RELEASE NOTES

VibroSight ® software
version 3.3.0

VibroSight
Total Monitoring
Solution

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REVISION RECORD SHEET

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PREFACE

About these release notes

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

- VibroSight software version 3.3.0 (CD part number 609-004-000-040).

This document contains information about changes to the software since the previously released version (VibroSight 3.2.0), such as new features and improvements, solved problems and bug fixes, and hardware and software compatibility.

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

 *VibroSight software* data sheet
(MSS document ref. 660-020-005-218A)

 *Getting started with VibroSight* installation guide
(MSS document ref. 660-010-006-219A)

 *VibroSight* help

 *XMV16 / XIO16T extended vibration monitoring card pair* data sheet
(MSS document ref. 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 2.9.0 (MSS document ref. VIBROSIGHT-RN/E)
- VibroSight 2.9.1 (MSS document ref. VIBROSIGHT-RN/E)
- VibroSight 2.9.2 (MSS document ref. VIBROSIGHT-RN/E)
- VibroSight 2.9.4 (MSS document ref. VIBROSIGHT-RN/E)
- VibroSight 2.9.5 (MSS document ref. VIBROSIGHT-RN/E)
- VibroSight 2.9.6 (MSS document ref. VIBROSIGHT-RN/E)
- VibroSight 2.9.7 (MSS document ref. VIBROSIGHT-RN/E)
- VibroSight 2.10.0 (MSS document ref. VIBROSIGHT-RN/E)
- VibroSight 2.10.1 (MSS document ref. 660-010-013-201A)
- VibroSight 2.11.0 (MSS document ref. 660-010-013-203A)
- VibroSight 2.11.1 (MSS document ref. 660-010-013-204A)
- VibroSight 2.11.2 (MSS document ref. 660-010-013-205A)

- VibroSight 2.11.3 (MSS document ref. 660-010-013-206A)
- VibroSight 2.11.4 (MSS document ref. 660-010-013-207A)
- VibroSight 2.11.5 (MSS document ref. 660-010-013-208A)
- VibroSight 2.11.6 (MSS document ref. 660-010-013-209A)
- VibroSight 2.12.0 (MSS document ref. 660-010-013-210A)
- VibroSight 2.12.1 (MSS document ref. 660-010-013-211A)
- VibroSight 2.12.2 (MSS document ref. 660-010-013-212A)
- VibroSight 2.12.3 (MSS document ref. 660-010-013-213A)
- VibroSight 2.12.4 (MSS document ref. 660-010-013-214A)
- VibroSight 2.12.5 (MSS document ref. 660-010-013-215A)
- VibroSight 2.12.6 (MSS document ref. 660-010-013-216A)
- VibroSight 2.12.7 (MSS document ref. 660-010-013-217A)
- VibroSight 3.0.0 (MSS document ref. 660-010-013-218A)
- VibroSight 3.1.0 (MSS document ref. 660-010-013-219A)
- VibroSight 3.2.0 (MSS document ref. 660-010-013-220A).

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,  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:

- Major release identifier: **x**.x.x.x
- Minor release identifier: x.**x**.x.x
- Update release identifier: x.x.**x**.x
- Maintenance (build) release identifier: x.x.x.**x**

For each scheduled release of VibroSight, at least one of the first three digits changes (**x**.**x**.**x**.x). For unscheduled releases, that are occasionally required to solve urgent problems, only the fourth 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 Sensing System products that can be used with the VibroSight software, the following terminology is used in this document:

- VM600 card – to refer to the VibroSight-software compatible cards that are installed in a VM600 rack. 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 new CPUR/IOCR card pair.

  Where CPUx card is used in this document, it refers to CPUM and CPUR cards, and where IOCx card is used in this document, it refers to IOCN and IOCR cards, unless otherwise stated.

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

- VibroSmart module or VibroSmart device – to refer to VibroSight-software compatible modules or devices that are used in a distributed monitoring system. The currently available VibroSmart modules and devices that are designed for operation with the VibroSight software are the VSI010, VSN010 and VSV300.

  Where VibroSmart module is used in this document, it refers to the VSI010 and VSV300 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 VSV300 modules and the VSN010 device, unless otherwise stated.

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1 Licensing

In general, the licence required to enable purchased product options remains unchanged between update and/or maintenance level releases, for example, from version 3.2.0 to version 3.3.0. However, a new licence is always required for upgrades between major level releases, for example, from version 2.x.x to version 3.x.x.

NOTE:	VibroSight 3.3.0 is a minor level release and a new licence key file is not required for upgrades from VibroSight 3.2.0. However, a new licence key file is required for upgrades from VibroSight 2.x.x.

To obtain a new VibroSight licence key file or for further information on licence keys, contact Meggitt Sensing Systems customer support. See 7 Customer support.

2 Features

General

2.1 Support for integrated data management

The VibroSight software has been improved to include integrated support for data management that simplifies the configuration and operation of a data management strategy for a VibroSight-based machinery monitoring and protection system.

To use VibroSight's integrated data management to implement a data management strategy:

- VibroSight Configurator is used to configure the integrated data management operations that are required to be run on the VibroSight data repository used by the system.
  That is, the **Offline data storage**, **Data purge** and **Database backup** operations.
- VibroSight Server automatically calculates, schedules and runs individual commands on the server's data repository to implement the required data management strategy (corresponding to the operations configured in VibroSight Configurator). VibroSight Server also reports the status of the individual commands on a dedicated **Data management** tab, making it easier to know the state of the data management for a system.

VibroSight's integrated data management is completely self-contained: there is no longer any requirement for a separate task scheduler such as Windows Task Scheduler to help automate data management for a system.

As shown in Table 1, VibroSight's integrated data management operations are approximately equivalent to the data repositories commands that exist in VibroSight System Manager.

Table 1: A comparison of VibroSight's integrated data management operations and data repositories commands

VibroSight	
Integrated data management operations **Configured in VibroSight Configurator and run automatically by VibroSight Server**	**Data repository commands** **Run manually in VibroSight System Manager or run automatically by a task scheduler**
Offline data storage	Copy
Data purge	Purge
Database backup	--- See note 1
--- See note 2	Summary
--- See note 3	Database update

1. There is no Data repository backup command in VibroSight System Manager as it is not required.
   A VibroSight data repository (VibroSight historical data folder (`*.vshdf`) and the associated Storage subfolder) is backed up using the Copy and Paste commands in a Windows Explorer.
2. There is no Summary operation in VibroSight Configurator as it is not useful (as a scheduled task).
   The Summary command in VibroSight System Manager can be run as an unscheduled task. Alternatively, the Offline data storage operation in VibroSight Configurator has a "Create summary file" option that can be used to provide similar information.
3. There is no Database update operation in VibroSight Configurator as it is not required.
   A VibroSight data repository (VibroSight historical data folder (`*.vshdf`) and the associated Storage subfolder) is automatically updated by VibroSight as required.

It is important to note that the Data repositories commands that exist in VibroSight System Manager will continue to be supported as System Manager commands. However, the command-line equivalent of these commands are no longer supported, as for the purposes of data management strategy they are effectively replaced by VibroSight's integrated data management operations.

NOTE: Starting with VibroSight 3.3.0 the command-line equivalent of the Data repositories commands that exist in VibroSight System Manager are no longer supported, that is: `vibrosightdatacopy.exe` (Copy), `vibrosightdatapurge.exe` (Purge) and `vibrosightextractsummary.exe` (Summary).

NOTE: Because of the changes to the VibroSight System Manager Data repositories commands, any existing data management and system backup procedures for a VibroSight-based machinery monitoring and protection system must be manually migrated to use VibroSight's integrated data management operations in order to ensure that the data management continues to work.
Typically, such VibroSight data management procedures include batch files using the `vibrosightdatacopy.exe` and/or `vibrosightdatapurge.exe` command-line commands that are run by Windows Task Scheduler.

