



*open***XDA**
eXtensible Disturbance Analytics



Southeast User's Group 2023 – Training Session

Agenda

9:30 Welcome and Introductions



ELECTRIC POWER
RESEARCH INSTITUTE

9:35 System Center



Georgia**Transmission**

10:45 Break

11:00 PQ Dashboard



Southern Company

12:30 Lunch

1:00 SE Browser



TENNESSEE
VALLEY
AUTHORITY

2:30 Break

2:45 openSEE

PQDigest Demonstration (if time allows)

4:30 Adjourn



System Center

Configuration tool for openXDA and the associated suite of tools

- [Asset](#), [Substation](#), and [Asset Group](#) Configuration
- [Value Lists](#)
- [New Meter Wizard](#)
- [Additional Fields](#)
- [Meter Maintenance/Test Mode](#)
- [Data Files](#)
- [Remote openXDA Instances](#)

Transmission Assets

openXDA has moved to an Asset-centric Model in version 3.0

- Asset types:

- Breaker
- Bus
- CapBank
- CapBank Relay
- DER
- Line
- Transformer

The screenshot displays the openXDA System Center interface. On the left is a sidebar with navigation links: MONITORS AND ASSETS (Meters, Substations, Transmission Assets, Event Types), PROCESSED FILES (Data Files), EXTERNAL LINKS (Remote openXDA Instances, PQView Sites, External Databases, Application Categories), SYSTEM SETTINGS (Value Lists, SystemCenter, OpenXDA, OpenXDA Data Operations, OpenXDA Data Readers, MiMD, SSO Applications, DB Cleanup), and USER SETTINGS (User Statistics, Users, Groups). The main area shows a search bar with 'Found 49 Transmission Asset(s)' and an 'Add Filter' button. An 'Add Asset' button is highlighted with a red box and an arrow pointing to the 'Add a New Asset' modal. The modal contains fields for Type (set to 'Line'), Key, Name, Nominal Voltage (L-L kV), Description, Max Fault Distance, Min Fault Distance, Length, R0, X0, R1, X1, and Thermal Rating. A text box explains that Reactance, Length, and Thermal rating are based on the LineSegments associated with the Line, and that these properties need to be changed to edit the LineSegment. The modal also has 'Save' and 'Cancel' buttons. To the right of the modal is a table of existing assets.

Asset Type	Voltage (kV)	Meters	Substations
Bus	0.208	1	2
Bus	0.208	1	1
Bus	13	1	1
Bus	13	2	1
CapacitorBankRelay	69	1	1
CapacitorBank	161	1	1
CapacitorBankRelay	161	1	1
CapacitorBankRelay	161	1	1
CapacitorBank	161	1	1
CapacitorBank	161	1	1
Bus	0.002	1	1
Bus	0.002	1	1
Line	161	1	1
Line	161	1	1
LineSegment	161	0	1
LineSegment	161	0	0
Line	161	1	1
LineSegment	161	0	0
Line	115	2	2
LineSegment	115	0	0
Line	500	2	1
Transformer	500	1	1
Transformer	500	1	1
Transformer	500	1	1

Substations



Sign out

System Center

MONITORS AND ASSETS

Meters

Substations

Transmission Assets

Asset Groups

Customer

Event Types

PROCESSED FILES

Data Files

EXTERNAL LINKS

Remote openXDA Instances

PQView Sites

External Databases

Application Categories

SYSTEM SETTINGS

Value Lists

SystemCenter

OpenXDA

OpenXDA Data Operations

OpenXDA Data Readers

MiMD

SSO Applications

DB Cleanup

Search:

Search Name

Found 9 Substation(s)

Add Filter

Actions:

Add Substation

Update Ext DB

Name

SMALLVILLE MS

Metropolis CC

GOTHAM CITY

BLUDHAVEN

STAR CITY

CENTRAL CITY SS

COAST CITY

MIDWAY CITY

Opal Midway

Add Substation



Location Key

A unique key of less than 50 characters is required.

Latitude

Latitude is a required numeric field and must be between -180 and 180.

Name

Name must be less than 200 characters and is required.

Longitude

Longitude is a required numeric field and must be between -180 and 180.

Short Name

Description

Alias

Save

Cancel

Meters

Assets

1

1

1

5

3

3

3

2

1

6

2

5

1

3

1

14

0

3

Asset Groups



Sign out

System Center

Search:

Search Name

Add Filter

Found 1 Asset Group(s)

Actions:

Add New Asset Group

Create a New Asset Group

Name

A unique name of less than 50 characters is required.

- ☒ Show Asset Group in Dashboard
☐ Show Asset Group in Email Subscription

Num. of Transmission Assets

0

Add Transmission Asset

Num. of Meters

0

Add Meter

Num. of Asset Groups

Add Asset Group

Add

Add Transmission Assets to Asset Group

Search:

Search Name

Found 37 Transmission Asset(s)

Add Filter

Quick Selects:

Add Current List to Selection

Remove All

Current Selection

Key	Name	Asset Type	Voltage (KV)	Meters	Substations
S100082	161KV Midway	Bus	161	1	1
S1001	300KV Metropolis	Bus	300	1	1
S100081	300KV Midway	Bus	300	1	1
BLUOH40EN_13-T1	Bluthaven 13 T1	Bus	13	1	1
BLUOH40EN_13-T3	Bluthaven 13 T3	Bus	13	1	1
S1006	Central City 161	Bus	161	1	1
S100081012CR1	Central City 161KV Cap Bank 1 Relay	CapacitorBankRelay	69	1	1
S100081012	Central City 161KV Cap Bank 1-2	CapacitorBank	161	1	1
S100781012CR1	Coast City 161KV Cap Bank 1 Relay	CapacitorBankRelay	161	1	1

Save Cancel

Asset Groups allow grouping of assets, meters, and other asset groups to “filter” in PQ Dashboard and Email Subscriptions

Value Lists



Sign out

System Center

MONITORS AND ASSETS

- Meters
- Substations
- Transmission Assets
- Asset Groups
- Customer

PROCESSED FILES

- Data Files

EXTERNAL LINKS

- Companies
- Remote openXDA Instances
- PQView Sites
- External Databases
- Application Categories

SYSTEM SETTINGS

- [Value Lists](#)
- SystemCenter
- OpenXDA
- OpenXDA Data Operations
- OpenXDA Data Readers
- MiMD
- SSO Applications
- DB Cleanup

Search:

Search Name

Found 4 Groups

Add Filter

Actions:

Add Group

Name	Description/Comments
CustomReports	Custom Reports to list on the SEBrowser nav bar
Make	Meter Make
TimeZones	Time Zones
Unit	List of Units associated with Channels

Add new list item

Value

Value must be set and be less than 200 characters.

AltValue

SortOrder

Save changes

Close

Make

Delete Value List Group (Permanent)

Value List Group Info

List Items

List Items:

Search filter for select box ...

Value	Alternate Value	Sort Order
Schneider	Schneider	0

Add Item

Add new list item

Name

Name must be less than 200 characters.

Description

Save changes

Close

Value Lists are used to configure a variety of options throughout openXDA.

Value Lists are highly customizable; however, some have specific purposes.

Value Lists of Note:

- **CustomReports** – configures which Custom Reports are available in SE Browser.
- **Unit** – a list of units associated with Channels.
- **TimeZones** – time zones associated with Meters.
 - The **Alternate Value** of List Items in this Value List Group must match a Windows time zone.
- **Make** – a list of makes associated with Meters.
- **Model** – a list of models associated with Meters.

New Meter Wizard

- Progress is saved and can be picked back up if interrupted.
- Updated to walk through each step necessary for the configuration of a meter, including its substation and assets.
 - Fewer clicks necessary to configure the entire meter start to finish.

Primary Configuration:

1. [General info](#)
2. [Substation](#)
3. [Event Channels](#)
4. [Trend Channels](#)
5. [Assets](#)
6. [Asset Connection](#)

Optional Configuration:

7. [Additional Fields](#)
8. External Databases
9. [Asset Groups](#) and Customers
10. [Additional Fields](#) (for assets added during NMW)
11. [Asset Groups](#) and Customers (for assets added during NMW)
12. Line Segment Wizard (for lines added during NMW)

New Meter Wizard

Step 1: General information about the new meter

Asset Key ?

A unique key of less than 50 characters is required.

Name

Name must be less than 200 characters and is required.

Short Name

Alias

Clear Data erases *all progress in the Wizard* and brings the user back to Step 1

Clear Data

Make

Dranetz

Model

61000

Time Zone ?

(UTC) Coordinated Universal Time

Description

Make, Model, and Time Zone are dropdowns, the content of which are pulled from **Value Lists**

Tooltips show errors that prevent progression and warnings to remind the user of optional steps

✗ A unique AssetKey of less than 50 characters is required.
✗ Name must be less than 200 characters and is required.

