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MEGGITT

RELEASE NOTES

vibro-meter®

VibroSight® software version 6.1

VibroSight

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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 6.1.0 (part number (PNR) 609-004-000-051).

This document contains information about changes to the software since the previously released version (VibroSight 6.0.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 machinery protection system (MPS) and/or 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 660-010-006-229A)

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 6.0.0 (document reference 660-010-013-231A)
- 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).

  Note: It is important to note that VibroSight Configurator is used for the configuration of VM600 cards/systems.

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

  Where CPUx 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 modules that are installed in a VM600^{Mk2} rack (that is, the second generation of VM600 systems).

  The currently available VM600^{Mk2} modules that are designed for operation with the VibroSight software are the MPC4^{Mk2} + IOC4^{Mk2} machinery protection and condition monitoring module, the RLC16^{Mk2} relay module and the CPUM^{Mk2} + IOCN^{Mk2} rack controller and communications interface module.

  Note: It is important to note that VibroSight Protect is used for the configuration of VM600^{Mk2} modules/systems.

- 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.

  Where VSV30x is used in this document, it refers to VSV301 and VSV300 modules, 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 6.1.0 is a minor level release and a new license key file is not required for updates and upgrades from VibroSight 6.x.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 6.1.0 adds further support for VM600^{Mk2} rack-based machinery protection and condition monitoring sytems for machinery protection applications, including:

- For MPC4^{Mk2} + IOC4^{Mk2} machinery protection and condition monitoring module – support for tachometer (tacho) signal sharing.
- For CPUM^{Mk2} + IOCN^{Mk2} rack controller and communications interface module – official launch of this new module with new firmware and VibroSight software support.

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
- VM600^{Mk2} CPUM^{Mk2} + IOCN^{Mk2} rack controller and communications interface module.

These VM600^{Mk2} modules use the latest technology to offer improved performance compared to the existing MPC4 / IOC4T machinery protection card pair, RLC16 card, and CPUx / IOCx rack controller and communications interface card pairs.

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} system and modules.

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, RLC16^{Mk2} modules and CPUM^{Mk2} + IOCN^{Mk2} rack controller and communications interface 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 configurated and operated using the VM600 MPSx software.)

The other existing VibroSight software modules are used for the operation and management of VM600^{Mk2} modules 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 configure module Ethernet ports (IP addresses, etc.), 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
- CPUM^{Mk2} + IOCN^{Mk2} rack controller and communications interface 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 Configurator (and VibroSight Capture) in order to ensure the complete separation ("segregation") of machinery protection and condition monitoring in a VM600^{Mk2} system.

2.1.1 VM600^{Mk2} MPC4^{Mk2} + IOC4^{Mk2} modules – support for tachometer (tacho) signal sharing

VibroSight 6.1.0 adds support for tachometer (tacho) signal sharing between MPC4^{Mk2} + IOC4^{Mk2} modules in a VM600 rack whereby a tacho (speed) signal configured for one MPC4^{Mk2} + IOC4^{Mk2} module can be shared as a reference signal for use by one or more other modules in the same rack.

With tacho signal sharing, only a single tacho (speed) sensor / measurement chain needs to be installed, wired and configured for each reference tacho (speed) required by a VM600 rack. This can help to reduce costs and human errors, while also increasing reliability.

NOTE:	The VM600 rack backplane includes a Tacho bus that is intended for the transfer of speed signals between modules/cards in the rack. The Tacho bus consists of eight lines that are common to all slots in the rack, although only six lines are user configurable as tacho signals (two are reserved for system use). Refer to a *VM600 machinery protection system (MPS) hardware manual* for further information.

In order to use tacho signal sharing with MPC4^{Mk2} + IOC4^{Mk2} modules in a VM600 rack:

- A MPC4^{Mk2} + IOC4^{Mk2} module must be connected to the external tacho (speed) sensor / measurement chain, one of the module's auxiliary channels must be configured to process the tacho (speed) signal and to put the signal onto the VM600 rack Tacho bus – this is a tacho signal source.
- One or more MPC4^{Mk2} + IOC4^{Mk2} module auxiliary channel(s) must be configured to take the tacho (speed) signal being shared from the VM600 rack Tacho bus and to use it – these are tacho signal destination(s).

As the VM600 rack's Tacho bus is common to all slots in the rack, a tacho signal can be shared with all cards in a rack, no matter the rack slot number. (Note: Processing modules can be installed in rack slots 3 to 14, so there is a maximum of up to 12 × processing modules (cards) per rack.)

As the VM600 rack's Tacho bus has six user-configurable lines, up to 6 × different tacho signals can be shared in a rack.

In a VM600 rack, each different tacho signal shared requires its own separate Tacho bus line, so it is important to keep track of which Tacho bus lines are used and where. This becomes particularly important in VM600 racks that combine MPC4^{Mk2} + IOC4^{Mk2} modules (configured using VibroSight Protect) and XMx16 / XIO16T cards (configured

using VibroSight Configurator) as it is possible for the same Tacho bus line to be inadvertently used in both configurations, which would result in a bus line conflict.

For any (source) MPC4^{Mk2} + IOC4^{Mk2} module that will provide a tacho (speed) signal to be shared, the sensor / measurement chain must be connected (wired) to the appropriate screw-terminal connectors on the IOC4^{Mk2} and the appropriate auxiliary channel of the module must be configured with tachometer (speed) signal processing in order to process the sensor / measurement chain signal and generate the speed output, and to also put the signal onto the Tacho bus.

Accordingly, in VibroSight Protect:

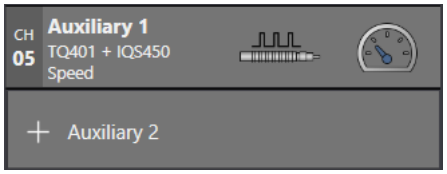
1. Open an existing or create a new configuration.
2. On the **Layout** tab/page, select or add the MPC4^{Mk2} + IOC4^{Mk2} module that will provide a tacho (speed) signal to be shared.
3. On the **Configure** tab/page, select the MPC4^{Mk2} + IOC4^{Mk2} module that will provide a tacho (speed) signal to be shared and configure the auxiliary channel that is connected to the tacho (speed) sensor / measurement chain as usual.

   More specifically, under **Channels** (left), click the **Auxiliary *n*** channel and use the configuration dialog box that appears to select **Single** (Processing type), then **Tachometers** and **Speed** (Processing function). When prompted to select the Input signal, use the **Library** tab in order to select an existing sensor / measurement chain or use the **Add** control (bottom) to use a different sensor / measurement chain. Click **Finish** to continue.

   Then, on the **General** tab (centre), ensure that **Sensor signal sharing to** is configured to use one of the available Tacho bus lines: **Tacho bus line 0**, **Tacho bus line 1**, **Tacho bus line 2**, **Tacho bus line 3**, **Tacho bus line 4** or **Tacho bus line 5** to share the signal.

   Note: If tacho signal sharing is not being used for the auxiliary channel, then ensure that the default setting of **Sensor signal sharing to: Disabled** is used.

Note that once configured, under **Channels** (left), the **Auxiliary *n*** channel updates to display summary information about its configuration. For example:



For any (destination) MPC4^{Mk2} + IOC4^{Mk2} module that will use a tacho (speed) signal being shared, an auxiliary channel of the module must be configured with tachometer (speed) signal processing in order to be able to take the signal from the Tacho bus.

Accordingly, in VibroSight Protect:

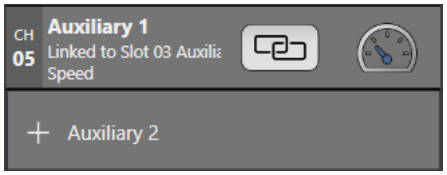
1. On the **Layout** tab/page, select or add the MPC4^{Mk2} + IOC4^{Mk2} module that will accept a tacho (speed) signal being shared.
2. One the **Configure** tab/page, select the MPC4^{Mk2} + IOC4^{Mk2} module that will accept a tacho (speed) signal being shared and configure the auxiliary channel that is connected to the tacho (speed) sensor / measurement chain as usual.