See also 2.9 Data repositories commands.

2.1.1 Recommended data management strategy using VibroSight's integrated data management

Now that the VibroSight software includes integrated support for data management, the recommended data management strategy for a VibroSight-based machinery monitoring and protection system consists of three steps, as follows:

1. Daily backups of the data repository used by the VibroSight Server – configured using the **Database backup** operation.

Online VibroSight historical data folder (`*.vshdf`) →
offline VibroSight historical data folder (`*.vshdf`).

Backups are required in order to always have an up-to-date offline copy of the data repository that can be reverted to in case of a problem with the online data repository. Daily backups help reduce the risk of data loss and system downtime. A daily backup is recommended as it is a good compromise between operating performance of the machinery monitoring system and data loss.

NOTE:	It is good practice to store onsite backups on different storage devices. For example, different hard disks or hard drives, preferably on different storage devices or computers. It is good also practice to have offsite backups in order to help prevent data loss.

2. Weekly or monthly copies of the data repository used by the VibroSight Server – configured using the **Offline data storage** operation.

Online VibroSight historical data folder (`*.vshdf`) →
multiple smaller offline VibroSight historical data archives (`*.vshda`).

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).

3. After the data has been copied to offline data storage (step 2 above), regular purges of the data repository used by the VibroSight Server – configured using the **Data purge** operation.

Online VibroSight historical data folder (`*.vshdf`) →
made smaller (`*.vshdf`).

Regular purges are required in order to limit the size of the online data repository so that it does not become too large, which can lead to problems with operating performance of the machinery monitoring system and file/data handling issues. Once configured, repeated purges of the online VibroSight historical data folder are automatically run by the VibroSight Server in order to restrict the size of the data repository.

NOTE:	VibroSight's integrated data management means that VibroSight Server automatically calculates, schedules and runs individual commands corresponding to the Data management operations configured in VibroSight Configurator, in order to automate the data management strategy.

Note: The times/timescales used in the steps of the Recommended data management strategy using VibroSight's integrated data management commands example above are for a typical VibroSight-based machinery monitoring and protection system and for illustration only. The times/timescales used in a particular system depend on many factors, such as the density/volume measurement data and/or the importance of the data, and should be configured accordingly.

See also 2.5 Configuring integrated data management and 2.7 Running integrated data management.

2.2 Interprocess communication – WCF replaces .Net Remoting

The VibroSight software has been improved to replace the use of .Net Remoting with WCF (Windows Communication Foundation) for all interprocess communication required by the underlying client-server architecture of VibroSight. For example, this includes communication between a VibroSight Server and clients such as VibroSight Vision and VibroSight Mimic, and communication between VibroSight and other servers such as a VibroSight Modbus Server or a VibroSight OPC Server.

WCF has been used to replace .Net Remoting in order to:

- Improve performance, reliability and security.
- Increase interoperability and extensibility.

(VibroSight System Manager continues to use .Net Remoting for some interprocess communication but is planned to be completely migrated to WCF for the next release of VibroSight.)

Note: .Net Remoting has effectively become a "legacy" product that is supported by Microsoft for reasons of backward compatibility only.

2.3 Unit preferences – new physical quantities and units

To improve support for combustion monitoring applications, the default Metric and Imperial unit sets included in VibroSight have been updated to include the additional physical quantities and units listed in Table 2.

To view the unit preferences, click **Tools > Unit Preferences** on the menu bar in a VibroSight software module, such as VibroSight Configurator, VibroSight Scope or VibroSight Vision.

Table 2: New physical quantities and units in VibroSight 3.3.0

Physical quantity	Unit		Unit set	
	Symbol	Name	Metric	Imperial
Acidity	pH	Potential of hydrogen	Default	Default
Density	kg/cm^3	kilogram per cubic centimetre	Available	Available
Density	mg/m^3	milligram per cubic metre	Available	Available
Density	mg/Sm^3	milligram per standard cubic metre	Available	Available
Frequency	mHz	millihertz	Available	Available
Fuel consumption	Sm^3/kWh	standard cubic meter per kilowatt hour	Default	Unavailable
Lower calorific value	kJ/kg	kilojoule per kilogram	Default	Default
Gradient ratio	%/min	percentage per minute	Default	Default
Head	m	head	Default	Available
Head	ft	head	Available	Default
Heat of combustion	J/kgK	joule per kilogram-kelvin	Default	Default
Heat value by mass	J/kg	joule per kilogram	Available	Available
Heat value by volume	kcal/Nm^3	kilocalories per normal cubic meter	Available	Available
Higher calorific value	kJ/kg	kilojoule per kilogram	Default	Default
Mass	kg	kilogram	Default	Unavailable
Mass	g	gram	Available	Unavailable
Mass	mg	milligram	Available	Unavailable
Mass	µg	microgram	Available	Unavailable
Mass	t	metric tonne	Available	Unavailable
Mass	oz	ounce	Unavailable	Available
Mass	lb	pound	Unavailable	Default
Pressure	MPa	megapascal	Available	Unavailable
Ratio	ppb	parts per billion	Available	Available
Turbidity	g/L	grams per litre	Default	Default
Volume	Nm^3	normal cubic meter	Available	Unavailable
Volume concentration	% v/v	volume / volume percentage	Available	Available
Volumetric flow rate	l/min	litre per minute	Available	Unavailable
Volumetric flow rate	l/h	litre per hour	Available	Unavailable
Volumetric flow rate	Nm^3/d	normal cubic metre per day	Available	Unavailable

Physical quantity	Unit		Unit set	
	Symbol	Name	Metric	Imperial
Weight	kg	kilogram	Default	Unavailable
Weight	g	gram	Available	Unavailable
Weight	mg	milligram	Available	Unavailable
Weight	µg	microgram	Available	Unavailable
Weight	t	metric tonne	Available	Unavailable
Weight	oz	ounce	Unavailable	Available
Weight	lb	pound	Unavailable	Default
Weight ratio	%	percentage	Default	Default

2.4 Communications through a firewall

For a VibroSight-based machinery monitoring and protection system using a firewall, that is, where Windows Firewall is turned on:

- VibroSight Server now requires that the TCP 55000 port number is configured to be allowed through the firewall (that is, added to the exceptions list in Windows Firewall) in order to permit communication with VibroSight clients such as VibroSight Vision and VibroSight Mimic.

(Previously, VibroSight Server could require that multiple TCP port numbers starting at TCP 55000 were configured to be allowed through the firewall as when an individual VibroSight Server started, it took the next available TCP port number starting at 55000.)