Next

New Meter Wizard

Step 2: Substation information for the new meter

Clear Data

Select Location

Create New Location

Key

A unique key of less than 50 characters is required.

Name

Name must be less than 200 characters and is required.

Short Name

Alias

Latitude

Latitude is a required numeric field and must be between -180 and 180.

Longitude

Longitude is a required numeric field and must be between -180 and 180.

Description

Prev

Next

Clear a selected Substation
Next saves entered info as a new Substation

Select a Location

Search:

Search Name

Add Filter

Found 13 Substation(s)

Name	Key	Meters	Assets
SMALLVILLE MS	S1000	1	1
Metropolis CC	S1001	1	4
GOTHAM CITY	S1003	3	3
BLUDHAVEN	S1004	3	2
STAR CITY	S1005	1	6
CENTRAL CITY SS	S1006	2	2
COAST CITY	S1007	1	3
MIDWAY CITY	S1008	1	10

Save

Cancel

All steps after Step 2 can be skipped

Adds a default channel configuration composed of Voltage and Current channels.

These buttons become enabled as appropriate channels are added.
Remove Spare removes channels labeled as Spare.
Clear Channels removes all added channels.
Scale Channels allows entry of PT and CT ratios for multiplier calculation.

Adds a single channel (default configuration seen below).

New Meter Wizard

Step 3: Populate event channels for the new meter

Default Setup

Choose file for trend channel data.

Browse

Remove Spare

Clear Channels

Scale Channels

Clear Data

Add Channel

Channel	Name	Type	Char.	Phase	Harm	Adder	Multiplier	Description
	VAN	Voltage	Instantaneous	AN	0	0	1	Voltage AN

The table loads blank, this is the default when **Add Channel** is used
Delete a single added channel by clicking the trashcan icon on the right.

Prev

Next

Step 4: Populate trend channels for the new meter appears nearly identical, but trend channels can only be added using a pqd file.

Add Transmission Assets to New Meter

Search:

Search Name

Found 1 Transmission Asset(s)

Add Filter(1)

Quick Selects:

Add Current List to Selection

Remove All

New Asset:

Create Asset

Key	Name	Asset Type	Voltage (kV)	Meters	Substations
S1000	Smallville MS 13-Total	Bus	12.47	2	1

Current Selection

Key	Name	Asset Type	Voltage (kV)	Meters	Substations
-----	------	------------	--------------	--------	-------------

Save

Cancel

X

Add all assets from the filtered list on the left to the **Current Selection** list.

The Add Assets popup opens immediately to facilitate adding assets to the new meter.

Close the popup.

Only channels that have not yet been assigned appear here.

Assets are automatically filtered by Substation

Step 5: Populate assets monitored by the new meter

- VAN - Voltage AN
- VBN - Voltage BN
- VCN - Voltage CN
- IA - Current A
- IB - Current B
- IC - Current C
- IR - Current RES

Channels that have already been assigned to an asset are indicated by ~~strikethrough~~.

Clear Data

Add Assets

Status	Key	Name	Type	kV	Channels
Existing	S1000	Smallville MS 13-Total	Bus	12.47	0

Edit

X

Prev

Next

If no assets have been added, this button reads **Create Meter**, which saves the meter to the database, and the Wizard can be exited.

Add New Asset to Meter

Type

Bus

No Additional Attributes

Key

A unique key of less than 50 characters is required.

Name

Name must be less than 200 characters and is required.

Nominal Voltage (L-L kV)

Nominal Voltage requires a numerical value.

Description

Associated Channels

VAN - Voltage AN

VBN - Voltage BN

VCN - Voltage CN

IA - Current A

IB - Current B

IC - Current C

IR - Current RES

Save

Close

New Meter Wizard

Step 6: Add connection between the assets that are monitored by the new meter

Clear Data

Add Connection

Select Asset:

Asset Name	Asset Key	Asset Type	Voltage (kV)
Smallville MS 13-Total	S1000	Bus	12.47
Smallville Line	L1000	Line	161

Assets Connected to Asset - Smallville MS 13-Total

Asset Name	Asset Key	Asset Type	Voltage (kV)
------------	-----------	------------	--------------

Add a Connection to S1000

Select Connecting Asset

L1000

Select Connection Type

Bus-Line

Save

Saves the meter (and any new substation or assets) to the database and continues to optional configuration steps.

Create Meter

Prev

Optional Configuration Steps

New Meter Wizard

Step 7: Edit the new meter's additional fields that are not from external databases

Close Wizard

Additional Fields:

Field	Type	Searchable	Value
Internal Org Identifier	string	✓	<input type="text"/>

Next

Clear Data becomes **Close Wizard** and directs the user back to the **Meters** main page
Once this button has been clicked, the user cannot return to the Wizard

- Asset steps (11 and 12) only offered if a new asset was added in [step 5](#)
- Line Segment step (13) only offered if a new line was added in [step 5](#)

See [slide 9](#) for the complete list and order of Optional Configuration Steps

Additional Fields

- Available for Meters, Substations, Transmission Assets, Customers, and Users.
- Assign custom values to individual entries that can be used in System Center searches or to pull data from external databases.
- [Value Lists](#) can be used as a **Type** to preset the available **Values** for a given Additional Field.

Smallville MS 13-Total Advanced Delete Meter

Notes Meter Info **Additional Fields** Substations Assets Event Channels Trend Channels Scale Channels Configuration History External DB

Additional Fields: Edit

Field	Ext DB	Type	Searchable	Value
Internal Org Identifier		string	✓	This is the ID

Add Field Save Changes Reset

Maintenance/Test Mode

Meters can be placed in “Maintenance” or “Test” Mode to mark any incoming events as “Test” type

Bludhaven 13-T1

AdvancedDelete Meter

NotesMeter InfoAdditional FieldsSubstationsAssetsEvent ChannelsTrend ChannelsScale ChannelsConfiguration HistoryExternal DBMaintenance

Meter Maintenance Windows:

Start Window Time	End Window Time
-------------------	-----------------

Add New Window

Add New Maintenance Window to Meter

Start at Specified Date

03/13/2023 12:00 PM

Have no End Date

Save

Data Files



Sign out

System Center

MONITORS AND ASSETS

Meters

Substations

Transmission Assets

Asset Groups

Customer

Event Types

PROCESSED FILES

Data Files

EXTERNAL LINKS

Remote openXDA Instances

PQView Sites

External Databases

Application Categories

SYSTEM SETTINGS

Value Lists

SystemCenter

OpenXDA

OpenXDA Data Operations

OpenXDA Data Readers

MiMD

SSO Applications

DB Cleanup

Search:

Search FilePath

Found 50 Data Files

Add Filter

Path

\\PQ\DFR\APP\Midway City 2\Event\200823,230515437,-St,R02-Midway City 2,APP601,F1202.cfg
\\PQ\DFR\APP\Midway City 2\Event\200823,230515437,-St,R02-Midway City 2,APP601,F1202.dat
\\PQ\DFR\APP\Midway City 2\Event\200823,230515437,-St,R02-Midway City 2,APP601,F1202.inf
\\PQ\DFR\APP\Coast City AHM\Event\200823,124342476,-St,R1000-Coast City Cap Bank AHM,APP601,F1087.cfg
\\PQ\DFR\APP\Coast City AHM\Event\200823,124342476,-St,R1000-Coast City Cap Bank AHM,APP601,F1087.dat
\\PQ\DFR\APP\Coast City AHM\Event\200823,124342476,-St,R1000-Coast City Cap Bank AHM,APP601,F1087.inf
\\PQ\DFR\APP\Midway City 2\Event\200824,095940589,-St,R02-Midway City 2,APP601,F1203.cfg
\\PQ\DFR\APP\Midway City 2\Event\200824,095940589,-St,R02-Midway City 2,APP601,F1203.dat
\\PQ\DFR\APP\Midway City 2\Event\200824,095940589,-St,R02-Midway City 2,APP601,F1203.inf
\\PQ\DFR\APP\Coast City AHM\Event\200823,141444294,-St,R1000-Coast City Cap Bank AHM,APP601,F1088.cfg
\\PQ\DFR\APP\Coast City AHM\Event\200823,141444294,-St,R1000-Coast City Cap Bank AHM,APP601,F1088.dat
\\PQ\DFR\APP\Coast City AHM\Event\200823,141444294,-St,R1000-Coast City Cap Bank AHM,APP601,F1088.inf
\\PQ\DFR\APP\Midway City 2\Event\200825,074238383,-St,R02-Midway City 2,APP601,F1204.cfg
\\PQ\DFR\APP\Midway City 2\Event\200825,074238383,-St,R02-Midway City 2,APP601,F1204.dat
\\PQ\DFR\APP\Midway City 2\Event\200825,074238383,-St,R02-Midway City 2,APP601,F1204.inf
\\PQ\DFR\APP\Coast City AHM\Event\200823,141627743,-St,R1000-Coast City Cap Bank AHM,APP601,F1089.cfg
\\PQ\DFR\APP\Coast City AHM\Event\200823,141627743,-St,R1000-Coast City Cap Bank AHM,APP601,F1089.dat
\\PQ\DFR\APP\Coast City AHM\Event\200823,141627743,-St,R1000-Coast City Cap Bank AHM,APP601,F1089.inf

Events

Event ID	Event Start	Event End
29110	01/04/2014 12:34.41.4141	12:34.42.4242
29111	01/04/2014 12:34.43.4343	12:34.43.4343
29112	01/07/2014 12:11.45.4545	12:11.46.4646
29113	01/07/2014 01:47.43.4343	01:47.44.4444

Download File

Reprocess File

Started Reprocessing

OpenXDA has started to Reprocess this File. Note that this may take several minutes.

