

# PQViewDE

## User Manual

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## ACKNOWLEDGMENTS

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If there are any concerns, please call the EPRI Customer Assistance Center (CAC) toll free in the U.S. or Canada at 800-313-3774 or internationally at +1-650-855-2000.

Alternatively, send an e-mail to [support@electrotek.com](mailto:support@electrotek.com) or [askepri@epri.com](mailto:askepri@epri.com).

### **Difficulties accessing the application**

If there are difficulties accessing the application after standard installation on Windows 7, Windows 8, Windows 10, Windows Server 2008 R2, Windows Server 2012 R2, or Windows Server 2016, please consult with internal IT department personnel to ensure proper access permissions are set. If the problem cannot be resolved, please call the EPRI Customer Assistance Center (CAC) toll free in the U.S. or Canada at 800-313-3774 or internationally at +1-650-855-2000. Alternatively, send an e-mail to [support@electrotek.com](mailto:support@electrotek.com) or [askepri@epri.com](mailto:askepri@epri.com).

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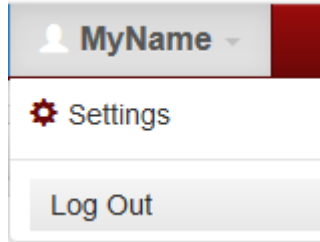
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# Login/Logout

To log into an account, simply enter a valid username and password into the *Username* and *Password* fields and select the Login button.

A screenshot of the PQWeb 4 Login interface. The window title is 'PQWeb® 4 Login'. In the center is a large grey circle containing a white padlock icon. Below this are two input fields: the first has a person icon and the text 'MyName'; the second has a padlock icon and a series of dots representing a password. A dark red 'Login' button is positioned below the password field. At the bottom left, there is a blue link labeled 'Forgot Password'.

After logging in, there is a dropdown select in the header menu with the label of the currently logged-in user. Under this drop-down is the option for logging out. When using Windows Authentication, the **Log Out** menu option is replaced with a **Refresh Session** menu option instead.



If the username or password is entered incorrectly, after selecting *Login*, the message "ERROR: You are not authorized to access this website." is displayed at the top of the login page.

Please go to the [Forgot Password and Reset Process](#) section to learn more about what to do in the event of a forgotten password.

## Cookies

Cookies are information packets sent by web servers to web browsers, and stored by the web browsers. The information is then sent back to the server each time the browser requests a page from the server. This enables a web server to identify and track web browsers.

PQView® DE uses cookies to track whether or not the user has agreed to the cookie policy and to track preferences for shared-user accounts.

Once you have agreed to the use of cookies, we will store a cookie on your computer or device to remember this for next time. If you wish to withdraw your agreement at any time, you will need to delete the PQWeb cookies using your internet browser settings. You should do this through the browser settings for each browser you use. Users can allow cookies from specific websites by making them 'trusted websites' in your internet browser. The following links may assist you in managing your cookies settings, or you can use the 'Help' option in your internet browser for more details:

- [Internet Explorer](#)
- [Microsoft Edge](#)
- [Mozilla Firefox](#)
- [Google Chrome](#)
- [Safari](#)

If the user is sharing use of a computer, accepting or rejecting the use of cookies may affect all users of that computer.



For more information about how PQWeb uses cookies, visit the **Cookie Policy** page under the **Help** tab.

## Forgot Password and Reset Process

In the event of a forgotten password, click the *Forgot Password* link at the bottom of the **Login** page.

A screenshot of the PQWeb 4 Login page. The page has a light grey header with the text "PQWeb® 4 Login". Below the header is a large grey circle containing a white padlock icon. Underneath the padlock are two input fields: the first is labeled "Username" with a person icon, and the second is labeled "Password" with a padlock icon. Below these fields is a dark red button with the text "Login". At the bottom left of the page is a blue link labeled "Forgot Password".

This leads to the **Forgot Password** page. Enter the username and select *Send Password Reset Link* to request a password change.

## Forgot Password

Your password reset request has been initiated. If an email address is associated with this account, please look for a password reset message in your email inbox. If an email address is not associated with this account, the account has been flagged as requesting a password reset and the system Administrator will complete the password reset process with you.

**Username:**

[Send Password Reset Link](#)

## With Email

If there is an email address associated with the username, an email is sent containing a link to the **Change Password** page. This link expires in 12 hours.

Please use this link to reset your PQView password:

<http://pqwebtest.electrotek.com/Account/ForgotPasswordLink/7f76fad4-a5b0-e811-b815-001ec95d05da>

This link will expire in 12 hours.

Here, the user is prompted to enter the new password twice. There is a helpful bar below the first password field to indicate the risk-level associated with the entered password. The tiers are *Risky*, *Poor*, *Weak*, *Good*, and *Strong*. It is highly recommended to choose a password that qualifies as *Strong*. Select *Update* to confirm the new password, then return to the **Login** page to log in.

## Change Password

**Username**

**Password**

**Password Strength**

**Confirm New Password**

[Update](#)

## Without Email

If there is no email associated with the username, it will have to be reset in PQView® 4 Admin website by someone with administrator privileges. A flag will appear on the PQView Administrator website to let the administrator know that a password reset has been requested.

The following instructions are for users with administrator privileges. Administrators can also read more about [User Management](#) in the PQView 4 Administrator Software Manual.

From the **Home** page of PQView Administrator, select the *User Management* option.

-  [User Management](#)
-  [Resource Management](#)
-  [Permission Management](#)
-  [Profile Management](#)
-  [Reports](#)

Alternatively, select the **Users** option from the top menu.



Both of these options lead to the **Users & Recipients Index**. Scroll down to find the desired username and select *Edit*.

Users & Recipients Index		<a href="#">Create New</a>	
Name	Username	Email	Type
Standalone Recipient		vgtest@test.com2abc	Recipient <a href="#">Edit</a>   <a href="#">Delete</a>
Jill		jill@test.com	Recipient <a href="#">Edit</a>   <a href="#">Delete</a>
Jon		jon@test.com	Recipient <a href="#">Edit</a>   <a href="#">Delete</a>
DMS	dms	vtest@test.com	User <a href="#">Edit</a>   <a href="#">Details</a>   <a href="#">Delete</a>

This leads to the **Edit User** page, where a new password can be entered into the *New Password* and *Confirm New Password* fields. Select *Save* at the bottom of the page to save the new password. For security purposes, it is recommended to check the *Force password change* box which will redirect the user to the change password page upon successful login.

The screenshot shows a web form titled "Edit User". It contains the following fields and labels:

- Name:** Input field containing "MyName".
- Username:** Input field containing "MyName".
- Email:** Empty input field.
- New Password:** Empty input field. Below it is a "Password Strength" indicator, which is a grey bar.
- Confirm New Password:** Empty input field.

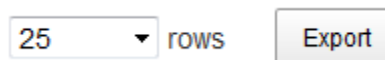
The administrator will then have to inform the user of the new password.

## Common Display Features

The following set of features help to display data throughout PQView® DE.

### Data Tables

Many analytic results and monitor lists are displayed in a responsive and richly featured data table, such as that used by the **Events** page. At the top left of the table, the number of rows displayed by default can be selected from the drop-down list, and remembered across the user's session. An *Export* button is also available for many tables so that the data may be saved in several formats, including Excel and PDF.



The number of rows returned and being displayed are listed at the bottom of the table, with options to navigate through multiple pages of results.

Showing 1 to 7 of 7 rows

Previous

1

Next

The data in the table can be filtered based on text entered in the *Filter* field at the top right of the table. The rows can be sorted by column using the *sort* icon, which is dark grey and pointing in the sort direction when sorted (↑) and displays two light grey arrows when not sorted (↕).

## Editable Tables

Some tables are used to edit system data. To do so, simply click on a field to edit the text. Pressing Tab navigates forward through the fields in the row. Pressing Enter or clicking outside the field automatically saves the changes. Pressing Esc exits editing mode without saving changes. Alternatively, a record can be edited by clicking on it so that it's highlighted, and then clicking on *Edit Selected Rows*. Multiple rows can be selected by pressing Shift+Click. The ***Edit Selected Rows*** window opens, where all changes made apply to all the selected rows. Fields that may not be edited in this view, such as the Database the record is for, or a unique name, are shown greyed out. Fields that say "Multiple values" don't change within the records unless a new value is explicitly set, and then it will apply to all the selected rows. Fields that have the same value for all the rows list that value, and the background is white. Fields that are edited and saved appear in a light yellow background, with an option to *Undo changes* listed beneath. To save any changes made, click on *Edit Selected Rows*. To close the window, click on *Close*. This example shows multiple sites being edited for UTC Offset.

**Edit Selected Rows**

**Database:** Multiple values  
The selected items contain different values for this input. To edit and set all items for this input to the same value, click or tap here, otherwise they will retain their individual values.

**Site Name:** Multiple values

**Description:** Multiple values

**Site Name in Data Source:**

**Rank:**

**Parent:**

**UTC Offset:**   
[Undo changes](#)

**DST:** Multiple values

**Connection Type:** Multiple values



**Nominal Base Voltage (V):** Multiple values

**Nominal Frequency (Hz):**



To add a record to one of the selected databases, click on the *New* button at the top. This opens the *Add New* window. Like the *Edit Selected Rows* window, this window contains all the fields available for the record. The *Database* drop-down is populated by the databases that have been selected for display. Once the fields have been filled, click *Add New* to add the site property to the database, or *Close* to close the window.


## Responsive Design

To accommodate smaller screens such as mobile devices, these tables usually only display the number of columns that can fit within the width of the browser's view, and

any additional fields will be hidden as a collapsed row. Clicking on the green plus sign (  ) at the left of each row of data shows any columns that are not displayed. Clicking on the red minus sign (  ) collapses the row back to a single line. In rare cases, the table is set to scroll horizontally, such as for the [Edit Site Property Values](#) page, which can have an unlimited number of columns.

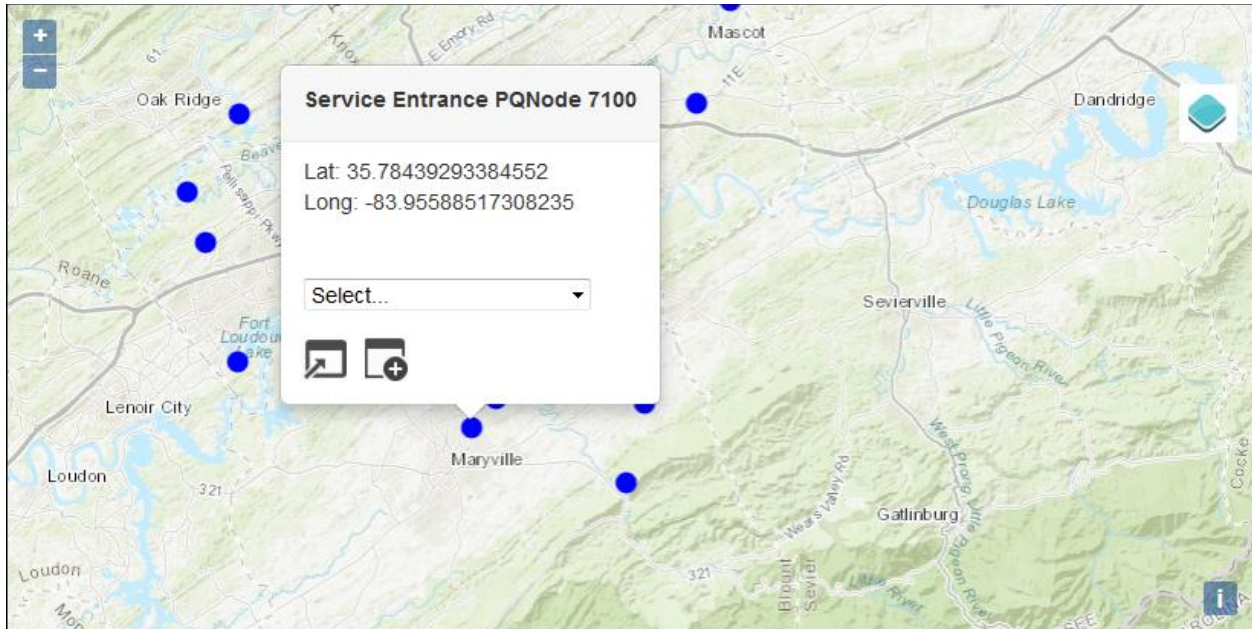
## Map Features

In the top left-hand corner of the map are a plus (  ) and a minus (  ) symbol, which can be selected to zoom in or out. This can also be done using the scroll wheel on a mouse or by spreading fingertips on a touchscreen. Additionally, double-clicking on the map causes it to zoom in on that spot.

Hovering the mouse over the map selector icon located in the top right-hand corner (  ) opens a list of various map types, including street maps and terrain maps. The default map selection is *ERSI Base*.

## Charts and Events by Site

When sites are displayed on a map, clicking on a site opens a window that displays the name, latitude, and longitude of the site. This window also includes a drop-down list of charts and events.



To view the trended data logs of the selected site, select a chart from the list; the chart list is populated from the Trend Reports maintained in PQView® 4 Admin website , such

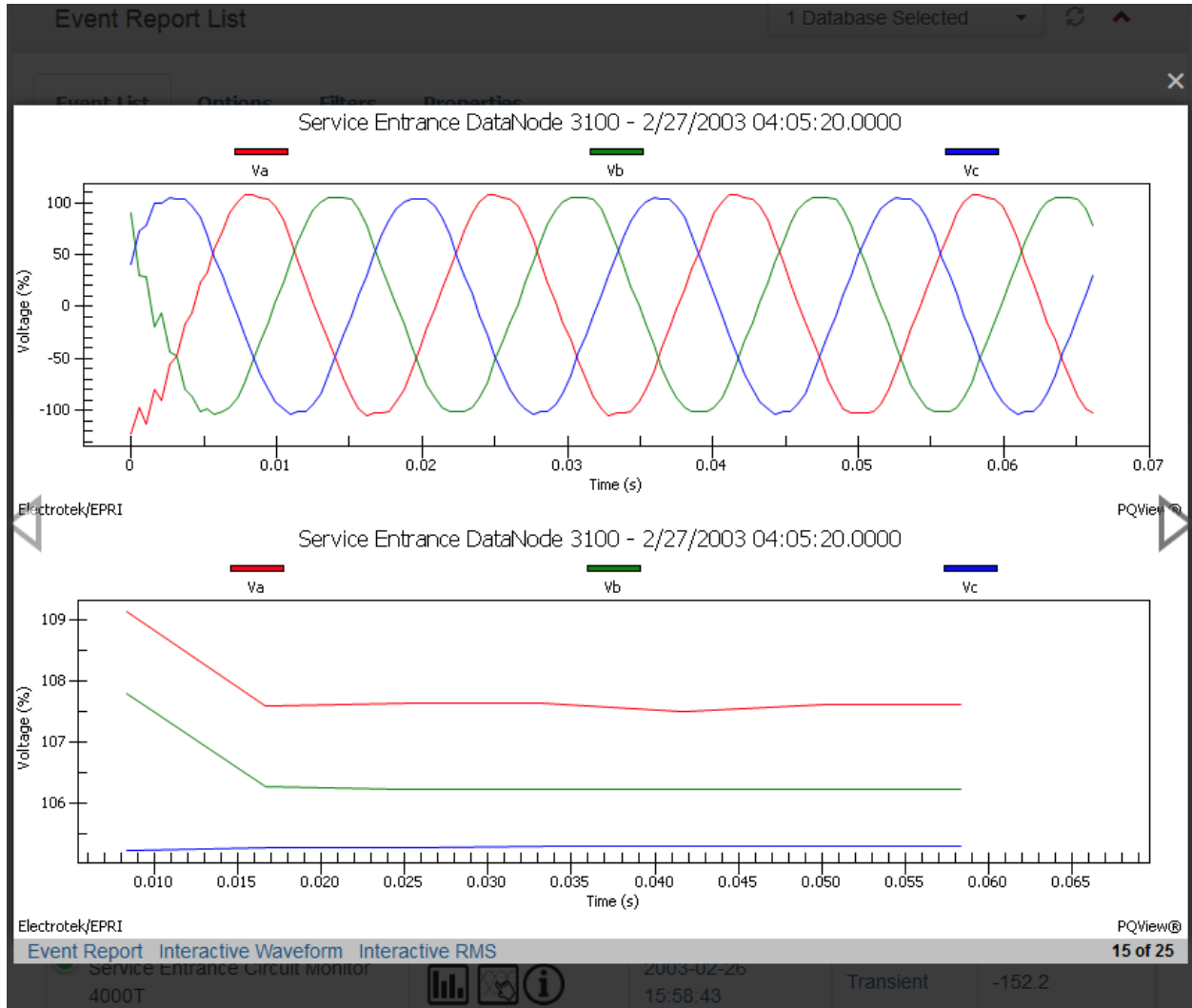
as RMS Voltage, Current, and Power, Voltage THD, Energy by Phase, etc. Once a chart option has been selected, click on the *Open* button (🗨️) to be taken directly to the **Data Logs** page, where the chart is displayed. The user may, alternatively, select the *Open in New Window* button (🗨️+) to keep the **Maps** page open.