VibroSight Configurator

2.5 Configuring integrated data management

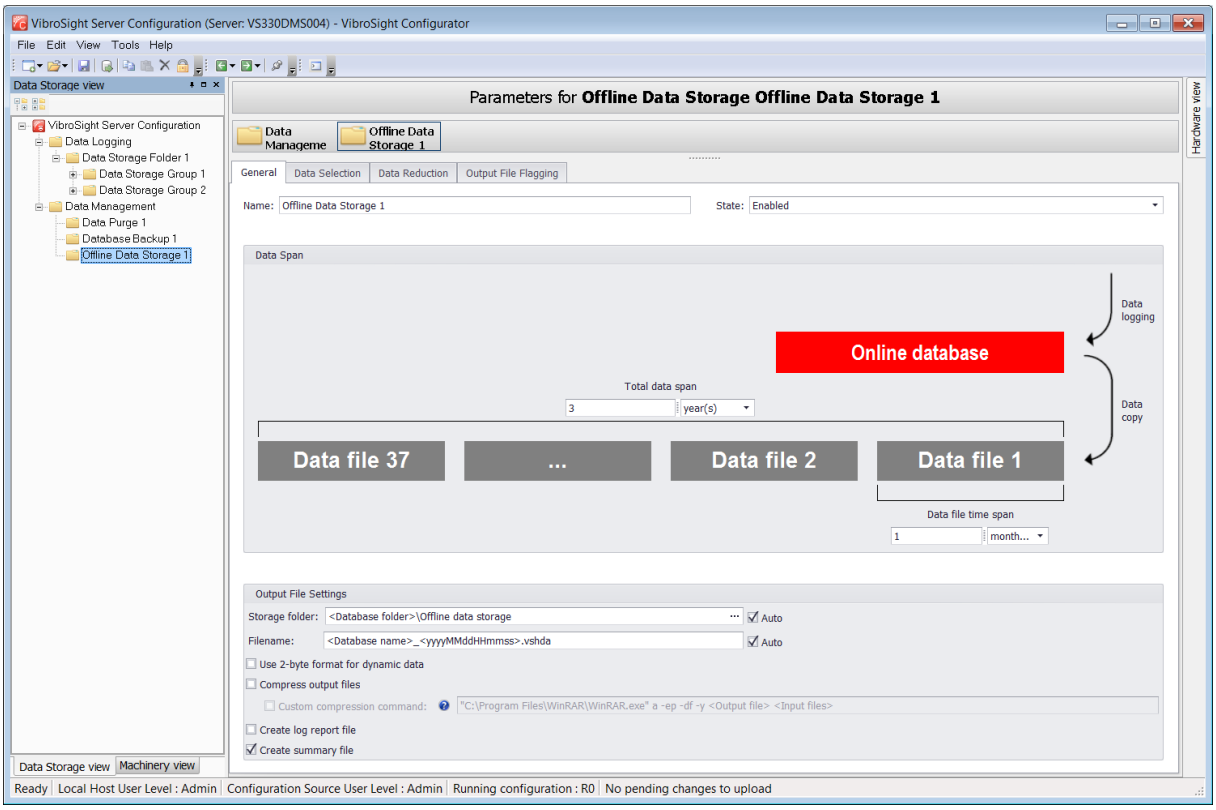
The VibroSight software has been improved to include integrated support for data management that simplifies the configuration and operation of a data management strategy for a VibroSight-based machinery monitoring and protection system.

VibroSight Configurator is used to configure the integrated data management operations that are required to be run on the VibroSight data repository used by the system.
That is, the **Offline data storage**, **Data purge** and **Database backup** operations.

To configure VibroSight's integrated data management:

1. In VibroSight Configurator, in a VibroSight Server configuration, in the **Data storage view** (left), under **VibroSight Server configuration**, right click on the **Data management** node level and click **New Offline data storage**, **New Data purge** or **New Database backup** to add the required data management operation.

2. To configure an **Offline data storage** operation, in the **Data storage view** (left), select the **Offline data storage** node level and configure the parameters in the main working area (centre), as follows.



On the **General** tab:
In the **Name** field, enter a name for the Database backup operation (or use the default name).
In the **State** field, the operation is enabled by default. The state can be changed to Disabled if the VibroSight Server is required to ignore the operation.
Under **Data span**, use the **Total data span** controls to configure the maximum combined size for all of the offline data files (data repositories). For example, 3 years worth of data (**3 year(s)**) or 100 GB worth of data (**100 gigybyte(s)**).

NOTE:	The **Total data span** can be specified either: • In terms of time (year(s), month(s), week(s), day(s) or hours(s)). • In terms of storage device space (gigabyte(s) or megabyte(s)).

Under **Data span**, use the **Data file time span** controls to configure the maximum size of each individual offline data file (data repository) in terms of time range. For example, 1 months worth of data (**1 month(s)**).

NOTE:	If both the **Total data span** and **Data file time span** controls are configured in terms of time, VibroSight uses the values of the **Total data span** and **Data file time span** controls to calculate the number of individual offline data files (data repositories) that are required and updates the data file numbering (“**Data file *n***”) in the user interface accordingly. Together, the individual **Data file**s (offline data repositories) act as a “rolling buffer” that is continually being rewritten in order to always have the most recent data for the **Total data span** available. That is, once the number “***n***” of individual **Data file**s required to cover the **Total data span** is reached, each time a new individual **Data**

file with the latest data becomes available, the oldest individual **Data file** with the oldest data is automatically deleted.
Using a “rolling buffer” to limit the number of individual **Data file**s (offline data repositories) ensures that the latest data covering the **Total data span** is always available, while avoiding potential issues such as a disk-full situation.

Under **Output file settings**, use **Storage folder** to specify a location for the offline data files (offline data repositories), the **Auto** option can be selected to use the default `\Offline data storage` subfolder; use **Filename** to specify the file names for the offline data files (offline data repositories), the **Auto** option can be selected to use the default `<Database name>_<yyyyMMddHHmmss>.vshda` file name.

NOTE: The default `<Database name>_<yyyyMMddHHmmss>.vshda` file name includes a timestamp (date-time string) placeholder that is automatically replaced in the created file name by the timestamp derived from the local computer clock at the time when the file is created.
The timestamp placeholder is in the format `<yyyyMMddHHmmss>`, where `yyyy` is the year, `MM` is the month, `dd` is the day, `HH` is the hour, `mm` is the minute and `ss` is the second.

Under **Output file settings**, the **Use 2-byte format for dynamic data** option can be selected to reduce the size of the offline data files (offline data repositories).

NOTE: This data reduction option affects dynamic measurement data (such as waveforms, spectra and orbits) only.
More specifically, for all of the dynamic measurement data selected to be copied, using 2 bytes for each measurement point (rather than VibroSight’s native 4 bytes) reduces the offline data files (offline data repositories), at the expense of the dynamic range of the measurement data.

Under **Output file settings**, the **Compress output files** option can be selected to compress the offline data files (offline data repositories).

NOTE: If the **Compress output files** option is selected, VibroSight uses its integrated compression / file archiving to reduce the size of the offline data files (offline data repositories).
If the **Custom compression command** option is also selected, VibroSight uses the specified external third-party compression / file archiving software tool and options to reduce the size of the offline data files (offline data repositories). For example, compression / file archiving software such as 7-Zip or WinRAR.

Under **Output file settings**, use **Create log report file** to generate a log report file and **Create summary file** to generate a summary file for the **Offline data storage** operation.

NOTE:	The log report file for an integrated data management operation contains technical information concerning the options used and the progress of the operation. The summary file for an integrated data management operation contains a summary of the data processed by and included in the files created by the operation.

On the **Data selection** tab:
Select the type of measurement data to copy based on the data type: **Variables**, **Spectra**, **Orbits**, **Waveforms** and/or **Alarms/events**. In addition, select the actual measurement data to copy using either **For entire configuration** or **For selected items**.
If the **For selected items** control is used, the actual measurements to copy are selected using the hierarchical tree structure displayed (**Hardware view** or **Machinery view**).

NOTE:	The list of actual measurements available to be copied is displayed as a **Hardware view** or **Machinery view**, which is dynamically updated depending on the controls selected. The **Show selected only** control can be used in order to selectively filter the hierarchical tree structure and display only the measurements selected to be copied. The search box, indicated by a magnifying glass icon, can be used to selectively filter the hierarchical tree structure and display only the measurements containing the search term.

On the **Data reduction** tab:
Select **Perform data reduction (for variables only)** to make the data reduction algorithm controls available. The data reduction algorithm can be configured to copy the **Minimum value** and/or the **Maximum value** and/or the **First value** for the time period specified using the **Copy value(s) every** controls.

NOTE:	This data reduction option affects static measurement data (such as variables) only. More specifically, for all of the static measurement data selected to be copied, the data reduction algorithm keeps only the selected values from the selected time period, which is repeated throughout the overall time range to be copied.

