Machine Monitoring Series

March 11, 2025

Notice

Information in this document is subject to change without notice and does not represent a commitment on the part of Vibrant Technology. Except as otherwise noted, names, companies, and data used in examples, sample outputs, or screen shots, are fictitious and are used solely to illustrate potential applications of the software.

Warranty

Vibrant Technology, Inc. warrants that (a) the software in this product will perform substantially in accordance with the accompanying documentation, for a period of one (1) year from the date of delivery, and that (b) any hardware accompanying the software will be free from defects in materials and workmanship for a period of one (1) year from the date of delivery. During this period, if a defect is reported to Vibrant Technology, replacement software or hardware will be provided to the customer at no cost, excluding delivery charges. Any replacement software will be warranted for the remainder of the original warranty period or thirty (30) days, whichever is longer.

This warranty shall not apply to defects resulting from improper or inadequate maintenance by the customer, customer supplied software or interfacing, unauthorized modification or misuse, operation outside of the environmental specifications for the product, or improper site preparation or maintenance.

If the software does not materially operate as warranted above, the sole remedy of the customer (and the entire liability of Vibrant Technology) shall be the correction or detour of programming errors attributable to Vibrant Technology. The software should not be relied on as the sole basis to solve a problem whose incorrect solution could result in injury to a person or property. If the software is employed in such a manner, it is at the entire risk of the customer, and Vibrant Technology disclaims all liability for such misuse.

NO OTHER WARRANTY IS EXPRESSED OR IMPLIED. VIBRANT TECHNOLOGY SPECIFICALLY MAKES NO WARRANTY OF ANY KIND WITH REGARD TO THIS MATERIAL, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANT ABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

THE REMEDIES PROVIDED HEREIN ARE THE CUSTOMER'S SOLE AND EXCLUSIVE REMEDIES. VIBRANT TECHNOLOGY SHALL NOT BE LIABLE FOR ANY DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES IN CONNECTION WITH THE FURNISHING, PERFORMANCE, OR USE OF THIS PRODUCT, WHETHER BASED ON CONTRACT, TORT, OR ANY OTHER LEGAL THEORY.

Copyright

Vibrant Technology, Inc.

13275 East Fremont Place
Suite 200
Centennial, CO 80112 USA

phone: (831) 430-9045

fax: (831) 430-9057

E-mail: support@vibetech.com

http://www.vibetech.com

Table of Contents

MEscope MMS (Machine Monitoring Series)

The **MEscopeMMS** Machine Surveillance Series is a network-based series of software packages that includes all the tools you need to remotely monitor a wide variety of rotating machinery and structures. This series utilizes the MEscope software as its foundation. Designed as a network-based machinery monitoring and preventative maintenance solution, the Machine Surveillance Series combines all the capabilities of a professional noise & vibration analysis software package with the simplicity of a red-light–green light monitoring system.

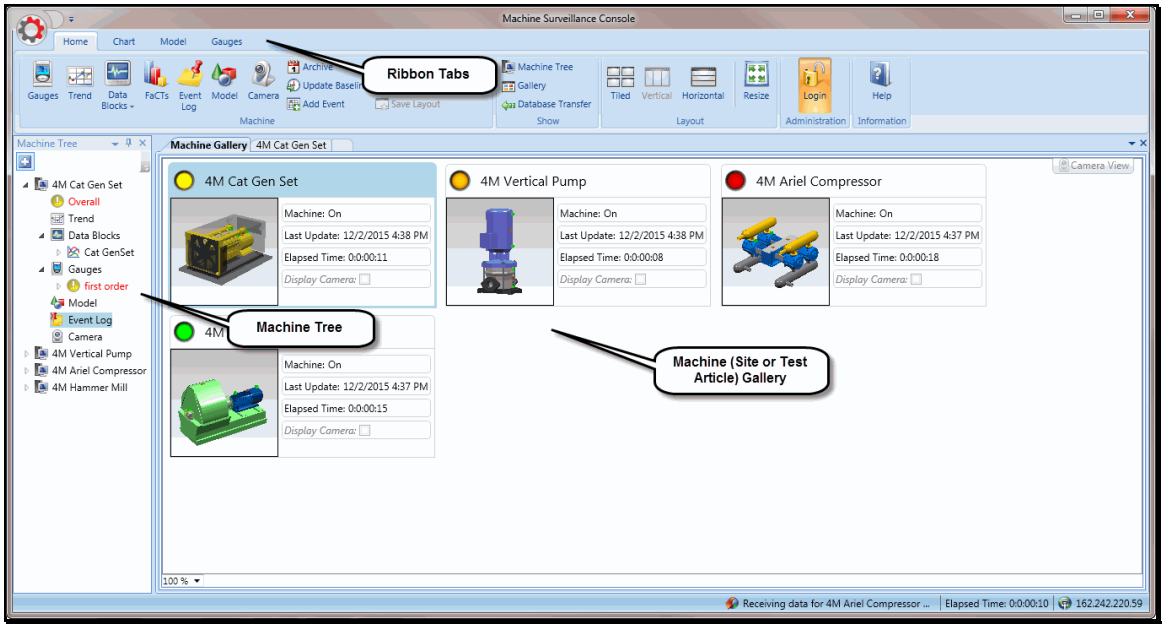
With any **MEscopeMMS** package, you can continuously acquire, post-process, archive, display, and analyze vibration, acoustic, temperature, pressure, voltage/current, flow rate, or any type of process variable from any rotating or reciprocating machinery.

The **MEscopeMMS** software can post-process vibration data acquired with sensors and multi-channel acquisition hardware, or data extracted from a digital video, including a cell phone video.

MEscope MMS Console & Archival Database

Each **MEscopeMMS** package includes the Console graphics software and a network-based archival Database. The Console software is used to graphically monitor the data acquired from each machine using Trend plots, gauges, and Warning Levels. Warning Levels can be applied to each monitored parameter, and to frequency spans of archived spectral data. **ODS's** can be displayed in animation on each machine model from a cursor location in archived time waveforms or frequency spectra. Multiple copies of the Console software can be installed on any computer, tablet or hand-held device running Microsoft Windows.

- **Network-Based Software**: MEscope can be connected to the archival Database either from the same computer or remotely using a wireless modem, cell phone modem, or an Ethernet network cable. The Database can also be installed in the cloud, and assessed by Console and MEscope over the Internet.
- **Hotkeys:** Hotkeys are defined in MEscope to initiate the execution of Script commands. The same Hotkeys appear in Console and are used to remotely control acquisition and post-processing in MEscope.
- **Database Connection File:** All access to the Database is controlled by creating and distributing secure Database Connection Files (**DCF** files). **DCF** files are created with the **DCF** Manager software, which requires an administrator user name and password.



Archival Database Features

Each monitored Machine can have a variety of data stored for it in the archival Database;

- **Snapshot:** Multi-channel vibration and other data is acquired, post-processed and stored by MEscope into the Database for each monitored Machine. All data is archived in the Database as a snapshot with a date & time attached to it. A snapshot can contain any of the following types of data; Monitored Shape Table, Animation Shape Table, and up to three Data Blocks, each containing multiple Time, Narrow-Band or Octave-Band data.
- **Monitored Shape Table:** This table contains monitored parameter values that were obtained by post-processing data in MEscope. This MEscope Shape Table can contain multiple shapes and shape components. Each shape component contains a monitored parameter that can be trended in a Trend plot and have Gauges and Warning Levels assigned to it.
- **Warning Levels:** Each monitored parameter can have up to six Warning Levels assigned to it. Each Warning Level can have up to three positive values, (Alert, Alarm, & Abort), and three negative values. Warning Level values can be defined either as absolute values (in engineering units), or as relative values (relative to Baseline values).
- **Animation Shape Table:** This table can contain ODS's, mode shapes, or vibro-acoustic shapes. Shapes in this Table are displayed in animation on the 3D Machine Model in Console.
- **Three Data Blocks:** Up to three MEscope Data Blocks can be archived for each monitored Machine in the Database. Each Data Block can contain multiple frequency domain, time domain, or Octave band measurements. ODS's, mode shapes, or vibro-acoustic shapes can be displayed on the 3D Machine model from a cursor position in a Data Block.
- **3D Machine model:** A 3D model of each Machine can also be stored in the Database. The 3D model can have test point Icons on it which depict the sensor locations on the Machine. Hovering the mouse pointer of each Icon displays the gauge values and Warning Levels for the test point. The 3D model is also used for displayed shapes from the Animation Shape Table.
- **Archive FIFOs:** Each machine has four different First-In First-Out (FIFO) storage areas for storing snapshots of data; **Short-Term, Long-Term, Warning Level Crossed** Events, and **User-Defined** Events. The storage Rate & Length of the Short-Term & Long-Term FIFOs can be specified in minutes, hours, days, weeks, or the maximum rate possible. The Event Storage parameters include Number of Snapshots Before, Number of Snapshots After, and Total Number of Events to save in the FIFO. All FIFO storage parameters can be changed ***"on the fly"*** during monitoring.

