

Open PQ Dashboard v1.0

3002005175 (Source Code)

3002005173 (Install Package)



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Software Manual, October, 2015

EPRI Project Manager

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SOFTWARE DESCRIPTION

The Open PQ Dashboard version 1.0 is an open source software (OSS) application developed for EPRI by the Grid Protection Alliance that enables the visualization of findings and insights derived from power quality (PQ) data files. It is assumed that a user will have a basic understanding of PQ data, including the concepts of ‘events’ and ‘trends’, and the measurement quantities typically included in PQ data files.

Description

The Open PQ Dashboard version 1.0 provides visual displays to quickly convey the location of reporting devices and a count of alarms that have occurred at each location in the previous 24 hours. It also provides a summary of the alarm counts for the previous 30 days, and includes detail displays of information about the alarm types, and trends based on hourly summary values. Event details and fault distance calculations, full resolution detail of every recorded trend value, and data quality metrics are also included. This version 1.0 of the software is fully operational and can be tested with the included dataset, but is intended to be deployed in an electric utility and integrated into their PQ data analysis processes. It incorporates new techniques for extracting information from large numbers of PQ data files, and provides navigation and controls that allow a system wide ‘fleet-view’ dashboard display, and drill-down capabilities to explore details of the input datasets including interactive waveform visualization and phasor charts.

The Open PQ Dashboard is a web based application that visualizes data contained in the openXDA database. openXDA is a data analysis platform that ingests event and trending data from standard PQDIF and COMTRADE files and positions it in the database to facilitate responsive controls in the web based Open PQ Dashboard user interface.

Installation and deployment of the Open PQ Dashboard and openXDA require a SQL Server database, an IIS web server, and network connectivity to the input data repository of PQDIF and/or COMTRADE files. This level of complexity requires that the installer have access to these resources with appropriate access credentials, and an understanding of how to manage the resources. A detailed description of prerequisites and system requirements are included in this manual.

Benefits and Value

The Open PQ Dashboard version 1.0 presents information from large numbers of PQ data files gathered from the entire fleet of PQ reporting devices. Benefits of this strategy include unique insights such as:

- A comprehensive view of the entire fleet in either a map or grid display
- A quick view of trouble spots
- The ability to drill down for additional detail where desired
- Statistical control chart alarms for each unique trended data channel
- Input data quality: availability and correctness

The value of these new insights include:

- The ability to react more quickly to PQ issues
- The ability to recognize PQ system failures more quickly

- Better allocation of resources for corrective measures

Platform Requirements

The following items are minimum requirements for successful installation and deployment of the Open PQ Dashboard and openXDA.

Operating System

- 64-bit Windows 7 or Windows Server 2008 R2 (or later versions)

Software

- .NET 3.5 SP1 (required by SQL Server 2012)
- .NET 4.5 (required by Open PQ Dashboard)
- SQL Server 2012 with management tools (free Express version is fine)
- IIS web server
- Highcharts v4.0.4 or newer
- jQWidgets 3.6.0 or newer

The dashboard web browser requires a minimum resolution of 1024 x 720 browser resolution.

Keywords

Power quality, dashboard, data quality, open source

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1

INSTALLATION INSTRUCTIONS

Installation of EPRI Software at Client Site

EPRI develops software using a number of third party software products and tools that run on various operating systems and server platforms. Reports from the software industry suggest there are known security issues with some products and systems. EPRI recommends that, if you are using EPRI software, you review its use with your Information Technology (IT) department and their overall strategy to ensure that all recommended security updates and patches are installed as needed in your corporation. If you have any concerns please call the EPRI Customer Assistance Center (CAC) at 1-800-313-3774 (or email askepri@epri.com).

If you experience difficulties accessing the application

If you experience difficulties accessing the application after standard installation on a system with 64-bit Windows 7 or Windows Server 2008 R2, please consult your IT department personnel to have proper access permissions setup for your use. If the problem cannot be resolved, please call the EPRI Customer Assistance Center (CAC) at 1-800-313-3774 (or email askepri@epri.com).

The following sections explain the necessary steps to install and use the software

This manual assumes that the prerequisite software including the operating system (64-bit Windows 7 or Windows Server 2008 R2), a SQL Server, .NET, an IIS web server, Highcharts, and jqWidgets have been previously installed, and describes the steps necessary to install the openXDA database and the Open PQ Dashboard web application so that the Open PQ Dashboard will execute correctly. It then presents the steps to run the application.

2

PREREQUISITES

The following hardware and software items are required before the Open PQ Dashboard and openXDA can be successfully installed. The operating system, database server, and web server are assumed to be standard IT infrastructure and are not addressed in this document. The .NET framework, Highcharts, and jqWidgets are commercially available third party software packages. If a prerequisite software element is already installed, the respective section of this document can be skipped.

Note: The openXDA service and PQ Dashboard both require mixed mode authentication to be enabled on the SQL Server instance where the openXDA database is installed. This setting can be selected during SQL Server installation and is turned off by default. If your instance is configured to allow only Windows authenticated users or if you are unsure whether mixed mode

authentication is enabled, refer to the following link for instructions on how to modify the setting: <https://msdn.microsoft.com/en-us/library/ms188670.aspx>.

Also note, the default configuration of IIS does not include the ASP.NET 4.5 or Windows Authentication features which are both required by the PQ Dashboard. These features should be enabled before attempting to install the PQ Dashboard.

Operating System

64-bit Windows 7 or Windows Server 2008 R2 (or later versions)

Minimum Hardware

- 2.0 GHz processor
- 2.0 GB of memory
- 50 GB of available disk space for installation and testing
- Operational disk space requirements will be proportional to the volume of input data

Software

- .NET 3.5 SP1 (required by SQL Server 2012)
- .NET 4.5 (required by Open PQ Dashboard)
- SQL Server 2012 with management tools (free Express version is fine)
- IIS web server
 - ASP.NET 4.5
 - Windows Authentication
- Highcharts v4.0.4 or newer
- jQWidgets 3.6.0 or newer
- openHistorian 2.0

Compatible Browsers

- Internet Explorer 9 or newer
- Google Chrome
- Mozilla Firefox

3

INSTALLING .NET 4.5

Note: If .NET 4.5 is installed, please go to [INSTALLING OPENHISTORIAN 2.0](#).

Download the .NET 4.5 installer from the following location:

<http://www.microsoft.com/en-us/download/details.aspx?id=30653>

Install this version of .NET before continuing to other installation steps.

4

INSTALLING OPENHISTORIAN 2.0

Note: If openHistorian 2.0 is installed, please go to [INSTALLING OPENXDA](#).

Download the openHistorian 2.0 from the following location:

<http://www.gridprotectionalliance.org/NightlyBuilds/openHistorian/Beta/openHistorian.Installs.zip>

Extract the downloaded archive and run Setup.exe to begin the installation. Follow the installation steps until you reach the following step. Enter the information as shown in the screenshot.

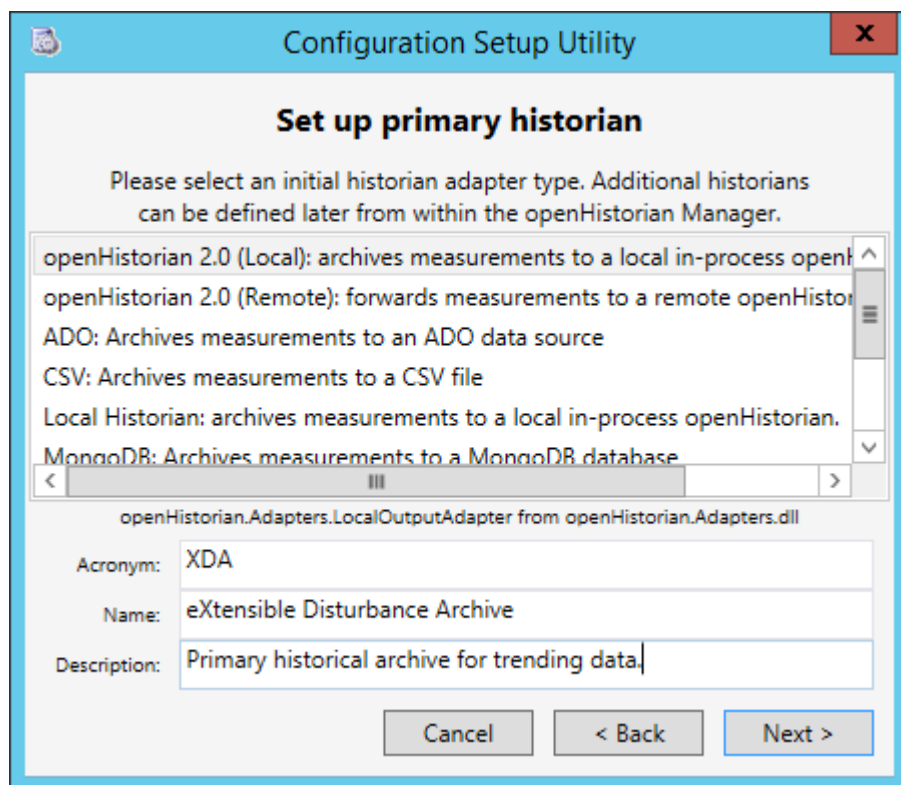


Figure 4-1
openHistorian Setup: Set up primary historian

After entering the information as shown above, follow the rest of the installation steps to completion. Finish installing openHistorian 2.0 before continuing to other sections of this manual.

5

INSTALLING OPENXDA

Run openXDASetup

The following screen will appear, click Next to install.



Figure 5-1
openXDA Setup: initial screen

End-User License Agreement

Click the check box to accept the MIT License terms then click Next to continue, or Cancel to exit the installation.

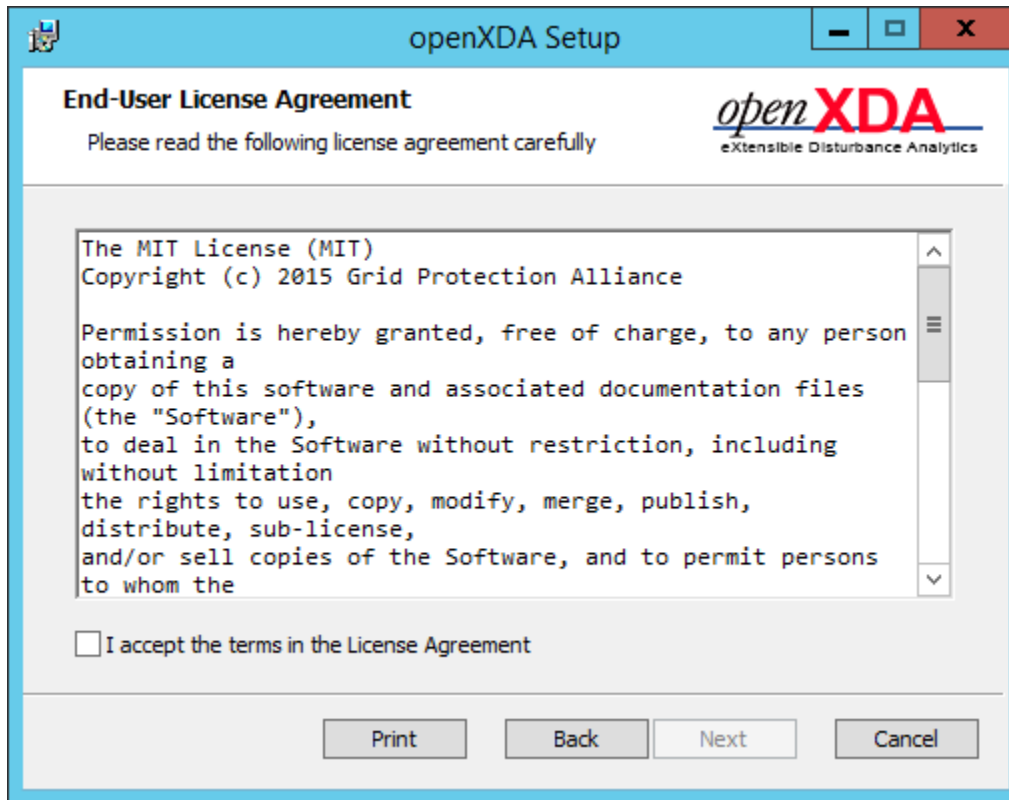


Figure 5-2
openXDA Setup: end-user license agreement

Custom Setup

For a new installation all components should be installed as shown in the screen below. If a different installation location is desired click the Browse button and select the location. When any changes to the setup screen are complete click Next.

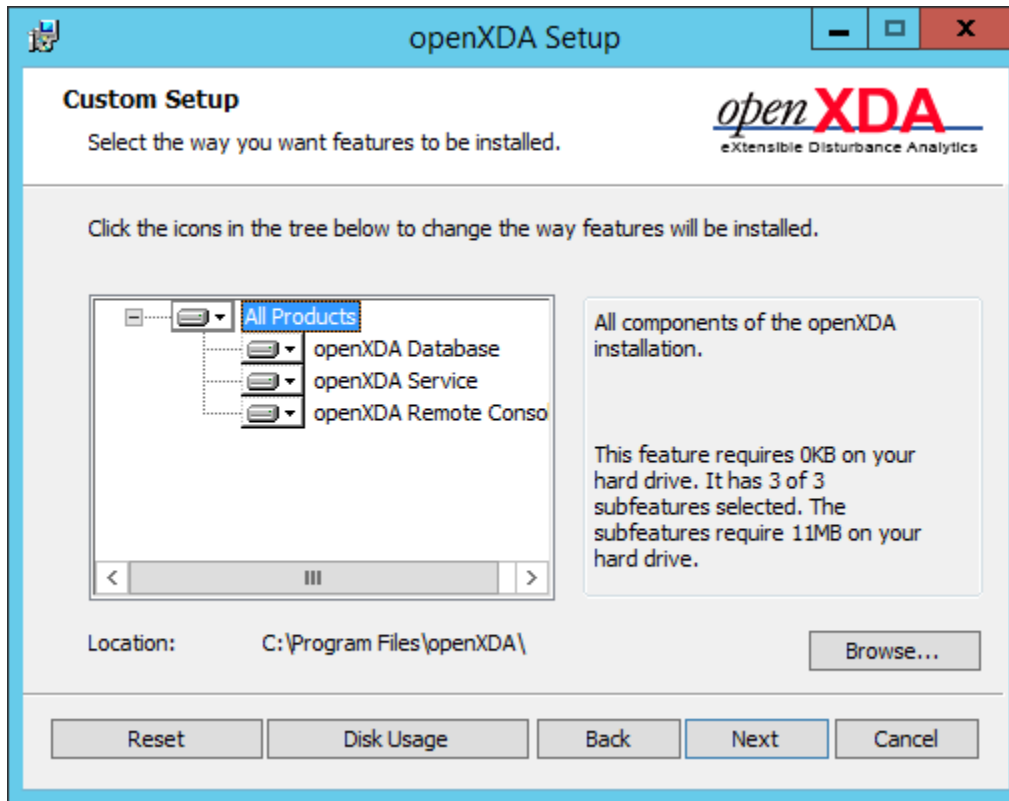


Figure 5-3
openXDA Setup: custom setup screen

Database Connection

For a new installation the default values are recommended but may be changed as specified by your database administrator. When the database connection is specified as desired click Next.

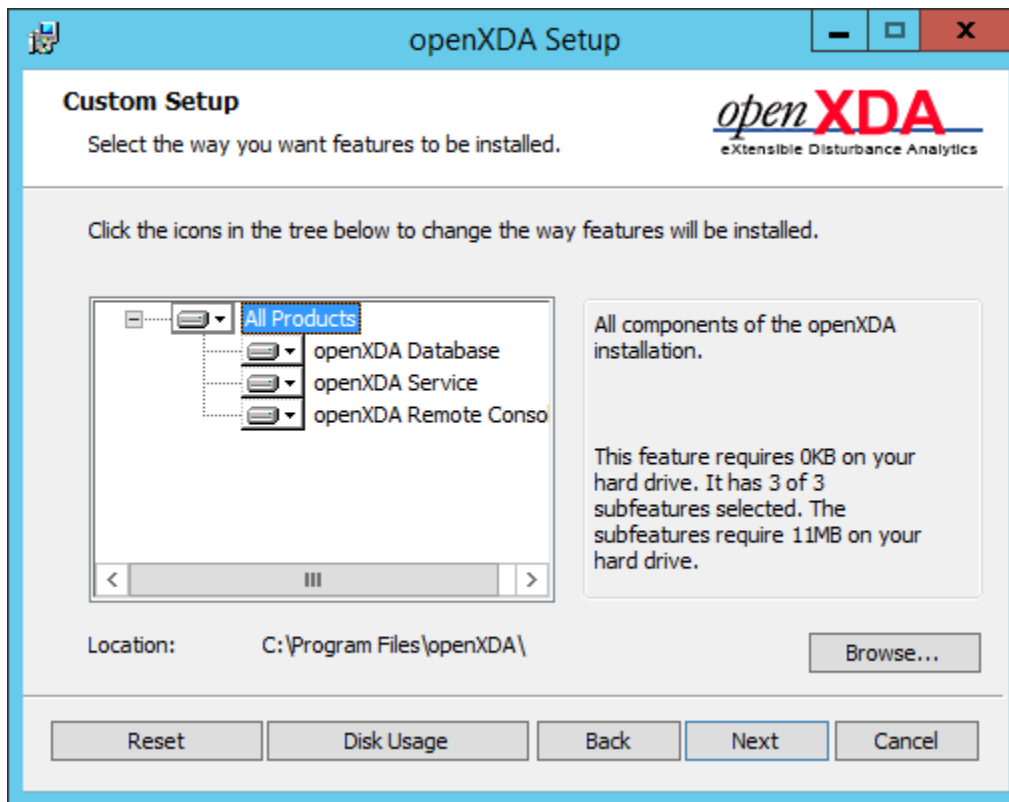


Figure 5-4
openXDA Setup: database connection

Ready to install openXDA

When you are ready to install openXDA click the Install button.

