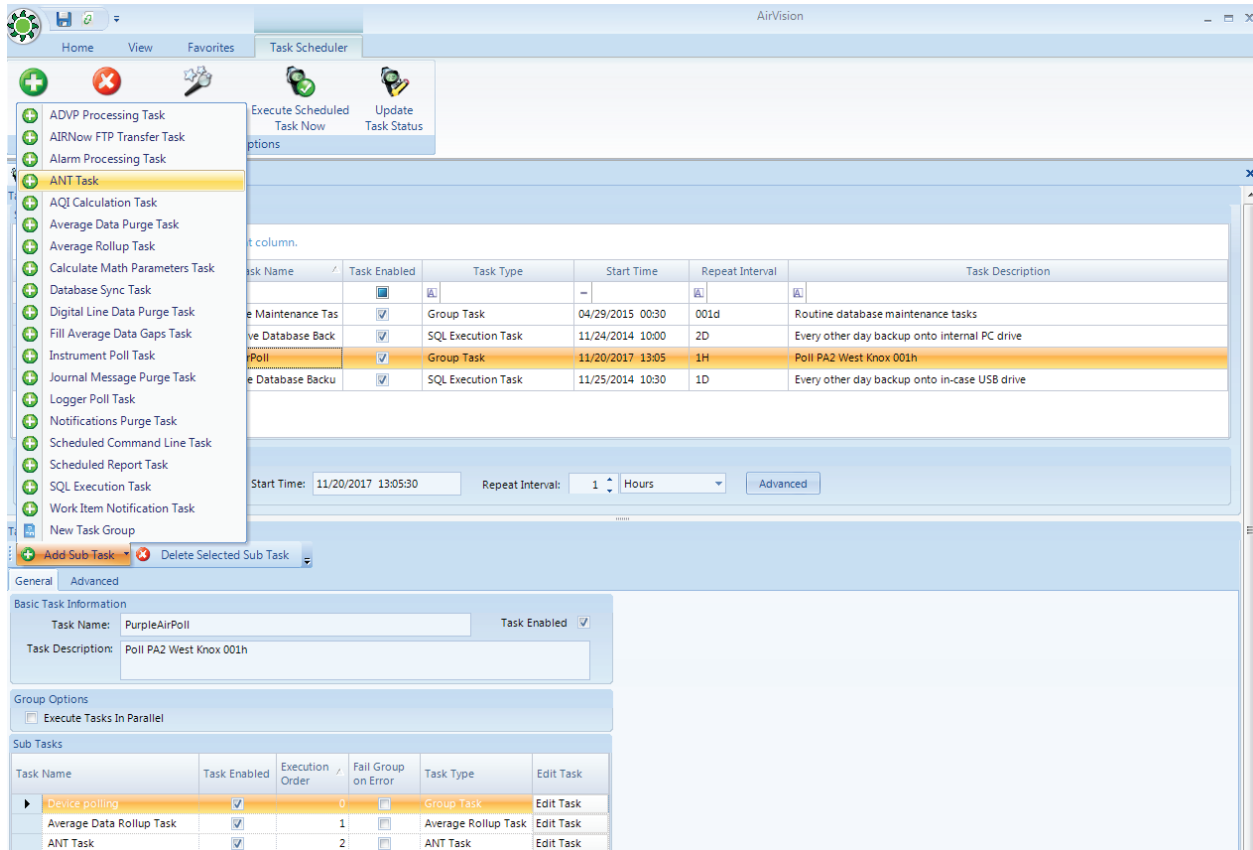
Add ... Reference Site/Parameter

However, the user may put in a “Weight Scaling Factor” that is added to the inverse square distance to more heavily weight a site that may be more or less representative (e.g., due to terrain factors or other reasons).