   More specifically, under **Channels** (left), click the **Auxiliary *n*** channel and use the configuration dialog box that appears to select **Single** (Processing type), then **Tachometers** and **Speed** (Processing function). When prompted to select the Input signal, use the **Existing signal input** tab to select the MPC4^{Mk2} + IOC4^{Mk2} module auxiliary channel that provides the required tacho (speed) signal. Click **Finish** to continue.

   Note: Only auxiliary channels configured for tacho (speed) signal sharing enabled are listed on the **Existing signal input** tab. If no auxiliary channels have been configured to share a tacho signal (**Sensor signal sharing to: Tacho bus line *n***)), then the **Existing signal input** tab will be empty.

   Note that on the **General** tab (centre), for a destination auxiliary channel configured to use the output from another auxiliary channel as an input for tacho signal sharing, the **Sensor signal sharing to** control is not provided and certain other controls such as Position, Pulses per revolution and Edge detection become unavailable (greyed out) because the destination auxiliary channel effectively inherits such settings from the source auxiliary channel (so it is not possible to configure them independently).

Note that once configured, under **Channels** (left), the **Auxiliary *n*** channel updates to display summary information about its configuration. For an auxiliary channel that is configured to use the output from another auxiliary channel for tacho signal sharing, this summary information includes a special “linked” symbol: For example:



After a (destination) MPC4^{Mk2} + IOC4^{Mk2} module that uses sensor signal sharing has had one of its auxiliary channels configured as described above, that auxiliary channel can then be used wherever and whenever a speed reference is required by the module, for example, the Reference speed used by a Bearing absolute vibration processing block. That is, the auxiliary channel will function in exactly the same way that an auxiliary channel connected to a “local” sensor / measurement chain functions.

When the Tacho bus is used for tacho signal sharing in this way, VibroSight Protect automatically updates the Bus view available in the Layout tab/page to show that the Tacho bus is used. This is shown in Figure 1.

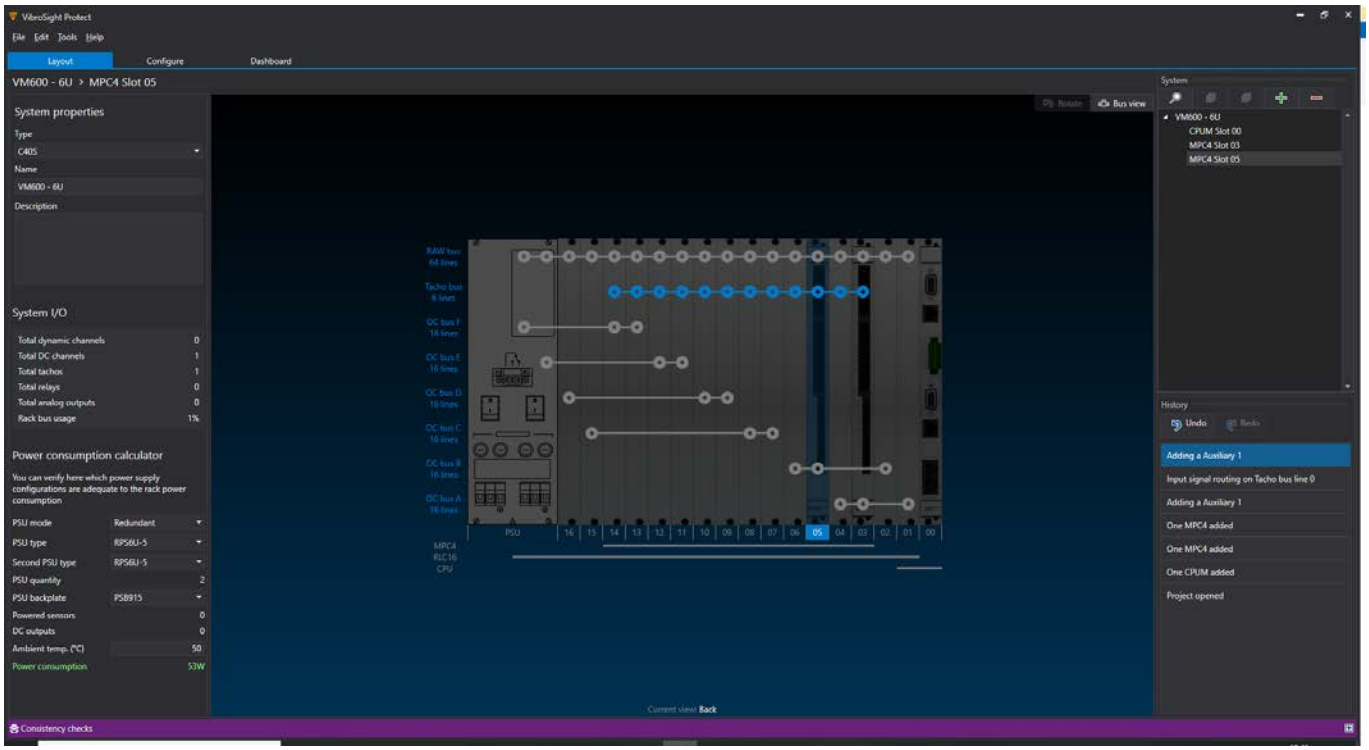


Figure 1: VibroSight Protect Layout tab/page – Bus view

In the Bus view, the rack buses are shown as grey if unused or shown as blue if used. To display more detailed information on the configuration and usage of individual VM600 rack buses, click on the bus name (left of rack) on the Bus view in order to display an individual bus window, for example:
Tacho bus
6 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.

2.1.2 VM600^{Mk2} CPUM^{Mk2} + IOCN^{Mk2} modules – official launch of this new module with new firmware and VibroSight software support

VibroSight 6.1.0 introduces full support for the VM600^{Mk2} CPUM^{Mk2} + IOCN^{Mk2} rack controller and communications interface module. This includes a new officially released version of firmware for the module (see 2.4 CPUM^{Mk2} + IOCN^{Mk2} module) and updates to the VibroSight software in order to support the configuration and operation of the module.

In general, for VM600^{Mk2} CPUM^{Mk2} + IOCN^{Mk2} modules (as per other VM600^{Mk2} modules):

- VibroSight Protect is used for the configuration and operation of modules.
- VibroSight System Manager is used for the operation and management of modules.

VibroSight Protect user interface – Layout tab/page

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

Importantly, the Layout tab/page is used to add modules to a configuration for a VM600^{Mk2} system (and to remove the modules too).

