MOMA XINA Migration

Documentation to ease the transition to "New XINA".

Overview

This document is intended as an overview of New XINA, with basic things you should know.

New Terminology

Some XINA terms have changed, to be more accurate or to better support a variety of missions.

New XINA	Definition	Related Old XINA Terms
Mnemonic	a named data channel or field	*hk*, *housekeeping*, or *housekeeping field*
Event	a time with a label; might be an *Instant*, which is just one moment in time, or it might be an *Interval*, with a start and end.	a category that includes *TIDs*, *markers*, *messages*, *alerts*, *spectra*, and more
Spectrum	a multi-dimensional data set associated with a single time or time range	a category that includes *scans*
Nominal Range	a green, yellow, or red value range for a particular mnemonic	a category that includes *limits*, *expected values*, and more
Notebook	a digital lab journal	*journal*

XINA Navigation

Coming soon

Tools

XINA tools are now divided into three broad categories.

Visualization

Visualization tools are primarily focused on looking at data within XINA, like charts and tables. Most of them also support some sort of data export.

- The **Mnemonic Plot** and **Mnemonic Trending** tools plot mnemonic data; the former against a single time range and the latter against many.
- The **Events** tool centers around a table of events and can group them in arbitrary ways.
- The **Spectra Viewer** is what you need for science data, and gives many options for presentation and organization.

- The **Nominal Range Trending** tool is a new option for instrument health reports, using a table that checks mnemonics against nominal ranges at specified intervals.
- The **Diagram Viewer** and **Diagram Simulator** animate custom dashboards and diagrams with mnemonic and event data. The *Viewer* uses real data, and the *Simulator* is designed around simple human-readable "sequence files".

Exporting

Export tools are built around downloadable data sets and reports. While other tools may support exporting data, these tools are *only* for exporting.

- The **Mnemonic Export** and **Mnemonic Trend Export** tools allow you to perform or automate high-volume data exports. They're ideal when you want to look at months of data at a time.
- The **Packages** tool is the best way to browse existing export products.

Management

Management tools are designed for advanced users to control XINA data and operations.

- The **Mnemonic Management** tool is for managing mnemonics, particularly correcting issues with definitions and aliases.
- The **Model Management** tool helps with managing mining processes and scheduled tasks.
- The **Nominal Range Management** tool is for managing nominal ranges. It also supports exporting the definitions in various formats.
- The **Diagram Editor** allows you to set up the diagrams used by the *Diagram Viewer* and *Simulator*.

Functional Analogues

This reference maps Old XINA tools and features to New XINA workflows. For any given thing you might have done in an Old XINA tool, how can you do it now?

Old XINA Tools

Alerts

Implemented in the *Events* tool

Full support coming soon.

HK

Primarily implemented in the *Mnemonic Plot* tool

The Mnemonic Plot tool functions very similarly to the HK tool, except:

- Any time range can be selected
- The zoom chart is not needed

Old XINA	New XINA
Change the model	*Interface is unchanged.*
Search and select a TID	Use the "Select Time Range" card's TID Search tab.
Select comparison TIDs	Use the Mnemonic Trending tool to select multiple disjoint time ranges.
Change housekeeping bin mode	Change bin sizes or disable altogether in the "Binning" dropdown in the top left. For marker bins, use the Mnemonic Trending tool.
Quick-select an ESOH	Use the Plot Configurations offcanvas in the top right. You can also "favorite" individual mnemonics by clicking their stars in the "Select Mnemonics" card.
Search and select housekeeping channels	Use the "Select Mnemonics" card.
View and manage expected values	Management is most easily done through the Nominal Range Export tool, but can be done in the Mnemonic Plot tool like so: If the Nominal Ranges table is not already visible, above the chart, click the gear to expand advanced settings, and then check "Show Nominal Ranges". To create a new Nominal Range, click the "+" button at the top right of the table. To edit an existing Nominal Range, click its "Edit" button.