To display an Events Report List, select *Events*. Once the events option has been selected, click on the *Open* button (🗨️) to be taken directly to the **Event Report List** page, where the site's events is displayed. The user may, alternatively, select the *Open in New Window* button (🗨️+) to keep the **Maps** tab open.

## Event Roll

The **Event Roll** is a pop-up slideshow for viewing event charts when multiple events have been selected. By default, all phases of the event are displayed. Use the arrows to the right and left of the popup to cycle through each event. At the bottom-left of the popup are links to open the *Event Report* (static chart), *Interactive Waveform*, or *Interactive RMS* in a new window. At the bottom-right of the popup, the sequence number of the event currently displayed in the list is shown.



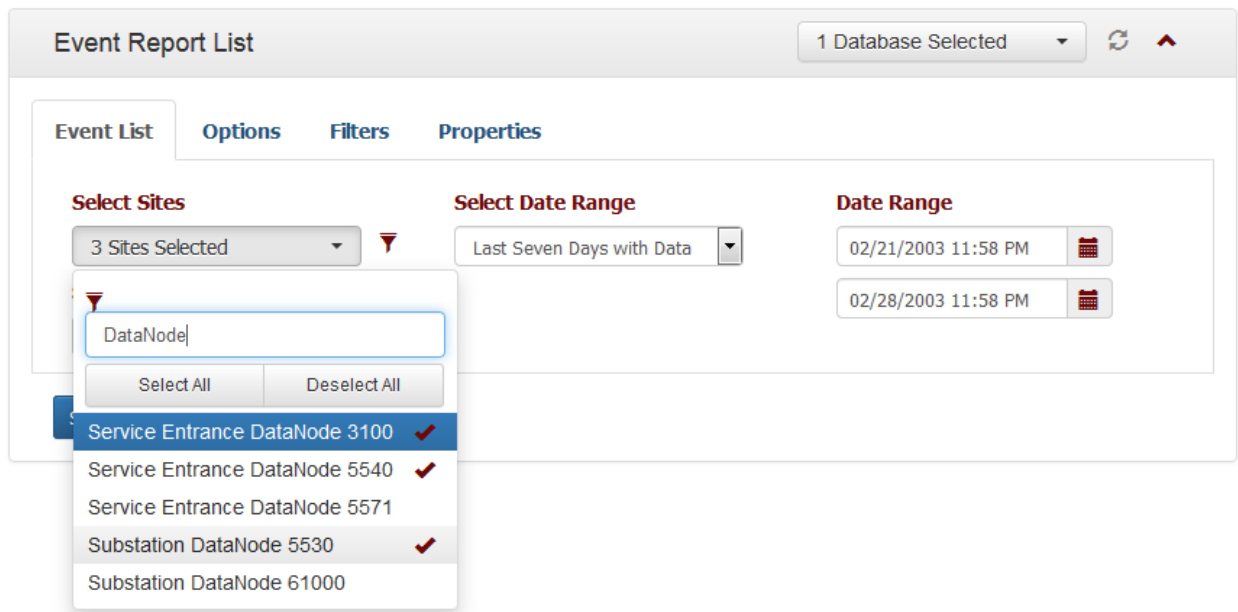


## Common Query Options

These data selection and querying controls are available to manage sites, date ranges, event types, and properties used for analyses and generating reports. Selections made using these controls are persisted during a user's logged-in session. The selections made on one page remain in effect across the application until the selections are changed, or the user logs out. This enables a user to select a group of sites over a specific date range and then proceed to run different analyses and/or reports without being required to reselect the same sites and date range each time they get to a new page on the web site.

## Select Sites

The **Select Sites** list is populated based on the databases selected and the Site Filters applied during the current session. The site names display with a prefix of the database name if the **User Settings** option for "Prepend Database Name to Site Name" is set to "Always," or if there are multiple databases selected and the "Prepend Database Name to Site Name" is set to "Default". This setting makes it easier to distinguish between sites when site names are the same or similar across databases. While making a site selection, the drop-down may be filtered further by entering text into the filter box in order to find site names containing the specific text entered.

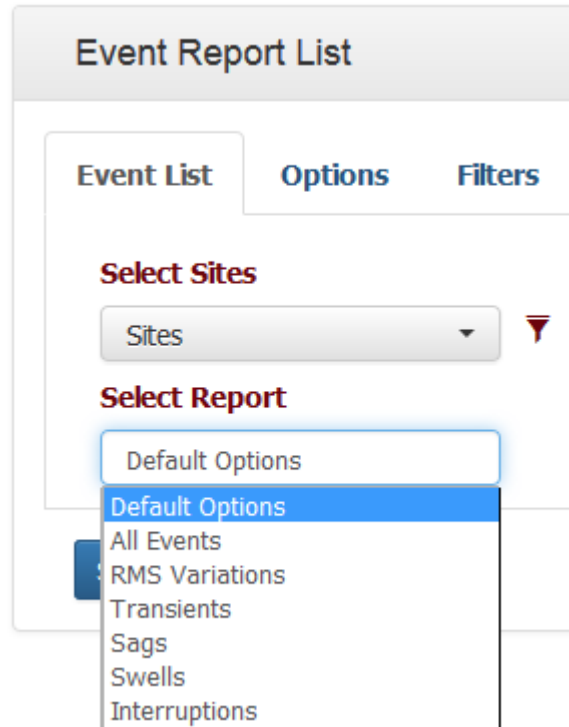


On some pages, there may be additional data filter controls, such as channels, that are populated based on which sites are selected. These filters are refreshed as the site selections are changed.

## Select Report

Several **Analytics** pages have an option to query data based on predefined settings, stored as reports. For example, selecting the *RMS Variations* report on the **Events** page automatically selects the *RMS Variations* option on the **Options** tab, and deselects the *Transients and Frequency Variations* options. These are the options that are used when the query is submitted. However, any manual changes to those selections will revert the Report selection to *Custom* since the report options have been manually changed. The Reports list on the **Events**, **RMS Variations** and **Data Logs** pages each

have a different list under *Select Report*, populated by Reports created in the PQView® 4 Admin website. PQView 4 comes preconfigured with a few basic reports, but an Administrator can create more as needed, or edit the existing ones. The Fault Reports available on the **Fault Events** page cannot be customized. This report list is managed by the PQView developers and is only available for licensed users.

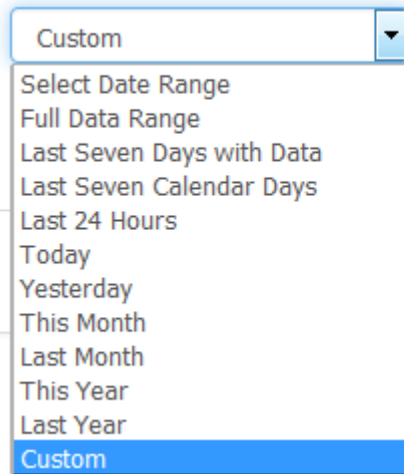


## Select Date Range

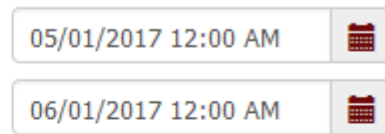
With the *Date Range* data filter controls, a user can specify the start and end dates of the time range for reporting and analysis. The calendar picker can be used by clicking on the calendar icon, or the start and end dates and times can be manually entered/edited in the text boxes. The format of the date depends upon the localization settings of the computer and browser being used or as set by the **Localization** PQView Preferences on the **User Settings** page. The *Select Date Range* drop-down provides common date ranges, such as last month, last week, this year, and others.

When selecting the date and time range, the analysis reports include measurements only greater than or equal to the *From* date, and less than the *To* date. For example, to set the time range to the entire month of May 2017, including May 31st, enter 05/01/2017 12:00AM as the Start Date, and 06/01/2017 12:00AM as the End Date.

### Select Date Range

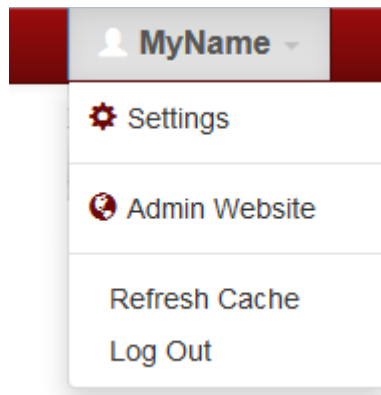


### Date Range



## User Menu

On the top-right hand side of the PQView® DE menu, the name of the logged in user displays as a menu option, with a person icon and drop-down arrow:



From here, the user may change their personal settings and preferences, access a link to the PQView® 4 Admin website (if the user has appropriate permissions), refresh any cached data, or log out. The settings are discussed in further detail in the next section.

Cached data that may be refreshed includes:

- Site lists that display on **Analytix** screens

- Option lists that change infrequently, such as aggregation options
- Database start and end dates, which are cached for 5 minutes at a time

Additional data may be cached in the future to improve website performance. However, if there are known changes to any of these lists, the user may select the *Refresh Cache* menu option to re-retrieve this data from the database.

## Settings

The user settings are grouped together in tabs based on settings that work together in various sections of PQView® DE. Preferences are system-wide and may also apply to how the PQDMS, Reporting, or custom SDK-built applications return data and charts for the logged-in user.

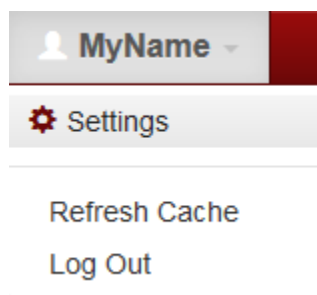
### Data Sources

The **Data Sources** tab controls which data sources are selected while using PQView® DE.

The screenshot shows the 'MyName Settings' interface. At the top, there is a header 'MyName Settings' with a gear icon. Below it, a navigation bar contains five tabs: 'Data Sources' (active), 'Dashboard', 'Default Event Options', 'MyName Preferences', and 'One-Line Configuration'. The main content area is a form with the following elements:












- Database(s)**: A dropdown menu showing '2 items selected'.
- PQDMS**: A dropdown menu showing 'BEVTEST1'.
- Prepend Database Name to Site Name**: A dropdown menu showing 'Default'.
- Save**: A button located at the bottom center of the form.

This page can be reached by clicking on the **Username**>[Settings](#).














In the *Database(s)* drop-down, selecting one or more databases sets the default database selection across the site. All pages will use the databases selected here unless otherwise specified during use.

*Prepend Database to Site Name* determines whether a site name, wherever displayed, is labeled with its associated database. The *Default* option displays the database only in cases where multiple databases are selected. *Always* and *Never* are also options.

Site Name	Links	Date and Time	Type	Minimum (%)	Maximum (%)
[PQDMS_DEMO].DN61000-demo	  	2018-06-29 21:05:03.8510	Transient	-100.1554	100.2787
[PQDMS_DEMO].DN61000-demo	  	2018-06-29 21:05:03.8420	Transient	-100.106	100.2787
[InfoNodeCompare].Knoxville 61000 Delta-PQDM	  	2018-06-29 15:48:49.7520	Transient	-101.1353	101.2205
[InfoNodeCompare].Knoxville 61000 Wye	 	2018-06-29 15:48:49.7350	Transient	-104.4046	108.2687

**An Event List with Database Prepended to Site Name**

Site Name	Links	Date and Time	Type	Minimum (%)	Maximum (%)
DN61000-demo	  	2018-06-29 21:05:03.8510	Transient	-100.1554	100.2787
DN61000-demo	  	2018-06-29 21:05:03.8420	Transient	-100.106	100.2787
Knoxville 61000 Delta-PQDM	  	2018-06-29 15:48:49.7520	Transient	-101.1353	101.2205
Knoxville 61000 Wye	 	2018-06-29 15:48:49.7350	Transient	-104.4046	108.2687

**An Event List without Database Prepended to Site Name**

The *PQDMS* drop-down enables the user to select which PQDMS to use for managing monitors and providing real-time data. Unlike the *Database* drop-down, only one can be selected at a time.

All changes made under the **Data Sources** tab must be saved by clicking on the *Save* button at the bottom of the page before they can take effect across PQView® DE.

## Dashboard

The **Dashboard** tab on the *Settings* page is used to customize the Dashboard on the *Home page*.

The screenshot shows the 'MyName Settings' interface with the 'Dashboard' tab selected. The settings are as follows:

- Events Displayed:** 250 (dropdown menu)
- Update Interval:** 30 minutes (dropdown menu)
- Date Range:** Full Data Range (dropdown menu)
- Auto Load Dashboard:**  (unchecked)
- Show All Sites in Event List on Map:**  (checked)

A 'Save' button is located at the bottom center of the settings area.

The *Events Displayed* drop-down controls how long the Events List on the dashboard can be, ranging from 10 to 500 events. This is not to be confused with the *Max Event List Count*, which specifies the number of events returned on the *Events List* page.

The *Date Range* drop-down offers options for what date range the dashboard's event list queries. The *Update Interval* drop-down controls how frequently the dashboard refreshes its content, from between 5 seconds and 30 minutes. Selecting *Auto Load Dashboard* causes the dashboard to poll automatically upon loading the **Home** page. Selecting *Show All Sites in Event List on Map* displays all of the Sites on the dashboard Site Map, rather than just the site of the selected event.

All changes made under settings must be saved by clicking on the *Save* button, and the **Home** page must be reloaded, before the new settings can take effect.

## Default Event Options

The **Default Event Options** tab controls how *Events Lists* are filtered by default on all relevant PQView® DE pages.

**MyName Settings**

Data Sources   Dashboard   **Default Event Options**   MyName Preferences   One-Line Configuration

- RMS Variations**
  - Show Sags between**  
22% and 82%
  - Show Swells between**  
100% and 165%
- Show Transients**
  - Show Transients between**  
127% and 200%
- Frequency Variations**

Max Event List Count

Save

This page can be reached by clicking on **Username**>[Settings](#).