MEscope MMS Console Features

- **Machine Gallery:** All Machines being monitored are displayed in the Machine Gallery. Each Machine has status indicators including Monitoring On Line/Off Line, time elapsed since last archive, surveillance camera live stream.
- **Machine Tree:** All of the data for each monitored Machine is represented in a Machine Tree Console. All data for a Machine is conveniently displayed in graphics panels either by clicking on the data in the Machine Tree or by dragging & dropping it onto a panel.
- **Gauges:** A Gauge can be assigned to each monitored parameter and displayed in Console. Each Gauge displays the current value, baseline value, and Warning Levels assigned to the Gauge.
- **Event Log:** When new data is archived in the Database from MEscope, it is checked for Warning Level crossings by the Database service. All Warning Level crossings are logged as events in the Database and displayed in the Event Log in Console.
- **Email or Text Notification:** Notifications of Warning Level crossings can be sent by Email or cell phone text message by entering the appropriate Email addresses and phone numbers into Console.
- **Trend Plots:** Archived parameter values can be displayed in a Trend plot in Console. A Trend plot shows the archived values of each monitored parameter. The horizontal time axis displays the time at which each parameter was archived. Warning Levels assigned to each parameter can also be displayed together with the trended parameter values.

- **Waterfall Plots:** Data Blocks of spectra and time waveforms can be archived as part of a snapshot. The Data Block associated with a snapshot is displayed either by clicking on the data in a Trend plot, or by clicking on them in the Machine tree.
- **Warning Bands:** Multiple bands can be defined over frequency spans or time spans on each measurement. Each band can have up to six Warning Levels assigned to it. This capability is particularly useful for detecting order-related vibration levels due to machine bearing faults, gear teeth faults, and other faults in rotating machines.
- **Shape Animation:** If an Animation Shape Table is archived in the Database, ODS's, mode shapes, or vibro-acoustic shapes can be displayed in animation on a 3D Machine model. Alternatively, shapes can be interactively animated from the cursor position in a Data Block.
- **Hotkeys:** Hotkeys can be defined in MEscope to execute Script commands for each monitored Machine. All Hotkeys can be executed from Console to remotely control the execution of Automation commands in MEscope.
- **FaCTs (Fault Correlation Tools): FaCTs** searches the archival database for data that has a high correlation with the current (most recently archived) data. The **Shape Difference Indicator (SDI)** is used at the metric for correlating data. User-selected shapes and shape components are correlated using SDI, and a **FaCTs bar chart** is used to display the correlations. Bars for the ***top ten highest correlations***, the highest correlations with the ***baseline shape values***, and the highest correlations with ***identified faults***, are displayed in the **FaCTs** bar chart.

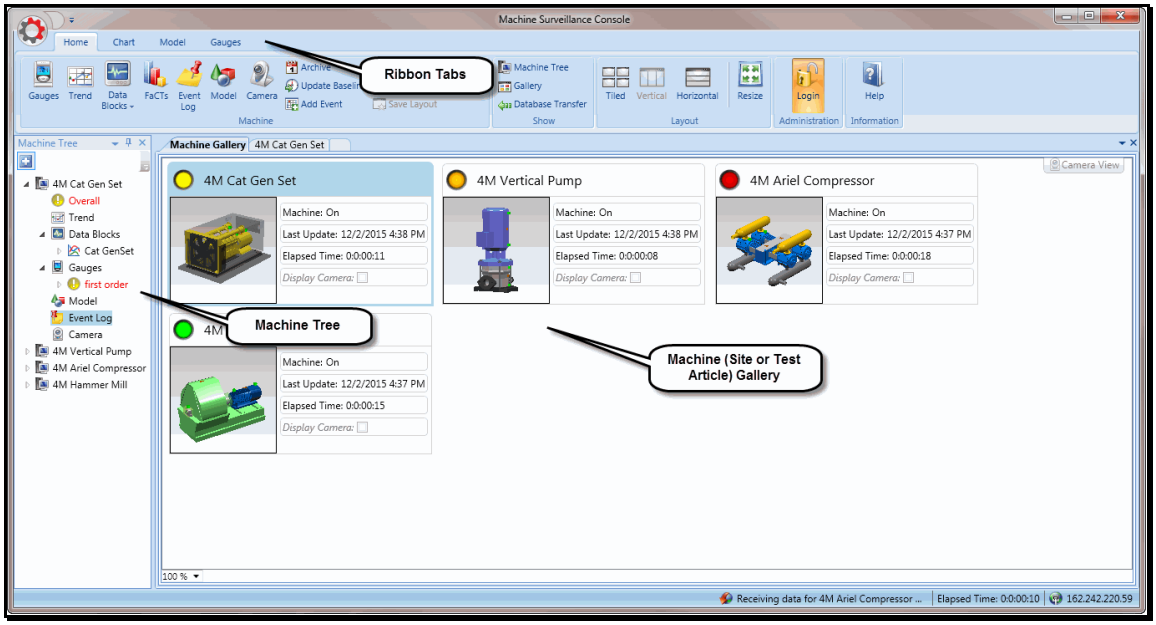
Using the Console

This software only operates when the **MEC-1000**, **MEC-2000**, or **MEC-3000** option is authorized by your MEscope license. **MEC-1000** authorizes Machine monitoring, **MEC-2000** authorizes Test Site monitoring, and **MEC-3000** authorizes Qualification Testing. Check **Help | About** in MEscope to verify authorization of one of these options.

The MEscope Console graphics software is used to view data that has been archived in the Archival Database. To start the Console,

- In the **Start** menu of your computer, execute **Console** under **Vibrant Technology, Inc.**

The Console window normally opens displaying the **Home** commands ribbon. The **Machine (Site or Test Article) Gallery** and the **Machine (Site or Test Article) Tree** are shown in the figure below. The top of the window contains **Home**, **Model**, **Gauges**, and **Chart** tabs. Below the ribbon are the **Machine (Site or Test Article) Gallery** tab and individual Machine (Site or Test Article) tabs. The **Machine (Site or Test Article) Tree** is on the ***left side*** of the window.



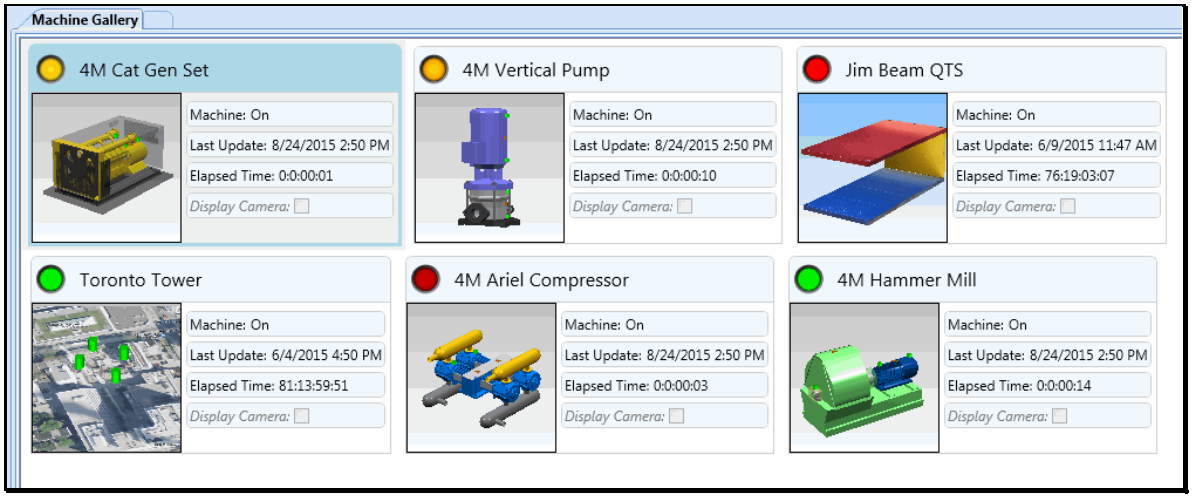
Machine Gallery

The Machine (Site or Test Article) Gallery contains a ***thumbnail picture*** of each Machine (Site or Test Article) being monitored. The colored circle next to each thumbnail indicates the current condition of the Machine (Site or Test Article) relative to the ***warning levels*** that have been assigned to it:

- **Green** (good)
- **Yellow** (low or alert level)
- **Orange** (medium or alarm level)
- **Red** (high or abort level)