Old XINA	New XINA
Change a y axis's label	Open the axis's settings modal, either through the gear button next to it in the mnemonic selection or by right-clicking the chart. There, change or disable the "Title Text" and "Apply".
Change a y axis's position, left vs right	Open the axis's settings modal, either through the gear button next to it in the mnemonic selection or by right-clicking the chart. There, change the "Side" setting and "Apply".
Use a log scale for a y axis	Open the axis's settings modal, either through the gear button next to it in the mnemonic selection or by right-clicking the chart. There, check the "Log Axis" setting and "Apply".
Provide an explicit maximum or minimum to a y axis	Open the axis's settings modal, either through the gear button next to it in the mnemonic selection or by right-clicking the chart. There, you change the minimum and maximum and "Apply".
Change a mnemonic to show just the average, min, max, or range of each bin	Open the mnemonic's settings modal, either through the gear button next to it in the mnemonic selection or by right-clicking the chart. There, change the "Sub-Channel" to the desired value.
Split a mnemonic to its own axis	*Interface is unchanged.*
Combine two y axes	*Interface is unchanged.*
Add markers and messages to the plot	To search, use the "Select Events" card in the bottom left. Or, if "Show Nearest Event" is enabled in the chart's advanced settings, markers and messages will appear as you hover over the chart. If you click on one, a modal appears, and the top right has a button to pin or unpin it.
Stacked Chart Viewer	Above the chart, click the gear to expand advanced settings, and then enable "Stack Y Axes". If desired, split each mnemonic to its own y axis through the Mnemonic Select card.
Edit or disable the chart's title	Open the chart's settings modal, either through the chart button above the chart or by right-clicking the chart. There, change or disabled the title and "Apply".
Change the x axis mode	*Interface is unchanged,* but there are new options.
Configure an offset for comparison TIDs	*No longer supported; please request if needed.*
With comparison TIDs, use the "difference" reference mode	*No longer supported; please request if needed.* Some related functionality can be achieved through Mnemonic Reference Values.
Display limits for a mnemonic	If the Nominal Ranges table is not already visible, above the chart, click the gear to expand advanced settings, and then check "Show Nominal Ranges". In that table, toggle the "Plot" button for any ranges to the desired display mode.
Change the zoom mode	Above the chart, click the gear to expand advanced settings, and then use the "Zoom" dropdown.
Show expected values	If the Nominal Ranges table is not already visible, above the chart, click the gear to expand advanced settings, and then check "Show Nominal Ranges". In that table, toggle the "Plot" button for any ranges to the desired display mode.
Show points	Above the chart, click the gear to expand advanced settings, and then check "Show Points".
Everything to do with the zoom chart	The zoom chart is no longer used. Instead, the entire plot can be binned or unbinned as desired. If you want to minimize data loading, you can use "Automatic"-sized bins, manually zoom in on the chart, and then click "Load Time from View" above the chart.
Step the time window forwards, backwards, or out from the chart	Use the "Expand Time Window" button above the chart to expand the view by 25% in each direction.

Old XINA	New XINA
View statistics for selected mnemonics	Above the chart, click the gear to expand advanced settings, and then check "Show Statistics".

~~HK MK Comparison Trending~~

Deprecated, but largely implemented in the *Mnemonic Trending* tool

HK MK Delta Trending

Implemented in the *Mnemonic Trending* tool

The Mnemonic Trending tool functions very similarly to the various HK Trending tools, in a more generic form. The biggest differences from the HK MK Delta Trending tool are:

- The "end markers" are just the selected markers, like the HK Marker Trending tool.
- The "delta" functionality is now configured per mnemonic, through the mnemonic settings modal.