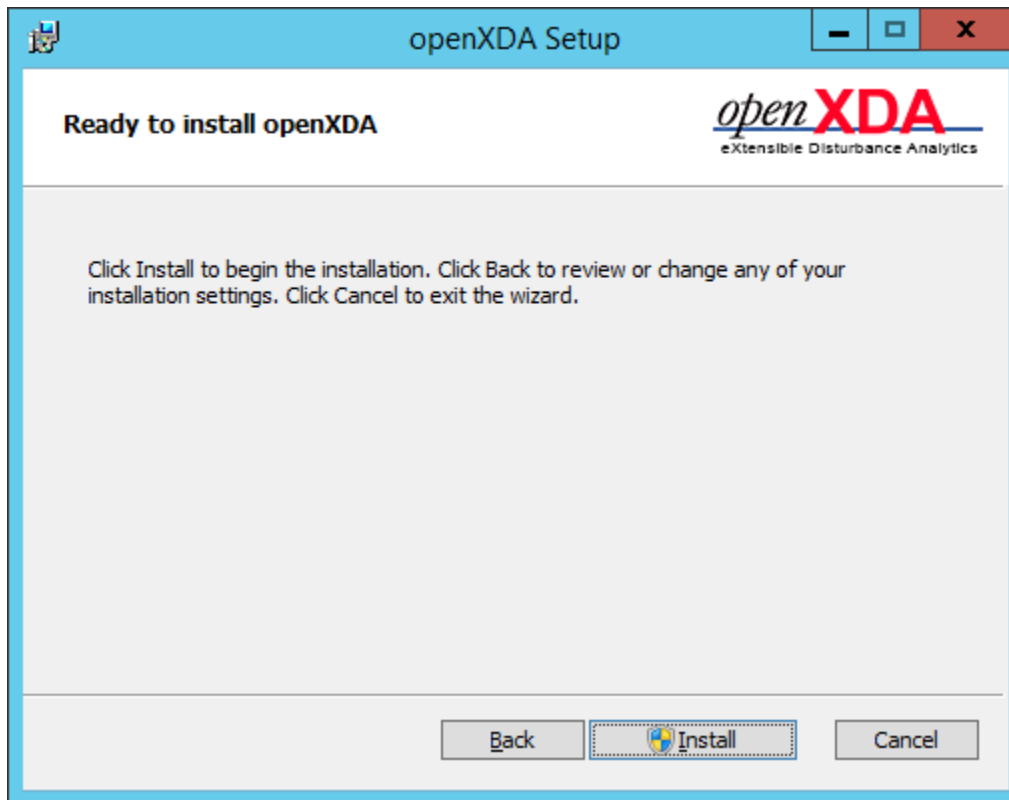


Figure 5-5
openXDA Setup: ready to install screen

User Account Control

If you want the openXDA setup to install openXDA on your computer click the Yes button, if not click No to cancel the installation.

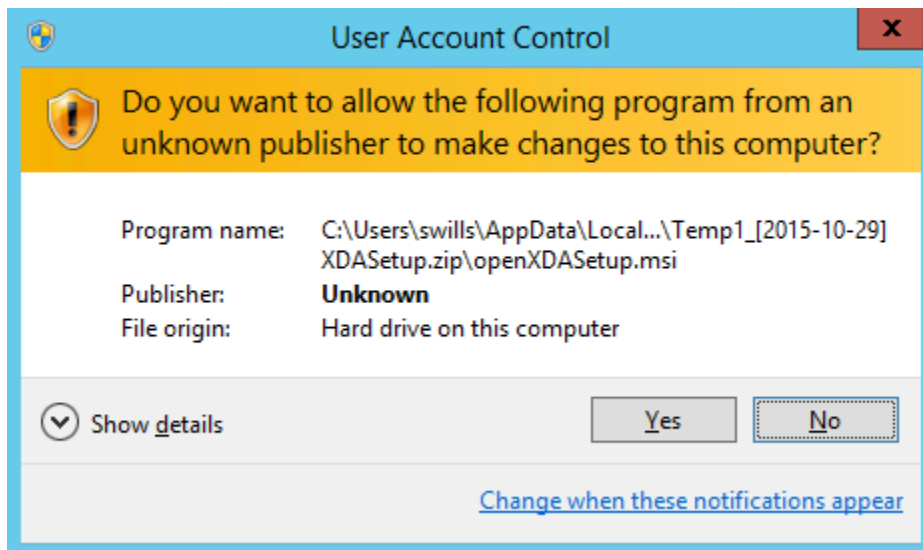


Figure 5-6
openXDA Setup: Confirm Install Screen

Installing openXDA Progress

Installation progress will be indicated in the screen below. Click next when the install is complete.

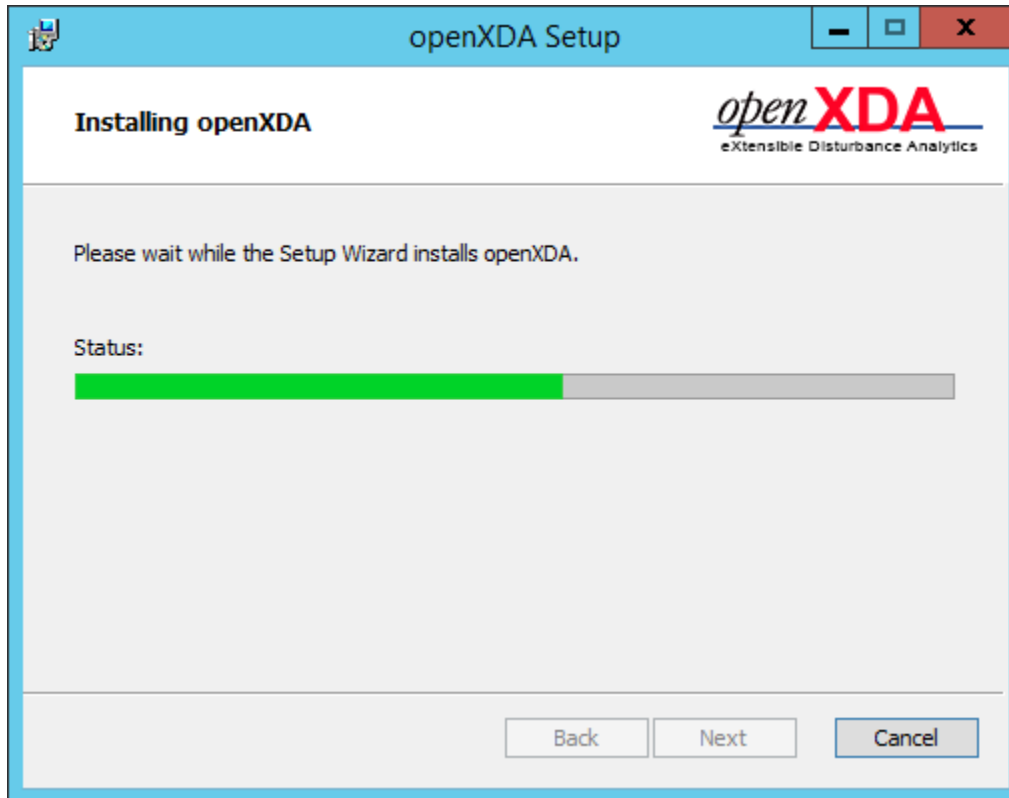


Figure 5-7
openXDA Setup: installation progress

Setup Finish

When the screen below is displayed to indicate that openXDA Setup has completed click the Finish button to dismiss the screen.

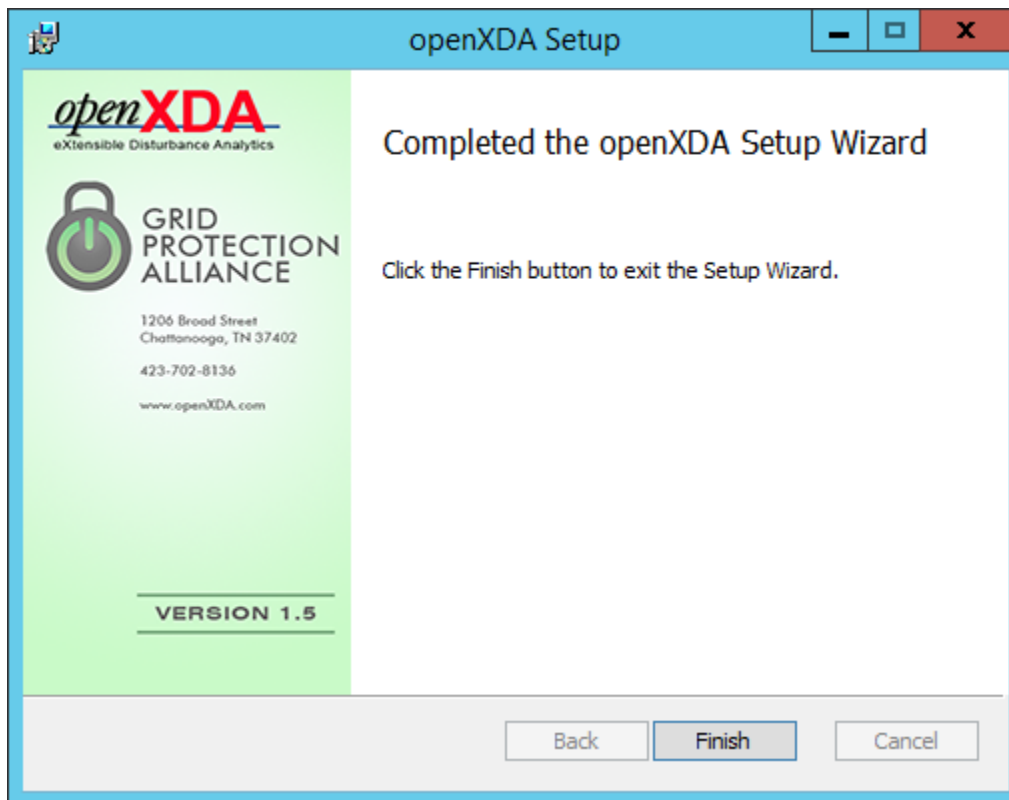


Figure 5-8
openXDA Setup: installation completed screen

6

INSTALLATING OPEN PQ DASHBOARD

Run open PQ Dashboard Setup

The following screen will appear, click Next to install.

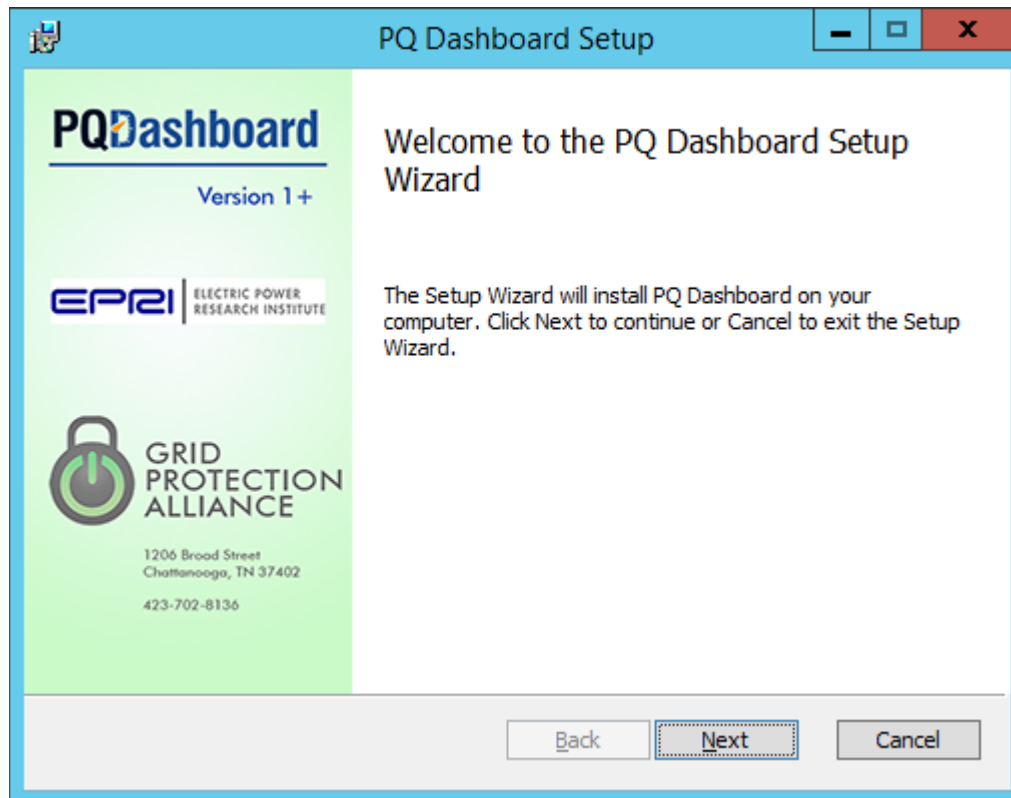


Figure 6-1
Open PQ Dashboard Setup: Welcome Screen

End-User License Agreement

Click the check box to accept the License terms then click Next to continue, or Cancel to exit the installation.

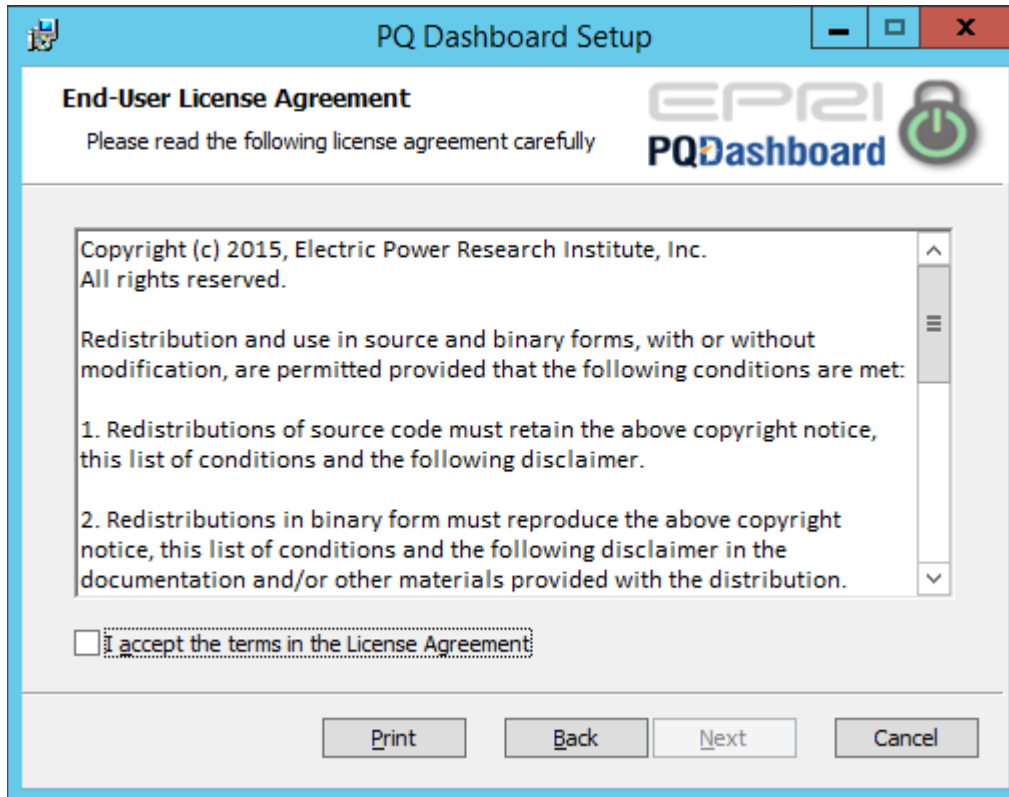


Figure 6-2
Open PQ Dashboard Setup: License Agreement

Custom Setup

For a new installation all components should be installed as shown in the screen below. If a different installation location is desired click the Browse button and select the location. When any changes to the setup screen are complete click Next.

