RELEASE NOTES

VibroSight ® software
version 2.12.0

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 and machinery protection systems using the versions of software described by this document, namely:

- VibroSight software version 2.12.0 (CD part number 609-004-000-027).

This document contains information about changes to the software since the previously released version (VibroSight 2.11.6), 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. 660-020-005-216A)

 *Getting started with VibroSight* installation guide
(MSS document ref. 660-010-006-216A)

 *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).

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 product version number has four components x.x.x build x (or x.x.x.x) that provide the following information:

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

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

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

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

Where VibroSmart DMS device is used in this document, it refers to the VSN010 device, unless otherwise stated.

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1 Licensing

In general, the licence key required to enable purchased product options remains unchanged between update level releases. For example, from version 2.11.5 to version 2.11.6.

However, a new licence key is required for upgrades between major and minor version releases. For example, from version 2.11.x to version 2.12.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 VibroSight support for hydro air-gap monitoring

VibroSight 2.12.0 adds support for air-gap monitoring and analysis with a new optional package.

“Hydro air-gap monitoring” is a new application specific package that allows the air gap between rotor and stator, and the rotor and stator shapes (geometrical data) to be monitored for hydroelectric generators and other large motors and generators.

NOTE:	A new licence key file is required to enable optional packages, such as Hydro air-gap monitoring.

Basically, air-gap measurement is used to quantify the radial distance between the poles of a rotating rotor inside a stator bore of a hydroelectric generator. The air gap is important since the distance is very small relative to the hydropower generator diameter (<0.5%) and a contact between the stator and rotor can be catastrophic. Additionally, the air gap in a hydropower generator tends to be smaller as the efficiency increases with a smaller air gap. The geometric parameters calculated from the air-gap sensors allow monitoring the generator air gap and trending of change or evolution of these values overtime.

In order to monitor the air gap around the circumference of the generator, several air-gap transducers (probes) are mounted at regular intervals on the stator, on a horizontal plane for a vertical axis machine. At least located 90° apartare required to give reasonable and representative values. However, for large diameters, this is not sufficient to represent all variations of the shape of the stator. For example, 6 sensors are recommended for distances over 7 metres, 8 sensors for distances over 10 metres and 12 sensors are recommended for distances over 13 meters.)

Along the rotor axis, vertically for a vertical axis machine, as many as 3 layers (or planes) of sensors may be defined. Case histories of rotor rub show that the upper layer on the generator is the most sensitive. After the upper layer has been fully equipped, a lower layer can then be considered, as well as a layer in the middle, if justified by the generator height.

In the future, the “Hydro air-gap monitoring” application specific package will be expanded to include other measurement such as rotor magnetic flux monitoring in order to provide a more comprehensive monitoring solution for larger machines.

To use the Hydro air-gap monitoring package:

- VibroSight Configurator is used to configure the VM600 XMV16 and XMVS16 monitoring cards for the measurement chain being used, for example, the LS 12x and ILS 73x air-gap measuring systems from Meggitt Sensing Systems Vibro-Meter® product line.
- VibroSight Vision is used to display the resultant air-gap measurements using the existing VibroSight Vision plots.

To configure hydro air-gap monitoring using VibroSight Configurator:

1. Start VibroSight Configurator, log in at the Admin user level and create a new VibroSight Server configuration (as usual).
2. In the Hardware view, at the VibroSight Server Configuration node level, add a new VM600 rack and a new XMV16 or XMVS16 card (as usual).
3. Under the card, at the card Input Channels level, add and configure a Tacho Input Channel to generate the 1/rev pulse required for Hydro air-gap monitoring.

NOTE:	Although hydro air-gap monitoring can be used without a Tacho Input Channel (for example, to get an overview of a hydroelectric generator), a 1/rev pulse is required in order to identify the individual rotor poles.

4. At the card Input Channels level, add and configure the Dynamic Input Channels to interface with the air-gap measuring system being used.

NOTE:	The Dynamic Input Channels used for Hydro air-gap monitoring must be configured as follows: **Physical Quantity**: **Airgap**. **Coupling**: **AC+DC**. **Offset**: as required (depends on the air-gap measuring system being use and the installation). With **Coupling**: **AC+DC**, the **Offset** parameter becomes available to allow any DC offset on the signal from the air-gap measuring system to be removed. For example, the LS 120 and ILS 730 air-gap measuring system has an offset of 1.875 mm and a sensitivity of 10 V / (33.125 mm − 1.875 mm) = 0.32 V/mm. See 2.2 XMx16 card: Dynamic input channel support for input signals with offsets. At least four stator transducers are required to calculate the stator and rotor shapes (geometrical data) and provide reasonable and representative values.

5. At the card Processing Blocks level, add and configure the Dynamic Processing Blocks in order to generate the waveforms that the Air-Gap Processing Block (VibroSight Server) requires.

NOTE: The Dynamic Processing Blocks used for Hydro air-gap monitoring must be configured as follows:
Sampling Mode: **Order Tracked** is recommended (**Fixed Frequency** can also be used).
Reference Speed: as required (depends on the sampling mode).