Old XINA	New XINA
Change the model	*Interface is unchanged.*
Search and select TIDs	*Not yet supported.* Markers can be searched directly, without limiting to particular TIDs.
Search and select the start markers	This is very different. For each mnemonic, open its mnemonic's settings modal, either through the gear button next to it in the mnemonic selection or by right-clicking the chart. There, change the "Reference Value Mode" to either select "By Event Definition" to select by Marker ID or "By Event" to select markers individually. Use the appropriate interface to search and select events, and then "Apply".
Search and select the end markers	Use the "Select Intervals" card.
Search and select a TID	Use the "Select Time Range" card's TID Search tab.
Select comparison TIDs	Use the Mnemonic Trending tool to select multiple disjoint time ranges.
Quick-select an ESOH	Use the Plot Configurations offcanvas in the top right. You can also "favorite" individual mnemonics by clicking their stars in the "Select Mnemonics" card.
Search and select housekeeping channels	Use the "Select Mnemonics" card.
View and manage expected values	Management is most easily done through the Nominal Range Export tool, but can be done in the Mnemonic Plot tool like so: If the Nominal Ranges table is not already visible, above the chart, click the gear to expand advanced settings, and then check "Show Nominal Ranges". To create a new Nominal Range, click the "+" button at the top right of the table. To edit an existing Nominal Range, click its "Edit" button.
Change a y axis's label	Open the axis's settings modal, either through the gear button next to it in the mnemonic selection or by right-clicking the chart. There, change or disable the "Title Text" and "Apply".

Old XINA	New XINA
Change a y axis's position, left vs right	Open the axis's settings modal, either through the gear button next to it in the mnemonic selection or by right-clicking the chart. There, change the "Side" setting and "Apply".
Use a log scale for a y axis	Open the axis's settings modal, either through the gear button next to it in the mnemonic selection or by right-clicking the chart. There, check the "Log Axis" setting and "Apply".
Provide an explicit maximum or minimum to a y axis	Open the axis's settings modal, either through the gear button next to it in the mnemonic selection or by right-clicking the chart. There, you change the minimum and maximum and "Apply".
Change a mnemonic to show just the average, min, max, or range of each bin	Open the mnemonic's settings modal, either through the gear button next to it in the mnemonic selection or by right-clicking the chart. There, change the "Sub-Channel" to the desired value.
Split a mnemonic to its own axis	*Interface is unchanged.*
Combine two y axes	*Interface is unchanged.*
Edit or disable the chart's title	Open the chart's settings modal, either through the chart button above the chart or by right-clicking the chart. There, change or disabled the title and "Apply".
Use the Avg-Range delta mode	For each mnemonic, set up a "Reference Value" with a "Reference Value Channel" of "Avg", and set "Sub-Channels" to "All". To do this, open each mnemonic's settings modal, either through the gear button next to it in the mnemonic selection or by right-clicking the chart. There, make the appropriate changes and "Apply".
Use the Min-Max delta mode	For each mnemonic, set up a "Reference Value" with a "Reference Value Channel" of "Min", and set "Sub-Channels" to "Max". To do this, open each mnemonic's settings modal, either through the gear button next to it in the mnemonic selection or by right-clicking the chart. There, make the appropriate changes and "Apply".
Change the x axis mode	*Interface is unchanged,* but there are new options.
Show expected values	If the Nominal Ranges table is not already visible, above the chart, click the gear to expand advanced settings, and then check "Show Nominal Ranges". In that table, toggle the "Plot" button for any ranges to the desired display mode.
Show points	Above the chart, click the gear to expand advanced settings, and then check "Show Points".
Click a chart point to view its full data in the HK tool	*Interface is unchanged.*

HK MK Trending

Implemented in the *Mnemonic Trending* tool

The Mnemonic Trending tool functions very similarly to the various HK Trending tools, in a more generic form. The biggest difference from the HK MK Trending tool is that the "reference marker" and reference mode is now configured per mnemonic, through the mnemonic settings modal.

Old XINA	New XINA
Change the model	h
Search and select TIDs	*Not yet supported.* Markers can be searched directly, without limiting to particular TIDs.