MyName ▾

Settings

Refresh Cache

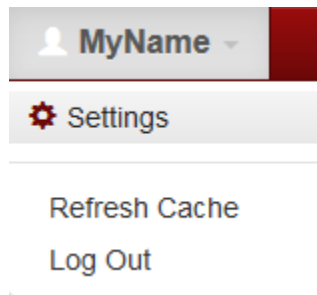
Log Out

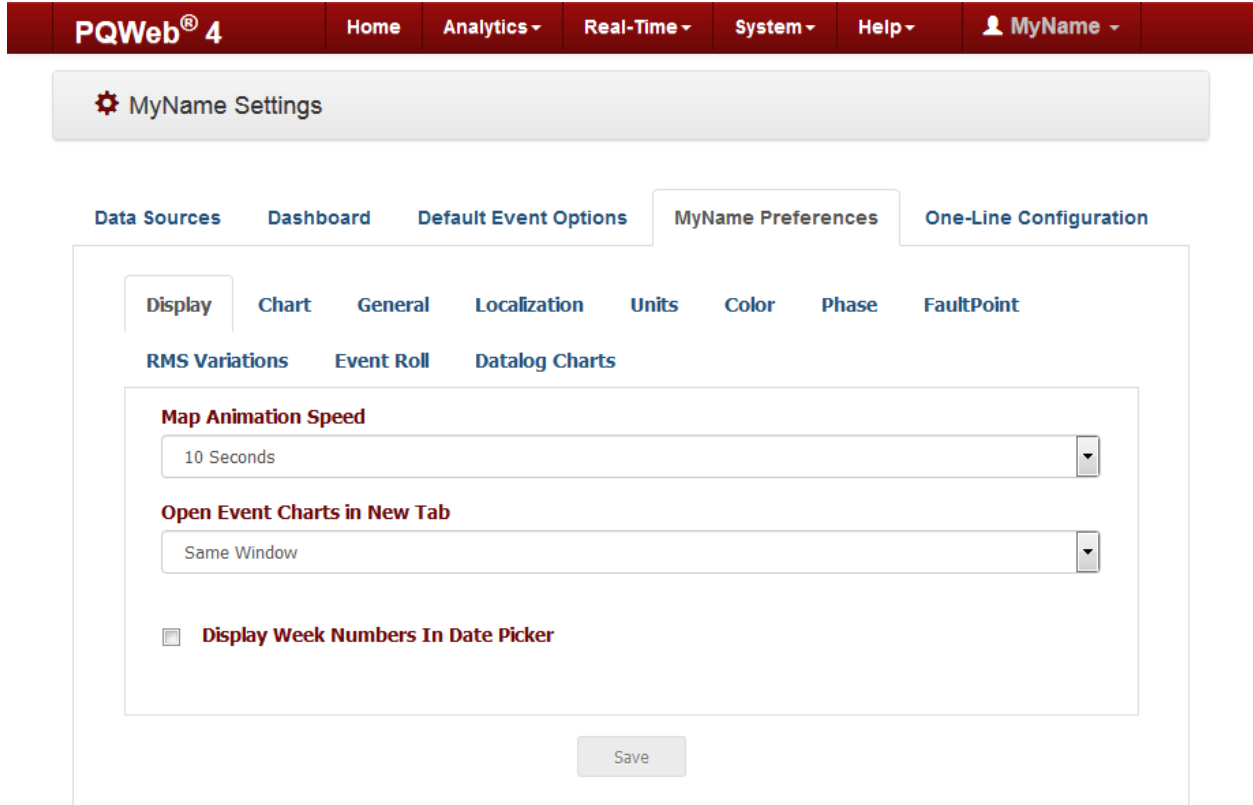


On this page, the user can select or deselect *RMS Variations*, *Show Transients*, and *Frequency Variations* for display. Under *RMS Variations*, sags and swells can each be selected or deselected, and the severity of the sag or swell can be filtered by percentage range using the sliders. Similarly, under *Show Transients*, the slider can be used to filter transient events by percentage range. *Max Event List Count* controls the maximum number of events retrieved by the selected criteria.

## PQView Preferences

The **User Preferences** page enables customization of the default aesthetics and functionality of various pages across PQView® DE. This page can be reached by selecting **Username > Settings** in the top right corner of the screen, and then clicking on the *[Username] Preferences* tab.





From here, the tabs available are:

- The **Display** tab enables the customization of how certain controls are displayed.
- The **Chart** tab enables customization of the look and functionality of charts.
- The **General** tab enables the customization of the datalog sample correction.
- The **Localization** tab enables the customization of language, date/time, currency, and other region-specific settings.
- The **Units** tab enables customization of which units of measurement are used.
- The **Color** tab enables the customization of which colors are used in the generation of charts.
- The **Phase** tab enables customization of how the different types of phase channels are labeled.
- The **FaultPoint** tab enables customization of how fault maps and charts are displayed.
- The **RMS Variations** tab enables customization of how RMS variation events are aggregated.
- The **Event Roll** tab enables customization of how charts appear in the "event roll".

- The **Datalog Charts** tab enables the customization of how datalog charts appear.

## Display

The **Display** tab under *PQView Preferences* enables the customization of how certain items are displayed.

The screenshot shows the 'Display' tab selected in the 'PQView Preferences' window. The 'Datalog Charts' sub-tab is also active. The configuration options are as follows:

- Map Animation Speed:** A dropdown menu set to '10 Seconds'.
- Open Event Charts in New Tab:** A dropdown menu set to 'Same Window'.
- Display Week Numbers In Date Picker:** A checked checkbox.

A 'Save' button is located at the bottom center of the configuration area.

Options for customization include:

- *Map Animation Speed:* Customize animation speed/refresh interval for the animated Sag maps.
- *Open Event Charts in New Tab:* Determine whether the event hyperlinks will open an event chart in the same window or a new window or tab.
- *Display Week Numbers in Date Picker:* Enable or disable the display of week numbers in the DatePicker UI control.

To save any changes made under this tab, click on the *Save* button at the bottom.

## Chart

The **Chart** tab under *PQView Preferences* enables customization of the look and functionality of charts all across PQView® DE.

Display | **Chart** | General | Localization | Units | Color | Phase | FaultPoint

RMS Variations | Event Roll | Datalog Charts

**Show Chart ToolTips**

**Max Data Points In Interactive Charts**

2500

**Footer Text**

Electrotek/EPRI

**Show Grid Lines**

**Use Bold Grid**

**Show Grid Bands**

**Chart Font**

Tahoma

**Font Size**

Medium

**Grid Line Style**

Customization options include:

- *Show Chart ToolTips*: Enables/disables the default display of tooltip pop-up boxes in the interactive charts. If checked, tooltips are shown.
- *Max Data Points in Interactive Charts*: Determines maximum number of points in the interactive charts. If the number of input data points exceeds this number, reduction of the points is performed based on the temporal aggregation settings. If automatic aggregation is used, the number of points is reduced by lowering data resolution. If manual (or no) aggregation is used, the data is truncated in a way where only the start of the subset is displayed.
- *Footer Text*: Footer text displayed in the bottom left corner of charts.
- *Show Grid Lines*: Determines whether the vertical and horizontal chart grid lines are displayed.
- *Use Bold Grid*: Type of the grid lines color; if checked, the chart foreground color is used; otherwise light gray is used.

- *Show Grid Bands*: If checked, the color of the spaces between the grid lines is alternating between two colors.
- *Chart Font*: Font used in the charts for labels and annotations.
- *Font Size*: Size of the label and annotation text in charts.
- *Grid Line Style*: Thickness of of chart grid lines.
- *Show Zoom Window*: Zoom window visibility; if checked, an additional auxiliary is shown at the bottom of the data chart, showing full time for easier zooming and navigation.
- *Show Line Gaps*: If checked and the distance between two points is greater than the threshold based on the input data (3x average distance between points), the line between those two points is not shown; rather, a gap is displayed.
- *Zoom Mode*: Interactive Chart Zoom Mode determines which axes of the chart are zoomed by a mouse selection, whether horizontal, vertical, both, or neither.

To save any changes made under this tab, click on the *Save* button at the bottom.

## General

The **General** tab under *PQView Preferences* enables the customization of Datalog Sample Correction. Currently the two options are "None" and "Site Property Based."

The screenshot shows the 'General' tab selected in the 'PQView Preferences' window. The 'Datalog Sample Correction' dropdown menu is currently set to 'None'. A 'Save' button is visible at the bottom of the form.

The customization options under this tab are:

- *Datalog Sample Correction*: A user-defined optional datalog scaling mechanism. If enabled, the analysis time datalog sample scaling are applied to sites, channels, and harmonics based on preferences. The "Site Property Based" scaler loads scaling factors defined for one or more channels/harmonics as site properties; scaling is applied to the samples before they are displayed.

To save any changes made under this tab, click on the *Save* button at the bottom.

## Localization

The **Localization** tab under *PQView Preferences* enables the customization of language, date/time, currency, and other region-specific factors that will make the use of PQView® DE more convenient.

The screenshot shows the 'Localization' tab selected in the 'PQView Preferences' window. The interface includes a top navigation bar with tabs: Display, Chart, General, Localization (active), Units, Color, Phase, and FaultPoint. Below this is a secondary row of tabs: RMS Variations, Event Roll, and Datalog Charts. The main content area is titled 'Localization' and contains the following settings:

- Culture:** A dropdown menu currently showing 'English'.
- Custom Timestamp (Date-Time) Pattern:** An empty text input field.
- Custom Long Date Pattern:** An empty text input field.
- Custom Short Date Pattern:** An empty text input field.
- Custom Long Time Pattern:** An empty text input field.
- Custom Short Time Pattern:** An empty text input field.
- Custom First Day Of The Week:** A dropdown menu currently showing 'Default'.

The customization options under this tab are:

- *Culture*: Operating system based culture (locale) used for language and numeric/date formatting; list is based on the available translations.
- *Custom Timestamp (Date-Time) Pattern*: Format of the timestamp strings containing both the date and time with up to subsecond precision.

- *Custom Long Date Pattern*: Format of the long date values, usually containing month name.
- *Custom Short Date Pattern*: Format of the short date values.
- *Custom Long Time Pattern*: Format of the long time values.
- *Custom Short Time Pattern*: Format of the short time values.
- *Custom First Day of the Week*: Day of the week used as the starting week day.
- *Custom Month Names (Comma Separated)*: Long month names, list of 12 options separated by commas.
- *Custom Day Names (Comma separated)*: Weekday names, list of 7 options separated by commas.
- *Custom Abbreviated Month Names (Comma separated)*: Month name abbreviations (3 characters), list of 12 options separated by commas.
- *Custom Abbreviated Day Names (Comma separated)*: Weekday name abbreviations (3 characters), list of 7 options separated by commas.
- *Custom Negative Number Sign*
- *Custom Positive Number Sign*
- *Custom Currency Decimal Separator*
- *Custom Currency Group Separator*
- *Custom Currency Positive Symbol*
- *Custom Currency Symbol*
- *Custom Number Decimal Separator*
- *Custom Number Decimal Digits*
- *Custom Number Group Separator*
- *Custom Percent Number Decimal Separator*
- *Custom Percent Number Decimal Digits*
- *Custom Percent Number Group Separator*
- *Custom Percent Number Negative Pattern*
- *Custom Percent Number Positive Pattern*
- *Numeric Precision*: Preference that limits number of digits in front and after the decimal separator to this value, if the total number of digits in the number does not exceed this value. If the total number of digits in this number exceeds this value, no digits after the decimal separator are shown. For example, with numeric precision set to 4, the number 123.45 would be displayed as "123.4" and the number 12345 as "12345." The maximum number of digits after the decimal

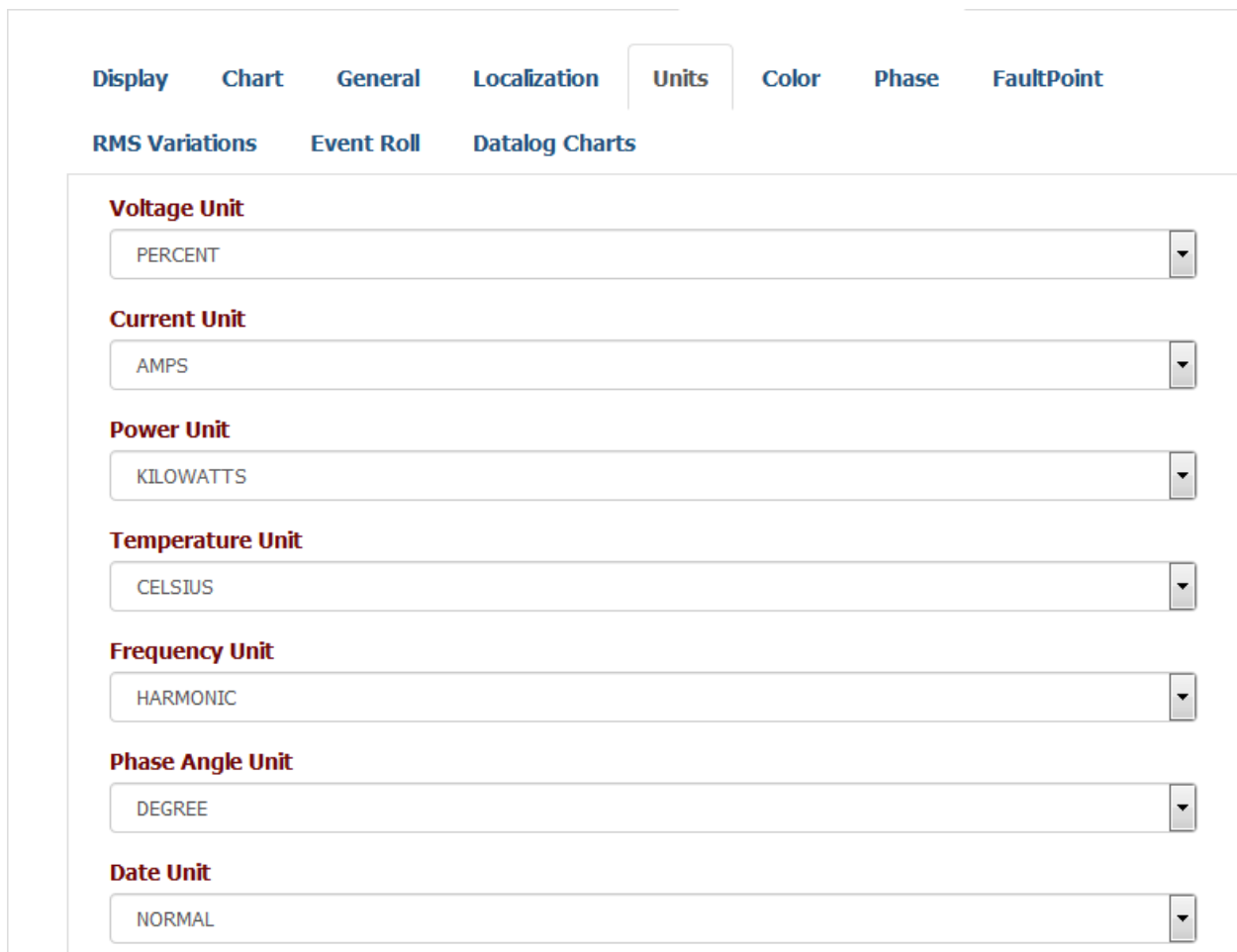
separator can be further reduced using the "Max Number of Decimal Digits" preference.

- *Max. Number of Decimal Digits:* Maximum number of digits after the decimal separator displayed, after the "Numeric Precision" formatting has been applied.
- *CSV File Export Separator:* Column separator character used in CSV file format exporters.
- *Include CSV Separator Declaration in the First Line:* If checked, the first line of the CSV exported files contains "sep=?" string, where "?" is replaced by the "CSV File Export Separator" preference value.

To save any changes made under this tab, click on the *Save* button at the bottom.

## Units

The **Units** tab under *PQView Preferences* enables customization of which units of measurement are used across PQView® DE.