On the **Output file flagging** tab:

Either select **Do not flag** or select **Flag output file depending on severity** in order to configure the severity levels (Severities) to flag in the offline data files (offline data repositories) by selecting **Out of Range**, **Normal**, **Information**, **Alert** and/or **Danger**. In addition, select the actual measurement data for which the severities should be flagged.

NOTE:	These file flagging options will automatically add the "_alarm" suffix to the file name of the created offline data files (offline data repositories) if any of the copied data has alarms/events at the selected severity level. In practice, this feature helps measurement data with severity levels of particular interest to be more found more quickly.

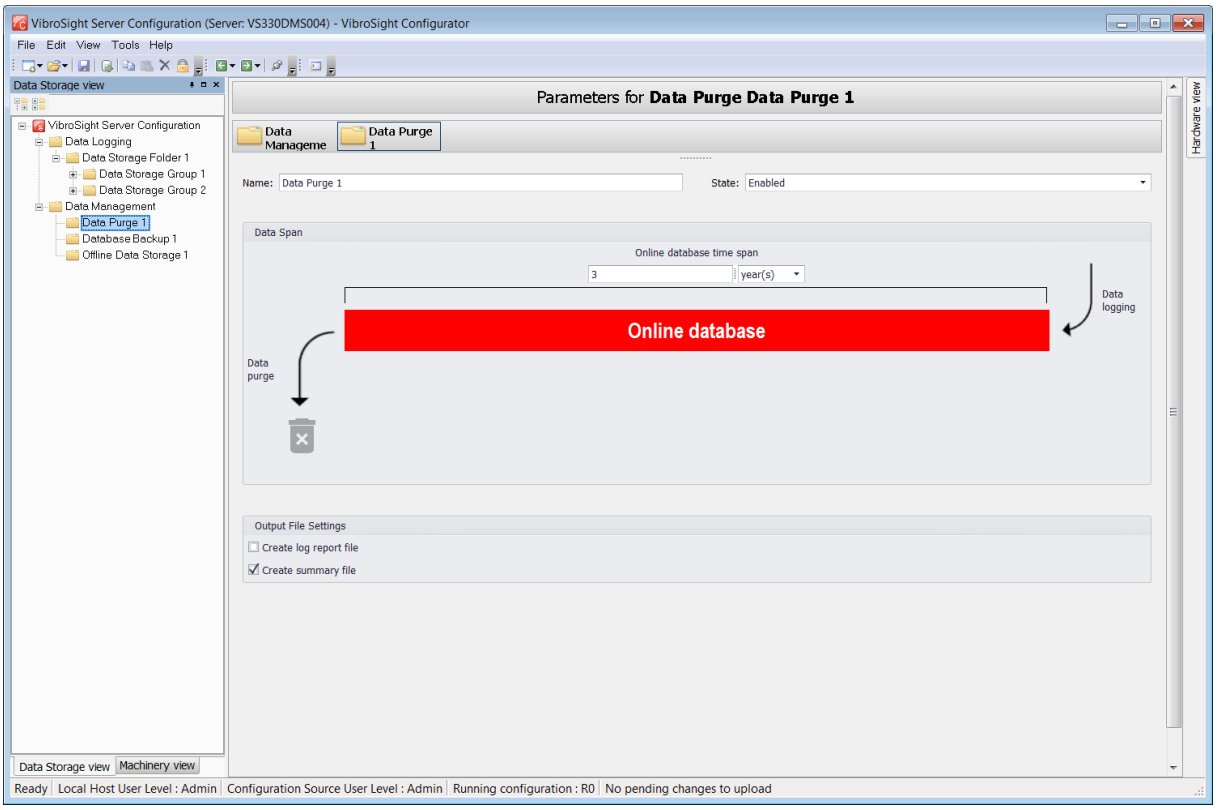
If the **Flag output file depending on severity** control is used, the actual measurements to be checked for severities are selected using the hierarchical tree structure displayed (**Hardware view** or **Machinery view**).

NOTE:	The list of actual measurements available to be copied is displayed as a **Hardware view** or **Machinery view**, which is dynamically updated depending on the controls selected. The **Show selected only** control can be used in order to selectively filter the hierarchical tree structure and display only the measurements selected to be copied. The search box, indicated by a magnifying glass icon, can be used to selectively filter the hierarchical tree structure and display only the measurements containing the search term.

When the VibroSight Server configuration containing the **Offline data storage** operation is applied to a VibroSight Server, the VibroSight Server will automatically calculate, schedule and run the individual "Copy" commands required in order to act as a "rolling buffer" of the latest individual **Data file**s (offline data repositories) from the VibroSight historical data folder (`*.vshdf`) used as a data repository by the VibroSight Server.

That is, online VibroSight historical data folder (`*.vshdf`) → multiple smaller offline VibroSight historical data archives (`*.vshda`).

3. To configure a **Data purge** operation, in the **Data storage view** (left), select the **Data purge** node level and configure the parameters in the main working area (centre), as follows.



In the **Name** field, enter a name for the Data purge operation (or use the default name).
In the **State** field, the operation is enabled by default. The state can be changed to Disabled if the VibroSight Server is required to ignore the operation.
Under **Data span**, use the **Online database time span** controls to configure the maximum size of the online database (data repository) in terms of time range. For example, 3 years worth of data (**3 year(s)**).

NOTE:	The **Data span** can be specified in terms of time (year(s), month(s), week(s), day(s) or hours(s)). For a **Data purge** operation, the **Data span** defines the data to keep. It is the data outside of the specified **Data span** that is purged (that is, data outside of the specified **Data span** is permanently deleted and cannot be recovered!).

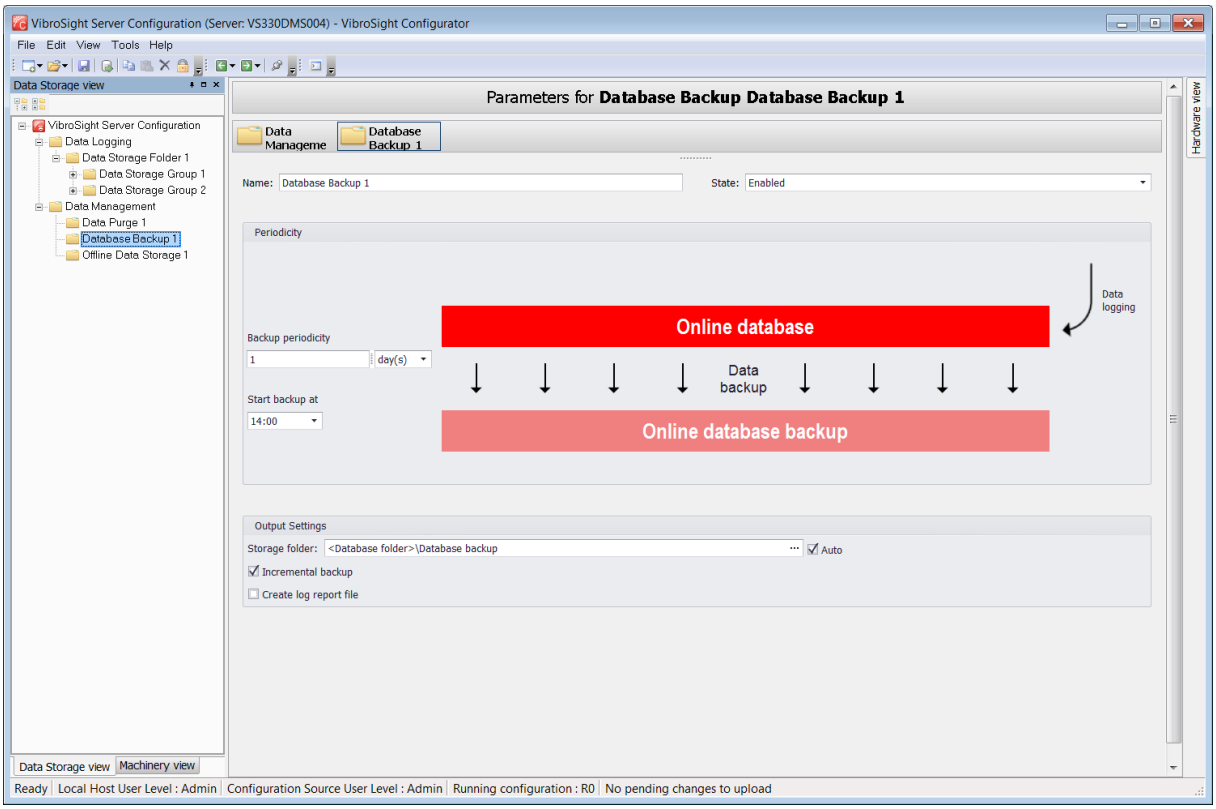
Under **Output file settings**, use **Create log report file** to generate a log report file and **Create summary file** to generate a summary file for the **Data purge** operation.

