

# PQDashboard User's Group

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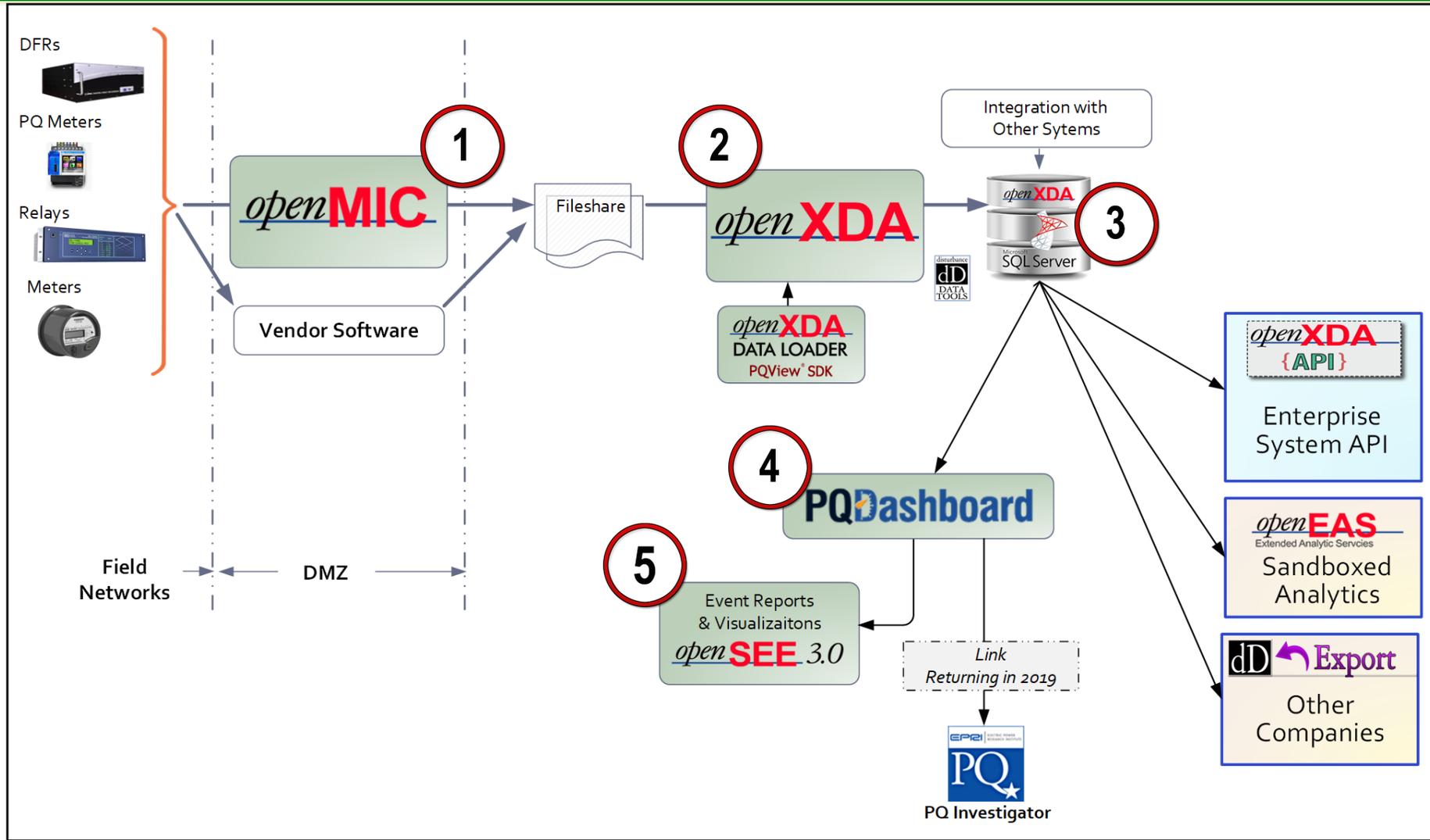
## What's new for 2019?