The screenshot displays the 'Units' tab within the 'PQView Preferences' window. The 'Units' tab is highlighted, and other tabs like 'Display', 'Chart', 'General', 'Localization', 'Color', 'Phase', and 'FaultPoint' are visible. Below the tabs, there are sub-sections for 'RMS Variations', 'Event Roll', and 'Datalog Charts'. The main content area contains seven dropdown menus, each with a label and a selected value:

- Voltage Unit:** PERCENT
- Current Unit:** AMPS
- Power Unit:** KILOWATTS
- Temperature Unit:** CELSIUS
- Frequency Unit:** HARMONIC
- Phase Angle Unit:** DEGREE
- Date Unit:** NORMAL



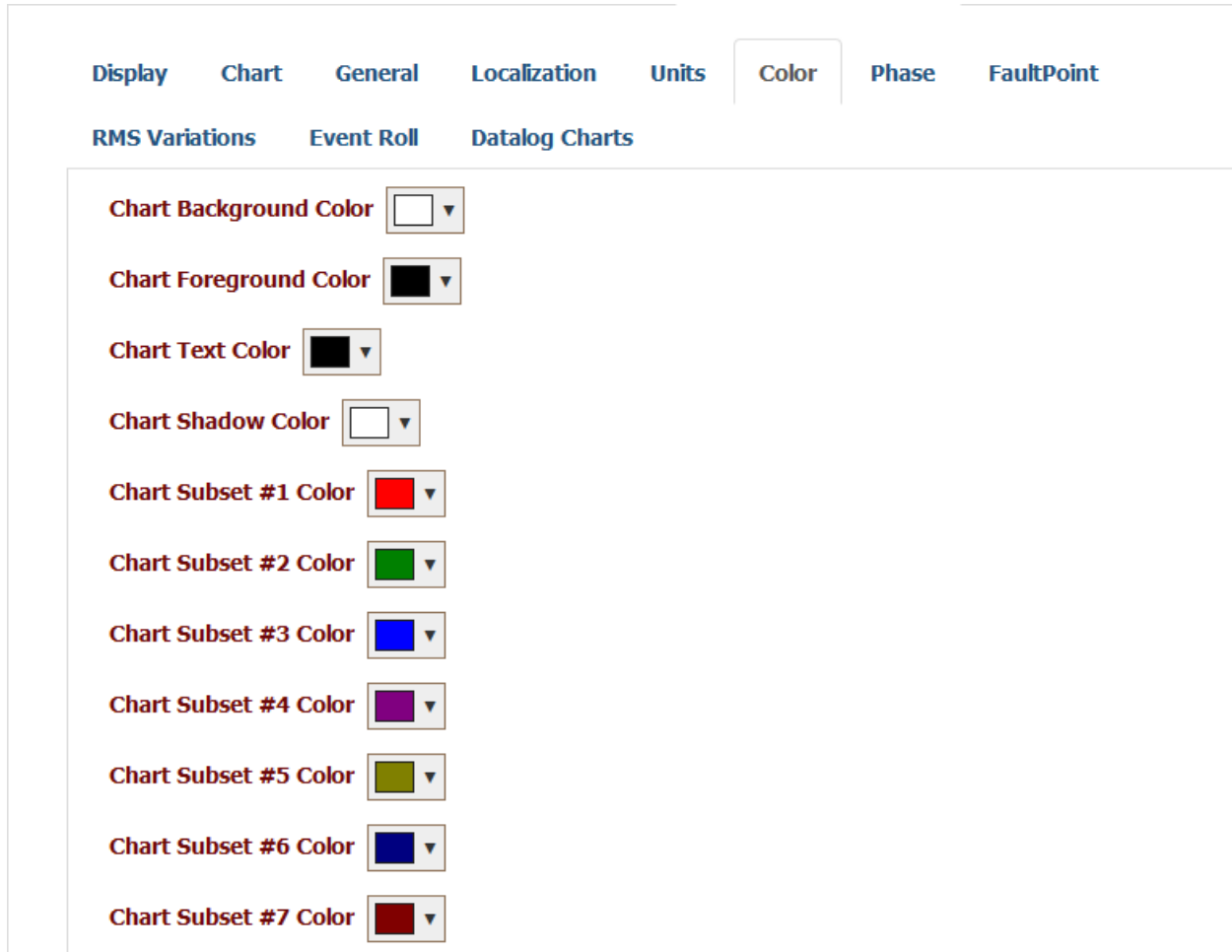
The customization options on this page are:

- *Voltage Unit*: Unit used for displaying voltage values in charts, labels, and tables; relative unit values (percent and perunit) are calculated using site or event nominal voltage value.
- *Current Unit*: Unit used for displaying current values in charts, labels, and tables.
- *Power Unit*: Unit used for displaying real, reactive, and apparent power values in charts, labels, and tables.
- *Temperature Unit*: Unit used for displaying temperature values in charts, labels, and tables.
- *Frequency Unit*: Unit used for displaying frequency values in charts, labels, and tables.
- *Angle Unit*: Unit used for displaying angle values in charts, labels, and tables.
- *Date Unit*: Format of the date used on X axis of the datalog charts: normal date or number of the week in the year.
- *Time Unit*: Format of the time used for duration display (e.g. RMS variations, Faults, etc.)
- *Impedance Unit*: Unit used for displaying impedance, resistance, and reactance values in charts, labels, and tables.

To save any changes made under this tab, click on the *Save* button at the bottom.

## **Color**

The **Color** tab under *PQView Preferences* enables the customization of which colors are used in the generation of charts.



Customization options under this tab include:

- *Chart Background Color*: Background color of charts; white by default.
- *Chart Foreground Color*: Foreground color of charts, used for axes/coordinate grid.
- *Chart Text Color*: Foreground color of chart text, used for captions, labels, and annotations.
- *Chart Shadow Color*: Shadow color used in shadow displayed behind the chart area.
- Chart Subset Colors:
  - *Chart Subset #1 color*: Color of the 1st subset displayed in the Datalog charts; if more than 18 subsets are present, this color is also used for subsets #19, #37, etc.

- *Chart Subset #2 color*: Color of the 2nd subset displayed in the Datalog charts; if more than 18 subsets are present, this color is also used for subsets #20, #38, etc.
- *Chart Subset #3 color*: Color of the 3rd subset displayed in the Datalog charts; if more than 18 subsets are present, this color is also used for subsets #21, #39, etc.
- *Chart Subset #4 color*: Color of the 4th subset displayed in the Datalog charts; if more than 18 subsets are present, this color is also used for subsets #22, #40, etc.
- *Chart Subset #5 color*: Color of the 5th subset displayed in the Datalog charts; if more than 18 subsets are present, this color is also used for subsets #23, #41, etc.
- *Chart Subset #6 color*: Color of the 6th subset displayed in the Datalog charts; if more than 18 subsets are present, this color is also used for subsets #24, #42, etc.
- *Chart Subset #7 color*: Color of the 7th subset displayed in the Datalog charts; if more than 18 subsets are present, this color is also used for subsets #25, #43, etc.
- *Chart Subset #8 color*: Color of the 8th subset displayed in the Datalog charts; if more than 18 subsets are present, this color is also used for subsets #26, #44, etc.
- *Chart Subset #9 color*: Color of the 9th subset displayed in the Datalog charts; if more than 18 subsets are present, this color is also used for subsets #27, #45, etc.
- *Chart Subset #10 color*: Color of the 10th subset displayed in the Datalog charts; if more than 18 subsets are present, this color is also used for subsets #28, #46, etc.
- *Chart Subset #11 color*: Color of the 11th subset displayed in the Datalog charts; if more than 18 subsets are present, this color is also used for subsets #29, #47, etc.
- *Chart Subset #12 color*: Color of the 12th subset displayed in the Datalog charts; if more than 18 subsets are present, this color is also used for subsets #30, #48, etc.
- *Chart Subset #13 color*: Color of the 13th subset displayed in the Datalog charts; if more than 18 subsets are present, this color is also used for subsets #31, #49, etc.

- *Chart Subset #14 color*: Color of the 14th subset displayed in the Datalog charts; if more than 18 subsets are present, this color is also used for subsets #32, #50, etc.
- *Chart Subset #15 color*: Color of the 15th subset displayed in the Datalog charts; if more than 18 subsets are present, this color is also used for subsets #33, #51, etc.
- *Chart Subset #16 color*: Color of the 16th subset displayed in the Datalog charts; if more than 18 subsets are present, this color is also used for subsets #34, #52, etc.
- *Chart Subset #17 color*: Color of the 17th subset displayed in the Datalog charts; if more than 18 subsets are present, this color is also used for subsets #35, #53, etc.
- *Chart Subset #18 color*: Color of the 18th subset displayed in the Datalog charts; if more than 18 subsets are present, this color is also used for subsets #36, #54, etc.

To save any changes made under this tab, click on the *Save* button at the bottom.

## **Phase**

The **Phase** tab under *PQView Preferences* enables customization of how the different types of phase channels are labeled where they appear across PQView® DE.

The screenshot shows a software interface with a navigation menu at the top. The 'Phase' tab is selected and highlighted. Below the navigation menu, there are seven input fields for phase labels:

- Phase AN Label:** Input field containing 'A'
- Phase BN Label:** Input field containing 'B'
- Phase CN Label:** Input field containing 'C'
- Phase AB Label:** Input field containing 'AB'
- Phase BC Label:** Input field containing 'BC'
- Phase CA Label:** Input field containing 'CA'
- Phase Neutral Label:** Input field containing 'N'

The customization options under this tab are:

- *Phase AN Label:* Label used for A-Neutral phase channels.
- *Phase BN Label:* Label used for B-Neutral phase channels.
- *Phase CN Label:* Label used for C-Neutral phase channels.
- *Phase AB Label:* Label used for A-B phase channels.
- *Phase BC Label:* Label used for B-C phase channels.
- *Phase CA Label:* Label used for C-A phase channels.
- *Phase Neutral Label:* Label used for neutral phase channels.
- *Phase Residual Label:* Label used for Residual phase channels.
- *Phase Net Label:* Label used for Net phase channels.
- *Phase Total Label:* Label used for Total (sum) phase channels.
- *Phase Average LN Label:* Label used for average Line-Neutral phase channels.
- *Phase Average LL Label:* Label used for average Line-Line phase channels.

To save any changes made under this tab, click on the *Save* button at the bottom.

## RMS Variations

The **RMS Variations** tab under *PQView Preferences* enables customization of how RMS Variation Events are aggregated.

The screenshot shows the 'RMS Variations' configuration interface. At the top, there are tabs for 'Display', 'Chart', 'General', 'Localization', 'Units', 'Color', 'Phase', and 'FaultPoint'. Below these, there are sub-tabs for 'RMS Variations', 'Event Roll', and 'Datalog Charts'. The 'RMS Variations' sub-tab is selected. The configuration area contains the following fields:

- Default Worst Case Aggregation Method:** A dropdown menu with 'Max V Deviation' selected.
- Default Temporal Aggregation Interval:** A text input field containing '60'.
- Default Temporal Aggregation Unit:** A dropdown menu with 'Seconds' selected.
- Use Variable Temporal Aggregation Type:** A checkbox that is currently unchecked.
- Max. Number Of Seconds For Variable Aggregation:** A text input field containing '600'.
- Default Spatial Aggregation Property Name:** An empty text input field.

A 'Save' button is located at the bottom center of the configuration area.

The customization options under this tab are:

- *Default Worst Case Aggregation Method:* Method Used to select the worst-case event as the value of the aggregated set of events.
- *Default Temporal Aggregation Interval:* Default interval displayed in the temporal aggregation in UI menu.
- *Default Temporal Aggregation Unit:* Default unit displayed in the temporal aggregation UI menu.
- *Use Variable Temporal Aggregation Type:* If checked, an event is considered part of the aggregated group if it starts before the end of the last aggregated event plus the aggregation interval, if the time difference from the end of the first aggregated event is less than "Max. Number of Seconds for Variable Aggression."

If unchecked, the event is considered part of the aggregated group if it stands before the end of the first aggregated event plus the aggregation interval.

- *Max. Number of Seconds for Variable Aggregation:* See "Use Variable Temporal Aggregation Type."
- *Default Spatial Aggregation Property Name:* Spatial Aggregation is treating sites with an identical selected site property name as a spatial group. This preference defines the default site property to use in the UI.

To save any changes made under this tab, click on the *Save* button at the bottom.

## Event Roll

The **Event Roll** tab under *PQView Preferences* enables customization of how charts appear in the Event Roll.

The screenshot shows the 'Event Roll' tab selected within the 'PQView Preferences' window. The interface includes several tabs: 'Display', 'Chart', 'General', 'Localization', 'Units', 'Color', 'Phase', and 'FaultPoint'. Under the 'Chart' tab, there are sub-tabs for 'RMS Variations', 'Event Roll', and 'Datalog Charts'. The 'Event Roll' sub-tab is active, displaying the following settings:

- Event Waveform Line Type:** ThinSolid
- Event Symmetrical Components Line Type:** Dash
- Event Min Line Type:** Dash
- Event Avg Line Type:** ThinSolid
- Event Max Line Type:** Dot
- Show Line Gaps**
- Event Trend V AN Color:** Red
- Event Trend V BN Color:** Green

Customization options under this tab include:

- *Event Waveform Line Type:* Type of line used for the voltage and current waveform subset in the Event charts.

- *Event Symmetrical Components Line Type*: Type of line used for the symmetrical components subset in the Event charts.
- *Event Min Line Type*: Type of line used for the minimum RMS subsets in the Event charts.
- *Event Avg Line Type*: Type of line used for the average RMS subsets in the Event charts.
- *Event Max Line Type*: Type of line used for the maximum RMS subsets in the event charts.
- *Show Line Gaps*: If checked and the distance between two points is greater than the threshold based on the input data points per cycle, the line between those two points is not shown; rather, a gap is displayed.
- Event Trend Colors
  - *Event Trend V AN Color*: Color used for A-Neutral phase voltage subsets.
  - *Event Trend V BN Color*: Color used for B-Neutral phase voltage subsets.
  - *Event Trend V CN Color*: Color used for C-Neutral phase voltage subsets.
  - *Event Trend V AB Color*: Color used for A-B phase voltage subsets.
  - *Event Trend V BC Color*: Color used for B-C phase voltage subsets.
  - *Event Trend V CA Color*: Color used for C-A phase voltage subsets.
  - *Event Trend V N Color*: Color used for Neutral phase voltage subsets.
  - *Event Trend V Res Color*: Color used for Residual phase voltage subsets.
  - *Color Trend V Net Color*: Color used for Net phase voltage subsets.
  - *Event Trend I AN Color*: Color used for phase A current subsets.
  - *Event Trend I BN Color*: Color used for phase B current subsets.
  - *Event Trend I CN Color*: Color used for phase C current subsets.
  - *Event Trend I N Color*: Color used for Neutral current subsets.
  - *Event Trend I Res Color*: Color used for Residual current subsets.
  - *Event Trend I Net Color*: Color used for Net current subsets.
  - *Event Trend P A Color*: Color used for phase A active, reactive, and apparent power subsets.
  - *Event Trend P B Color*: Color used for phase B active, reactive, and apparent power subsets.
  - *Event Trend P C Color*: Color used for phase C active, reactive, and apparent power subsets.
  - *Event Trend P All Color*: Color used for total active, reactive, and power subsets.



- *Event Trend Sym Zero Color*: Color used for zero symmetrical component subsets.
- *Event Trend Sym Positive Color*: Color used for positive symmetrical component subsets.
- *Event Trend Sym Negative Color*: Color used for negative symmetrical component subsets.

To save any changes made under this tab, click on the *Save* button at the bottom.

## Datalog Charts

The **Datalog Charts** tab under *PQView Preferences* enables the customization of how datalog charts appear.

The screenshot displays the 'Datalog Charts' tab within the 'PQView Preferences' window. The navigation bar includes 'Display', 'Chart', 'General', 'Localization', 'Units', 'Color', 'Phase', and 'FaultPoint'. Below this, there are sub-tabs for 'RMS Variations', 'Event Roll', and 'Datalog Charts'. The 'Datalog Charts' sub-tab is active, showing five configuration options, each with a dropdown menu:

- Value Subsets Line Type**: ThinSolid
- Minimum Subsets Line Type**: Dash
- Average Subsets Line Type**: MediumThinSolid
- Maximum Subsets Line Type**: Dot
- Count-Total Subsets Line Type**: MediumThinSolid

Customization options under this tab include:

- *Value Subsets Line Type*: Type of the line used for the snapshot/value format subsets in the datalog charts.
- *Minimum Subsets Line Type*: Type of the line used for the minimum format subsets in the datalog charts.
- *Average Subsets Line Type*: Type of the line used for the average format subsets in the datalog charts.