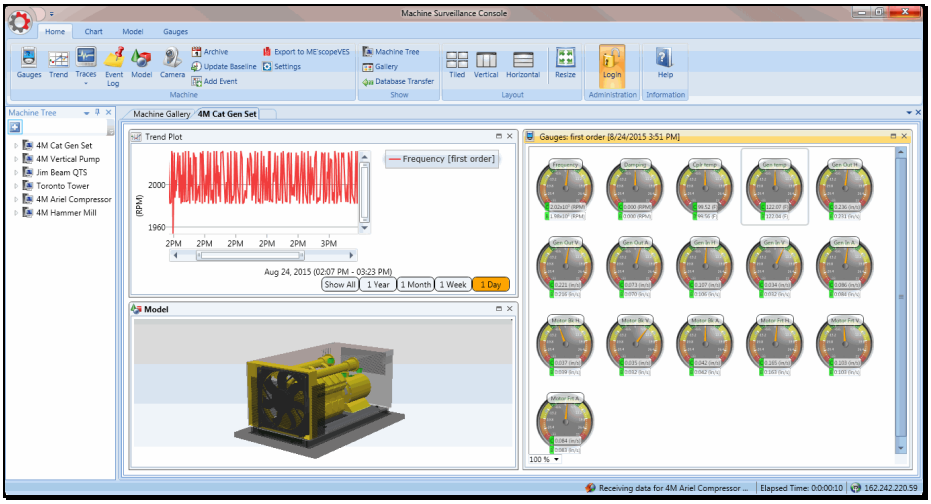
The following information is also listed next to the thumbnail of each Machine (Site or Test Article):

- **Machine: On/Off** indicates whether the Machine is powered on or off
- **Last updated:** provides the date & time when data was last stored into the Database
- **Elapsed time:** is the time lapse since data was last stored into the Database
- **Display Camera:** If ***checked***, the thumbnail is replaced by a live camera feed, if a video camera has been assigned to the Machine (Site or Test Article)



Machine Tab

- ***Click*** on a Machine thumbnail in the Machine Gallery to open a ***tab*** for the Machine, as shown below:

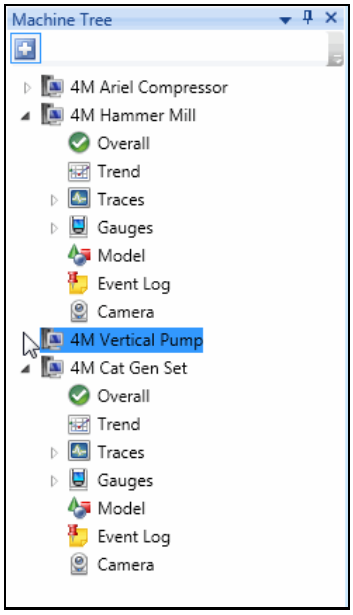


Machine Tab Showing Trend Plot, Gauges, & Model.

Machine Tree

This command opens the Machine (Site or Test Article) Tree on the ***left side*** of the Console window. It is a tree view of all of the components of each monitored Machine (Site or Test Article) in the Archival Database. To open a tile for an item in the Tree,

- ***Drag*** the item from the Tree onto the Machine (Site or Test Article) tab.



Machine Tab Panels

Each type of data for a machine is displayed in a panel. A new Machine tab displays a **Trend Plot**, **Gauges**, and Machine **Model** panels as the default panels of the Machine.

Adding a Panel

To add an **Event Log**, **Camera, Traces, or FaCTs** panel to a Machine tab,

- ***Click*** on the **Event Log**, **Camera Traces, or FaCTs** command on the **Home** tab command ribbon

Removing a Panel

To remove a panel from a Machine (Site or Test Article) tab,

- ***Click*** the "**X**" in the ***upper right corner*** of the panel.

Arranging Panels

To move a panel from one place to another on the tab,

- ***Click*** on the Title Bar at the top of the panel and drag it over another panel. The other panel will change to a darker color.
- Drop the panel on the darkened panel to replace it.
- Select a ***Tiles, Vertical or Horizontal*** from the **Layout** section in the **Ribbon**

Machine Model

The 3D Model of the Machine (Site or Test Article) is used to,

- Indicate where data sensors are located on the Machine (Site or Test Article)
- Which sensor has data that has crossed a warning level
- Display a sensor gauge by hovering over the sensor icon
- Display ODS or mode shape data for the Machine in animation (optional)

To open a Model panel on a Machine tab,

- ***Click*** on the **Model** command on the **Home** tab command ribbon.

Four Views

The Machine model can be displayed in four different Views,

- Top View, Front View, Side View, & 3D View

The Top View, Front View, & Side View are 2D Views. The model can be panned (*moved*) and zoomed in these views, but not rotated.

The model can be panned, zoomed, and rotated in the 3D View.

Quad View & Single Views

- ***Double click*** on a single View to display the **Quad View** (all four Views)
- ***Double click*** on a single View in the **Quad View** to display only that View

Rotate the Model in 3D View

To rotate the model in the 3D View,

- ***Place the mouse pointer*** in the 3D View graphics area, ***hold down*** the left mouse button and ***drag***

Side Bar

The left side bar in the Model panel lists all the model components.

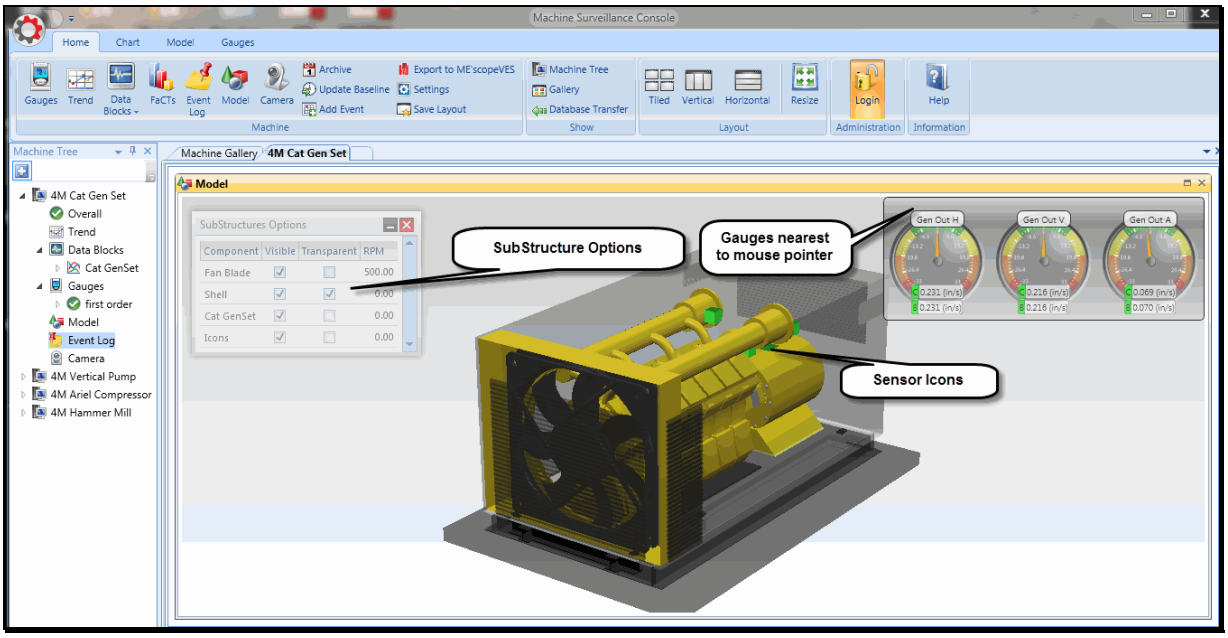
- ***Drag the*** **splitter bar** between the graphics and the side bar to change it size

Visible & Transparent Components

- ***Check*** **visible** on the side bar to make different Machine components visible
- ***Check*** **transparent** on the side bar to make different Machine components transparent

Display Gauges

- ***Hover*** the mouse pointer over a sensor on the model to display its gauges



Machine Model Showing 3D View.

Gauges

Gauges provide a real time display of monitored data. Each Gauge background will change colors as one of its warning levels is crossed.