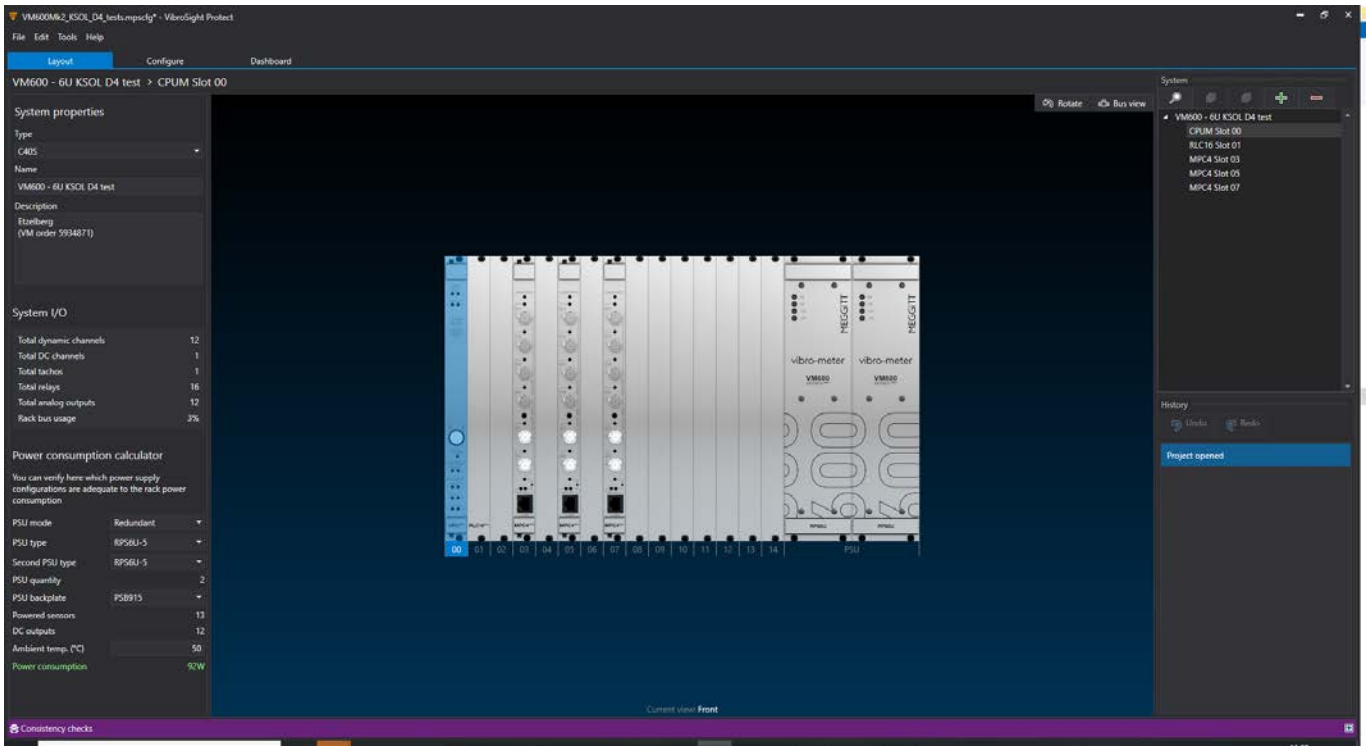


Figure 2: VibroSight Protect Layout tab/page
(with a CPUM^{Mk2} in slot 0)

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:

CPUM^{Mk2} modules can be added in position/slot 0 or 1 (front of rack). When a CPUM^{Mk2} module is added, the associated IOCN^{Mk2} module is automatically added in the corresponding position/slot in the rear of the rack.

NOTE: VM600^{Mk2} systems support a single CPUM^{Mk2} + IOCN^{Mk2} module, so a configuration created in VibroSight Protecte can contain a maximum of 1 × CPUM^{Mk2} + IOCN^{Mk2} module.

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 1.

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 ae 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 a VM600^{Mk2} system, including for a CPUM^{Mk2} + IOCN^{Mk2} module: This is shown in Figure 3.

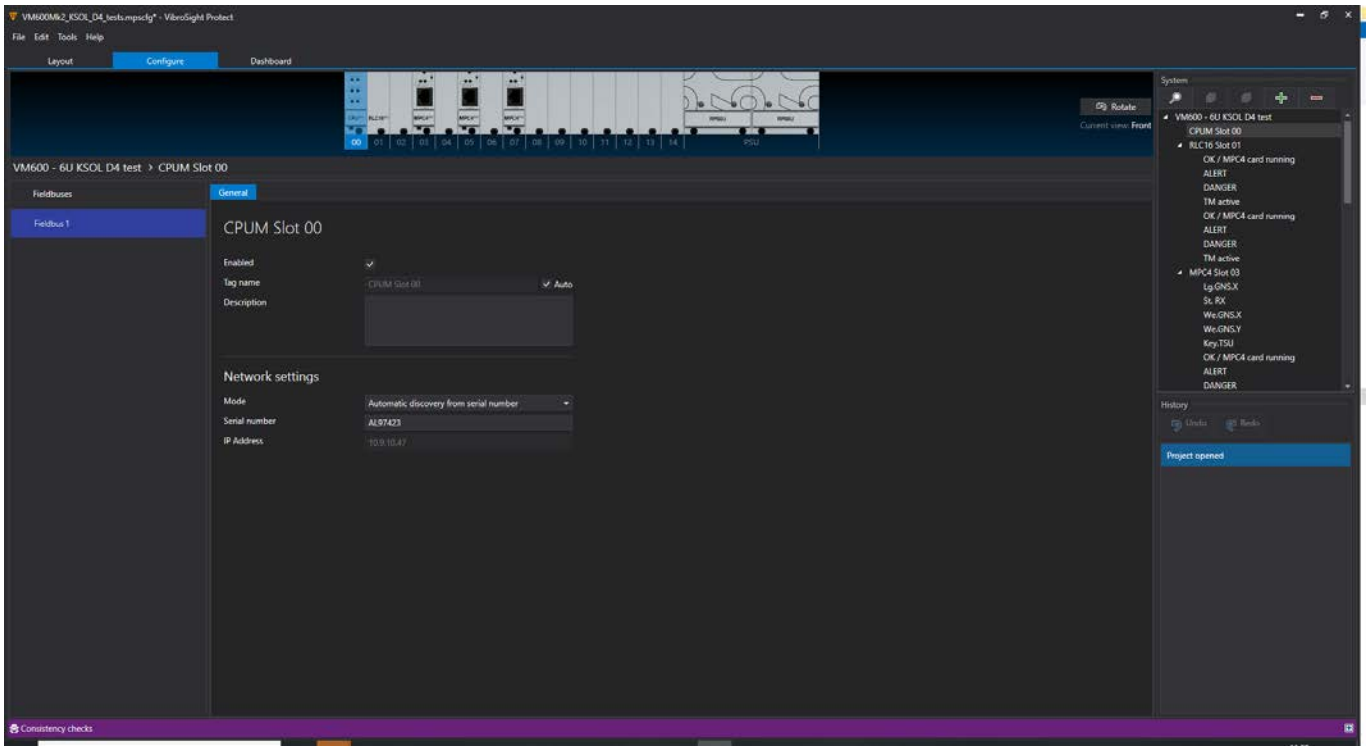


Figure 3: VibroSight Protect Configure tab/page
(with a CPUM^{Mk2} in slot 0)

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} CPUM^{Mk2} + IOCN^{Mk2} module, the main features are Fieldbuses. And the general information includes module Enabled, Name and Description and Network settings (IP address) on the General tab.

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 all VM600^{Mk2} modules

To configure the network communication settings for any VM600^{Mk2} module, on the Configure tab/page, select the module (top), then in the main window (centre), on the **General** tab, under **Network settings**, use the **Mode** and other controls to determine how VibroSight Protect should find the IP address to be used for communication with the module:

- With **Mode: Automatic discovery from serial number**, the module is automatically identified using the serial number that is entered manually in the **Serial number** text box.

NOTE:	The serial number of a VM600^{Mk2} module can be found by inspecting the labels (stickers) on the module hardware or by using VibroSight System Manager.

The card's IP address will then automatically be read by VibroSight Protect for use by the system and displayed in the **IP address** text box.

NOTE:	VibroSight uses a proprietary implementation of the zero-configuration networking (zeroconf) protocols in order to support networking operations such as the automatic discovery of VM600^{Mk2} modules. If the automatic discovery does not work (for example, due to a network not meeting the requirements of zeroconf), then connections between VibroSight-system components can be established manually by entering the IP addresses of the network devices.

- With **Mode: Manual IP address**, the module is identified using the IP address that is entered manually in the **IP address** text box (in which case, the **Serial number** is effectively ignored).

NOTE:	In VibroSight Protect, the **IP address** text box is used to display the IP address (**Mode: Automatic discovery from serial number**) or enter the IP address (**Mode: Manual IP address**) to be used for communication with a VM600^{Mk2} module – but it cannot be used to change an IP address. VibroSight System Manager is used to change the IP address of VM600^{Mk2} modules, as required by an application.

For CPUM^{Mk2} + IOCN^{Mk2} modules

When the Fieldbus is selected for a CPUM^{Mk2} module by clicking on it (Fieldbus 1, left), the information and parameters related to the fieldbus configuration are displayed in the main window (centre).

For a CPUM^{Mk2} module, the configuration of the fieldbus is currently defined by a fieldbus configuration file (`*.cfg`) that must be uploaded to VibroSight Protect using the **Load from file …** control (bottom, right of main window).