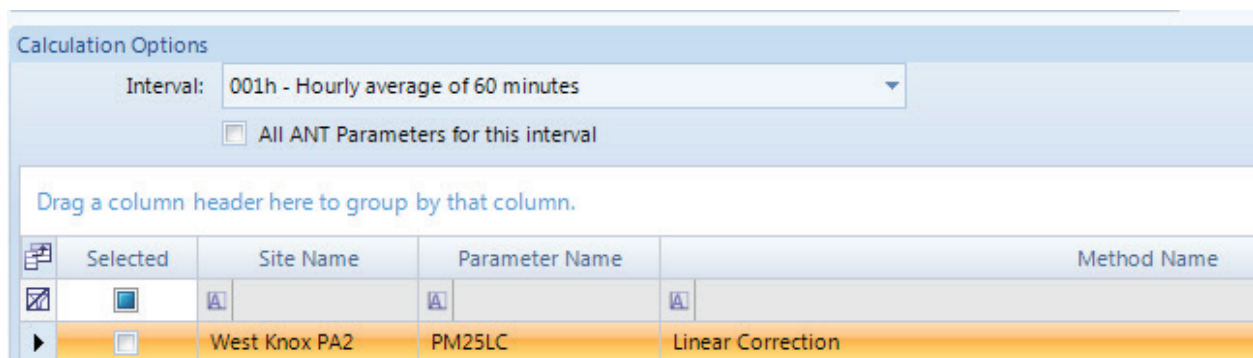
Use the “Add Reference Site/Parameter” button at the bottom to add as many reference sites as desired.

## Scheduling Real-Time Correction Tasks

Second, the Task Scheduler must be instructed when to apply the corrections. This is typically done as part of the polling Group tasks. Select the polling group task for the small sensors, and at the top group level, use **Add Subtask->ANT Task**.



In the properties of the ANT task, select the average interval of data to run the correction on, and select “All ANT Parameters for this Interval” (or which specific parameters should be run or not run).





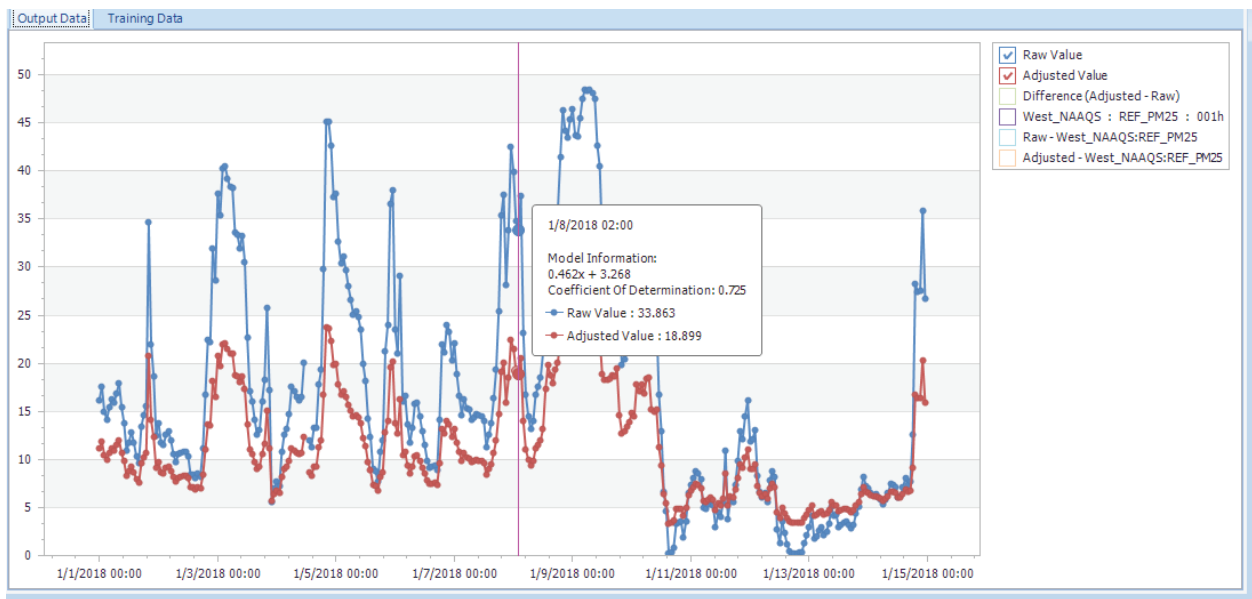
## Manual ANT Utility

The Manual ANT Utility is available for two main purposes:

- ◆ To run or re-run corrections manually based on updated data (e.g., the  $mX+b$  coefficients originally entered were in error).
- ◆ To calculate a linear regression from training / collocation data to apply as a fixed Linear Correction going forward.