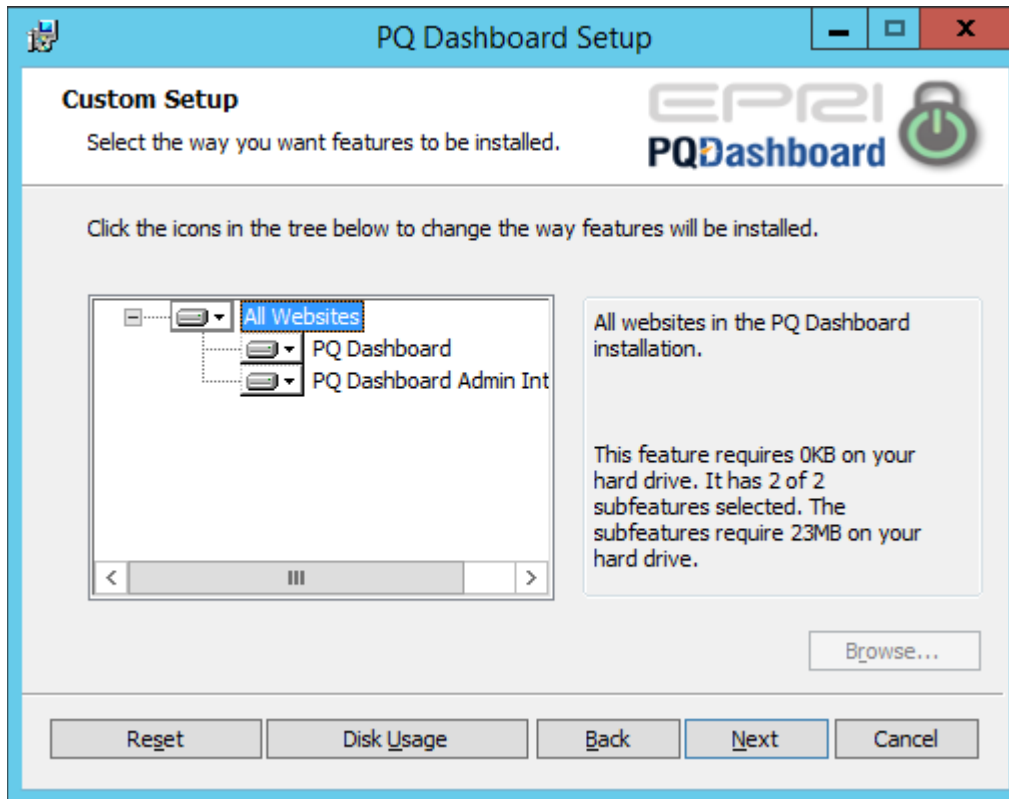
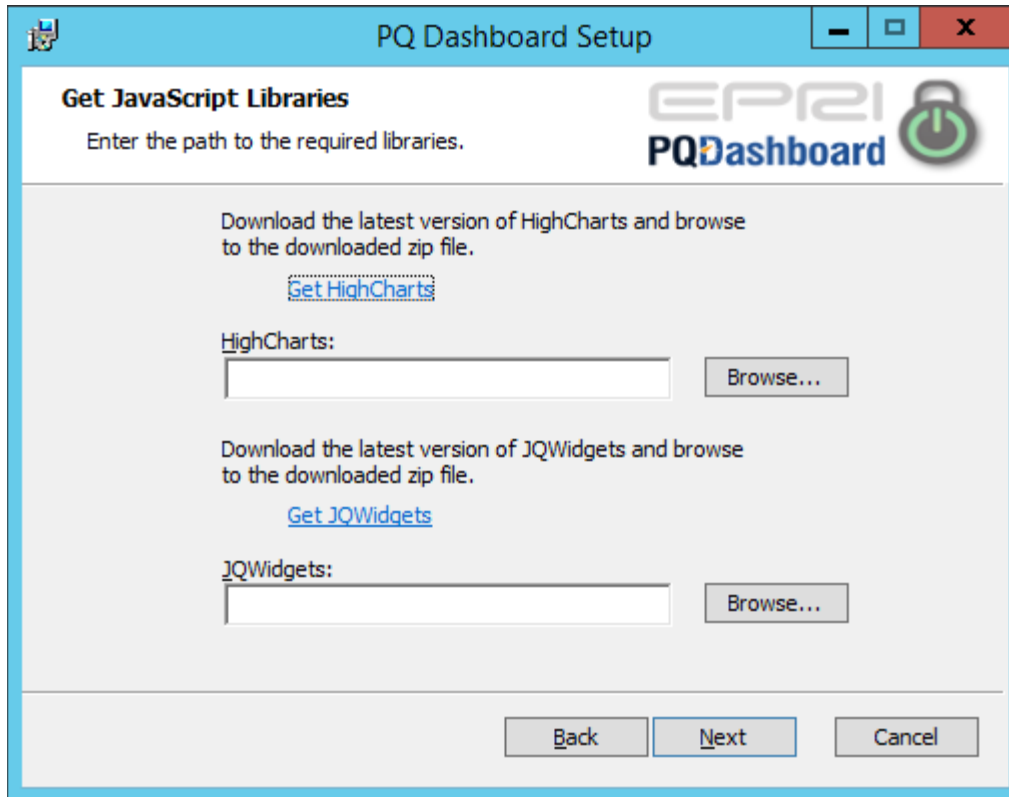


Figure 6-3
Open PQ Dashboard Setup: Install Changes Selection

Download HighCharts and JQWidget Libraries

Both HighCharts and JQWidget are open source software components; however, they are licensed under Creative Commons which stipulates that you may only use the open source license if the product is for noncommercial purposes. For those that use open PQ Dashboard for commercial purpose, you will be required to purchase a commercial license. Follow the link provided and then return to this screen, click on browse, and select the software component for each. Click Next.

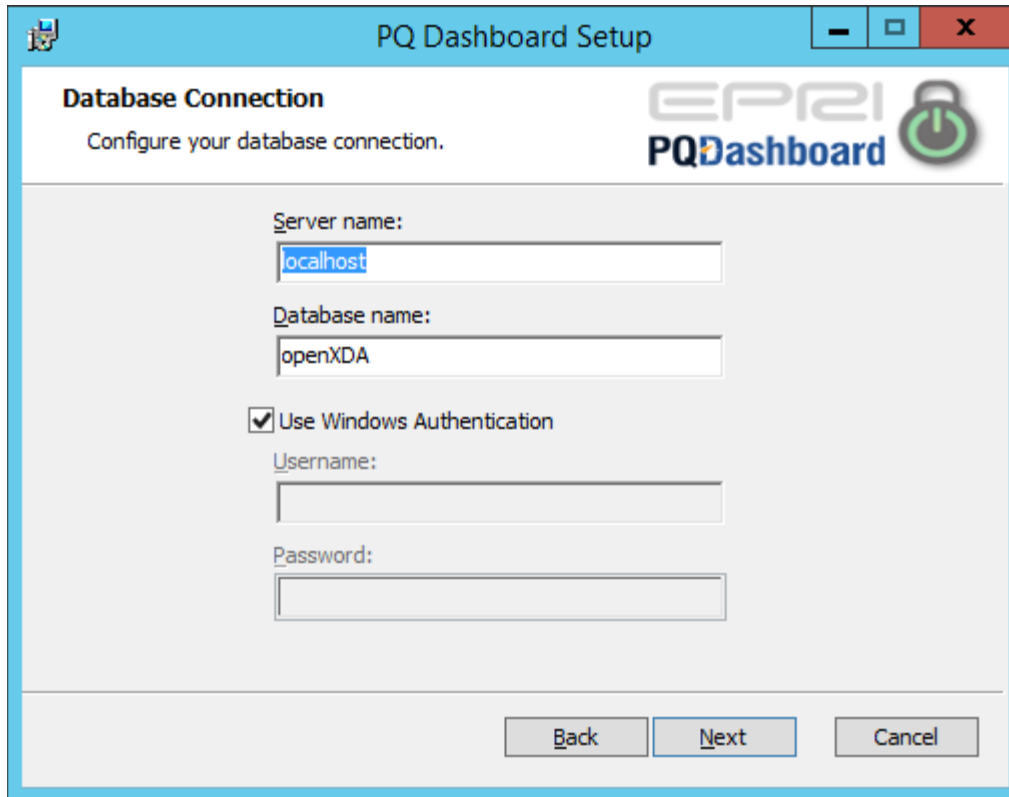


The screenshot shows a Windows-style window titled "PQ Dashboard Setup". The window has a blue header bar with standard minimize, maximize, and close buttons. Below the header, the title "Get JavaScript Libraries" is displayed in bold, followed by the instruction "Enter the path to the required libraries." The EPR2 PQDashboard logo is in the top right corner. The main content area is divided into two sections. The first section is for HighCharts, with the text "Download the latest version of HighCharts and browse to the downloaded zip file." and a blue hyperlink "Get HighCharts". Below this is a text input field labeled "HighCharts:" and a "Browse..." button. The second section is for JQWidgets, with the text "Download the latest version of JQWidgets and browse to the downloaded zip file." and a blue hyperlink "Get JQWidgets". Below this is a text input field labeled "JQWidgets:" and a "Browse..." button. At the bottom of the window, there are three buttons: "Back", "Next", and "Cancel".

Figure 6-4
Open PQ Dashboard Setup: Point to HighCharts and JQWidgets Downloads

Database Connection

Input the Server Name and Database Name for the openXDA database. Click Next.



The screenshot shows a Windows-style window titled "PQ Dashboard Setup". Inside, the "Database Connection" section is active, with the instruction "Configure your database connection." and the EPRI PQDashboard logo. The form contains the following fields and controls:

- Server name:** A text box containing "localhost".
- Database name:** A text box containing "openXDA".
- Use Windows Authentication:** A checked checkbox.
- Username:** An empty text box.
- Password:** An empty text box.
- Navigation:** "Back", "Next", and "Cancel" buttons at the bottom right.

Figure 6-5
Open PQ Dashboard Setup: Configure Database Connection to openXDA

Ready to install open PQ Dashboard

When you are ready to install open PQ Dashboard click the Install button.

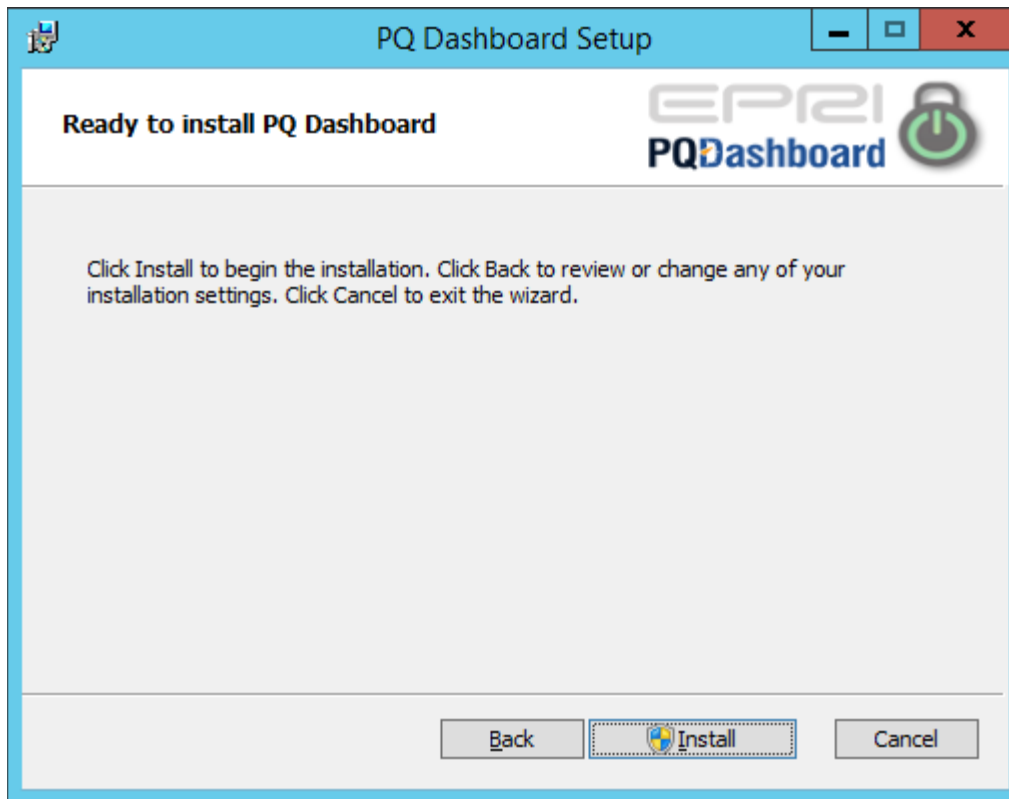


Figure 6-6
Open PQ Dashboard Setup: Install Screen

User Account Control

If you want the setup to install open PQ Dashboard on your computer click the Yes button, if not click No to cancel the installation.

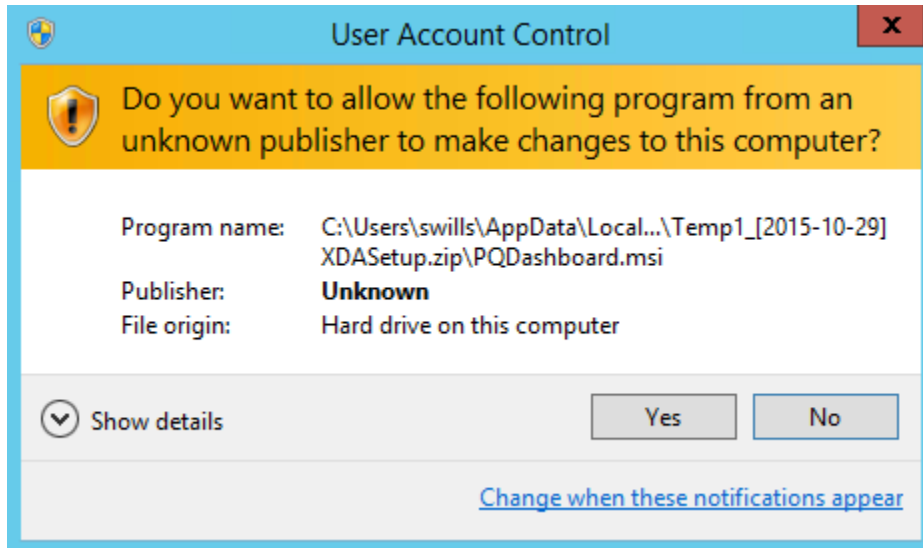


Figure 6-7
Open PQ Dashboard Setup: Confirm Install

Setup Finish

When the screen below is displayed to indicate that setup has completed click the Finish button to dismiss the screen.

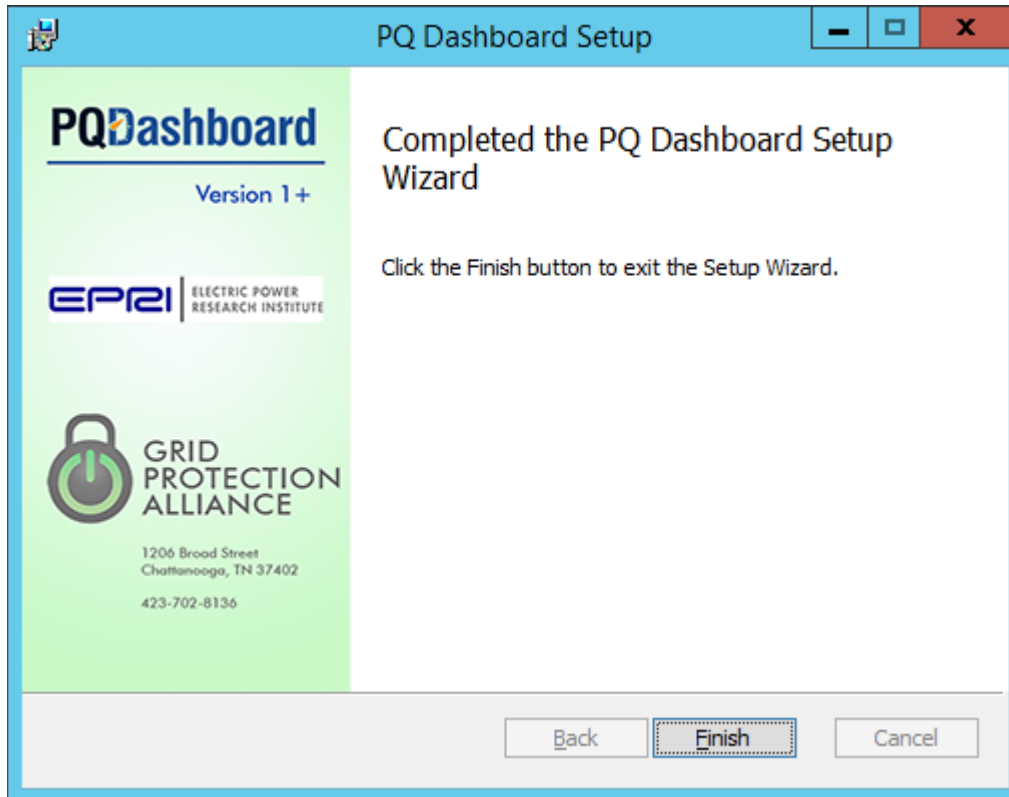


Figure 6-8
Open PQ Dashboard Setup: Install Complete

7

LOAD SYSTEM CONFIGURATION

Sample Data

The following is sample data provided with this installation under the folder “Test Data”. Steps to add your data can be followed in the same manner.

Copy and Paste DeviceDefinitions.xml

As shown in Figure 7-1, Figure 7-2, and Figure 7-3, copy and paste the DeviceDefinitions.xml file into openXDA folder.