However, all channels used for hydro air-gap monitoring must use the same tachometer channel (1/rev pulse).

VibroSight implements the Hydro air-gap monitoring package at the VibroSight Server level, that is, it is post-processing performed by the VibroSight Server on the principal mode waveforms received from the Dynamic Processing Blocks.

6. In the Hardware view, at the VibroSight Server node level, add a new Air-Gap Processing Block to configure the hydro air-gap monitoring for the application.

   By default, three layers (Top, Middle and Bottom) are created, corresponding to planes perpendicular to the rotor axis, which allows for up to three layers of stator transducers to be defined for an Air-Gap Processing Block. However, smaller machines typically require only one layer so unrequired layers can be deleted (for example, cases histories show that the upper layer on a generator is the most important for detecting rubs).

7. At the server Air-Gap Processing Block level, configure the basic parameters for the machine in order to allow the Air-Gap Processing Block to understand the waveform signals and generate the hydro air-gap measurement data.

NOTE: The Air-Gap Processing Block must be configured as follows:
Poles: The number of poles on the rotor of the machine.
(**Pole pairs** is updated automatically depending on the poles.)
Line frequency: The utility (mains power line) frequency of the machine.
(**Nominal speed** is updated automatically depending on the poles and line frequency.)
Nominal airgap: The typical expected distance between the rotor and stator that will be used as a reference value.
Numbering direction: The individual rotor poles are automatically numbered – after the 1/rev pulse – starting from 1 and increasing in a counter-clockwise direction (viewing the machine from above and independently of the direction of rotation of the machine).
Angle notch: By default, the 1/rev pulse produced by the timing reference mark (notch) on the rotor shaft is located halfway between the first and the last poles. This parameter can be changed if a different pole numbering scheme is required.

8. Under the server Air-Gap Processing Block level, for each layer, configure each of the stator transducers (**Probe 1** to **Probe n**).

NOTE: Each **Probe** must be configured as follows:
Input channel: Select the card dynamic input channel used by the stator transducer.
Input waveform: Select the principal mode waveform generated by the card dynamic processing block corresponding to the input channel.
(The Principal Mode waveform generated by the dynamic processing block for each input channel is used by the Air-Gap Processing Block.)
Sensor thickness: The combined thickness of the transducer and any glue used to install it on the surface of the stator (that is, the distance between the surface of the stator and the surface of the transducer facing the rotor).

For example, an LS120 air-gap transducer has a thickness of 3.8 mm ±0.2 mm

9. Under the server Air-Gap Processing Block level, for each layer, configure the individual probe measurements available under each of the stator transducers (**Probe 1** to **Probe n**):
Rotor shape, Rotor signature, Gap P*n*, Min gap, Avg gap, Rotor eccentricity, Rotor ellipticity, Rotor circularity.

Full display range is available for all measurements but alarms can only be configured for "extracted" measurements (that is, alarms are not available for the Rotor shape or Rotor signature).

10. Under the server Air-Gap Processing Block level, for each layer, configure the layer measurements available under each of the planes used (Top, Middle and Bottom):
Layer rotor signature, Layer gap P*n*, Layer min gap, Layer avg gap, Layer rotor eccentricity, Layer rotor ellipticity, Layer rotor circularity, Layer rotor shape, Layer stator eccentricity, Layer stator ellipticity, Layer stator circularity.

    Full display range is available for all measurements but alarms can only be configured for "extracted" measurements (that is, alarms are not available for the Layer rotor shape or Layer rotor signature).

The VibroSight Hydro air-gap monitoring package requires that the air-gap measurements are added to a Shaft node in the Machinery view, so that the direction of rotation of the hydroelectric generator can be configured. (If the direction of rotation is not available, the air-gap measurements that require the direction of rotation in order to be calculated are flagged as bad quality and populated with zero values.)

11. In the Machinery view, at the VibroSight Server Configuration node level, add a new Shaft (under a Machine Unit and/or under a Facility Unit, as required).

12. At the Shaft level, configure the global parameters for the hydroelectric generator's shaft.

NOTE:	The **Direction of rotation** can be configured in one of two ways: **Predefined**: Allows the direction of rotation to be permanently configured as either Clockwise, Counter Clockwise or Clockwise and Counter Clockwise. **Input Driven**: Allows the direction of rotation to be configured as a function of an external system input.

13. At the Shaft level, add a new Air-Gap Measurements node.
14. At the Air-Gap Measurements node level, use the **Point** control to select the Air-Gap Processing Block configured in the Hardware view as the input.

To activate hydro air-gap monitoring using VibroSight Server:

For VibroSight Hydro air-gap monitoring, the VibroSight configuration is saved and activated as usual. However, since VibroSight implements the Hydro air-gap monitoring package as is post-processing at the VibroSight Server level, once the VibroSight Server is running, the Air-Gap Processing Manager must be enabled:

In VibroSight Server, use the **Data > Post-processing > Air-Gap Processing Manager** command to ensure that the post-processing is enabled.