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Russell Robertson

May 9, 2019

# GPA's Disturbance Monitoring Tool Suite



## Additions since April 2018

- Release Version 1.3 (*May, 2018*)
- Added support for multiple instances configured against one database
- General improvements to usability and stability of MODBUS device configuration
- Improved stability of FTP downloader
- Updated OpenDnp3 libraries to July 10 build using the latest source code
- Added configuration parameter to control polling interval for DNP3

## 2019 Development Plans

- Modified to be a distributed, load-balanced system with automated failure recovery
  - Lower latency for large infrastructures
  - High-availability
- Option to have configuration managed by the new “openXDA System Center” application

## Additions since April 2018

- Release Version 2.4 ( May, 2019 )
- Improved **email engine** to allow for self-subscription and added trip logic to prevent email flooding
- Faults verified by checking **SCADA for breaker state change**
- Expanded the list of “**simple stats**” retained for event data.
- Added logic for voltage **transient event classification**.
- Added option to use "**last faulted cycle**" for representative fault cycle.
- Added logic to automatically calculate **line-to-line quantities** from line-to-neutral quantities for analysis.
- Added logic for **estimating probable fault causes** from waveform signatures.
- Added hooks for **integration with lightning data** providers
- **Improvements to dD Tools** - data file reprocessing, new periodic data display, step-change report, supra-harmonics charts, plus others.
- Added data readers for JSON data from **Eaton EMCB devices**.

## 2019 Development Plans

- Refactoring of data-base to become “asset” centric rather than line centric
- Correlation of voltage sags to fault events
- Identification of normal-switching events
- Improved fault typing (L-L-G)
- Improved techniques to detect a transient
- Logic to determine breaker timing characteristics from trip-coil current waveform
- Additional testing of automated data exchange with EPRI PQ-Mark

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## Open PQ Dashboard

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### Additions since April 2018

- Release Version 2.2 ( *May, 2019* )
- Added the ability to attach notes in multiple locations
- Added quick search page for quickly finding and filtering events within a time range.
- Fixed usability issues on the Meter Activity tab.