NOTE:	CPUM^{Mk2} fieldbus configuration files are external files that are currently generated and edited manually using a text editor. In this sense, VM600^{Mk2} CPUM^{Mk2} fieldbus configuration files (`*.cfg`) are similar to the VM600 CPUx Modbus configuration files (`modbusDefault.cfg`). Contact Meggitt SA for further information. In the future, VibroSight Protect will incorporate this functionality, allowing fieldbus configuration files to be generated and edited without the use of external tools.

The information and parameters from the uploaded fieldbus configuration file are displayed in the main window (centre) in the **Fieldbus configuraton** text box. If no fieldbus configuration is uploaded (configured) for a CPUM^{Mk2} module, then the **Fieldbus configuraton** text will be blank (empty).

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

When a Channel is selected for a MPC4^{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.

Activating a configuration on a VM600Mk2 system

As the configuration for a VM600^{Mk2} system is being developed, the Consistency Check window (bottom) should be used to help correct any configuration errors and warnings as they occur, thereby helping ensure that a valid configuration is arrived at.

Once a configuration has been created and/or changed, and there are no consistency check errors, the configuration must be uploaded to the VM600^{Mk2} system in order to actually run on the system hardware (VM600 rack containing VM600^{Mk2} modules).

The **Tools > System activation** command is used to upload the complete VM600^{Mk2} system configuration currently active/loaded in VibroSight Protect to the system hardware.

As part of the system activation process, VibroSight Protect will upload each individual VM600^{Mk2} module in turn with its part of the complete VM600^{Mk2} system configuration, then read back each individual module configuration in order to check it against the complete VM600^{Mk2} system configuration again, thereby ensuring that the configuration was uploaded to each individual module correctly.

Once this check is complete, VibroSight Protect will prompt the user to continue (Proceed). This is shown in Figure 4.

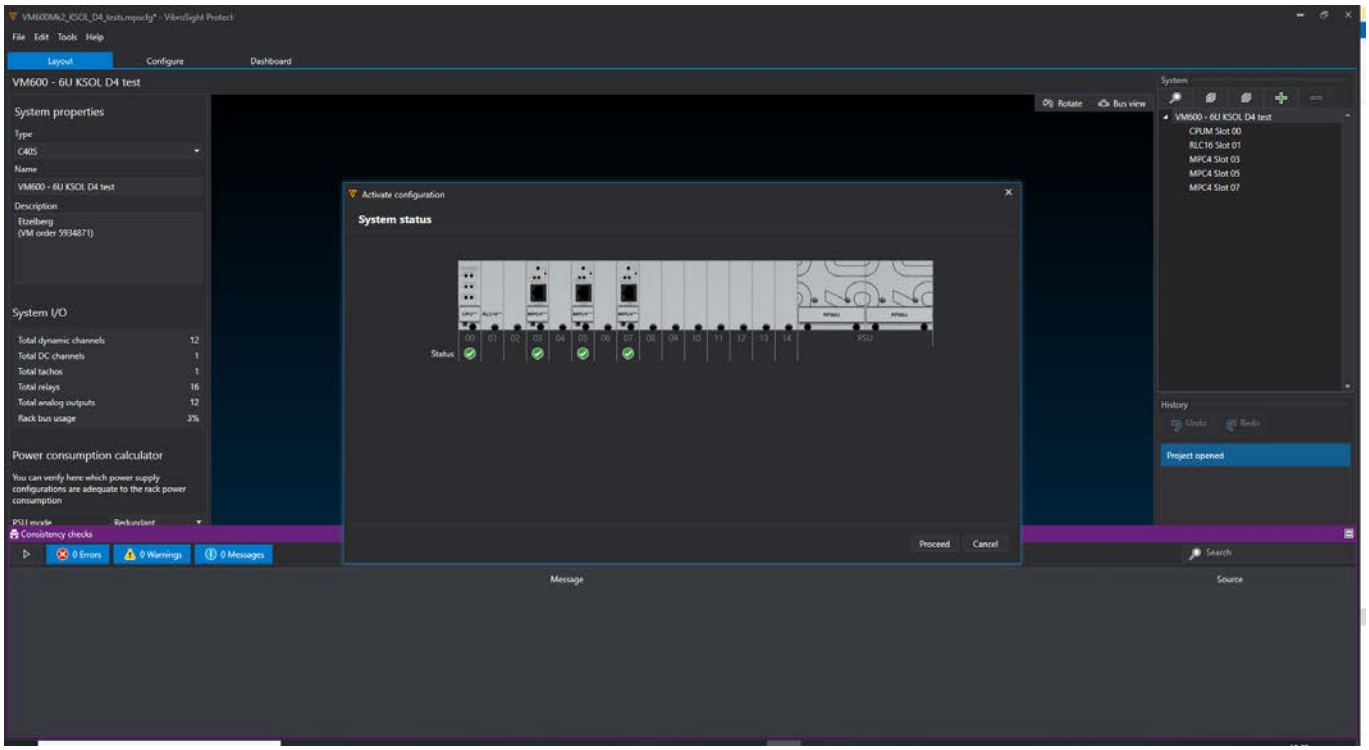


Figure 4: VibroSight Protect System activation window – upload and check

After the user has clicked **Proceed**, VibroSight Protect will:

- Archive the running configuration
  (in case it needs to be reverted to should something go wrong with the activation of the configuration).
- Activate the current configuration.
- Run (go “live”) with the new configuration – Success!

This is shown in Figure **5**.

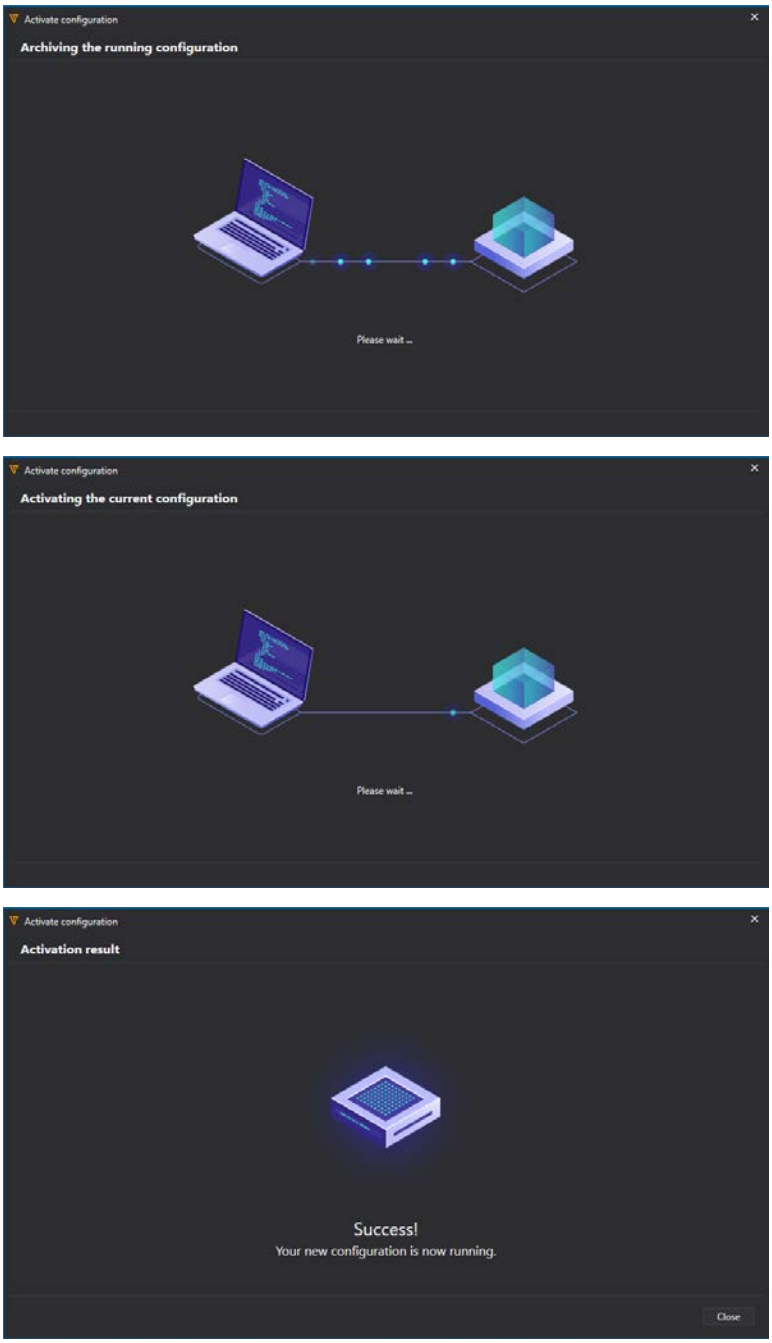


Figure 5: VibroSight Protect System activation window – activation

Please note that when activating a configuration on a VM600^{Mk2} system:

- 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, MPC4^{Mk2} modules 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 restarting (rebooting).