NOTE:	The log report file for an integrated data management operation contains technical information concerning the options used and the progress of the operation. The summary file for an integrated data management operation contains a summary of the data processed by and included in the files created by the operation.

When the VibroSight Server configuration containing the **Data purge** operation is applied to a VibroSight Server, the VibroSight Server will automatically calculate, schedule and run the individual "Purge" commands required in order to limit the maximum size of the online VibroSight historical data folder (`*.vshdf`) used as a data repository by the VibroSight Server.

That is, online VibroSight historical data folder (`*.vshdf`) → made smaller (`*.vshdf`).

4. To configure a **Database backup** operation, in the **Data storage view** (left), select the **Database backup** node level and configure the parameters in the main working area (centre), as follows.



In the **Name** field, enter a name for the Database backup operation (or use the default name).
In the **State** field, the operation is enabled by default. The state can be changed to Disabled if the VibroSight Server is required to ignore the operation.
Under **Periodicity**, use the **Backup periodicity** controls to configure how frequently the online database (data repository) must be backed up. For example, every day (**1 day(s)**).

NOTE:	The **Backup periodicity** can be specified in terms of time (year(s), month(s), week(s) or day(s)).

Under **Periodicity**, use the **Start backup at** control to configure the preferred time for the online database (data repository) backup operation to start.

Under **Output settings**, use **Storage folder** to specify a location for the backup files (the **Auto** option can be selected to use the default `\Database backup` subfolder); **Incremental backup** is enabled by default in order that the individual copy commands used for the backup operation only copy data/files that have changed since the last time a copy command for the Database backup operation

was run (in order to improve overall system performance); use **Create log report file** to generate a log report file for the **Database backup** operation.

NOTE:	The log report file for an integrated data management operation contains technical information concerning the options used and the progress of the operation.

When the VibroSight Server configuration containing the **Database backup** operation is applied to a VibroSight Server, the VibroSight Server will automatically calculate, schedule and run the individual "Copy" commands required in order to create a backup of the online VibroSight historical data folder (`*.vshdf`) used as a data repository by the VibroSight Server.

That is, online VibroSight historical data folder (`*.vshdf`) → offline VibroSight historical data folder (`*.vshdf`).

When a VibroSight Server configuration containing integrated data management operations (**Offline data storage**, **Data purge** and/or **Database backup**) is applied to the configuration running on a VibroSight Server, the VibroSight Server automatically calculates, schedules and runs the individual commands required to implement the configured data management strategy.

See also 2.1 Support for integrated data management and 2.7 Running integrated data management.

2.6 New consistency checks

The Consistency checker has been improved to include new checks for the configuration of VibroSight's integrated data management operations (**Offline data storage**, **Data purge** and **Database backup**).

VibroSight Server

2.7 Running integrated data management

The VibroSight software has been improved to include integrated support for data management that simplifies the configuration and operation of a data management strategy for VibroSight-based machinery monitoring and protection systems.

When a VibroSight Server configuration containing integrated data management operations (**Offline data storage**, **Data purge** and/or **Database backup**) is applied to the configuration running on a VibroSight Server, the VibroSight Server automatically calculates, schedules and runs the individual commands required to implement the configured data management strategy (corresponding to the operations configured in VibroSight Configurator).

In addition, the **Data management** tab of a VibroSight Server displays information about the individual commands accessing the server's data repository in order to make it easier to know the state of the data management for the system.

The information displayed on the **Data management** tab consists of individual “Copy” and “Purge” commands that correspond to either:

- Integrated data management operations, that is, the **Offline data storage**, **Data purge** and/or **Database backup** operations configured in VibroSight Configurator.
  Note: The individual commands corresponding to integrated data management operations are run automatically.
- Data repositories commands, that is, the **Copy**, **Summary**, and/or **Purge** commands that are run from VibroSight System Manager.
  Note: These individual commands corresponding to Data repositories commands are run manually.

See also 2.1 Support for integrated data management and 2.5 Configuring integrated data management.

2.8 Exiting a VibroSight Server

When a VibroSight Server is exited (closed) using the **Close** button (top right) or the **File > Quit** command, the VibroSight Server prompts the user for confirmation before closing.

(Previously, when a VibroSight Server was exited using the **Close** button (top right) or the **File > Quit** command, the VibroSight Server closed without prompting the user.)

VibroSight System Manager

2.9 Data repositories commands

The Data Repositories commands have been updated to remove the features and options required to help automate data management for a system, as the VibroSight software now includes integrated support for data management (that is, there is no longer any requirement for a separate task scheduler such as Windows Task Scheduler to help automate data management for a system).
For example, the Save to batch file control used by some Data Repositories commands to help create a Windows batch file (*.bat) for use with the command-line equivalent of the command has been removed.

While the Data repositories commands that exist in VibroSight System Manager (**Copy**, **Summary**, **Database update** and **Purge**) will continue to be supported as System Manager commands, the command-line equivalent of these commands are no longer supported, as for the purposes of data management strategy they are effectively replaced by VibroSight’s integrated data management operations.

NOTE:	Starting with VibroSight 3.3.0 the command-line equivalent of the Data repositories commands that exist in VibroSight System Manager are no longer supported, that is: `vibrosightdatacopy.exe` (Copy), `vibrosightdatapurge.exe` (Purge) and `vibrosightextractsummary.exe` (Summary).

NOTE:	Because of the changes to the VibroSight System Manager Data repositories commands, any existing data management and system backup procedures for a VibroSight-based machinery monitoring and protection system must be manually migrated to use VibroSight's integrated data management operations in order to ensure that the data management continues to work. Typically, such VibroSight data management procedures include batch files using the `vibrosightdatacopy.exe` and/or `vibrosightdatapurge.exe` command-line commands that are run by Windows Task Scheduler.

See also 2.1 Support for integrated data management.

VibroSight Vision

2.10 Displaying frequency data in a Trend plot

The Trend plot has been updated to include an additional option that supports the plotting of frequency (or pressure) data in different ways. The new Trend plot option is called **Y-axis frequency format**, **Curve** and is applicable to Trend plots that plot frequency data (in addition to amplitude and/or phase data).

NOTE:	Frequency measurement data is generated by VM600 XMx16 cards using a dynamic processing block and a frequency domain extraction with a **Data type** such as **Phasor / Amplitude + Phase + Frequency** or **Frequency line / Amplitude + Frequency**.

Depending on the configuration of the **Y-axis frequency format**, **Curve** option, frequency (or pressure) data is plotted in the following ways:

- **Default** – displayed with or without points for each measurement (depending on the **Points** option configured for the plot and the overall plot data density) and with a line connecting each measurement.
  Note: By default, VibroSight Vision considers the overall plot data density (that is, the number of data entities in the plot) when deciding whether to display points for each measurement.
- **Only points** – displayed with points for each measurement (independently of the **Points** option configured for the plot and the overall plot data density) and without a line connecting each measurement.
  Note: Displaying frequency (or pressure) data as **Only points** can provide a "clearer view" of the data and any underlying phenomena.
- **Only lines** – displayed without points for each measurement (independently of the **Points** option configured for the plot and the overall plot data density) and with a line connecting each measurement.