Old XINA	New XINA
Search and select markers	Use the "Select Intervals" card.
Search and select a reference marker	This is very different, depending on desired effect. If the "Overlay" ref mode is desired, simply select the marker using the "Select Intervals" card. If the "Diff" ref mode is desired, you must configure a Reference Value: For each mnemonic, open its mnemonic's settings modal, either through the gear button next to it in the mnemonic selection or by right-clicking the chart. There, change the "Reference Value Mode" to "By Event". Use the interface to search and select the desired marker, and then "Apply".
Quick-select an ESOH	Use the Plot Configurations offcanvas in the top right. You can also "favorite" individual mnemonics by clicking their stars in the "Select Mnemonics" card.
Search and select housekeeping channels	Use the "Select Mnemonics" card.
View and manage expected values	Management is most easily done through the Nominal Range Export tool, but can be done in the Mnemonic Plot tool like so: If the Nominal Ranges table is not already visible, above the chart, click the gear to expand advanced settings, and then check "Show Nominal Ranges". To create a new Nominal Range, click the "+" button at the top right of the table. To edit an existing Nominal Range, click its "Edit" button.
Change a y axis's label	Open the axis's settings modal, either through the gear button next to it in the mnemonic selection or by right-clicking the chart. There, change or disable the "Title Text" and "Apply".
Change a y axis's position, left vs right	Open the axis's settings modal, either through the gear button next to it in the mnemonic selection or by right-clicking the chart. There, change the "Side" setting and "Apply".
Use a log scale for a y axis	Open the axis's settings modal, either through the gear button next to it in the mnemonic selection or by right-clicking the chart. There, check the "Log Axis" setting and "Apply".
Provide an explicit maximum or minimum to a y axis	Open the axis's settings modal, either through the gear button next to it in the mnemonic selection or by right-clicking the chart. There, you change the minimum and maximum and "Apply".
Change a mnemonic to show just the average, min, max, or range of each bin	Open the mnemonic's settings modal, either through the gear button next to it in the mnemonic selection or by right-clicking the chart. There, change the "Sub-Channel" to the desired value.
Split a mnemonic to its own axis	*Interface is unchanged.*
Combine two y axes	*Interface is unchanged.*
Edit or disable the chart's title	Open the chart's settings modal, either through the chart button above the chart or by right-clicking the chart. There, change or disabled the title and "Apply".
Change the x axis mode	*Interface is unchanged,* but there are new options.
Change the x axis labels	*Not yet supported. Coming soon.*
Use the "Diff" ref mode	For each mnemonic, set up a "Reference Value", with "Reference Value Mode" set to "By Event" and the desired reference event selected, and whatever desired "Reference Value Channel". To do this, open each mnemonic's settings modal, either through the gear button next to it in the mnemonic selection or by right-clicking the chart. There, make the appropriate changes and "Apply".

Old XINA	New XINA
Change the reference "Diff" type between Avg, Min, and Max	For each mnemonic, set up a "Reference Value", with "Reference Value Mode" set to "By Event" and the desired reference event selected, and with "Reference Value Channel" set to "Avg", "Min", or "Max" as desired. To do this, open each mnemonic's settings modal, either through the gear button next to it in the mnemonic selection or by right-clicking the chart. There, make the appropriate changes and "Apply".
Display limits for a mnemonic	If the Nominal Ranges table is not already visible, above the chart, click the gear to expand advanced settings, and then check "Show Nominal Ranges". In that table, toggle the "Plot" button for any ranges to the desired display mode.
Show expected values	If the Nominal Ranges table is not already visible, above the chart, click the gear to expand advanced settings, and then check "Show Nominal Ranges". In that table, toggle the "Plot" button for any ranges to the desired display mode.
Show points	Above the chart, click the gear to expand advanced settings, and then check "Show Points".
Click a chart point to view its full data in the HK tool	*Interface is unchanged.*

~~HK TID Trending~~

Deprecated, but largely implemented in the *Mnemonic Trending* tool

LTQ

Implemented in the *Spectra Viewer* tool, but the relevant data is now on the Lab 699 XINA instance.

Most LTQ functionality maps directly to the Spectra Viewer. There are many new features, but they can largely be ignored.