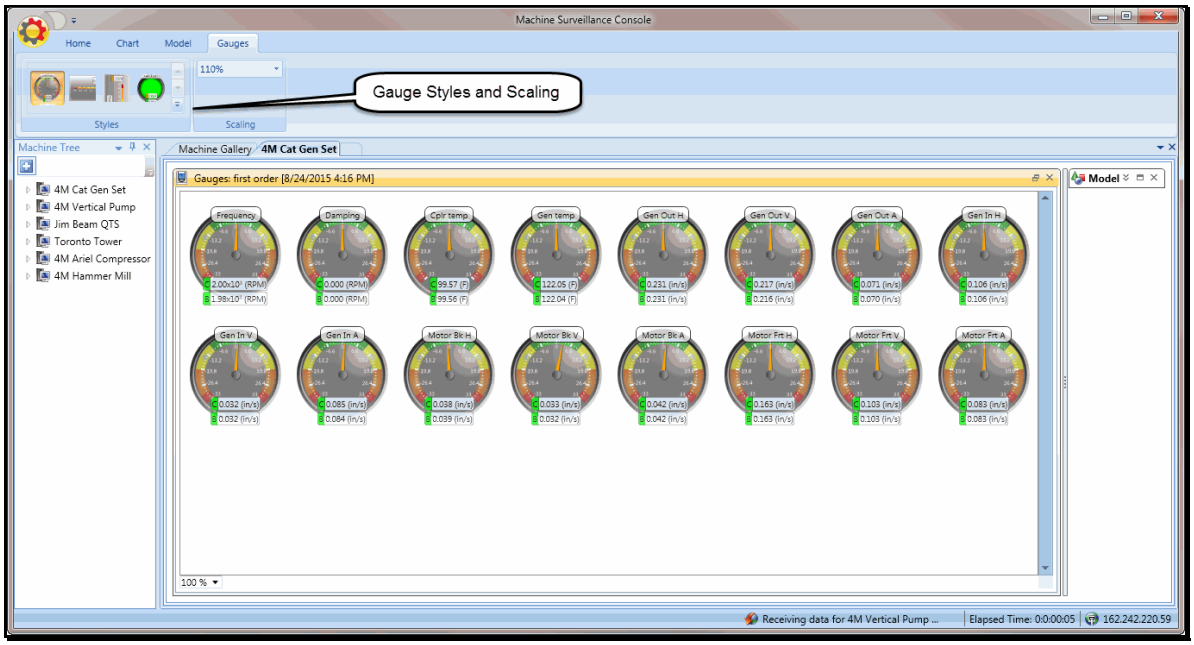
- **Green** (good)
- **Yellow** (low or alert level)
- **Orange** (medium or alarm level)
- **Red** (high or abort level)

To open a Gauges panel on a Machine tab,

- ***Click*** on **Gauges** on the **Home** tab command ribbon.

To change the style of a gauge,

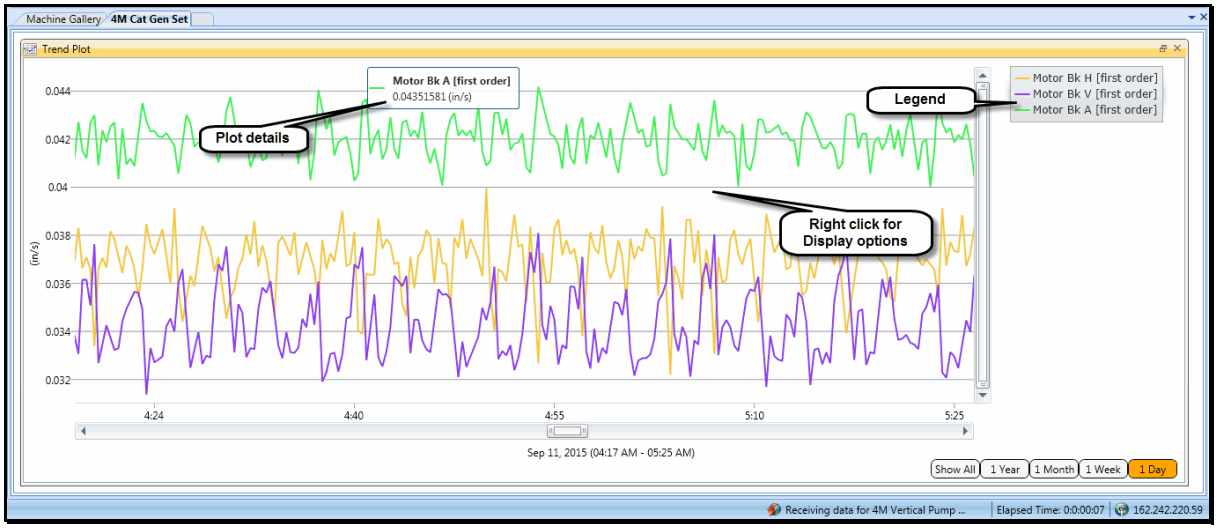
- ***Click*** on the gauge and select the style from the **Gauges** tab command ribbon.
- Change the size of ***selected*** gauges by selecting the scaling on the **Gauges** tab command ribbon.


Machine Surveillance Console
Home
Chart
Model
Gauges
110%
Styles
Scaling
Gauge Styles and Scaling
Machine Tree
4M Cat Gen Set
4M Vertical Pump
Jim Beam QTS
Toronto Tower
4M Ariel Compressor
4M Hammer Mill
Machine Gallery
4M Cat Gen Set
Gauges: first order [8/24/2015 4:16 PM]
Model
Frequency
Damping
Cplr temp
Gen temp
Gen Out H
Gen Out V
Gen Out A
Gen In H
Gen In V
Gen In A
Motor Bk H
Motor Bk V
Motor Bk A
Motor Frt H
Motor Frt V
Motor Frt A
100 %
Receiving data for 4M Vertical Pump ...
Elapsed Time: 0:0:00:05
162.242.220.59

Trend Plot

Trend Plots are used to display time-based trends of archived Gauge data. To open a Trend Plot panel,

- ***Click*** on **Trend** on the **Home** tab command ribbon.

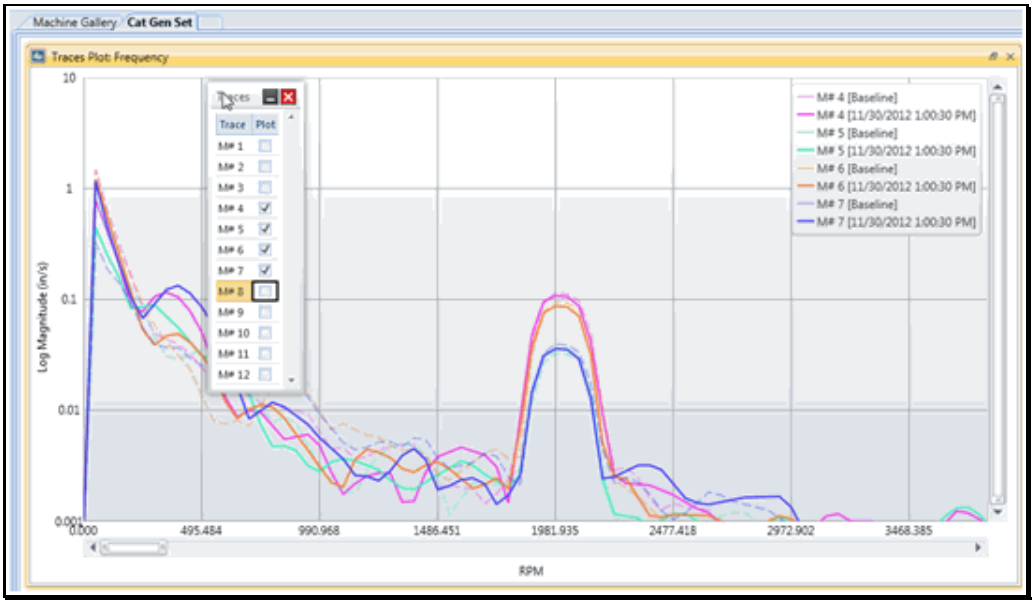


- ***Right click*** on the Trend Plot to display a menu of Trend Plot commands.
- Expand the plot options box to select the data to display on the Trend Plot.
- Use the ***X axis scroll bar*** to change the time band on the Trend Plot.
- Use the ***left mouse*** button to draw a zoom box on a desired portion of the Trend Plot
- ***Spin the mouse wheel to zoom-in*** or ***zoom-out*** on the entire Trend Plot
- Select different plot styles from the **Chart** tab command ribbon.

Data Block Plot

A Data Block Plot is used to display archived Frequency spectrum, Octave spectrum or Time waveforms of data that were acquired from a monitored Machine (Site or Test Article). To open a Data Block Plot panel,

- ***Click*** on Data Blocks on the **Home** tab command ribbon



- ***Right click*** on the Data Block Plot to display a menu of Data Block Plot commands.
- Select **Format Options** to display the trace data in **Real**, **Log Magnitude**, **Magnitude**, or **Phase** format.
- Expand the plot options box to select the data to display on the Data Block Plot.
- Use the ***X axis scroll bar*** to change the frequency or time band on the Data Block Plot.
- Use the ***left mouse*** button to draw a zoom box on a desired portion of the Data Block Plot
- ***Spin*** the mouse wheel to zoom in or out on the entire Data Block Plot.
- Select different plot styles from the **Chart** tab command ribbon.

Event Log

The event log is a list of all warning level violations and user-defined events. The type of warning level violation and date/time of the level violation are displayed.

- Click on the "**plus sign**" in the left-hand column to display more details of the warning level violation
- ***Click*** on the Trend or Trace box to display a plot of the warning level violation.

To manually add an event to the Even log,

- ***Click*** on "**Add Event**" in the Home tab command ribbon.
- Add notes regarding the event into the new event line.