VibroSight Protect user interface – Dashboard tab/page

The Dashboard tab/page is used to operate and manage the VM600^{Mk2} system, that is, a system that I srunning a configuration. This is shown in Figure **6** (for a CPUM^{Mk2}) and Figure 8 (for a MPC4^{Mk2}).

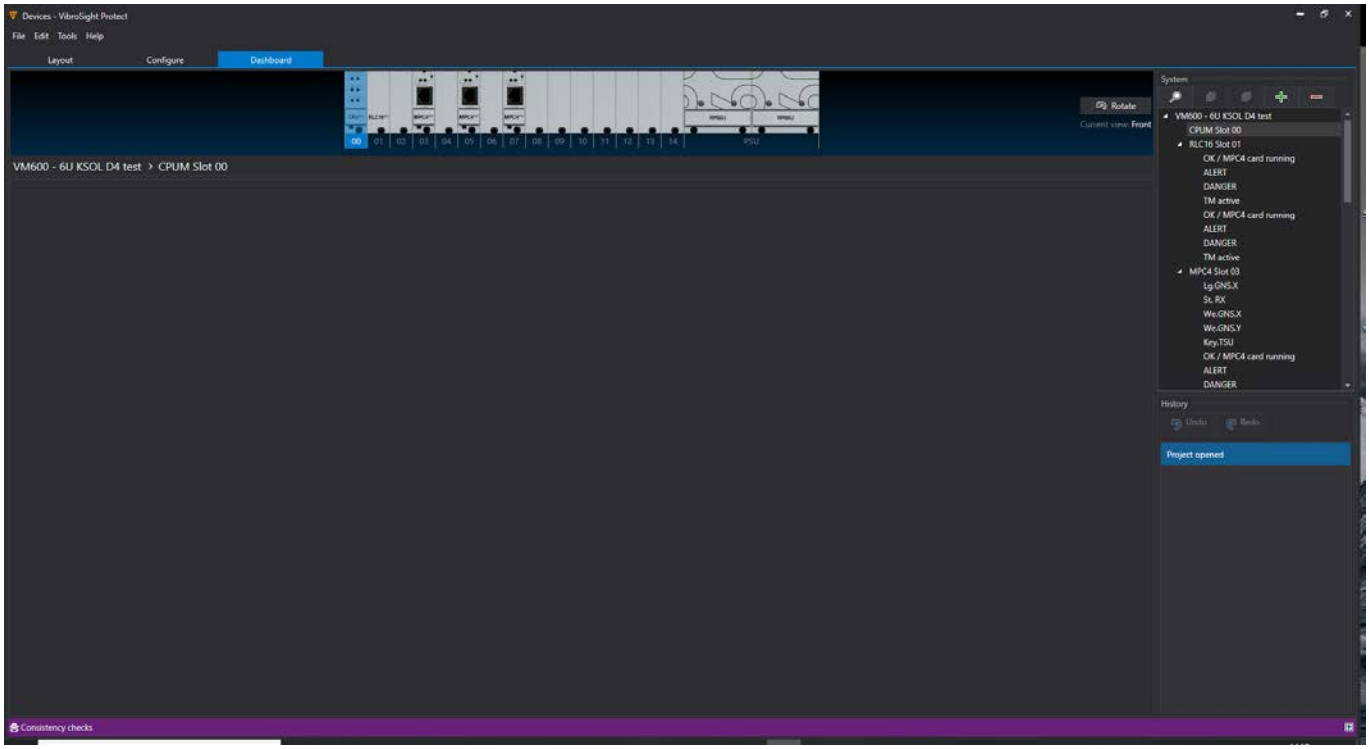


Figure 6: VibroSight Dashboard Layout tab/page
(CPUM^{Mk2} in slot 0)

Please note that for CPUM^{Mk2} + IOCN^{Mk2} modules, there is no functionality available from the Dashboard tab/page.

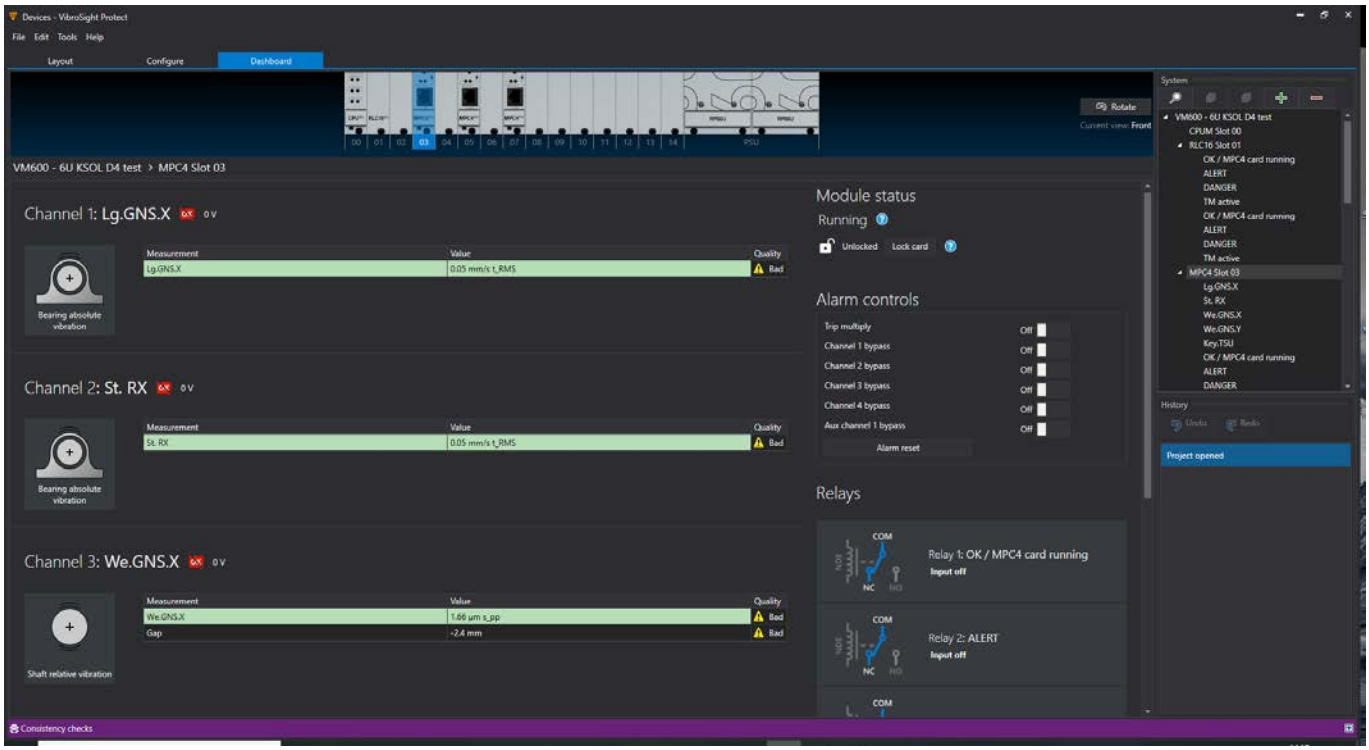


Figure 7: VibroSight Dashboard Layout tab/page

Please note that for MPC4^{Mk2} + IOC4^{Mk2} modules, there is functionality available from the Dashboard tab/page.