Old XINA	New XINA
Change the database	*Interface is unchanged.*
Search and select spectra	Use the "Select Spectra" card.
View spectra	Spectra will be displayed in the second chart: "Spectra", not "Spectra Summary". Enable loading and plotting with the "Load and Plot All Spectra" button at the top of the chart.
Plot MS spectra grouped by MSMS	First, spectra must be grouped appropriately: In the "Group Spectra" card on the bottom left, use the "Group By" dropdown to select an appropriate grouping. Once they're grouped, on the "Spectra" chart card, open the advanced settings by clicking the gear button and then set the "Stack" dropdown to "By Group".

Marker Log

Implemented in the *Events* tool

Full support coming soon.

Marker Log Trending

Implemented in the *Events* tool

Full support coming soon.

Message Log

Implemented in the *Events* tool

Full support coming soon.

Message Log Trending

Implemented in the *Events* tool

Full support coming soon.

MOMA Carousel Tracker

Implemented in the *Carousel* tool

Full support coming soon.

~~MOMA Chromatogram~~

Deprecated, but largely implemented in the *Spectra Viewer* tool

~~MOMA Contamination Trending~~

Deprecated, but largely implemented in the *Spectra Viewer* tool

MOMA DAC Scan Viewer

Implemented in the *Spectra Viewer* tool

The Spectra Viewer tool looks fairly different from the MOMA DAC Scan Viewer, but all functionality is there, plus many new things you can ignore. You'll only care about the top chart, the "Spectra Summary" chart, and can ignore the "Spectra" chart. To behave like the DAC Scan Viewer, set the "Spectra Summary" chart's "X" to "Scan Value", and "Order By" to "Start Time" or "Universal Scan ID". You'll also want the "Group Spectra" card, on the bottom left, to have "Group By" set to "TID", the default.

Old XINA	New XINA
Change the model	Use the "Database" dropdown.
Select a Special Scan ID	In the "Select Spectra" card, use the "Special Scan ID" dropdown.
Select an Ion Selection	Above the "Spectra Summary" chart, set the "Y" to "TIC" or "cTIC" for a Total Ion Count, or to "SIC" or "cSIC" for a Selected Ion Count. For SICs and cSICs, you must configure the value to set its bounds: open the modal by clicking the settings button next to the dropdown, then adjust if desired and "Apply".
Enable count correction	Above the "Spectra Summary" chart, set the "Y" to "cTIC" or "cSIC" to apply correction, or to "TIC" or "SIC" to disable correction.
Enable normalization	Above the "Spectra Summary" chart, click the gear to expand advanced settings, and then check "Normalize".
Search and select spectra by TID	In the "Select Spectra" card, use the "TID" tab.
Add or remove scans	Use the "Select Spectra" card. You might need to remove the SSID filtering.
Suggestion Special Scan IDs and TIDs	*No longer supported,* but similar discovery can be done using the "Select Spectra" card's search interface.

MOMA Diagram

Implemented in the *Diagram* tools

Full support coming soon.

~~MOMA GCMS Chart~~

Deprecated, but largely implemented in the *Mnemonic Plot* tool

MOMA Laser Tool

Implemented in the *Mnemonic Plot* tool

Laser mnemonics coming soon. Some of the below may change.

The laser data is available as mnemonics, so it can be accessed through the Mnemonic Plot and Mnemonic Trending tools. The Mnemonic Plot tool is the closest to the MOMA Laser Tool's capabilities, but either may be useful. For the Mnemonic Plot's chart to look similar to the Laser Burst's chart, above the chart, click the gear to expand advanced settings, and then set "Range Series Type" to "Error Bars".