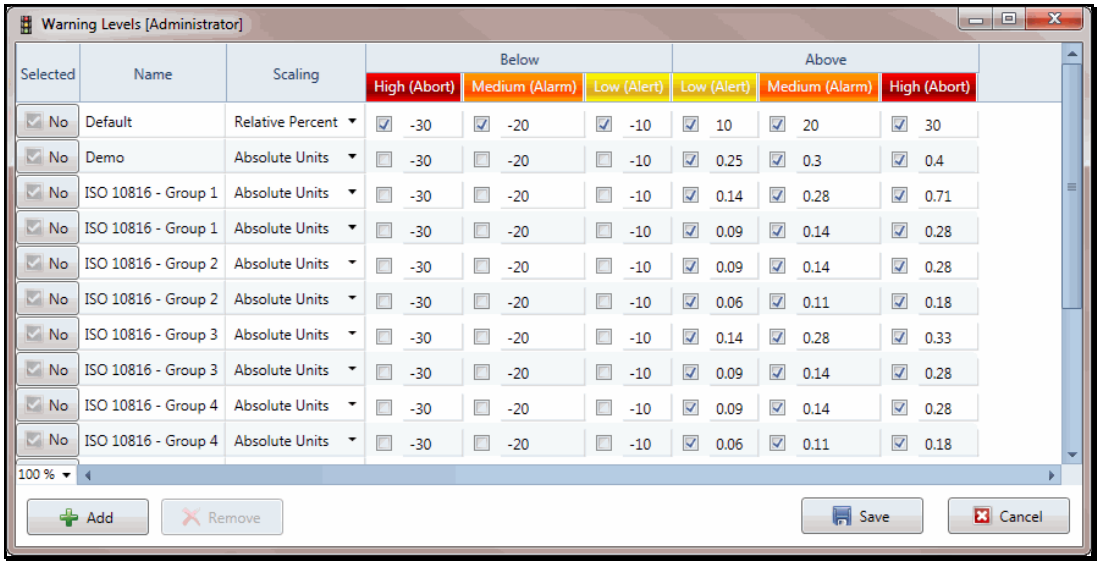
Warning Levels

Warning Levels display all of the available warning levels that have been created in the Settings.

Any warning level can be assigned to any measurement data.

Warning levels can only be changed in Administrator mode. Administrator mode allows an administrative user to edit the warning level name, scaling, and (alert, alarm, abort) levels. To create a new warning level

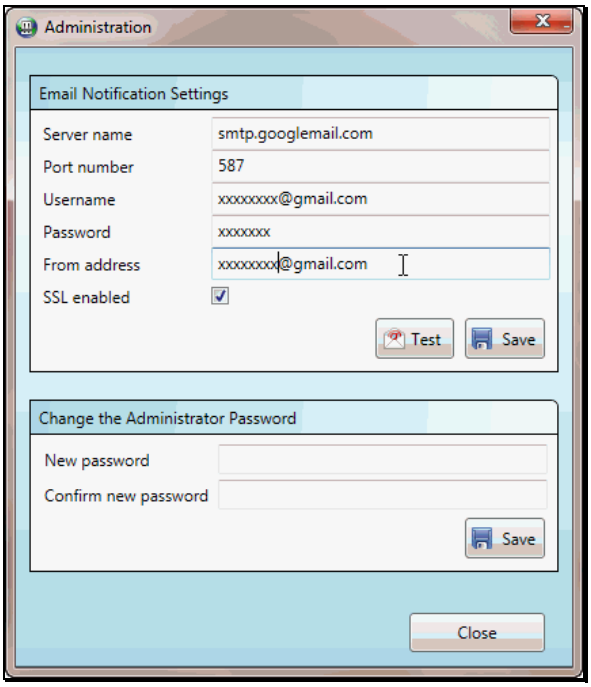
- Click on the **Add** button.
- Give the warning level a Name
- Select the Scaling
- Enter the High (abort), Medium (alarm), and Low (alert) values by typing the number
- Check the box next to the applicable warning levels.
- ***Press* the Save** button



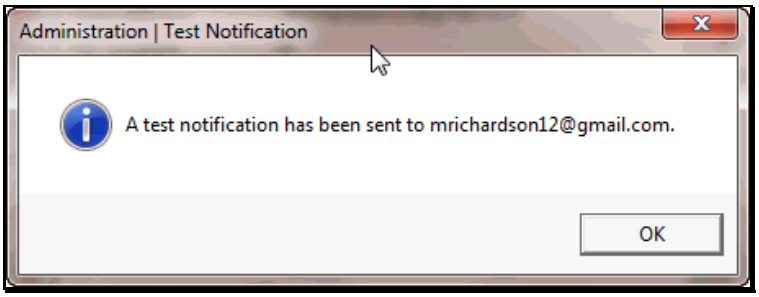
Administration

Email Notification Settings

Email notification allows an end user to be notified when an alarm is triggered. The image below provides a sample setup for the Email notification under the Administration menu. Hit the **Test** button to confirm Email settings are correct. Upon receiving a successful test, hit the **Save** button.



The following message will appear after a successful Email notification test.

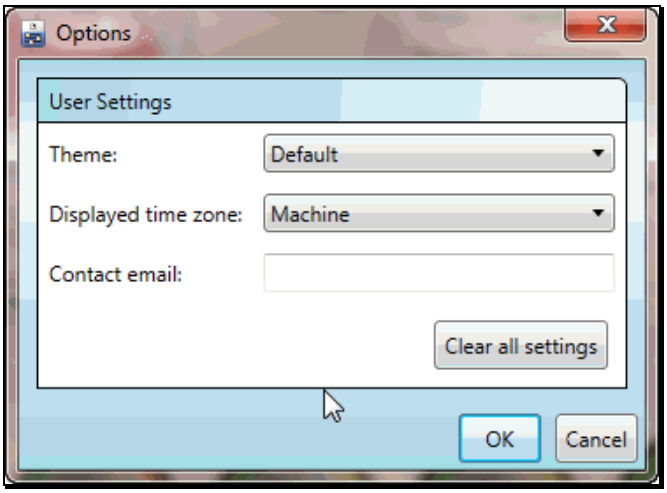


To change the Administrative Password simply type in your **New Password** and repeat in the **Confirm New Password** box.

Options

Theme

The MEscope Console provides three different themes, **Default**, **Black**, and **Metro**. Each theme has a unique background color, font, and layout. **Metro** is the preferred theme for use on tablet devices. To change the theme simply click the drop-down menu and make your selection.



Display Time Zone

Console can be set up using three different time zones, **Machine**, **Local**, or **UTC**.

Machine (default)- Is the time local to the MEscope Console database. (ex: the machine is located in a different time zone than the console operator.)

Local- The time local to the computer running console

UTC- Coordinated Universal Time also known as GMT (Greenwich Mean Time)

Contact Email

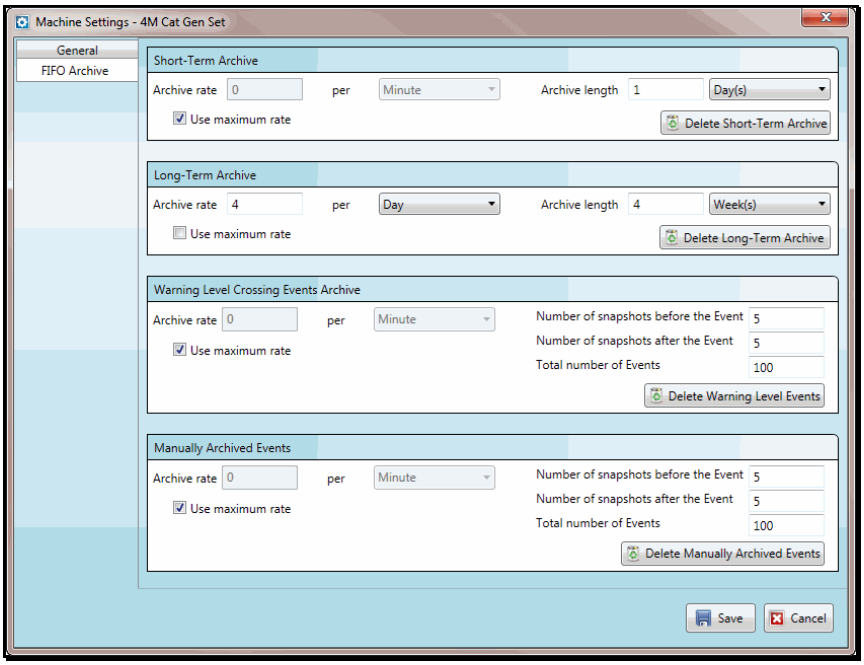
If you submit error logs to Vibrant Technology, we can contact you to let you know when it is fixed or request additional information.

Archival FIFO Storage

- Start the Console software
- Open a machine tab from the Machine (Site or Test Article) Gallery
- Click on Settings on the command ribbon
- Click on FIFO Storage in the dialog box that opens

The FIFO Storage settings dialog box will open. You can configure the archival storage of ***"snapshots"*** of data in a variety of ways.

