

RELEASE NOTES

vibro-meter[®]

**VibroSight[®] software
version 6.0**



REVISION RECORD SHEET

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PREFACE

About these release notes

This document provides important information about the VibroSight® software from Meggitt SA. It is applicable to all VibroSight-based condition monitoring systems using the versions of software described by this document, namely:

- VibroSight software version 6.0.0 (CD part number 609-004-000-050).

This document contains information about changes to the software since the previously released version (VibroSight 5.1.x), such as new features and improvements, solved problems and bug fixes, and hardware and software compatibility.

For more general information on the actual software, or the entire condition monitoring system (CMS), refer to the following Meggitt SA documentation:



VibroSight® software data sheet

(document reference 660-020-005-221A)



Getting started with VibroSight® installation guide

(document reference 660-010-006-228A)



VibroSight® help



VM600^{Mk2} MPC4^{Mk2} + IOC4^{Mk2} machinery protection and condition monitoring module data sheet

(document reference 268-121)



VM600^{Mk2} RLC16^{Mk2} relay module data sheet

(document reference 268-125)



VM600^{Mk2} CPUM^{Mk2} + IOCN^{Mk2} rack controller and communications interface module data sheet

(document reference 268-135)



VM600 XMV16 / XIO16T extended vibration monitoring card pair data sheet

(document reference 660-020-010-208A)











VibroSight application notes and technical notes.

Users who are familiar with VibroSight may also find it useful to refer to the release notes included in earlier versions of the software:

- VibroSight 5.1.0 (document reference 660-010-013-230A)
- VibroSight 5.0.0 (document reference 660-010-013-229A)
- VibroSight 4.1.0 (document reference 660-010-013-228A)
- VibroSight 4.0.0 (document reference 660-010-013-227A)
- VibroSight 3.8.0 (document reference 660-010-013-226A)

- VibroSight 3.7.0 (document reference 660-010-013-225A)
- VibroSight 3.6.0 (document reference 660-010-013-224A)
- VibroSight 3.5.0 (document reference 660-010-013-223A)
- VibroSight 3.4.0 (document reference 660-010-013-222A)
- VibroSight 3.3.0 (document reference 660-010-013-221A)
- VibroSight 3.2.0 (document reference 660-010-013-220A)
- VibroSight 3.1.0 (document reference 660-010-013-219A)
- VibroSight 3.0.0 (document reference 660-010-013-218A)
- VibroSight 2.12.7 (document reference 660-010-013-217A)
- VibroSight 2.12.6 (document reference 660-010-013-216A)
- VibroSight 2.12.5 (document reference 660-010-013-215A)
- VibroSight 2.12.4 (document reference 660-010-013-214A)
- VibroSight 2.12.3 (document reference 660-010-013-213A)
- VibroSight 2.12.2 (document reference 660-010-013-212A)
- VibroSight 2.12.1 (document reference 660-010-013-211A)
- VibroSight 2.12.0 (document reference 660-010-013-210A)
- VibroSight 2.11.6 (document reference 660-010-013-209A)
- VibroSight 2.11.5 (document reference 660-010-013-208A)
- VibroSight 2.11.4 (document reference 660-010-013-207A)
- VibroSight 2.11.3 (document reference 660-010-013-206A)
- VibroSight 2.11.2 (document reference 660-010-013-205A)
- VibroSight 2.11.1 (document reference 660-010-013-204A)
- VibroSight 2.11.0 (document reference 660-010-013-203A)
- VibroSight 2.10.1 (document reference 660-010-013-201A)
- VibroSight 2.10.0 (document reference VIBROSIGHT-RN/E)
- VibroSight 2.9.7 (document reference VIBROSIGHT-RN/E)
- VibroSight 2.9.6 (document reference VIBROSIGHT-RN/E)
- VibroSight 2.9.5 (document reference VIBROSIGHT-RN/E)
- VibroSight 2.9.4 (document reference VIBROSIGHT-RN/E)
- VibroSight 2.9.2 (document reference VIBROSIGHT-RN/E)
- VibroSight 2.9.1 (document reference VIBROSIGHT-RN/E)

Structure of the release notes

This document presents information in the following order: general items first, then in terms of the software modules that constitute VibroSight, such as  Configurator,  Event Viewer,  Mimic,  Protect,  Scope,  Server,  System Manager and  Vision.

You should read those sections that are most relevant to you and then keep the document for future reference.

Version identifiers

A complete VibroSight software version number has four components that provide the following information:

- **x.x.x.x**, major release identifier – typically incremented once per year.
- **x.x.x.x**, minor release identifier – incremented for each release with typically four scheduled releases per year.
- **x.x.x.x**, “hotfix” release identifier – 0 for a normally scheduled release and incremented for each hotfix release.
- **x.x.x.x**, software build number – for internal use.

For each scheduled release of VibroSight, at least one of the first two digits changes (**x.x.x.x**).

For unscheduled “hotfix” releases, which are occasionally required to solve urgent problems, the third digit changes (**x.x.x.x**).

The version identifiers for installed software appear in the Help About box (obtained using **Help > About ...** in any VibroSight software module).

Terminology

To distinguish between the different Meggitt SA products that can be used with the VibroSight® software, the following terminology is used in this document:

- VM600 card(s) – to refer to VibroSight compatible cards that are installed in a VM600 rack (that is, the first generation of VM600 systems).

The currently available VM600 cards that are designed for operation with the VibroSight software are the XMx16 card pairs (XMC16 / XIO16T, XMV16 / XIO16T and XMVS16 / XIO16T) and the CPUx card pairs (CPUR2/IOCR2 and CPUR/IOCR).

Where XMx16 card is used in this document, it refers to XMC16 / XIO16T, XMV16 / XIO16T and XMVS16 / XIO16T cards, unless otherwise stated.

Where CPUx card is used in this document, it refers to CPUR2/IOCR2 and CPUR/IOCR cards, unless otherwise stated.

- VM600^{Mk2} module(s) – to refer to VibroSight compatible module(s) that are installed in a VM600^{Mk2} rack (that is, the second generation of VM600 systems).

The currently available VM600^{Mk2} cards that are designed for operation with the VibroSight software are the MPC4^{Mk2} + IOC4^{Mk2} machinery protection and condition monitoring module and the RLC16^{Mk2} relay module.

- VibroSmart® module(s) or VibroSmart® device(s) – to refer to VibroSight compatible VibroSmart modules or devices that are used in a VibroSmart distributed monitoring system. The currently available VibroSmart modules and devices that are designed for operation with the VibroSight software are the VSI010, VSN010 and VSV30x.

Where VibroSmart module is used in this document, it refers to the VSI010 and VSV30x modules, unless otherwise stated.

Where VibroSmart device is used in this document, it can refer to the VSN010 device only, or to the VSI010 and VSV30x modules and the VSN010 device, unless otherwise stated.

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1 Licensing

Since VibroSight 4.0.0, the ability to install and run VibroSight software updates and upgrades depends on the purchased “Updates and support” package.

NOTE: VibroSight 6.0.0 is a major level release and a new license key file is not required for updates and upgrades from VibroSight 5.1.x.

However, a new license key file is required for updates and upgrades from VibroSight 3.8.x or earlier.

For further information on licensing or to obtain a new VibroSight license key file, contact Meggitt SA customer support. See 7 Customer support.

2 Features

General

2.1 Support for VM600^{Mk2} – the next generation of VM600 machinery protection system

VibroSight 6.0.0 introduces full support for the second generation of VM600 rack-based machinery protection and condition monitoring systems – known as VM600^{Mk2} – for machinery protection applications.

VM600^{Mk2} hardware

The Meggitt vibro-meter® VM600^{Mk2} rack-based monitoring system is the evolution of the original VM600 (VM600^{Mk1}) solution for the protection and monitoring of rotating machinery used in the power generation and oil & gas industries. VM600^{Mk2} solutions are recommended when a centralised monitoring system with a medium to large number of measurement points (channels) is required. VM600^{Mk2} is typically used for the monitoring and/or protection of larger machinery such as gas, steam and hydro turbines, and generators, smaller machines such as compressors, fans, motors, pumps and propellers, as well as balance-of- plant (BOP) equipment.

VM600^{Mk2} systems use existing VM600 rack infrastructure (racks and power supplies) with a new set of VM600^{Mk2} modules:

- VM600^{Mk2} MPC4^{Mk2} + IOC4^{Mk2} machinery protection and condition monitoring module
- VM600^{Mk2} RLC16^{Mk2} relay module

These new VM600^{Mk2} modules use the latest technology to offer improved performance compared to the existing MPC4 / IOC4T machinery protection card pair and RLC16 card.

For example, the VM600^{Mk2} MPC4^{Mk2} + IOC4^{Mk2} has 24 bit ADC resolution, 20 kHz bandwidth, up to 5 measurement outputs per channel, uses epoxy sealed relays and incorporates a physical card lock for

cybersecurity. (For reference, the VM600^{Mk1} MPC4 / IOC4T has 12 bit ADC resolution, 10 kHz bandwidth, up to 2 measurement outputs per channel, does not use epoxy sealed relays and does not incorporate a physical card lock for cybersecurity.)

NOTE: Earlier development and evaluation versions of VM600^{Mk2} systems were referred to as VM600 MPSG2, earlier versions of the MPC4^{Mk2} + IOC4^{Mk2} machinery protection and condition monitoring module were referred to as the MPC4G2 and IOC4G2 card pair, and earlier versions of the RLC16^{Mk2} relay card were referred to as the RLC16G2 card. However, ^{Mk2} is now the official terminology.

VM600^{Mk2} software

The VibroSight software includes significant updates to all of its software modules (VibroSight Server and VibroSight client application modules (System Manager, Vision, etc.)) in order to support the new VM600^{Mk2} modules/system.

Significantly, VibroSight 6.0.0 now includes VibroSight Protect, a new VibroSight client application dedicated to the configuration and operation of VM600^{Mk2} systems, that is, MPC4^{Mk2} + IOC4^{Mk2} modules and RLC16^{Mk2} modules for machinery protection applications.

NOTE: VibroSight Protect is distinct and separate from VibroSight Configurator in order to ensure the segregation of VM600^{Mk2} machinery protection systems (MPSs) and other systems such as condition monitoring systems (CMSs) when both are installed in the same VM600 rack (for example, as required by API 670).

In this way, MPS and CMS configurations use separate tools with separate configuration files. So it is simply not possible for access and/or changes to a CMS (VibroSight Configurator) to interfere in the operation of a MPS (VibroSight Protect) in the same VM600 rack, whether by accident or intent.

(For reference, VM600^{Mk1} machinery protection systems (MPSs) are configured and operated using the VM600 MPSx software.)

The other existing VibroSight software modules are used for the operation and management of VM600^{Mk2} cards in the usual manner. For example, VibroSight Vision is used to display measurements from MPC4^{Mk2} + IOC4^{Mk2} modules, while VibroSight System Manager is used to update firmware, download log files, and so on.

VibroSight Protect and VM600^{Mk2} systems

VibroSight Protect is the new VibroSight software module, featuring a modern and ultra-clear user-interface, designed for the configuration and operation of VM600^{Mk2} systems for machinery protection.

VibroSight Protect allows for the configuration of complete VM600Mk2 systems, consisting of:

- VM600^{Mk2} racks – 6U (ABE04x system racks) and 1U (ABE056 slimline racks)
- VM600^{Mk2} MPC4^{Mk2} + IOC4^{Mk2} modules
- RLC16^{Mk2} modules.

With VibroSight Protect, the signal list (Excel file) typically required by a VM600^{Mk1} system is no longer needed. A VM600^{Mk2} system configuration can now be created directly by an end-user and then used by Meggitt to build the system (as a VibroSight Protect configuration file contains all of the required information).

NOTE: VibroSight Protect is completely separate and distinct to VibroSight Capture and VibroSight Configurator in order to ensure the complete separation (“segregation”) of machinery protection and condition monitoring in a VM600 rack.

VibroSight Protect user interface – Welcome screen

When VibroSight Protect starts, the Welcome screen displays a view that allows the user to create a new VM600^{Mk2} system configuration (New system), open an existing VM600^{Mk2} system configuration file (Open Protect file) or connect to VM600^{Mk2} system hardware (Connect to system). This is shown in Figure 1.

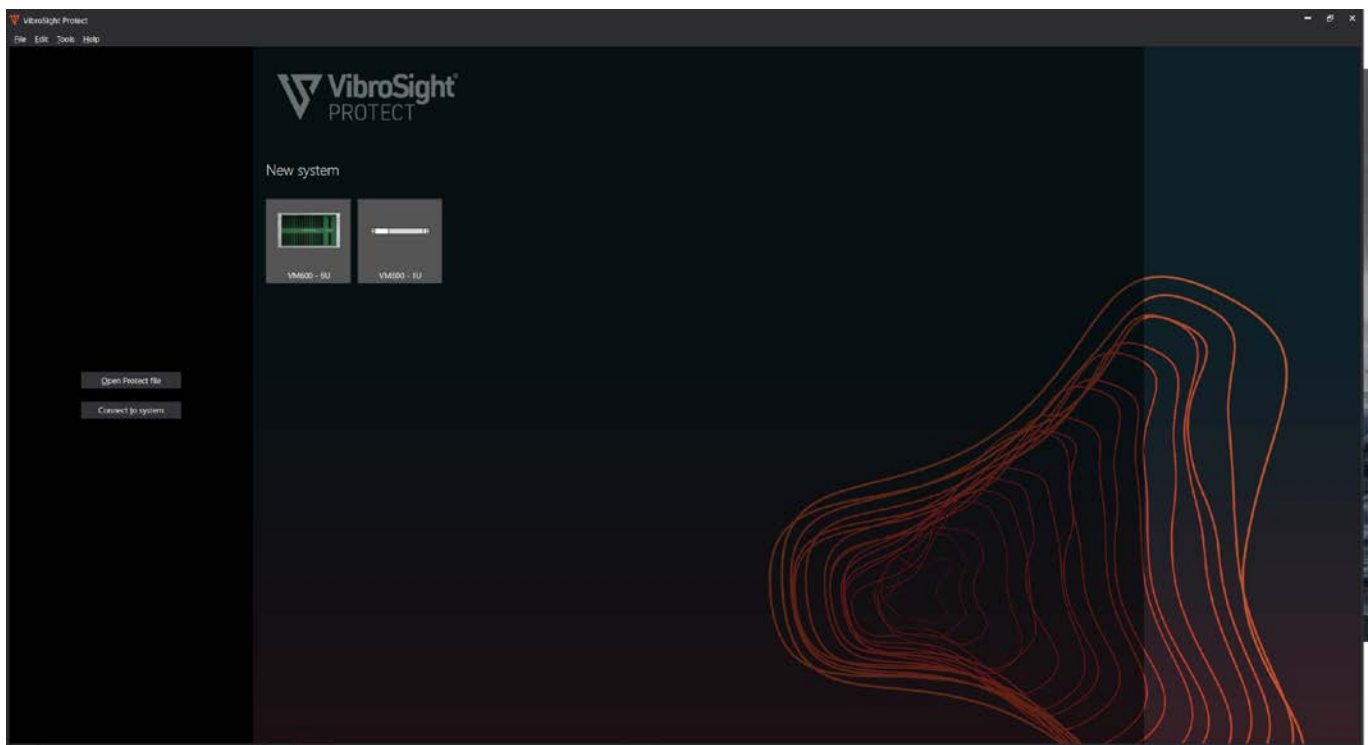


Figure 1: VibroSight Capture Welcome screen

Alternatively, the File menu command can be used to perform the same functions (New, Open, Connect).