The user can select the data period of time to be corrected, and select either “Process Data” (to perform data correction) or “Preview Only” (to calculate the corrections for display only).

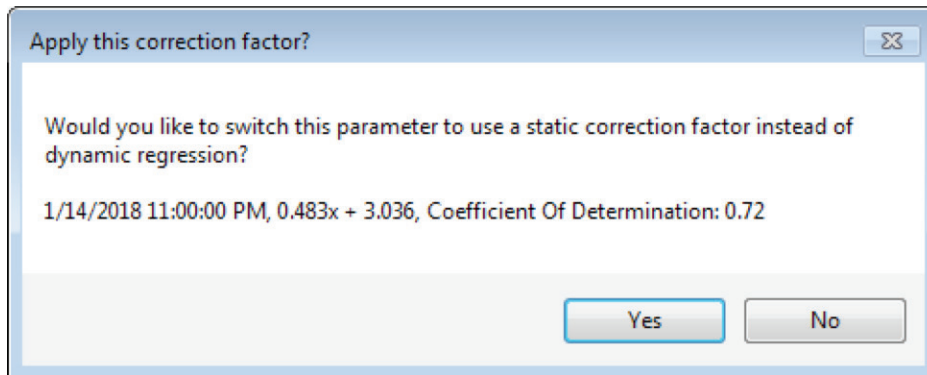
In both cases, you will be asked if you want to review the results. If you accept, you will be given a graphical pane with two tabs, “Output Data” and “Training Data”.



Selections on the Training Data screen allow you to show/hide various properties, like the difference itself, the reference data (if it overlaps with correction data), etc. Hovering the mouse over any point will show the regression value used for that point.

### Applying a Calculated Regression from Collocation Data To Fixed Correction

If you click on a dynamically calculated regression point in the Output Data tab, you will be given the option to use that value as a Fixed Correction  $mX+b$  equation going forward. If you accept, the ANT Configuration for that parameter will be changed from Linear Regression to Fixed Correction.



This allows you to use the Manual ANT Utility to process collocation data to determine a regression formula to use when the instrument is moved from collocation state to a new location, without having to do an external regression in Excel and manually entering the new coefficients.

### Other Notes

The Advanced Normalization Tool always processes corrections on the “raw” data section of the database, so there is no concern with running the Manual ANT Utility on data that has already been processed through the task scheduler - the Manual ANT Utility will run new corrections, but the data will not be “double corrected.”