Close

File Created

Data Start

09/23/2020 07:17.04.0404	01/01/0001 12:00.00.0000
09/23/2020 07:17.04.0404	01/01/0001 12:00.00.0000
09/23/2020 07:17.12.1212	01/01/0001 12:00.00.0000
09/23/2020 09:30.34.3434	01/01/0001 12:00.00.0000
09/23/2020 09:30.35.3535	01/01/0001 12:00.00.0000
09/23/2020 09:30.39.3939	01/01/0001 12:00.00.0000
09/23/2020 07:17.12.1212	01/01/0001 12:00.00.0000
09/23/2020 07:17.12.1212	01/01/0001 12:00.00.0000
09/23/2020 09:30.39.3939	01/01/0001 12:00.00.0000
09/23/2020 09:30.39.3939	01/01/0001 12:00.00.0000
09/23/2020 09:30.44.4444	01/01/0001 12:00.00.0000
09/23/2020 07:17.20.2020	01/01/0001 12:00.00.0000
09/23/2020 07:17.20.2020	01/01/0001 12:00.00.0000
09/23/2020 07:17.28.2828	01/01/0001 12:00.00.0000
09/23/2020 09:30.45.4545	01/01/0001 12:00.00.0000
09/23/2020 09:30.46.4646	01/01/0001 12:00.00.0000
09/23/2020 09:30.50.5050	01/01/0001 12:00.00.0000

Remote openXDA Instances



Sign out

System Center

MONITORS AND ASSETS

- Meters
- Substations
- Transmission Assets
- Asset Groups
- Customer
- Event Types

PROCESSED FILES

- Data Files

EXTERNAL LINKS

- Remote openXDA Instances
- PQView Sites
- External Databases
- Application Categories

SYSTEM SETTINGS

- Value Lists
- SystemCenter
- OpenXDA
- OpenXDA Data Operations
- OpenXDA Data Readers
- MiMD
- SSO Applications
- DB Cleanup

Search:

Search Name

Found 0 Remote XDA Instance(s)

Add Filter

Actions:

Add Remote Connection

New Remote Instance Connection

Name

A name of less than 200 characters is required.

Username

Name is a required field.

Add or Change User

Address

An address of less than 200 characters is required.

Frequency ?

Save

Cancel

System Center

MONITORS AND ASSETS

- Meters
- Substations
- Transmission Assets
- Asset Groups
- Customer
- Event Types

PROCESSED FILES

- Data Files

EXTERNAL LINKS

- Remote openXDA Instances
- PQView Sites
- External Databases
- Application Categories

SYSTEM SETTINGS

- Value Lists
- SystemCenter
- OpenXDA
- OpenXDA Data Operations
- OpenXDA Data Readers
- MiMD
- SSO Applications
- DB Cleanup

USER SETTINGS

- User Statistics
- [Users](#)
- Groups

Version 3.0.245.69

Search:

Add Filter

Found 1 User Accounts

Actions:

Add User

▲ User Name

First Name

Last Name

Phone

Email

External

A database user is required to allow access to the remote instance.

Add User

Name

A Name of less than 200 characters is required.

☐ Active Directory User ☒ Database User

Password

Phone

First Name

Email

Last Name

Change Password On

- ☐ Locked Out
☒ Approved

- ☐ Phone Confirmed
☐ Email Confirmed

Save

Name (Username) and **Password** are the only required fields for Database Users. Be sure **Approved** is checked and **Change Password On** is appropriately set.

System Center

Remote

[Delete Remote openXDA Instance Connection](#)

MONITORS AND ASSETS

- Meters
- Substations
- Transmission Assets
- Asset Groups
- Customer
- Event Types

PROCESSED FILES

- Data Files

EXTERNAL LINKS

- [Remote openXDA Instances](#)
- PQView Sites
- External Databases
- Application Categories

SYSTEM SETTINGS

- Value Lists
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- OpenXDA
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- OpenXDA Data Readers
- MiMD
- SSO Applications
- DB Cleanup

USER SETTINGS

- User Statistics
- Users
- Groups

System Settings Remote Meters Remote Assets

Remote XDA Instance Connection Information:

Name

Remote

Address

http://127.0.0.1:8989

Frequency ?

*

Username

Test

Add or Change User

Test Remote Connection

Push Meters and Assets to Remote

Save Changes

Clear Changes

Test Connection Succeeded

Connection made to remote XDA server.

Ok

Once a connection has been established, Meter and Asset configuration and data can be pushed to the remote instance in the **Remote Meters** and **Remote Assets** tabs.

Push Remote Config Succeeded

Config push successfully intialized. Local XDA is attempting to push the config to remote XDA. Check local XDA error log for any unpushed remotes.

Ok

Visualization

System Overview

PQDashboard



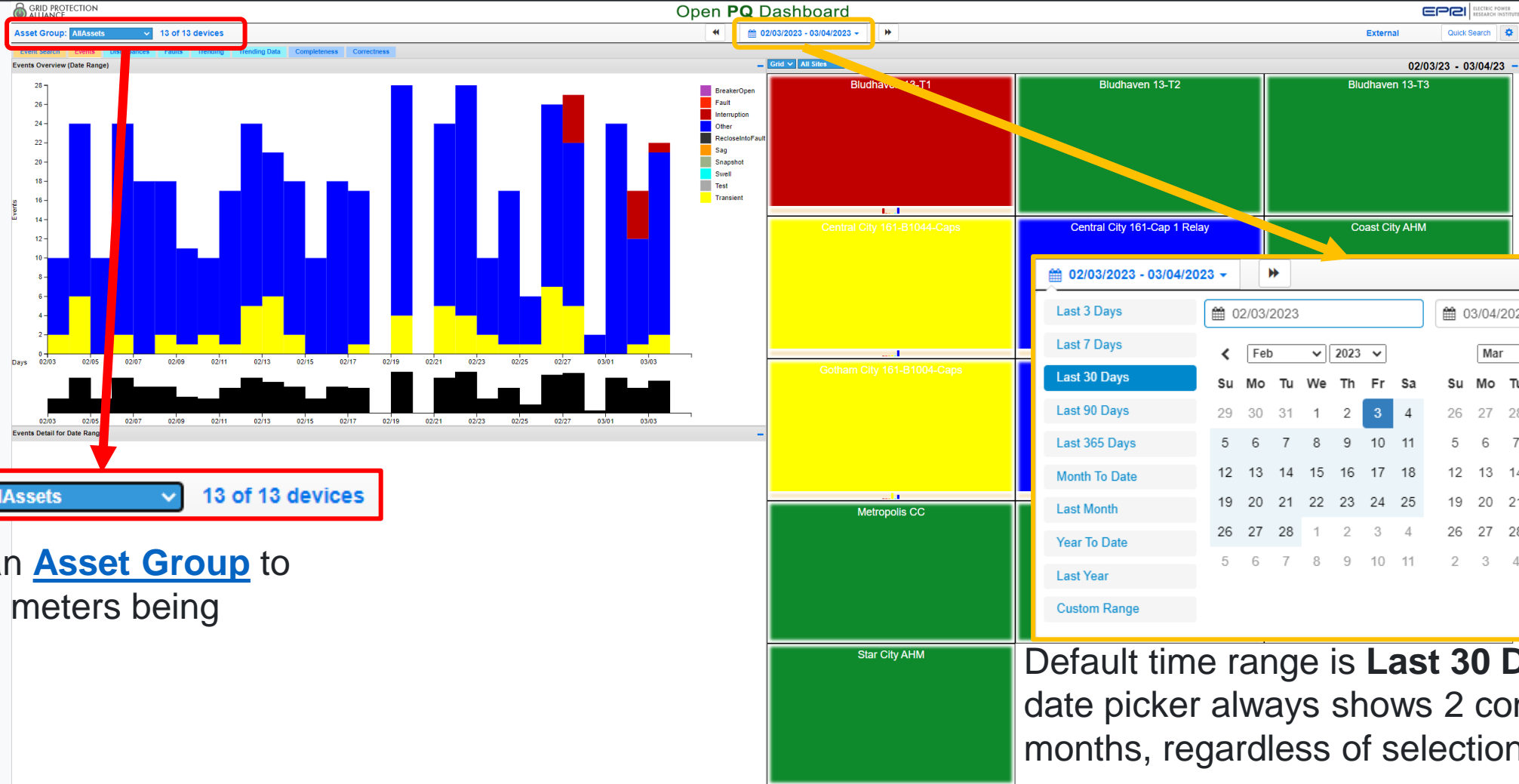
**System Event
Browser**



Waveform of Focus

open **SEE**
System Event Explorer

- View the results of openXDA's analysis in stats tables, charts, and waveforms.
- From wide area down to single waveform focus.
- Rebranding of SE Browser to PQ Browser as its functionality expands.