This includes measurement information, control inputs and status information such as:

- Channel sensor OK check, measurement data values and data quality information.
- Module status (Operating mode: Running or Recovery, Lock state: Locked or Unlocked) information.
- Alarm controls: Trip multiply (TM), individual channel bypasses and Alarm reset (AR).
- Relays status information.

VibroSight System Manager and VM600^{Mk2} systems

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

In the System Explorer window (left), CPUM^{Mk2} + IOCN^{Mk2} modules are listed under **CPUM modules** and CPUM^{Mk2} + IOCN^{Mk2} modules are listed under **MPC4 modules**.

In general, for VM600^{Mk2} modules in VibroSight System Manager, functionality is available from the Actions window (right) and general information is displayed in the main window (centre). However, for CPUM^{Mk2} + IOCN^{Mk2} modules in VibroSight System Manager, while functionality is available from the Actions window (right), no general information is displayed in the main window (centre).

For example, as shown in shown in Figure 8 (centre), under General Information, this includes the Operating mode, which for 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 8), as are the firmware versions available on the module (under Firmware versions).

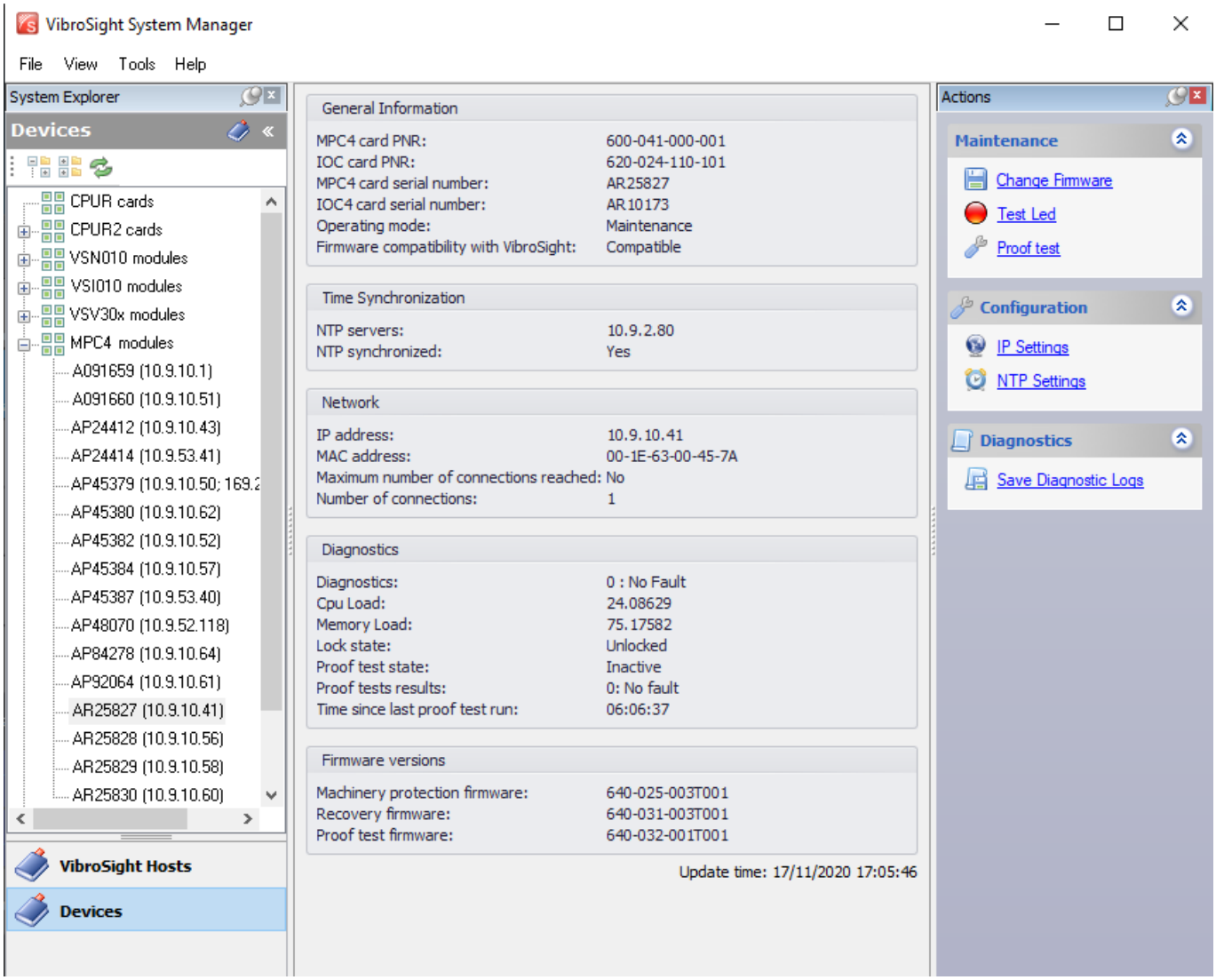


Figure 8: VibroSight System Manager information and actions for a MPC4^{Mk2} module

Figure 8 (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.

2.2 Polar plot cursor synchronisation

In VibroSight Vision, the Polar plot has been updated so that its trend subplots now implement cursor synchronisation as a function of whichever quantity (Speed or Time) is selected for the x-axis of the trend subplots (Trends).

(For reference, Polar plot trend subplots previously implemented cursor synchronisation as a function of phase.)

With this improvement, it is now easier to use Polar plots to compare and analyse data from different transients. It also means that the Polar plot is now using the same cursor synchronization as other VibroSight Vision plot types, notably the Bode plot. As a result, VibroSight more consistent and easier than ever to use for data analysis, especially when using cursor synchronization across multiple different plots and/or plot types.

NOTE:	Cursor synchronisation is intended to be used to help quickly find corresponding information in other measurements after particular data of interest is found in one plot. This allows all of the information relevant to a particular event or time period be more easily displayed and analysed together in more detail, for example, by using different plots, different types of plot, different measurement points and so on.

VM600^{Mk2} modules

2.3 MPC4^{Mk2} + IOC4^{Mk2} module

Updated MPC4^{Mk2} + IOC4^{Mk2} machinery protection and condition monitoring module operational firmware (`640-025-004-000.Mpc4g2Fw`) with the following main improvements:

- New features:
    - For frequency domain measurements (Amplitude + Phase (Vector)), the phase component of the measurement can now be used as the input signal for an Analog output.
    - For Differential expansion (dual taper) processing, the ramp angles for the taper on the shaft are now configured separately (α_1 and α_2) in order to allow different ramp angles to be used for each side of the shaft taper.
    - For auxiliary input channels configured as tachometer (tacho) inputs, should the input tacho signal go outside of the specified speed / frequency measurement range, the system will now respond with appropriate data quality indicators and warning messages, and recover automatically (that is, resume normal operation) when the tacho returns to normal.
      (Previously, the system responded by entering the fail-safe operating mode, thereby triggering the VM600^{Mk2} system safety-line, that is, the system-wide control signal that automatically drives all system relays (IOC4 ^{Mk2} and RLC16 ^{Mk2}) and analog outputs (IOC4 ^{Mk2}) to a safe state.)
    - The maximum tachometer (tacho) speed / frequency has been increased to 51200 Hz (from 3200 Hz). Note: This enables solutions for higher-speed applications such as steam turbines.

- Solved problems and bug fixes:
    - Sensor / channel bypass for channel 3 not working as expected in response to either the **Channel 3 bypass** control (VibroSight Protect Dashboard tab/page, under Alarm controls) or in response to an auxiliary channel configured as a tacho used as the Reference speed for channel 3 being bypassed.
    - General improvements to logical functions.

In addition, the MPC4^{Mk2} + IOC4^{Mk2} module recovery firmware (`640-031-003-004.Mpc4g2Fw`) was also updated, while the proof test firmware (`640-032-001-000.Mpc4g2Fw`) is unchanged.

See also 2.1 Support for VM600^{Mk2} – the next generation of VM600 machinery protection system and 5.2 VM600 cards.