To display hydro air-gap monitoring using VibroSight Vision:

For VibroSight Hydro air-gap monitoring, VibroSight Vision is used to display the measurement data in the usual way:

- Using the Machinery view or Hardware view to select the measurement or measurements to display.
- Using the Time Range to select historical or live data (and the time period of interest for historical data).

The existing VibroSight Vision plot types are used to display hydro air-gap monitoring measurements. For example:

- Bar Chart plots, Bode plots, Table plots and Trend plots can be used to display scalar "pole data" such as gaps and circularities, and vector "pole data" such as eccentricities and ellipticities.

  Typically, Bar Chart plots, Bode plots, Table plots and Trend plots display Airgap (amplitude) and additional pole information is automatically included in the plot legend.
- Waveform plots can be used to display "waveform" and "rotor data" such as rotor shapes, rotor signatures, layer rotor signatures and layer stator shapes. For "rotor data", a constructed

waveform is displayed where every pole is a constant amplitude value (the value measured for that pole).

The Waveform plot's x-axis can be configured as Time, Revolutions or Poles, as required, and additional gap information is automatically included in the plot legend.

In addition, a new Polar Waveform plot has been added:

- Polar Waveform plots can be used to display "waveform" and "rotor data" such as rotor shapes, rotor signatures, layer rotor signatures and layer stator shapes. For "rotor data", a constructed waveform is displayed where every pole is a constant amplitude value (the value measured for that pole).

  When displaying any gap related curve, the amplitude axis is automatically reversed so that the amplitude decreases radially going from the centre of the plot outwards. A gap related curve is plotted as a best-fit circle with a corresponding centre marker: "+" for rotor-related curves and "x" for stator-related curves. The centre marker and the curve will be the same colour.

  The Waveform plot's x-axis can be configured as Angle or Poles, as required, and additional gap, circularity, eccentricity and ellipticity automatically included is included in the plot legend.

See also 2.2 XMx16 card: Dynamic input channel support for input signals with offsets.

VibroSight Configurator

2.2 XMx16 card: Dynamic input channel support for input signals with offsets

Dynamic input channels for XMx16 cards configured for operation with input signals containing both AC and DC components (**Coupling:AC+DC**) now have a new parameter (**Offset**) available that allows the DC component of the input signal to be effectively removed.

For dynamic input channels configured in this way, both the **Sensitivity** and **Offset** are used to convert the measured electrical value to the corresponding physical quantity and units, which affects the digitised waveform values and all subsequent processing and extractions.

For example, hydro air-gap monitoring applications using the LS 12x and ILS 73x air gap measuring system require that the DC offset for the LS 12x transducers is removed in order for XMx16 cards to calculate the measured air-gap values correctly.

See also 2.1 VibroSight support for hydro air-gap monitoring.

VibroSight Scope

2.3 Displayed values

The measurement data shown in the **Value** column for each input channel displayed in VibroSight Scope now includes the measured value, the unit and the qualifier (rectifier) – that is, the same format as in VibroSight Vision – in order to allow the values to be interpreted correctly.

Previously, only the physical quantity and the unit were included.

3 Solved problems and bug fixes

General

3.1 Improvements and bug fixes

General stability improvements across the various VibroSight 2.12.0 software modules.

3.2 VM600 XMx16 card NTP defaults

For a VM600 XMx16 card, the factory assigned default for NTP is for operation without an NTP server, that is, NTP Configuration: **Disabled**.

Previously, the factory assigned defaults for NTP were for operation with an NTP server, that is, NTP Configuration: **Use NTP server** with the **NTP server** (address) set to NOT CONFIGURED.

NOTE:	Starting with VibroSight 2.11.1, an NTP (network time protocol) server is no longer a mandatory requirement for a VibroSight system as two different modes of operation are now supported: • Without an NTP server (NTP-free) – suitable for the vast majority of machinery monitoring applications. • With an NTP server – suitable for machinery monitoring applications that require a more accurate data synchronicity between devices (≤100 milliseconds).

VibroSight Configurator

3.3 VibroSmart DMS: VSV300 module copying and pasting

For a VSV300 module, copying and pasting nodes at various levels in the Hardware view to help create a configuration could result in unexpected behaviour: For example:

- Copied logical functions that did not include all of the configured parameters from the original logical function when copying Logical Functions (Basic or Advanced).
- Unexpected errors (unhandled format exceptions) when copying and pasting Analog Outputs.

VibroSight Vision

3.4 Values in bar chart plot legend not updating

When a bar chart plot was used to display live data from a VM600 XMX16 card, the information shown in the **Speed** and **State** columns of the plot legend were not updated correctly as the speed input signal changed.

(Although, if the **Clear Data** button in the Time Range tool window was used to clear the contents of VibroSight Vision buffer used for live measurement data, then the correct values were displayed.)