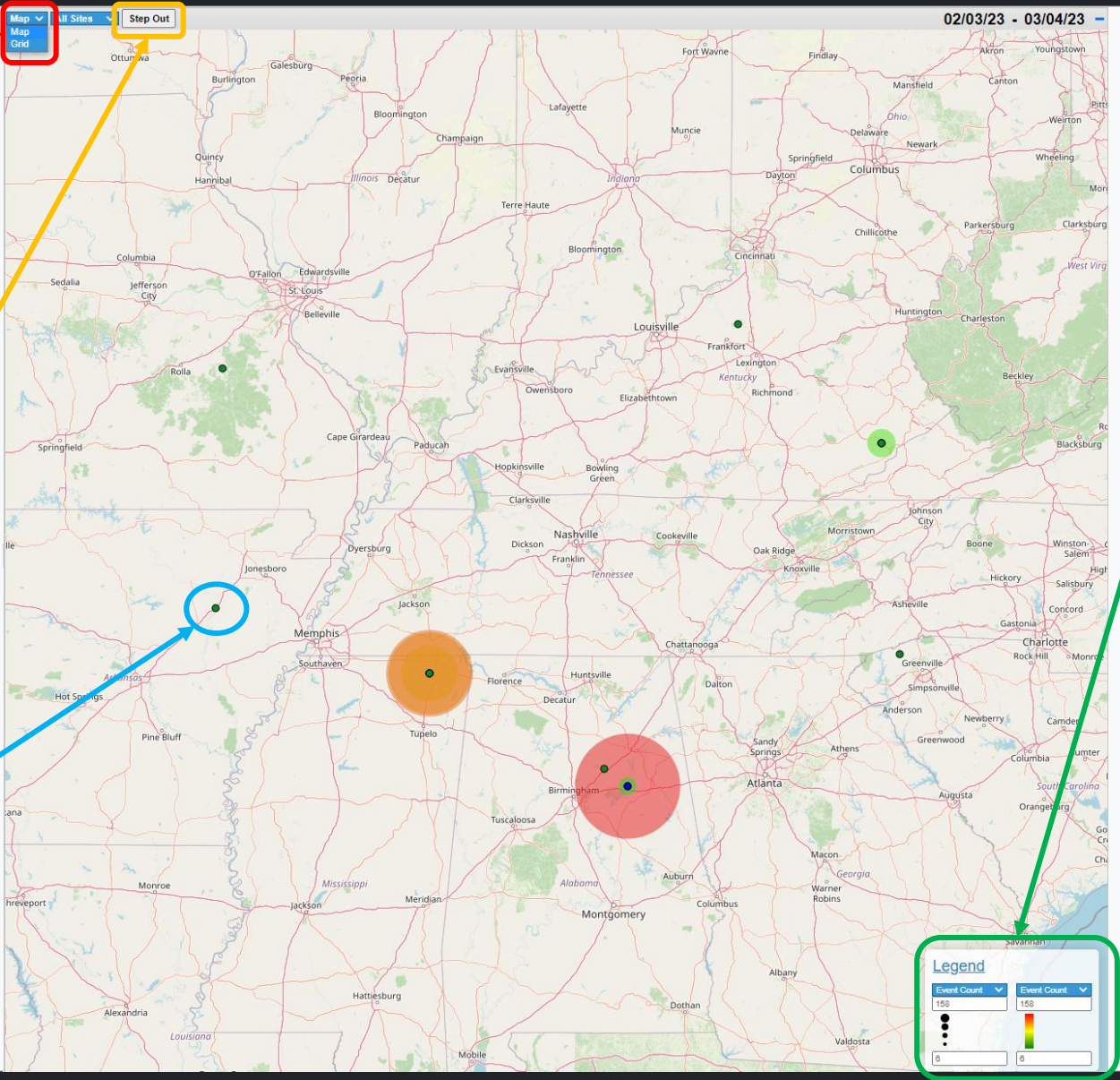


Select an Asset Group to filter the meters being viewed

Use the dropdown above the **Grid** to change to the **Map** view.

If the selected Asset Group is part of another Asset Group, the option to **Step Out** in the hierarchy is available on both the **Grid** and **Map** view.

The dots on the map represent substations, based on the Longitude and Latitude configured in System Center.



The “auras” around the substation locations are configured using the Legend at the bottom right of the Map. Min and Max auto fills based on available data when a data type is selected.

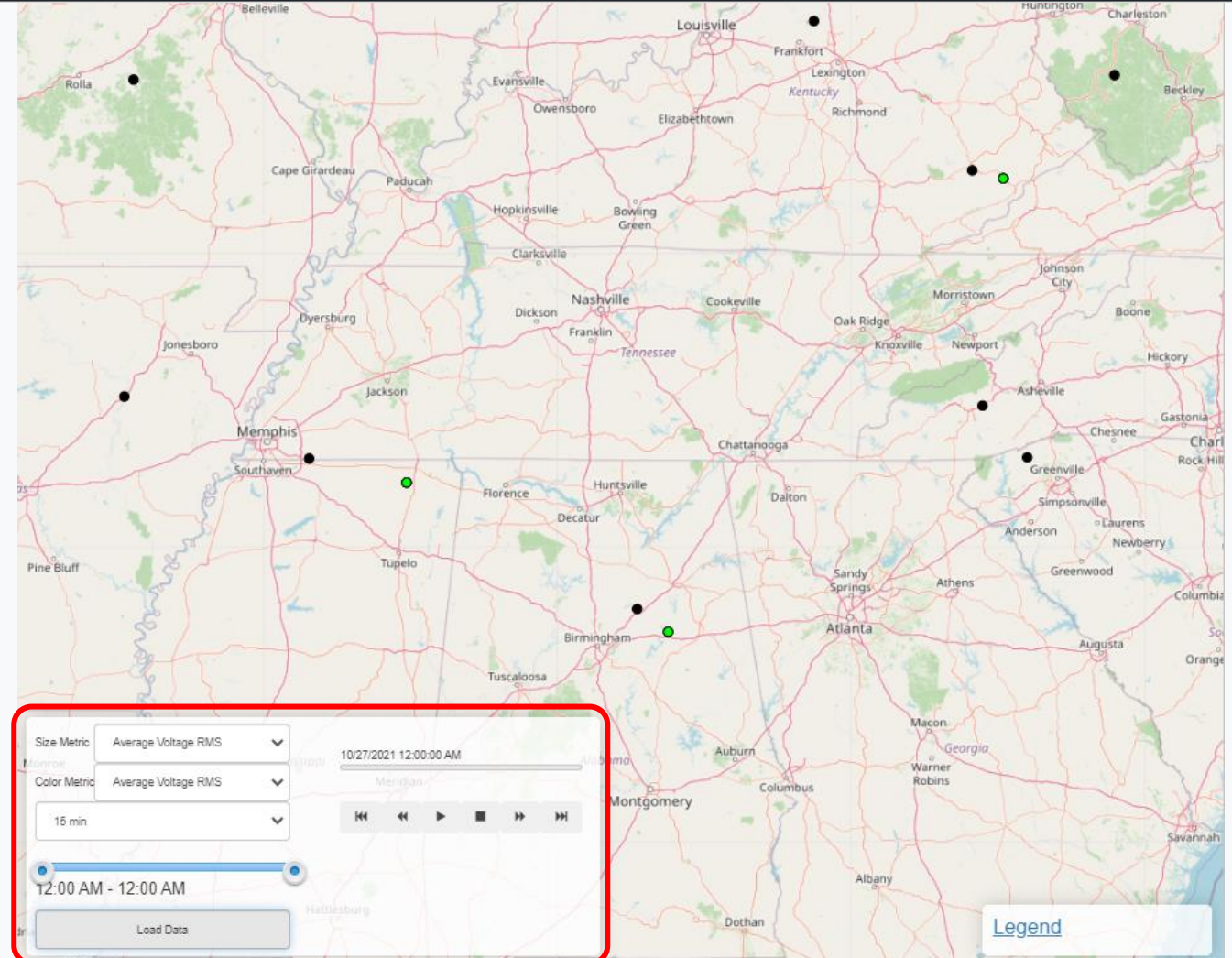
Available data types:

- **Event Count**
- **Sag Count**
- **Swell Count**
- **Interruption Count**
- **Sag Minimum**
- **Swell Maximum**
- **Maximum Voltage RMS**
- **Minimum Voltage RMS**
- **Average Voltage RMS**
- **Maximum Voltage THD**
- **Minimum Voltage THD**
- **Maximum Short Term Flicker**
- **Minimum Short Term Flicker**
- **Average Short Term Flicker**

Map Animations

When the **Trending Data** tab is selected, the animation feature can be used by selecting a day from the bar chart on the left.