For example, to start working on a new VM600^{Mk2} system configuration using a VM600 system rack (ABE04x), click the VM600 - 6U icon.

When working on a VM600^{Mk2} system (new or existing), the VibroSight Protect user interface consists of three main tabs/pages: Layout, Configure and Dashboard.

VibroSight Protect user interface – Layout tab/page

The Layout tab/page is used for the configuration and display of general information for the VM600 rack / VM600^{Mk2} system. This is shown in Figure 2.

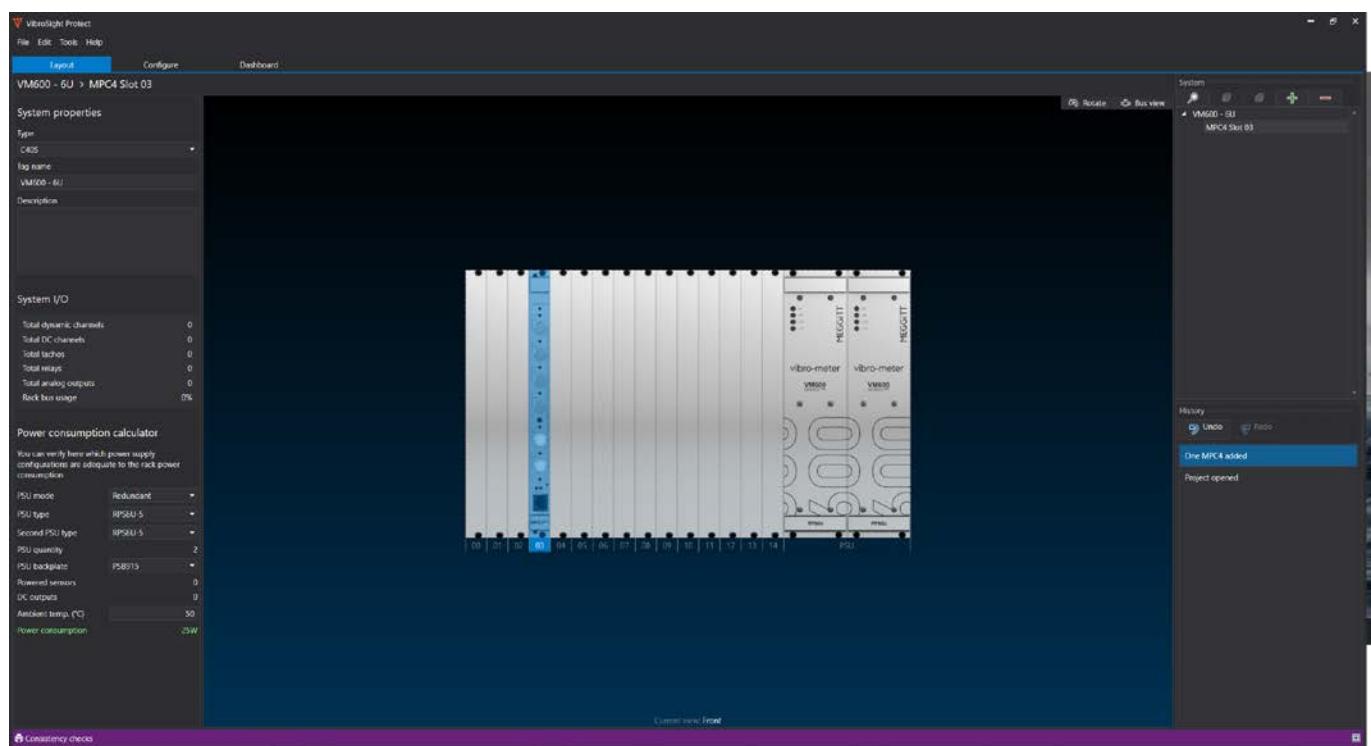


Figure 2: VibroSight Protect Layout tab/page

System properties (left) is used to define information about the rack, including the specific type of rack.

System I/O (left) provides summary information on the inputs, outputs and resources used by the rack. This is dynamically updated as modules are added to the rack and configured.

Power consumption calculator (left) is used to define information about the power supply configuration used by the rack. This is dynamically updated as modules are added to the rack and configured, so that the user knows if the power supply configuration is suitable for the populated rack.

Main window (centre) is used to add modules to the rack. Double-clicking a blank (empty) rack position/slot allows a new module to be selected for that position/slot.

For example:

MPC4^{Mk2} modules can be added in position/slot 3 to 14 (front of rack). When a MPC4^{Mk2} module is added, the associated IOC4^{Mk2} module is automatically added in the corresponding position/slot in the rear of the rack.

RLC16^{Mk2} modules can be added in position/slot 1 to 14 (rear of rack).

In the main window, the Rotate control (top right) is used to toggle the view of the rack between the front view or the rear view.

In the main window, the Bus view control (top right) is used to toggle the view between the rack view or the rack buses view. The Bus view is shown in Figure 3.

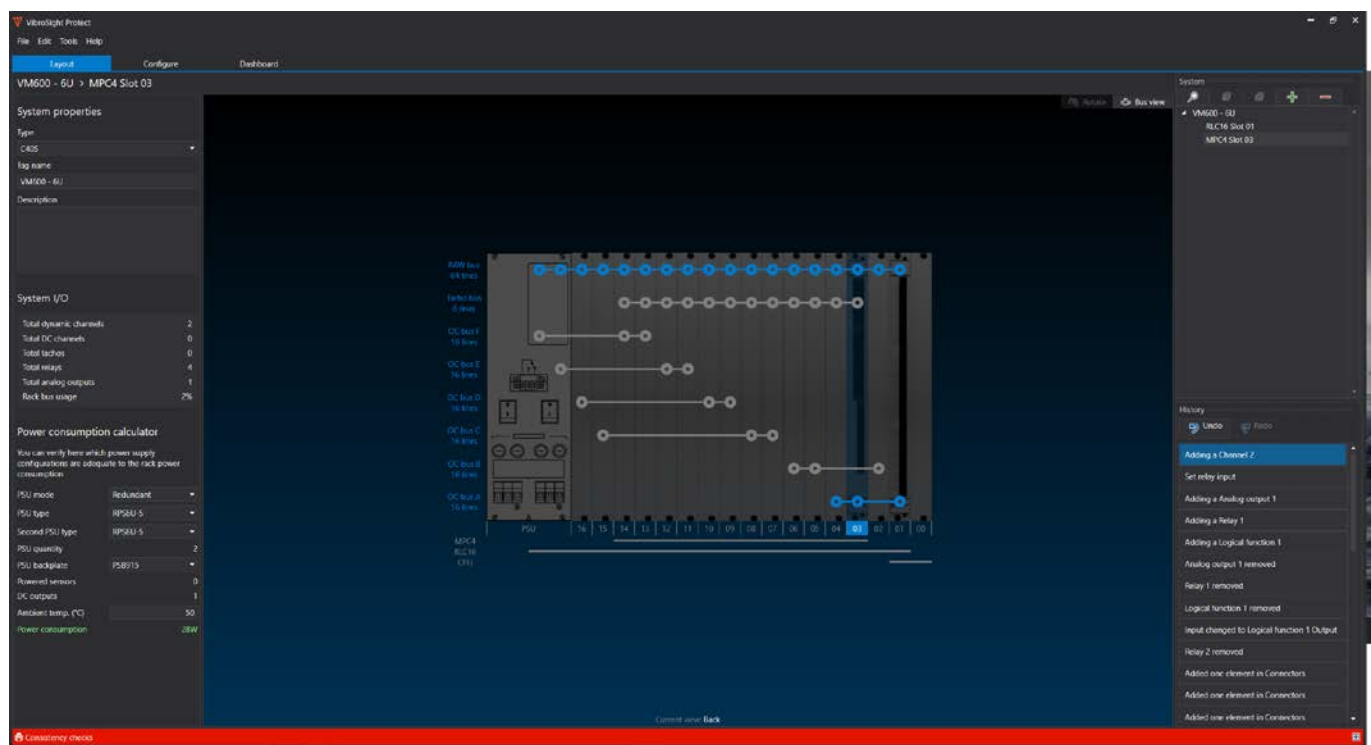


Figure 3: VibroSight Protect Layout tab/page – Bus view

In the Bus view, the rack buses are shown as grey if unused or shown as blue if used. If a bus is used, then jumpers on the IOC4^{Mk2} and/or RLC16^{Mk2} are must be manually configured. Jumper configuration is available from the Configure tab/page by selecting each module and then its Jumpers tab.

To display more detailed information on the configuration and usage of individual VM600 rack buses, click one of the bus names (left of rack) on the Bus view in order to display an individual bus window:

- [Raw bus](#)
[64 lines](#)

- [Tacho bus](#)
[6 lines](#)
- [OC Bus F](#)
[16 lines](#)
to
[OC Bus A](#)
[16 lines](#)

The individual bus windows for the Tacho bus, Raw bus and OC Bus *n* display detailed information on the configuration and usage of the individual VM600 rack bus. Initially, they show the default bus configuration as determined by VibroSight Protect for the application. They also allow the automatically assigned bus configuration to be changed, should this become necessary.

System (right) is used to remove modules from the rack.

History (right) is used to undo or redo recent changes to the rack using the “–” icon (Remove item).

Consistency check (bottom) is used to run and/or display consistency check information so that any problems in the VM600^{Mk2} system configuration can be corrected. The Consistency check title bar is displayed in purple if no problems are detected but is displayed in red if problems are detected.

Clicking on the Consistency check title bar expands or collapses the consistency check window, as required.

VibroSight Protect user interface – Configure tab/page

The Configure tab/page is used for the configuration and display of general information for the modules in the VM600 rack / VM600^{Mk2} system, that is, the VM600^{Mk2} MPC4^{Mk2} + IOC4^{Mk2} and RLC16^{Mk2}. This is shown in Figure 2.

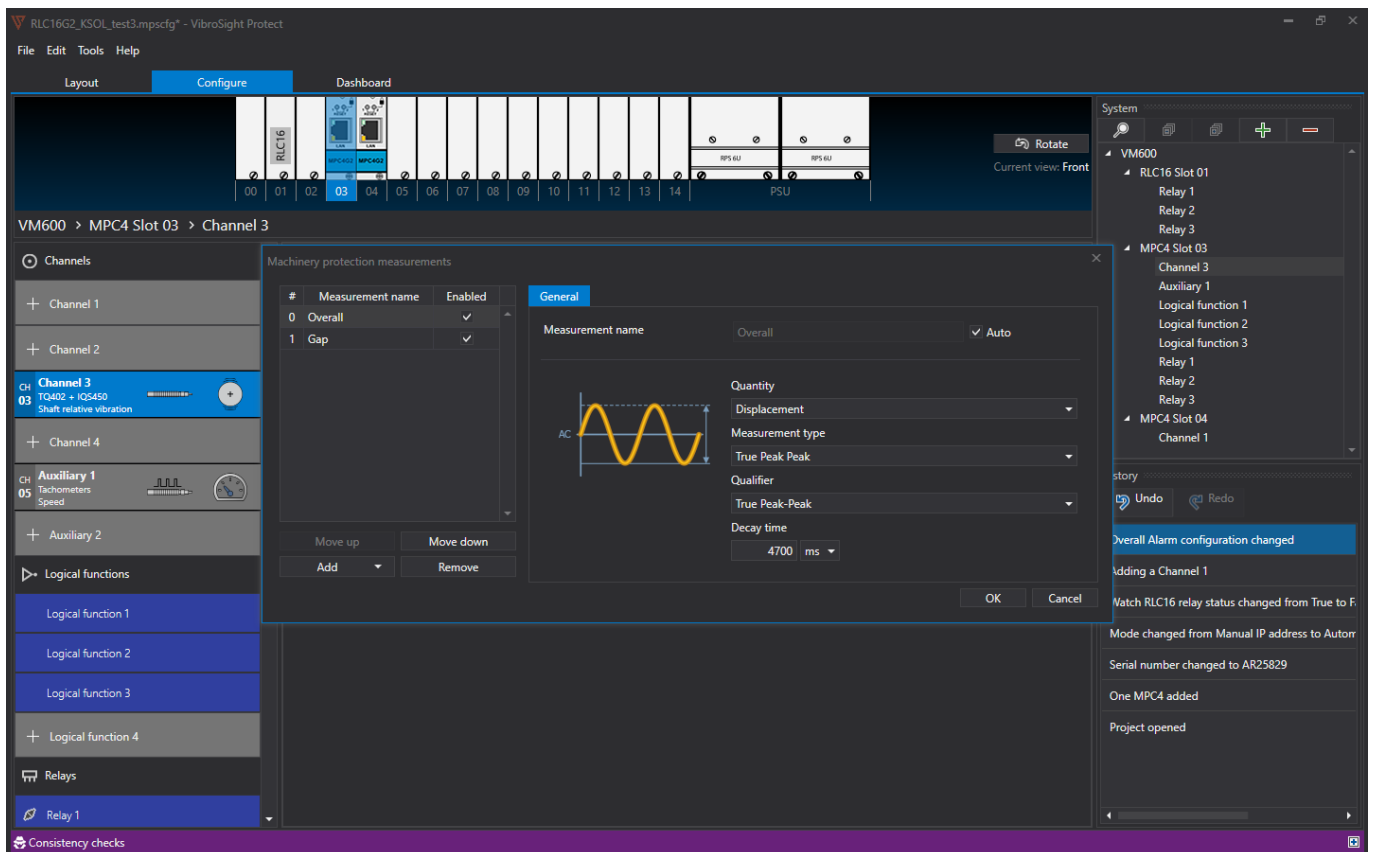


Figure 4: VibroSight Configure Layout tab/page

Main window (top) shows the bottom portion of the rack configured in the Layout tab/page.

As in the Layout tab/page, the Rotate control (top right) is used to toggle the view of the rack between the front view or the rear view.

When a VM600^{Mk2} module is selected in the rack (top) by clicking on it, the main features for the module are displayed in functional groups in the main window (left) and general information for the module is displayed in the main window (centre).

For a VM600^{Mk2} MPC4^{Mk2} + IOC4^{Mk2} module, the main features are Channels, Logical functions, Relays and Analog outputs. And the general information includes module Enable, Name and Description, Network settings (IP address) and the Watch RLC16 relay status control on the General tab and the required jumper configuration on the Jumpers tab.

For a VM600^{Mk2} RLC16^{Mk2} module, the main features are Logical functions and Relays. And the general information includes module Enable, Name and Description on the General tab and the required jumper configuration on the Jumpers tab.

When an item is selected from a functional group in the main window (left), the main window (centre) updates to display the information for the item, including all configurable parameters.