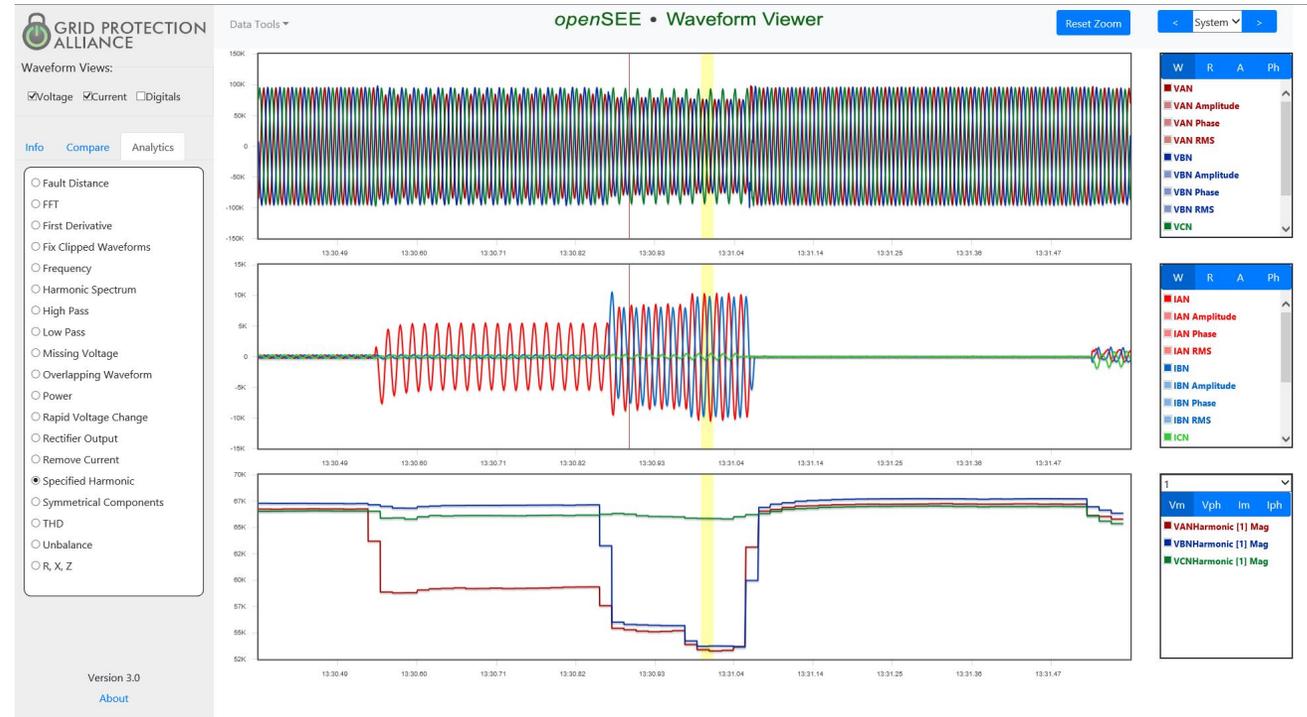
### 2019 Development Plans

- Scalability improvements
- Integration with PQI-Web

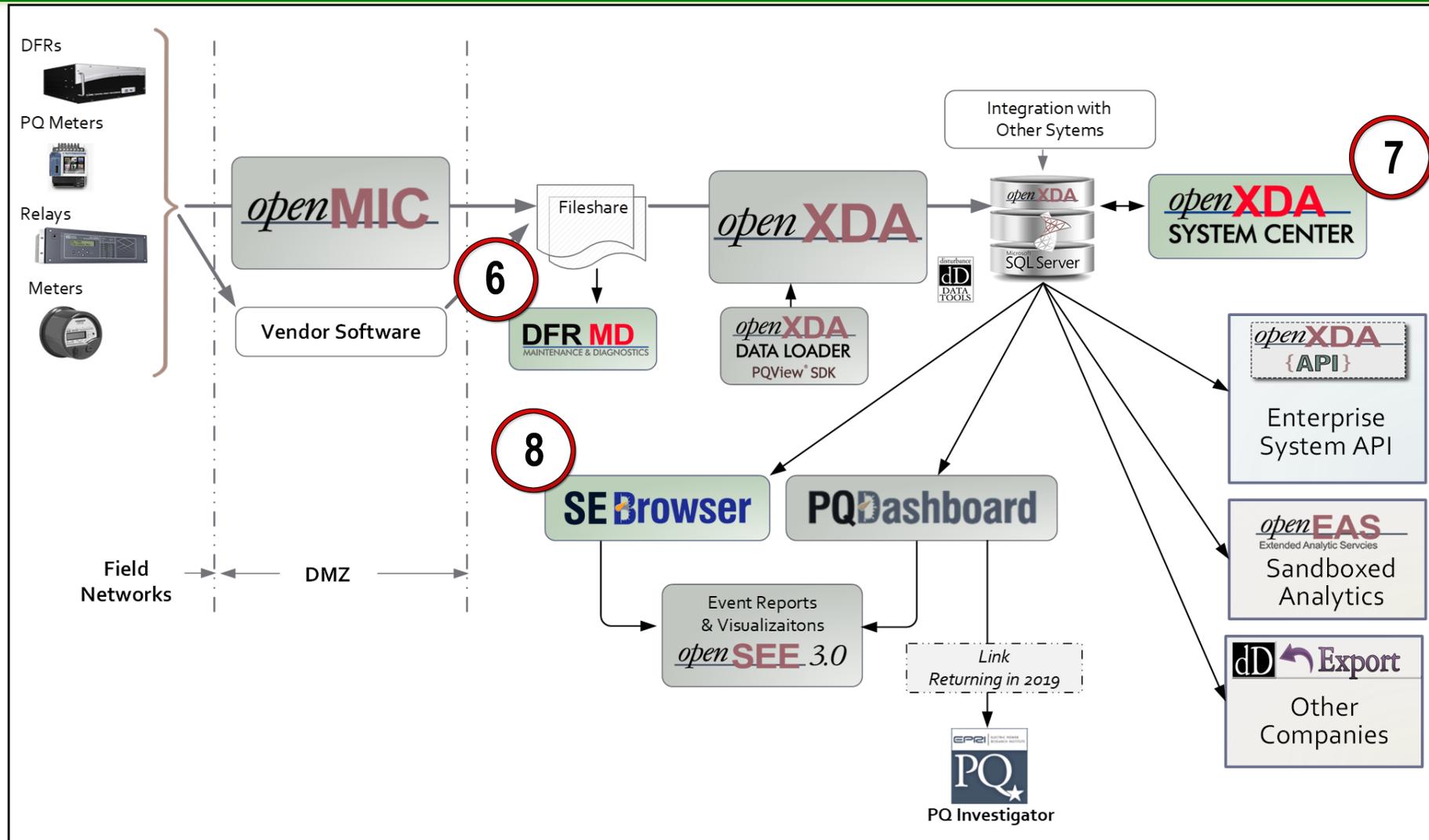
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## openSEE Version 3.0 (Beta)

