DraMS XINA Training

Contains videos and tutorials on using XINA, specifically geared toward the DraMS project. XINA has several "Tools". Each tool is designed to view telemetry data in a different way. For instance, the Mnemonic tool looks at voltages, temperatures, etc. vs. time. The Spectra tool allows the user to see the mass spectra. This page links to training materials for each tool.

XINA Terminology

Mnemonics: A named data channel or field. Example: A temperature sensor or a boolean state

Model: A separate system with independent data. Example: Engineering model or flight model

Events: A text label for an instance in time or a time interval, aka **Marker**
Example: 01-17-2025 12:32:21 “Started the pump”

Transformation A plot channel that is derived from a mnemonic with some sort of mathematical transformation applied to the mnemonic's values. Example: During TVAC, we might want to see the rate of change of the temperature. We can "transform" a channel to plot the rate of change rather than the absoluate temperature.

Diagrams: A Diagram is an SVG image with an accompanying set of rules about how it should change in response to data. Those rules are divided into Switches and Indicators.

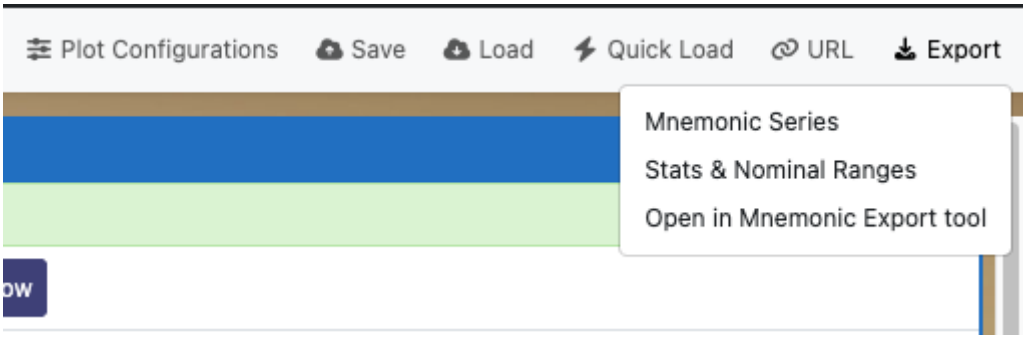
Switches: A Switch is an on/off logical value. These can be defined as Event Switches, which turn on or off by matching text in Events, Mnemonic Switches, which turn on when a mnemonic is within a specific range, or Logical Switches, which allow you to combine multiple other switches.

Indicators: An Indicator associates Switches with visual effects and particular elements in the Diagram image. Indicators can change colors, update text, or apply highlighting.

Tutorial Videos

Find videos demonstrated common XINA functions, like exporting data, saving frequent plot configuration, setting transformations on mnemonics and much more.

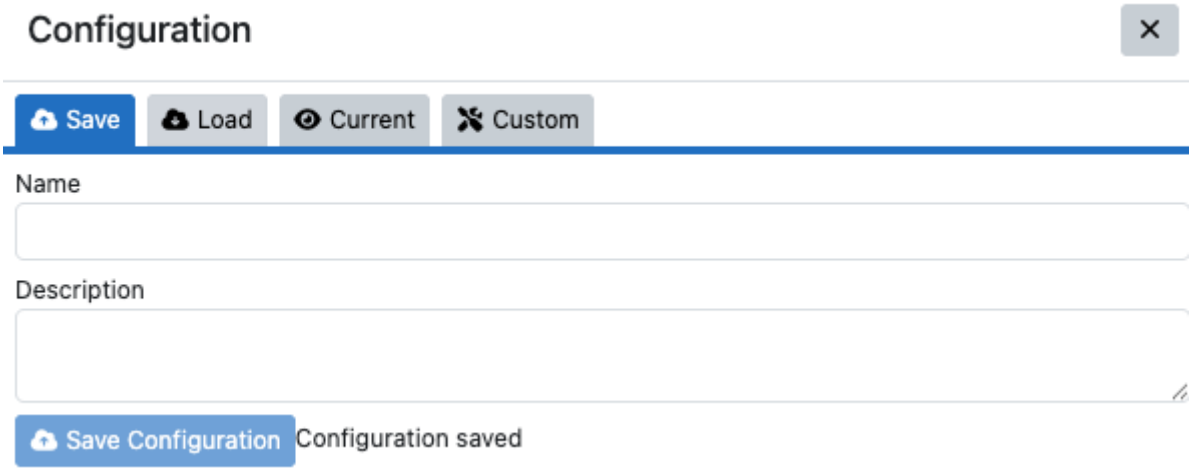
Exporting To CSV Files



Mnemonic data can be exported to CSV files if you want to do further processing in Excel or other software.