2.4 CPUM^{Mk2} + IOCN^{Mk2} module

To support the launch of the new CPUM^{Mk2} + IOCN^{Mk2} rack controller and communications interface module, a new officially released version of firmware (`base-system-640-034-001-000.tgz`) is now available.

NOTE:	The CPUM^{Mk2} + IOCN^{Mk2} rack controller and communications interface module is now officially released. Any current “evaluation” versions of CPUM^{Mk2} + IOCN^{Mk2} module firmware must be upgraded to the latest officially released firmware – in order to use the system in “live” machinery protection system (MPS) applications. Contact Meggitt SA for further information.

See also 2.1 Support for VM600^{Mk2} – the next generation of VM600 machinery protection system and 5.2 VM600 cards.

VibroSmart® modules

2.5 VSV30x + VSB300 module

Updated VSV30x + VSB300 monitoring module firmware (`642-001-000-019.xtranfw`) with the following main improvements:

- New features:
    - Improved startup (boot) time of approximately 3.5 minutes, effectively halving the time required for the module to start and be operational.
    - Better use of the precision time protocol (PTP) to improve time synchronization precision (up to 1 ms) of measurement data from different VSV301 modules and VibroSight®.
    - New frequency domain extractions based on harmonics are available for measurements synchronous to the rotating speed, so that it is now possible to measure the energy over a band. For example, this allows measurements between 0.3X and 0.6X for oil effect monitoring in fluid bearings.
    - Position processing corrected so that it now has the same behaviour as the VM600 ^{Mk2} MPC4^{Mk2} (and VM600 MPC4).
    - Adaptive monitoring and Trip multiply (TM) corrected so that it now has the same behaviour as the VM600 ^{Mk2} MPC4^{Mk2} (and VM600 MPC4).
- Solved problems and bug fixes:
    - Low-frequency noise in FFT for Not 1X measurements.
    - Narrow-band vibration processing not working for input channels configured with AC + DC coupling.
    - General improvements to tacho ratio.

See also 5.3 VibroSmart devices.

2.6 VSI010 + VSB010 module

Updated VSI010 + VSB010 communications interface module firmware (`642-002-000-013.xmsifw`).

See also 5.3 VibroSmart devices.

3 Solved problems and bug fixes

3.1 General improvements and bug fixes

General stability improvements and bug fixes across the VibroSight 6.1.0 software.

3.2 VibroSight data management's offline data storage operations not adding the "_alarm" suffix to data files as expected

VibroSight's fully-integrated support for VibroSight database management simplifies the configuration and operation of the database backup, database purge and management of offline data storage.

VibroSight data management's "Offline data storage" operations are used to schedule the creation of regular periodic copies of the online database (data repository) used by a VibroSight Server. That is, online VibroSight historical data folder (`*.vshdf`) → multiple smaller offline VibroSight historical data archives (`*.vshda`).

NOTE: Regular copies (offline data storage) are required in order to build up an offline historical record of the latest data from the data repository that can be referred to when analysing/diagnosing machinery. (In order to limit the size of the online data repository, offline data storage is used to copy older data before it is purged from the data repository.) Weekly or monthly copies are recommended as they are a good compromise between operating performance of the machinery monitoring system and file/data handling (VibroSight historical data archive file sizes).

For Offline Data Storage operations that were configured with output file flagging enabled (VibroSight Configurator, (Data Storage view), Offline data storage operation, Output file flagging tab with Severities selected), the "_alarm" suffix was not always being automatically added to the output data files (offline archives (`*.vshda`)) as expected. More specifically, even if alarms (Alert and/or Danger) were selected as flaggable for the Offline data storage operation and alarms had occurred for the data being copied, the "_alarm" suffix could be missing from the offline archives (`*.vshda`)).

3.3 Problem with missing data types using VibroSight OPC Classic HDA

VibroSight data types which consist of both a value and a unit were not properly available from VibroSight OPC servers and therefore capable of being properly displayed and correctly processed by OPC client applications – as they were not directly mappable to an OPC data type. For example, "Frequency maximum" with a value of "1000 Hz".

Such VibroSight data types have now been made properly available by publishing them as measurements (OPC items) using different OPC item properties: one for the value and one for the unit. For example, "Frequency maximum value" and "Frequency maximum unit".

The modified OPC properties are Frequency maximum, Order maximum, Revolution duration and Time duration.

3.4 Problem displaying magnetic flux measurement data in polar waveform plots

When using the Polar Waveform plot in VibroSight Vision to display Flux signature measurement data, in the Nominal column, the plot legend displayed the nominal gap value rather than the expected nominal flux value.

3.5 Problem configuring a VM600^{Mk2} MPC4^{Mk2} + IOC4^{Mk2} module's analog output to use differential expansion (single taper) processing

In VibroSight Protect, it was not possible to configure an Analog output for a VM600^{Mk2} MPC4^{Mk2} + IOC4^{Mk2} module to use the measurement (output) from a Differential expansion (single taper) processing function as its input signal.

3.6 Unexpectedly high CPU usage when configuring a VM600^{Mk2} 1U system

In VibroSight Protect, when configuring VM600^{Mk2} 1U systems (that is, a VM600 slimline rack (ABE056) containing a VM600^{Mk2} MPC4^{Mk2} + IOC4^{Mk2} module), the CPU usage for the computer running VibroSight Protect could become and remain expectedly high (for example, 30%).

3.7 VibroSight OPC UA server stops working

Under certain circumstances, the OPC UA (unified architecture) server of a VibroSight Server could stop working ("freeze") after having operated successfully for hours.

3.8 Problem changing data sources for a VibroSight Mimic

In VibroSight Mimic, a Mimic project using a VibroSight Server as the data source could stop correctly displaying data when the data source was changed to a different equivalent VibroSight Server. More specifically, the VibroSight Mimic could stop updating data.

3.9 Problem operating a VibroSmart® system containing VSV30x monitoring modules, a VSI010 communications interface module and a Modbus server

For a VibroSmart® system containing VSV30x + VSB300 monitoring modules, a VSI010 + VSB010 communications interface module and a Modbus server (that is, a network Modbus device configured as a Modbus slave) all as part of a single VibroSight Server configuration, the resultant VibroSight Server experienced a problem when the configuration was activated on the server.

The behaviour of such a VibroSmart® system was typically characterised by the VSI010 module providing incorrect data values (for example, incorrect amplitude – orders of magnitude too large) and the VibroSight Server reporting messages on the Log messages tab such as:

- "[Warn] VibroSmart Module Driver: Current configuration set on the module (VSC*xxxxxx*) does not match the server's one."
- "[Error] VibroSmart Module Driver: The acquisition will not be started for the module 'VibroSmart VSI010 Module *x*' because the configuration on the server is different from the one on the module."

3.10 VibroSight software licence containing Modbus tags not correctly recognised

In VibroSight System Manager, when activating/installing a new licence key file for a VibroSight software licence (specifically, the Trend software edition with 100 Modbus client tags), VibroSight System Manager did not correctly recognise and activate the licensed Modbus functionality, instead reporting the problem on the Licensing information tab: “A license exists for Modbus package but the associated product is not installed.“

3.11 Problem operating a VibroSmart® system containing a VSV30x monitoring module using adaptive monitoring

For a VibroSmart® system containing a VSV30x + VSB300 monitoring module using adaptive monitoring (that is, a measurement (extracted data entity) with 1D fixed limit – adaptive monitoring) with an adaptive monitoring coefficient value less than 1.0, the resultant VibroSight Server experienced a problem when the configuration was activated on the server.

The behaviour of such a VibroSmart® system was typically characterised by the VSV30x module not being configured and the VibroSight Server reporting messages on the Log messages tab such as:

- “[Error] VibroSmart Module Driver: Module VSC*xxxxxx*. Configuration validation failed. The’Coefficient’ attribute is invalid - The value ‘0.9’ is invalid according to its datatype ‘Decimal’ - The MinInclusive constraint failed.”
- “[Error] VibroSmart Module Driver: Error running driver for module VSC*xxxxxx*. Module configuration validation failed.”
- “[Info] VibroSmart Module Driver: Disconnection from module VSC*xxxxxx*.