For VM600^{Mk2} MPC4^{Mk2} + IOC4^{Mk2} modules

When a Channel is selected for a VM600^{Mk2} MPC4^{Mk2} + IOC4^{Mk2} module by clicking on it (in a functional group, left) and the channel is not yet configured, a Configuration of a Channel window is displayed that guides the user through the configuration of the channel in terms of:

- Processing type: single-channel or dual-channel.
- Processing function (based on sensor family): For example, bearing absolute vibration or shaft relative vibration.
- Input signal: From a library of sensors / measurement chains.
Note: The default Library can be expanded by editing sensors / measurement chains and/or adding new ones (vibro-meter® or third-party), as required.
- When a Channel is selected for a VM600^{Mk2} MPC4^{Mk2} + IOC4^{Mk2} module by clicking on it and the channel is already configured, the information for the channel is displayed in a series of tabs (General, Processing, Alarms).

Once the Channel is configured, the information for the channel is displayed in a series of tabs (General, Processing, Alarms).

Similarly, when a Channel is selected for a VM600^{Mk2} MPC4^{Mk2} + IOC4^{Mk2} module by clicking on it (in a functional group, left) and the channel is already configured, the information for the channel is displayed in a series of tabs (General, Processing, Alarms).

For each Channel, the General, Processing and Alarms tabs must be edited in the main window (centre) to configure the parameters and functionality for the channel, as required by the application.

When a Logical function, Relay or Analog output is selected for a VM600^{Mk2} MPC4^{Mk2} + IOC4^{Mk2} module by clicking on it (in a functional group, left), the information and parameters for the feature are displayed in the main window (centre), where they must be edited, as required by the application.

For RLC16^{Mk2} modules

When a Logical function or Relay is selected for a VM600^{Mk2} RLC16^{Mk2} module by clicking on it (in a functional group, left), the information and parameters for the feature are displayed in the main window (centre), where they must be edited, as required by the application.

As in the Layout tab/page, System (right) is used to remove modules from the rack, History (right) is used to undo or redo recent changes to the rack using the “—” icon (Remove item) and Consistency check (bottom) is used to run

and/or display consistency check information so that any problems in the VM600^{Mk2} system configuration can be corrected.

VibroSight Protect user interface – Dashboard tab/page

The Dashboard tab/page is used to upload a VM600^{Mk2} system configuration to a VM600 rack and/or operate the VM600^{Mk2} system. This is shown in Figure 5.

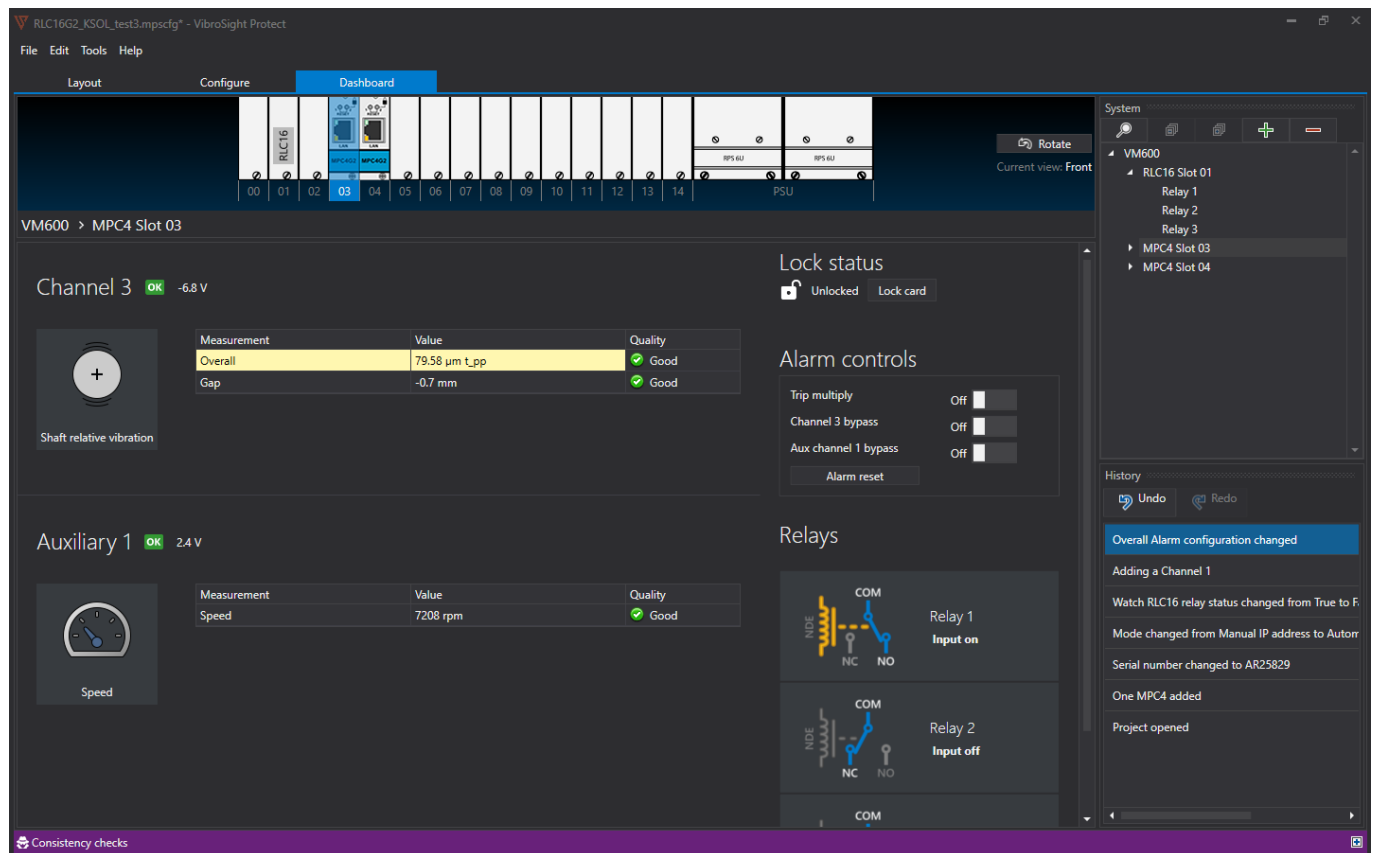


Figure 5: VibroSight Dashboard Layout tab/page

When a VM600^{Mk2} system configuration is uploaded to a VM600 rack:

- All of the modules contained in the configuration must be available at the same time. More specifically, all MPC4^{Mk2} modules must be connected to and available on the same network as the computer running VibroSight Protect. (This is typically done using a network switch.)
- When a configuration is uploaded to a VM600 rack, a MPC4^{Mk2} module will restart after receiving the configuration in order to enter their Power-up mode and perform a power-on self-test (POST), thereby helping to ensure that the configuration is correct and valid.
Note: A MPC4^{Mk2} module takes approximately 20 seconds to boot and complete its power-on self-test (POST).

- After successfully booting, a MPC4^{Mk2} module will revert to its Operational mode – in either the Locked state (safety/secure operating mode) or Unocked state (maintenance operating mode), depending on the Operational mode state it was in before rebooting.

VibroSight System Manager and VM600^{Mk2} systems

For VM600^{Mk2} systems, VibroSight System Manager is used to display information about VM600^{Mk2} MPC4^{Mk2} + IOC4^{Mk2} modules.

As shown in shown in Figure 6 (centre), under General Information, this includes the Operating mode, which for a MPC4^{Mk2} modules can be one of 4 modes:

- Power-up
- Operational
- Fail-safe
- Recovery.

Further, the Operational mode can be in one of 2 states:

- Locked (safety/secure operating mode)
The VM600^{Mk2} system performs its monitoring and protection functions while ensuring the security of the modules/system and it's configuration. That is, the configuration cannot be changed and maintenance activities cannot be performed.
- Unlocked (maintenance operating mode)
The VM600^{Mk2} system performs its monitoring and protection functions without ensuring the security of the modules/system and it's configuration. That is, the configuration can be changed and maintenance activities can be performed.

NOTE: Physical access to a VM600^{Mk2} system (specifically, the buttons on the front panel of VM600^{Mk2} module) is required in order to change the operating mode and therefore to be able to change the machinery protection (MPS) functionality for a VM600^{Mk2} system.

The Lock state is shown under Diagnostics (see Figure 6), as are the firmware versions available on the module (under Firmware versions).

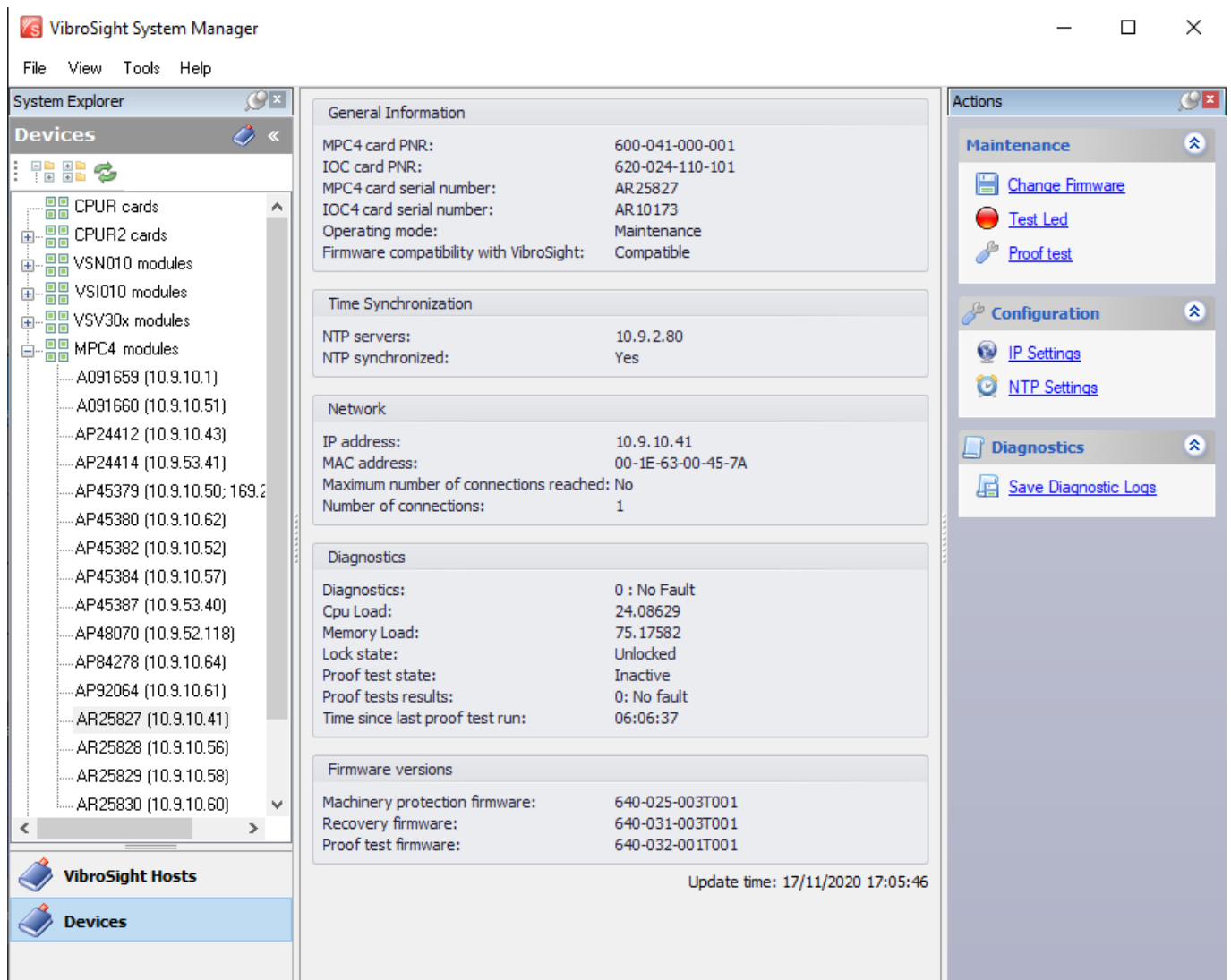


Figure 6: VibroSight System Manager information and actions for a MPC4^{Mk2} module

Figure 6 (right) also shows the various actions/tasks that VibroSight System Manager can perform for MPC4^{Mk2} modules, notably:

- Maintenance: Changing firmware, LED test and module identification.
- Configuration: Configuration of IP and NTP settings.
- Diagnostics: Download of diagnostics log.

VM600^{Mk2} MPC4^{Mk2} + IOC4^{Mk2} module factory assigned defaults

Unless already configured as part of a VM600^{Mk2} solution, VM600^{Mk2} MPC4^{Mk2} + IOC4^{Mk2} modules are supplied with the following factory assigned defaults:

- Communications: LAN (Ethernet) port configured as Enabled using dynamic addressing (DHCP).
- Firmware: Loaded with latest version of Recovery firmware (640-031-vvv-ppp.Mpc4g2Fw) only.

Accordingly, the LAN (Ethernet) port must be configured to meet your communication requirements and the latest version of the Operational firmware (640-025-vvv-ppp.Mpc4g2Fw) must be uploaded.

Both of these tasks are performed using VibroSight System Manager and are explained in the *VM600^{Mk2} machinery protection system (MPS) quick start manual*.

2.2 VibroSight Server support for Modbus RTU communications

VibroSight 6.0.0 adds improved support for Modbus RTU (serial) communications so that a VibroSight Server can now also act as a Modbus server (slave) in order to more easily share data from the VibroSight system with third-party systems such as a DCS or PLC.

(Previously, VibroSight support for Modbus RTU (serial) allowed a VibroSight Server to act as Modbus client (master) only, in order to easily import data into the VibroSight system from third-party systems.)

VibroSight's implementation of Modbus RTU (serial interface):

- Supports the import and export of static data only, for example, extracted data entities.
- Is configurable for Modbus communication parameters such as baud rate (up to 38400), character format, device addresses (unit IDs), etc.
- Has a default data update rate of 1 second.

To configure a VibroSight Server to use a Modbus RTU server (slave)

In VibroSight Configurator:

1. Create a new VibroSight Server configuration (**File > New > VibroSight Server configuration**) or open and modify an existing one (**File > Open > ... (*.vscfg)**).
2. In the Hardware view (right), right-click the **VibroSight Server Configuration** (the root node in the hierarchical tree structure), then click **New Serial Modbus Device**.
A new Serial Modbus Device node is added under the VibroSight Server Configuration in the hierarchical tree (Hardware view) and the parameters window (centre) updates to display the parameters for the Serial Modbus Device.
3. In the parameters window (centre), change the **Mode** control to **Modbus Slave** to configure the Serial Modbus Device for operation as a Modbus server (slave).

Note:

- **Mode: Modbus Master** (the default) configures the Serial Modbus Device for operation as a Modbus client (master), which allows VibroSight to act as Modbus master device and request data from Modbus server (slave) devices (that is, data import).
- **Mode: Modbus Slave** configures the Serial Modbus Device for operation as a Modbus server (slave), which allows VibroSight to act as Modbus slave device and respond to requests for data from Modbus client (master) devices (that is, data export).