- Click here for video tutorial on Exporting Mnemonic Data to CSV files
- Click here to open XINA and follow along with video

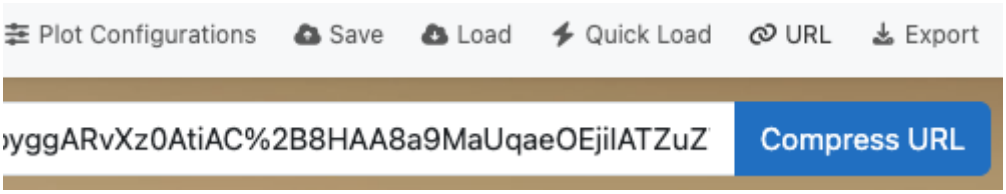
Saving Your Selections



You can save all of your selections in XINA so that you or others can load exactly the configuration you are using.

Click here for video tutorial

Sharing URLs



XINA makes it easy to share what you are looking at in XINA with other users. You can create a URL containing a link to XINA with all the selections you have made (start and end times, mnemonics, plot colors, etc. etc.) You can paste the URLs in emails or other sharing system so other XINA users can look at the exact same view you are seeing.

Click for video showing how to share a configuration using a URL that you can send to others

Tutorial Videos

Use Case: Analyzing Pump Performance Using XINA

In this video tutorial, we demonstrate a typical use case: using XINA to analyze the performance of the minature scroll pump. This tutorial takes you through the whole process from selecting a time interval, to selecting mnemonics and manipulating the plot views.

Click for an example of analyzing the performance of the pump using the mnemonic tool

Tutorial Videos

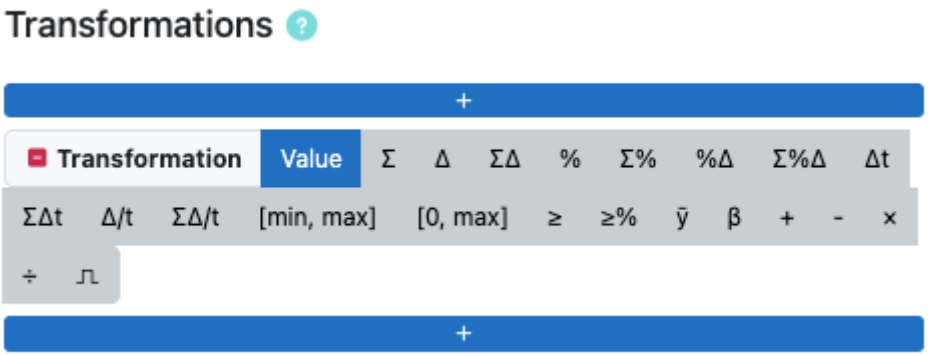
Use Case: View Most Recent Data from Ongoing Test

This short video gets you started seleting a data source and a few temperature channels to plot.

Click for example of viewing the most recent temperature and pressure data from on going testing