A "**snapshot**" of data is the **Monitored** and/or **Animation** Shape Tables**,** plus any **Time**, **Frequency** or **Octave** Data Blocks that were created in the Database by the **Machine (Site or Test Article)** setup window in MEscope.



- Change the **Short-Term**, **Long-Term**, Warning Level and Manual **Event** Archive storage parameters

For example,

- Under Short-Term Storage, *check* Use maximum rate

This will set the **short-term storage rate** in the Database to save data as quickly as it is acquired and processed by MEscope.

- Choose to store short-term data for **3 days**

This means that ***only three days*** of short-term data will be retained in the Database.

- Under **Long-Term Storage**, select a storage rate of **4 per day** with a storage period of **1 month**

This means that long-term storage will retain 4 snapshots of monitored data per day (6 hours apart) for 30 days, or a total of 120 snapshots of data.

The Event Storage sections allow you to define the number of ***snapshots*** of monitored data to be retained both **before** & **after** a Warning Level is crossed, or when you manually create an entry in the Event Log. When a Warning Level Event occurs, these settings will ensure that you will have Trend data available prior to and following the Warning Level Event.

Changing Settings On-The-Fly

All of these Database FIFO settings can be changed ***"on the fly"***, that is at any time during the use of Console**.** While MEscope is acquiring, processing and archiving data to the Database, by changing these parameters you can choose to archive (retain) data in the Database at different rates. This allows you to retain the functionality of a true real-time monitoring system without retaining unwanted data in the Database and using up its storage capacity.

Administration Mode

Administration mode allows an administrative user to change Warning levels, manage the Database First-In First-Out (FIFO) settings, reset Gauge Latches, and change Latch settings.

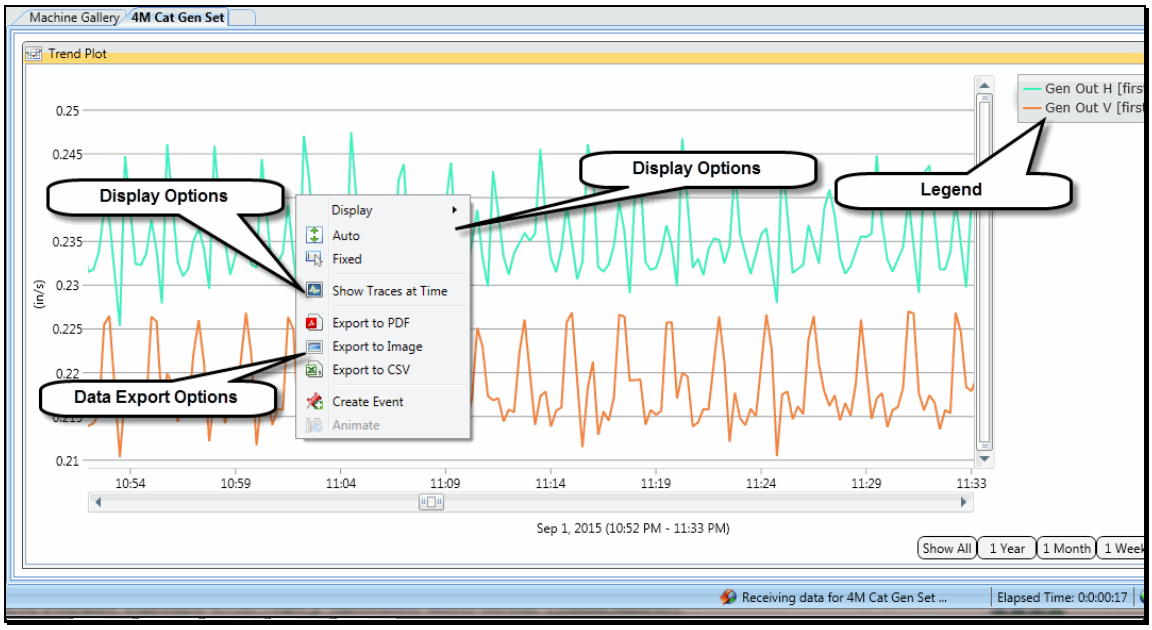
- ***Click*** on **Administration Mode** and type in an authorized password to gain administrative access.

Gauges

This command opens the Gauges panel in the currently displayed Machine (Site or Test Article) tab. This panel contains a Gauge for each measurement value in the Monitored Shape Table defined for the Machine (Site or Test Article) in MEscope.

Trend Plot

This command opens the Trend Plot panel in the currently displayed Machine (Site or Test Article) tab.



Data Block Plot

This command opens the Data Block Plot panel in the currently displayed Machine (Site or Test Article) tab. This panel displays the Data Block of measurements that have been stored into the Archival Database by MEscope. Up to three Data Blocks can be archived for each Machine (Site or Test Article). They are designated in the Archive | Machine (Site or Test Article) Setup window in MEscope.

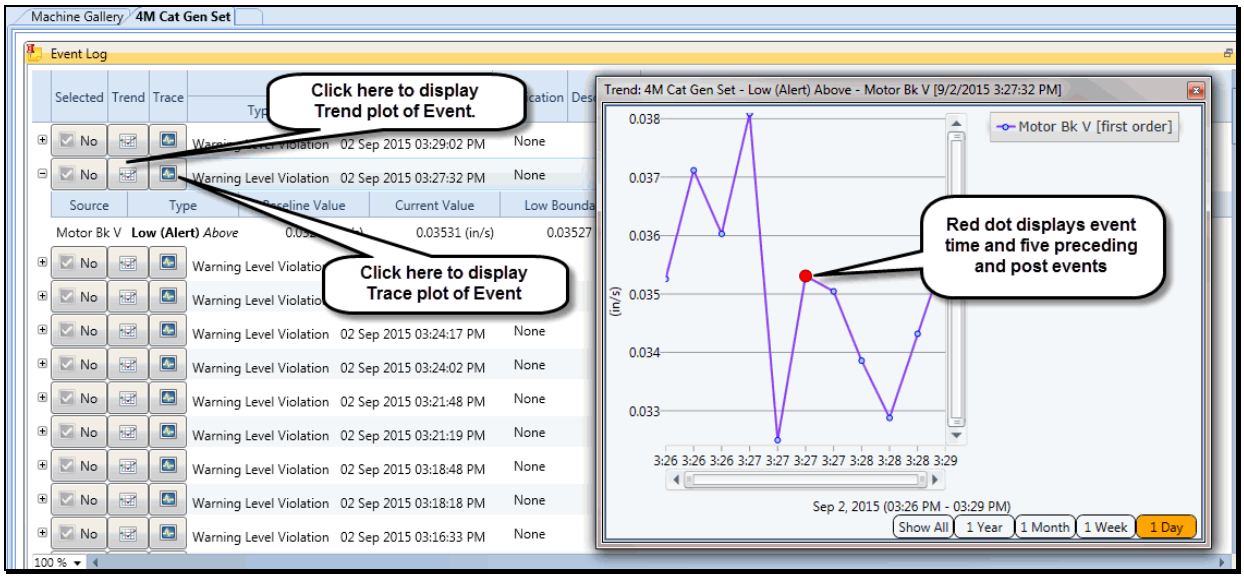
These commands are documented in the **MEscope** Data Block (**BLK**) chapter.

Event Log

This command opens the Event Log panel in the currently displayed Machine tab.

Adding an Event

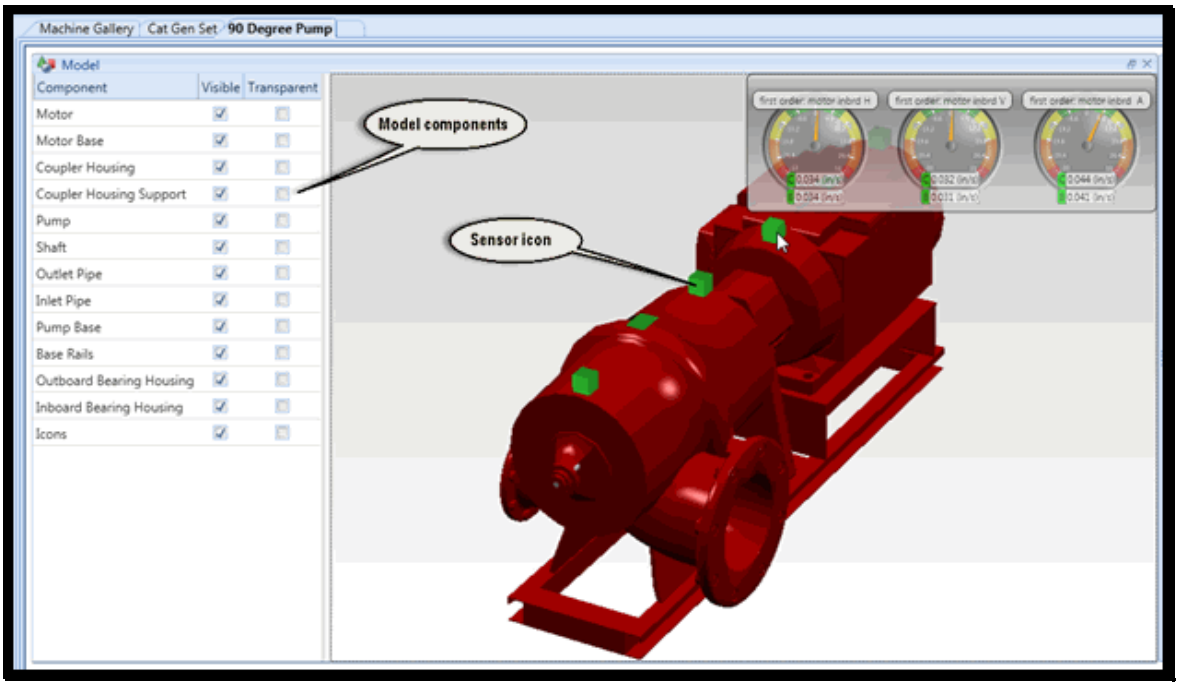
This command allows you to enter a ***user-defined*** event into the Event Log.