4 Known issues

4.1 Changing a VibroSight Server's maximum RAM cache size when DSNs are not used

Since VibroSight 2.9.7, a VibroSight Server database no longer requires a data source name (DSN), so it is no longer required to use the ODBC Data Source Administrator to manage the underlying connection to the Sybase SQL Anywhere 11 database (which provided convenient access to the start line command that is used to start the SQL Anywhere 11 server).

NOTE: `dbeng11.exe -ch 600m` is the default command used to start the SQL Anywhere 11 server, where the `-ch 600m` option specifies that a maximum RAM cache size of 600 MB should be used. (This option limits the underlying SQL Anywhere's database server cache during automatic cache growth.)

However, for more complex machinery monitoring applications and larger databases, it is recommended that a maximum RAM cache size of 2000 MB (`-ch 2000m`) is used, in order to improve the overall performance of the VibroSight machinery monitoring system.

When a DSN is not used with a VibroSight Server database, the settings usually written to the DSN using the ODBC Data Source Administrator are managed by the VibroSight Server itself and stored in the VibroSight Server configuration file (`*.vssrvcfg`). However, this means that the specification of the maximum cache size to be used by the VibroSight Server database is not as convenient to access by the user.

Presently, the default command used to start the SQL Anywhere 11 server will be used unless:

- In VibroSight Configurator, when saving the configuration as a server / database, the Configure advanced settings option is used to enter a different SQL database start line command.
- In VibroSight System Manager, when copying the database, the Configure advanced settings option is used to enter a different SQL database start line command.

So when DSNs are not used with a VibroSight Server database, the VibroSight Server configuration file (`*.vssrvcfg`) must be edited manually if it is necessary to change the SQL database start line command after a VibroSight Server database has been created or copied:

1. Exit all VibroSight software modules (clients and servers) that use the VibroSight Server database to be modified.
2. Use a text editor program to open the VibroSight Server configuration file (`*.vssrvcfg`) and search for the text string `dbeng11.exe`.
3. Edit the `StartLine="dbeng11.exe -ch 600m"` command in the configuration file to use the new required maximum cache size.
   For example, `StartLine="dbeng11.exe -ch 2000m"`, then save the file.
4. Restart the VibroSight Server.

If the `StartLine="dbeng11.exe -ch 600m"` command cannot be found in the VibroSight Server configuration file being used, then a "dummy" copy of the VibroSight Server database should be

created using VibroSight System Manager's Database Copy command with the Configure advanced settings option selected. A "dummy" VibroSight Server configuration file created in this way will include the SQL database start line command and can be used as an example to edit the VibroSight Server configuration file being used. (After which, the "dummy" files should be deleted.)

NOTE:	It is highly recommended to make a backup copy of the VibroSight Server configuration file being used before manually editing it. Such manual edits must be done carefully in order to ensure that the tags and delimiters used in the VibroSight Server configuration file are used correctly.

4.2 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.

4.3 Small "holes" in plotted data for larger VibroSight Vision projects when viewing live data

Depending on the complexity of a VibroSight application and the performance of the computer running the VibroSight software, the responsiveness of VibroSight Vision can decline under certain situations and affect the display of plots when viewing live data.

In particular, this performance issue has been seen with larger VibroSight Vision projects containing many open plots using live data. It is typically characterised by plots being displayed with small "holes" in the data, corresponding to when the computer has reached its performance limits.

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

- Reduce the number of active plots in the VibroSight Vision project in order to reduce the computational load, as only the currently displayed (foreground) plots are constantly refreshed. Plots that are hidden or minimized (background) are not active and will only be refreshed when they become visible again.
- If it is necessary to view historical data at the same time, consider using a separate VibroSight Vision session to work with the historical data, preferably on a different computer.

4.4 Missing data for XMV16 and XMVS16 cards

When the order-tracked sampling mode is being used, XMV16 and XMVS16 cards have been seen to disappear (drop out) and produce no data for periods of 10, 20 or 30 seconds. After which, the card usually reappears without any intervention and normal operation resumes.

This issue is being investigated and appears to be a XMV16 and XMVS16 card firmware problem that is related to transitions in the input speed signal from "zero speed" to "non-zero speeds".

4.5 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.

4.6 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.

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

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

4.8 VibroSight Servers listen to a single IP address

VibroSight Servers use one specific IP address for connections to VibroSight clients. This IP address can be set to any of the available LAN adapters or logical addresses on the host computer, such that all traffic is directed through this address. However, this prevents concurrent connections from VibroSight clients running on other computers through different IP addresses.

4.9 Gaps in logged Modbus data

When data logging with pre-trigger is used (for example, a time-based data logging rule with Pre Logging selected) or database operations such as a database copy or a database purge command occur at the same time as standard data logging, gaps can appear in the Modbus data that has been logged at a standard rate.

These gaps in Modbus data are related to the computation of alarms when data is written to the database, which can be slow and can prevent some subsequent Modbus data from being handled correctly, especially when VibroSight Server is busy with other data intensive tasks.

4.10 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).

4.11 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 DMS 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.

4.12 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.

4.13 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.

4.14 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 DMS 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).

5 Compatibility

NOTE: Refer also 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.