Tutorial Videos

Transformations: Performing Calculations on Telemetry Data



Creating copies of mnemonics and making transformation by added a fixed value

Use this link to follow along in XINA

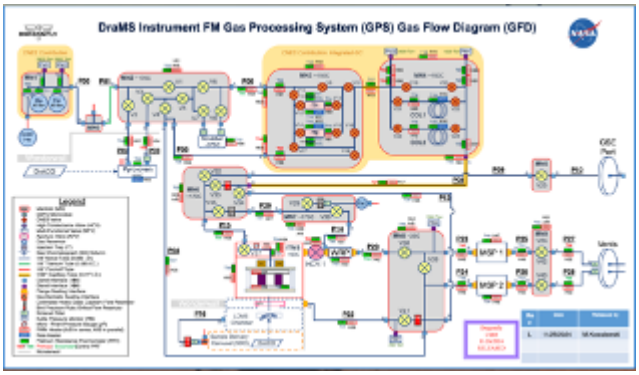
DraMS Diagram Tool

Videos and presentations using all the aspects of the Diagram Tool

Diagram Tool Introduction

The Diagram Tool allows images to be "animated" based on data in XINA. Typically this is used to view the DraMS Gas Processing System. But any image that can be saved an "SVG" file can setup to be animated. (See below for instructions to make PowerPoint slides into SVG files)

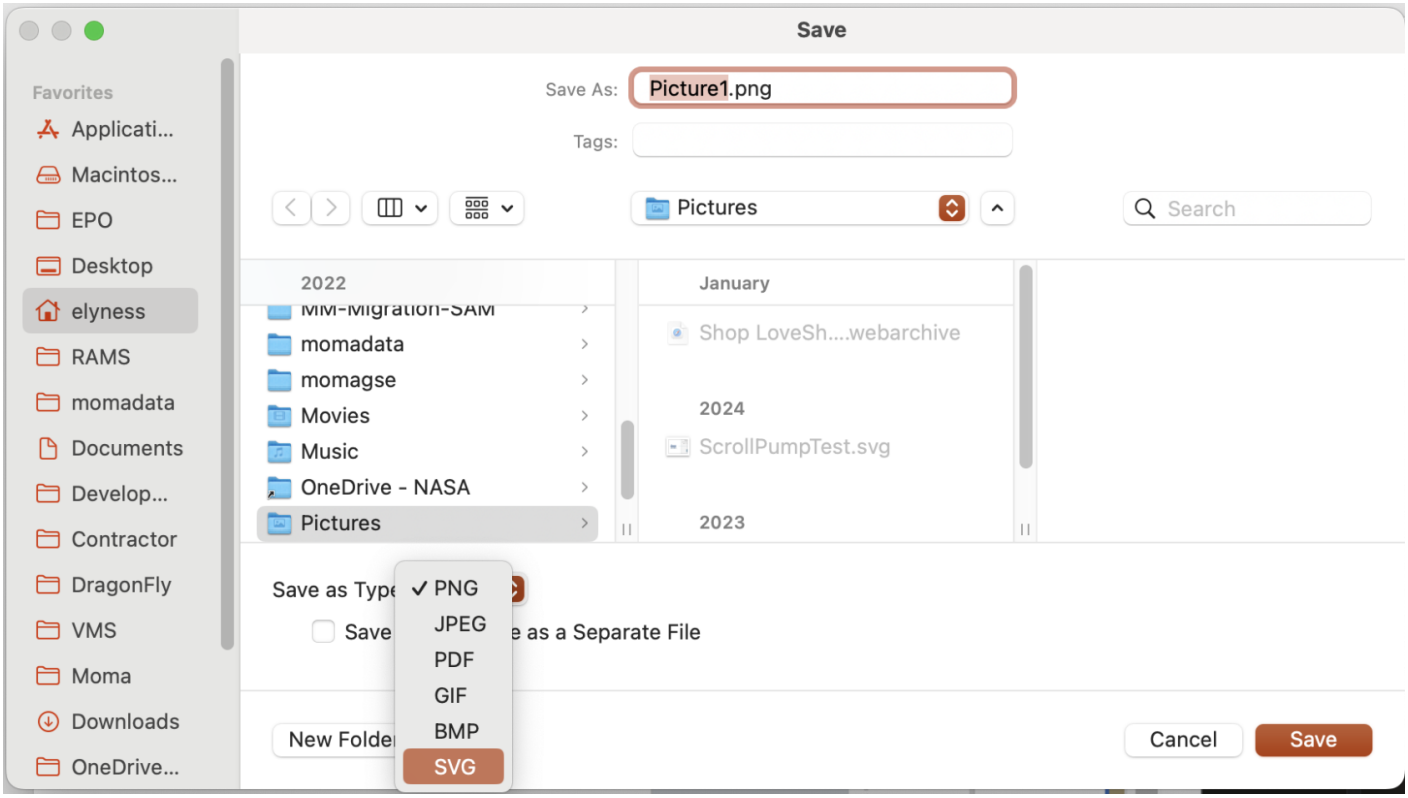
XINA Link



The Diagram Tool is actually 3 tools.