- **Size** and **Color Metric** functions the same as the **Legend**, though limited to **Min**, **Max** and **Average** of **Voltage RMS**, **Voltage THD**, and **Short Term Flicker**.
- Select an appropriate interval from the dropdown.
 - 1, 5, 10, 15, 20, 30, and 60 min intervals available.
- Select the time range to be viewed using the sliders.
- Click **Load Data** for the animation controls to become available.
- The trending data can now be “stepped through” or played as an animation to view the effects across your system.



System Event Browser

System Event Browser

Event Search

Meter Activity

Custom Reports
Breaker Report
TripCoil Report
CapBank Report

Date/Time Filter:

Window Center:

03/07/2023

12:00:00.000 PM

Time Window(+/-):

7

Day

This Hour	Today	This Week	This Month
Last Hour	Yesterday	Last Week	Last Month
Last 60 Minutes	Last 24 Hours	Last 7 Days	Last 30 Days
This Quarter	This Year		
Last Quarter	Last Year		
Last 90 Days	Last 365 Days		

Fault:(unselect all)

☒ Fault

inter:(unselect all)

☒ Interruption

Other Types:(unselect all)

☒ Sag

☒ Swell

☒ Transient

☒ Other

☒ Test

☒ Snapshot

☒ Reclose Into Fault

☒ Breaker Opening - Nonfault

Event Characteristics:

Mag-Dur:

ITIC

Duration (cycle):

to

Phases

All Selected

Transients (p.u.):

LL/LN

View As Mag/Dur

Table Columns

Asset Desc

Duration (cycles)

Fault Current Mag

Fault Inception

Meter Alias

Meter Make

Meter TimeZone

Station

Station Key

Worst LN Magnitude (%nominal)

Asset Name

Duration (sec)

Fault Dist

FaultID

Meter Desc

Meter Model

Nom Voltage (kV)

Station Alias

Station ShortName

Asset Type

☒ Event Type

Fault Dist Alg

Meter

Meter Key

Meter ShortName

Phase

Station Desc

Worst LL Magnitude (%nominal)

Reset Defaults

Settings

Event Search Settings:

Number of Results:

100

Save

Only the first 100 results are shown - please narrow your search or increase the number of results

Use the CustomReports Value List in System Center to configure viewable reports.

Drag bar (highlighted in yellow for demonstration) side-to-side to resize results table and event preview pane up to a 75/25 split on either side.

To change the visible results table columns, use this gear. **Time** is the only column that cannot be disabled.

To change the number of results shown, use the gear at the top right. Note: larger numbers of results can negatively influence load times.

Both the Number of Results and Table Columns settings persist between sessions and are local to the workstation.

Event Characteristics

- Filter by where the events sit on a given **Mag-Dur** curve.
- Filter by **Phase**.
- Filter by **Duration** in cycles.
- Filter by Line to Line or Line to Neutral **Magnitude** (per unit).
 - These filters become unavailable if their associated event type is filtered out.

Hide/Reset Filters

To give more room to your search results and event preview, the **Hide Filters** button will hide the entire filter bar, showing only the selected time window. If a filter other than time has been applied, the button will turn yellow. **Reset Filters** will reset all applied filters except time window.

Date/Time Filter:

Window Center:

03/03/202312:00:00.000 PM

Time Window(+/-):

84Hour

This Hour

Last Hour

Last 60 Minutes

This Week

Last Week

Last 24 Hours

This Month

Last Month

Last 30 Days

Last 7 Days

This Quarter

Last Quarter

Last 90 Days

This Year

Last Year

Last 365 Days

Fault:(unselect all)

☒Fault

inter:(unselect all)

☒Interruption

Other Types:(unselect all)

☒Sag

☒Swell

☒Transient

☒Other

☒Test

☒Snapshot

☒Reclose Into Fault

☒Breaker Opening - Nonfault

Event Characteristics:

Mag-Dur:

ITIC

Duration (cycle):

to

Sags (p.u.):

to

LL/LN

Transients (p.u.):

to

LL/LN

Swells (p.u.):

to

LL/LN

Phases

All Selected

☒All

☒AN

☒BN

☒CN

☒AB

☒BC

☒CA

☒ABG

☒BCG

☒ABC

☒ABCG

Other Filters:

Meter

Asset

AssetGroup

Station

Hide Filters

Reset Filters

Date/Time Filter

The selected date and time is the center point for the window. The **Time Window(+/-)** field does not accept decimals. Quick picks (below) highlight in blue when selected.

Event Type Filter

Available Event Types and their organization into categories are configurable in System Center under **Event Types**.

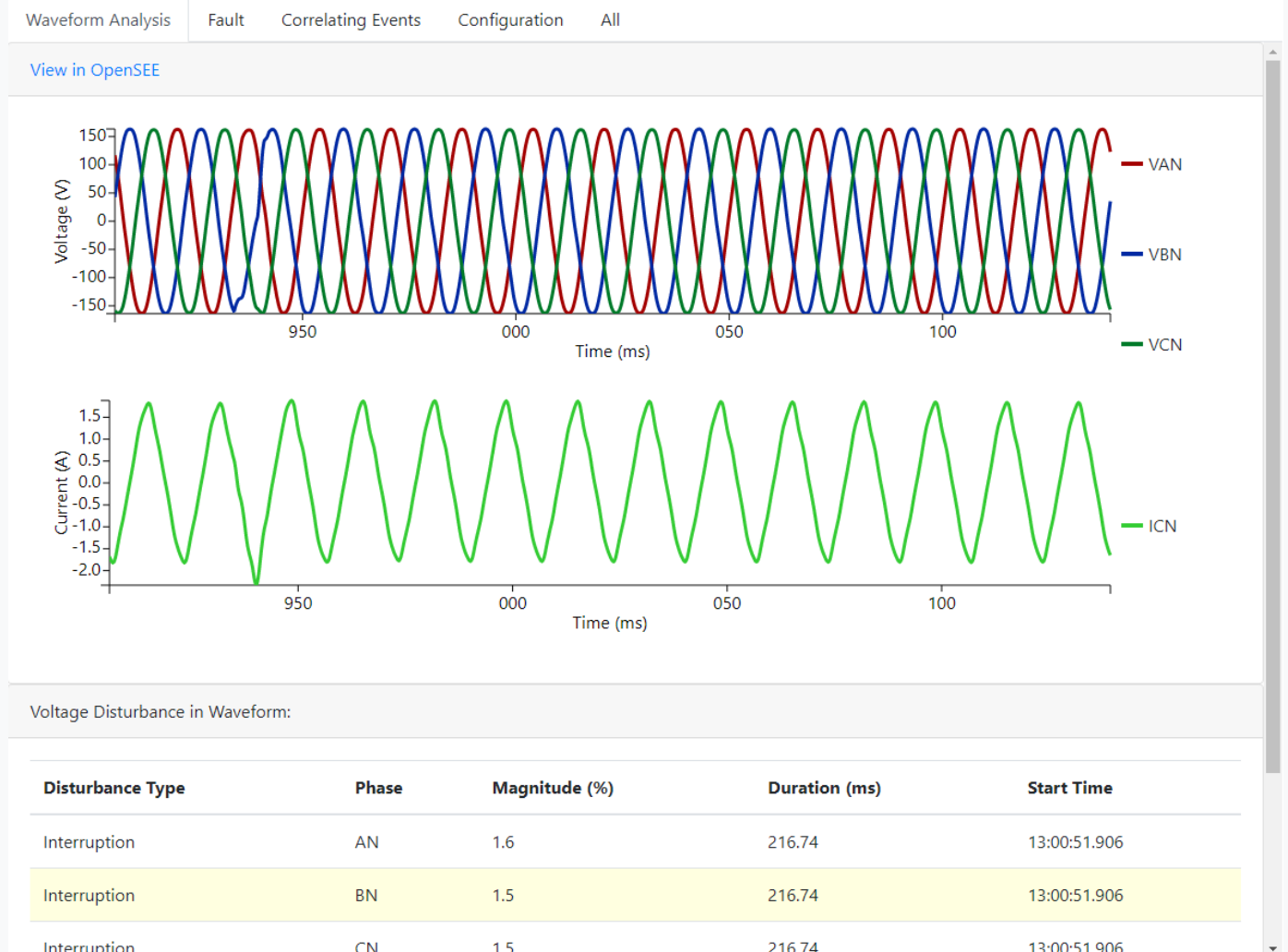
Other Filters

Filter by **Meter**, **Asset**, **Asset Group**, and/or **Substation**. When a filter of the given type is selected, the associated button will turn yellow and show a count of the number of selections in the filter. Mousing over the button shows the selections (up to 10).