As part of the VibroSight software installation process, the installation wizard will automatically check to see if the "Microsoft Visual C++ Redistributable Package" (see section 5.1.6) and the "OPC Core Components Redistributable (x86)" (see section 5.1.7) are available on the computer.

If these items have not previously been installed and they are required by the VibroSight installation's application, then the VibroSight installation wizard can be used to install them.

5.1 VibroSight software

VibroSight 2.12.0 is a minor version release in the 2.x.x series and replaces VibroSight 2.11.6.

Compatibility with existing databases is achieved using the database **Update** tool (from VibroSight System Manager's **Database** tools) which supports the continued used of configurations and data from previous versions. See 6.2.1 Updating the internal structure of a VibroSight database.

5.1.1 Microsoft Windows operating systems

VibroSight 2.12.0 is compatible with 32-bit versions and 64-bit versions of Microsoft ® Windows ® operating systems.

NOTE: Since VibroSight 2.9.0, VibroSight can run on 64-bit versions of Windows in order to help eliminate memory and performance issues that can occur due to the limitations of the 32-bit memory space.

VibroSight 2.12.x remains 32-bit software that runs on x64 Windows in the same manner as it does on 32-bit windows, that is, VibroSight is "x64-compatible" software (not "native x64" software).

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 2.12.0 requires that Microsoft .NET Framework 4.5 and .NET Framework 2.0 are installed on the computer.

NOTE: Microsoft .NET Framework 4.5 is required since VibroSight 2.9.4.
Microsoft .NET Framework 4 (Standalone Installer) is required for VibroSight 2.9.2 and 2.9.3.
Microsoft .NET Framework 3.5 SP1 is required for VibroSight 2.9.1 or earlier.

Microsoft .NET Framework 2.0 is required by the OPC Core Components Redistributable that is installed by VibroSight (see 5.1.7 OPC Foundation OPC Core Components Redistributable).

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

5.1.3 Sybase SQL Anywhere 11 software

VibroSight uses the Sybase ® SQL Anywhere 11 database software in its standard configuration. VibroSight 2.12.0 remains compatible with the previously deployed version of SQL Anywhere, namely SQL Anywhere version 11.0.1.2044.

NOTE: VibroSight requires the 32-bit version of SQL Anywhere 11 on both 32-bit and 64-bit Windows operating systems.
It is strongly recommended that only the 32-bit version of SQL Anywhere 11 is installed on the computer running VibroSight.

NOTE: Updating SQL Anywhere to version 11.0.1.2867 is **mandatory** in order to avoid potential memory issues (fixed by Sybase). A software update (patch) included on the Sybase CD must be run in order to update Sybase SQL Anywhere from version 11.0.1 to version 11.0.1.2867: *SA11_Full_Win32+x64.1101_2867_EBF.exe*.
See 6.3 Upgrading the Sybase SQL Anywhere 11 software.

5.1.4 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 ISQL (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 on a computer that does not have the VM600 CMS software installed.

5.1.5 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 on a computer that does not have the SIMATIC Step 7 software installed.

5.1.6 Microsoft Visual C++ Redistributable Package

The Microsoft Visual C++ Redistributable Package is required in order to install and register the Visual C++ libraries required by a VibroSight OPC Server.

If this package does not already exist on the computer, then the VibroSight installation wizard will install it automatically. (The package is included in the ISSetupPrerequisites folder on the VibroSight CD.)

NOTE:	The Microsoft Visual C++ Redistributable Package is required since VibroSight 2.9.4, if VibroSight OPC Servers are being used. The 32-bit version of the package (“vcredist_x86.exe”) is installed on both 32-bit and 64-bit Windows operating systems, as the VibroSight OPC Server is a 32-bit application.

5.1.7 OPC Foundation OPC Core Components Redistributable

The OPC Core Components Redistributable is installed by VibroSight 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.

If this redistributable does not already exist on the computer, then the VibroSight installation wizard will install it automatically. (The redistributable is included in the ISSetupPrerequisites folder on the VibroSight CD.)

NOTE: The OPC Core Components Redistributable is required since VibroSight 2.9.4, if OPC clients or OPC servers are being used.

The 32-bit version of the package (“OPC Core Components Redistributable (x86)”) is installed on 32-bit Windows operating systems and the 64-bit version of the package (“OPC Core Components Redistributable (x64)”) is installed on 64-bit Windows operating systems.

The OPC Core Components Redistributable that is installed as part of the VibroSight software installation process requires that the Microsoft .NET Framework 2.0 is available on the computer. (That is, Microsoft .NET Framework 2.0 must be installed on the computer before VibroSight is installed.) See also 5.1.2 Microsoft .NET Framework.

5.2 VM600 cards

5.2.1 Firmware

There are firmware updates for some VM600 cards corresponding to VibroSight 2.12.0.

NOTE: Starting with VibroSight 2.12.0, support for the existing VM600 CPUR card has been deprecated.

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

- Base System: base-system-640-003-001-011.tgz
- Applications: applications-640-010-001-010.tgz.