- Diagram Viewer -- Open an existing diagram and select a set of data to animate it
- Diagram Editor -- Create and edit an existing diagram
- Diagram Simulator -- Create scripts to simulate the data and view in the diagram

Creating SVG files from PowerPoint: You cannot simply take a screenshot of a slide. To animate an drawing from PowerPoint, the drawing should have a seperate object for each item you want to animate. For instance, in the image above, each valve and each pipe is an object in the PowerPoint slide. Once you have a slide with all of objects (squares, circles, lines, etc.), you can export to SVG. To do this, drag the mouse around the entire slide (or part of the slide you want to export). Then right-click on the slide. From the pop-up menu, select "Save as Picture..." Then in a dialog box that appears, select SVG as the file type.


Save
Favorites
Applicati...
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RAMS
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Documents
Develop...
Contractor
DragonFly
VMS
Moma
Downloads
OneDrive...
Save As:
Picture1.png
Tags:
Pictures
Search
2022
momadata
momagse
Movies
Music
OneDrive - NASA
Pictures
January
Shop LoveSh....webarchive
2024
ScrollPumpTest.svg
2023
Save as Type
PNG
JPEG
PDF
GIF
BMP
SVG
as a Separate File
New Folde
Cancel
Save

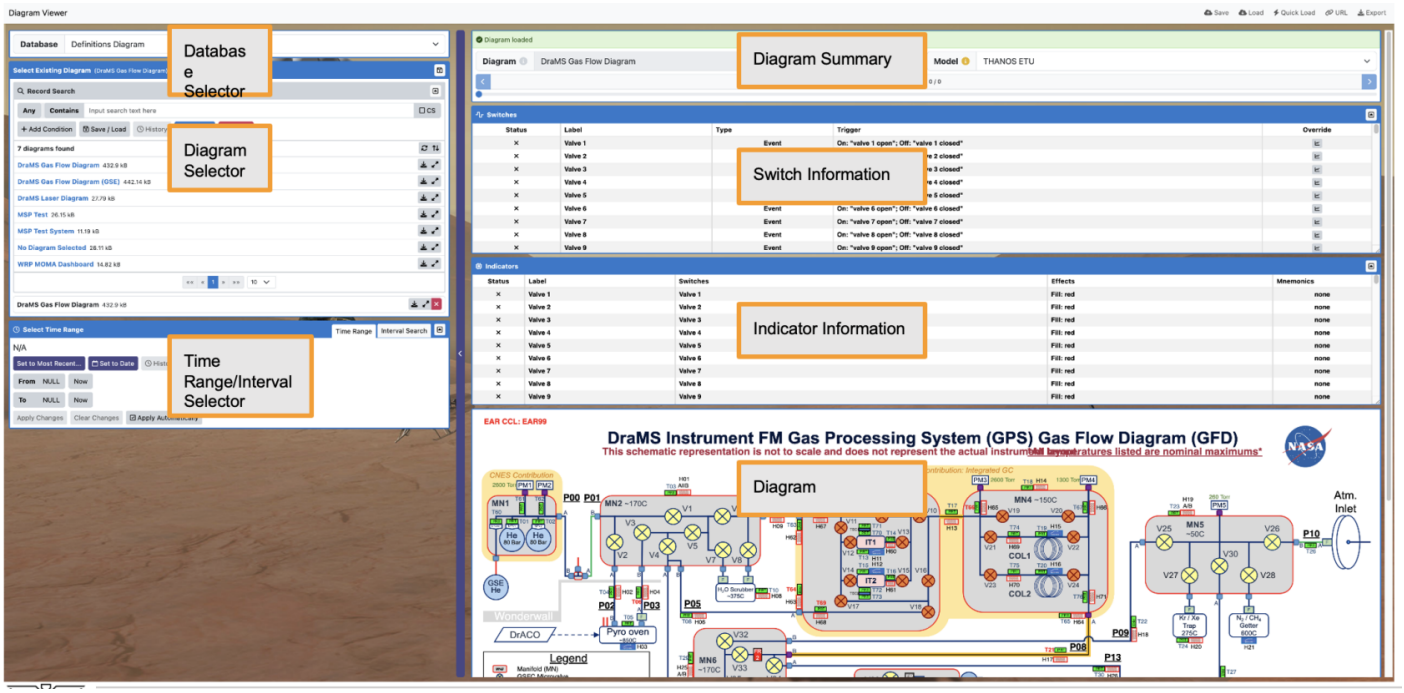
Diagram Viewer

The Diagram Viewer tool brings diagrams and schematics alive by changing diagram attributes, such as color or text, based on telemetry data.

For a video tutorial on using the Diagram Viewer, click here

To view the training presentation in PDF form, click here

To download the training presentation as a PowerPoint file, click here



The file attachment on the left contains a step-by-step description of using the Diagram Viewer.

Diagram Editor

The Diagram Editor tool allows you to create and manage responsive diagrams and dashboards. While you can view data here, the Diagram Viewer and Diagram Simulator are better suited for that purpose.

For a video tuturial, click here

To download a PDF of a training presentation, click here

To download a PowerPoint of the training materials, click here

The layout of the Diagram Editor is almost identical to the Diagram Viewer, so please refer to the Diagram Viewer tutorial for an introduction.