Old XINA	New XINA
Change the model	*Interface is unchanged.*
Search and select TIDs	Use the "Select Time Range" card's TID Search tab.
Limit the TID list to Laser TIDs	In the "Select Time Range" card's TID Search tab, set the "Laser" filter requirement.
View the TID summary data	In the "Select Time Range" card, if a TID record is selected, use the "expand" button to open the record modal.
Filter to a particular stage within a TID	*Not directly supported*, but you can either search for markers using the "Select Time Range" card's Interval Search tab or zoom in on a desired stage on the chart and use the "Load Time from View" button above the chart.
Show Main Laser Temperatures	Add the relevant mnemonics using the "Select Mnemonics" card, or through the "Plot Configurations" interface available in the top right.
Show TVAC Temperatures	Add the relevant mnemonics using the "Select Mnemonics" card, or through the "Plot Configurations" interface available in the top right.
Show Stage Boundaries	Filter the "Select Events" card in the bottom left to relevant events, and then "Add Search".
Plot # of Pulses in Burst	With "Binning" enabled, add a copy of the Laser mnemonic. Open the mnemonic's settings modal, either through the gear button next to it in the mnemonic selection or by right-clicking the chart. There, set the "Sub-Channels" to "Count" and "Apply".
Plot Raw Pulses	Set "Binning" to "Off".
Plot Pulse Release Time	Add the relevant mnemonics using the "Select Mnemonics" card, or through the "Plot Configurations" interface available in the top right.

MOMA ML Dimensionality Reduction

Implemented in the *MOMA Machine Learning* tool

Full support to come.

MOMA ML Export

Implemented in the *MOMA Machine Learning* tool

Full support to come.

MOMA Ops

Implemented in the *Operations* tool

Full support coming soon.

MOMA Ops Training

Implemented in the *Operations Training* tool

Full support coming soon.

~~MOMA Payload Uplink Tool~~

Deprecated

MOMA Sample Info

Implemented in the *Carousel* tool

Full support coming soon.

~~MOMA Sample Science Trending~~

Deprecated, but largely implemented in the *Spectra Viewer* tool

MOMA Sample Viewer

Implemented in the *Carousel* tool

Full support coming soon.

MOMA Science Trending

Implemented in the *Spectra Viewer* tool

The Spectra Viewer is very similar to the MOMA Science Trending tool, but with greater flexibility. The two charts of the Spectra Viewer directly correspond to the two charts from MOMA Science Trending. The biggest difference is that MOMA Science Trend always groups spectra by TID, but the Spectra Viewer allows many different groupings.

Old XINA	New XINA

Change the model	Use the "Database" dropdown.
Plot spectra with "Bin" or "Mass" calibration	Above the "Spectra" chart, change "X" to "Bin" or "Mass".
Plot spectra with "RF Amp Mon" or "RF Amp DAC" calibration	*No longer supported; please request if needed.*
Set the Trend Mode	Above the "Spectra Summary" chart, change the "X" value.
Set the Trend Data	Above the "Spectra Summary" chart, change the "Y" value.
Set the Sum Mode	*Not yet supported. Coming soon.*
Set the Scan Cutoff Threshold	Open the "Spectra" chart's settings modal, either through the chart button above the chart or by right-clicking the chart. There, under "Transformations", select "?" and set the desired "Threshold", then "Apply".
Limit the TID Search to science TIDs or machine learning TIDs	In the "Select Spectra" card's TID Search tab, use the relevant filter buttons.
Subtract Threshold	*No longer supported; please request if needed.*
Correct Counts	Above either of the "Spectra Summary" and "Spectra" charts, there are various corrected and uncorrected values available.
Selected Ion Counts	Above the "Spectra Summary" chart, set "Y" to SIC or cSIC. Then, you must configure the value to set its bounds: open the modal by clicking the settings button next to the dropdown, then adjust if desired and "Apply".
Search and select TIDs	In the "Select Spectra" card, use the TID tab.
Browse machine learning data	*Not yet supported. Coming soon.*
Plot particular spectra	Above the "Spectra" chart, use the series button--the third, connected to "Load and Plot All Spectra"--to open the series select modal, and click on series or groups to select or deselect them. Alternatively, click on points in the "Spectra Summary" chart.
Search spectra metadata	In the "Select Spectra" card, use the Spectra tab.

~~MOMA Spectra Tool~~

Deprecated, but largely implemented in the *Spectra Viewer* tool

MOMA Timeline

Implemented in the *Mnemonic Plot* tool and *Model Info* interface

Full support coming soon.

New Features

This documents many of the new things you can do in New XINA.