Therefore, for current versions of the VibroSight-compatible VM600 cards, firmware upgrades are required. See 6.4 Updating the VibroSight hardware.

Improvements to this latest XMx16 card firmware includes support for hydro air-gap monitoring (see 2.1 VibroSight support for hydro air-gap monitoring) and a bug fix for the default NTP configuration (see 3.2 VM600 XMx16 card NTP defaults).

5.3 VibroSmart DMS devices

5.3.1 Firmware

There are no firmware updates for the VibroSmart DMS modules and devices corresponding to VibroSight 2.12.0.

The latest firmware for the VSI010 module remains:

- 642-002-000-006.xmsifw.

The latest firmware for the VSN010 device remains:

- 642-004-000-008.redboxfw.

The latest firmware for the VSV300 module remains:

- 642-001-000-010.xtranfw.

Therefore, for current versions of the VibroSmart DMS modules and devices, no firmware upgrades are required.

NOTE:	VibroSight 2.11.5 and earlier are not compatible with the latest versions of VibroSmart DMS device firmware.

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 DMS modules and devices) before starting a VibroSight system upgrade, in order to establish if any firmware updates are also required.
See 6.4.3 Updating the firmware using VibroSight System Manager.

NOTE: It is strongly recommended to ensure that a copy of the configuration for a VibroSmart DMS is available before updating the firmware of any of the VibroSmart DMS modules used in the DMS. See 6.4.3 Updating the firmware using VibroSight System Manager.

6.1 VibroSight software user settings

The VibroSight Software generates and uses some files on the hard disk 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 2, 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 Upgrading the VibroSight software

NOTE: Since VibroSight 2.9.6, VibroSight Server instance names are limited to 18 characters (previously, it was 27). So VibroSight installations with VibroSight Server instance names of more than 18 characters will experience problems with VibroSight 2.12.x until the existing VibroSight Server instance names (and any references to them) are manually edited to be 18 characters or less.
See also 4.6 Length limitation of VibroSight Server instance names.

1. If it is not necessary for the VibroSight-based system to remain operational during the upgrade procedure, back up any important (required) VibroSight databases in the following way:
   - Exit all VibroSight software modules (clients and servers) – no VibroSight software modules, such as Vision, Configurator or Server, should be running.
   - Copy the files (`*.vssrvdb, *.vssrvcfg` and optionally, `*.log`) from the directory where your database files are located to another location, for example, to a specific backup directory.

NOTE: The default data (data path) directory is `C:\VibroSight Data`

Or if it is necessary for the VibroSight-based system to remain operational for as long as possible during the upgrade procedure, back up any important (required) VibroSight databases in the following way:

- Exit all VibroSight software modules (clients) – no VibroSight software modules, such as Vision or Configurator, should be running.
- Start VibroSight System Manager and use the database  **Backup** tool from VibroSight System Manager's  **Database** tools, and follow the instructions presented by the Database Backup Wizard.

NOTE: It is necessary to be logged in to System Manager as 'Admin' in order to have the user rights to access the database tools:

Select your  VibroSight Host (computer) in the System Explorer tree structure and click  **Login** (from VibroSight System Manager's  **Access Rights** tools).

Refer also to the *Backing up a database* topic in the  *VibroSight help*.

2. Make backup copies of any important (required) VibroSight Vision projects in the following way:
   - Create an archive file (for example, `*.zip`) containing all of the files (`*.xml` and `*.xmsproj`) in the directory where your project files are located.

NOTE: The default project directory is:
`C:\Documents and settings\username\My Documents\VibroSight\Projects`

3. Ensure that no VibroSight software modules are running.
4. Remove the currently installed version of the VibroSight software (for example,  VibroSight Standard Edition) using Windows Add or Remove Programs, in one of the following ways:
   - Click **Start > Settings > Control Panel** and then double-click **Add or Remove Programs**.
   - Or click **Start**, click **Control Panel** and then double-click **Add or Remove Programs**.
5. Install the latest version of the VibroSight software by inserting the VibroSight CD into the CD/DVD drive of the computer and follow the instructions presented by the VibroSight installation wizard.

NOTE: Refer to the  *Getting started with VibroSight* installation guide for detailed information on installing the VibroSight software – including prerequisites and compatibility.

6. Restart VibroSight Server and ensure that the required communications are enabled. For example, enable card and module device drivers according to the hardware in the system:
   - For example, click **Data > Acquisition > XMC16/XMV16 Card Driver** or **Data > Acquisition > VibroSmart Module Driver**.
7. Restart VibroSight Vision and ensure that live data is being received from the hardware and displayed in Vision.
8. The VibroSight system is now up and running.

6.2.1 Updating the internal structure of a VibroSight database

When VibroSight Server is started, it checks the status of the database and will automatically inform the user if any internal structures of the database need to be updated before proceeding.

1. Update a VibroSight database in the following way:
   - Start VibroSight System Manager and use the database  **Update** tool from VibroSight System Manager's  **Database** tools, and follow the instructions presented by the Database Update Wizard.