- *Maximum Subsets Line Type*: Type of the line used for the maximum format subsets in the datalog charts.
- *Count-Total Subsets Line Type*: Type of the line used for the Count Total format subsets in datalog charts.
- *Count-in-Range 1 Subsets Line Type*: Type of the line used for the Count in Range 1 format subsets in the datalog charts.
- *Count-in-Range 2 Subsets Line Type*: Type of the line used for the Count in Range 2 format subsets in the datalog charts.
- *Default Aggregation Unit*: Default datalog aggregation (averaging) time unit initially set in the UI.
- *Default Aggregation Interval*: Default datalog aggregation (averaging) time interval (unit multiplier) initially set in the UI.
- *Default Aggregation Function*: Default datalog aggregation (averaging) function initially set in the UI.
- *Default Aggregation Percentile*: Default datalog aggregation (averaging) percentile value initially set in the UI; used with Percentile aggregation function only.
- *Plot Formats in Different Colors*: If checked, different formats of the same channel are plotted in different colors. If unchecked, all formats of a single channel are plotted in the same color with different line styles.
- *Percentile Interpolation Mode*: Method used for percentile calculation interpolation. Nearest rank uses the exact value of the point whose position is nearest to the required percentile. Two other options use Linear interpolation with  $C=0.5$  (MS Excel style) or  $C=1.0$  (MATLAB style).
- *Histogram Bin Size Calculation Method*: Method used for automatic formation of the histogram bins. Number (and width) of the bins can be determined automatically using one of the defined rules (Square root, Sturges, Rice, Doane, Scott, Freedman-Diaconis) or manually.
- *Distinct Timestamp Threshold [ms]*: Number of milliseconds used as a minimum difference between two timestamps in order to be treated as distinct timestamps. If the gap between two timestamps is smaller than this value, they appear as a single point on the chart.

To save any changes made under this tab, click on the *Save* button at the bottom.

# Home Page

The **Home Page** of PQView® DE displays a dashboard for a quick glance at recent events and system information. The dashboard is populated by an Events List, a waveform of the selected event, a site map, and a monitor list. To get started, click on *Start Polling*. The dashboard begins to automatically refresh, and the time it was last refreshed indicated in the header. To stop it from refreshing, click on *Stop Polling*.

The screenshot shows the PQView Home Page dashboard. At the top, there is a header bar with a red "Stop Polling" button, the text "Refreshed @ 3:24:03 PM", and a dropdown menu showing "1 Database Selected" with a refresh icon.

The main content area is titled "Events" with a lightning bolt icon. It contains a table with the following data:

Site Name	Date and Time	Type
<input checked="" type="radio"/> Beverly HDPQ	2019-02-01 09:51:48	RMS Variation
<input type="radio"/> DN61000-demo	2019-01-31 11:16:53	RMS Variation
<input type="radio"/> DN61000-demo	2019-01-31 11:16:53	RMS Variation
<input type="radio"/> DN61000-demo	2019-01-31 11:16:53	RMS Variation
<input type="radio"/> DN61000-demo	2019-01-31 11:15:35	Transient
<input type="radio"/> DN61000-demo	2019-01-31 11:15:34	RMS Variation
<input type="radio"/> DN61000-demo	2019-01-31 11:15:32	RMS Variation
<input type="radio"/> DN61000-demo	2019-01-31 11:15:32	RMS Variation
<input type="radio"/> DN61000-demo	2019-01-31 11:15:28	Transient
<input type="radio"/> DN61000-demo	2019-01-31 11:15:28	RMS Variation

Below the table, there is a section titled "Beverly HDPQ Event" which displays the selected event details: "Beverly HDPQ - 2/1/2019 09:51:48.3280".

## Customizing the Dashboard

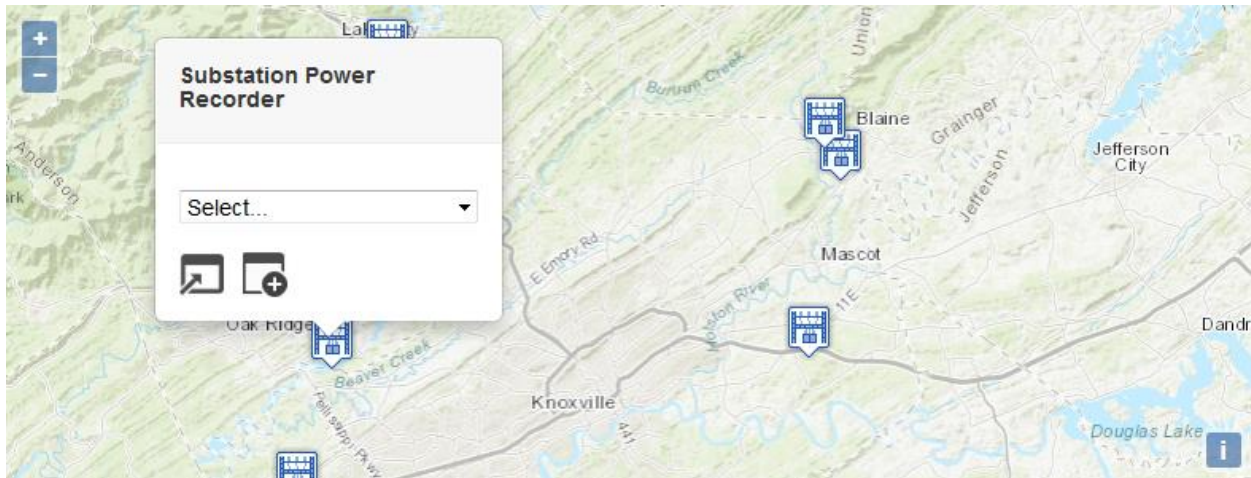
The dashboard can be customized under the logged-in user's **Settings**. The Events list is populated based on the **Default Event Options** settings. The **Dashboard** tab provides options for the update interval and other options specific to this page.

## Using the Dashboard

Clicking on the radio button to the left of an event on the Events list controls which event chart is displayed on the dashboard and which site is displayed on the map if the setting to display all is not selected. Clicking on the Site Name of an event navigates to an [Event Report List](#) displaying just that event. Clicking on the Date and Time of an Event navigates to a page showing the waveform chart of the event, as does clicking on the chart displayed on the Dashboard.

⚡ Events		
Site Name	Date and Time	Type
<input checked="" type="radio"/> Beverly HDPQ	2019-02-01 09:51:48	RMS Variation
<input type="radio"/> DN61000-demo	2019-01-31 11:16:53	RMS Variation
<input type="radio"/> DN61000-demo	2019-01-31 11:16:53	RMS Variation
<input type="radio"/> DN61000-demo	2019-01-31 11:16:53	RMS Variation
<input type="radio"/> DN61000-demo	2019-01-31 11:15:35	Transient
<input type="radio"/> DN61000-demo	2019-01-31 11:15:34	RMS Variation
<input type="radio"/> DN61000-demo	2019-01-31 11:15:32	RMS Variation
<input type="radio"/> DN61000-demo	2019-01-31 11:15:32	RMS Variation
<input type="radio"/> DN61000-demo	2019-01-31 11:15:28	Transient

The Map on the dashboard functions similarly to the [Sites Map](#) page. Clicking on any site (🏠) displays the name of the site and offers a drop-down list for various Data Logs and [Event Reports](#) about the site that can be navigated to by selecting one and clicking on *Open* (🗨️) or *Open in New Window* (🗨️+).



The Monitor List shows a list of all the monitors in the PQDMS selected under the User's settings on the [Data Sources](#) tab, and what their status (such as "Idle" or "Downloading Data") and health (such as "Normal," "Unknown," and "Connection Failure") are.

Monitors		
Name	Status	Health
61000 PQ Beverly	Idle	Normal
Beverly HDPQ	Idle	Normal
i-Grid Demo	Idle	Normal
Knoxville 61000 Delta	Idle	Normal
KNX735	Idle	Normal
PQDIF	Idle	Normal

## Analytics

The Analytics pages allow for querying and filtering of PQView® 4 measurement data. Each of these pages are set up to remember the last query that was executed during the current user's session, so that navigating away from one of the pages, and then navigating back, causes the previous query options to re-load in the controls, and the query to re-execute. This feature is referred to as "Replay". Some controls, such as the date selection controls, are remembered from one page to the next if no query has yet been made. For example, running a query on the **Events** page with the *Last 24 Hours* selected, then navigating to the **Data Logs** page causes that page to default to *Last 24 Hours* as well.

## Events

The Event Report List page is accessed from the **Events** option on the **Analytics** menu. Clicking *Submit* displays a summary of the events for the selected database, sites, date range, and any other options selected. By default, clicking the *Submit* button queries all Sites across the last seven days with data and display the first 25 rows of events, sorted by site name in alphabetical order followed by date and time in descending order. See the [Common Query Options](#) and [Common Display Features](#) for information about the query options and data table features on this page.

**PQWeb® 4** Home Analytics Real-Time System Help MyName

### Event Report List

1 Database Selected








Event List Options Filters Properties

Select Sites: Sites  
 Select Date Range: Last Seven Days with Data  
 Date Range: 01/14/2019 7:42 PM  
 01/21/2019 7:42 PM  
 Select Report: Default Options

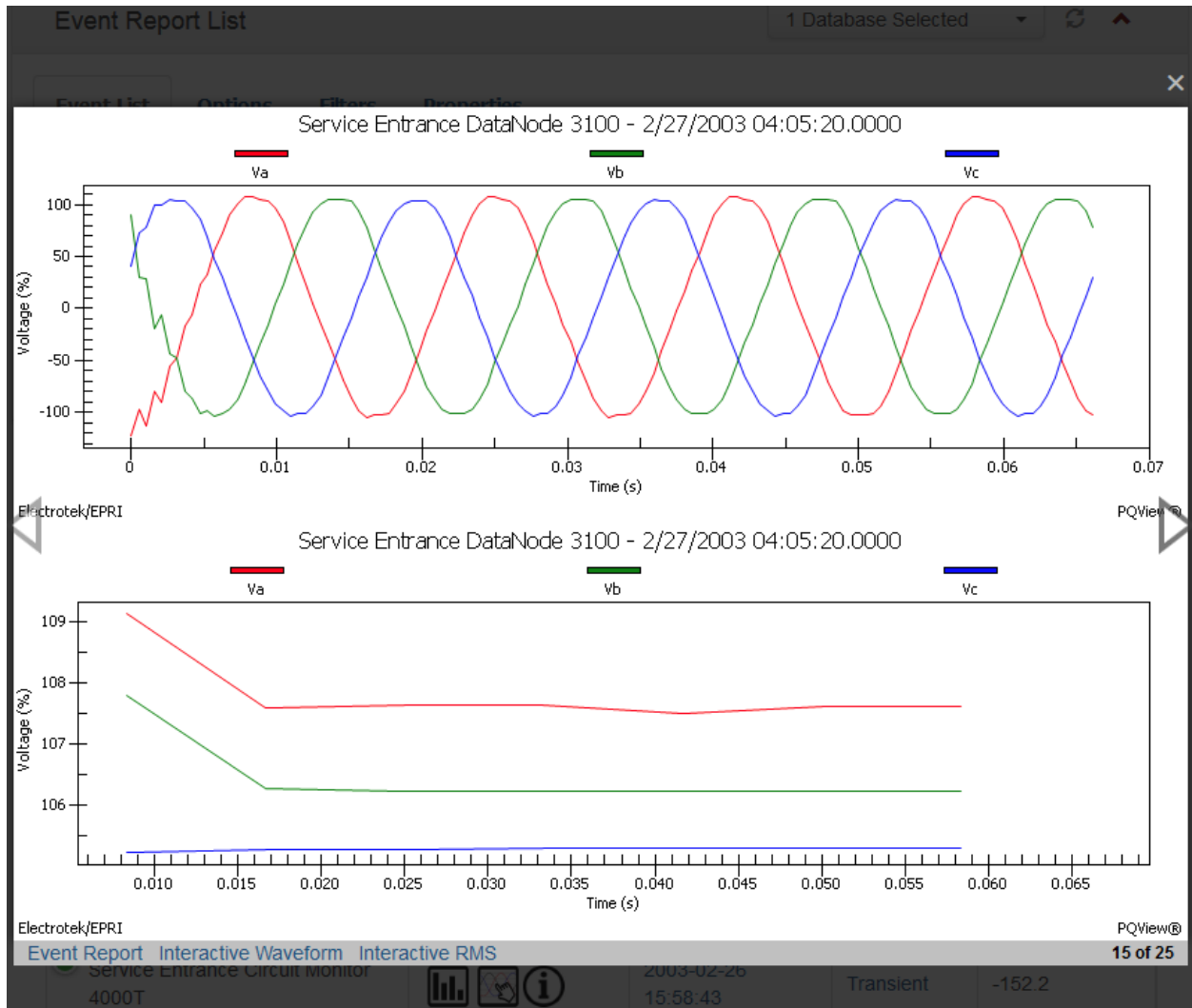
Submit

Charts  Select All

25 rows Export Filter

Site Name	Links	Date and Time	Type	Minimum (%)	Maximum (%)	Select
Knoxville 61000 Wye	 	2019-01-21 14:41:56.3230	Transient	-100.7	101.6	<input type="checkbox"/>
Knoxville 61000 Wye-PQDM	 	2019-01-21 14:41:56.3230	Transient	-100.7	101.6	<input type="checkbox"/>
Knoxville 5530	  	2019-01-17 08:26:30.7010	RMS Variation	96.27	99.88	<input type="checkbox"/>

Each row displays a set of links to the event's static waveform & RMS charts, interactive waveform chart, interactive RMS chart, and event properties. The Date and Time of the event also link to the static charts. The event type, and minimum and maximum voltage are listed in the table. Voltage values are displayed in the units selected under the **PQView Preferences' Units** tab. A checkbox is the final item in the row, for selecting which event charts to display in the Charts' **Event Roll** popup. After selecting the events in the list, or choosing the *Select All* checkbox, click the *Charts* button to view the selected static charts.



By default, all phases of the event are displayed. Use the arrows to the right and left of the popup to cycle through each event. At the bottom-left of the popup are links to open the *Event Report* (static chart), *Interactive Waveform*, or *Interactive RMS* in a new window. At the bottom-right of the popup, the sequence number of the event currently displayed in the list is shown.

## Options

Event **Options** specify which types and ranges of events to include in the event list. When the *RMS Variations* option is selected, the *Sags* and *Swells* options become enabled. Each of those options then enable the range selectors for the option. Sag variations can be shown anywhere from 5 to 100% and Swell and Transient variations can be shown anywhere from 100 to 200%. In this example, the entire range has been

selected for RMS Sags, Swells, and Transients. Frequency variations can also be selected to display in the list. Default options are set under the **Default Event Options** tab on the **Settings** menu.

The screenshot shows the 'Event Report List' interface with the 'Options' tab selected. It contains the following settings:

- RMS Variations**
  - Show Sags between 5% and 100%** (with a slider set to 5% and 100%)
  - Show Swells between 100% and 200%** (with a slider set to 100% and 200%)
  - Show Transients**
    - Show Transients between 100% and 200%** (with a slider set to 100% and 200%)
- Frequency Variations**

A blue 'Submit' button is located at the bottom left of the options panel.

## Filters

Event **Filters** change the event list results based on specific event property flags that are applied to events. All filters default to *Do Not Use Filter*. The following filter options are available:

- *Invalid*: Retrieve only events that have been marked Invalid or have not been marked Invalid.
- *Load Interruption*: Retrieve events based on whether the Load flag is set on the event or not.
- *Manually Entered RMS Variation*: Retrieve events based on whether an RMS record was manually entered for the event or not.