# 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 website 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.

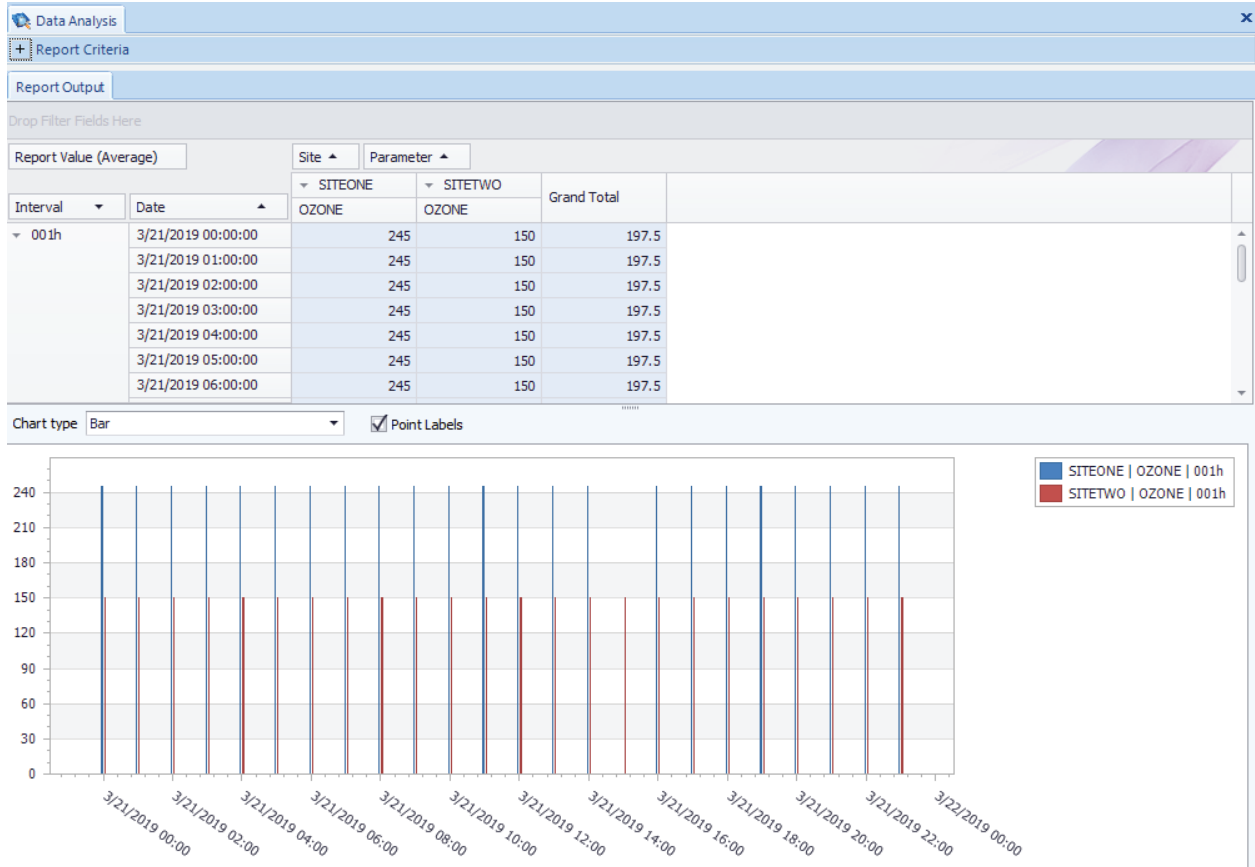
These URLs/ports (and all the other WCF options such as protocol, bindings, etc) can be changed in the service's app.config file. You can tweak it locally on your server, or the default can be updated in one in our source controls if needed.

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 'Data Analysis' ribbon with three main groups: Report Options, Grid Options, and Chart Options. Below the ribbon are sections for 'Data Analysis', 'Report Criteria', and 'Report Output'. The main area is titled 'Drop Filter Fields Here' and contains a table with columns for 'Interval', 'Date', 'Site', and 'Parameter'. The 'Site' dropdown is set to 'SITEONE' and the 'Parameter' dropdown is set to 'NO'. The table displays a list of hourly data points for the date 3/13/2019.

Interval	Date	Site	Parameter
001h	3/13/2019 00:00:00	SITEONE	NO
	3/13/2019 01:00:00		6.4
	3/13/2019 02:00:00		6.557
	3/13/2019 03:00:00		6.62
	3/13/2019 04:00:00		6.217
	3/13/2019 05:00:00		6.246
	3/13/2019 06:00:00		6.35
	3/13/2019 07:00:00		6.383
	3/13/2019 08:00:00		6.438
	3/13/2019 09:00:00		6.424
	3/13/2019 10:00:00		6.314
	3/13/2019 11:00:00		6.213
	3/13/2019 12:00:00		6.3
	3/13/2019 13:00:00		6.308
	3/13/2019 14:00:00		6.25
	3/13/2019 15:00:00		6.236
	3/13/2019 16:00:00		6.24
	3/13/2019 17:00:00		6.091
	3/13/2019 18:00:00		6.145
	3/13/2019 19:00:00		6.166
	3/13/2019 20:00:00		6.221

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**.