3D Model

This command opens the Model panel in the currently displayed Machine (Site or Test Article) tab. The Model panel contains a 3D model of the Machine (Site or Test Article).

When a Model panel is made ***active***, the commands on the **Model** tab at the top of the Console window are enabled.



Archive

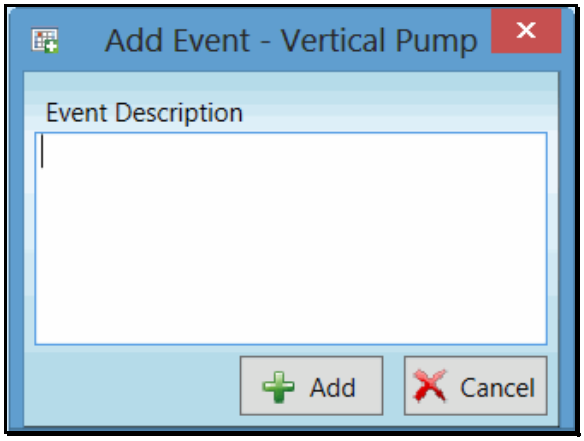
This command adds the ***current cursor band*** of data in a Data Block to the current snapshot of data in the Archival Database.

Update Baseline

This command updates the **Baseline** Snapshot with the current Snapshot data.

Add an Event

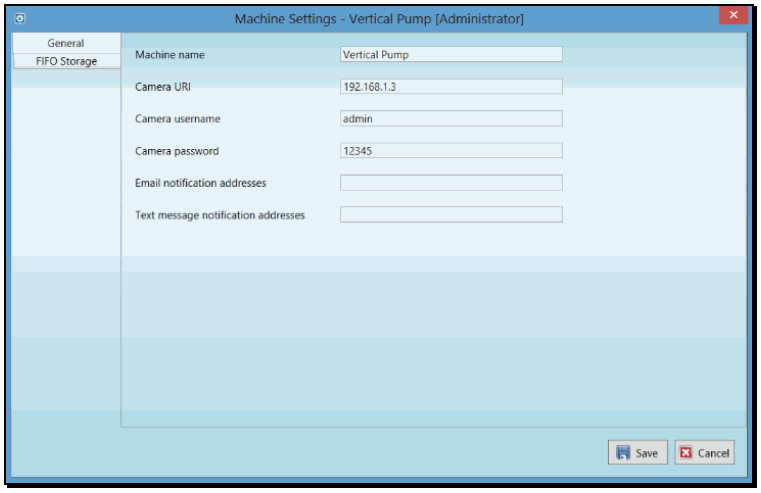
Opens the following dialog box, where you can create a user-defined event. The event is added to the Event Log.



Settings

Opens the Settings dialog box, as shown below. This dialog box is used to define the following items for a Machine (Site or Test Article):

- Archive FIFO storage
- Camera URL, User name and Password
- Email notification addresses
- Text message notification addresses



Panel Layout Group

This group of commands is used for arranging the panels in the currently displayed Machine (Site or Test Article) tab.

These commands are documented in the **MEscope** Window chapter.

Tiled

This command arranges all panels in a **row/column** format.

Vertical

This command arranges all panels in **column** format.

Horizontal

This command arranges all panels in a **row** format.

Resize

This command **re-sizes** all of the panels to a default size.

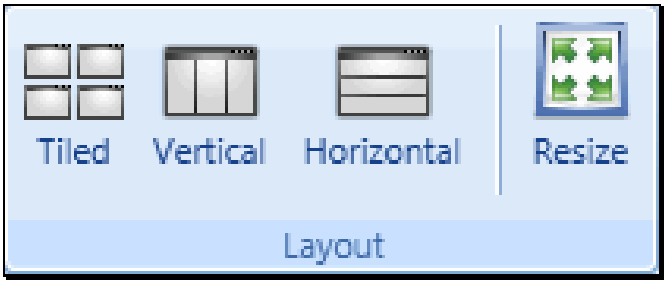


Chart | Display Group

This group of commands is used to show and hide various parts of Trend or Data Block Plots. These commands are also available from the ***right click menu*** on either a Trend or Data Block Plot.

These commands are documented in the **MEscope** Data Block (**BLK**) chapter.

Chart | Display | Layout

The Layout drop down contains three methods for viewing your data; **Overlay, Strip, and Row/Column.**

- **Overlay**: Overlays all of the monitored measurements on one chart
- **Strip:** Creates a strip chart based on the number of charts selected from the list.
- **Row/Column:** Create a view of multiple charts based on number of rows and columns selected.

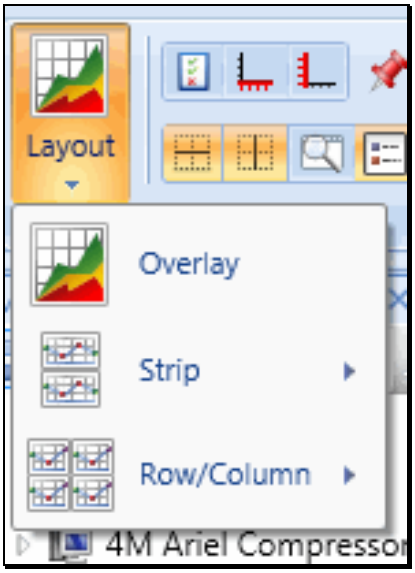


Chart | Display | Plot Selection

Displays the Plot Selection window in the chart

Chart | Display | X-Axis

Displays the X-axis options window in the chart

Chart | Display |Y-Axis

Displays the Y-axis options window in the chart

Chart | Display | Events

Displays the events on the chart

Chart | Display | Warning Level Overlays

Displays the warning level thresholds on the chart. Use the slider bar to adjust the size of the warning level lines.

Chart | Display | Chart Line Thickness

- ***Click*** the counter arrows up/down to adjust the line thickness of the chart

Chart | Display | Horizontal Grid Lines

Displays horizontal grid lines on the chart

Chart | Display | Vertical Grid Lines

Displays vertical grid lines on the chart

Chart | Display | Zoom Window

Displays the overview for panning and zooming. Slide the bar to adjust zoom percentage.

Chart | Display | Legend

Displays the legend in the chart.

Chart | Display | Line Cursor

If ***checked***, the Line cursor is displayed as a vertical red line on each Trace.

Chart | Display | Band Cursor

If ***checked***, the Band cursor is displayed as two vertical red lines (or edges) on each Trace.

Chart | Display | Peak Cursor

If ***checked***, the Peak cursor is displayed as two vertical red lines (or edges) on each Trace, and the peak sample (maximum value of the displayed data) within the cursor band is displayed as a red dot.

Waterfall Settings

These commands are documented in the **MEscope** Data Block (**BLK**) chapter.