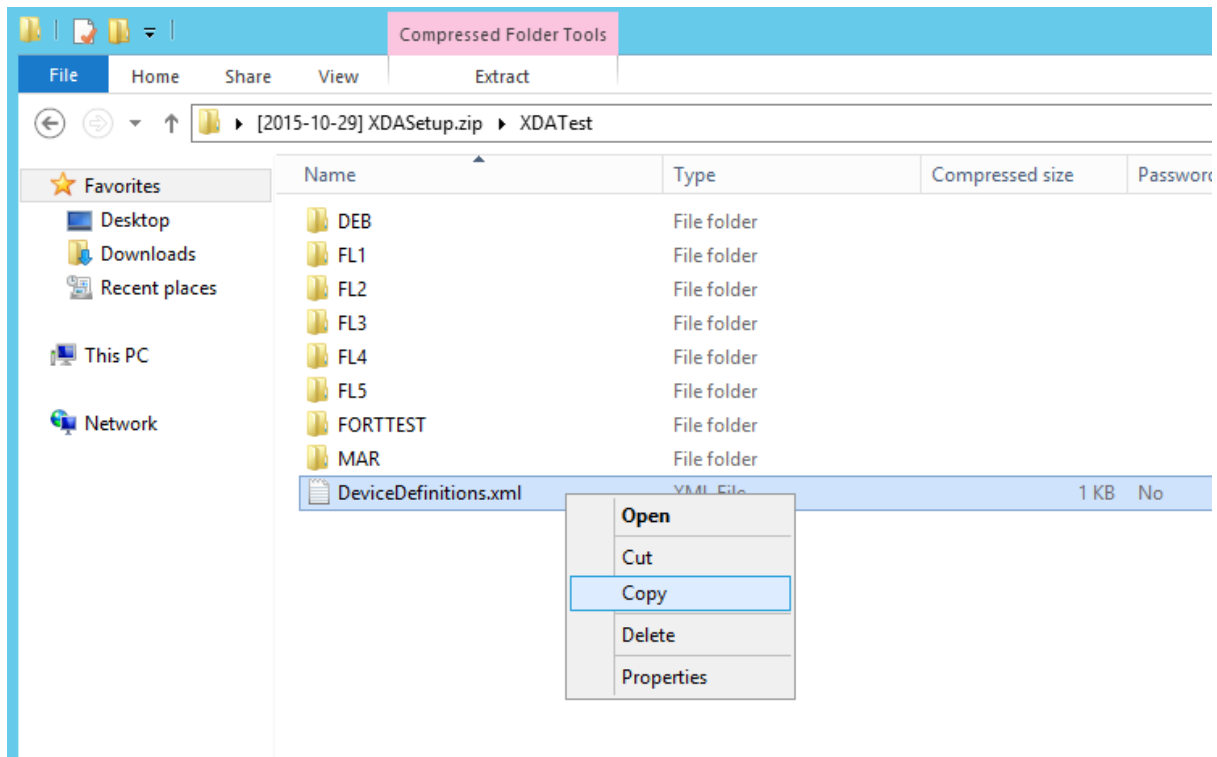


Figure 7-1
Copying Device Definitions File

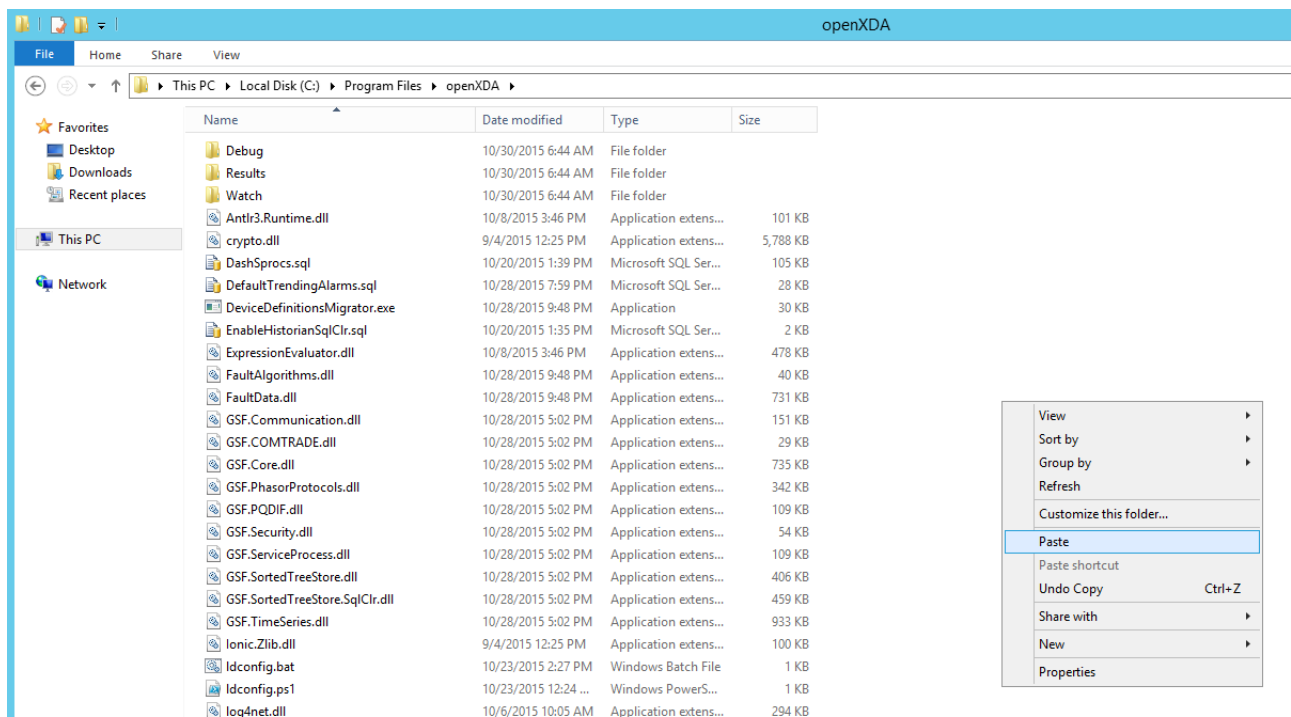


Figure 7-2
Paste Device Definitions File in openXDA installation folder

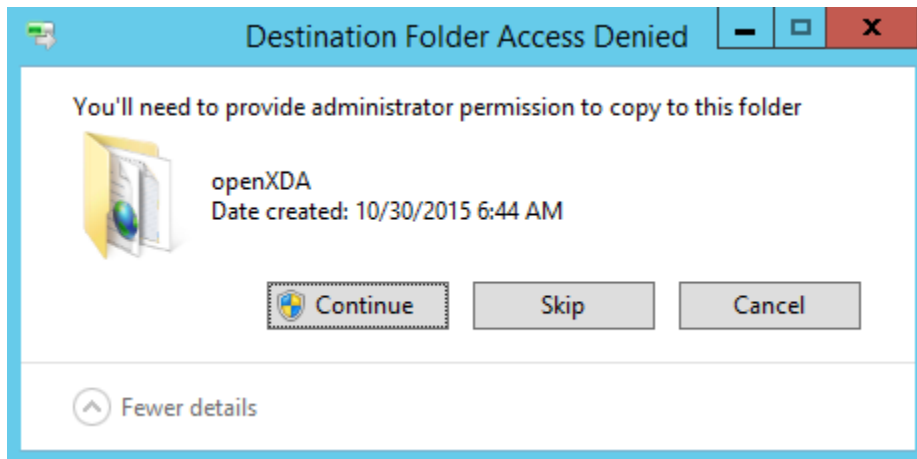


Figure 7-3
If prompted for administrator permissions press Continue

Load Configuration

As shown in Figure 7-4, open the `ldconfig.bat` file located in the openXDA folder. Upon executing, the selected configurations should display in the command prompt as shown in Figure 7-5

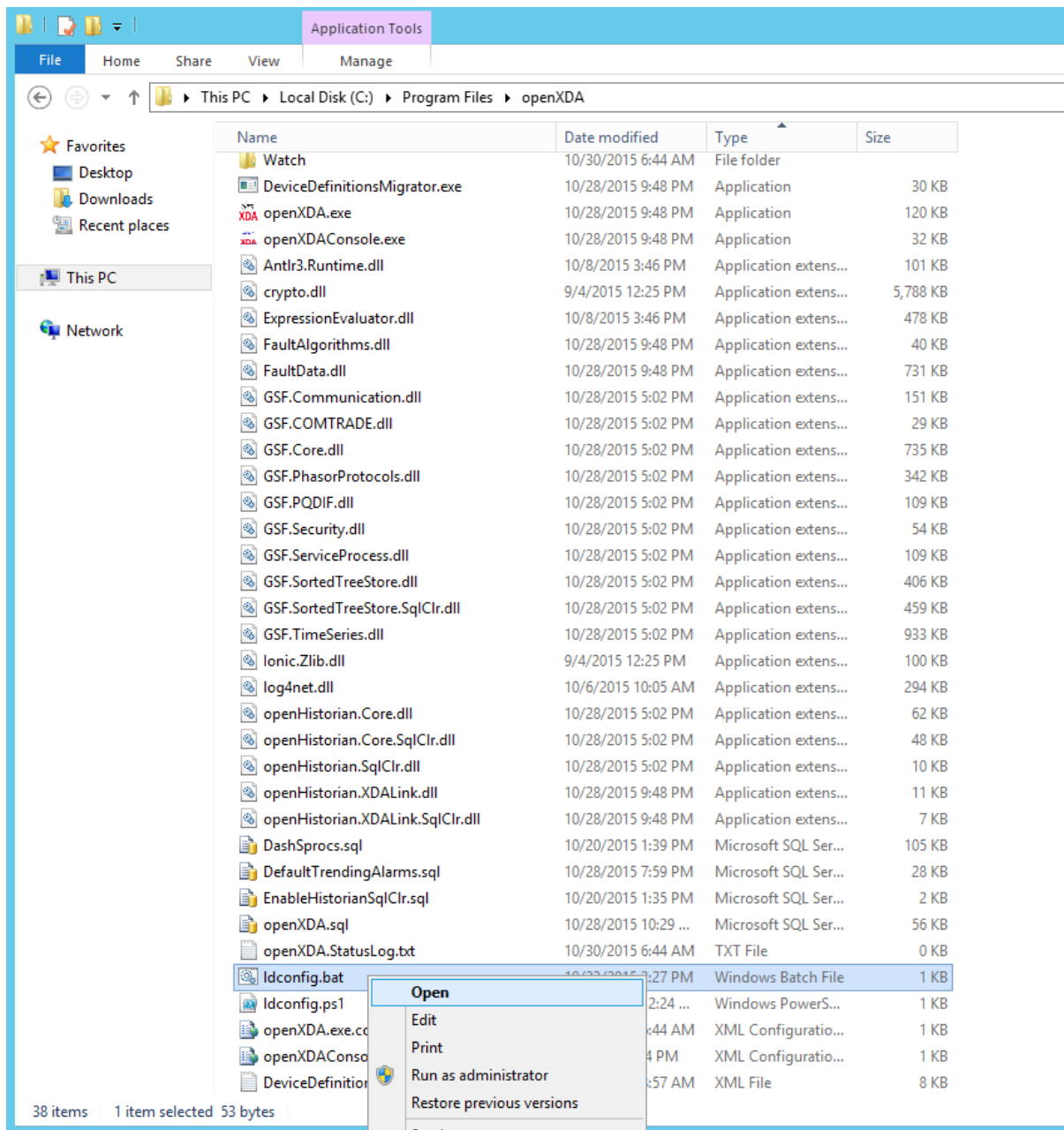
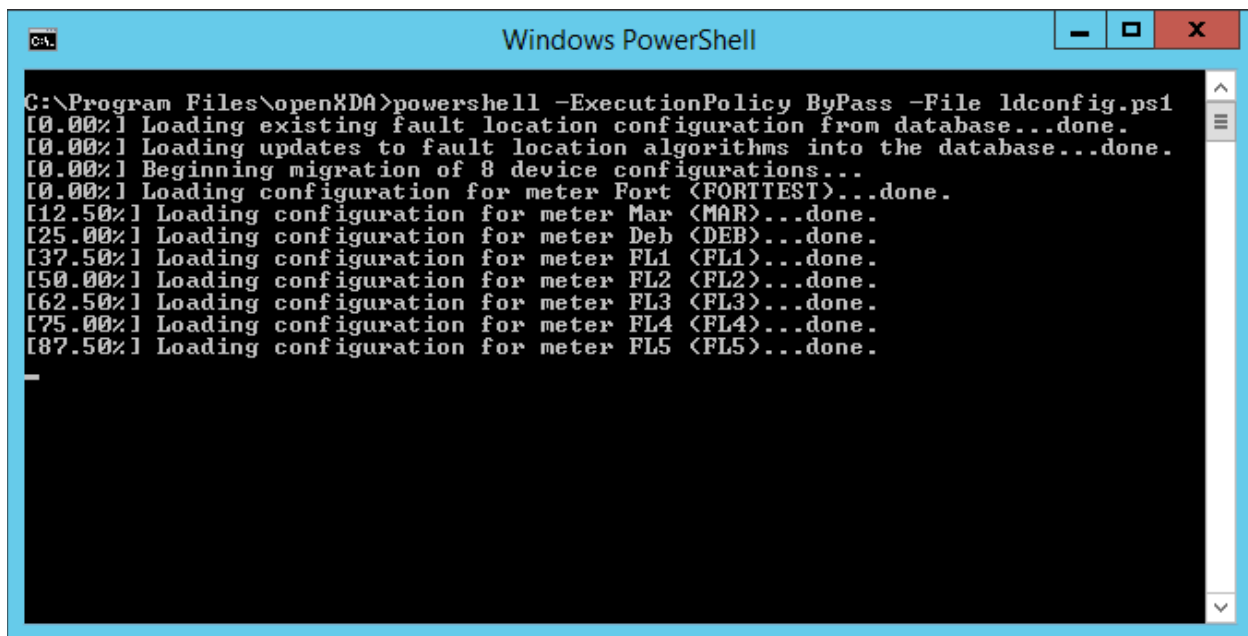


Figure 7-4
Open Idconfig.bat file



```
C:\Program Files\openXDA>powershell -ExecutionPolicy Bypass -File ldconfig.ps1
[0.00%] Loading existing fault location configuration from database...done.
[0.00%] Loading updates to fault location algorithms into the database...done.
[0.00%] Beginning migration of 8 device configurations...
[0.00%] Loading configuration for meter Fort <FORTTEST>...done.
[12.50%] Loading configuration for meter Mar <MAR>...done.
[25.00%] Loading configuration for meter Deb <DEB>...done.
[37.50%] Loading configuration for meter FL1 <FL1>...done.
[50.00%] Loading configuration for meter FL2 <FL2>...done.
[62.50%] Loading configuration for meter FL3 <FL3>...done.
[75.00%] Loading configuration for meter FL4 <FL4>...done.
[87.50%] Loading configuration for meter FL5 <FL5>...done.
```

Figure 7-5
ldconfig.bat loading system configuration file

8

LOAD TEST DATA

openXDA Console Monitor Service

The openXDA Console Monitor is a component of the software that looks for new data files to be loaded into open PQ Dashboard. As shown in Figure 8-1 in the openXDA folder, open the openXDAConsole executable. The service will display as shown in Figure 8-2.