The screenshot shows the 'Data Analysis' application window. The 'Report Criteria' pane is minimized. The 'Report Output' pane displays a table with the following data:

Interval	Date	NO
001h	3/13/2019 00:00:00	6.4
	3/13/2019 01:00:00	6.557
	3/13/2019 02:00:00	6.62
	3/13/2019 03:00:00	6.217
	3/13/2019 04:00:00	6.246
	3/13/2019 05:00:00	6.35
	3/13/2019 06:00:00	6.383
	3/13/2019 07:00:00	6.438
	3/13/2019 08:00:00	6.424
	3/13/2019 09:00:00	6.314
	3/13/2019 10:00:00	6.213
	3/13/2019 11:00:00	6.3
	3/13/2019 12:00:00	6.308
	3/13/2019 13:00:00	6.25
	3/13/2019 14:00:00	6.236
	3/13/2019 15:00:00	6.24
	3/13/2019 16:00:00	6.091
	3/13/2019 17:00:00	6.145
	3/13/2019 18:00:00	6.166

The 'PivotGrid Field List' pop-up is open, showing a list of available filter fields:

- Agency Code
- AQS County Tribal Code
- AQS County Tribal Name
- AQS Duration Code
- AQS Duration Description
- AQS Is Tribal Code
- AQS Method Code
- AQS Parameter Abbreviation
- AQS Parameter Category
- AQS Parameter Code
- AQS Parameter Description
- AQS Parameter Occurrence Code
- AQS Site Code
- AQS State Abbreviation
- AQS State Code
- AQS State Name
- AQS Unit Abbreviation
- AQS Unit Code
- AQS Unit Description
- AQS Unit Type

An 'Add To Filter Area' button is visible at the bottom of the field list.

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 'Data Analysis' tool interface. At the top, there are tabs for 'Data Analysis', 'Report Criteria', and 'Report Output'. Below these, there is a 'Drop Filter Fields Here' area containing three filter fields: 'Site', 'Parameter', and 'Week Day Name'. The main report area displays a table with the following structure:

Report Value (Average)		Site	Parameter	Week Day Name				
		SITEONE						
		NO						
Interval	Date	Sunday	Thursday	Tuesday	Wednesday	NO Average	NO Max	NO Min
001h	3/13/2019 05:00:00				6.35	6.35	6.35	6.35
	3/13/2019 06:00:00				6.383	6.383	6.383	6.383
	3/13/2019 07:00:00				6.438	6.438	6.438	6.438
	3/13/2019 08:00:00				6.424	6.424	6.424	6.424
	3/13/2019 09:00:00				6.314	6.314	6.314	6.314
	3/13/2019 10:00:00				6.213	6.213	6.213	6.213
	3/13/2019 11:00:00				6.3	6.3	6.3	6.3
	3/13/2019 12:00:00				6.308	6.308	6.308	6.308
	3/13/2019 13:00:00				6.25	6.25	6.25	6.25
	3/13/2019 14:00:00				6.236	6.236	6.236	6.236
	3/13/2019 15:00:00				6.24	6.24	6.24	6.24
	3/13/2019 16:00:00				6.091	6.091	6.091	6.091
	3/13/2019 17:00:00				6.145	6.145	6.145	6.145
	3/13/2019 18:00:00				6.166	6.166	6.166	6.166
	3/13/2019 19:00:00				6.221	6.221	6.221	6.221
3/13/2019 20:00:00				6.23	6.23	6.23	6.23	
3/13/2019 21:00:00				6.344	6.344	6.344	6.344	
3/13/2019 22:00:00				6.328	6.328	6.328	6.328	
3/13/2019 23:00:00				6.356	6.356	6.356	6.356	
001h Total		6.375042	6.4165	6.3435	6.307375	6.39178	6.699	6.091

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**.