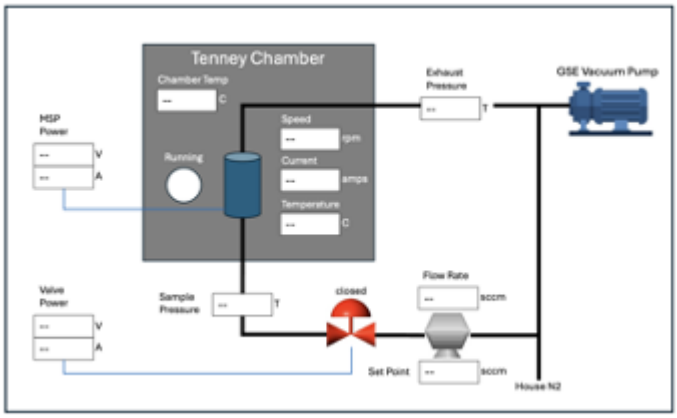


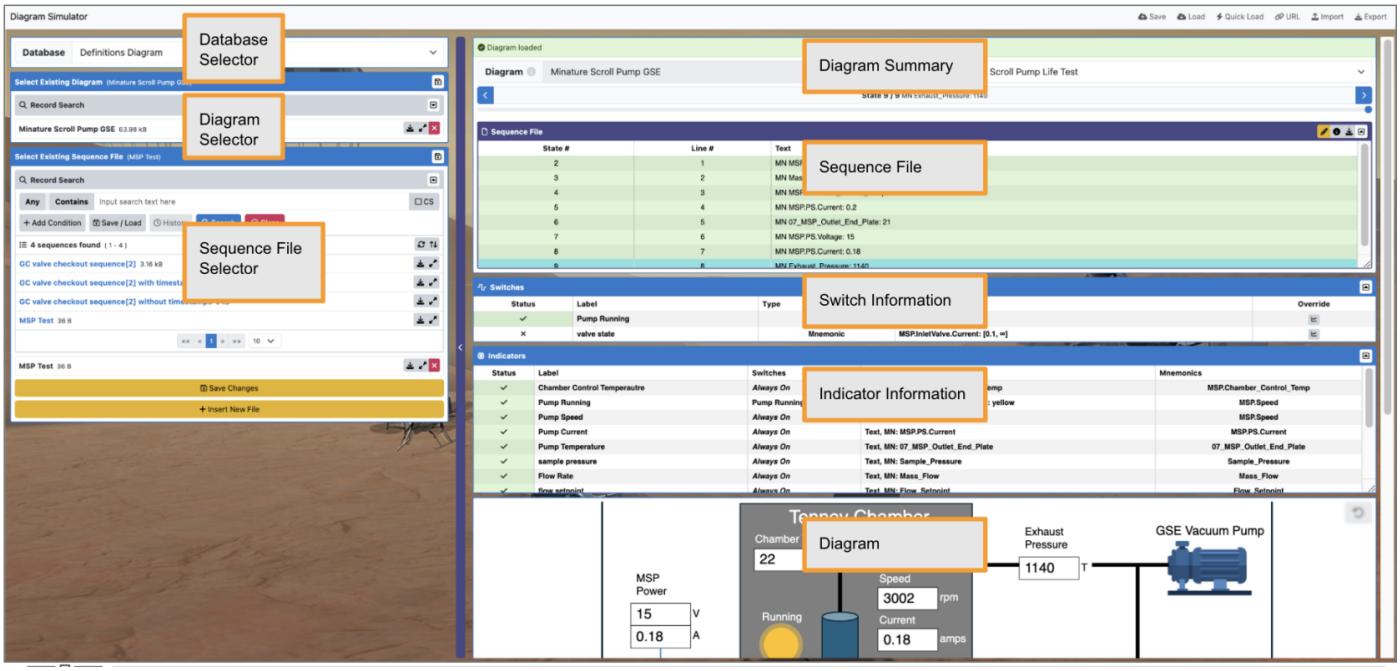
Diagram Simulator

The Diagram Simulator tool allows you to view responsive diagrams and dashboards with simulated data in the form of sequence files. For real data, use the Diagram Viewer.

For a video tutorial on the diagram simulator, click here

For a PDF of the training presentation, click here

To download the training PowerPoint file, click here



Mnemonic Plotting Tool