Configure the remainder of the Modbus communication parameters for the Serial Modbus Device as usual.

Note:

- When configuring a Serial Modbus Device as a Modbus client (**Mode: Modbus Master**), the **Unit ID** is the address of the remote Modbus server (slave) device that VibroSight requests data from.
- When configuring a Serial Modbus Device as a Modbus server (**Mode: Modbus Slave**), the **Unit ID** is the address of the VibroSight Modbus server (slave) device itself.

4. In the Hardware view (right), right-click the **Serial Modbus Device**, then click New Processing Block to add and configure a Processing Block for the Serial Modbus Device, notably the data update rate.

Note:

- When configuring a Serial Modbus Device as a Modbus server (**Mode: Modbus Slave**), the **Request data in block** control is not used as it is not applicable to a Modbus server (slave).

5. In the Hardware view (right), right-click the **Processing Block** node, then click New Data Entity to add and configure a Data Entity for the Serial Modbus Device, including the Modbus data mapping
6. Save the configuration file, generate a Server / Database and activate the configuration on the VibroSight Server in the usual way.

Once the VibroSight Server is generated and activated in the usual way, it is ready and available to provide data via Modbus RTU.

2.3 Export and import of configurations for a VibroSight OPC UA client

VibroSight 6.0.0 adds improved support for OPC UA client configuration in order to make it easier to configure a VibroSight Server with an OPC UA Device to act as an OPC client in order to more easily import data into a VibroSight system from third-party systems such as a DCS or PLC.

(Previously, VibroSight support for OPC UA client configuration required that each data entity (OPC tag) was configured manually, although OPC clients (OPC Devices) did support the Import from CSV and Export to CSV.)

VibroSight OPC UA clients (OPC UA Devices) now support the use of comma-separated values (CSV) files to share OPC UA configuration information (in the same way that OPC clients (OPC Devices) already do:

- A VibroSight OPC UA client can export an OPC UA configuration that was entered in VibroSight Configurator in order to more easily share it with another system.
- A VibroSight OPC UA client can import an OPC UA configuration that was generated in a different VibroSight configuration or a third party system in order to avoid manually re-entering the configuration in VibroSight Configurator.

This new feature helps avoid the errors in manually entering OPC UA configuration information and also saves considerable time for systems using large OPC UA configurations.

To export OPC UA configuration information

In VibroSight Configurator:

1. Create a new VibroSight Server configuration (**File > New > VibroSight Server configuration**) or open and modify an existing one (**File > Open > ... (*.vscfg)**).
2. In the Hardware view (right), right-click the **VibroSight Server Configuration** (the root node in the hierarchical tree structure), then click **New OPC UA Device**.
A new OPC UA Device node is added under the VibroSight Server Configuration in the hierarchical tree (Hardware view) and the parameters window (centre) updates to display the parameters for the OPC UA Device.
3. In the parameters window (centre), configure the OPC UA Device for operation as usual, notably the OPC UA Server and the security and authentication settings.
4. In the Hardware view (right), right-click the OPC UA Device, then click New Processing Block to add and configure a Processing Block for the OPC UA Device, notably the publishing interval (data update rate).
5. In the Hardware view (right), right-click the **Processing Block** node, then click New Scalar Data Entity to add and configure a Scalar Data Entity for the OPC UA Device.

Note:

Under OPC UA Node ("tag"), the Browse button can be used to select the OPC data item from the list published by the OPC UA Server (configured at the OPC UA Device node level).

6. Once the Processing Blocks and Scalar Data Entities have been configured as required, in the Hardware view (right) at either an OPC UA Device or Processing Block node level, right-click, then click **Export to CSV**.
7. Use the Export to CSV dialog box that appears to navigate the folders on the computer and select in which folder and under what file name to save the OPC UA configuration.
The OPC UA configuration is exported and a message is displayed with a count of the number of processing blocks and data entities exported

To import OPC UA configuration information

In VibroSight Configurator:

1. Create a new VibroSight Server configuration (**File > New > VibroSight Server configuration**) or open and modify an existing one (**File > Open > ... (*.vscfg)**).
2. In the Hardware view (right), right-click the **VibroSight Server Configuration** (the root node in the hierarchical tree structure), then click **New OPC UA Device**.
A new OPC UA Device node is added under the VibroSight Server Configuration in the hierarchical tree (Hardware view) and the parameters window (centre) updates to display the parameters for the OPC UA Device.
3. In the parameters window (centre), configure the OPC UA Device for operation as usual, notably the OPC UA Server and the security and authentication settings.
8. In the Hardware view (right), at either an OPC UA Device or Processing Block node level, right-click, then click **Import from CSV**.
9. Use the Import from CSV dialog box that appears to navigate the folders on the computer and select the file containing the OPC UA configuration and click Open to continue.
10. Use the Import from CSV wizard that appears to select the appropriate Delimiter and File encoding, as used by the CSV file and click Next to continue.
Note: Delimiter: Comma and File origin: 1252: Western European (Windows) are suitable for most CSV files, including those exported by VibroSight Configurator.
11. The Import from CSV wizard will parse the CSV file.
For a valid CSV file, the OPC UA configuration is imported.
For an invalid CSV file, for example, with missing mandatory values or invalid values, appropriate messages are displayed to the user.
12. After importation, the OPC UA configuration is available in the Hardware view of VibroSight Configurator as Processing Blocks and Scalar Data Entities.

The configurable parameters for a Modbus measurement that are exported/imported by VibroSight Modbus clients include:

- At the Processing Block level: name, state, publishing interval (update rate).
- At the Scalar Data Entity level: name, state, OPC UA node ("tag"), physical quantity, unit, qualifier, scale factor, FDR min unit, FDR min value, FDR max unit, FDR max value, alarm state, alarm event generation state, alarm unit, alarm severities, alarm limits.

Application tips and tricks

Before using a CSV file to import OPC UA configuration information for the first time, it is a good idea to generate a simple "dummy" OPC UA Device configuration and export it to CSV. The exported CSV file is a useful template/reference CSV file that can be used to help structure information from third-party OPC systems into the CSV file format used by VibroSight Configurator.

2.4 VibroSight Vision performance configuration

VibroSight 6.0.0 adds the ability to configure performance limits in VibroSight Vision so that the behaviour of VibroSight Vision can be optimised, depending on the capabilities of computer system that the software is running on and the user requirements.

To configure VibroSight Vision performance limits

In VibroSight Vision:

1. Click **Tools > Options** to display the configurable options for VibroSight Vision.
2. In the Options window, click **Performance** (left) to display the performance limits information.
3. Under **General** (right), use the slider control to select a computer system that matches the type of computer that the VibroSight software is running on:
 - **Standard** corresponds to a typical general-purpose computer as used for standard machinery monitoring applications.
 - **High** corresponds to a typical high-performance computer as used by demanding machinery monitoring applications. For example, a computer with a powerful processor (64-bit (x64) CPU), lots of system memory (RAM) and a dedicated/separate graphics card.
 - **Unlimited** corresponds to a really high-performance computer.
4. Under **Dynamic data plots** (right), enter the maximum total number of items (curves) that should be displayed in any one dynamic data plot (such as waveforms, spectra or orbits).
5. Click **OK** to confirm any changes and continue.

Note: By default, VibroSight Vision defaults to a **Standard** computer with and **250** curves (max.) in a plot.

2.5 Mathematical post-processing support for vector data

VibroSight 6.0.0 adds improved support for vector data in VibroSight software's 'Mathematical outputs' application specific package. In a VibroSight Server's Math Processing Block, when a vector data entity is now used in a mathematical expression, both the amplitude/magnitude information (value) and the angle information (angle value) are available.

(Previously, VibroSight's Mathematical outputs package support for vector data allowed vectors to be used, however only the amplitude/magnitude information (value) was available as the angle information (angle value) was discarded.)

More specifically, the amplitude/magnitude (value) and angle (angle value) for a vector data entity is now available as complex number for use in mathematical expressions.

To do this, the vector data entity (amplitude, angle) is converted into a complex number (real part, imaginary part) as follows:

real part = amplitude × cosine (angle)

imaginary part = amplitude × sine (angle)

This effectively allows vector mathematical operations to be performed and tested (using the value and angle value inputs in the Input test values of the Test window) in VibroSight's Mathematical outputs package.

Application tips and tricks

Vector mathematical operations in VibroSight's Mathematical outputs package means that VibroSight can now be more easily used for the online balancing of steam turbines, amongst other operations.

VM600 cards

2.6 MPC4^{Mk2} + IOC4^{Mk2} – product launch firmware

To support the launch of the new VibroSight / VM600^{Mk2} systems, new officially released versions of firmware for the MPC4^{Mk2} + IOC4^{Mk2} machinery protection and condition monitoring module are now available.

NOTE:	VibroSight / VM600 ^{Mk2} is now officially released. Current “evaluation” versions of VibroSight / VM600 ^{Mk2} systems must be upgraded to the latest officially released VM600 ^{Mk2} MPC4 ^{Mk2} firmware – in order to use the system in “live” machinery protection system (MPS) applications. Contact Meggitt SA for further information.
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See 2.1 Support for VM600^{Mk2} – the next generation of VM600 machinery protection system, and 5.2.1 Card firmware.

3 Solved problems and bug fixes

3.1 General improvements and bug fixes

General stability improvements and bug fixes across the VibroSight 6.0.0 software.

3.2 Problems creating a VibroSight Server for VibroSmart VSI010 modules using the GOOSE communications interface

In VibroSight Configurator, when working with VibroSight Server configurations containing a VibroSmart VSI010 communications interface module using a GOOSE communications interface (IEC 61850 GOOSE protocol), problems could be experienced when saving the configuration as a server / database. For example, problems saving the configuration or problems establishing communications with the VibroSight Server.

3.3 Problems manually copying a VibroSight database

In VibroSight System Manager, when manually copying a VibroSight database using the Data repositories Copy command, problems could be experienced when only a few selected data items are required to be copied because the VibroSight Server incorrectly used default copy options that included all data.

3.4 Problems manually copying a VibroSight database

In VibroSight Configurator, working with VibroSight Server configurations containing an OPC UA Device (that is, an OPC client), when using the OPC UA Node browser at the Scalar data entity node level to select the OPC data item to use for the data entity, the OK button could be disabled, thereby preventing certain data items from being selected. (This happened if the TypeDefinition was different to the AnalogItemType, even though VibroSight is compatible with such data items.)

3.5 Problems saving diagnostic information in VibroSight Vision

In VibroSight Vision, when trying to save diagnostic information (Help > Save diagnostic information), the diagnostic information file could not be saved, depending on the other VibroSight application software modules open and running on the same computer.

3.6 Time slider controls not displayed in plots on some computers

When displaying plots such as Waveform plots that include time slider controls in VibroSight Vision, the time slider controls were not being displayed on some computers. This issue was reported mostly for Windows 10 computers.

The issue has been traced to the computer's display settings in general and display scaling settings in particular that are too low. On all of the Windows 10 computers tested, a display scaling setting/size of 125% or higher eliminated the problem.

For example: **Windows 10 > Display settings > Scale and layout – Scaling 125%.**

3.7 NTP timeouts between a VibroSight Server and a VibroSmart module

Under certain circumstances, a VibroSight Server could not obtain the requested NTP time from VibroSmart a module, with the VibroSight Server displaying a message such as “Unable to retrieve the current date for device '192.168.0.5': it does not respond.” and spammed log files.

3.8 OPC UA exception when two VibroSight Servers using OPC UA servers running on one computer

When attempting to run two VibroSight Servers using OPC UA servers on one computer, only one of the VibroSight Servers would run, with the VibroSight Server displaying a message such as “Unable to start OPC UA Server. Unexpected exception prevented the start the OPC UA Server.”

3.9 Problems with spectra polarity in Full Spectrum plots

When displaying Full Spectrum plots in VibroSight Vision, spectra amplitudes were displayed correctly but the sign of the spectra amplitudes could be displayed incorrectly for certain configurations. More specifically, depending on the relative sensor orientations and the shaft's sense of rotation, the order of the dual shaft relative processing could be incorrect, resulting in incorrect spectra polarity.

Note: A workaround was previously available for this bug that involved changing the order of the probes/channels in the dual shaft relative processing block such that the first channel seen by the system (that is, the first “pass by” depending on sensor orientation and shaft rotation) was first in the processing block (that is, X Channel Setup (on left)).

3.10 VibroSight Server memory leak

Depending on the configuration, a VibroSight Server could exhibit a memory leak such that the server memory usage gradually increased, affecting performance, until all system memory (RAM) was used.

3.11 Slow generation of rotor signatures for Hydro air-gap monitoring package using VibroSmart VSV30x modules

In VibroSight Vision, the generation and display of rotor signatures by the Hydro air-gap monitoring package was slow when VibroSmart VSV30x modules were used (approx. 2 minutes).

3.12 Problems with time-based data logging rule

Depending on the configuration:

- Time-based data logging rules without a condition could log dynamic data (such as waveforms, spectra or orbits) for a time period before data logging was enabled using the Data logging manager control in the VibroSight Server.
- Time-based data logging rules with a condition – for systems using VibroSmart modules – could log static data correctly but dynamic data (such as waveforms, spectra or orbits) incorrectly, omitting the first two dynamic data items when the condition becomes true and adding two extra dynamic data items after the condition becomes false.
- Time-based data logging rules with a condition and pre-logging enabled could log static data at a logging rate of 100 ms during the pre-logging time period and when the condition initially becomes true (for a few seconds), even though the logging rate for the rule was configured as 1 second.

3.13 Problem with alarm-event-based data logging rule

Depending on the configuration, alarm-event-based data logging rules with pre-logging and/or post-logging enabled at a logging rate of 100 ms and Data entities that included waveforms, orbits, spectra and/or full spectra, could log data incorrectly with the VibroSight Server displaying messages such as “Card ... did not send all required waveforms / spectra”. For example, waveforms could be missing data points for the post-logging time period, no spectra could be available for the pre-logging time period and/or full spectra could be available reduced data rates of 1 or 10 second for the pre-logging time period.

3.14 OPC UA Server publishing data values with different qualifiers

For VibroSight measurements (data entities) made with certain qualifiers (rectifiers), a VibroSight OPC UA Server actually publishes the data values using a different qualifier. So while the published data value is correct for the qualifier used, the qualifier used is not the one expected.

For example, measurements configured as True Peak-Peak (t_pp) were exported as Scaled True Peak-Peak (st_pp), and measurements configured as Scaled Average (t_avg) were exported as True RMS (t_RMS).

This has been fixed so that the qualifier configured for the measurement (data entities) is the qualifier used for data export. Please note that in addition to correcting the VibroSight OPC UA Server, the same fix was similarly applied to the VibroSight OPC Classic and Modbus servers.

4 Known issues

4.1 Display of timestamps in VibroSight Vision

In VibroSight Vision, when the timestamps (date and time) are configured to be displayed as Site time or Local computer time and the site time or local computer time is subsequently changed on the relevant computer (for example, using Windows > Control Panel > Date and Time), this change is not reflected in the VibroSight Vision user interface until the user clicks on the **Timestamp** displayed in the VibroSight Vision status bar.