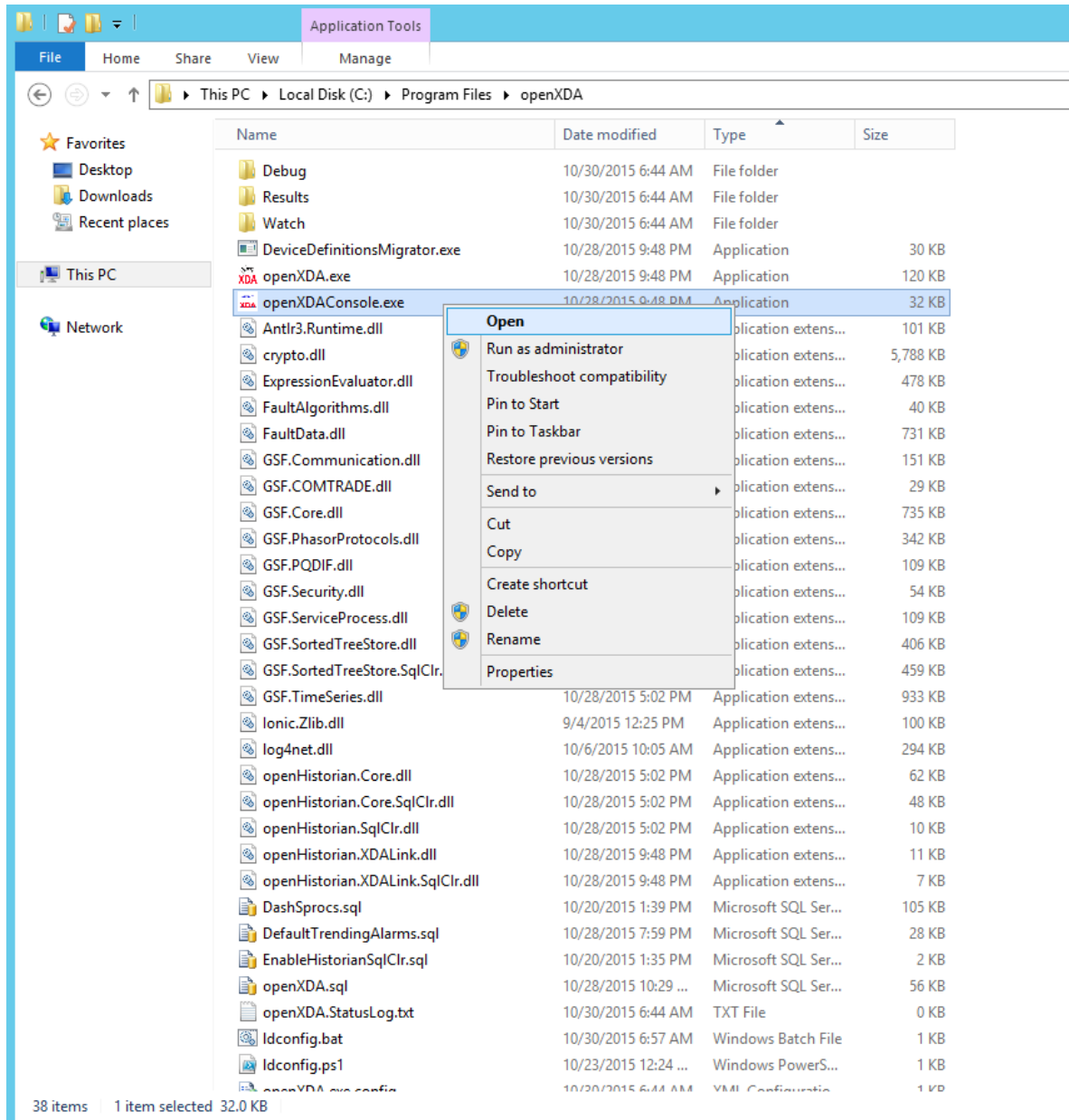
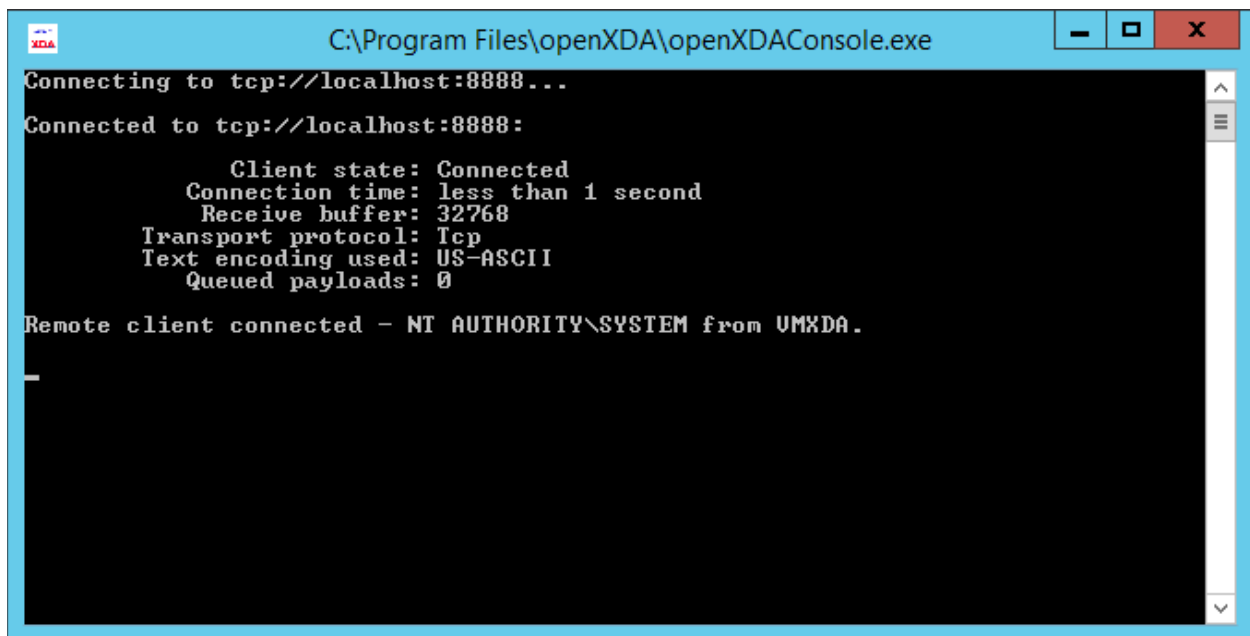


Figure 8-1
Open openXDA console to monitor service operation



```
C:\Program Files\openXDA\openXDAConsole.exe
Connecting to tcp://localhost:8888...
Connected to tcp://localhost:8888:
    Client state: Connected
    Connection time: less than 1 second
    Receive buffer: 32768
    Transport protocol: Tcp
    Text encoding used: US-ASCII
    Queued payloads: 0
Remote client connected - NT AUTHORITY\SYSTEM from VMXDA.
```

Figure 8-2
openXDA console display

Copy and Paste Sample Meter Data

As shown in Figure 8-3, copy the test meter folders and data from the “XDATest” folder provided with the downloaded zip file. As shown in Figure 8-4, paste this data into the “Watch” folder where openXDA was installed. If prompted with administrative permission, Figure 8-5, select continue. Once the data is copied, as shown in Figure 8-6, the openXDA Console will display messages showing that the meter data has been added.

The test dataset contains data for 8 sites with data available for exercising all dashboard tabs. Dates from 12/29/2013 through 01/08/2014 should be used for all tabs except faults. Data to exercise the fault tab is on 09/03/2014.

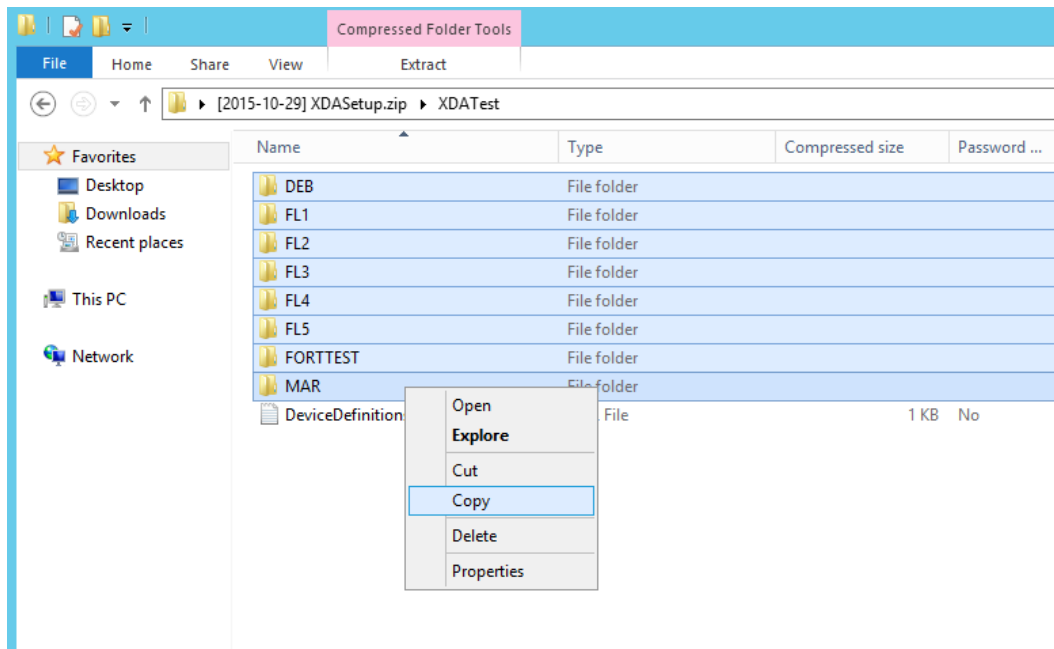


Figure 8-3
Copy Test Data

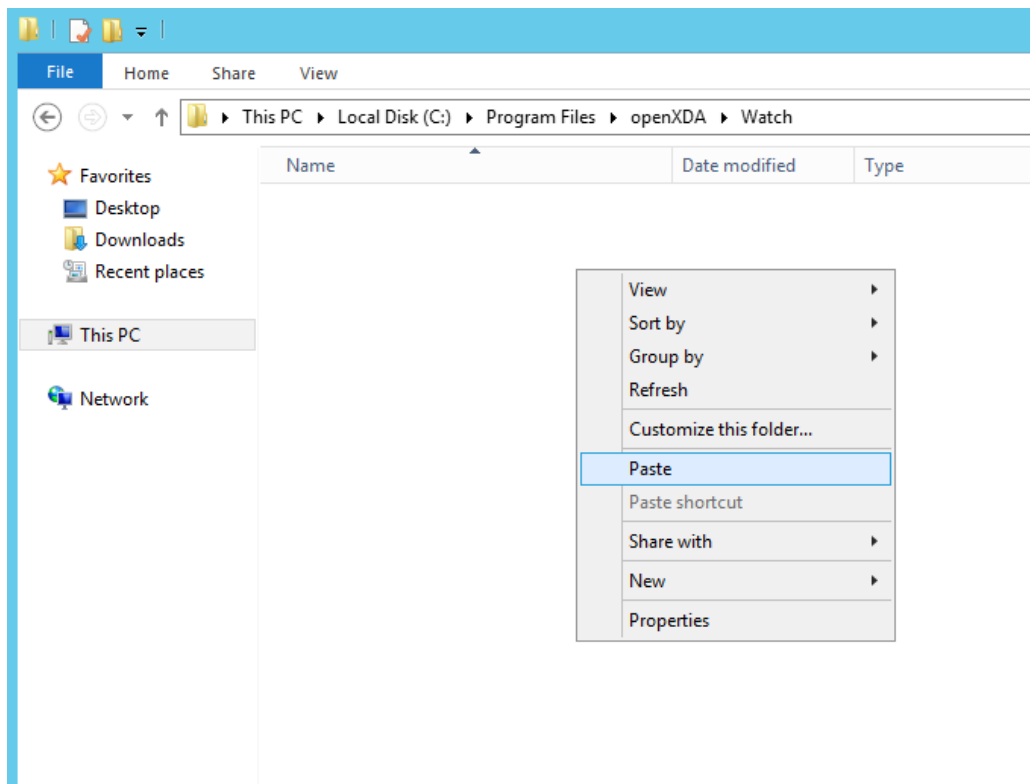


Figure 8-4
Paste Test Data to Watch Folder

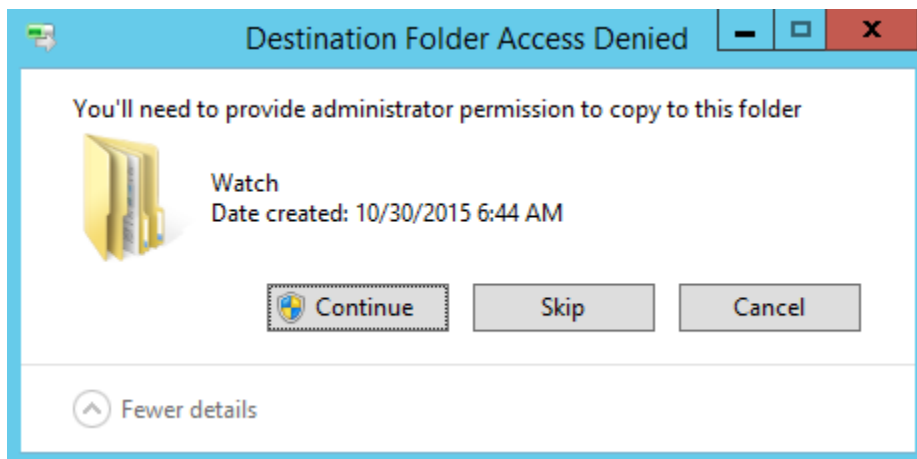


Figure 8-5
If prompted for administrator permissions press continue

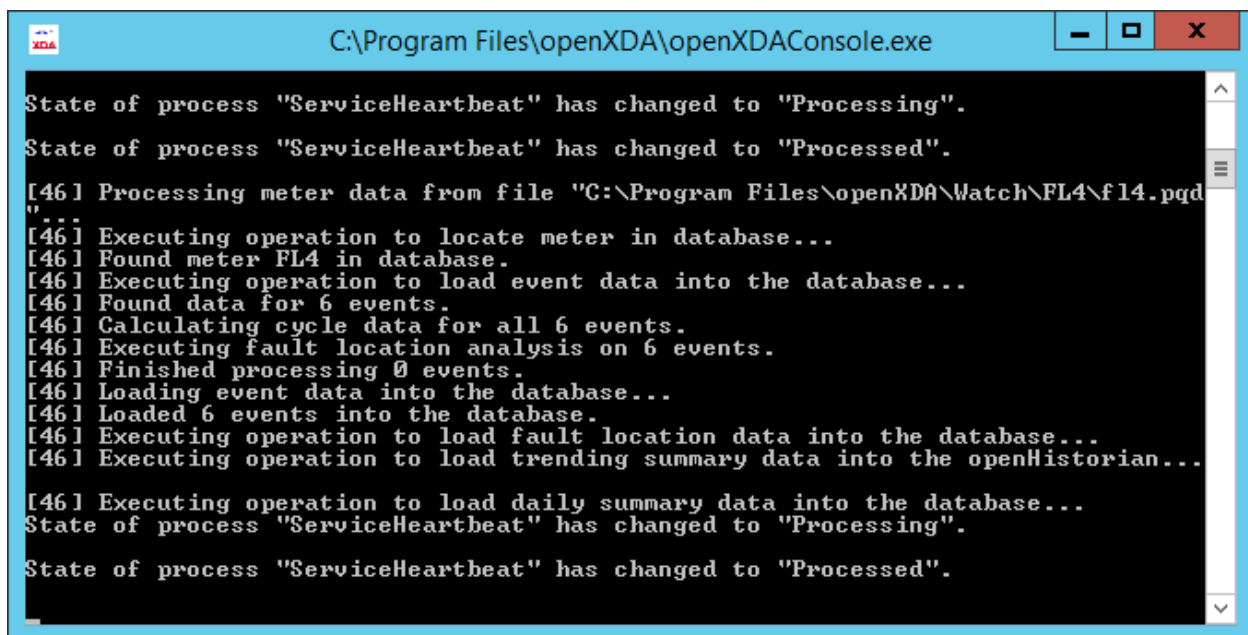


Figure 8-6
openXDA console display of service messages

9

USER AND DASHBOARD CONFIGURATION

PQ Dashboard Administration

Locate the PQ Dashboard Administration icon in your programs list,



or navigate to <http://localhost/dashadmin/>

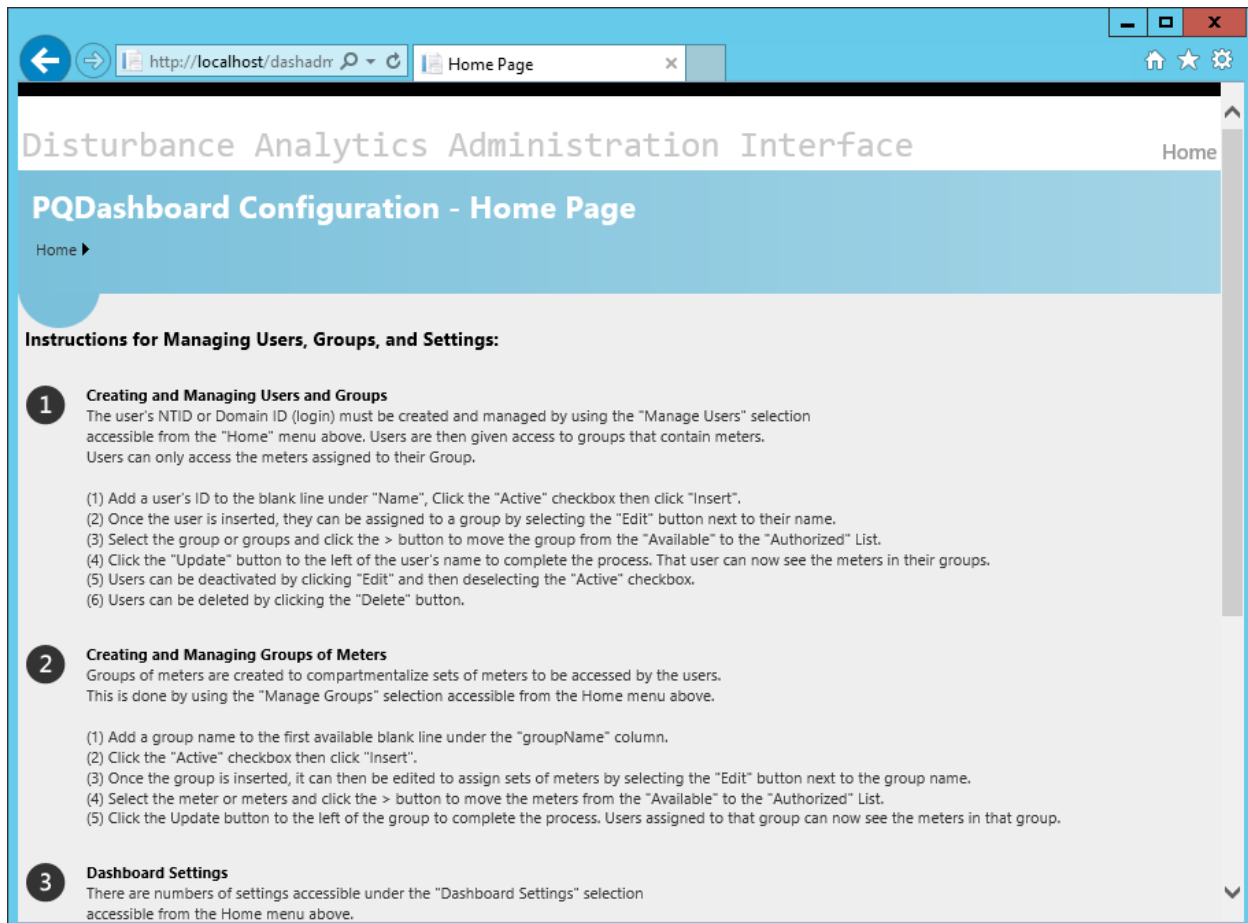


Figure 9-1
Dashadmin Home Page

Hover over the Home link and select Manage Groups.