- All functionality from previous versions preserved
  - Event summary information
  - Useful “forward and back” navigation features
  - Tool panels that provide additional pop-up displays
- Changes include:
  - Reorganized menu
  - Added scalar stats
  - Added lightning data query
  - Added waveform analytics
  - Included CSV exports on tabular data and event data
  - Included COMTRADE exports on event data
  - Added time-correlated event comparisons and sag list
  - Added snapshot harmonics analysis



# New TVA-Funded Applications Coming in 2019



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## A service to monitor DFR Configuration and Health

- Parses DFR configuration and diagnostic files
- Issues automated email notifications
  - Communications issues – connectivity / high latency
  - Self-reported DFR diagnostic errors
  - DFR configuration change
- Includes annunciation dashboard to alarm on DFR issues for 24x7 NOC desk
- Available late 2019 / early 2020

A browser-based reporting system for communications desk & DFR SMEs

**DFR MD**  
MAINTENANCE & DIAGNOSTICS

**New TVA Funded Application**

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## Integrates System Configuration

- One-point stop to manage application settings
  - Substation & Asset information
  - Individual application settings
  - Meter & DFR Configuration
  - User administration, contacts, and notification groups
- Some configuration is maintenance of link tables to external data providing systems
- Available late 2019 / early 2020

## Replaces functionality in dDTools

*open* **XDA**  
**SYSTEM CENTER**

**New TVA Funded Application**

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# System Event Browser

New TVA Funded Application

Optimized for engineering analysis

- Quickly find data and investigate a specific event
- Includes a “data preview” panel
- Review the historical performance of an asset or a customer.
- URL-driven to allow links to be placed into emails and investigation reports
- Available Summer 2019

Modeled after MS Outlook

- Complements the Open PQ Dashboard
- Outlook-like navigation model: Filter – preview results – show details
- Based on a robust, high-performance web framework that includes Signal-R
- Funded by TVA to replace an aging list-based web system, PQMS

**SEDashboard**  
GRID PROTECTION ALLIANCE

Time Window:  
Date: 04/30/2019 14:49:47.069  
Time Window Size(+/-): 10  
Time Window Units: Minute

Event Types:  
 Faults  
 Sags  
 Swells  
 Interruptions  
 Breaker Ops  
 Transients  
 Others

Voltage Class:  
 > 500 kV  
 162 - 500 kV  
 70 - 161 kV  
 < 70 kV

Meter Types:  
 DFR  
 PQMeter

Date	Time	Location	Line	Magnitude	Type
02/26/2018	18:42:52.9660000	L-BYUH	Line	0.208	Swell
02/26/2018	17:43:39.9660000	L-BYUH	Line	0.208	Swell
02/26/2018	15:24:44.9660000	L-BYUH	Line	0.208	Swell
09/03/2014	19:13:30.3950000	Deb-Mar	Line	115	Sag
09/03/2014	19:13:30.3900000	Mar-Deb	Line	115	Fault
09/03/2014	19:13:30.3900000	Mar-Deb2	Line	115	Fault
09/03/2014	19:13:30.3900000	Mar-Deb2	Line	115	Fault
01/07/2014	01:47:43.9660000	L-FL1	Line	0.208	Interruption
01/07/2014	00:11:46.9660000	L-FL2	Line	0.208	Sag
01/07/2014	00:11:46.9660000	L-FL3	Line	0.208	Sag
01/07/2014	00:11:46.9660000	L-FL5	Line	0.208	Sag
01/07/2014	00:11:45.9660000	L-FL1	Line	0.208	Sag

Version 3.0  
[About](#)

Fault Evolution Summary:

Evolution	Inception	End
AN Fault	13:30.549	13:30.854
AB Fault	13:30.855	13:30.977
AN Fault	13:30.978	13:30.980

Voltage Disturbance in Waveform:

Disturbance Type	Phase	Magnitude	Duration	Start Time
Sag	AN	0.886	0.100	13:30.864
Sag	BN	0.891	0.093	13:30.869
Transient	AN	1.007	0.672	13:30.821
Transient	BN	1.005	0.621	13:30.870

# The progression of the openXDA & the Open PQ Dashboard