4.2 VibroSight Server and Host Service restart required after changes to network adapter

If the configuration of a network adapter is changed (for example, enabled or disabled, connected or disconnected) on a computer running VibroSight, then the VibroSight Servers and Host Services running on the computer must be restarted in order for the network adapter to be recognized by the VibroSight discovery mechanism.

4.3 Length limitation of VibroSight Server instance names

Since VibroSight 2.9.6, VibroSight Server instance names are limited to 18 characters, whereas up to 27 characters were allowed in previous versions. This constraint is enforced during the creation of new server instances with VibroSight 2.9.6 or later.

NOTE: VibroSight allows only alphanumeric characters (A to Z, a to z, 0 to 9), the hyphen-minus character (-) and the underscore character (_) to be used for VibroSight Server names.

However, existing server instances may be non-compliant (too long) and no longer run after an upgrade of the VibroSight software. In such cases, the file names used for a VibroSight Server database file (*.vssrvdb or *.db) and a VibroSight Server configuration file (*.vssrvcfg or *.config) should be updated (and manually edited in the VibroSight configuration file) to be 18 characters or less. Changes may also be required in any VibroSight software that references the server instance name, such as VibroSight Vision projects.

Where used, the automated data management commands and operations that append a timestamp (_yyyyMMddHHmmss) to the Server instance name reduces the number of file name characters that remain available for VibroSight Server instance names to three. Alternatively, the server instance name can be shorted after the data repository command or operation is complete.

Also, depending on the VibroSight Server data repository (database) file names used and any truncation performed by VibroSight, it is possible that servers are created with names that contain non-allowed characters (such as spaces), with the result that these servers will not be accessible by VibroSight software clients. Similarly, duplicate VibroSight Server names are also possible.

NOTE: Choose appropriate VibroSight Server names in order to avoid name conflicts arising due to truncation and/or additional data repositories being created during automatic data management.

This is particularly important for systems with automated data management and system backup procedures that can generate VibroSight Server data repositories with different file names.

4.4 Display of timestamps in VibroSight clients other than VibroSight Vision

Although VibroSight Vision now supports the display of timestamps (date and time) as either Site time, UTC time or Local computer time, all other VibroSight client software modules continue to display timestamps in local computer time only (that is, the date and time according to the local clock of the computer running the VibroSight software module).

4.5 Display of devices in VibroSight System Manager

In the System Explorer window of VibroSight System Manager, the Devices tree-view does not always update correctly to show all of the devices (VM600 cards and VibroSmart devices) available on the network.

In particular, this has been seen when changing the firmware of a device, and can persist even after a refresh (using the **Refresh** toolbar button or **View > Refresh**).

If this behaviour is seen, the recommended workaround is to:

- Wait a few minutes and refresh again.
- Restart VibroSight System Manager.

4.6 VibroSight Mimic backwards compatibility

VibroSight 2.10.0 contained significant improvements and changes, including a separate VibroSight Mimic client software module for mimics (that were previously available in VibroSight Vision). As a result, VibroSight Vision mimics created with VibroSight 2.9.7 or earlier are not compatible with VibroSight 2.10.0 or later.

VibroSight 2.11.0 contained significant improvements and changes to the VibroSight Mimic client software module. As a result, VibroSight Vision mimics created with VibroSight 2.10.1 or earlier are not compatible with VibroSight 2.11.0 or later.

VibroSight 2.11.5 contained significant improvements to the VibroSight Mimic project framework to include version information, in order to improve the compatibility between projects created with different versions of VibroSight Mimic and eliminate the requirement for the recreation of Mimics. Starting with VibroSight 2.11.5, Mimic projects automatically detect any changes in the VibroSight Mimic software that affect project compatibility, inform the user and update the project as required.

NOTE: VibroSight 2.11.5 is also able to open and work with Mimic projects created with VibroSight 2.11.0 or later, if the corresponding database had been updated as required.

NOTE: When updating existing machinery monitoring projects created with VibroSight 2.12.x to VibroSight 3.x.x or later, a new data repository created by copying a VibroSight database (*.vssrvdb) to a VibroSight historical data folder (*.vshdf) must use the same server file name as the existing server in order for existing VibroSight Mimics to maintain links with the data repository and continue to work (without manual corrections).
In addition, the VibroSight Server using the new data repository must be running before the existing VibroSight Mimics are run for the first time, after the update.

4.7 VibroSight OPC Clients not recovering

When a VibroSight OPC Client is being used to import information from an external OPC server into a VibroSight system and the external OPC server becomes unavailable, the VibroSight OPC Client may not always recover automatically when the OPC server becomes available again.

This is typically characterised by the VibroSight OPC Client continuing to show connection error messages even when OPC server is available and can result in permanent loss of the imported data if not noticed.

NOTE: The external OPC data can be permanently lost if it is not imported into VibroSight as expected.

Any VibroSight system feature or configuration element relying on the imported OPC data will not behave as expected, for example, alarms, machinery operating conditions and data logging rules.

If this behaviour is seen, the recommended workaround is to:

- Stop and restart the VibroSight OPC Client from either the VibroSight Server (**Data > Acquisition > OPC Device Driver**) or VibroSight System Manager.
- Stop and restart the VibroSight Server, if required.

4.8 Duplicate events

For VibroSight systems using VM600 XMx16 cards, VibroSight Event Viewer retrieves all of the event information available from the data buffers on the cards.

For VibroSight systems using VibroSmart modules, VibroSight Event Viewer retrieves the event information available from the current time only (no buffered events).

Accordingly, for a VibroSight system using VM600 XMx16 cards, there is the possibility of duplicate events being listed in the Event Viewer, particularly for VibroSight systems being operated without an NTP server (where events are not recognised as duplicates due to time drift).

4.9 VibroSight Server status indicators

The status indicators (performance counter monitors) on the Status tab of the new VibroSight Server are not correctly displayed and updated when an NVIDIA WMI driver is installed on the same computer as the VibroSight Server.

NOTE:	The NVIDIA Enterprise Management Toolkit (NVWMI) is a graphics and display management and control technology that interfaces to Microsoft's Windows Management Instrumentation (WMI) infrastructure, specific to NVIDIA graphics processing units (GPUs).
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This is because NVIDIA WMI prevents the Microsoft .NET Framework from obtaining the required counter values from the underlying operating system / computer.

4.10 XMx16 card pre-logging

For an XMx16 card pair, if Dynamic Input Channel 16 is used as an input to a Dynamic Processing Block that is used as an input to a Dual Shaft Relative Processing Block which is configured to provide an Orbit and/or Full Spectrum output, then any pre-logging configured for the principal mode Waveform and/or Spectrum of Dynamic Input Channel 16 will not actually log any of the data from the same pre-logging scope.

4.11 Problems creating new VibroSight OPC Classic Servers

Users who have upgraded from an earlier version of VibroSight to a later version (for example, from VibroSight 2.x.x or 3.0.0 to VibroSight 3.1.0) can experience problems when creating new VibroSight OPC Classic Servers.

Such problems are typically characterised by the **OPC Server Create** command in VibroSight System Manager displaying an error message such as

"The type initializer for 'ch.VibroMeter.Xms.OpcServer.Utils.OpcServerUtils' threw an exception".

This typically occurs because an earlier version of the OpcServer.config file required by VibroSight OPC Classic Servers is being used by the later installation of VibroSight, which can happen in one of two ways:

- When a version of VibroSight 3.x.x or later is installed on a computer that was running a version of VibroSight 2.x.x or earlier, the VibroSight installer automatically checks existing VibroSight folders (such as **C:\ProgramData\Meggitt\VibroSight 2**) in order to copy relevant system and/or user preference files across to the new VibroSight folders (such as **C:\ProgramData\Meggitt\VibroSight**), including an earlier OpcServer.config file.

- When VibroSight 3.1.0 is installed on a computer that was running VibroSight 3.0.0, the creation of a VibroSight OPC Classic installer using VibroSight 3.0.0 automatically created an earlier OpcServer.config file.

As shown below, the first few lines of a typical OpcServer.config file contains version specific information that is incompatible with later versions of VibroSight:

```
<?xml version="1.0" encoding="utf-8"?>
<configuration>
  <configSections>
    <section name="opcServersConfiguration" type="ch.VibroMeter.Xms.OpcServer.Utls.OpcServersSystemConfiguration,
XmsOpcServerUtls, Version=2.0.0.0, Culture=neutral, PublicKeyToken=2db2a2387bac0a0a" />
  </configSections>
  ...
</configuration>
```

So for users who have upgraded from an earlier version of VibroSight to a later version, if problems are experienced when creating new VibroSight OPC Classic Servers, the workaround is to:

1. Use an XML-compatible text editor program to edit the OpcServer.config file and remove the version specific information. That is, change the line containing the section name from:

```
<section name="opcServersConfiguration" type="ch.VibroMeter.Xms.OpcServer.Utls.OpcServersSystemConfiguration,
XmsOpcServerUtls, Version=2.0.0.0, Culture=neutral, PublicKeyToken=2db2a2387bac0a0a" />
```


to:

```
<section name="opcServersConfiguration" type="ch.VibroMeter.Xms.OpcServer.Utls.OpcServersSystemConfiguration,
XmsOpcServerUtls, Culture=neutral, PublicKeyToken=2db2a2387bac0a0a" />
```

2. Restart the computer.

Note: The computer must be restarted to ensure that the edited version of the OpcServer.config file is used (and not some other version from cache memory).

3. Use the **OPC Server Create** command in VibroSight System as required.

NOTE: The manual migration of existing VibroSight OPC Classic Servers to VibroSight 3.x.x or later is described in detail in the "VibroSight OPC Classic Server migration" section of the latest  *Getting started with VibroSight installation guide*.

4.12 Potential TCP port 50000 conflict

The VibroSight Host Service (XmsHostService.exe) requires TCP port 50000 for communication with the VibroSight software. So if the computer running the VibroSight software is running other software which also requires TCP port 50000, this results in a TCP port conflict which can prevent VibroSight (or the other software) from running.

During the VibroSight software installation process, the VibroSight 3.4.x or later installer will typically detect other software on the computer that is using TCP port 50000 and report this. For example: "The port 50000 cannot be used. Please close all application using this port before manually starting the host service."

Accordingly, any potential TCP port 50000 conflicts should be resolved before the VibroSight software can be successfully installed and run.

4.13 Problems using shared network drives/locations for VibroSight data management

On computers running Windows 10 or Windows Server 2016, problems can be experienced using shared network drives/locations with VibroSight's integrated data management operations such as Offline data storage and Database backup (configured in VibroSight Configurator) due to Windows security policies and restrictions.

Such problems are typically characterised by the individual copy commands scheduled and run on a VibroSight Server (corresponding to Offline data storage and Database backup operations) failing to run correctly. More specifically, on the Data Management tab of a VibroSight Server, scheduled incremental copy jobs (Type: Copy) are typically displayed with Status: Error, while the Log Messages tab of the server display typically displays messages such as "Errors during the copy operation" and "Uncaught error IOException occurred in task 'Task 'DataRepositoryCopyDataMan...'".

NOTE:	For Windows 10 and Windows Server 2016, Microsoft improved network security with a change to the rules governing shared network drives/locations. More specifically, a shared network drive/location is now only accessible and visible to the user who created the shared network drive/location, even if the user is an Administrator.
--------------	--

Accordingly, in order to avoid such problems, a shared network drive/location on Windows 10 and Windows Server 2016 computers that is required to be used by VibroSight's integrated data management operations should be created as a "system account" in order to ensure that the required Windows Services can access the shared resource (drive/location).

This can easily be done using [Microsoft's PsExec utility](#). For example, by running the following command (as an Administrator):

```
PsExec.exe -i -s cmd.exe /C "net use Z: \\server\share"
```

Where the net use command is used to map the \\computer name\sharename (\\server\share) to the devicename (Z:).

NOTE: For Windows 10 and Windows Server 2016, Microsoft improved network security with a change to the rules governing shared network drives/locations. More specifically, a shared network drive/location is now only accessible and visible to the user who created the shared network drive/location, even if the user is an Administrator.

4.14 Problems installing VibroSight 3.7.x on computers without internet access

On computers which are not connected to the internet, the VibroSight 3.7.x installer can experience problems when automatically installing the prerequisite Microsoft Visual C++ Redistributable Package for Visual Studio 2015, and report a generic message such as "Setup Failed. One or more issues caused the setup to fail".

As a workaround, trying to manually install the Microsoft Visual C++ Redistributable Package for Visual Studio 2015, the Microsoft Visual C++ installer can also experience problems, and report a similar generic "Setup Failed" message.

This is a known Microsoft problem which is due to some components in Visual Studio being signed by a certification authority that is not installed on the computer, and the computer cannot automatically download the required certificate(s) because it is not connected to the internet.

Accordingly, the Microsoft solution is to:

1. On a computer which is connected to the internet, download the following certificate:
http://www.microsoft.com/pki/certs/MicRooCerAut2011_2011_03_22.crt
Then copy the certificate to the VibroSight computer (for example to C:\Temp).
2. On the VibroSight computer, use the certmgr.exe utility to add the certificate by using the command line.
Note: For more information, refer to the Certmgr.exe (Certificate Manager Tool) topic at MSDN.
3. Open an admin command prompt and run the following command:
`certmgr.exe /add C:\Temp\MicRooCerAut2011_2011_03_22.cer /s /r localMachine root`
4. Next, try installing the patch KB3135996 or KB3136000.

If required, additional information is available from a Microsoft MSDN blog, here:



<https://blogs.msdn.microsoft.com/vsnetsetup/2016/03/28/a-certificate-chain-could-not-be-built-to-a-trusted-root-authority-2>

5 Compatibility

As part of the VibroSight software installation process, the VibroSight installer will automatically check to see if the required Microsoft .NET Framework, Microsoft Visual C++ Redistributable Package, OPC Core Components Redistributable software and OPC UA Local Discovery Server are pre-installed on the computer:

- The required Microsoft Visual C++ Redistributable Package (see section 5.1.3) must be manually installed before VibroSight can be installed. If it is not detected, then the VibroSight installer will exit the installation and VibroSight is not installed.
- The required Microsoft .NET Framework (see section 5.1.2) is automatically installed by the VibroSight installer if it is not detected.
- The required OPC Core Components Redistributable (see section 5.1.4) software is automatically installed on the computer by the VibroSight installer if it is not detected.
- The required OPC UA Local Discovery Server (see section 5.1.5) software is automatically installed on the computer by the VibroSight installer if it is not detected.

NOTE:

Refer to the latest version of the  *Getting started with VibroSight installation guide* or the  *VibroSight software data sheet* for further information on VibroSight's prerequisites and compatibility.

5.1 VibroSight software

VibroSight 6.0.0 is a major level release and replaces VibroSight 5.1.x.

Compatibility with existing VibroSight data repositories (databases) is achieved using a specific data migration process from any existing databases based on Sybase SQL Anywhere (*.vssrvdb) to data repositories based on the VibroSight historical data repositories (VibroSight historical data folder (*.vshdf) for operation with a VibroSight Server (live data) and VibroSight historical data archive (*.vshda) for operation with historical data).