NOTE: It is necessary to be logged in to System Manager as 'Admin' in order to have the user rights to access the database tools:

Select your  VibroSight Host (computer) in the System Explorer tree structure and click  **Login** (from VibroSight System Manager's  **Access Rights** tools).

Refer also to the *Updating a database* topic in the  *VibroSight help*.

6.3 Upgrading the Sybase SQL Anywhere 11 software

VibroSight software is compatible (and extensively tested) with Sybase SQL Anywhere versions 11.0.0 and 11.0.1.

However, with the release of SQL Anywhere version 11.0.1.2867, Sybase has fixed some previously known memory issues. Therefore, it is **mandatory** to upgrade all VibroSight systems to this version of SQL Anywhere 11.

Determine the version of the SQL Anywhere 11 database engine installed on a computer in the following way:

1. From the Start menu, click **Start > All Programs > SQL Anywhere 11 > Sybase Central**.

   The Sybase Central window appears. Sybase Central is a GUI-based management tool for Sybase products.

2. Click **Help > About Sybase Central**.

   The About Sybase Central windows appears, displaying the version information for SQL Anywhere 11 (and any other installed Sybase products).

NOTE: Refer also to the *Determining the version of SQL Anywhere 11 installed on a computer* topic in the  *VibroSight help*.

If SQL Anywhere 11 version 11.0.0 is installed on the computer, it is necessary to first remove version 11.0.0, then install version 11.0.1 from the Sybase CD.

If SQL Anywhere 11 version 11.0.1 is installed on the computer, simply update to version 11.0.1.2867 by running the software update (patch) included on the Sybase CD.

When SQL Anywhere 11 software version 11.0.0 is installed on the computer:

NOTE: Do not use the SQL Anywhere 11.0.1 setup to upgrade directly to software version 11.0.1 from software version 11.0.0. Instead, it is necessary to upgrade the Sybase database software as follows:

1. Remove SQL Anywhere 11.0.0, using the Windows Add or Remove Programs tool.

2. Install SQL Anywhere 11.0.1, using the Sybase SQL Anywhere 11.0.1 CD.

Refer also to the *Getting started with VibroSight* installation guide for information on installing the Sybase software.

1. Exit all VibroSight software modules (clients and servers) – no VibroSight software modules, such as Vision, Configurator or Server, should be running – as this also stops the SQL Anywhere 11 database engine.

   The lightning icon that appears in the notification area (at the far right of the task bar) to indicate that a Sybase database engine is running should no longer be shown.

2. Remove the currently installed version of Sybase SQL Anywhere 11 using Windows Add or Remove Programs, in one of the following ways:

   - Click **Start > Settings > Control Panel**, then double-click **Add or Remove Programs**
   - Or click **Start**, click **Control Panel** and then double-click **Add or Remove Programs**.

   And remove SQL Anywhere 11.

3. Restart the computer.

4. Install Sybase SQL Anywhere VibroSight 11.0.1.2044 by inserting the Sybase CD into the CD/DVD drive of the computer and following the instructions presented by the SQL Anywhere 11 installation wizard.

5. Restart the computer.

   Without this final computer restart, VibroSight Server may not be able to start the SQL Anywhere 11 database engine.

When SQL Anywhere 11 software version 11.0.1 is installed on the computer:

1. Update to Sybase SQL Anywhere VibroSight 11.0.1.2867 by inserting the Sybase CD into the CD/DVD drive of the computer, running the *SA11_Full_Win32+x64.1101_2867_EBF.exe* software update (patch) and following the instructions presented by the SQL Anywhere 11 installation wizard.

2. Restart the computer.

6.4 Updating the VibroSight hardware

Appropriate files and tools are included in the installation package to allow VM600 cards (XMx16) and VibroSmart DMS 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 DMS 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 DMS 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.

6.4.1 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 2\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 XMx16 card hardware (that is, XMC16, XMV16 and XMVS16 card pair firmware).

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

Table 1: VibroSight software and VM600 XMx16 card firmware compatibility

	VM600 XMx16 firmware (see note 1)					
VibroSight software version CD part number	Base-system (*.tgz)					
	640-003-001-006	640-003-001-007	640-003-001-008	640-003-001-009	640-003-001-010	640-003-001-011
	Applications (*.tgz)					
	640-010-001-005	640-010-001-006	640-010-001-007	640-010-001-008	640-010-001-009	640-010-001-010
2.9.5 609-004-000-015	✓	✓				
2.9.6 609-004-000-016	✓	✓				
2.9.7 609-004-000-017			✓ See note 2			
2.10.0 609-004-000-018			✓			
2.10.1 609-004-000-019			✓			
2.11.0 609-004-000-020			✓	✓ See notes 2 and 3		
2.11.1 609-004-000-021					✓ See note 4	
2.11.2 609-004-000-022					✓	
2.11.3 609-004-000-023					✓	
2.11.4 609-004-000-024					✓	
2.11.5 609-004-000-025					✓	
2.11.6 609-004-000-026					✓	
2.12.0 609-004-000-027						✓ See note 5

Notes for Table 1 (see the next page)

Notes for Table 1

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. Updating to these versions of VM600 XMx16 card firmware requires a two-step process:

(i) VibroSight System Manager's Change Firmware command should be used to update the base-system firmware (640-003-001-00*.tgz) only.