Report Value (Average)	Site	Parameter	Hour	5	6	7	8	9	10	11
	SITEONE									
	NO									
Interval	Date									
001h	3/13/2019 05:00:00			6.35						
	3/13/2019 06:00:00				6.383					
	3/13/2019 07:00:00					6.438				
	3/13/2019 08:00:00						6.424			
	3/13/2019 09:00:00							6.314		
	3/13/2019 10:00:00								6.213	
	3/13/2019 11:00:00									6.3
	3/13/2019 12:00:00									
	3/13/2019 13:00:00									
	3/13/2019 14:00:00									
	3/13/2019 15:00:00									
	3/13/2019 16:00:00									
	3/13/2019 17:00:00									
	3/13/2019 18:00:00									
	3/13/2019 19:00:00									
	3/13/2019 20:00:00									
	3/13/2019 21:00:00									
	3/13/2019 22:00:00									
	3/13/2019 23:00:00									
001h Total				6.397571	6.387143	6.432857	6.399143	6.392	6.368857	6.402714

Data Analysis Tool with Hour added as a new Filter Field (Reports menu)

Report Value...	Site	Parameter	Hour	19	20	21	22	23	NO Average	NO Max	NO Min
	SITEONE										
	NO										
Interval											
001h				6.358857	6.329143	6.365429	6.392857	6.386714	6.39178	6.699	6.091

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.

The screenshot shows the 'Data Analysis' window with the 'Report Output' tab selected. The 'Drop Filter Fields Here' area is empty. The report is titled 'Report Value (Average)' and shows data for 'SITEONE' and 'NO'. The grid has columns for 'Interval', 'Date', and numerical values for hours 5 through 11. The 'Interval' column is set to '001h'. The 'Date' column shows dates from 3/13/2019 05:00:00 to 23:00:00. The numerical columns (5-11) contain values representing data points for each hour. A '001h Total' row is at the bottom of the grid.

Interval	Date	5	6	7	8	9	10	11
001h	3/13/2019 05:00:00	6.35						
	3/13/2019 06:00:00		6.383					
	3/13/2019 07:00:00			6.438				
	3/13/2019 08:00:00				6.424			
	3/13/2019 09:00:00					6.314		
	3/13/2019 10:00:00						6.213	
	3/13/2019 11:00:00							6.3
	3/13/2019 12:00:00							
	3/13/2019 13:00:00							
	3/13/2019 14:00:00							
	3/13/2019 15:00:00							
	3/13/2019 16:00:00							
	3/13/2019 17:00:00							
	3/13/2019 18:00:00							
	3/13/2019 19:00:00							
	3/13/2019 20:00:00							
	3/13/2019 21:00:00							
	3/13/2019 22:00:00							
	3/13/2019 23:00:00							
001h Total		6.397571	6.387143	6.432857	6.399143	6.392	6.368857	6.402714

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.

The screenshot shows the Data Analysis Tool interface. At the top, there are tabs for 'Data Analysis', 'Report Criteria', and 'Report Output'. Below these, there is a 'Drop Filter Fields Here' area. The main report area displays a table with the following structure:

Report Value (Average)	Site	Parameter	Week Day Name						
	SITEONE	NO							
			Sunday	Thursday	Tuesday	Wednesday	NO Average	NO Max	NO Min
001h	3/13/2019 05:00:00					6.35	6.35	6.35	6.35
	3/13/2019 06:00:00					6.383	6.383	6.383	6.383
	3/13/2019 07:00:00					6.438	6.438	6.438	6.438
	3/13/2019 08:00:00					6.424	6.424	6.424	6.424
	3/13/2019 09:00:00					6.314	6.314	6.314	6.314
	3/13/2019 10:00:00					6.213	6.213	6.213	6.213
	3/13/2019 11:00:00					6.3	6.3	6.3	6.3
	3/13/2019 12:00:00					6.308	6.308	6.308	6.308
	3/13/2019 13:00:00					6.25	6.25	6.25	6.25
	3/13/2019 14:00:00					6.236	6.236	6.236	6.236
	3/13/2019 15:00:00					6.24	6.24	6.24	6.24
	3/13/2019 16:00:00					6.091	6.091	6.091	6.091
	3/13/2019 17:00:00					6.145	6.145	6.145	6.145
	3/13/2019 18:00:00					6.166	6.166	6.166	6.166
	3/13/2019 19:00:00					6.221	6.221	6.221	6.221
	3/13/2019 20:00:00					6.23	6.23	6.23	6.23
	3/13/2019 21:00:00					6.344	6.344	6.344	6.344
	3/13/2019 22:00:00					6.328	6.328	6.328	6.328
	3/13/2019 23:00:00					6.356	6.356	6.356	6.356
001h Total			6.375042	6.4165	6.3435	6.307375	6.39178	6.699	6.091

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.

Report Value (Average)		Parameter				Week Day Name			
Interval	Date	NO				NO Average	NO Max	NO Min	
		Sunday	Thursday	Tuesday	Wednesday				
001h	3/13/2019 06:00:00				6.383	6.383	6.383	6.383	6.383
	3/13/2019 07:00:00				6.438	6.438	6.438	6.438	6.438
	3/13/2019 08:00:00				6.424	6.424	6.424	6.424	6.424
	3/13/2019 09:00:00				6.314	6.314	6.314	6.314	6.314
	3/13/2019 10:00:00				6.213	6.213	6.213	6.213	6.213
	3/13/2019 11:00:00				6.3	6.3	6.3	6.3	6.3
	3/13/2019 12:00:00				6.308	6.308	6.308	6.308	6.308
	3/13/2019 13:00:00				6.25	6.25	6.25	6.25	6.25
	3/13/2019 14:00:00				6.236	6.236	6.236	6.236	6.236
	3/13/2019 15:00:00				6.24	6.24	6.24	6.24	6.24
	3/13/2019 16:00:00				6.091	6.091	6.091	6.091	6.091
	3/13/2019 17:00:00				6.145	6.145	6.145	6.145	6.145
	3/13/2019 18:00:00				6.166	6.166	6.166	6.166	6.166
	3/13/2019 19:00:00				6.221	6.221	6.221	6.221	6.221
	3/13/2019 20:00:00				6.23	6.23	6.23	6.23	6.23
	3/13/2019 21:00:00				6.344	6.344	6.344	6.344	6.344
	3/13/2019 22:00:00				6.328	6.328	6.328	6.328	6.328
	3/13/2019 23:00:00				6.356	6.356	6.356	6.356	6.356
001h Total		6.375042	6.4165	6.3435	6.307375	6.39178	6.699	6.091	6.091

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)

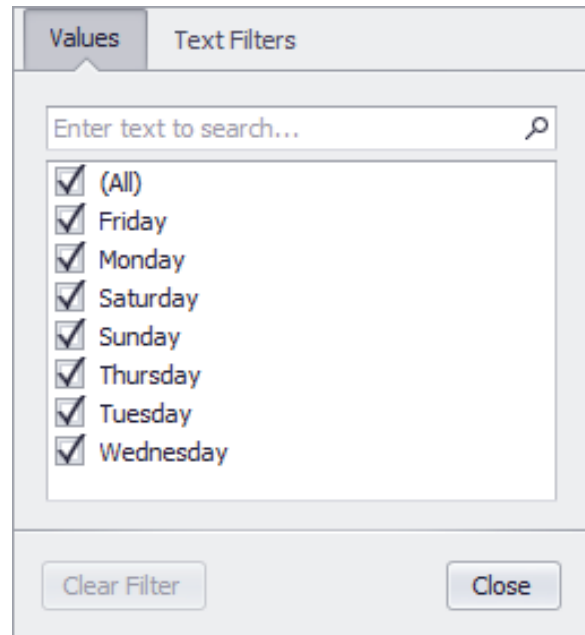
You can manipulate the way data is displayed in Data Analysis Report further as follows:

- ◆ 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.