Compatibility with existing VibroSight machinery monitoring projects using VibroSight OPC Servers that were created using VibroSight 2.12.7 or earlier is achieved using a specific VibroSight OPC Server migration process for these VibroSight OPC Servers.

Therefore, it is important to note that:

- New machinery monitoring projects created with VibroSight 6.x.x (VibroSight 3.x.x or later) will automatically use VibroSight historical data repositories.
- Existing machinery monitoring projects created with versions of VibroSight earlier than VibroSight 3.0.0 must be manually migrated from Sybase SQL Anywhere databases to VibroSight historical data repositories before they can be used with VibroSight 6.x.x (VibroSight 3.x.x or later).
- Existing machinery monitoring projects using VibroSight OPC Servers that were created with versions of VibroSight earlier than VibroSight 2.12.7 must manually migrate their VibroSight OPC Servers before they can be used with VibroSight 6.x.x (VibroSight 3.x.x or later).

It is very important to note that migrating a VibroSight OPC Server from VibroSight 2.12.7 or earlier to

VibroSight 6.x.x (VibroSight 3.x.x or later) or later requires that certain steps must be performed using the existing version of VibroSight (that is, VibroSight 2.12.7 or earlier) BEFORE it is removed (uninstalled).

NOTE: The manual migration of an existing machinery monitoring project to VibroSight 6.x.x (VibroSight 3.x.x or later) or later is described in detail in the “Data migration” and “VibroSight OPC Server migration” sections of the latest  *Getting started with VibroSight installation guide*.

5.1.1 Microsoft Windows operating systems

VibroSight 6.x.x (VibroSight 3.x.x or later) or later is compatible with 32-bit versions and 64-bit versions of Microsoft® Windows® operating systems.

NOTE: Starting with VibroSight 3.0.0, VibroSight software is now available as 64-bit software for 64-bit Windows and 32-bit software for 32-bit Windows. The 64-bit version of VibroSight can be installed on 64-bit Windows computers only. The 32-bit version of VibroSight can be installed on 32-bit Windows computers only. Only a single version of VibroSight can be installed and exist on a computer at any one time

See the Appendix of these release notes for further information on VibroSight software and Windows operating system compatibility.

5.1.2 Microsoft .NET Framework

For most Windows operating systems, VibroSight 6.x.x (VibroSight 3.7.0 or later) requires that the Microsoft .NET Framework 4.7.2 or later is installed.

NOTE: VibroSight 6.x.x requires Microsoft .NET Framework 4.7.2.

If the required Microsoft .NET Framework is not pre-installed, then the VibroSight installer will detect this and automatically install it as part of the VibroSight software installation process.

See the Appendix of these release notes for further information on VibroSight software and Microsoft .NET Framework requirements.

5.1.3 Microsoft Visual C++ Redistributable Package

VibroSight 6.x.x (VibroSight 3.x.x or later) requires that the Microsoft Visual C++ Redistributable Package for Visual Studio 2015 is installed, in order to install and register the Visual C++ libraries used by VibroSight.

NOTE: The 64-bit version of the Microsoft Visual C++ Redistributable Package ("Microsoft Visual C++ 2015 Redistributable (x64)") must be installed on 64-bit Windows computers.
The 32-bit version of the Microsoft Visual C++ Redistributable Package ("Microsoft Visual C++ 2015 Redistributable (x86)") must be installed on 32-bit Windows computers.

If the required Microsoft Visual C++ Redistributable Package is not pre-installed, then the VibroSight installer will detect this and exit the installation.

5.1.4 OPC Core Components Redistributable

VibroSight 6.x.x (VibroSight 3.x.x or later) requires that the OPC Core Components Redistributable is installed, in order to configure and run VibroSight OPC Clients and VibroSight OPC Servers correctly: the redistributable must be installed on OPC client computers in order to allow connections to remote OPC servers and it must be installed on OPC server computers in order to allow OPC clients to browse for running OPC servers.

NOTE: The 64-bit version of the OPC Core Components Redistributable ("OPC Core Components Redistributable (x64) 106.0") must be installed on 64-bit Windows computers.
The 32-bit version of the OPC Core Components Redistributable ("OPC Core Components Redistributable (x86) 106.0") must be installed on 32-bit Windows computers.

If the required OPC Core Components Redistributable is not pre-installed, then the VibroSight installer will detect this and automatically install it as part of the VibroSight software installation.

5.1.5 OPC UA Local Discovery Server

VibroSight 6.x.x or later requires that the OPC UA Local Discovery Server is installed, in order to expose OPC UA servers for discovery and enable communications with OPC UA clients.

If the required OPC UA Local Discovery Server is not pre-installed, then the VibroSight installer will detect this and automatically install it as part of the VibroSight software installation.

5.1.6 Sybase SQL Anywhere 11 software

VibroSight 6.x.x (VibroSight 3.x.x or later) does not include any Sybase SQL database software.


Starting with VibroSight 3.0.0, the VibroSight historical data repositories (VibroSight historical data folder (*.vshdf) for operation with a VibroSight Server (live data) and VibroSight historical data archive (*.vshda) for operation with historical data) are exclusively used for the required data repositories.

A VibroSight database based on Sybase SQL Anywhere (*.vssrvdb) can no longer be used as a data repository. Accordingly, the Sybase SQL Anywhere 11 database software is no longer included and distributed as part of the VibroSight software.

NOTE: VibroSight 3.x.x or later exclusively uses data repositories based on the VibroSight historical data system.

VibroSight 2.12.7 used data repositories based on Sybase SQL Anywhere databases and introduced initial support for working with data repositories based on the VibroSight historical data repositories for data analysis.

VibroSight 2.12.6 or earlier exclusively used data repositories based on Sybase SQL Anywhere databases.

NOTE: The manual migration of an existing machinery monitoring project to VibroSight 6.x.x (VibroSight 3.x.x or later) is described in detail in the “Data migration” section of the latest  *Getting started with VibroSight installation guide*.

5.1.7 Dell Backup and Recovery software

Some Dell™ computers running versions of Dell Backup and Recovery software can experience problems running the VibroSight software, characterised by the VibroSight software not running or running incorrectly. This is because the Dell Backup and Recovery software can use a version of SQLite and associated libraries (DLLs) that prevent the VibroSight Host Service from running correctly.

For example, VibroSight clients can stop running (crash), VibroSight clients can be unable to connect to data sources and/or VibroSight System manager may not display all of the commands expected to be available in the Actions window.

If this behaviour is seen, the recommended workaround is to uninstall the Dell Backup and Recovery software.

NOTE: It is recommended to install and use VibroSight 3.x.x or earlier on a computer that does not have Dell Backup and Recovery software installed.

5.1.8 MatrikonOPC software

Both MatrikonOPC™ software and the VibroSight software can be installed and run on the same computer.

However, if the MatrikonOPC software is installed after the VibroSight software, this can result in problems related to credentials (access rights). These problems are typically characterised by an unhandled exception in VibroSight Configurator when trying to configure an OPC device in the Hardware view or an unhandled exception in a VibroSight Server when trying to handle/process OPC data.

MatrikonOPC software and the VibroSight software must be installed on the same computer in the following order:

1. Install the MatrikonOPC software.
2. Install the Microsoft Visual C++ Redistributable Package for Visual Studio 2010 (version 40219).
Note: This redistributable package is required by the MatrikonOPC software.
3. Install the Microsoft Visual C++ Redistributable Package for Visual Studio 2015 (version 23026 or later).
Note: This redistributable package is required by the VibroSight software.
4. Install VibroSight 3.x.x or later.

5.2 VM600 cards

5.2.1 Card firmware

There are some firmware upgrades for VM600 cards corresponding to VibroSight 6.0.0.

The latest firmware for the VM600^{Mk2} MPC4^{Mk2} card is now:

- Operational: 640-025-003-002.Mpc4g2Fw.
- Recovery: 640-031-003-002.Mpc4g2Fw.
- Proof test: 640-032-001-000.VxeFw.

See 2.6 MPC4^{Mk2} + IOC4^{Mk2} – product launch firmware.

The latest firmware for the VM600 CPUR2 card remains:

- Base System: base-system-640-014-001-003.tgz
- Applications: applications-640-015-001-003.tgz.

The latest firmware for the VM600 CPUR card remains:

- Base System: base-system-640-011-001-005.tgz
- Applications: applications-640-012-001-005.tgz.

NOTE: In order to help distinguish between VM600 CPUx cards, VibroSight 6.0.0 or later uses the following terminology:

- **CPU^{Mk2}** to refer to the latest VM600^{Mk2} version of the CPUx card with support for mathematical processing of fieldbus data and support for Modbus TCP and PROFIBUS DP (PNR 600-026-000-VVV).
- **CPUR2** to refer to the latest version of the CPUx card with support for PROFIBUS (PNR 600-026-000-VVV).
- **CPUR** to refer to the earlier version of the CPUx card with support for Modbus RTU/TCP and card pair redundancy (PNR 600-007-000-VVV).

(Previously, VibroSight 2.12.7 to 3.8.x used **CPUR** to refer to the CPUx card with PROFIBUS but VibroSight 4.x.x or later refers to this card as the **CPUR2**.)

The latest firmware for the VM600 XMC16, XMV16 and XMVS16 cards remains:

- Base System: base-system-640-003-001-016.tgz
- Applications: applications-640-010-001-016.tgz.

Therefore, for current “evaluation” versions of VibroSight / VM600^{Mk2} systems, firmware upgrades are required now that .VibroSight / VM600^{Mk2} is officially released – in order to use the system in “live” machinery protection system (MPS) applications.

5.3 VibroSmart devices

5.3.1 Module firmware

There are no firmware upgrades for VibroSmart modules and devices corresponding to VibroSight 6.0.0.

The latest firmware for the VSI010 module remains:

- 642-002-000-012.xmsifw.

The latest firmware for the VSN010 device remains:

- 642-004-000-011.redboxfw.

The latest firmware for the VSV30x module remains:

- 642-001-000-000DEV_SVN14937_2020-05-20.xtranfw.

Therefore, for current versions of VibroSmart modules and devices, firmware upgrades are not required.

6 Upgrade procedure

This section describes the procedure for upgrading a VibroSight system from a previous version. Perform the steps in the given sequence in order to complete a system upgrade.

NOTE: It is strongly recommended to verify the version of firmware running in the related hardware (XMx16 cards and VibroSmart modules and devices) before starting a VibroSight system upgrade, in order to establish if any firmware updates are also required.
See 6.2.3 Updating the firmware using VibroSight System Manager.

NOTE: It is strongly recommended to ensure that a copy of the configuration for a VibroSmart is available before updating the firmware of any of the VibroSmart modules used in the distributed monitoring system. See 6.2.3 Updating the firmware using VibroSight System Manager.

6.1 VibroSight software user settings

The VibroSight Software generates and uses some files on the storage device of the computer running VibroSight to keep track of user-configurable settings, so that these settings are remembered and applied for the VibroSight installation.

These settings files have an .xmssettings file name extension and on a computer running Windows 7, can be found here:

C:\Users\username\AppData\Roaming\Meggitt\VibroSight, where *username* is the Windows account name.

For example, the VibroSightVision.xmssettings file records the user-configurable default settings for VibroSight Vision, such as default settings for plots.

NOTE: VibroSight software updates and upgrades do not replace these settings files, so:

- For a computer on which VibroSight was previously installed, an update, upgrade or a re-installation of VibroSight will continue to use the previous defaults recorded in the .xmssettings files.
- For a computer on which VibroSight was not previously installed, the installation of VibroSight will generate and use new .xmssettings files, which use the latest VibroSight software defaults.

If a settings file is deleted for any reason, VibroSight will generate and use a new settings file, which uses the latest VibroSight software defaults.

6.2 Updating VibroSight-compatible hardware

Appropriate files and tools are included in the installation package to allow VM600 cards (XMx16) and VibroSmart devices (VSI010, VSN010 and VSV30x) to be updated to the latest firmware, in order to take advantage of improvements to the VibroSight software.

Updating the firmware VM600 cards or VibroSmart devices is a special task that can, if used unintentionally or incorrectly, lead to malfunctioning of the device and affect proper function of data acquisition.

During the firmware update of a device, the card or module being updated cannot provide its normal machinery monitoring functions because its outputs (alarms and relays) can go to undetermined states, irrespective of how they have been configured.

For VibroSmart modules, the machinery being monitored is not protected for the duration of a firmware update and the restart (reboot) that is triggered automatically after the firmware update (which can take up to 5 minutes).

NOTE: It is highly recommended that firmware updates are only performed in accordance with the operating procedures for the machinery being monitored and that appropriate precautions are taken at the control system level (such as DCS or PLC).

For example, alarms and relay outputs should be ignored (bypassed or inhibited) in order to avoid false trips of the machinery being monitored.

6.2.1 VM600 card firmware

The latest VM600 card firmware files are copied to a directory on your computer as part of the VibroSight software installation process.

NOTE: For example, the default firmware directory for VM600 cards is:
C:\Program Files\Meggitt\VibroSight\Firmware\VM600

The firmware files for a VM600 card can be found in the appropriate subfolder and identified by their .tgz file name extension. For example, the XMV16 subfolder contains the applications and base system firmware for use by XMV16 cards. Any additional firmware updates received from Meggitt SA should also be stored in these directories.

Table 1 shows the compatibility between VibroSight software and VM600^{Mk2} MPC4^{Mk2} card hardware (that is, MPC4^{Mk2} firmware).

Table 2 shows the compatibility between VibroSight software and VM600 CPUR2 card hardware (that is, CPUR2 firmware).

Table 3 shows the compatibility between VibroSight software and VM600 CPUR card hardware (that is, CPUR firmware).

Table 4 shows the compatibility between VibroSight software and VM600 XMx16 card hardware (that is, XMC16, XMV16 and XMVS16 firmware).

NOTE:	It is strongly recommended to use the most recent version of the VM600 CPUR firmware and VM600 XMx16 firmware that is compatible with the version of VibroSight software being used.
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Table 1: VibroSight software and VM600^{Mk2} MPC4^{Mk2} firmware compatibility

	VM600^{Mk2} MPC4^{Mk2} firmware See note 1		
VibroSight software version CD part number	Operational (640-025-vvv-ppp.Mpc4g2Fw)		
	640-025-001-000	640-025-002-000	640-025-003-002
	Recovery (640-031-vvv-ppp.Mpc4g2Fw)		
	---	---	640-031-003-002
	Proof test (640-032-vvv-ppp.VxeFw)		
	---	---	640-032-001-000
5.0.0 609-004-000-048	✓ See note 1		
5.1.0 609-004-000-049		✓ See note 2	
6.0.0 609-004-000-050			✓ See note 3

Notes for Table 1

1. This version of VM600^{Mk2} MPC4^{Mk2} (previously referred to as VM600 MPC4G2) firmware is a release intended to support the development and evaluation of VibroSight Protect and VM600^{Mk2} systems only.

2. This version of VM600^{Mk2} MPC4^{Mk2} (previously referred to as VM600 MPC4G2) firmware is a release intended to support the ongoing development and evaluation of VibroSight Protect and VM600^{Mk2} systems only. A firmware upgrade is required in order to run VibroSight 5.1.0 or later.