The Mnemonic Plot Tool is useful for looking at mnemonic data, like voltages and temperatures, over time. This chapter contains two presentations, one for basic tool functions and another presentation for advanced functions.

Getting Started with Mnemonic Plot Tool

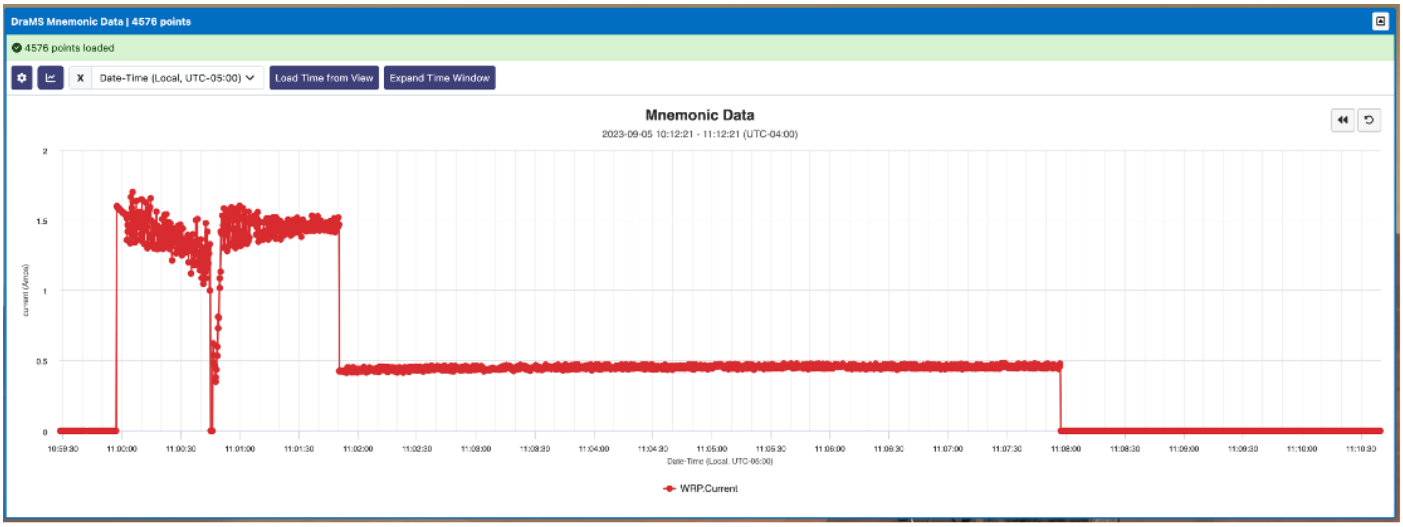
Mnemonics, sometimes called "housekeeping value", are simply named telemtry channels contain values over time. Typical mnemonics are voltages and temperature measured at a regular interval by the instrument.