- *Manually Entered Interruption*: Retrieve events based on whether an Interruption event was manually entered or not.
- *b1-b3*: These are custom flags that can be renamed from their default "b" names to be more meaningful to each customer. These filters retrieve events based on whether the flag(s) has been applied to an event or not.
- *SARFI Source*: Retrieve events based on the source of the event for use with advanced SARFI analysis.

Event Report List
1 Database Selected
↻
⬆

Event List

Options

Filters

Properties

<b>Invalid</b>	Valid Only	<b>b1</b>	Valid Only
<b>Load Interruption</b>	Load Interrupted	<b>b2</b>	Invalid Only
<b>Manually Entered RMS Variation</b>	Exclude M.E. RMS Variator	<b>b3</b>	Do Not Use Filter
<b>Manually Entered Interruption</b>	Exclude M.E. Interruptions	<b>SARFI Source</b>	Do Not Use Filter

## Properties

Event **Properties** change the event list results based on the properties and their values selected on this tab. To begin, click the *Add Property* button. A new row is displayed with a drop-down the list of all Event Properties for the selected sites, a drop-down to select the comparison operator, and a field for entering the property value to search for. While there is no "between" comparison operator, a property can be selected multiple times with different greater than and less than values to accomplish this logic. In the example below, only events with the "Count of Phases with Voltage Sag" property set to a value that is NOT 1, and events with an "Event Duration from Waveform" property between 4 and 5, including 4 are returned.

Event Report List 1 Database Selected

Event List Options Filters **Properties**

Add Property

Count of Phases with Voltage Sag  $\neq$   Remove









Event Duration from Waveform  $<$   Remove

Event Duration from Waveform  $\geq$   Remove

Submit

Charts  Select All

25 rows Filter






Site Name	Links	Date and Time	Type	Minimum (%)	Maximum (%)	Select
Substation DataNode 5530	   	2003-02-22 16:09:23	RMS Variation	71.02	98.57	<input type="checkbox"/>
Substation DataNode 5530	   	2003-02-22 16:09:01	RMS Variation	71.05	99.48	<input type="checkbox"/>

Selecting the Event Properties icon (i) from the list shows that the event properties of these events fall within the selected criteria:

### Event Properties

Property	Value
Count of Phases with Voltage Sag	2
Event Duration from RMS	0.216576430946589
Event Duration from Waveform	8.98086745291948E-03
Event ITIC OK	0
Event Maximum Peak Voltage	10038.9541015625
Event Maximum RMS Current	3381.18725585938
Event Maximum RMS Voltage	12306.1904296875
Event Minimum RMS Current	583.796875
Event Minimum RMS Voltage	5115.52490234375
Event Sag Severity	0.965034767433449
Maximum RMS Voltage (pu)	0.986803122888992

Substation DataNode 5530	   	2003-02-22 16:09:01	RMS Variation	71.05	99.48	
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## Event Charts

### Static Event Charts

Static event charts are rendered via the GigaSoft charting engine and display the voltage and current waveforms, and if applicable, the RMS charts. Below each chart is an option to view an interactive version of the chart, and an option to export the chart data into one of the following formats for saving locally:

- CSV
- XML
- EMF
- JPG
- PNG
- SVN

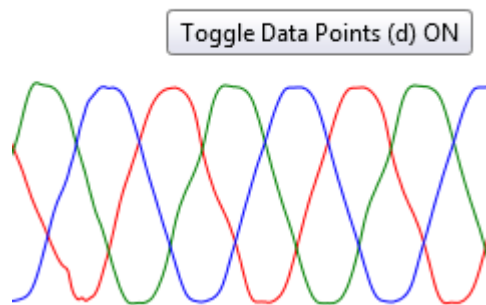
- COMTRADE

Static charts also provide an option to generate a link that can be shared with someone who is not a PQView® 4 user by selecting the *Generate Link* button at the bottom of the page. A popup displays a static hyperlink to this chart that can be viewed without first authenticating with PQView® DE.

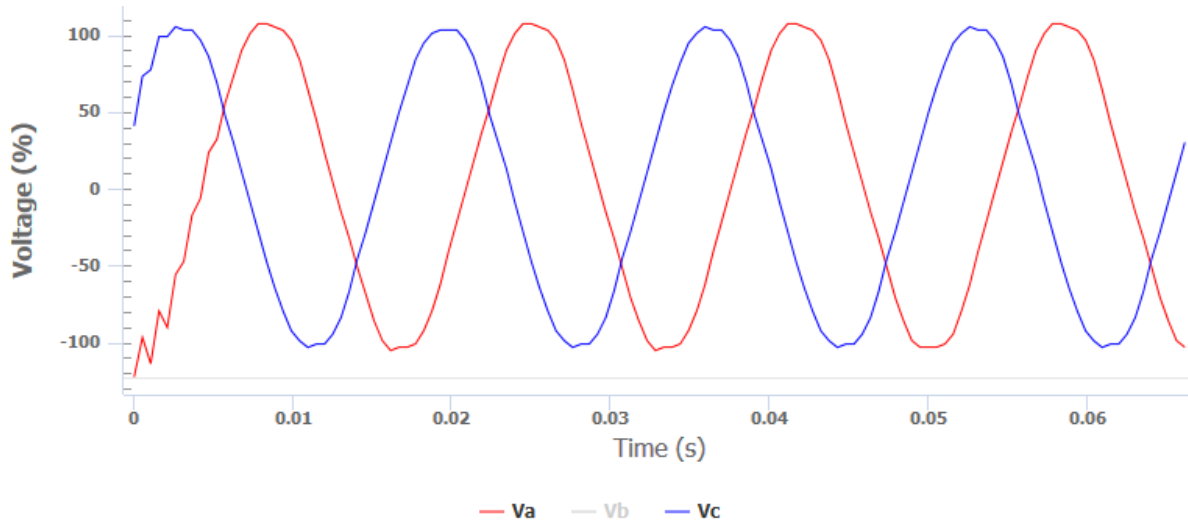
## Interactive Event Charts

Interactive charts are rendered in the local web browser via the Highcharts engine. Interactive charts provide a richer experience with tooltips that appear over each plotted data point with the X and Y values, channels that can be dynamically turned off and on, the ability to zoom into smaller regions of the charted data, and many other options for displaying the event data points. Many of these options can be set from the **Chart Preferences** tab of the **Settings** menu. A subset of these preferences can be toggled from the chart itself using the toggle options to the top-right of the chart. Hovering over each of the toggles displays a tooltip that indicates what the toggle represents (D for toggling data points) and whether the toggle is ON or OFF. Clicking on the toggle switches it from ON to OFF or vice versa. Alternatively, pressing the corresponding letter key toggles the feature as well. For example, while viewing the chart, pressing the "G" key (either a lower-case or upper-case) toggles the grid lines on the chart.

**Toggles: D G L T Z**




Individual channels on the interactive chart can also be dynamically removed by clicking on the channel label in the chart legend. In the example below, Vb (which was green) has been removed from the chart. Clicking the channel label a second time re-enables that channel in the chart.



Electrotek/EPRI

PQWeb®

## Report Filters and Derived Chart Options

At the top of the page, for both static and interactive charts, is a collapsed panel that, when expanded, provides options for filtering the charts and for showing derived charts. The down-pointing arrow on the right-hand side of the panel (  ) indicates that the panel can be expanded down by clicking anywhere on the panel bar. Once it is expanded, the arrow changes to pointing up to indicate that it can be collapsed.

**Report Filters and Derived Chart Options** ▲

**Filters**

V<sub>LN</sub>

V<sub>LL</sub>

V<sub>SYM</sub>

I<sub>L</sub>

I<sub>SYM</sub>

P

Q

S

**Channels** **Pre-Processing**

Va, Vb, Vc, Vab, Vbc, Vca, ▼

Select... ▼

Filter Charts

**Derived Chart Types**

Select... ▼

Show Derived Chart

## Filters

Report Filters consist of *Channels*, which include several quick-filter buttons, and *Pre-Processing* options. To add or remove channels to the charts on the page, select channels from the drop-down list or click one or more of the quick-filter buttons. The quick-filter buttons select multiple channels from the drop-down at once, where blue indicates that the channels are selected, and grey indicates the channels are not selected. For example, the Real Power (P) button selects or deselects the Pa, Pb, Pc, and Pll channels.

Some channels are not available by default but must be calculated in real time. The *Pre-Processing* options direct the charting engine to execute additional calculations before compiling the chart data, including calculations for the power and symmetrical component channels. When selecting those options, the corresponding channels are automatically selected as well.

- *Add Power*: Calculates the power channels.
- *Add Residual*: Adds the effects of the stored electric charge in the capacitive section of the transmission line.

To apply any of the Filter options to the charts on the page, click the *Filter Charts* button. All charts on the page refresh to display the changes.

## Derived Charts

To display a derived chart, select one from the drop-down and click the *Show Derived Chart* button. The new chart is displayed beneath the current event chart, and the page automatically scrolls down to the newly rendered chart. When viewing a static chart, the derived chart is also static, and likewise when viewing an interactive chart, the derived chart is also interactive. If a specific derived chart type can be further customized, additional options are displayed next to the Derived Charts drop-down list with the default values that were used to initially render the derived chart. To re-calculate the derived chart with different options, make the changes and re-click the *Show Derived Chart* button.

## Event Derived Charts

### Spectrum and Phasor Charts

A *Spectrum* chart performs a Fourier analysis on the waveform and shows the magnitude of each spectral component in percentage for the fundamental frequency of each component. A table of additional waveform properties displays to the left of the chart.

A *Phasor* chart plots the phase vectors of the voltage and current channels in the polar coordinates chart. The vector lengths represent the magnitudes of the waveform fundamental frequency component; vector angles correspond to the phase difference between the current value and the initial referent angle (Phase A voltage). Since the scale of magnitude often differs between voltage and current data, the phasor chart displays two separate scales: the horizontal for voltage, and vertical for current. A table of the magnitude and phase angle of each phasor displays to the left of the chart.

The *Spectrum and Phasor* chart render both side-by-side. In the interactive version of this chart, selecting a data point on the original waveform changes which channel's spectrum is displayed, the time window for which it is displayed, and the specific time of the Phasor vector data.

## High and Low Pass Filter Charts

The *High Pass Filter* displays high frequency data and filters out values lower than 120 Hz. The *Low Pass Filter* displays low frequency data and filters out values higher than 120 Hz. High Pass and Low Pass filter coefficients are derived from the 3rd order Butterworth filter prototype.

The Filter Frequency Response can also be displayed by selecting the *Show Properties* button. High Pass, Low Pass, Band Pass and Band Stop (Notch) filters based on the Butterworth, Elliptic, direct and inverse Chebyshev prototypes are available.

## Load Charts

The *Load Impedance* chart shows the magnitude of the voltage to current phasor ratio  $|V| \div |I|$  for each phase for the duration of half a cycle.

## Power Charts

The *Real Power* chart shows the real component of the fundamental harmonic power, calculated from the real parts of the voltage and current phasors as  $|V| \cdot |I| \cdot \cos(\varphi_V - \varphi_I)$ .

The *Reactive Power* chart shows the reactive component of the fundamental harmonic power, calculated from the imaginary parts of the voltage and current phasors as  $|V| \cdot |I| \cdot \sin(\varphi_V - \varphi_I)$ .

The *Apparent Power* chart shows the vector sum of the Real and Reactive power components of the fundamental harmonic, calculated from the magnitudes of the voltage and current phasors as  $|V| \cdot |I|$ .

The *Power Factor* chart ( $\cos \varphi$ ) shows the ratio of the Real to Apparent power calculated from voltage and current phasors as  $\cos(\varphi_V - \varphi_I) \cdot \text{sign}[\sin(\varphi_V - \varphi_I)]$ .

## Harmonic Charts

The *Total Harmonic Distortion* chart shows the ratio of the sum of energies of all non-fundamental frequency harmonics to the value of fundamental frequency harmonic energy.

# Maps

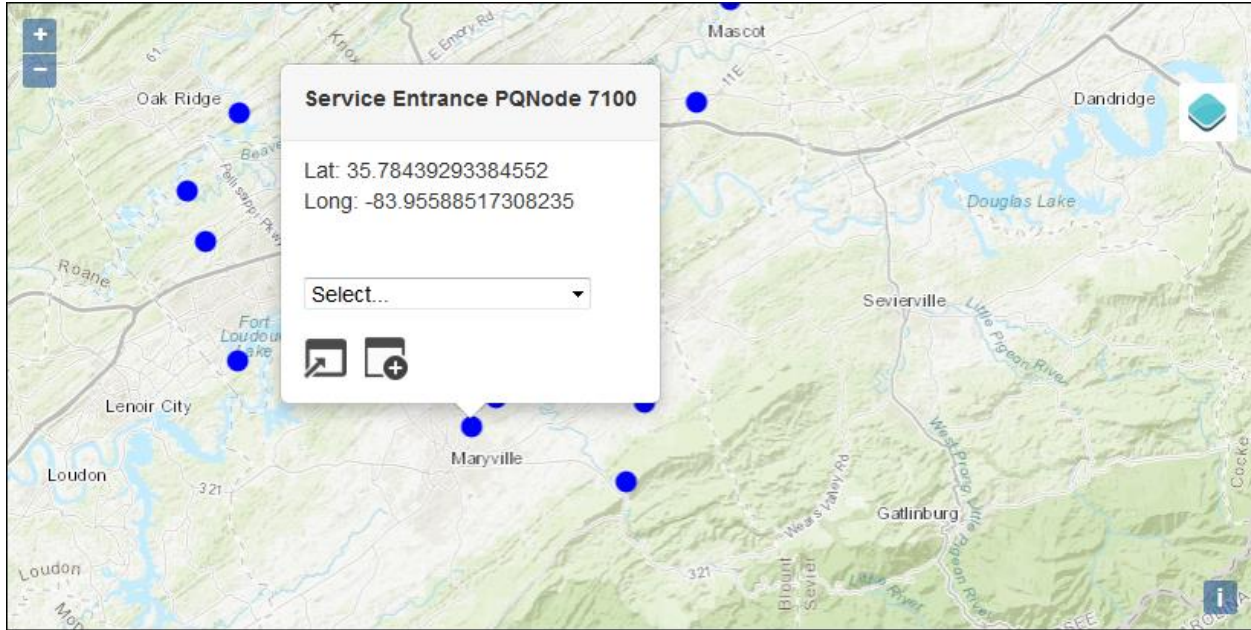
The map pages provide a visual representation of sites, events, and other analytics laid onto a map.

## Sites Map

The *Sites Map* page displays the location on a map of the various substations, service entrances, and other sites selected from the [Select Sites](#) list, populated based on the [Select Database](#) list.

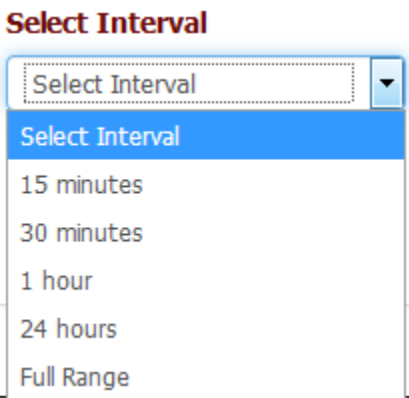
After the user has selected the sites and clicked the *Submit* button, sites are displayed on the map. See the [Map Features](#) for information about how to use this map.





## Sag Map

To display voltage sag events on the **Sag Map** page, first select the [Database](#) and [Sites](#) to display. Then, the *Select Interval* drop down provides a list of time intervals, ranging from 15 Minutes to 24 hours to Full Range.



Once a time interval is selected, the *Start* and *Reset* buttons appear. Selecting *Start* queries the locations of the selected sites with sags that have occurred during each interval of the date range selected, and plots the events as dots color-coded by sag severity on the map. While the sites are being displayed for each interval, the *Start* button is replaced with the *Stop* button, which can be selected at any time to pause the query. Selecting the *Reset* button ends the query.