3. This version of VM600^{Mk2} MPC4^{Mk2} (previously referred to as VM600 MPC4G2) firmware is the official launch release of firmware supporting VibroSight Protect and VM600^{Mk2} systems. A firmware upgrade is required in order to run VibroSight 6.0.0 or later – and in order to use the system in “live” machinery protection system (MPS) applications. Contact Meggitt SA for further information.

Table 2: VibroSight software and VM600 CPUR2 firmware compatibility

VibroSight software version CD part number	VM600 CPUR2 firmware ^{See note 1}		
	Base-system (*.tgz)		
	640-014-001-001	640-014-001-002	640-014-001-003
	Applications (*.tgz)		
	640-015-001-001	640-015-001-002	640-015-001-003
3.4.0 609-004-000-041	✓ See note 2	✓ See note 3	✓
3.5.0 609-004-000-042	✓	✓	✓
3.6.0 609-004-000-043	✓	✓	✓
3.7.0 609-004-000-044	✓	✓	✓
3.8.0 609-004-000-045	✓	✓	✓
4.0.0 609-004-000-046	✓	✓	✓
4.1.0 609-004-000-047	✓	✓	✓ See note 4
5.0.0 609-004-000-048	✓	✓	✓
5.1.0 609-004-000-049	✓	✓	✓
6.0.0 609-004-000-050	✓	✓	✓

Notes for Table 2 (see the next page)

Notes for Table 2

1. VM600 CPUR2 firmware is packaged and distributed as a .tgz file (a compressed archive file format) with PNRs such as 640-014-001-xxx for the Base System and 640-015-001-xxx for the (Applications) Firmware. In these PNRs, the xxx-xxx-001-xxx denotes the firmware is packaged in the tgz file format.

After the .tgz file is unpacked by VibroSight System Manager and the firmware is uploaded to a VM600 CPUR2 card, the dialog box displayed by the VibroSight System Manager's Change Firmware command shows the current version of firmware using PNRs such as 640-014-000-xxx for the Base System and 640-015-000-xxx for the Firmware, which correspond to the actual unpacked firmware that is running on the card.

2. This is the first official release of VM600 CPUR2 firmware and includes features such as the management of XMx16 card configurations for applications such as control systems and the implementation of the PROFIBUS protocol for the fieldbus interfaces. A firmware upgrade is required in order to run VibroSight 2.12.7 or later.

3. This version of VM600 CPUR2 firmware includes improvements such as changing the PROFIBUS polling rate for the Modbus server to 100 ms (was 200 ms) and a bug fix for a known VM600 CPUx time counter wraparound (overflow) issue. A firmware upgrade is strongly recommended in order to run VibroSight 3.4.0 or later.

4. This version of VM600 CPUR2 firmware includes improvements such as overall performance, responsiveness and stability, and support for CPUR2/IOCR2 card pair relays, and the ability to download the GSD file directly from the card. A firmware upgrade is strongly recommended but is not required in order to run VibroSight 4.1.0 or later.

Note: VibroSight 4.1.0 or later must be used in order to download the VM600 CPUR2 GSD file directly from the CPUR2 card.

Table 3: VibroSight software and VM600 CPUR firmware compatibility

VibroSight software version CD part number	VM600 CPUR firmware ^{See note 1}	
	Base-system (*.tgz)	
	640-011-001-004	640-011-001-005
	Applications (*.tgz)	
	640-012-001-004	640-012-001-005
4.0.0 609-004-000-046	✓ See note 2	✓
4.1.0 609-004-000-047	✓	✓ See note 3
5.0.0 609-004-000-048	✓	✓
5.1.0 609-004-000-049	✓	✓
6.0.0 609-004-000-050	✓	✓

Notes for Table 3

1. VM600 CPUR firmware is packaged and distributed as a .tgz file (a compressed archive file format) with PNRs such as 640-011-001-xxx for the Base System and 640-012-001-xxx for the (Applications) Firmware. In these PNRs, the xxx-xxx-001-xxx denotes the firmware is packaged in the tgz file format.

After the .tgz file is unpacked by VibroSight System Manager and the firmware is uploaded to a VM600 CPUR card, the dialog box displayed by the VibroSight System Manager's Change Firmware command shows the current version of firmware using PNRs such as 640-011-000-xxx for the Base System and 640-012-000-xxx for the Firmware, which correspond to the actual unpacked firmware that is running on the card.

2. This is the latest official release of VM600 CPUR firmware (that is, the earlier version of the CPUx card with support for card pair redundancy (PNR 600-007-000-VVV)), which was discontinued in VibroSight 2.12.0 and reintroduced in VibroSight 4.0.x).

3. This version of VM600 CPUR firmware includes a bug fix for a known VM600 CPUx time counter wraparound (overflow) issue and the addition of relay outputs to the diagnostics logs. A firmware upgrade is strongly recommended but is not required in order to run VibroSight 4.1.0 or later.

Table 4: VibroSight software and VM600 XMx16 firmware compatibility

	VM600 XMx16 firmware <small>See note 1</small>
VibroSight software version CD part number	Base-system (*.tgz)
	640-003-001-016
	Applications (*.tgz)
	640-010-001-016
3.4.0 609-004-000-041	✓ <small>See note 2</small>
3.5.0 609-004-000-042	✓
3.6.0 609-004-000-043	✓
3.7.0 609-004-000-044	✓
3.8.0 609-004-000-045	✓
4.0.0 609-004-000-046	✓
4.1.0 609-004-000-047	✓
5.0.0 609-004-000-048	✓
5.1.0 609-004-000-049	✓
6.0.0 609-004-000-050	✓

Notes for Table 4 (see the next page)

Notes for Table 4

1. VM600 XMx16 firmware is packaged and distributed as a *.tgz* file (a compressed archive file format) with PNRs such as *640-003-001-xxx* for the Base System and *640-010-001-xxx* for the (Applications) Firmware. In these PNRs, the *xxx-xxx-001-xxx* denotes the firmware is packaged in the *tgz* file format.

After the *.tgz* file is unpacked by VibroSight System Manager and the firmware is uploaded to a VM600 XMx16 card, the dialog box displayed by the VibroSight System Manager's Change Firmware command shows the current version of firmware using PNRs such as *640-010-000-xxx* for the Firmware and *640-003-000-xxx* for the Base System, which correspond to the actual unpacked firmware that is running on the card.

2. This version of VM600 XMx16 firmware includes relaxed constraints for dynamic data retention time, that is, optimised memory to reduce the possibility of missing data in data intensive VibroSight applications running on less powerful computers. A firmware upgrade is required in order to run VibroSight 3.3.0 or later.

6.2.2 VibroSmart device firmware

The latest VibroSmart device firmware files are copied to a directory on your computer as part of the VibroSight software installation process.

NOTE: The default firmware directory for VibroSmart devices is:
C:\Program Files\Meggitt\VibroSight\Firmware\VibroSmart

The firmware files for a VibroSmart device can be found in the appropriate subfolder and identified by their *.fw file name extension. For example, the VSV30x subfolder contains the firmware for use by VSV30x modules. Any additional firmware updates received from Meggitt SA should also be stored in these directories.

Table 5 shows the compatibility between VibroSight software and the VibroSmart VSI010 firmware.

Table 6 shows the compatibility between VibroSight software and the VibroSmart VSN010 firmware.

Table 7 shows the compatibility between VibroSight software and the VibroSmart VSV30x firmware.

NOTE: It is strongly recommended to use the most recent version of the VibroSmart firmware that is compatible with the version of VibroSight software being used.

Table 5: VibroSight software and VibroSmart VSI010 firmware compatibility

	VSI010 firmware (*.xmsifw) ^{See note 1}			
VibroSight software version CD part number	642-002-000-009	642-002-000-010	642-002-000-011	642-002-000-012
3.1.0 609-004-000-038	✓ See note 2	✓ See notes 2 and 3		
3.2.0 609-004-000-039	✓	✓		
3.3.0 609-004-000-040	✓	✓		
3.4.0 609-004-000-041	✓	✓		
3.5.0 609-004-000-042	✓	✓		
3.6.0 609-004-000-043	✓	✓		
3.7.0 609-004-000-044	✓	✓		
3.8.0 609-004-000-045	✓	✓		
4.0.0 609-004-000-046	✓	✓		
4.1.0 609-004-000-047	✓	✓		
5.0.0 609-004-000-048	✓	✓	✓ See notes 2 and 4	✓ See notes 2 and 5
5.1.0 609-004-000-049	✓	✓	✓	✓
6.0.0 609-004-000-050	✓	✓	✓	✓

Notes for Table 5 (see the next page)

Notes for Table 5

1. VibroSmart VSI010 firmware is distributed as a single *.xmsifw* file (a proprietary file format) with a PNR such as *642-xxx-000-xxx*. In these PNRs, the *xxx-xxx-000-xxx* denotes that the firmware is not packaged (compressed or archived). VibroSight System Manager always uses and displays information about VibroSmart device firmware using PNRs such as *642-xxx-000-xxx*, which correspond to the actual firmware that is running on the device.

2. Updating to this version of VibroSmart VSI010 firmware requires a specific process:

Notes:

For a VibroSmart consisting of different types of device, the devices should be updated in the following order: first VSN010 real-time Ethernet switches, then VSV30x vibration monitoring modules and finally VSI010 communications interface modules. In addition, VibroSight System Manager should be exited (closed) and restarted after updating the firmware for each type of device, before continuing. And after updating the firmware, the configuration on the VibroSmart devices should be re-applied (re-activated) and the VibroSmart devices should be restarted.

Procedure:

(1) Ensure that a copy of the configuration for the VibroSmart is available before updating any device firmware. For example, using the currently installed version of VibroSight (that is, before any updates to the VibroSight software corresponding to updates to VibroSmart devices), VibroSight Configurator can be used to obtain a copy of the configuration as follows:

- For a VibroSmart using a VibroSight Server, the **File > Open > Server / Database** command can be used to read the configuration from the VibroSight Server.
- For a VibroSmart not using a VibroSight Server (that is, a “stand-alone” VibroSmart), the **File > Open > Device** command can be used to read the configuration directly from the VibroSmart modules.

Then the **File > Save As > File** command can be used to store a copy of the configuration for the VibroSmart.

(2) Start VibroSight System Manager, select the device or devices of the same type to be updated (for example, VSI010 modules) and run the Change Firmware command.

When updating multiple VibroSmart devices of the same type to use the same firmware, CTRL+click or SHIFT+click can be used to select multiple devices in the Devices tree structure of the System Explorer window. This way, when the Change Firmware command is run, all of devices that were selected will be updated at the same time. Otherwise, each device must be selected and updated individually.

(3) When the VibroSmart Module(s) Firmware Upgrade window displays a “Firmware upgrade terminated. The firmware has been upgraded successfully ...” message, click the **Finish** button to continue.

If after 10 minutes, the VibroSmart Module(s) Firmware Upgrade window does not display a successful message, click the **Cancel** button to close the window and continue.

Then exit (close) VibroSight System Manager.

(4) Restart VibroSight System Manager and verify that the correct version of firmware is reported for each device that was updated. (When a device is selected in the System Explorer window, this information is available in the main window (centre) under Module PNR. It is also available in the VibroSmart Module(s) Firmware Upgrade window when a device is selected and the Change Firmware command is run).

If a device does not report the correct version of firmware, rerun the Change Firmware command for this device.

Then exit (close) VibroSight System Manager.

(5) Repeat steps (2), (3) and (4) for each type of device to be updated (for example, VSN010 and VSV30x modules).

(6) Start VibroSight Configurator, open the configuration for the VibroSmart (see step (1)), then apply (activate) the configuration. (If required, VibroSight Configurator will automatically update the configuration to the latest version and inform the user.)

Then exit (close) VibroSight Configurator.

(7) Turn the power supply to the VibroSmart off and wait for a few seconds. Then turn the power supply back on and verify that the system operates as expected.

During this firmware update process, the behaviour of the LEDs on the front panel of the VibroSmart devices can be inconsistent and should be ignored. Normal LED behaviour resumes after the firmware update is complete (after step (7)).

3. This version of VibroSmart VSI010 firmware has no limit on the number of constants per VSI010 module.

A firmware upgrade is recommended but is not required in order to run VibroSight 3.8.0 or later.

4. This version of VibroSmart VSI010 firmware adds support for Modbus function code 03. A firmware upgrade is required in order to run VibroSight 5.0.0 or later.

5. This version of VibroSmart VSI010 firmware adds support for module lock and the GOOSE communications protocol (IEC 61850).

A firmware upgrade is required in order to run VibroSight 5.0.0 or later.

Table 6: VibroSight software and VibroSmart VSN010 firmware compatibility

	VSN010 firmware (*.redboxfw) ^{See note 1}
VibroSight software version CD part number	642-004-000-011
3.1.0 609-004-000-038	✓ See note 2
3.2.0 609-004-000-039	✓
3.3.0 609-004-000-040	✓
3.4.0 609-004-000-041	✓
3.5.0 609-004-000-042	✓
3.6.0 609-004-000-043	✓
3.7.0 609-004-000-044	✓
3.8.0 609-004-000-045	✓
4.0.0 609-004-000-046	✓
4.1.0 609-004-000-047	✓
5.0.0 609-004-000-048	✓
5.1.0 609-004-000-049	✓
6.0.0 609-004-000-050	✓

Notes for Table 6 (see the next page)

Notes for Table 6

1. VibroSmart VSN010 firmware is distributed as a single *.redboxfw* file (a proprietary file format) with a PNR such as *642-xxx-000-xxx*. In these PNRs, the *xxx-xxx-000-xxx* denotes that the firmware is not packaged (compressed or archived). VibroSight System Manager always uses and displays information about VibroSmart device firmware using PNRs such as *642-xxx-000-xxx*, which correspond to the actual firmware that is running on the device.

2. Updating to this version of VibroSmart VSN010 firmware requires a specific process:

Notes:

For a VibroSmart consisting of different types of device, the devices should be updated in the following order: first VSN010 real-time Ethernet switches, then VSV30x vibration monitoring modules and finally VSI010 communications interface modules. In addition, VibroSight System Manager should be exited (closed) and restarted after updating the firmware for each type of device, before continuing. And after updating the firmware, the configuration on the VibroSmart devices should be re-applied (re-activated) and the VibroSmart devices should be restarted.

Procedure:

(1) Ensure that a copy of the configuration for the VibroSmart is available before updating any device firmware. For example, using the currently installed version of VibroSight (that is, before any updates to the VibroSight software corresponding to updates to VibroSmart devices), VibroSight Configurator can be used to obtain a copy of the configuration as follows:

- For a VibroSmart using a VibroSight Server, the **File > Open > Server / Database** command can be used to read the configuration from the VibroSight Server.
- For a VibroSmart not using a VibroSight Server (that is, a “stand-alone” VibroSmart), the **File > Open > Device** command can be used to read the configuration directly from the VibroSmart modules.

Then the **File > Save As > File** command can be used to store a copy of the configuration for the VibroSmart.

(2) Start VibroSight System Manager, select the device or devices of the same type to be updated (for example, VSN010 modules) and run the Change Firmware command.