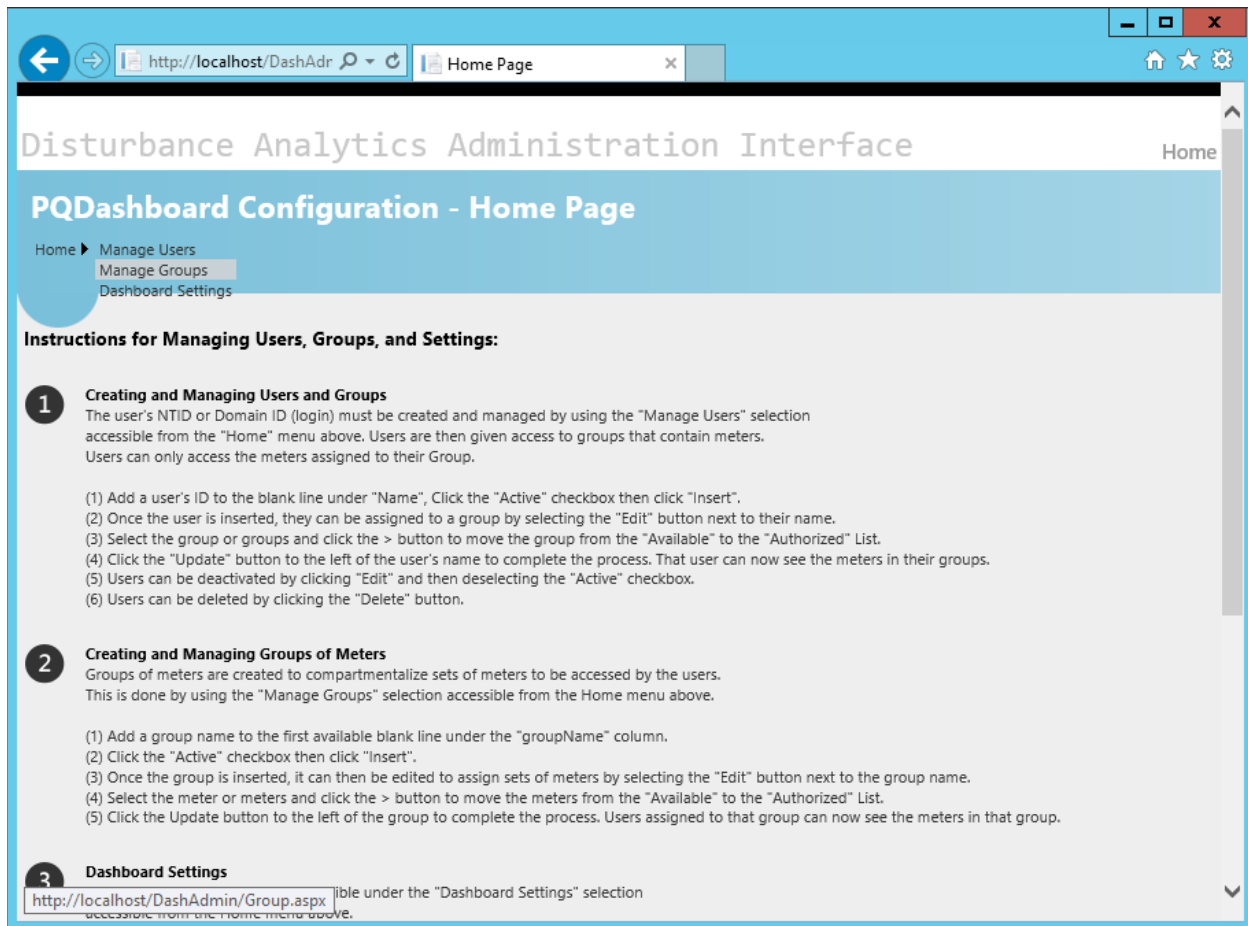


Figure 9-2
Manage Groups

Add the name of the group in the field labeled groupName.

The screenshot shows a web browser window with the address bar displaying `http://localhost/DashAdr` and the page title `Group Configuration`. The main content area is titled `Disturbance Analytics Administration Interface` with a `Home` link. Below this is a sub-header `PQDashboard Configuration - Group Configuration` with a `Home` link. The main form area has a table with columns `ID`, `groupName`, and `Active`. The `groupName` column contains a text input field. Below the input field are buttons for `Insert`, `Clear`, `First`, `Previous`, `Next`, and `Last`. The `Active` column contains a checkbox. At the bottom left, there is a copyright notice: `© 2015 - Grid Protection Alliance`.

ID	groupName	Active
	<input type="text"/>	<input type="checkbox"/>

Figure 9-3
Group Configuration

Place a check mark in the Active box and select Insert.

Disturbance Analytics Administration Interface Home

PQDashboard Configuration - Group Configuration

[Home](#) ▶

ID	groupName	Active
<input type="button" value="Insert"/> <input type="button" value="Clear"/>	<input type="text" value="All Meters"/>	<input checked="" type="checkbox"/>
<input type="button" value="First"/> <input type="button" value="Previous"/> <input type="button" value="Next"/> <input type="button" value="Last"/>		

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<http://localhost/DashAdmin/Group.aspx>

Figure 9-4
Enter name, select active, click Insert

Click the Edit button of the group created.

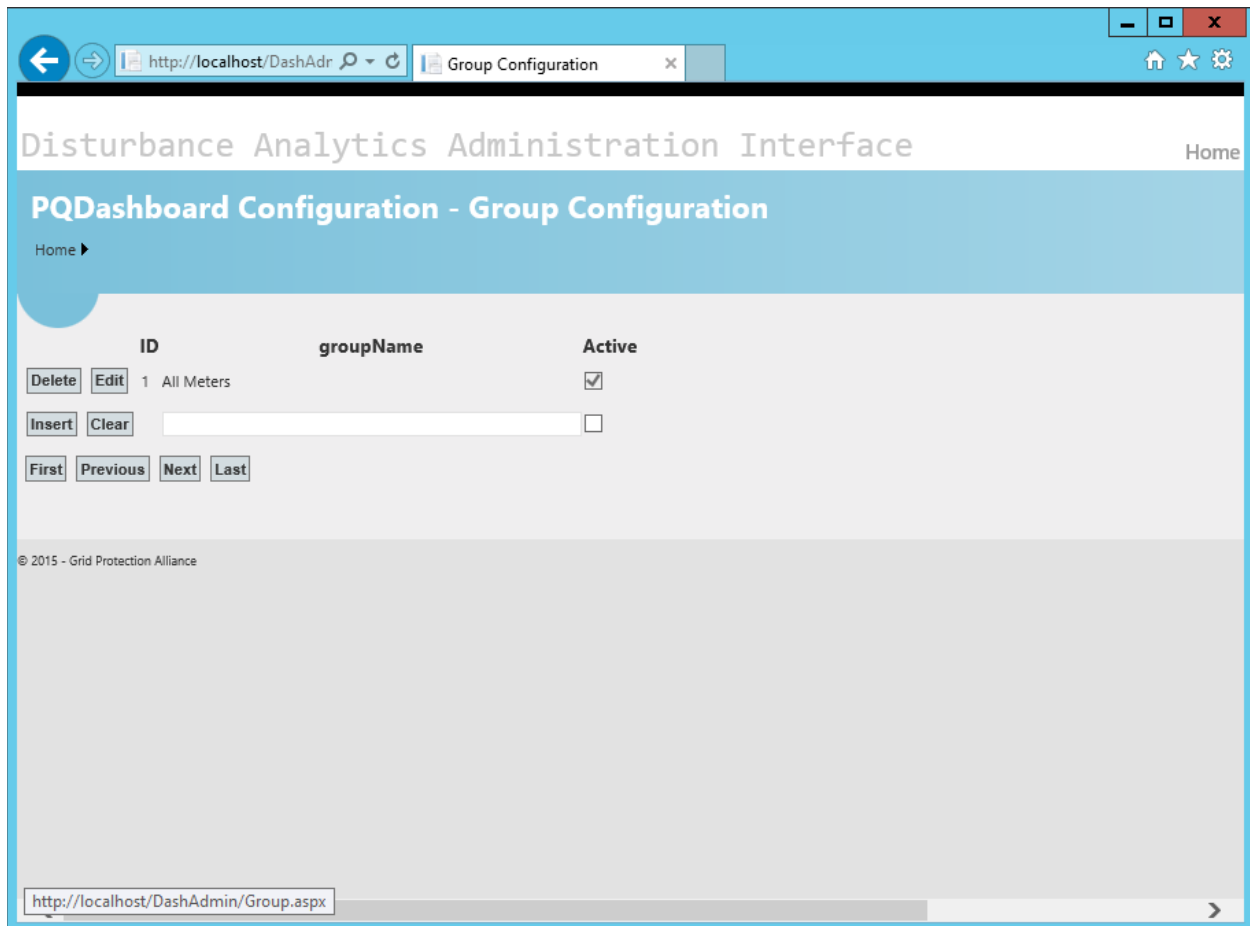


Figure 9-5
Edit 'All Meters' group

Click and select each meter that you want to include as authorized for this group and click the right-arrow (>).

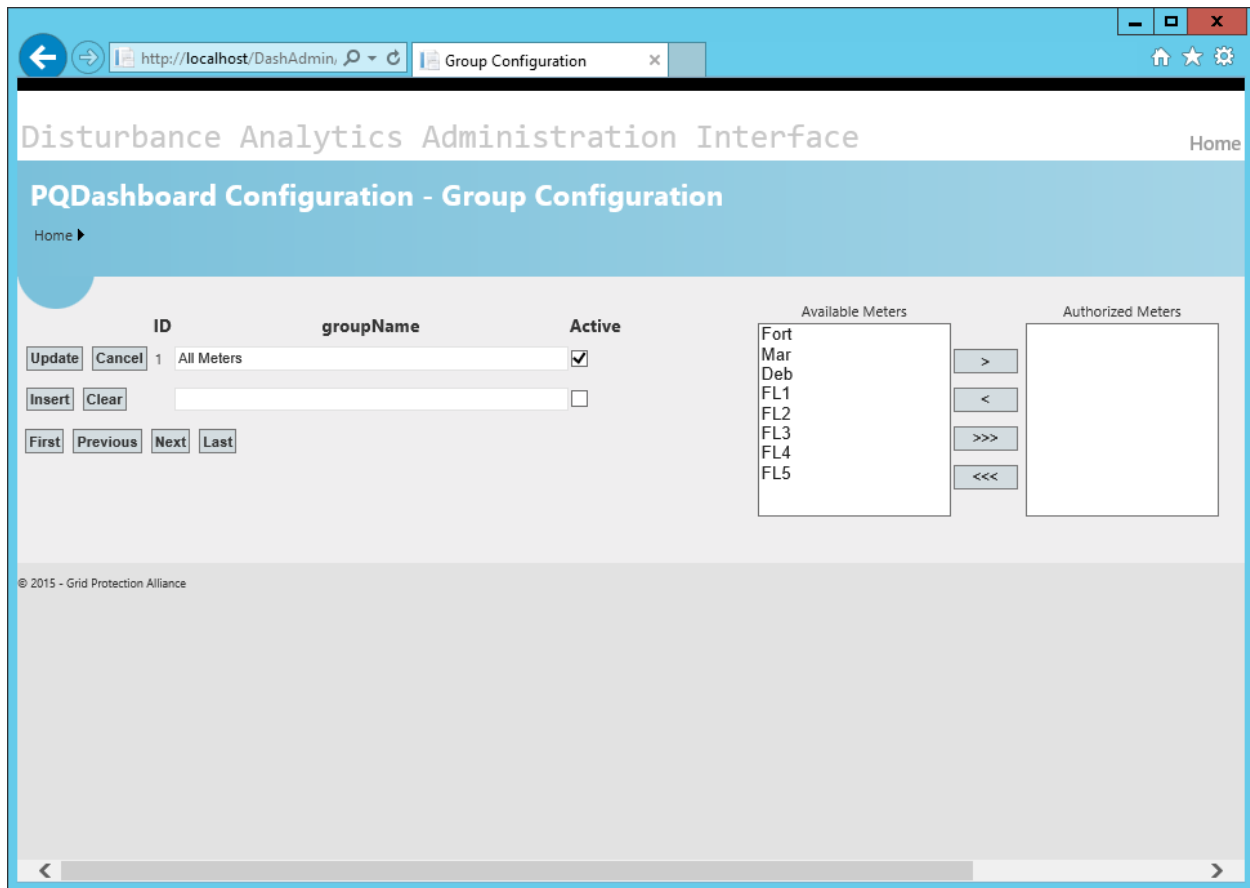


Figure 9-6
Available Meters

Click the Update button of this group to finalize your selection.

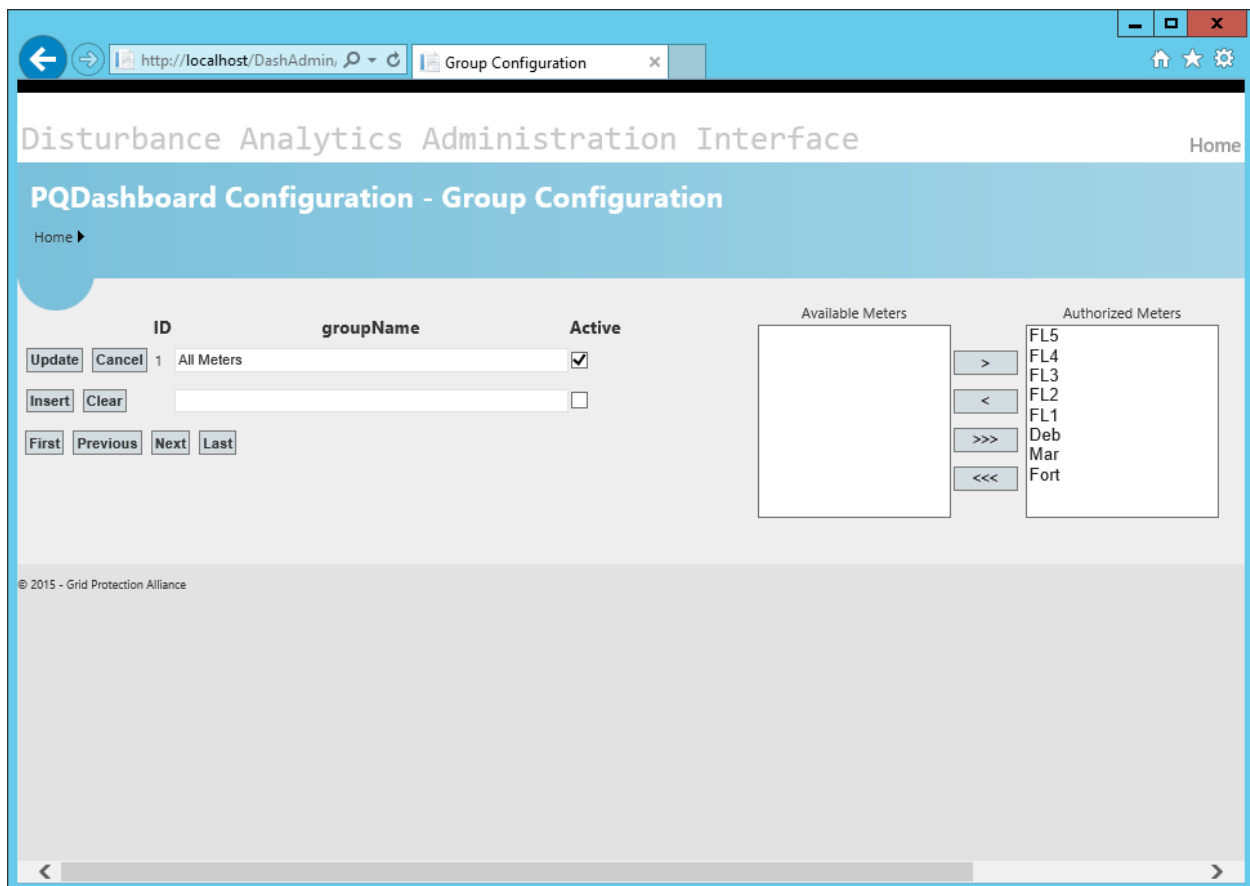


Figure 9-7
Move available meters to authorized meters list, and click update

Hover over the home menu and select Manage Users.