The Date and Time range of the interval being displayed is shown above the map, along with *Prev* and *Next* buttons to toggle between intervals. There is also an *Events* button to display a list of events shown in the interval, and a *Charts* button to display an event roll of the waveforms of these events.

2003-02-23 01:42:24 to 2003-02-23 01:57:24

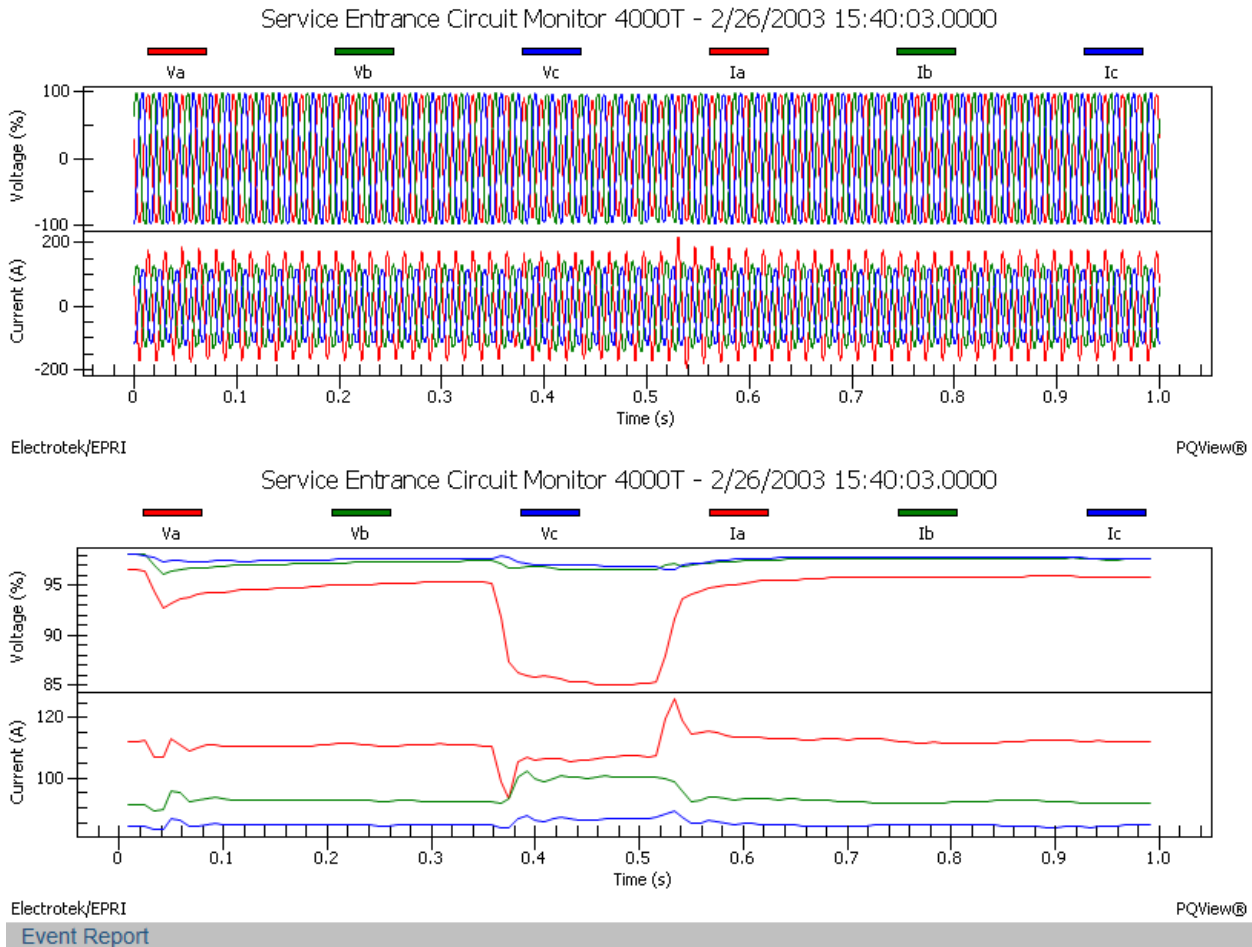
**Auto Zoom**

[< Prev](#) [Next >](#)

[Events](#)

[Charts](#)

When a Voltage Sag Event occurs at a site, it is displayed on the map as a dot. The color of the dot indicates the severity of the event, ranging from green (●) for not severe, to yellow (●) for moderate severity, to red (●) for very severe. Clicking on the dot opens a window that displays the name of the site and the voltage percentage during the sag event. Selecting the *Chart* Button ([Chart](#)) displays a static waveform and RMS chart of the event.



[Event Report](#)

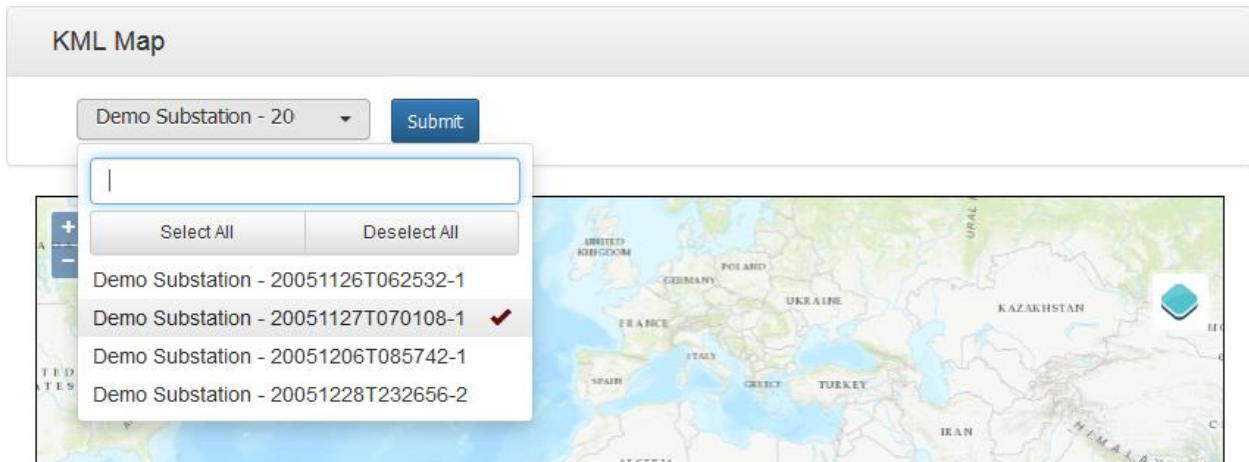
To view the event in greater detail, including access to interactive charts, select *Events* from the drop-down list and click on *Open* ( ) or *Open in New Window* ( ) to be navigated to the **Event Report List** page.

## KML Map

The **KML Map** page allows users to display .kml files. This format is ideal for viewing the location and impact of faults on an electrical grid. In order to access these files on the KML Map page, a KMLfilepath setting must be set in the web.config of the PQWeb application. The default setting in web.config is:

```
<!-- Path of folder on PQWeb IIS Server -->
<add key="KMLFilePath" value="C:\Dev Files\KML Files"/>
```

To view a .kml file on the **KML Map** page, select one or more options from the *Select KML File...* drop down list and click on *Submit* (Submit). *Select All* will select all of the files listed, and *Deselect All* will deselect all of the files listed. The search bar above *Select All* and *Deselect All* can be used to narrow the list by typing the name of a file.



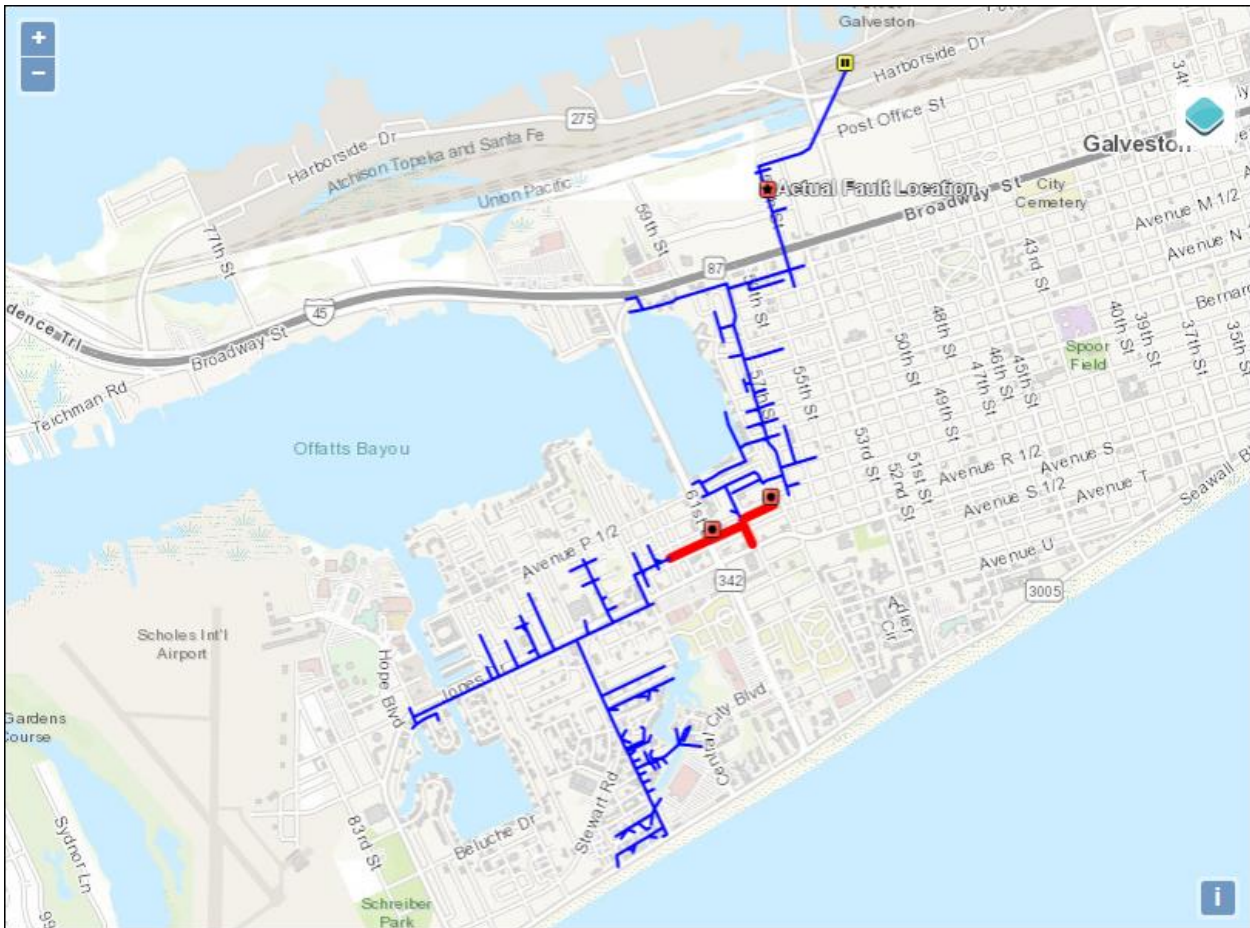
Unlike the [Sites Map](#) page, selecting no files does not automatically display all files. Clicking *Submit* without selecting any files results in a prompt to *Please select a Filename*.

KML Map

*Please select a Filename.*

Select KML file...

The KML data can be used to show information about an electrical grid, and the visualizations can be customized. In the fault location example below, for instance, the distribution feeder circuit is displayed in blue, and estimated fault location range is indicated in red with sites in that range specified by a red circle icon (📍). Substations are displayed as a yellow icon (🏠), and Actual Fault Locations are displayed with a red star icon (★).







set a percentage range for sags and/or swells to view. The *Sags* bar offers between 0% and 100% and the *Swells* bar offers between 100% and 200%. *Transients* also offers the ability to filter by percentage range, between 110% and 200%. Selecting *Submit* again updates the map.

The screenshot shows a user interface for configuring a heat map. It has two tabs: 'Heat Map' and 'Options'. The 'Options' tab is active and contains the following settings:

- RMS Variations**
  - Show Sags between 0% and 40%** (Slider bar from 0% to 100%)
  - Show Swells between 100% and 150%** (Slider bar from 100% to 200%)
  - Show Transients between 110% and 150%** (Slider bar from 110% to 200%)
- Frequency Variations**

A blue 'Submit' button is located below the options panel.

Users should note that this map does not currently offer details of the events being displayed, instead functioning as a snapshot of events within whatever parameters are set. To view these events in greater detail, please use the [Event Report List](#).

## System

The **System** menu provides access to configure and maintain system-wide settings for PQDMS servers and Database resources.

## Database

The pages under **System>Database** are for maintaining system-wide data for the selected database(s). Currently only Sites and their properties and values are supported, but additional data maintenance pages will be added over time.

These pages allow the user to add and edit sites, site properties, and site property values. In order to access these pages, the user must be given the Site Editor or Site Admin permission (or Super Administrator which has all permissions). The latter is

required in order to add a new site or site property. Permissions must be assigned in the PQView® 4 Admin website.

The [Edit Sites](#) page allows the user to add and edit sites in a database. The sites that are added on this page populate the table on the [Edit Site Property Values](#) page.

The [Edit Site Properties](#) page allows the user to add and edit site property values, which form the column headings on the [Edit Site Property Values](#) page.

See the [Common Display Features](#) for information about the data table features on these pages.

## Edit Sites

The [Edit Sites](#) page allows the user to edit the sites and basic details about the site in the selected PQView measurement database(s). In order to access this page, the user must be given the Site Editor or Site Admin permission. The latter is required in order to add a new site. Permissions must be assigned in the PQView® 4 Admin website. See the [Common Display Features](#) for information about the data table features on this page.

Below, the *Site Name*, *Description*, *Site Name in Data Source*, *Rank*, *Parent*, *UTC Offset* (Time Zone), *Daylight Savings Time (DST)*, *Connection Type*, *Nominal Base Voltage (V)*, and *Nominal Frequency (Hz)* of any given site can be edited. These settings primarily affect how a PQDMS monitor bound to this site downloads and displays measurements.

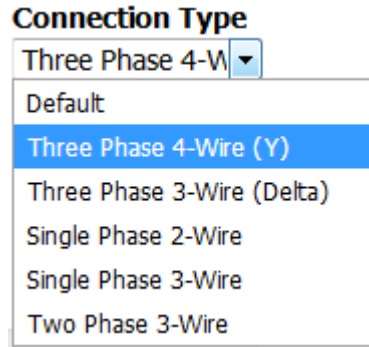
Edit Sites								
							2 Databases Selected	
<input type="button" value="New"/> <input type="button" value="Edit Selected Rows"/>								
25	rows	Filter <input type="text"/>						
Database	Site Name	Description	Site Name in Data Source	Rank	Parent	UTC Offset	DST	
InfoNodeCompare	Knoxville 5530	Knoxville 5530	Knoxville 5530	0	Select Parent	-5	True	
InfoNodeCompare	Knoxville 5530-PQDM	Knoxville Test bench 5530		0	Select Parent	-5	True	
<b>Connection Type</b> Three Phase 4-Wire (Y) <b>Nominal Base Voltage (V)</b> 120 <b>Nominal Frequency (Hz)</b> 60 <a href="#">Edit Properties</a>								
InfoNodeCompare	Knoxville 5571	Knoxville 5571	Knoxville 5571	0	Select Parent	-5	True	

The *Parent* column offers a drop-down list of all the sites from the databases currently being displayed to be selected as this site’s parent.

Under the *DST* column, a box can be checked to indicate that the location of this site is subject to Daylight Savings Time, or it can be unchecked to indicate that it is not. While site data is stored in UTC time in the measurement database, the display of the data is localized to the site location based on the *DST* and *UTC Offset* fields.

The *Connection Type* column provides a drop-down list of connection configurations, as seen here:





To edit additional site properties, select the *Edit Properties* link for a specific Site, which filters the ***Edit Site Property Values*** page for just that Site.