When updating multiple VibroSmart devices of the same type to use the same firmware, CTRL+click or SHIFT+click can be used to select multiple devices in the Devices tree structure of the System Explorer window. This way, when the Change Firmware command is run, all of devices that were selected will be updated at the same time. Otherwise, each device must be selected and updated individually.

(3) When the VibroSmart Module(s) Firmware Upgrade window displays a “Firmware upgrade terminated. The firmware has been upgraded successfully ...” message, click the **Finish** button to continue.

If after 10 minutes, the VibroSmart Module(s) Firmware Upgrade window does not display a successful message, click the **Cancel** button to close the window and continue.

Then exit (close) VibroSight System Manager.

(4) Restart VibroSight System Manager and verify that the correct version of firmware is reported for each device that was updated. (When a device is selected in the System Explorer window, this information is available in the main window (centre) under Module PNR. It is also available in the VibroSmart Module(s) Firmware Upgrade window when a device is selected and the Change Firmware command is run). If a device does not report the correct version of firmware, rerun the Change Firmware command for this device.

Then exit (close) VibroSight System Manager.

(5) Repeat steps (2), (3) and (4) for each type of device to be updated (for example, VSI010 and VSV30x modules).

(6) Start VibroSight Configurator, open the configuration for the VibroSmart (see step (1)), then apply (activate) the configuration. (If required, VibroSight Configurator will automatically update the configuration to the latest version and inform the user.)

Then exit (close) VibroSight Configurator.

(7) Turn the power supply to the VibroSmart off and wait for a few seconds. Then turn the power supply back on and verify that the system operates as expected.

During this firmware update process, the behaviour of the LEDs on the front panel of the VibroSmart devices can be inconsistent and should be ignored. Normal LED behaviour resumes after the firmware update is complete (after step (7)).

Table 7: VibroSight software and VibroSmart VSV30x firmware compatibility

	VSV30x firmware (*.xtranfw) See note 1				
VibroSight software version CD part number	642-001-000-015	642-001-000-016	642-001-000-017	642-001-000-018	642-001-000-000DEV_ SVN14937_ 2020-05-20
3.4.0 609-004-000-041	✓ See notes 2 and 3	✓ See notes 2 and 4			
3.5.0 609-004-000-042	✓	✓			
3.6.0 609-004-000-043	✓	✓			
3.7.0 609-004-000-044	✓	✓			
3.8.0 609-004-000-045	✓	✓			
4.0.0 609-004-000-046	✓	✓			
4.1.0 609-004-000-047	✓	✓			
5.0.0 609-004-000-048			✓ See notes 2 and 5	✓ See notes 2 and 6	
5.1.0 609-004-000-049			✓	✓	✓ See notes 2 and 7
6.0.0 609-004-000-050			✓	✓	✓

Notes for Table 7 (see the next page)

Notes for Table 7

1. VibroSmart VSV30x firmware is distributed as a single *.xtranfw* file (a proprietary file format) with a PNR such as *642-xxx-000-xxx*. In these PNRs, the *xxx-xxx-000-xxx* denotes that the firmware is not packaged (compressed or archived). VibroSight System Manager always uses and displays information about VibroSmart device firmware using PNRs such as *642-xxx-000-xxx*, which correspond to the actual firmware that is running on the device.

2. Updating to this version of VibroSmart VSV30x firmware requires a specific process:

Notes:

For a VibroSmart consisting of different types of device, the devices should be updated in the following order: first VSN010 real-time Ethernet switches, then VSV30x vibration monitoring modules and finally VSI010 communications interface modules. In addition, VibroSight System Manager should be exited (closed) and restarted after updating the firmware for each type of device, before continuing. And after updating the firmware, the configuration on the VibroSmart devices should be re-applied (re-activated) and the VibroSmart devices should be restarted.

Procedure:

(1) Ensure that a copy of the configuration for the VibroSmart is available before updating any device firmware. For example, using the currently installed version of VibroSight (that is, before any updates to the VibroSight software corresponding to updates to VibroSmart devices), VibroSight Configurator can be used to obtain a copy of the configuration as follows:

- For a VibroSmart using a VibroSight Server, the **File > Open > Server / Database** command can be used to read the configuration from the VibroSight Server.
- For a VibroSmart not using a VibroSight Server (that is, a “stand-alone” VibroSmart), the **File > Open > Device** command can be used to read the configuration directly from the VibroSmart modules.

Then the **File > Save As > File** command can be used to store a copy of the configuration for the VibroSmart.

(2) Start VibroSight System Manager, select the device or devices of the same type to be updated (for example, VSV30x modules) and run the Change Firmware command.

When updating multiple VibroSmart devices of the same type to use the same firmware, CTRL+click or SHIFT+click can be used to select multiple devices in the Devices tree structure of the System Explorer window. This way, when the Change Firmware command is run, all of devices that were selected will be updated at the same time. Otherwise, each device must be selected and updated individually.

(3) When the VibroSmart Module(s) Firmware Upgrade window displays a “Firmware upgrade terminated. The firmware has been upgraded successfully ...” message, click the **Finish** button to continue.

If after 10 minutes, the VibroSmart Module(s) Firmware Upgrade window does not display a successful message, click the **Cancel** button to close the window and continue.

Then exit (close) VibroSight System Manager.

(4) Restart VibroSight System Manager and verify that the correct version of firmware is reported for each device that was updated. (When a device is selected in the System Explorer window, this information is available in the main window (centre) under Module PNR. It is also available in the VibroSmart Module(s) Firmware Upgrade window when a device is selected and the Change Firmware command is run).

If a device does not report the correct version of firmware, rerun the Change Firmware command for this device.

Then exit (close) VibroSight System Manager.

(5) Repeat steps (2), (3) and (4) for each type of device to be updated (for example, VSI010 and VSN010 modules).

(6) Start VibroSight Configurator, open the configuration for the VibroSmart (see step (1)), then apply (activate) the configuration. (If required, VibroSight Configurator will automatically update the configuration to the latest version and inform the user.)

Then exit (close) VibroSight Configurator.

(7) Turn the power supply to the VibroSmart off and wait for a few seconds. Then turn the power supply back on and verify that the system operates as expected.

During this firmware update process, the behaviour of the LEDs on the front panel of the VibroSmart devices can be inconsistent and should be ignored. Normal LED behaviour resumes after the firmware update is complete (after step (7)).

3. This version of VibroSmart VSV30x firmware adds support for hydro air-gap monitoring.

A firmware upgrade is required in order to run VibroSight 3.4.0 or later.

4. This version of VibroSmart VSV30x firmware adds support for latched alarms.

A firmware upgrade is recommended but is not required in order to run VibroSight 3.6.0 or later.

5. This version of VibroSmart VSV30x firmware adds support for configurable tacho ratios, flexible input channel to processing block mapping, and up to two tacho processing blocks. A firmware upgrade is required in order to run VibroSight 5.0.0 or later.

6. This version of VibroSmart VSV30x firmware adds support for module lock, PTP (precision time protocol) time synchronisation, channel bypass and pre-trigger data logging. A firmware upgrade is required in order to run VibroSight 5.0.0 or later.

7. This version of VibroSmart VSV30x firmware improves support for hydro air-gap and magnetic-flux monitoring with a minor bug fix.

A firmware upgrade is required in order to run VibroSight 5.1.0 or later.

6.2.3 Updating the firmware using VibroSight System Manager

When performing VibroSight software upgrades, it is strongly recommended to systematically upgrade the firmware of VM600 XMx16 cards and VibroSmart devices to the latest compatible version.

Failure to perform a necessary VibroSight-compatible VM600 card firmware update may lead to incoherent system behaviour and affect the proper functioning of data acquisition in a system. It is only in systems where the firmware running on the XMx16 cards and VibroSmart devices already corresponds to the latest available version that no firmware update is required. Therefore, it is strongly recommended to verify the version of firmware running on the hardware before starting a VibroSight system upgrade, in order to establish if a firmware update is also required.

NOTE: Changing the firmware of the VibroSight hardware is a special administrative task that can – if performed unintentionally – affect the proper functioning of data acquisition in a system.

It is therefore strongly recommended to change the firmware of the VibroSight hardware only when it is necessary. For example, when the devices must be updated to be compatible with a VibroSight software upgrade.

For VibroSmart modules, each module can be selected and its firmware updated individually. Alternatively, multiple modules of the same type (for example, VSV3x0) can be updated to the same version of firmware at the same time.

NOTE: It is strongly recommended to ensure that a copy of the configuration for a VibroSmart is available before updating the firmware of any of the VibroSmart modules used in the distributed monitoring system.

For example, using the currently installed version of VibroSight (that is, before any updates to the VibroSight software corresponding to updates to VibroSmart modules), VibroSight Configurator should be used to obtain a copy of the configuration as follows:

For a VibroSmart using a VibroSight Server, the **File > Open > Server / Database** command can be used to read the configuration from the VibroSight Server.

For a VibroSmart not using a VibroSight Server (that is, a “stand-alone” VibroSmart), the **File > Open > Device** command can be used to read the configuration directly from the VibroSmart modules.

Then the **File > Save As > File** command should be used to store a copy of the configuration for the VibroSmart distributed monitoring system.

Update the firmware on a VibroSight device using the  **Change Firmware** tool (from VibroSight System Manager's **Maintenance** tools):

1. Ensure that the computer running the VibroSight software is on the same network as the hardware (XMx16 card or VibroSmart module or device) to be updated.
2. Start VibroSight System Manager and navigate to the Devices tree structure in the System Explorer window.

The Devices tree lists all of the VibroSight compatible hardware that VibroSight can see on the network. If there are no XMx16 cards or VibroSmart devices in the tree structure or some cards are missing, verify your network connections.

3. Select the card or device that requires its firmware to be changed.

The Actions tool window updates to show the available tools.

To change multiple VibroSmart to use the same version of firmware at the same time, use CTRL+click or SHIFT+click to select multiple devices from the Devices tree-view. (Then, when the Change Firmware command is run, all of the devices that were selected will be updated at the same time.)

4. Click  **Change Firmware** in the Maintenance tools group of the Actions window.

The Change Firmware dialog box appears.

5. Click the **Add** button and select the new firmware files for the card or new firmware file for the device.

NOTE: The Change Firmware dialog box automatically opens the firmware folder corresponding to the VibroSight-compatible VM600 card or VibroSmart device selected.


.tgz files are for VM600 cards and *.fw files are for VibroSmart devices.

6. Click the **Finish** button to start the firmware upgrade process.


For XMx16 cards and VibroSmart devices, the firmware upgrade process can take up to 5 minutes, during which:


- The IP address beside the device's serial number in the Devices tree structure can disappear.
- The LEDs on the front panel of the device can change to reflect the status of the upgrade.

7. Repeat steps 3 to 6 for each device that requires a firmware update.

NOTE: Although the firmware for each VibroSight device must be changed individually using the  **Change Firmware** tool, as each device updates its firmware independently of the VibroSight software (once the process has started), firmware updates can be performed on several devices in parallel.

8. After the firmware upgrade, verify that the VibroSight system is acquiring data from the cards.

NOTE: Refer also to the *Changing the firmware* topics in the  *VibroSight* help.

The  **Change Firmware** tool can be used to load a VibroSight device with any version of firmware. It is therefore possible to change a device's firmware to any previously available version, as well as the latest update.

This feature can be useful in certain situations, for example, swapping spare VibroSight hardware between different VM600 racks or VibroSmart distributed monitoring systems, where systems are operating with different versions of VibroSight.

6.3 Final checks

After upgrading the VibroSight software, it is recommended to check that VibroSight has not been inadvertently modified and that it continues to operate normally.

In particular, it is recommended to check any VibroSight Servers in order to ensure that the data acquisition and external interfaces, data post-processing and/or logging are all configured as expected.

In a VibroSight Server user interface:

- On the Status tab under Device drivers, check that the VM600, VibroSmart, OPC and Modbus controls are enabled or disabled as required by your application.
- On the Status tab under Server features, check that the Basic math, Air gap, Combustion monitoring, Duration counters, VSHDA import and Data logging manager controls are enabled or disabled as required by your application.
- On the Log messages tab, check the listed messages (Info level) to ensure that the hardware (VM600 cards and /or VibroSmart modules) have been discovered and that data acquisition has resumed.

NOTE: When a VibroSight Server is running as a Windows service, the usual VibroSight Server user interface is not displayed, so VibroSight System Manager must be used to work with the VibroSight Server.

That is, VibroSight System Manager can be used to connect to a VibroSight Server in order to check and configure the operation of the server's drivers and features.

Finally, after an upgrade, it is strongly recommended to use VibroSight Vision to connect to any VibroSight Servers in order to verify that new live and/or historical data is available.

7 Customer support

7.1 Contacting us

Meggitt SA worldwide customer support network offers a range of support including Technical support and Sales and repairs support. For customer support, please contact your local Meggitt representative. Alternatively, contact our main office:

Customer support
Meggitt SA
Route de Moncor 4
Case postale
1701 Fribourg
Switzerland

Telephone: +41 (0) 26 407 11 11
Email: energysupport@ch.meggitt.com
Website: www.meggittsensing.com/energy

7.2 Technical support

Meggitt SA technical support team provide both pre-sales and post-sales technical support, including:

- General advice
- Technical advice
- Troubleshooting
- Site visits.

7.3 Sales and repairs support

Meggitt SA sales team provide both pre-sales and post-sales support, including advice on:

- New products
- Spare parts
- Repairs.

Appendix

VibroSight software and Windows operating system compatibility

	Windows 10	Windows 8.1	Windows 7
VibroSight software compatible?	Yes	Yes	Yes (but not recommended for new installations as Microsoft support for Windows 7 ended in January 2020)

VibroSight software and Windows Server operating system compatibility

	Windows Server 2016	Windows Server 2012	Windows Server 2008 R2
VibroSight software compatible?	Yes	Yes	Yes (but not recommended for new installations as Microsoft support for Windows Server 2008 R2 ended in January 2020)

VibroSight software and Microsoft .NET Framework requirements

VibroSight software version	Microsoft .NET Framework requirements
VibroSight 3.7.0 or later	.NET Framework 4.7.2 <small>See note 1</small>
VibroSight 3.4.0 or later	.NET Framework 4.7.1 <small>See note 2</small>
VibroSight 3.0.0 or later	.NET Framework 4.6
VibroSight 2.12.0 or later	.NET Framework 4.5 and .NET Framework 2.0 <small>See note 3</small>
VibroSight 2.9.4 or later	.NET Framework 4.5
VibroSight 2.9.3 and 2.9.2	.NET Framework 4 (Standalone Installer)
VibroSight 2.9.1 or earlier	.NET Framework 3.5 SP1

Notes

1. Microsoft .NET Framework 4.7.2 replaces .NET Framework versions 4.0 to 4.7.1.
2. Microsoft .NET Framework 4.7.1 replaces .NET Framework versions 4.0 to 4.7.
3. Since Microsoft .NET Framework 3.5 also includes .NET Framework 2.0 and .NET Framework 3.0, installing Microsoft .NET Framework 3.5 SP1 is the recommended solution for most computers (rather than installing Microsoft .NET Framework 2.0).