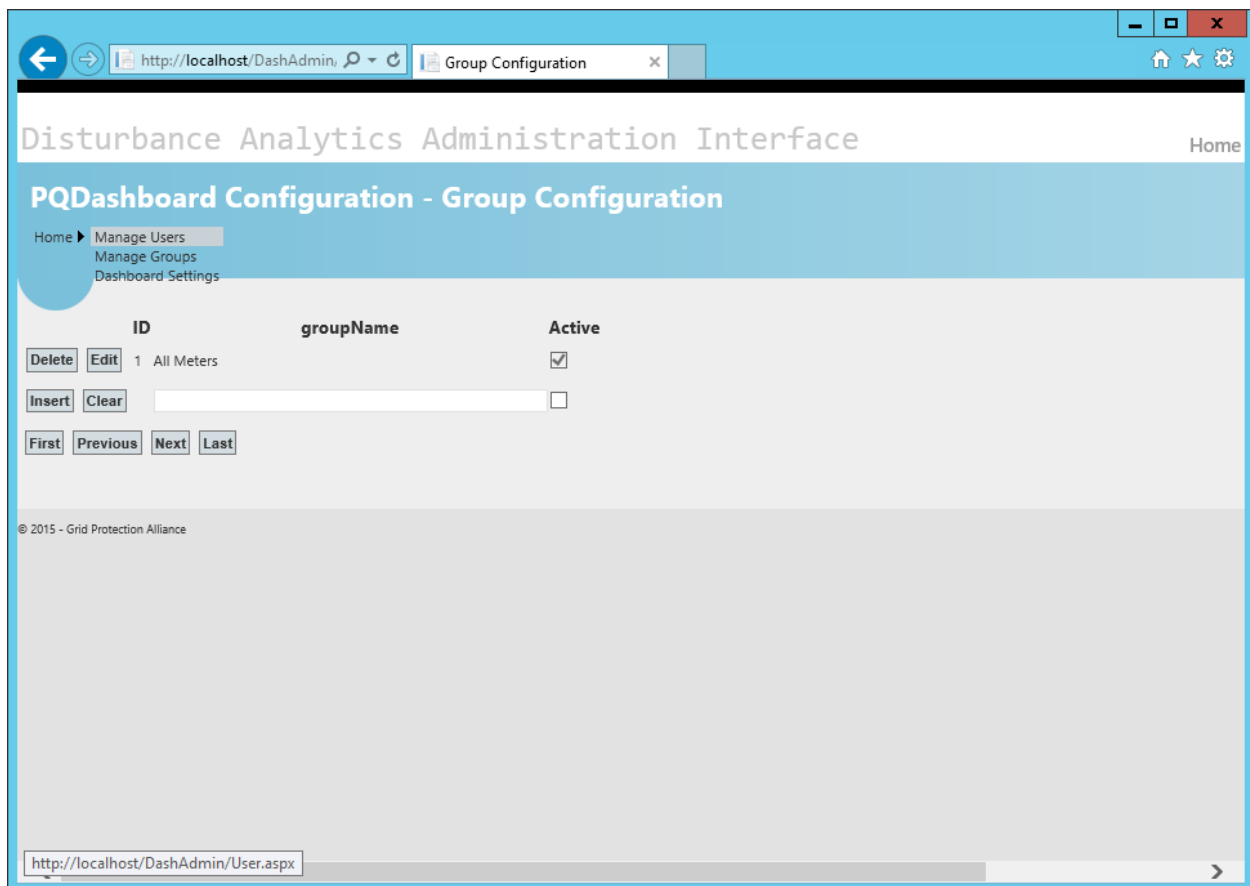


Figure 9-8
Manage Users

Enter your Windows Authentication user name, click Active, and then Insert.

Disturbance Analytics Administration Interface Home

PQDashboard Configuration - User Configuration

[Home](#)

ID	Name	Active
<input type="button" value="Insert"/> <input type="button" value="Clear"/>	<input type="text" value="felmendorf"/>	<input checked="" type="checkbox"/>
<input type="button" value="First"/> <input type="button" value="Previous"/> <input type="button" value="Next"/> <input type="button" value="Last"/>		

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<http://localhost/DashAdmin/User.aspx>

Figure 9-9
Enter your Windows user name, check active, click insert

Click Edit of the added user.

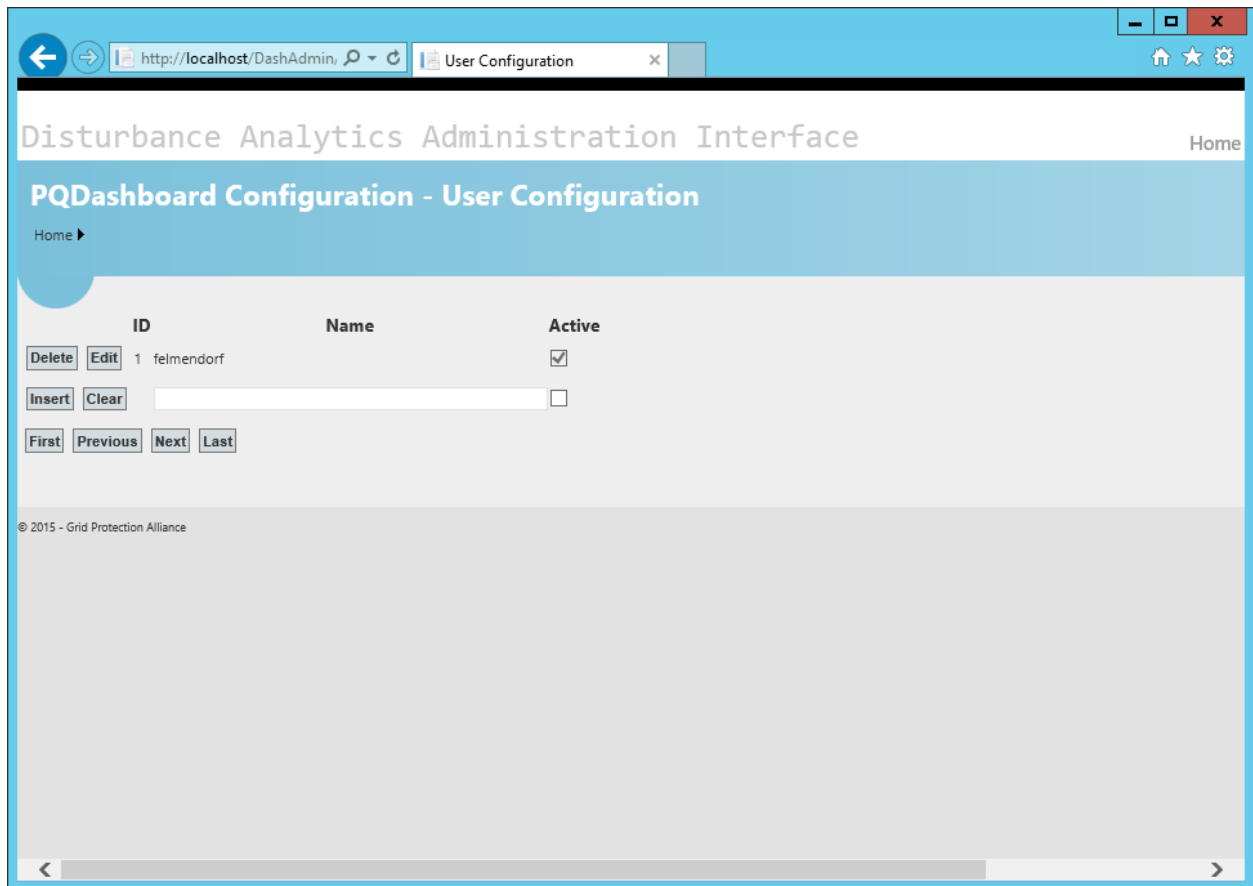


Figure 9-10
Click Edit to authorize groups

Select the metering group(s) of which you want the user to have access to view, and click the right-arrow (>).

The screenshot displays the 'Disturbance Analytics Administration Interface' with the 'User Configuration' tab selected. The page title is 'PQDashboard Configuration - User Configuration'. Below the title, there is a 'Home' link. The main content area features a table for user management with columns 'ID', 'Name', and 'Active'. The first row shows a user with ID '1' and Name 'felmendorf', who is active (checked checkbox). Below the table, there are buttons for 'Update', 'Cancel', 'Insert', 'Clear', 'First', 'Previous', 'Next', and 'Last'. To the right of the table, there are two lists: 'Available Groups' and 'Authorized Groups'. The 'Available Groups' list contains 'All Meters'. Between the two lists are four buttons: '>', '<', '>>>', and '<<<'. The footer of the page shows the copyright notice '© 2015 - Grid Protection Alliance'.

ID	Name	Active
1	felmendorf	<input checked="" type="checkbox"/>
		<input type="checkbox"/>

Available Groups: All Meters

Authorized Groups:

Buttons: Update, Cancel, Insert, Clear, First, Previous, Next, Last

Navigation: >, <, >>>, <<<

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Figure 9-11
Available groups

Click update to add the user to the selected group(s)

Disturbance Analytics Administration Interface Home

PQDashboard Configuration - User Configuration

Home ▶

ID	Name	Active
1	felmendorf	<input checked="" type="checkbox"/>
	<input type="text"/>	<input type="checkbox"/>

Update Cancel Insert Clear First Previous Next Last

Available Groups

Authorized Groups

All Meters

> < >>> <<<

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http://localhost/DashAdmin/User.aspx

Figure 9-12
Move available groups to authorized groups, click update

The dashboard settings screen currently does not require any configuration and is in place to support future configuration of dashboard tabs and layers to display.

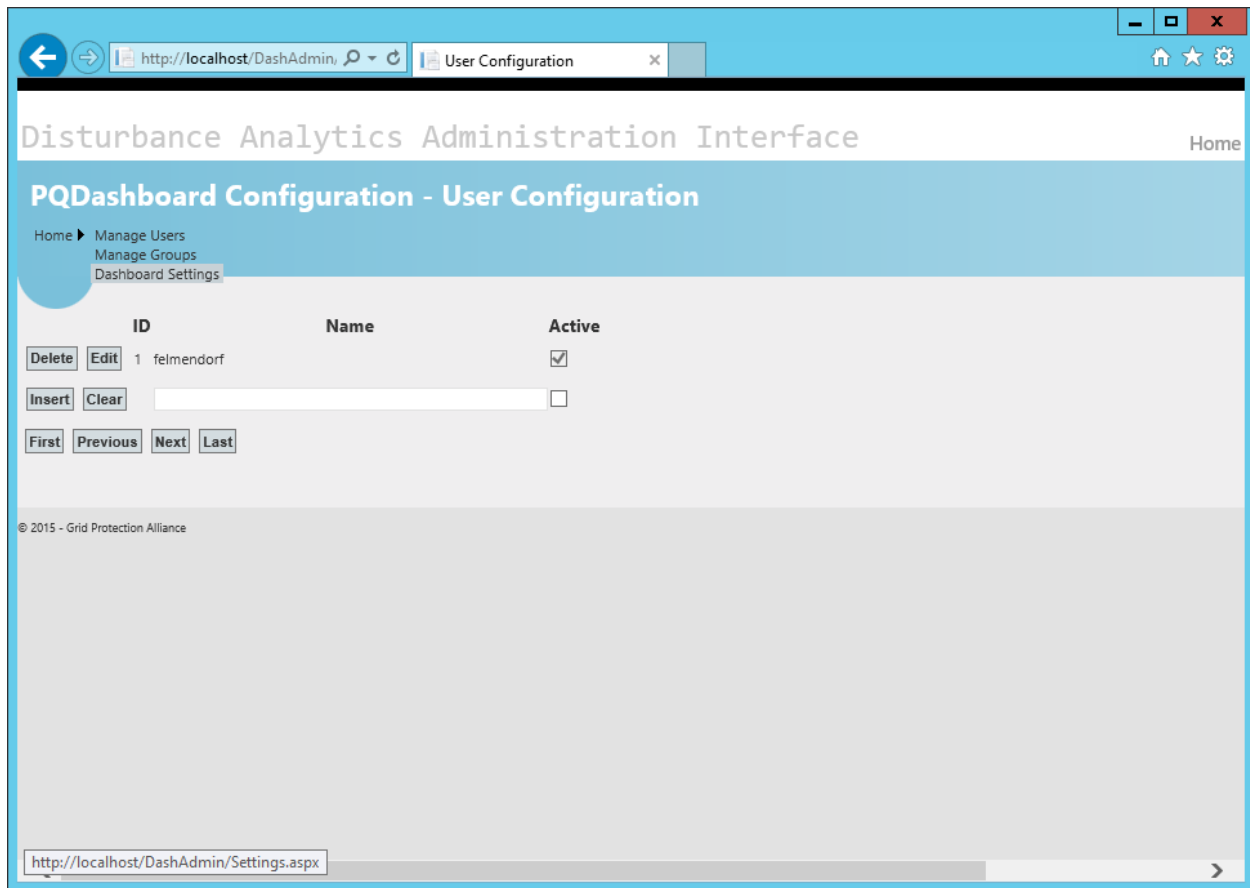
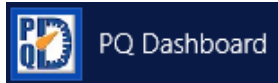


Figure 9-13
Click dashboard settings

10

OPERATING OPEN PQ DASHBOARD

Locate the PQ Dashboard icon in your programs list



or navigate to <http://localhost/pqdashboard/>

Components of the Visual Display

The visual display is composed of a context control bar just below the application banner, and three interactive visualization areas. The right half of the display area below the context control bar is the fleet view panel. It provides a comprehensive view of the reporting devices either on a map or in a grid. The left half of the display area below the context control bar is divided into two panels with the overview panel above the detail panel. The general operation of each of the panels remains the same for any type of information displayed. The type of information to be visualized is specified by the tab selected in the context control bar.

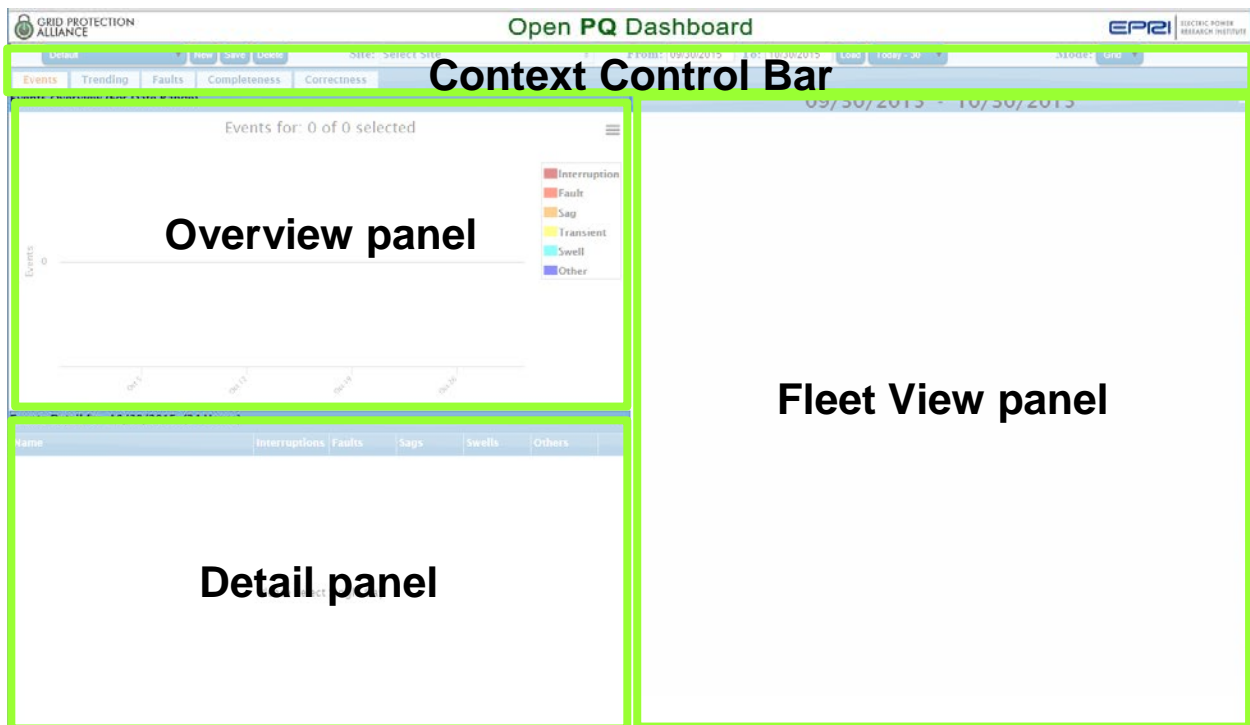


Figure 10-1
Open PQ Dashboard: visual display components

Context Control Bar Elements

The context control bar is composed of two rows of elements.

The default context includes all sites, a date range of “Today-30”, a Mode of “Grid”, with the “Events” tab selected.

Top row elements

View Controls

The view control elements are named collections of user selected view parameters that have been changed from the default values and saved for future use. Selecting a named view control element immediately loads the specified parameters such as sites, date range, mode, and tab. The Default view control cannot be changed by a user and is always available in the drop down list. The Default view control is loaded when the application is started. A system provided “Last Session” view control is also included that can restore the last session whenever the application is closed and reopened.



Figure 10-2
open PQ Dashboard: View Controls

Site Selection

The site selection element provides a drop down control to select or deselect sites to be displayed in the visualization panels.

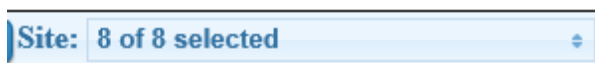


Figure 10-3
open PQ Dashboard: Site Selection

Date Selection

The date selection element provides editable From: and To: date fields to specify arbitrary date ranges. The “Load” button beside the editable date range loads data from the date range specified. A drop down list provides single click data specification for predefined date ranges.

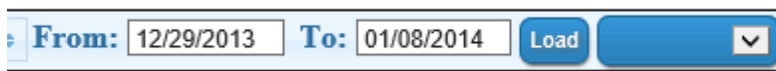


Figure 10-4
open PQ Dashboard: Date Selection

Mode Selection

The mode selection element allows the user to specify a map or grid display in the fleet view panel.



Figure 10-5
open PQ Dashboard: Mode Selection

Second row elements

Dashboard Tabs

Dashboard tab elements control the type of information that will be displayed in the visualization panels. For each tab, the information is specific to the sites selected and date range specified. The events tab filters the information such that it is specific to events previously analyzed from input waveform data. The trending tab filters the information such that it is specific to periodically recorded values. The faults tab further limits the events available through the events tab such that information is only presented that relates to the specific event type classified as a fault. The Completeness tab presents information about how much data is received with respect to the data that is expected. The correctness tab presents information about the accuracy of the data received with identification of latched values, non-congruent values, and values that are outside of engineering reasonableness.