Chart | Waterfall

To display the chart in the Waterfall view, click on the **Waterfall** icon

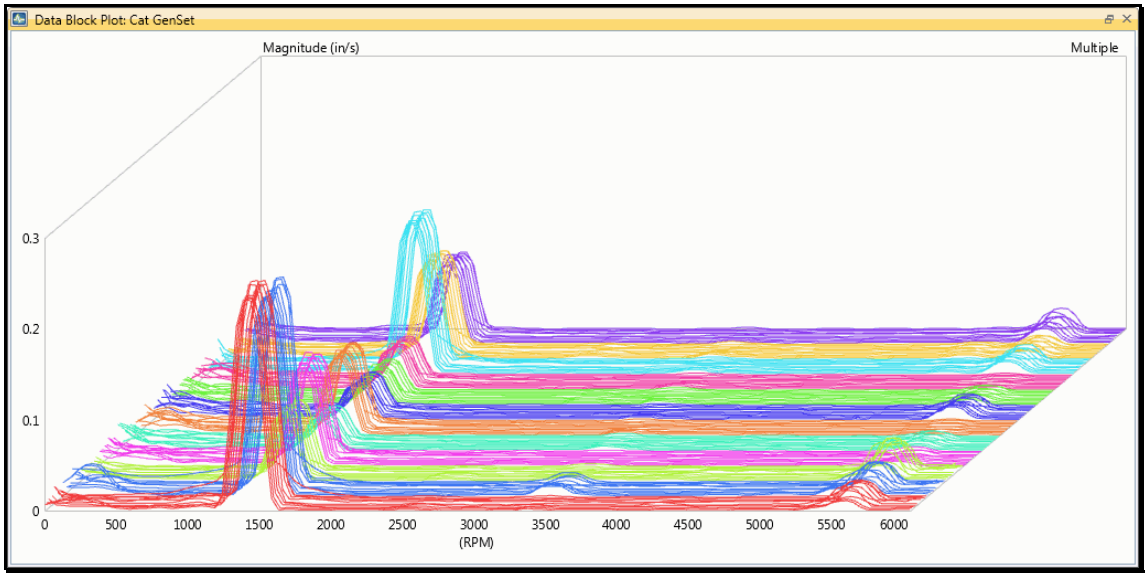
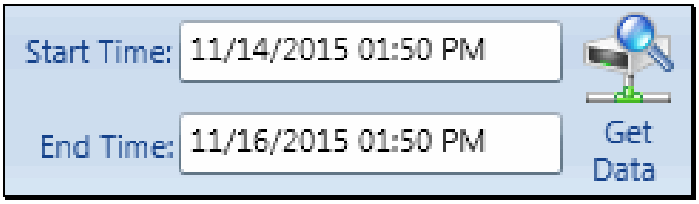


Chart | Waterfall Settings | Source

Source contains **Recent** and **Archive** data drop down menu.

- **Recent** data displays all current data acquired in real time
- When **Archive** is selected the date/time range selector becomes active. Select **Start Time** and **End Time** either by typing in the desired date/time or using the calendar pull down. Then hit **Get Data.**



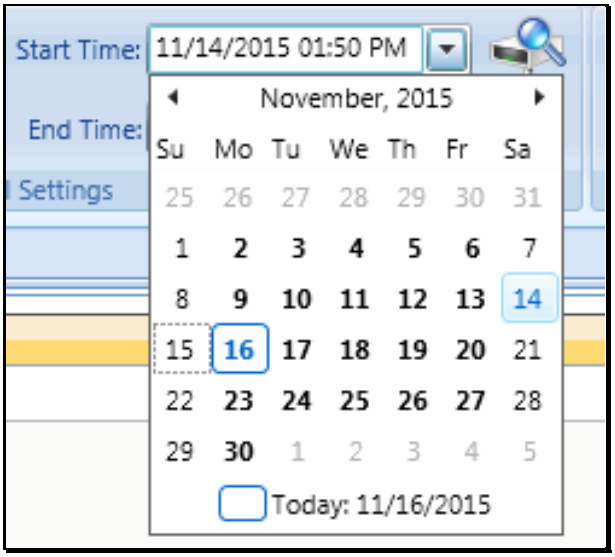
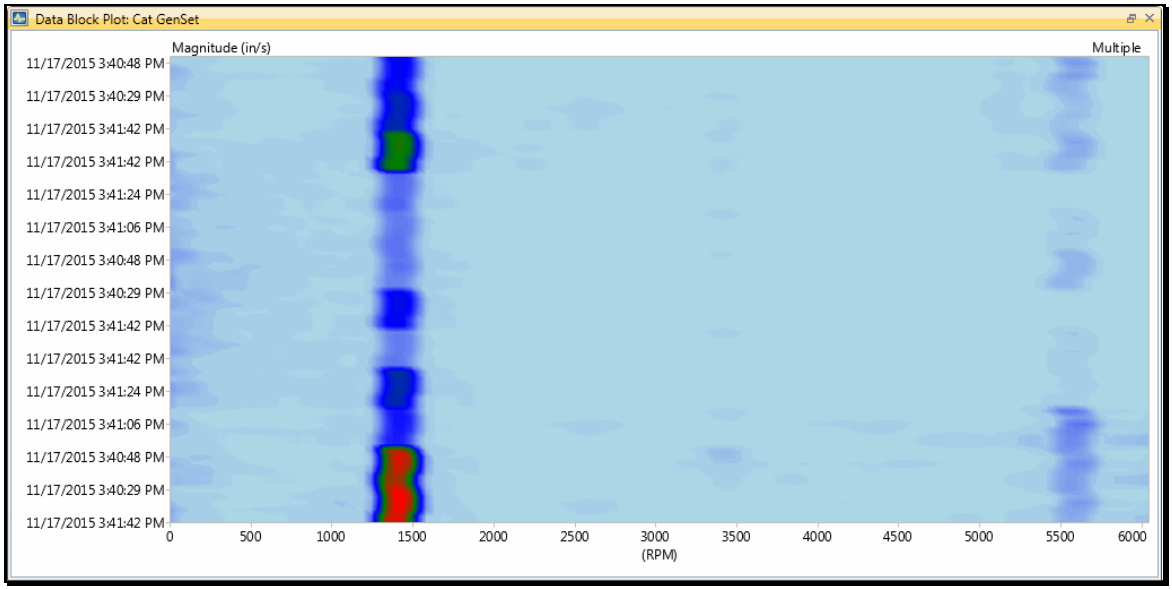


Chart | Waterfall Settings | Most Recent

Selecta **Most Recent** history of measurements to display in the waterfall chart by hitting the up/down arrow.

Chart | Waterfall Settings | Contour Map

Display the Waterfall chart as a **Contour** Map



Y-Axis Group

The commands in this group are used to set the vertical scale of a Trend or Data Block Plot, and to display Warning Levels on the Plot.

These commands are documented in the **MEscope** Data Block (**BLK**) chapter.

Chart | Y-Axis | Format

Chart | Y-Axis | Scaling

- **Auto Scale** displays each **M#** between its ***minimum & maximum*** values.
- **Relative Scale** displays each **M#** between the ***minimum & maximum*** values of ***all*** **M#s** in the Data Block.
- **Fixed Scale** displays each **M#** between ***user-defined minimum & maximum*** limits.

If **Fixed** scaling is chosen, the **Fixed** M**inimum & Fixed Maximum** limits must be entered into their respective boxes.

Min Y-Axis

Max Y-Axis

Maximize

Warning Level Overlay

Export Group

The commands in this group are used to export a Trend or Data Block Plot in an external file format.

Export to PDF

Export to Image

Export to CSV

Model Tab Commands

Zoom Group

This group of commands is used for zooming and panning the display of the 3D model in the ***active*** View.

These commands are documented in the **MEscope** Structure (**STR**) chapter.

Zoom

To zoom in or zoom out on the model,

- Place the mouse pointer in the ***graphics area*** and ***spin*** the mouse wheel.
- Click on **Zoom Out in** the Model command ribbon to display the entire model

Pan

To pan the model display

- Place the mouse pointer in the ***graphics area***, ***hold down*** the **Shift** key and ***drag***
- Or ***click*** on Pan **in** the Model command ribbon to enable the Pan operation, place the mouse pointer in the graphics area, and drag.
- To disable the Pan operation, click on Pan **in** the Model command ribbon again

Zoom Box

To zoom in on an area of the model,

- Click on D**raw Zoom Box in** the Model command ribbon, and ***draw*** a zoom box on the model

Re-center Views

Re-centers and re-sizes the 3D model in the active View.

Display Group

This group of commands ***toggles on/off*** the display of the **Points**, Point **Labels**, **Lines**, **Surfaces**, and **Gauges** on the 3D model.

Animation Group

This group is used to display color contours on the 3D model.

These commands are documented in the **MEscope** Structure (**STR**) chapter.

Deflection

Compare Shapes

Scaling

Contours

Amplitude

Speed

Auto Rotate Group

This group of commands is used to initiate ***clockwise*** or ***counter-clockwise rotation*** of the 3D model in the ***3D View***, and to stop the rotation.

These commands are documented in the **MEscope** Structure (**STR**) chapter.

Rotate CW

Stop Rotation

Rotate CCW

View Group

This group of commands allows you to select one of four Views of the Model; **X View**, **Y View**, **Z View**, or **3D View**. If you select the **Quad View**, all four Views are displayed together. **Flip View** displays the 3D model from the ***other side***.

These commands are documented in the **MEscope** Structure (**STR**) chapter.

Quad View

Flip View

Rotating the 3D View

- ***Hold down*** the ***left mouse*** button and ***drag*** in the 3D View to rotate the model.

Gauges Tab Commands

Style Group

This group of commands is used for changing the display style of the Gauges.

Size Group

This group is used to change the size of the Gauges.