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).

This is because NVIDIA WMI prevents the Microsoft .NET Framework from obtaining the required counter values from the underlying operating system / computer.

4.10XMx16 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.

4.11Problems 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.Utils.OpcServersSystemConfiguration,
XmsOpcServerUtils, 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.Utils.OpcServersSystemConfiguration,
XmsOpcServerUtils, Version=2.0.0.0, Culture=neutral, PublicKeyToken=2db2a2387bac0a0a" />
```

to:

```
<section name="opcServersConfiguration" type="ch.VibroMeter.Xms.OpcServer.Utils.OpcServersSystemConfiguration,
XmsOpcServerUtils, 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*.

4.12Potential 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.

4.13Problems 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.

4.14Problems 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 manual 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 6.1.0 is a minor level release and replaces VibroSight 6.0.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 6.1.0.

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

- Operational: `640-025-004-000.Mpc4g2Fw`
- Recovery: `640-031-003-004.Mpc4g2Fw`
- Proof test: `640-032-001-000.VxeFw` (unchanged)

See 2.3 MPC4^{Mk2} + IOC4^{Mk2} module.

The latest firmware for the new VM600^{Mk2} CPUM^{Mk2} module is now:

- Base system: `base-system-640-034-001-000.tgz`

See 2.4 CPUM^{Mk2} + IOCN^{Mk2} module.

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^{Mk2} CPUx modules and VM600 CPUx cards, VibroSight 6.0.0 and later uses the following terminology: • **CPUM^{Mk2}** to refer to the VM600^{Mk2} CPUx module with mathematical processing of fieldbus data and support for Modbus TCP and PROFIBUS DP (PNR 600-050). • **CPUR2** to refer to the latest version of the VM600 CPUx card with support for PROFIBUS (PNR 600-026-000-VVV). • **CPUR** to refer to the earlier version of the VM600 CPUx card with support for Modbus RTU/TCP and card pair redundancy (PNR 600-007-000-VVV).

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 versions of VibroSight / VM600^{Mk2} systems, firmware upgrades are required.

See also VM600^{Mk2} modules.

5.3 VibroSmart devices

5.3.1 Module firmware

There are some firmware upgrades for VibroSmart modules and devices corresponding to VibroSight 6.1.0.

The latest firmware for the VSI010 module is now:

- `642-002-000-013.xmsifw`

See 2.6 VSI010 + VSB010 module.

The latest firmware for the VSN010 device remains:

- `642-004-000-011.redboxfw`

The latest firmware for the VSV30x module is now:

- `642-001-000-019.xtranfw`

See 2.5 VSV30x + VSB300 module.

Therefore, for current versions of VibroSmart modules and devices, firmware upgrades are required.

See also VibroSmart® modules.

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} module hardware (that is, MPC4^{Mk2} firmware).

Table 2 shows the compatibility between VibroSight software and VM600^{Mk2} CPUM^{Mk2} module hardware (that is, CPUM^{Mk2} firmware).

Table 3 shows the compatibility between VibroSight software and VM600 CPUR2 card hardware (that is, CPUR2 firmware).

Table 4 shows the compatibility between VibroSight software and VM600 CPUR card hardware (that is, CPUR firmware).

Table 5 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.

Table 1: VibroSight software and VM600^{Mk2} MPC4^{Mk2} firmware compatibility

	VM600^{Mk2} MPC4^{Mk2} firmware			
VibroSight software version Part number (PNR)	Operational (`640-025-vvv-ppp.Mpc4g2Fw`)			
	`640-025-001-000`	`640-025-002-000`	`640-025-003-002`	`640-025-004-000`
	Recovery (`640-031-vvv-ppp.Mpc4g2Fw`)			
	---	---	`640-031-003-002`	`640-031-003-004`
	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	
6.1.0 609-004-000-051				✓ See note 4

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.

4. For information on this version of VM600^{Mk2} MPC4^{Mk2} firmware, see 2.3 MPC4Mk2 + IOC4Mk2 module.
A firmware upgrade is required in order to run VibroSight 6.1.0 or later.

Table 2: VibroSight software and VM600^{Mk2} CPUM^{Mk2} firmware compatibility

	VM600^{Mk2} CPUM^{Mk2} firmware See note 1
VibroSight software version	Base-system (`*.tgz`)
Part number (PNR)	`640-034-001-000`
6.1.0 609-004-000-051	✓ See note 2

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 *640-034-001-xxx* for the base system 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 CPUM^{Mk2} card, the dialog box displayed by the VibroSight System Manager's Change Firmware command shows the current version of firmware using PNRs such as *640-034-000-xxx* for the base system firmware, which correspond to the actual unpacked firmware that is running on the card.

2. For information on this version of VM600^{Mk2} CPUM^{Mk2} firmware, see 2.4 CPUMMk2 + IOCNMk2 module.
A firmware upgrade is required in order to run VibroSight 6.1.0 or later.

Table 3: VibroSight software and VM600 CPUR2 firmware compatibility

	VM600 CPUR2 firmware See note 1		
VibroSight software version Part number (PNR)	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	✓	✓	✓
6.1.0 609-004-000-051	✓	✓	✓

Notes for Table 3 (see the next page)

Notes for Table 3

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 4: VibroSight software and VM600 CPUR firmware compatibility

	VM600 CPUR firmware See note 1	
VibroSight software version Part number (PNR)	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	✓	✓
6.1.0 609-004-000-051	✓	✓

Notes for Table 4

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 5: VibroSight software and VM600 XMx16 firmware compatibility

	VM600 XMx16 firmware See note 1
VibroSight software version Part number (PNR)	Base-system (`*.tgz`) `640-003-001-016`
	Applications (`*.tgz`) `640-010-001-016`
3.4.0 609-004-000-041	✓ See note 2
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	✓
6.1.0 609-004-000-051	✓

Notes for Table 5 (see the next page)

Notes for Table 5

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 6 shows the compatibility between VibroSight software and the VibroSmart VSI010 firmware.

Table 7 shows the compatibility between VibroSight software and the VibroSmart VSN010 firmware.

Table 8 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 6: VibroSight software and VibroSmart VSI010 firmware compatibility

	VSI010 firmware (`*.xmsifw`) **See note 1**				
VibroSight software version Part number (PNR)	`642-002-000-009`	`642-002-000-010`	`642-002-000-011`	`642-002-000-012`	`642-002-000-013`
3.4.0 609-004-000-041	✓ See note 2	✓ See notes 2 and 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	✓	✓			
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	✓	✓	✓	✓	
6.1.0 609-004-000-051					✓ See notes 2 and 6

Notes for Table 6 (see the next page)

Notes for Table 6

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.

6. For information on this version of VibroSmart VSI010 firmware, see 2.6 VSI010 + VSB010 module.
A firmware upgrade is required in order to run VibroSight 6.1.0 or later.

Table 7: VibroSight software and VibroSmart VSN010 firmware compatibility

	VSN010 firmware (`*.redboxfw`) See note 1
VibroSight software version Part number (PNR)	`642-004-000-011`
3.4.0 609-004-000-041	✓ See note 2
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	✓
6.1.0 609-004-000-051	✓

Notes for Table 7 (see the next page)

Notes for Table 7

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 8: VibroSight software and VibroSmart VSV30x firmware compatibility

	VSV30x firmware (`*.xtranfw`) See note 1				
VibroSight software version Part number (PNR)	`642-001-000-016`	`642-001-000-017`	`642-001-000-018`	`642-001-000-000DEV_SVN14937_2020-05-20`	`642-001-000-019`
3.4.0 609-004-000-041	✓ 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		✓	✓	✓	
6.1.0 609-004-000-051					✓ See notes 2 and 8

Notes for Table 8 (see the next page)

Notes for Table 8

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.

8. For information on this version of VibroSmart VSV30x firmware, see 2.5 VSV30x + VSB300 module.
A firmware upgrade is required in order to run VibroSight 6.1.0 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 See note 1
VibroSight 3.4.0 or later	.NET Framework 4.7.1 See note 2
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 See note 3
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).