Figure 10-6
open PQ Dashboard: Dashboard Tabs

Fleet View Panel

The fleet view panel occupies the right half of the visual display space and presents information regarding site locations in either a grid or map display. Sites may be selected or deselected in either view. A single click will select or deselect an individual site. Control+click allows multiple site select or deselect. The site symbols in the map display and the site squares in the grid display are color coded according to the type of information specified by the dashboard tab selection. An example fleet view panel display would present event count by type for all sites over a specified time range.

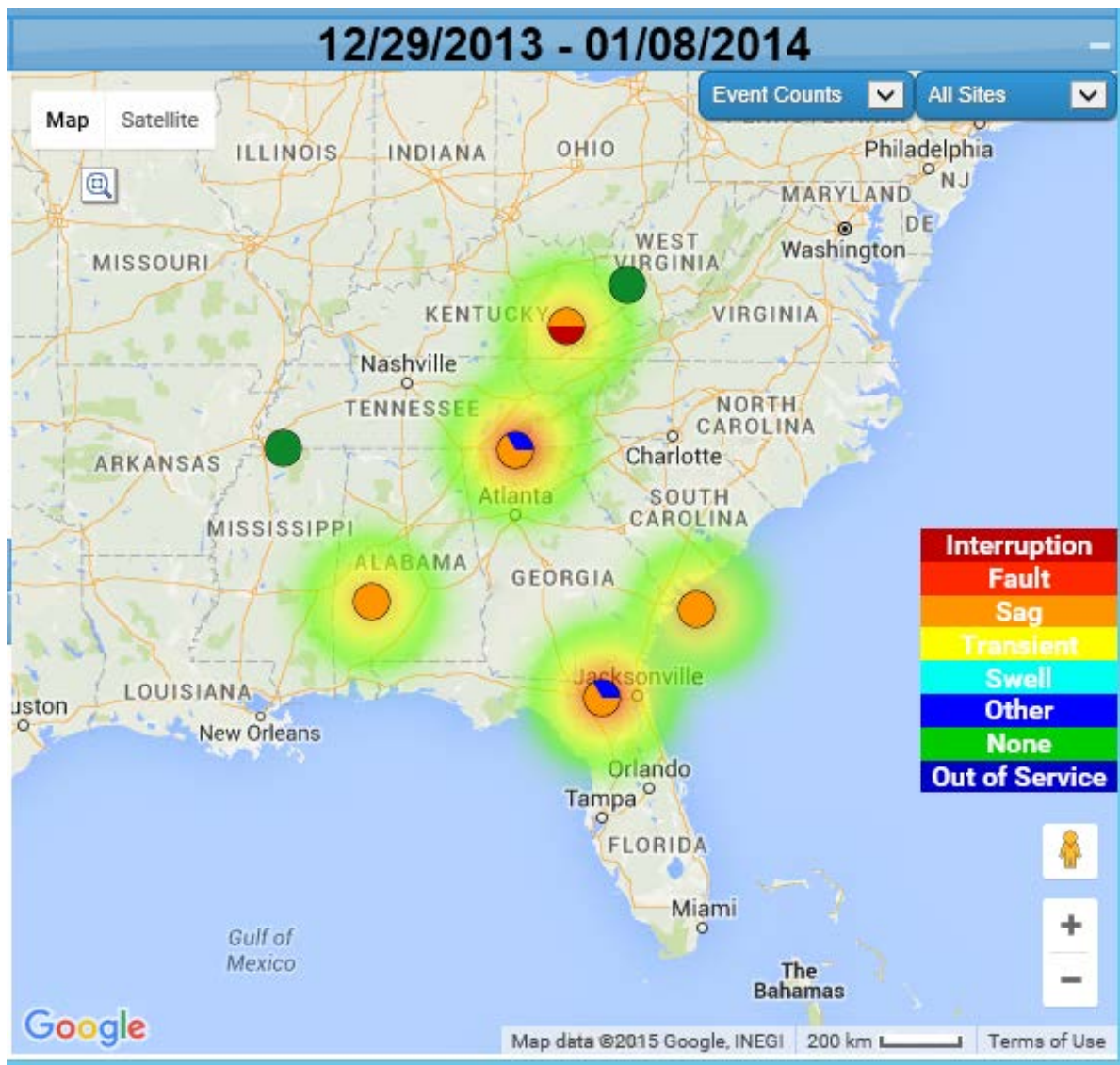


Figure 10-7
Fleet view panel example map display

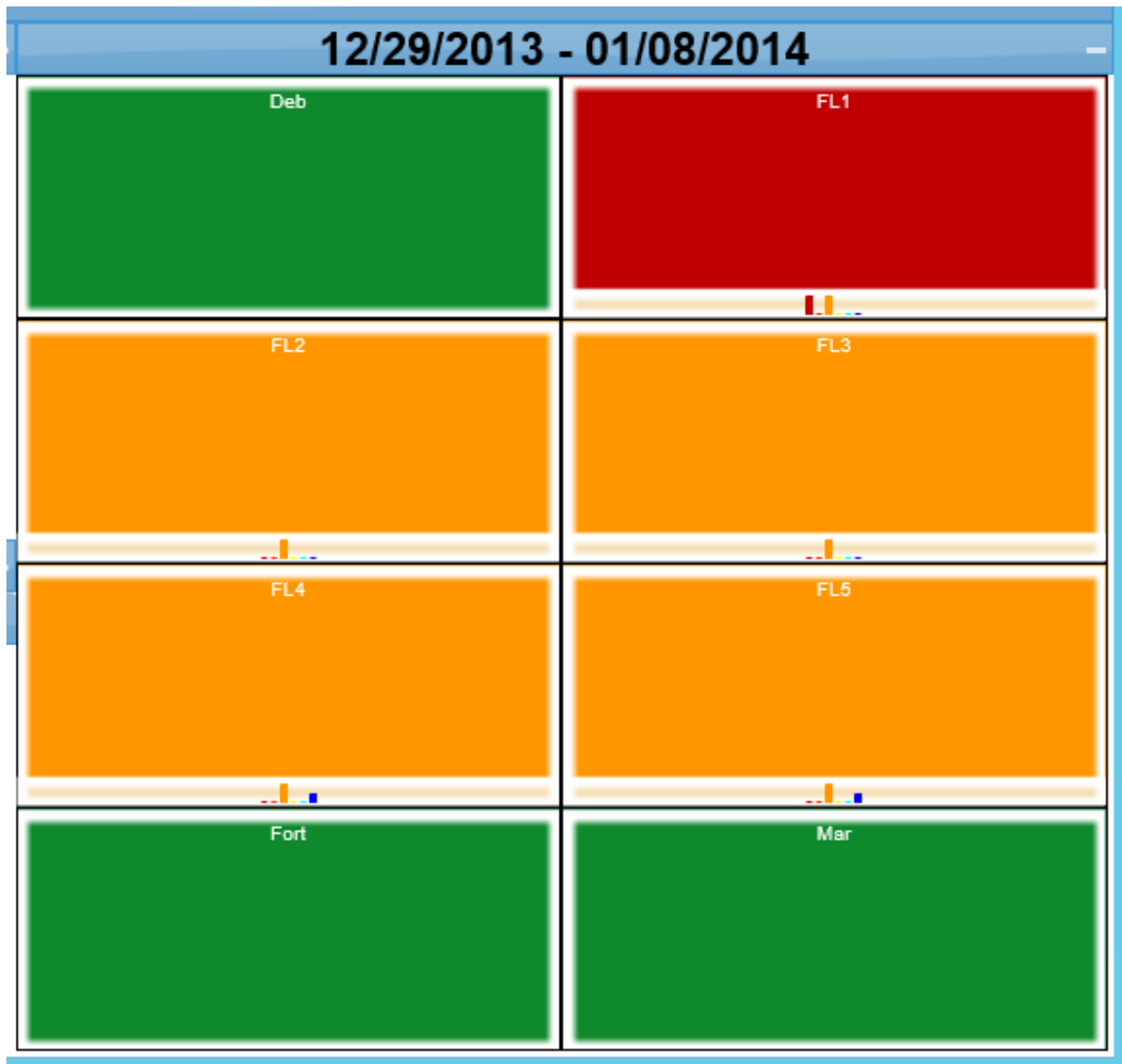


Figure 10-8
Fleet view panel example grid display

Overview Panel

The overview panel occupies the top portion of the left half of the visual display space and presents a summary histogram of the appropriate data as specified through the view control elements and user selections. An example overview panel display is event count by type over a specified time range for the selected sites.

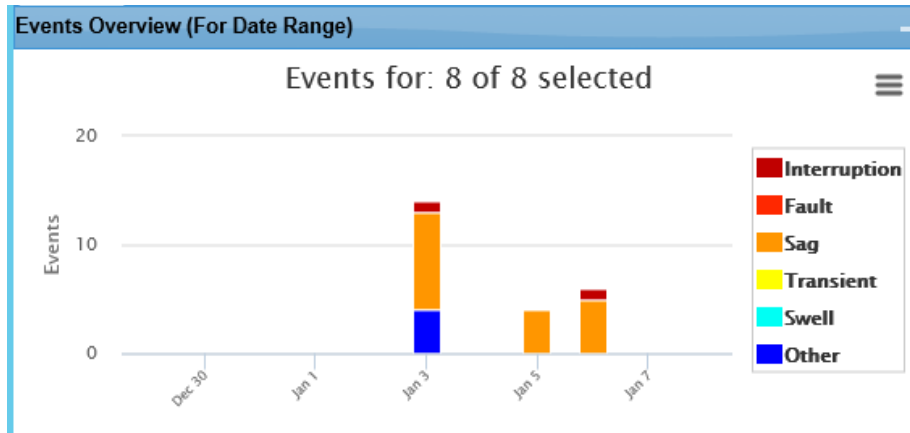


Figure 10-9
Overview panel example display

Detail Panel

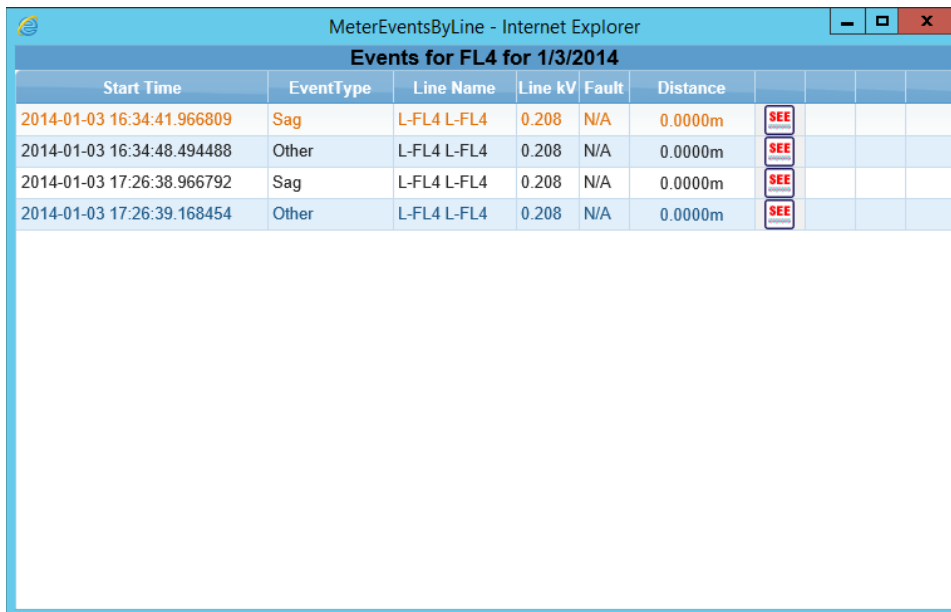
The detail panel occupies the bottom portion of the left half of the visual display space and presents detailed information of information for a single day selected by clicking on a bar in the overview panel. An example detail panel display is event detail for a selected day.

Events Detail for 01/03/2014 (24 Hours)						
Name	Interruptions	Faults	Sags	Swells	Others	
FL1	1	0	1	0	0	
FL2	0	0	2	0	0	
FL3	0	0	2	0	0	
FL4	0	0	2	0	2	
FL5	0	0	2	0	2	

Figure 10-10
Detail panel example display

Events by line for a selected site

A list of events for a site ordered by line is displayed by clicking the icon 



MeterEventsByLine - Internet Explorer

Events for FL4 for 1/3/2014






Start Time	EventType	Line Name	Line kV	Fault	Distance			
2014-01-03 16:34:41.966809	Sag	L-FL4 L-FL4	0.208	N/A	0.0000m			
2014-01-03 16:34:48.494488	Other	L-FL4 L-FL4	0.208	N/A	0.0000m			
2014-01-03 17:26:38.966792	Sag	L-FL4 L-FL4	0.208	N/A	0.0000m			
2014-01-03 17:26:39.168454	Other	L-FL4 L-FL4	0.208	N/A	0.0000m			

Figure 10-11
Example display of events by line for a site

Waveform display for an event

An interactive waveform viewer is available by clicking the icon 

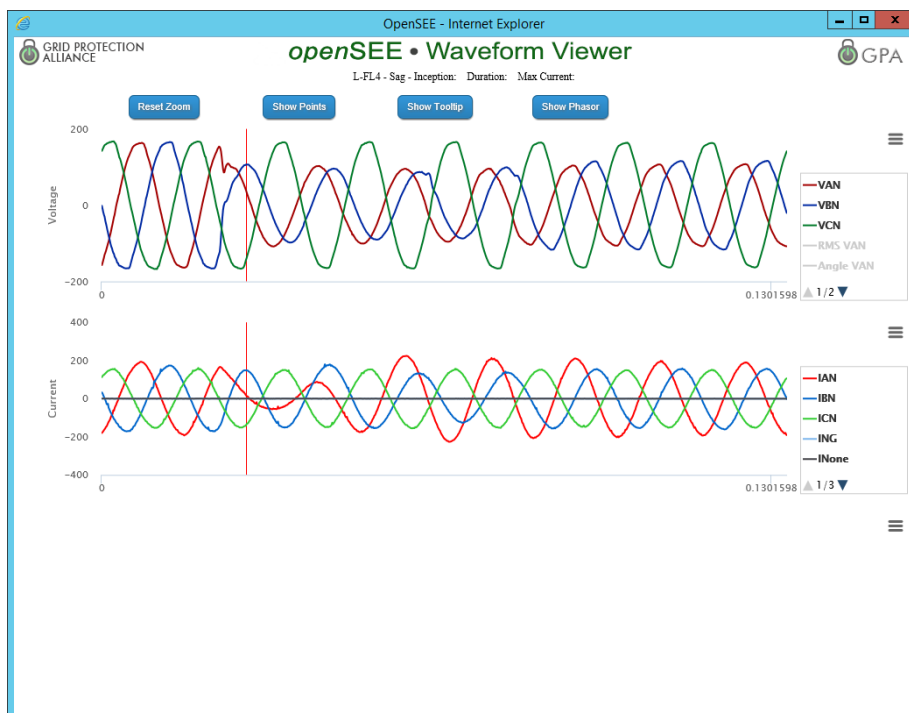


Figure 10-12
Example display of waveform viewer

11

ENABLING PQI INTEGRATION

Link Remote Server

In order to enable PQI integration, a link must be created between the openXDA database and the PQI database so that the PQ Dashboard has access to the tables in the PQI Database. Refer to the following links for more information about linked servers and the procedures to manage them.

Linked Servers (Database Engine):

[https://msdn.microsoft.com/en-us/library/ms188279\(v=sql.110\).aspx](https://msdn.microsoft.com/en-us/library/ms188279(v=sql.110).aspx)

sp_addlinkedserver

[https://msdn.microsoft.com/en-us/library/ms190479\(v=sql.110\).aspx](https://msdn.microsoft.com/en-us/library/ms190479(v=sql.110).aspx)

sp_addlinkedsrvlogin

[https://msdn.microsoft.com/en-us/library/ms189811\(v=sql.110\).aspx](https://msdn.microsoft.com/en-us/library/ms189811(v=sql.110).aspx)

Alter Stored Procedures

Locate the “PQI Integration.sql” file. In this file are some commands to alter stored procedures that exist in the openXDA database so that the PQ Dashboard can query the PQI database tables. You may need to alter these statements to use the identifier for the remote PQI server you set up in the previous step. Execute these statements to update the stored procedures so that the PQ Dashboard can retrieve data from the PQI database.

Mapping Meters to Facilities


The MeterFacility table in the openXDA database is used to map objects in openXDA’s meter table to objects in PQI’s Facility table. It will be necessary to add mappings for your meters so that you can view the results of the PQI integration in the PQ Dashboard.

12

ENABLING ICF DLL INTEGRATION

Run ICF Service Setup Installer

In order to enable the Incipient Cable Fault (ICF) DLL, click on the ICFServiceSetup to install the service. As events are added to openXDA this service will determine if an ICF exists and display it in the dashboard as an ICF icon.

 ICFServiceSetup.msi

13

TROUBLESHOOTING

No Data Shown

Problem: The web application loads but does not show any data.

Possible Solutions:

- (1) Make sure date range selected contains valid data. The included sample dataset contains data between 12/29/2013 and 01/08/2014, and 09/03/2014.
- (2) The SQL Server database must be available to the Open PQ Dashboard. Consult your database administrator.

Page Unavailable

Problem: Attempts to browse the Open PQ Dashboard web application cause browser to say the page is unavailable.

Possible Solution:

- (1) Make sure the URL is specified correctly. The browser path should be:
<http://localhost/pqdashboard/>

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