Name	Key	Substation	Make	Model
Bludhaven 13-T1	Bludhaven 13-T1	BLUDHAVEN	Schneider	ION 8650
Bludhaven 13-T2	Bludhaven 13-T2	BLUDHAVEN	Schneider	ION 8650
Bludhaven 13-T3	Bludhaven13-T3	BLUDHAVEN	Schneider	ION 8650

Event Preview Pane

- When an event from the results list is selected, the Event Preview Pane is populated to the right.
- View details about the event and asset.
- Available widgets/cards are configurable (currently through the database, UI coming soon).
- Ability to configure tabs coming soon.



Available Widgets/Cards

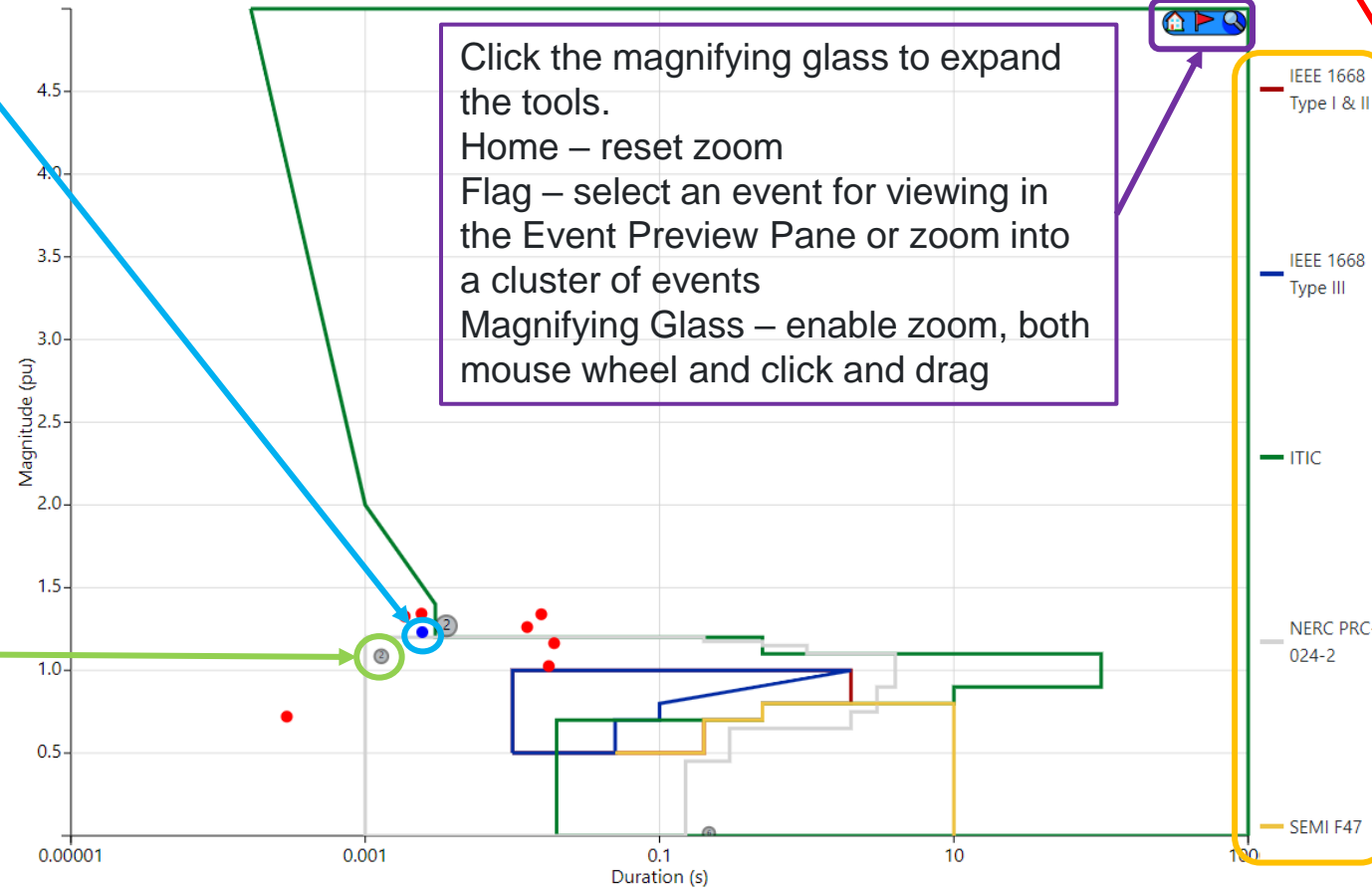
Widget Name	Description	Current Tab Location(s)	Default?
Waveform Preview	Shows the waveform preview(s) and View in openSEE link.	Waveform Analysis & All	Yes
Interruption Report	PQI interruption report	Configuration & All	No
Fault Evolution Summary	Shows the Evolution, Inception, and Duration of a fault	Waveform Analysis & All	No
Voltage Disturbance in Waveform	Shows the voltage disturbances in the waveform, highlights the worst disturbance	Waveform Analysis & All	Yes
Correlated Sags	Shows time-correlated sags	Correlating Events & All	Yes
Line Parameters	Shows the line parameters	Fault & All	No
File Info	Shows the file path for the file containing the event, a link to System Center Configuration History, and Channel Mappings	Configuration & All	No
Asset History	Shows asset lifetime stats and event history	Fault & All	Yes
Breaker Performance	TCE performance during the selected event	All	No
Historic Breaker Performance	History of selected TCE parameters	All	No
EPRI CapBank Analytic	CapBank analytic for the selected event	All	No
Notes	Shows notes for the event	Configuration & All	Yes

Additional widgets/cards may be available and not listed due to being developed for tools used at specific utilities. Contact GPA for more information or to develop a custom widget/card.

Mag/Dur Chart

If an event was selected from the table, it will appear blue on the Mag/Dur Chart.

If multiple events have similar magnitude and duration, they are combined on the chart into a single dot with the number signifying the number of events in that cluster. Zoom in (mouse wheel or click and drag while) or use the flag tool (top right) to view the individual events.



Click the magnifying glass to expand the tools.
Home – reset zoom
Flag – select an event for viewing in the Event Preview Pane or zoom into a cluster of events
Magnifying Glass – enable zoom, both mouse wheel and click and drag

View As List

Click **View As Mag/Dur** to view the results list on a Mag/Dur Chart. Click **View As List** to return to the table.

Click the curve name to enable/disable the curve on the plot. Additional Mag/Dur curves are configurable in the openXDA database.

97 results



Waveform Views:
☒ Voltage ☒ Current ☐ Analogs
☐ Digitals ☐ Trip Coil E.