Click here for a link to the tool

Click here to watch the training video

Click here to see a PDF of the training materials

Click here to download the training materials as a PowerPoint file.



Notes about Mnemonics

Mnemonic names can be anything, but by convention we use a "dot" notation. Using the dot notation, the name of a given telemetry value starts with the subsystem and gets more specific. For instance, for DrAMS, the Multi-Motor Control, aka "MMC", communicates and controls many mechanical systems. The names of the mnemonics for the MMC start with "MMC." followed by mechanical subsystem, followed by other distinguishing names.

Examples:

- mmc.apv.hk...
- mmc.pirani.hk...
- mmc.wrp.hk...
- mmc.msp.hk...

More Details about the Mnemonic Tool

This tutorial will cover more advanced features present in the Mnemonic Plot tool that were not covered in the base tutorial. These features will allow the user to further refine how data is displayed and include adjusting the binning mode, exploring the various methods of time range selection, and adjusting data thresholds.

Click here to launch the tool

Click here to watch the tutorial video

Click here to open the PDF training manual

Click here to download the training as PowerPoint file

Events Tool

The DraMS instrument and many subsystems generate logs describing in text what the instrument is doing. These logs can get very long and difficult to sort through. The event tool provides several ways to sort and search the logs messages.

Events Tool

This tutorial will introduce the DraMS XINA Events tool. This tool simply allows you to easily access the events log from specified time periods/intervals.

Click here to open the Event Tool

Click here to watch the video tutorial

Click here to view a PDF of the training materials

Click here to download the training materials in PowerPoint format

Trending

The Mnemonic Trending Tool is the primary long-term data viewer for DraMS XINA. This tool allows the user to view trends in data (including science data and engineering data) over the course of selected time intervals, which is especially helpful when looking at data from long tests.

Getting Started with Mnemonic Trending

In this tutorial, we will be viewing the current (amps) trends over every instance that WRP MOMA was in speed control mode.

Click here to open the Mnemonic Trend Tool in XINA

Click here to watch the video tutorial

Click here to view a PDF of the tutorial

Click here to download a PowerPoint of the tutorial

Advanced Mnemonic Trending

This tutorial will cover more advanced features present in the Mnemonic Trending tool that were not covered in the base tutorial. These features will allow the user to further refine how data is displayed and include changing the shape of the data points, adjusting the data thresholds, and more.

Trending Tool

Click here to watch the video tutorial

Click here to view a PDF of the tutorial

Click here to download a PowerPoint of the tutorial

Nominal Ranges

The Nominal Range Trending Tool provides a way to track if a given mnemonic value at a particular time interval is inside a desired range (green range), outside of a desired range (red range), or in a range that is anomalous but not necessarily dangerous (yellow).

Nominal Range Tool

The Nominal Range Trending Tool provides a way to track if a given mnemonic value at a particular time interval is inside a desired range (green range), outside of a desired range (red range), or in a range that is anomalous but not necessarily dangerous (yellow).

Nominal Range Trending Tool

Click here to watch the video tutorial

Click here to view a PDF of the tutorial

Click here to download a PowerPoint of the tutorial

Managing Nominal Ranges

The DraMS Nominal Range Management Tool allows the user to add, remove, and update nominal ranges for each available mnemonic. It allows you to designate ranges where the mnemonic value is inside a desired range (green range) or outside of a desired range (red range) or in a range that is anomalous but not necessarily dangerous (yellow).

Trending Tool

Click here to watch the video tutorial

Click here to view a PDF of the tutorial

Click here to download a PowerPoint of the tutorial

Tutorial Videos

How-to tutorials covering various XINA capabilities.

Mnemonic data can be exported to CSV files if you want to do further processing in Excel or other software.
Exporting Mnemonic Data to CSV files
Click here to open XINA and follow along with video

Saving a tool configuration so others can load exactly what the view you have

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Example of analyzing the performance of the pump using the mnemonic tool

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