- **Points and lines** – displayed with points for each measurement (independently of the **Points** option configured for the plot and the overall plot data density) and with a line connecting each measurement.

(Previously, the Trend plot only supported the display of frequency data in a single way, equivalent to the Default option.)

To configure the plotting of frequency data in an individual Trend plot, the properties of the plot can be changed as follows:

1. Right-click the plot, then click **Plot properties**, or click the **Plot > Plot properties** menu command.
   The **Plot properties** window for the Trend plot is displayed.

2. In the **Plot properties** window, on the **General** tab, under **Layout**, select or clear the **Points** control as required, then click **Apply** or **OK**.

3. In the **Plot properties** window, on the **Y-axis** tab, on the **Frequency** (or Pressure) tab, under **Format**, configure the **Curve** control to **Default**, **Only points**, **Only lines** or **Points and lines** as required, then click **Apply** or **OK**.

The updated settings configured for the individual Trend plot are immediately applied to the plot.

Alternatively, the default plot settings for all Trend plots can be changed as follows:

1. Click the **Tools > Options** menu command.
   The **Options** window for VibroSight Vision is displayed.

2. In the **Options** window, select **Default plot settings** (left pane), and on the **General** tab (right pane), under **Layout**, select or clear the **Points** control as required, then click **OK**.

3. In the **Options** window, select **Trend plot** (left pane), and under **Y-axis frequency format** (right pane), configure the **Curve** control to **Default**, **Only points**, **Only lines** or **Points and lines** as required, then click **OK**.

The updated default settings configured for all Trend plots are used the next time that a Trend plot is created.

2.11 Displaying historical data from multiple different time ranges

It is now possible to display historical data from different time ranges in a single plot in order to make it easier to compare and analyse data.

Displaying historical data from different time ranges is primarily supported by the Custom historical mode of the Time Range tool window when using absolute time ranges.

To display historical data from different time ranges in a plot, select the measurement data and the plot type as usual, and specify an initial time range as follows:

1. In the Time Range tool window, use the drop-down list box at the top of the window to select **Custom historical** and under **Time**, select **Absolute**.

2. In the Time Range tool window, use the **From** and **To** controls to specify an (absolute) time range using a start date/time and an end date/time.

3. In the Time Range tool window, click **Apply** to apply the specified time range to the VibroSight Vision project (session) and its plots.
The displayed plots are updated to use the initial time range specified.

Then specify any additional time ranges as follows:

4. In the Time Range tool window, under the **From** and **To** controls, click the **New** button to add an additional absolute time range time.

5. In the Time Range tool window, use the additional **From** and **To** controls to specify an additional time range using a start date/time and an end date/time.

6. In the Time Range tool window, click **Apply** to apply the additional specified time range to the VibroSight Vision project (session) and its plots.
The displayed plots are updated to use the initial and the additional time ranges specified.

NOTE:	When working with multiple different time ranges in the Custom historical mode using absolute time ranges, a single individual curve is used by each measurement (data entity) across the different time ranges.

When working with multiple different time ranges in the Custom historical mode using absolute time ranges:

- The **New** button is used to add a new time range.
- Up to 10 different time ranges can be used at any one time.
- The **Delete** buttons are used to remove existing time ranges.
- At least 1 time range must be active at any one time (that is, it is not possible to delete all of the time ranges).
- When a new time range is added, its **From** and **To** controls are initially populated with the values from the previous time range but these should be changed.
- The **Back** and **Forward** buttons are used to navigate backwards and forwards through the plotted measurement data in time by automatically updating the time ranges to use new time ranges that are the same duration as the previous time ranges but are shifted forwards or backwards in time (by the duration of the time ranges).
  Note: When using the **Back** and **Forward** buttons, changes to the time ranges are automatically applied, so there is no need to use the **Apply** button.

Although displaying historical data from different time ranges is primarily supported by the Custom historical mode of the Time Range tool window using absolute time ranges, it is also possible to use the Machines states mode or the Alarms mode of the Time Range tool window to specify (absolute) time ranges.

For example, use the **Machines states** mode of the Time Range tool window to specify (absolute) time ranges, as follows:

1. In the Time Range tool window, use the drop-down list box at the top of the window to select **Machine states**.

2. In the machine states grid, select one or more machine states, then right-click on one of the selected machine states and click **Convert to custom historical**.
The Time Range tool window switches from the Machine states mode to Custom historical mode with the Time set to Absolute, and with multiple absolute time ranges specified that correspond to the selected machine states (that is, with the **From** and **To** controls automatically set to the dates and times corresponding to the selected machine states).
The updated Custom historical time ranges are also automatically applied to the VibroSight Vision project (session) and its plots (that is, the displayed plots are updated).

This example is equally applicable to the **Alarms** mode of the Time Range tool window, by substituting **Alarms**, and in the alarms grid, selecting one or more alarms.

2.12 Improved zooming in plots

The zoom functionality in VibroSight Vision plots has been improved as follows:

- Dragging the pointer from left to right or from right to left now results in the same behaviour, that is, these actions define the required zoom area and the plot zooms to the region of the plot defined by the zoom area.
- Using the **ESC** key or the **Zoom reset** button on the toolbar resets the plot to how it was initially displayed, that is, with no zoom.

(Previously, dragging the pointer from left to right zoomed the plot to the region of the plot defined by the zoom area, while dragging the pointer from right to left reset the plot to not use any zoom.)

Note: The zoom functionality in Polar plots and Polar waveform plots has not changed as they already supported dragging the pointer from left to right or from right to left actions in order to define the required zoom area.

VM600 XMx16 cards

2.13 XMx16 cards: Relaxed constraints for dynamic data retention time

VM600 XMx16 card firmware now includes relaxed constraints for dynamic data retention time.

Some of the XMx16 card's on-board memory is organised as three multi-level circular buffers for the temporary storage of dynamic data (waveforms and spectra): the level 1 buffer has an update rate of 100 ms (note: can be less than 100 ms for big FFTs), the level 2 buffer has an update rate of 1 s, the level 3 buffer has an update rate of 10 s. The card memory allocated to each circular buffer is fixed but the proportion allocated to each level (100 ms, 1 s and 10 s) is configurable.

In order to reduce the possibility of missing data due to a VibroSight Server not retrieving data from VM600 XMx16 cards before it is overwritten (circular “roling” buffer), memory utilisation by the VM600 XMx16 cards has been optimised in order to maximise the memory available to the level 1 buffer (100 ms data).

Accordingly, this VM600 XMx16 card firmware update is particularly useful for data intensive VibroSight applications, where the VibroSight Server is running on a less powerful computer and may not otherwise be able to keep up with all of the 100 ms data available from the card, all of the time.

NOTE:	In order to run VibroSight 3.3.0 for machinery monitoring systems containing VM600 XMx16 cards, a firmware upgrade to the latest version of XMx16 card firmware is required. See 5.2 VM600 cards.

3 Solved problems and bug fixes

General

3.1 Improvements and bug fixes

General stability improvements across the VibroSight 3.3.0 software.

3.2 VibroSight client connections to local and remote VibroSight Servers are mutually exclusive

When a VibroSight Server was running on a (local) computer, a VibroSight client, such as VibroSight Configurator or VibroSight Vision running on the same (local) computer could not connect to a VibroSight Server running on a different (remote) computer.

3.3 VibroSight Servers listen to a single IP address

A VibroSight Server used one specific IP address for connections to VibroSight clients and all communication was directed through this VibroSight Server IP address. This IP address could be set to any of the available network adapters or logical addresses on the host computer running the VibroSight Server. On a computer with a single network adapter, the IP address of the single network adapter was used by default.

