

July 2023 openHistorian Grafana Training for Entergy
Agenda – Draft 4

DAY 1 – GRAFANA & OPENHISTORIAN

Attendees will learn about the openHistorian database tables that Grafana gets its data from, how to add custom data, and administrative management of Grafana. Attendees (with appropriate access) will be able to:

- Identify the tables from which Grafana pulls data.
- Add custom metadata to be visualized in Grafana.
- Manage Grafana users and understand the available roles and their permissions.
- Restart Grafana within openHistorian.

1. SQL Database (1.5 hrs)

Overview of openHistorian database schema, how Grafana accesses and uses the data, and how to add additional metadata sources to Grafana.

1.1. Important Tables for Grafana and metadata requirements

1.1.1. PointTag column/field

1.2. Adding Custom Data

1.2.1. ConfigurationEntity table

2. Admin Items (30 mins)

User/security managements and how and when to reinitialize Grafana within openHistorian.

2.1. Managing Users and their Roles and Permissions

2.1.1. openHistorian and Grafana Roles and their Permissions

2.1.2. Adding, editing, and removing Users

2.2. Reinitializing Grafana within openHistorian

DAY 2 – GRAFANA PLUGINS & DASHBOARDS

Attendees will learn Grafana Plugin and Dashboard basics. Attendees will be able to:

- Find, download, and deploy new Plugins.
- Implement best practices when creating a new Dashboard.
- Create, populate, import, and export a Dashboard.

1. Plugins (1 hr)

What plugins can do and how to find, download, and install a new one.

- 1.1. Definition of a plugin
- 1.2. How to find new plugins
- 1.3. How to download and deploy

2. Dashboards (1 hr)

Planning, creating, and populating Grafana Dashboards.

2.1. Dashboards

2.1.1. Before Creation – Best Practices

- 2.1.1.1. Planning new dashboards
- 2.1.1.2. Control Room Human Factors (HMI) Design and Colors

2.1.2. Panels

- 2.1.2.1. Library Panels

2.1.3. Variables

2.1.4. URL Variables (for Screen Linking)

2.1.5. Importing and Exporting Dashboards using JSON Models

DAY 3 – FILTER EXPRESSIONS & OH GRAFANA FUNCTIONS

Attendees will learn the syntax to create filter expressions and about openHistorian-specific functions to make their visualizations more powerful. Attendees will be able to:

- Construct effective Filter Expressions to tailor the data being shown.
- Perform functions/transformations on series and groups.

1. Filter Expressions (1 hr)

How to filter inputs and outputs for streams, subscribers, and adapters, including the semantics of expressions and examples.

1.1. Syntax

1.1.1. Required keywords – FILTER & WHERE

1.1.2. Optional keywords – TOP & ORDER BY

2. Grafana Functions for openHistorian (1 hr)

Performing functions/transformations on data, to include use and syntax of Series and Group Operations, the list of available functions, overview and examples of commonly used functions, and a high-level overview of more complex functions.

2.1. Series Functions

2.2. Group Operations

2.3. Available Functions

2.4. Commonly used Functions

2.5. Complex Functions

DAY 4 – NATIVE GRAFANA TOOLS

Attendees will learn how to use the Grafana native Annotations and Grafana-Managed Alerts tools.

Attendees will be able to:

- Annotate visualizations and manage annotations.
- Set and manage Grafana Managed alerts.

1. Annotations (1 hr)

How to use the Grafana-native tool to annotate time series data, including how to filter currently visible annotations.

- 1.1. Adding, editing, and deleting an annotation
- 1.2. Annotation Query

2. Grafana-Managed Alerts (1 hr)

Overview of Grafana's native alerts, how to set thresholds, and retrieving triggered alerts.

- 2.1. Adding, editing, and deleting alerts.
- 2.2. Single/Classic condition vs. Multi-Dimensional Rule
- 2.3. No data and error handling

DAY 5 – REVIEW WITH GEOMAP

Attendees will learn how to configure the Geomap Plugin to work with openHistorian data and review the material covered by creating a new dashboard with the Geomap panel. Attendees will be able to:

- Set up and configure the Geomap Plugin/Panel.

3. Review with Geomap (2 hrs)

Review the material covered using Grafana's native Geomap Panel as an example, including configuration for the Plugin.

- 3.1. Set up/Config Geomap Plugin data using JSON
- 3.2. Create Dashboard and add Geomap Panel
- 3.3. Filter Expression
- 3.4. Function/Transformation
- 3.5. Annotate

4. Additional Optional Items (time-allowing)

Additional questions or review.