Miscellaneous Features

- **Hints**: In the very top right is a ? button. Click it to show help for many things on the page. If there are new things to read, the button will be yellow.
- **Followed Walls**: Walls work like they used to, but there's a new "Follow" button at the top right of any wall. Posts to *any* followed wall will give you a XINA notification and show up in your feed on the home page or through the Notifications interface.
- **Emails**: Team Admins can send emails to members through the Teams page, under the top bar's "System" dropdown.
- **Notebook Activity**: On the home page, the "Notebook Activity" card will list recent posts from all Notebooks.
- **Chart Right Click Menu**: You can now right click on any chart and access several new controls. Most charts allow you to customize some chart, axis, or series settings from there, and all allow you to measure distances on the chart or force it to reload.

Profile & Preferences

In the very top right, if you click on your name, there are a number of new controls available.

- **User Profile**: In your user profile, you can customize your display name and preferred email.
- **Access Keys**: The User Profile "Access Keys" tab allows you to create and manage API keys.
- **User Preferences**: If you open your "User Preferences", you can customize your XINA experience. "Style" allows you to customize the background. "Palettes" allows you to view and customize the colors automatically applied to series, and includes colorblind-friendly options. "Charts" lets you customize almost every shared presentation aspect of XINA charts. If you use multiple XINA for multiple project, there's also an interface to import and export preferences through a button in the top right.
- **Clear Cache**: Within the User Preferences, the "Cache" tab allows you to clear XINA's local data, if needed.

Old Tools

While most new tools do not map one-to-one to old tools, those listed here reimplement or combine functionality from old tools, but also offer new enhancements.

Events

The Events tool is similar to the Alerts, Marker Log, Marker Log Trending, Message Log, and Message Log trending tools.

Detailed feature list coming soon.

Mnemonic Plot & Mnemonic Trending

The Mnemonic Plot and Mnemonic Trending tools are similar to all of the old Housekeeping tools, and also the Laser tool. The difference between the two is that the Mnemonic Plot looks at a single interval of time, and the Mnemonic Trending can look at multiple distinct intervals. Beyond that, their functionality is mostly shared.

First, there are many, many new, powerful mnemonic settings. You can access them through the gear button next to a mnemonic in the "Select Mnemonics" card, or through the chart's right-click menu:

- Expanded presentation settings, including series type.
- A time shift lets you move a particular series forwards or backwards in time, to correct alignment issues or for visualizing an offset.
- Data thresholds let you ignore data points that are outside of particular bounds. For example, if you know any values below 0 are bad data, you can filter those points out.
- Reference values allow you to instead use the delta relative to earlier values.
- Transformations are an incredibly powerful data manipulation system. They allow you to apply many different mathematical or statistical effects to a series, things like summation, change, percentage, rate of change, normalization, thresholds, rolling averages, regression slope, arithmetic, digitizing. Moreover, any number of these can be chained in series. For example, you could take the rate of change since the previous value, and then use a threshold to drop the bottom 90% of values, so that you can easily see the times where the rate of change is fastest.

Beyond that, other new features include:

- Bin sizes can be manually controlled or disabled.
- The *Mnemonic Plot*'s single time range can just be a single TID, but it doesn't have to be; you can select any time range, and you can select it in many different ways.
- The *Mnemonic Trending* allows you to select many individual TIDs, but you can also select markers or even instants (e.g. messages or alerts) by giving a time range around them.
- The Mnemonic Search interface is more flexible than the HK Search, with many filters and options for search and display. It also allows you to mark some mnemonics as favorites, for easy access.
- The Y Axis settings, available through the gear button or by right-clicking on the chart, have been expanded.
- The controls for adding markers, messages, and other events to the plot are now more powerful.
- The Chart settings, available through the chart's settings button or by right-clicking on the chart, have been expanded. In Old XINA, most similar tools allowed you to customize the chart title, but now you can also customize the subtitle, caption, and legend.
- There are new x axis modes.
- You can interpolate values, which makes mnemonic over mnemonic cross charts more usable when data is misaligned.
- If enabled, when you hover your cursor over the chart, the nearest event will be displayed. You can filter to limit which show up, and you can click on them to see details or pin.
- Nominal ranges, which include expected values and limits, have expanded plotting options.
- There's a new stats table, with information about data from each series.