Info Compare Analytics

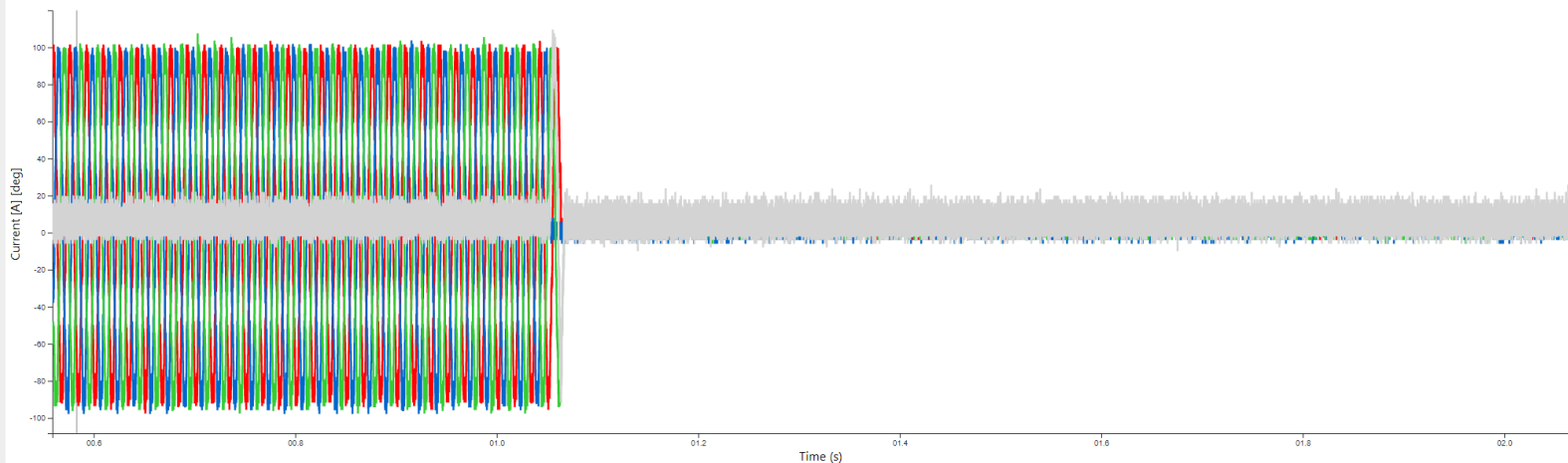
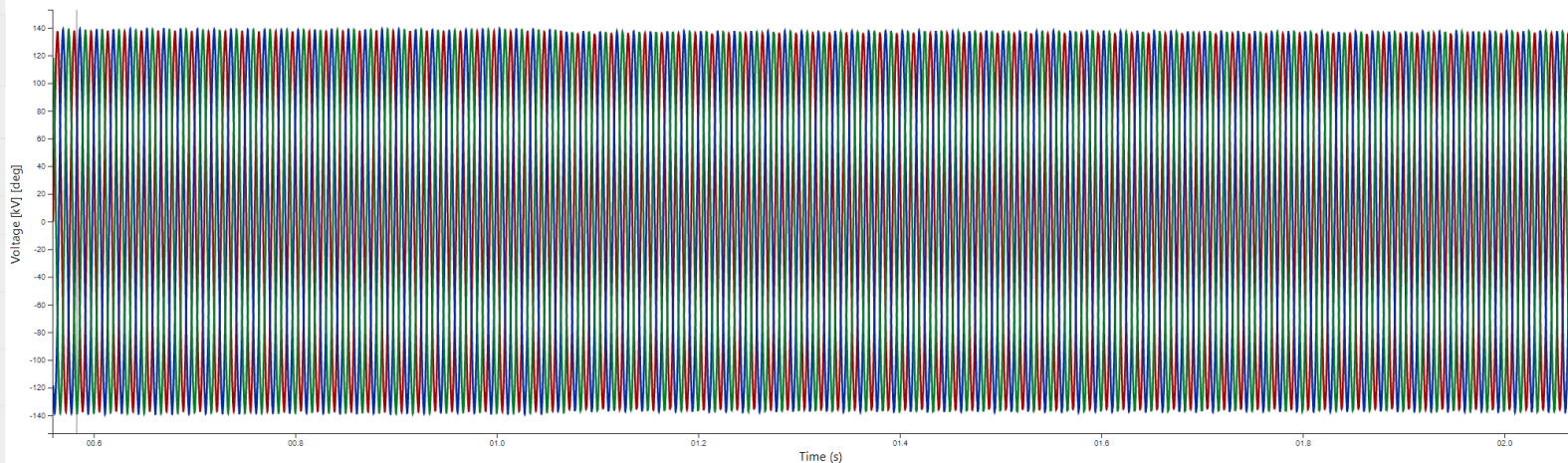
Meter: Gotham City 161-B1004-Caps
 Station: GOTHAM CITY
 Asset: Gotham City 161-B1004-Caps
 Event Type: Other
 Record Start: 2023-02-12 02:41:00.5597700

Edit

Version 3.0.11

Help

Data Tools ▾



Gotham City 161-B1004-C...

	W	Pk	RMS	Ph
AN	+	+	+	+
BN	+	+	+	+
CN	+	+	+	+
AB	+	+	+	+
BC	+	+	+	+
CA	+	+	+	+

Select Trace(s)
to draw.

Gotham City 161-B1004-C...

	W	Pk	RMS	Ph
AN	+	+	+	+
BN	+	+	+	+
CN	+	+	+	+
NG	-	-	-	-
RES	+	+	+	+

Select the
Waveform(s)
to plot. Each
Waveform is
drawn on its
own chart.

Information
on the
webapp
functions.

Data Tools are popups that can be moved around the page to give access to the data with the flexibility to be moved out of the way.

Data Tools ▾

Show Points

Show Tooltip

Show Tooltip w/ Delta

Show Phasor

Show Stats

Show Correlated Sags

Show Lightning Data

Show FFT Table

Export FFT

Export CSV

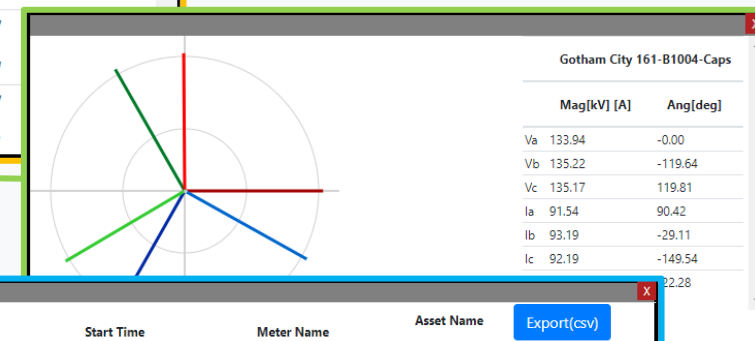
Export PQDS

Export FFT and Export CSV export the applicable data as a CSV file.
Export PQDS exports as EPRI's PQDS standard file type.

Show FFT Table and **Export FFT** only available when viewing the FFT Analytic

Gotham City 161-B1004-Caps V AN W			
Value	Delta	Value	Delta
1.4123535 sec 84.74 cycles	N/A	40.92 (kV)	N/A (kV)
2.7141113 sec 162.85 cycles	-1.3018 sec -78.11 cycles)	97.47 (kV)	-56.5502 (kV)
3.8857422 sec 233.14 cycles)	-1.1716 sec -70.30 cycles)	126.21 (kV)	-28.7403 (kV)

05-11-2021 06:30:59.502000	
Gotham City 161-B1004-Caps V AN W	-57.51 (kV)
Gotham City 161-B1004-Caps V BN W	-80.10 (kV)
Gotham City 161-B1004-Caps V CN W	137.57 (kV)
Gotham City 161-B1004-Caps I AN W	
Gotham City 161-B1004-Caps I BN W	



Event ID	Event Type	Magnitude	Duration	Start Time	Meter Name	Asset Name
26130	Other	58.1%	1516 ms (90.98 cycles)	2021-10-27T08:33:03.317936	Central City 161-B1044-Caps	Central City 161kV Cap Banks 1-2

Service	DisplayTime	Amplitude	Latitude	Longitude
Vaisala Real-Time Feed	2021-11-21 19:54:15.8411341	181	34.0497	-88.0652

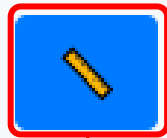
	Gotham City 161-B1004-Caps AN		Gotham City 161-B1004-Caps BN		Gotham City 161-B1004-Caps CN	
Harmonic [Hz]	Mag (kV)	Ang (deg)	Mag (kV)	Ang (deg)	Mag (kV)	Ang (deg)
DC	0.02	0.00	0.00	180.00	0.02	0.00
60.00	94.71	-90.03	95.60	150.33	95.58	29.80
120.00	0.01	-65.11	0.01	167.87	0.01	56.97

Pan
(click and drag on chart)

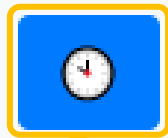
Zoom/Pan Orientation

- Select the reference axis for Zoom or Pan; Rectangle is both.
- Zoom and Pan along the Time axis affects all charts with Time as the x axis

Navigate through System Events
Move to Previous/Next event chronologically (if available) for each selection type. System is all possible; Station, Meter, and Asset selection is based on the event currently being viewed.



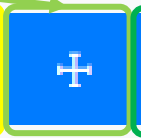
Show Tooltip
(Data Tool)



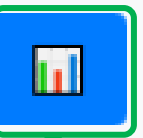
Show Phasor
(Data Tool)



Zoom
(click and drag on chart)

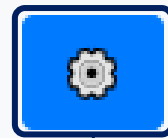


FFT (click and drag the gray bar on the plot to select cycles)



Reset Zoom

⇌ Time
↕ Value
⇌↕ Rectangle



Settings

< System >
System
Station
Meter
Asset

General Settings

☐ Display all Events on single Graph for Compare Overlapping Events

Default Traces (on Loading):

☒ WaveForm ☐ Peak ☐ RMS ☐ Phase

☐ Line to Line ☒ Line to Neutral

Voltage Settings

Current Settings

General Settings configures settings for the whole webapp (local to the workstation).