Alternatively, a site can be edited by clicking on it so that it's highlighted, and then clicking on *Edit Selected Rows*. Multiple sites can be selected by pressing Shift+Click. This opens the *Edit Selected Rows* window, where all changes made apply to all the selected sites. Notice that when editing an existing site, the *Database* field cannot be changed, and since the *Site Name* must be unique across the database, site names cannot be changed in this multiple row edit popup. To save any changes made, click on *Edit Selected Rows*. To close the window, click on *Close*.

**Edit Selected Rows**

**Database:** InfoNodeCompa

**Site Name:** Knoxville 5530

**Description:** Knoxville 5530

**Site Name in Data Source:** Knoxville 5530

**Rank:** 0

**Parent:** Select Parent

**UTC Offset:** -5

**DST:**

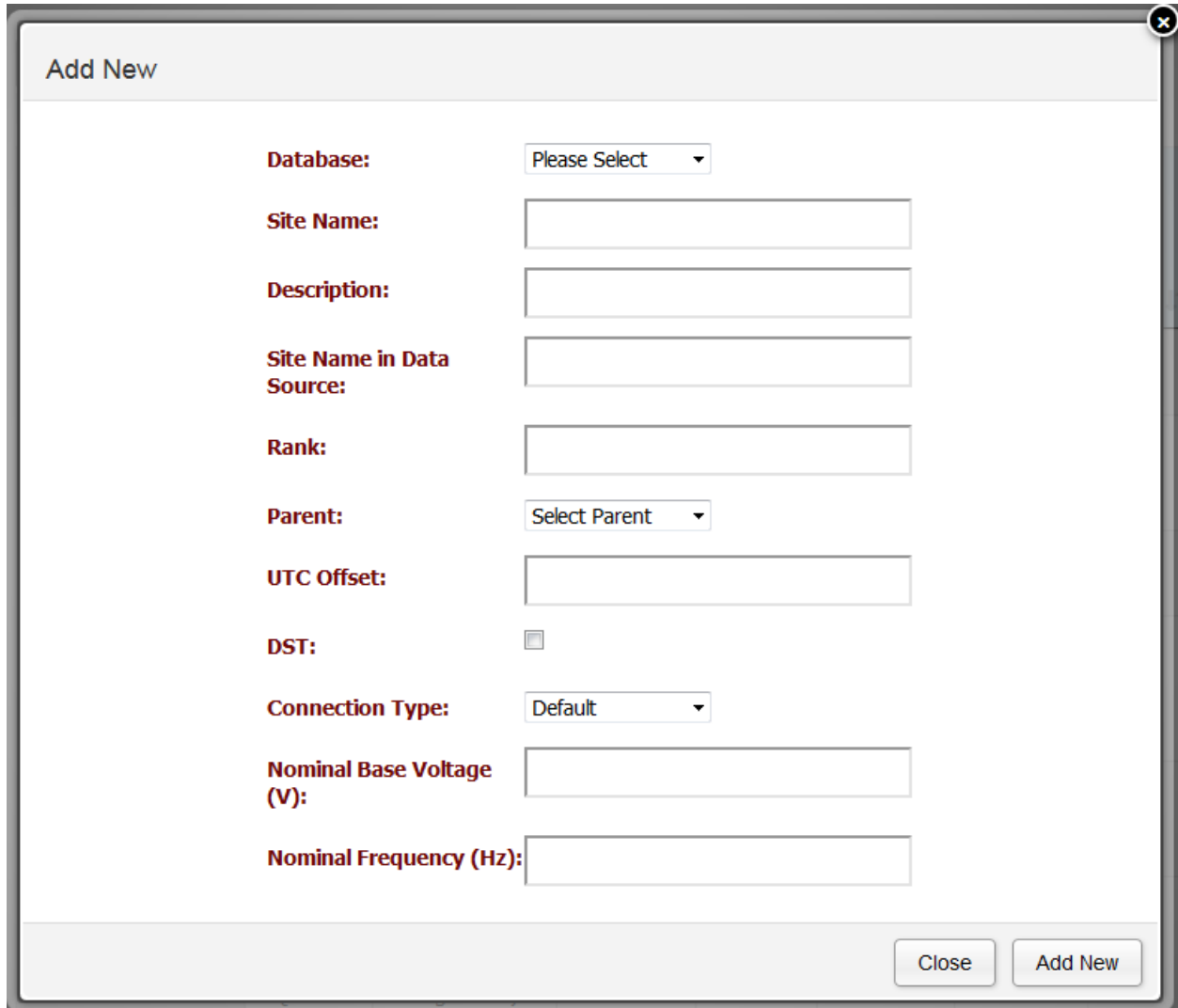
**Connection Type:** Default

**Nominal Base Voltage (V):** 120

**Nominal Frequency (Hz):** 60

Close Edit Selected Rows

To add a new site to one of the selected databases, click on the *New* button at the top of the page. This opens the *Add New* window. Like the *Edit Selected Rows* window, this window contains all the fields available for editing on the **Edit Sites** page. The *Database* drop-down is populated by the databases that have been selected for display, and likewise the *Parent* drop-down is populated by the sites within those databases. Once the fields have been filled, click *Add New* to add the site to the database, or *Close* to close the window.



The screenshot shows a dialog box titled "Add New" with a close button in the top right corner. The dialog contains the following fields and controls:

- Database:** A dropdown menu with "Please Select" as the current selection.
- Site Name:** A text input field.
- Description:** A text input field.
- Site Name in Data Source:** A text input field.
- Rank:** A text input field.
- Parent:** A dropdown menu with "Select Parent" as the current selection.
- UTC Offset:** A text input field.
- DST:** A checkbox, currently unchecked.
- Connection Type:** A dropdown menu with "Default" as the current selection.
- Nominal Base Voltage (V):** A text input field.
- Nominal Frequency (Hz):** A text input field.

At the bottom right of the dialog, there are two buttons: "Close" and "Add New".

## Edit Site Properties

The **Edit Site Properties** page allows the user to add and modify site properties. Items added to this list determine what headers are available to be filled in on the **Edit Site Property Values** page. In order to access this page, the user must be given the *Site Editor* or *Site Admin* permission. The latter is required in order to add a new site property. Permissions must be assigned in the PQView® 4 Admin website.

Edit Site Properties 2 Databases Selected

New Edit Selected Rows

25 rows Filter

Database	Name	Description	Rank	Parent	Default Value
InfoNodeCompare	Address	The address location for the site. Specify a form of the complete mailing address for the location (e.g., 100 Cummings Center, Beverly, Massachusetts, USA).	0	Select Parent	
InfoNodeCompare	Equipment	The equipment or model of the PQView site	0	Select Parent	

At the top of the page, the number of rows displayed can be selected from the drop-down list. The table can be filtered based on text entered in the *Filter* field, and can be sorted by column using the sort icon, which is dark grey when sorted () and light grey when not sorted()

The column headings are: *Database*, *Name*, *Description*, *Rank*, *Parent*, and *Default Value*.

Simply click on a field to edit the text. Pressing Tab navigates forward through the fields on the list. Pressing Enter or clicking outside the field saves the changes. Pressing Esc exits editing mode without saving changes.

The *Parent* column offers a drop-down list of all the site properties from the databases currently being displayed to be selected as this property's parent.

Alternatively, a site property can be edited by clicking on it so that it's highlighted, and then clicking on *Edit Selected Rows*. Multiple site properties can be selected by pressing Shift+Click. This opens the *Edit Selected Rows* window, where all changes made apply to all the selected site properties. Notice that when editing an existing site property, the *Database* field cannot be changed, and since the Site Property Name must be unique across the database, site property names cannot be changed in this multiple row edit

popup. To save any changes made, click on *Edit Selected Rows*. To close the window, click on *Close*.

The screenshot shows a dialog box titled "Edit Selected Rows" with a close button in the top right corner. The dialog contains the following fields:

- Database:** A dropdown menu with the selected value "InfoNodeCompai".
- Name:** A text input field containing "Address".
- Description:** A text input field containing "The address location for the site. Specify".
- Rank:** A text input field containing "0".
- Parent:** A dropdown menu with the selected value "Select Parent".
- Default Value:** An empty text input field.

At the bottom right of the dialog, there are two buttons: "Close" and "Edit Selected Rows".

To add a new site property to one of the selected databases, click on the *New* button at the top. This opens the *Add New* window. Like the *Edit Selected Rows* window, this window contains all the fields available for editing on the **Edit Site Properties** page. The *Database* drop-down is populated by the databases that have been selected for display, and likewise the *Parent* drop-down is populated by the site properties applicable those databases. Once the fields have been filled, click *Add New* to add the site property to the database, or *Close* to close the window.

Database	Name	Description	Rank	Parent	
<b>Add New</b>					
<b>Database:</b>	<input type="text" value="Please Select"/>				
<b>Name:</b>	<input type="text"/>				
<b>Description:</b>	<input type="text"/>				
<b>Rank:</b>	<input type="text"/>				
<b>Parent:</b>	<input type="text" value="Select Parent"/>				
<b>Default Value:</b>	<input type="text"/>				
				<input type="button" value="Close"/>	<input type="button" value="Add New"/>

above this value

## Edit Site Property Values

The **Edit Site Property Values** page allows the user to add and modify the values that are assigned to each property of Sites in the selected database(s). The headings on this table are defined by the properties listed on the [Edit Site Properties](#) page, and the sites listed in the left column are populated by sites listed on the [Edit Sites](#) page for any given database. See the [Common Display Features](#) for information about the data table features on this page.

Edit Site Property Values
1 Database Selected

Select Site Properties
31 Site Properties Sele 
Apply

Edit Selected Rows

Filter

5  rows

Previous
1
2
3
4
5
...
15
Next

Site Name	Address	Bus Test	CarType	connID	customer	Customer_A
0 - Knoxville 8650			Assign	Assign		
00 - Eloi - Laborelec PQube	Laborelec		Assign			
00 - Test Knox 8650			Assign	Assign		

As there can be an large number of site properties, instead of collapsing the extra columns on the row, this page has an additional horizontal scroll bar at the bottom of the table to accommodate many columns. Which columns are displayed can be filtered under the *Select Site Properties* drop-down at the top; simply click on the site properties to display and then click on *Apply*. For convenience, there is a *Select All* and a *Deselect All* button, and a filter in which the user can type the name of a site property.

If the user navigates to this page from another page by clicking an *Edit Properties* link for a specific site, only that one site and its associated properties are displayed. To display the rest of the sites and their properties, click on *Show All Sites*.

Edit Site Property Values
2 Databases Selected

Select Site Properties
30 Site Properties Sele
Apply
Show All Sites

Edit Selected Rows

5 rows
Filter

Site Name	Address	Equipment	Last Contact Time	Last Health	Last Import Time	
Knoxville 5530		Dranetz 5530/5520 DataNode	01/21/2019 17:54:00	Normal	2019-01-21T23:00:00.057Z	D d

Showing 1 to 1 of 1 rows
Previous **1** Next

A property that is assigned to a site but has not been filled with a value is indicated by a pencil () icon. A property that is not assigned to a given site is marked with an *Assign* button in the value field, which can be clicked to apply that property to the site.

## Appendices

### Log Files

When troubleshooting an issue in any of the PQView® 4 components, it is helpful to review the log files of the component, and sometimes to increase the verbosity of the log files to include debugging information. This section describes how to find these files and how to change the log settings.

#### Log File Locations

The log files for most of these components are located in the c:\ProgramData\Electrotek folder on the computer on which they have been installed. Each component has log files in a subfolder of the same (or similar) name as the component. For example, the PQView



Admin Service log file can be found in the c:\ProgramData\Electrotek\PQView4AdministrationService folder. In some cases, there are multiple log files as new ones are created when older ones become large. Typically only the most recent log file needs to be inspected. When sending log files to Support, it is a good idea to gather all of the logs from all of the components into a zip file. If all components are installed on the same computer, then just zipping up the c:\ProgramData\Electrotek folder may be sufficient.

Only the PQView® 4 Data Manager Service component keeps its logs in a different location. These are located in the \system\log subfolder of the location it was installed. By default, this is C:\PQView4\PQView4DMS\system\log. The most recent console output is stored in a circular memory buffer. At PQDMS startup and at shutdown this buffer is automatically written to disk. The startup and shutdown log files are named "in\_start\*.log", "in\_stop\*.log", and "in\_abort\*.log". A start/stop or start/abort pair is created each time the service cycles. The most recent pair has a "0" suffix (i.e., "in\_start0.log"). Older pairs have "1", "2", "3", "9" suffixes. If console logging is enabled the console output is continuously written to a "circular" set of files named "in\_console\_\*.log". The date on which the file was written is suffixed to the name (e.g., "in\_console20110708.log"). Because of file locking, the current day's file is not directly accessible when logging is on.

## Log File Settings

For each of these components, by default, the log level value is set to Error. The log level can be set to show more detailed diagnostic information in its logs, which can help provide detail when troubleshooting an issue. After changing this value for any component, it is necessary to then reproduce the issue that is being experienced, so that the log file will now have the additional information for troubleshooting. Since verbose logging may degrade performance, it is recommended to revert the log level settings after an issue has been successfully resolved.

## Admin Service

Navigate to where the PQView® 4 Admin Service is installed, and open the *PQView4AdministrationService.exe.config* file to edit. Near the bottom of the file is a section that looks like this:

```
<!--LogLevel defaults to Error, but may be set to: Debug,
Info, Warning or Error -->
<add key="LogLevel" value="Error" />
```

Change the LogLevel value to Debug and save the file. Open the local Services control panel and find "PQView 4 Admin Service" and restart this service.

## Web Applications

Navigate to where the web applications are installed, and open each *web.config* file as an Administrator to edit it. Near the bottom of the file is a section that looks like this:

```
<!--LogLevel defaults to Error, but may be set to: Debug or
Error -->
<add key="LogLevel" value="Error" />
```

Change the LogLevel value to Debug and save the file. After saving the updated web.config files for all three web applications, open IIS and re-start the application pools for those web applications.

## PQDMS Service

Navigate to where the PQView® 4 Data Manager Service is installed, and open the *PQDMS.exe.config* file to edit. Find the settings that look like this:

```
<add key="logEnable" value="15" />
<add key="logLevel" value="4" />
```

Change the logEnable setting to 31, and the logLevel to 7, for most verbose. Open the local Services control panel and find "PQView 4 PQDMS" and restart this service.

## PQDR Service (if PQDR purchased as part of license)

Navigate to where the PQDR Service is installed, and open the *PQDRWindowsService.exe.config* file to edit. Near the bottom of the file is a section that looks like this:

```
<!--LogLevel defaults to Error, but may be set to: Debug,
Info, Warning or Error -->
<add key="LogLevel" value="Error" />
```

Change the LogLevel value to Debug and save the file. Open the local Services control panel and find "PQView 4 Reporting Service" and restart this service.

**Electrotek Concepts, Inc.** ([www.electrotek.com](http://www.electrotek.com)) is a leading power systems engineering consultant. Electrotek analyzes, measures, simulates, and solves electric power problems and provide training on many power quality and power system topics. Its customers include electric power utilities, industrial and commercial energy users, and government and research organizations. Electrotek developed the industry leading enterprise power quality monitoring software (PQView®) and a suite of power quality and energy efficiency analysis tools for electric power transmission and distribution systems (PQSoft®). Electrotek has authored numerous technical books, papers, and presentations and its staff is recognized as having the expertise to analyze any power system issue and develop a wide range of solutions.

**The PQView User Group** was founded by Electrotek Concepts in October 1996 to provide support to users of PQView and PQWeb. It also provides an open forum for PQView users to meet and exchange experiences with power quality monitoring. Support services provided by Electrotek Concepts to user group members include software updates, newsletters, technical notes, on-line discussion forums, webcasts, and user group meetings. See [www.pqview.com](http://www.pqview.com).

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