Spectra Viewer

The Spectra Viewer is most similar to the old MOMA Science Trending tool, but has been made flexible enough to handle use cases from most of the other science tools. But there are some things that couldn't have been done

in any tool, before:

- Selecting scans freely, instead of just by TID
- Grouping scans in many different ways
- In both charts, there are chart settings, available through the chart's settings button or by right-clicking on the chart. Both allow you to customize the chart title, subtitle, legend and more.
- In the summary chart (the first chart), you've got new x axis and y axis options, including arbitrary SICs and cSICs.
- Both charts support plotting multiple y values at once. For example, the summary chart can now show several different SICs together.
- New presentation options in the summary chart, including series type, aggregation, and stacking plots.
- In the spectra chart (the second chart), you can apply transformations. Transformations are an incredibly powerful data manipulation system. They allow you to apply many different mathematical or statistical effects to a series, things like summation, change, percentage, rate of change, normalization, thresholds, rolling averages, regression slope, arithmetic, digitizing. Moreover, any number of these can be chained in series. For example, you could take the rate of change since the previous value, and then use a threshold to drop the bottom 90% of values, so that you can easily see the times where the rate of change is fastest.

Diagram Viewer, Simulator, & Editor

The new Diagram tools was designed to replace the old MOMA Diagram, but in a much more flexible way.

- Any vector image can be uploaded, hooked to XINA data, and provided with presentation logic, allowing any user to create their own diagrams like the original MOMA Diagram. Many different diagrams and dashboards can be created.
- It's also much easier to edit or re-draw existing diagrams. The old MOMA Diagram was out of date; it's now much easier to correct that.
- The logical rules can be derived from mnemonics, events, or other logical rules, allowing for fairly complicated events.
- Based on those logical rules, many different visual effects can be applied: modifying border or background colors, a highlight, blinking, text modifications, or filling in numeric mnemonic values.
- The Diagram Simulator, instead of using real data, allows you to enter a simple "Sequence File", simulated data in a hand-writable format.
- Along with the diagram, you now get a configurable chart showing any state or mnemonic values.

New Tools

Many tools are entirely new.

Mnemonic Export, Mnemonic Trend Export, & Packages

The *Mnemonic Export* and *Mnemonic Trend Export* tools can configure and kick off export processes, ideal when dealing with too much data to view in the browser. These export products can contain CSV data tables and PDF plots, and they can be configured to generate automatically on some schedule or when new data is received, and to be emailed out. For example, you could set up an automatic report plotting long-term consumable values that's

emailed to you every month, or you could set up an automatic report with some significant summary data that's emailed out for each TID as it's mined.

The *Package* tool allows you to browse these export products.

Nominal Range Export

The *Nominal Range Export* tool allows you to manage and export nominal ranges. The main interface is an editor for creating or editing nominal ranges, and through the "Export" button in the top right you can export selected nominal ranges in one or more mission-relevant formats.

Nominal Range Trending

The *Nominal Range Trending* tool is the best way to generate a "limit report" kind of document. It's built around a table comparing nominal ranges across intervals. For example, you could select all "expected values", and all "baseline" TIDs or all instances of a particular marker, and then you'll get an exportable table checking each expected value across each interval, showing red, yellow, or green. The table can use one row per nominal range or can condense them to one row per mnemonic. You can also overwrite or manually populate values. For example, you might note that one particular limit event should be ignored, or you might include some manually-populated values. And, of course, you can export the table through the button in the top right, either as plain CSVs or as a color-coded XLSX spreadsheet.

Mnemonic Management

The *Mnemonic Management* tool allows advanced users to correct issues with mnemonic names, definitions, and aliases. Most users will never need to use it; please seek particular instruction if you think you need this.

Model Management

The *Model Management* tool helps advanced users to correct some mining issues and manage scheduled tasks. Most users will never need to use it; please seek particular instruction if you think you need this.