In typical applications, the network adapter of the host computer running the VibroSight Server is connected to a dedicated control (industrial) Ethernet network that contains the VibroSight-compatible hardware such as VM600 XMx16 cards and VibroSmart devices.

However, as a VibroSight Server used one specific IP address (network adapter), this prevented concurrent connections from VibroSight clients running on other separate networks, such as a business (corporate) Ethernet network.

3.4 VibroSight Server communication errors

Under rare circumstances, when a computer running VibroSight clients had two network adapters (cards) installed, communications errors with a VibroSight Server were possible.

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 the VibroSight Server database file (`*.vssrvdb` or `*.db)` and the 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 database copies append a timestamp (_yyyyMMddHHmmss) to the Server instance name which 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 database copy is complete.

Also, depending on the VibroSight Server 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 databases being created during automatic data management. This is particularly important for systems with automated data management and system backup procedures that use script files containing database commands (such as copy and backup) that can automatically generate VibroSight Server database files.

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 3.3.0, 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.

4.10 XMx16 card pre-logging

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

4.11 Problems creating new VibroSight OPC 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 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 Servers is being used by the later installation of VibroSight, which can happen in one of two ways:

- When a later version of VibroSight 3.x.x is installed on a computer that was running an earlier version of VibroSight 2.x.x, 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 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 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 Servers to VibroSight 3.x.x is described in detail in the “VibroSight OPC Server migration” section of the latest *Getting started with VibroSight* installation guide.

5 Compatibility

As part of the VibroSight software installation process, the VibroSight installer will automatically check to see if the required Microsoft .NET Framework (see section 5.1.2), Microsoft Visual C++ Redistributable Package (see section 5.1.3) and OPC Core Components Redistributable (see section 5.1.4) are pre-installed.

The required Microsoft .NET Framework and Microsoft Visual C++ Redistributable Package must be manually installed on the computer before VibroSight can be installed. If the required Microsoft .NET Framework and Microsoft Visual C++ Redistributable Package are not pre-installed, then the VibroSight installer will detect this and exit the installation.

If not already installed, the required OPC Core Components Redistributable software is automatically installed on the computer by the VibroSight installer.

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 3.3.0 is a minor level release and replaces VibroSight 3.2.0.

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 folders (`*.vshdf`) for operation with a VibroSight Server (live data) and VibroSight historical data archives (`*.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 3.x.x 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 3.x.x.
- 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 3.x.x.
  It is very important to note that migrating a VibroSight OPC Server from VibroSight 2.12.7 or earlier to VibroSight 3.x.x 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 3.x.x 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 3.x.x 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 this document for detailed information on VibroSight software and Windows operating system compatibility.

5.1.2 Microsoft .NET Framework

For most Windows operating systems, VibroSight 3.x.x or later requires that the Microsoft .NET Framework 4.6 or later is installed.

NOTE:	VibroSight 3.x.x requires Microsoft .NET Framework 4.6.

If the required Microsoft .NET Framework is not pre-installed, then the VibroSight installer will detect this and exit the installation.

See the appendix of this document for detailed information on VibroSight software’s Microsoft .NET Framework requirements.

5.1.3 Microsoft Visual C++ Redistributable Package

VibroSight 3.x.x 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 3.x.x 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 Sybase SQL Anywhere 11 software

Starting with VibroSight 3.0.0, the VibroSight historical data repositories (VibroSight historical data folders (`*.vshdf`) for operation with a VibroSight Server (live data) and VibroSight historical data archives (`*.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 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 3.x.x is described in detail in the “Data migration” section of the latest *Getting started with VibroSight* installation guide.

5.1.6 VM600 CMS software

The VM600 CMS software from Meggitt Sensing Systems uses Sybase SQL Anywhere 8. Both Sybase SQL Anywhere 8 (VM600 CMS) and Sybase SQL Anywhere 11 (VibroSight) can be installed on the same computer.

However, while SQL Anywhere 8 and SQL Anywhere 11 can be installed on the same computer and run at the same time for standard database operations, certain administrative tasks are mutually exclusive and may block one another.

More specifically, all operations that refer to Sybase SQL (a command-line Interactive SQL utility) in the background could be directed to the wrong version of Sybase SQL Anywhere. For example, this impacts all user operations and system operations involving the creation, copying and updating of databases.

NOTE:	It is recommended to install and use VibroSight 3.x.x or earlier on a computer that does not have VM600 CMS software installed.

5.1.7 SIMATIC Step 7 software

The SIMATIC Step 7 software from Siemens typically uses Sybase SQL Anywhere 9. Both Sybase SQL Anywhere 9 (SIMATIC Step 7) and Sybase SQL Anywhere 11 (VibroSight) can be installed on the same computer.

However, while SQL Anywhere 9 and SQL Anywhere 11 can be installed on the same computer, they cannot run at the same time.

More specifically, if SIMATIC Step 7 and VibroSight are both installed, certain administrative tasks, such as all user operations and system operations involving the creation, copying and updating of databases, may not work correctly. If this behaviour is seen, the recommended workaround is to manually change or remove the SQLANY environmental variable in order to allow VibroSight to work correctly.

Note: The SQLANY environment variable is used to contain the directory where Sybase SQL Anywhere is installed.

NOTE:	It is recommended to install and use VibroSight 3.x.x or earlier on a computer that does not have SIMATIC Step 7 software installed.

5.1.8 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.

5.1.9 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.

5.2 VM600 cards

5.2.1 Firmware

There are firmware updates for some VM600 cards corresponding to VibroSight 3.3.0.

The latest firmware for the CPUR remains:

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

Therefore, for current versions of the VM600 CPUR card, a firmware upgrade is not required.

The latest firmware for the XMC16, XMV16 and XMVS16 is now:

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

Improvements to this latest VM600 XMx16 card 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 (see 2.13 XMx16 cards: Relaxed constraints for dynamic data retention time).

NOTE:	In order to run VibroSight 3.3.0 for machinery monitoring systems containing VM600 XMx16 cards, a firmware upgrade to the latest version of XMx16 card firmware is required.

5.3 VibroSmart devices

5.3.1 Firmware

There are no firmware updates for VibroSmart modules and devices corresponding to VibroSight 3.3.0.

The latest firmware for the VSI010 module remains:

- 642-002-000-009.xmsifw.

The latest firmware for the VSN010 device remains:

- 642-004-000-011.redboxfw.

The latest firmware for the VSV300 module remains:

- 642-001-000-014.xtranfw.

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

6 Upgrade procedure

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

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

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

6.1 VibroSight software user settings

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

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

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

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

NOTE: VibroSight software updates and upgrades do not replace these settings files, so:
• For a computer on which VibroSight was previously installed, an update, upgrade or a re-installation of VibroSight will continue to use the previous defaults recorded in the `.xmssettings` files.
• For a computer on which VibroSight was not previously installed, the installation of VibroSight will generate and use new `.xmssettings` files, which use the latest VibroSight software defaults.

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

6.2 Updating VibroSight-compatible hardware

Appropriate files and tools are included in the installation package to allow VM600 cards (XMx16) and VibroSmart devices (VSI010, VSN010 and VSV300) 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 Sensing Systems should also be stored in these directories.

Table 1 shows the compatibility between VibroSight software and VM600 CPUR card hardware (that is, CPUR card firmware).

Table 2 shows the compatibility between VibroSight software and VM600 XMx16 card hardware (that is, XMC16, XMV16 and XMVS16 card firmware).

NOTE: It is strongly recommended to use the most recent version of the VM600 CPUR card firmware and VM600 XMx16 card firmware that is compatible with the version of VibroSight software being used.