Units and Colors can be configured for each waveform or analytic currently being viewed. *Note: some settings may also apply to certain analytics.*

General Settings

Voltage Settings

Units:

Time [auto] Angle [deg]

Voltage [auto]

Colors:

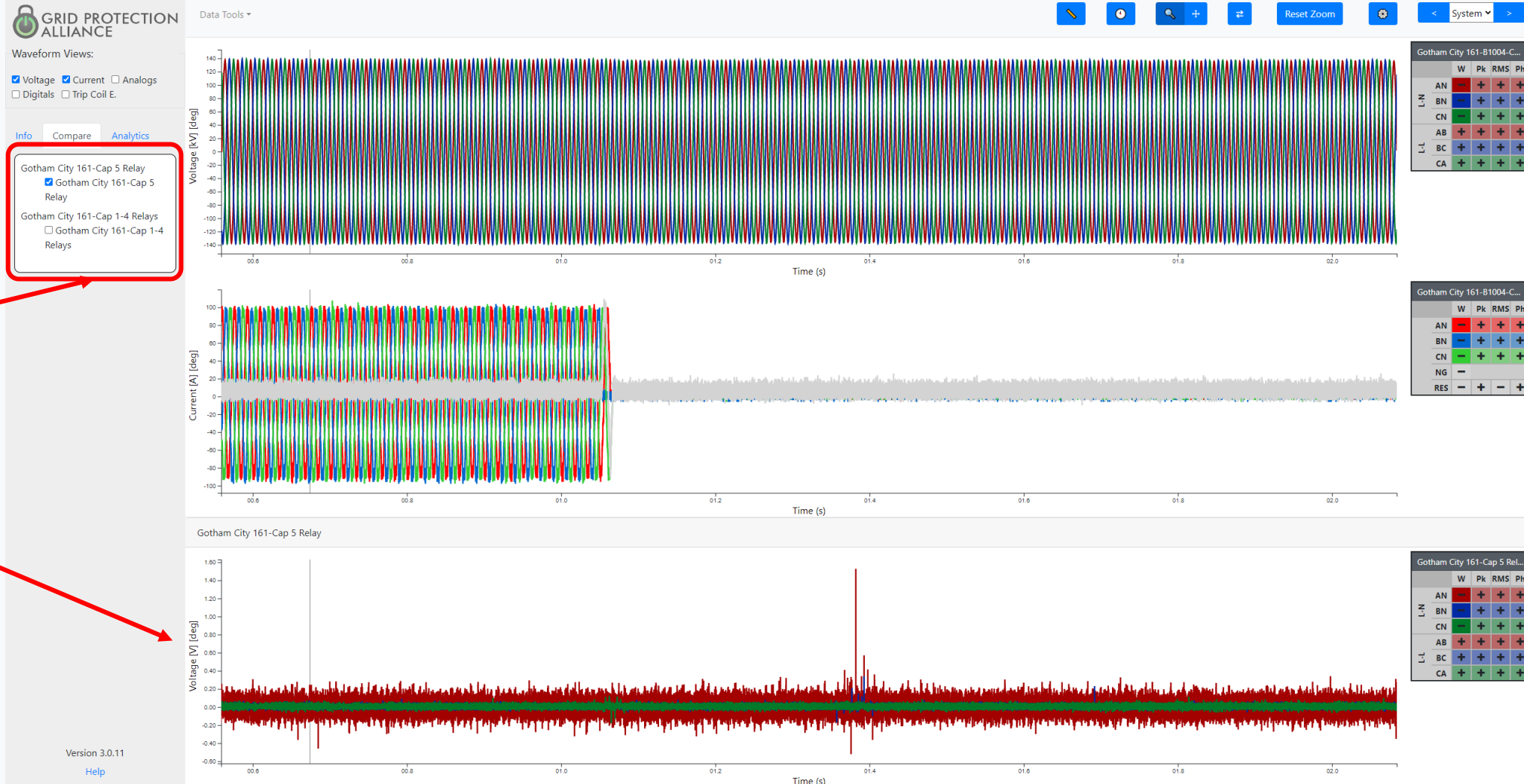
Va Vb Vc Vab Vbc Vca

Current Settings

Compare tab

Ensure the Setting **Display all events on single Graph for Compare Overlapping Events** is unchecked before selecting this tab. This feature is still in development and can cause the application to lock up.

Shows the assets with correlating events. Select one or more to plot these for comparison. Each waveform for the selected event(s) is drawn on a separate chart, with the time axis matching that of the original regardless of the duration of the event selected to compare.



Analytics



Waveform Views:

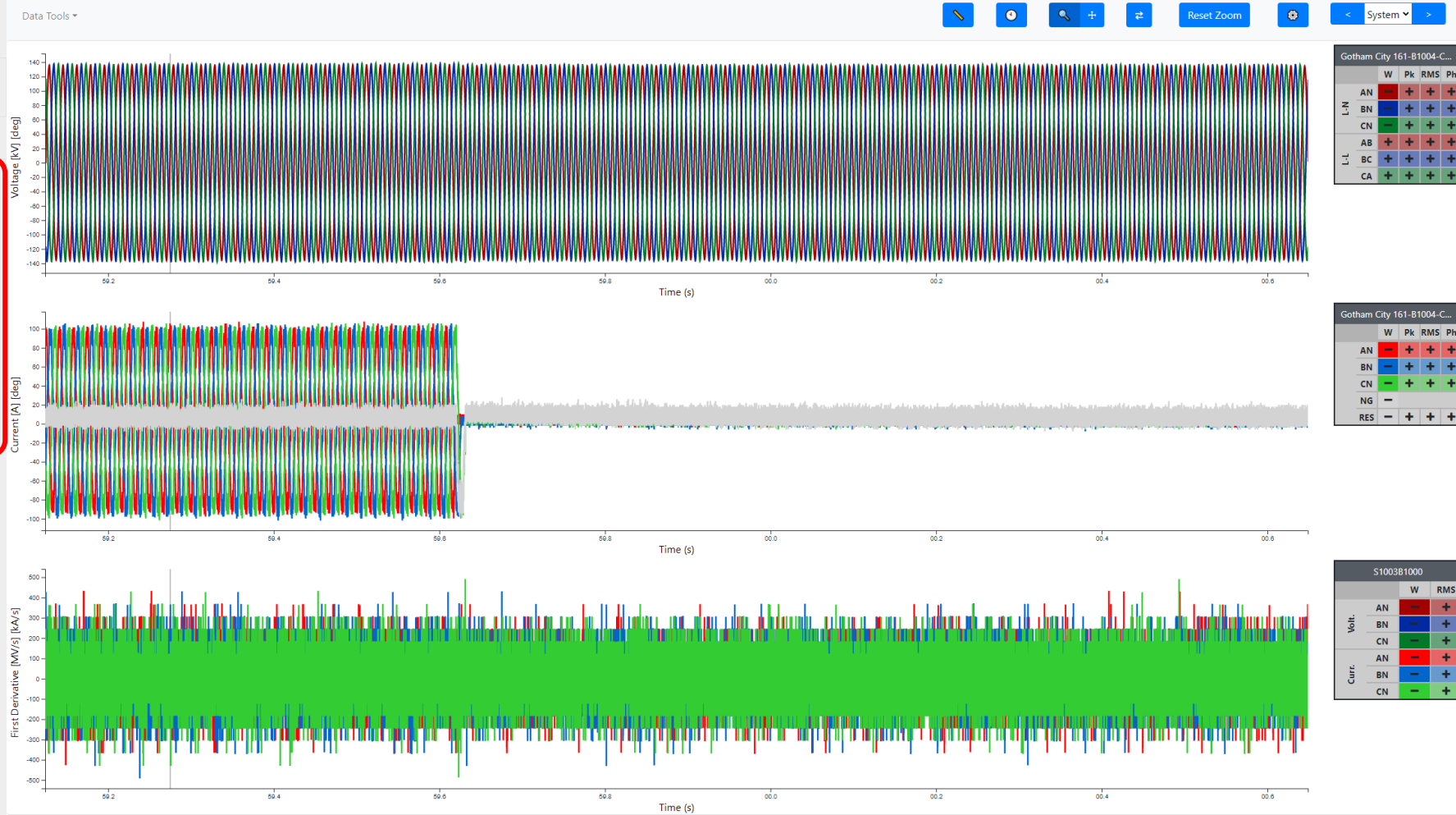
☒ Voltage ☒ Current ☐ Analogs
☐ Digitals ☐ Trip Coil E.

Info Compare Analytics

- First Derivative
- Fault Distance
- FFT
- First Derivative
- Fix Clipped Waveforms
- Frequency
- High Pass
- Impedance
- Low Pass
- Missing Voltage
- Overlapping Waveform
- Power
- Rapid Voltage Change
- Rectifier Output
- Remove Current
- Specified Harmonic
- Symmetrical Components
- THD
- Unbalance

Version 3.0.11

[Help](#)



Use the dropdown to select the desired analytic. These are computed, not pulled from the device.

Each analytic is drawn on a separate chart below the event waveform(s). Don't forget to select your traces appropriately!