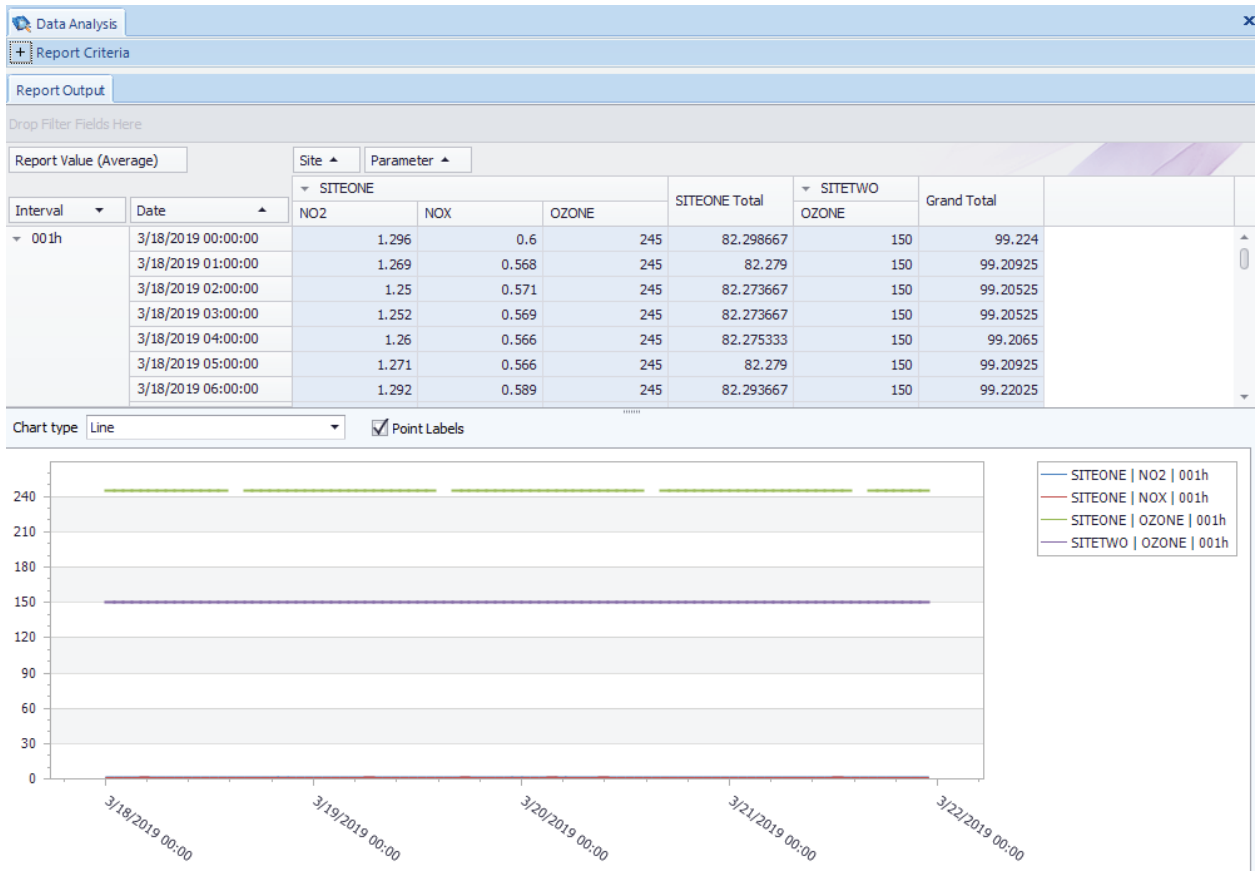


Save Grid Layout and Apply Grid Layout buttons in the ribbon at the top of the Data Analysis Report screen

## 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



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