Table 1: VibroSight software and VM600 CPUR card firmware compatibility

	VM600 CPUR firmware. See note 1
VibroSight software version CD part number	Base-system (`*.tgz`)
	640-014-001-001
	Applications (`*.tgz`)
	640-015-001-001
2.12.7 609-004-000-036	✓ See note 2
3.0.0 609-004-000-037	✓
3.1.0 609-004-000-038	✓
3.2.0 609-004-000-039	✓
3.3.0 609-004-000-040	✓

Notes for Table 1

1. VM600 CPUR card 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 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 *640-014-000-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 CPUR card 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.

Table 2: VibroSight software and VM600 XMx16 card firmware compatibility

	VM600 XMx16 firmware. See note 1					
VibroSight software version CD part number	Base-system (`*.tgz`)					
	640-003-001-011		640-003-001-012	640-003-001-013	640-003-001-014	640-003-001-016
	Applications (`*.tgz`)					
	640-010-001-010	640-010-001-011	640-010-001-012	640-010-001-013	640-010-001-014	640-010-001-016
2.12.0 609-004-000-027	✓ See note 2					
2.12.1 609-004-000-028		✓ See note 3				
2.12.2 609-004-000-029		✓				
2.12.3 609-004-000-030		✓				
2.12.4 609-004-000-032		✓				
2.12.5 609-004-000-033		✓	✓ See note 4			
2.12.6 609-004-000-034		✓	✓			
2.12.7 609-004-000-036				✓ See note 5		
3.0.0 609-004-000-037					✓ See note 6	
3.1.0 609-004-000-038					✓	
3.2.0 609-004-000-039					✓	
3.3.0 609-004-000-040						✓ See note 7

Notes for Table 2 (see the next page)

Notes for Table 2

1. VM600 XMx16 card 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 card firmware introduces support for hydro air-gap monitoring.

3. This version of VM600 XMx16 card firmware introduces support for 1 s time-boxed peak-hold processing (that is, spectral data aggregation).

4. This version of VM600 XMx16 card firmware implements improved multi-rate digital resamplers (sample rate converters). A firmware upgrade is recommended but not required in order to run VibroSight 2.12.5 or 2.12.6.

5. This version of VM600 XMx16 card firmware improves support for faster live data: 100 ms card update rate and up to 100 ms VibroSight Vision refresh rate. It also allows a VM600 XMx16 card to be managed by a VM600 CPUR card ("rack controller"), eliminating the XMx16 card's requirement for a VibroSight Server. A firmware upgrade is required in order to run VibroSight 2.12.7.

6. This version of VM600 XMx16 card firmware adds support for customer-specific functionality that is enabled by a customer-specific VibroSight software licence. A firmware upgrade is required in order to run VibroSight 3.0.0 or later.

7. This version of VM600 XMx16 card 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 `VSV300` subfolder contains the firmware for use by VSV300 modules. Any additional firmware updates received from Meggitt Sensing Systems should also be stored in these directories.

Table 3 shows the compatibility between VibroSight software and the VibroSmart VSI010 module firmware.

Table 4 shows the compatibility between VibroSight software and the VibroSmart VSN010 device firmware.

Table 5 shows the compatibility between VibroSight software and the VibroSmart VSV300 module 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 3: VibroSight software and VibroSmart VSI010 module firmware compatibility

	VSI010 firmware (`*.xmsifw`). See note 1			
VibroSight software version CD part number	642-002 -000-006	642-002- 000-007	642-002- 000-008	642-002- 000-009
2.12.0 609-004-000-027	✓ See note 2			
2.12.1 609-004-000-028		✓ See note 2		
2.12.2 609-004-000-029		✓		
2.12.3 609-004-000-030			✓ See note 2	
2.12.4 609-004-000-032			✓	
2.12.5 609-004-000-033			✓	
2.12.6 609-004-000-034				✓ See note 2
2.12.7 609-004-000-036				✓
3.0.0 609-004-000-037				✓
3.1.0 609-004-000-038				✓
3.2.0 609-004-000-039				✓
3.3.0 609-004-000-040				✓

Notes for Table 3

1. VibroSmart VSI010 module 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 VSV300 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 VSV300 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 4: VibroSight software and VibroSmart VSN010 device firmware compatibility

	VSN010 firmware (`*.redboxfw`). See note 1			
VibroSight software version CD part number	642-004-000-008	642-004-000-009	642-004-000-010	642-004-000-011
2.12.0 609-004-000-027	✓ See note 2			
2.12.1 609-004-000-028		✓ See note 2		
2.12.2 609-004-000-029		✓		
2.12.3 609-004-000-030			✓ See note 2	
2.12.4 609-004-000-032			✓	
2.12.5 609-004-000-033			✓	
2.12.6 609-004-000-034				✓ See note 2
2.12.7 609-004-000-036				✓
3.0.0 609-004-000-037				✓
3.1.0 609-004-000-038				✓
3.2.0 609-004-000-039				✓
3.3.0 609-004-000-040				✓

Notes for Table 4

1. VibroSmart VSN010 device 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 VSV300 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 VSV300 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 5: VibroSight software and VibroSmart VSV300 module firmware compatibility

	VSV300 firmware (`*.xtranfw`). See note 1				
VibroSight software version CD part number	642-001-000-010	642-001-000-011	642-001-000-012	642-001-000-013	642-001-000-014
2.12.0 609-004-000-027	✓ See note 2				
2.12.1 609-004-000-028		✓ See note 2			
2.12.2 609-004-000-029		✓			
2.12.3 609-004-000-030			✓ See note 2		
2.12.4 609-004-000-032			✓		
2.12.5 609-004-000-033			✓	✓ See note 2	
2.12.6 609-004-000-034			✓	✓	✓ See note 2
2.12.7 609-004-000-036			✓	✓	✓
3.0.0 609-004-000-037			✓	✓	✓
3.1.0 609-004-000-038			✓	✓	✓
3.2.0 609-004-000-039			✓	✓	✓
3.3.0 609-004-000-040			✓	✓	✓

Notes for Table 5

1. VibroSmart VSV300 device 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 VSV300 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 VSV300 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, VSV300 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)).

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, the following checks are recommended to ensure that VibroSight has not been inadvertently modified and that it continues to operate as expected:

- Use VibroSight Configurator to run a consistency check on the configuration in order to ensure that the configuration has not been modified by any changes to the VibroSight software, internal database structure and firmware for the hardware (VM600 cards and VibroSmart modules).
- Use the VibroSight Server window to check that the data acquisition, data post-processing and data logging settings are as expected.
  In VibroSight Server, under **Device drivers**, use the appropriate controls to enable communications with the VibroSight-compatible hardware, and under **Server features**, use the appropriate controls to enable the required post processing, for example, data logging.

7 Customer support

7.1 Contacting us

Meggitt Sensing Systems 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 Sensing Systems representative. Alternatively, contact our main office:

Customer support
Meggitt SA
Route de Moncor 4
PO Box 1616
1701 Fribourg
Switzerland

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

7.2 Technical support

Meggitt Sensing Systems 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 Sensing Systems 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 7	Windows 8.1	Windows 10
VibroSight software compatible?	Yes (but not recommended for new installations as Microsoft support for Windows 7 ends in January 2020).	Yes	Yes

VibroSight software and Windows Server operating system compatibility

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

VibroSight software and Microsoft .NET Framework requirements

VibroSight software version	Microsoft. NET Framework requirements
VibroSight 2.9.1 or earlier	.NET Framework 3.5 SP1
VibroSight 2.9.2 and 2.9.3	.NET Framework 4 (Standalone Installer)
VibroSight 2.9.4 or later	.NET Framework 4.5
VibroSight 2.12.0 or later	.NET Framework 4.5 and .NET Framework 2.0 See note
VibroSight 3.0.0 or later	.NET Framework 4.6

Note: 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).