(ii) Then the Change Firmware command should be used again to update the applications firmware (640-010-001-00*.tgz) only.

3. This version of VM600 XMx16 card firmware introduces support for the direct measurement mode that is used to acquire direct data (digitised waveform) before an event.

4. This version of VM600 XMx16 card firmware introduces support for the operation of a VibroSight system without an NTP server (NTP-free).

5. This version of VM600 XMx16 card firmware introduces support for hydro air-gap monitoring.

6.4.2 VibroSmart DMS device firmware

The latest VibroSmart DMS 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 DMS devices is: `C:\Program Files\Meggitt\VibroSight 2\Firmware\VibroSmart`

The firmware files for a VibroSmart DMS 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 2 shows the compatibility between VibroSight software and the VibroSmart VSI010 module firmware.

Table 3 shows the compatibility between VibroSight software and the VibroSmart VSN010 device firmware.

Table 4 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 DMS firmware that is compatible with the version of VibroSight software being used.

Table 2: VibroSight software and VibroSmart VSI010 module firmware compatibility

	VibroSmart VSI010 firmware (see note 1)			
VibroSight software version CD part number	642-002-001-002.xmsifw	642-002-001-004.xmsifw	642-002-001-005.xmsifw	642-002-000-006.xmsifw
2.9.7 609-004-000-017	✓			
2.10.0 609-004-000-018	✓			
2.10.1 609-004-000-019	See note 2			
2.11.0 609-004-000-020				
2.11.1 609-004-000-021				
2.11.2 609-004-000-022		✓ See note 3		
2.11.3 609-004-000-023		✓		
2.11.4 609-004-000-024			✓	
2.11.5 609-004-000-025			✓	
2.11.6 609-004-000-026				✓ See note 4
2.12.0 609-004-000-027				✓

Notes for Table 2

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 DMS device firmware using PNRs such as *642-xxx-000-xxx*, which correspond to the actual firmware that is running on the device.

2. VibroSight 2.10.1, 2.11.0 and 2.11.1 included features that were activated in order to ensure compatibility with development versions of VibroSmart DMS device firmware. However, only the later versions of each should now be used, for example, VibroSight 2.12.0 and the VSI010 642-002-000-006 firmware.

3. Updating to this version of VibroSmart VSI010 firmware requires a two-step process:

(i) All VSI010 devices in the DMS should be upgraded to the latest *.xmsifw* firmware and all VSV300 devices in the DMS should be upgraded to the latest *.xtranfw* firmware.
Note: It is necessary to wait until these VibroSmart DMS modules have automatically restarted after the firmware update before continuing, that is, for up to 10 minutes (up to 5 minutes for the firmware update and up to 5 minutes for the duration of the restart (reboot)).

(ii) Then all VSN010 devices in the DMS should be upgraded to the latest *.redboxfw* firmware.

As this version of VibroSmart DMS device firmware enables the rapid spanning tree protocol (RSTP), this sequence is necessary in order to avoid broadcast storms on the network.

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

Notes:
For a VibroSmart DMS 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 DMS devices should be re-activated and the VibroSmart DMS devices should be restarted.

Procedure:
(1) Ensure that a copy of the configuration for the VibroSmart DMS 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 DMS devices), VibroSight Configurator can be used to obtain a copy of the configuration as follows:
• For a VibroSmart DMS using a VibroSight Server, the **File > Open > Server / Database** command can be used to read the configuration from the VibroSight Server.
• For a VibroSmart DMS not using a VibroSight Server (that is, a “stand-alone” VibroSmart DMS), the **File > Open > Device** command can be used to read the configuration directly from the VibroSmart DMS modules.
Then the **File > Save As > File** command can be used to store a copy of the configuration for the VibroSmart DMS.

(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 DMS 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 DMS (see step (1)), then 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 DMS 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 DMS devices can be inconsistent and should be ignored. Normal LED behaviour resumes after the firmware update is complete (after step (7)).

Table 3: VibroSight software and VibroSmart VSN010 device firmware compatibility

	VibroSmart VSN010 firmware (see note 1)					
VibroSight software version CD part number	642-004-001-002.redboxfw	642-004-001-003.redboxfw	642-004-001-005.redboxfw	642-004-001-006.redboxfw	642-004-001-007.redboxfw	642-004-000-008.redboxfw
2.9.7 609-004-000-017	✓	✓				
2.10.0 609-004-000-018		✓				
2.10.1 609-004-000-019	See note 2					
2.11.0 609-004-000-020						
2.11.1 609-004-000-021						
2.11.2 609-004-000-022				✓ See note 3		
2.11.3 609-004-000-023				✓		
2.11.4 609-004-000-024					✓	
2.11.5 609-004-000-025					✓	
2.11.6 609-004-000-026						✓ See note 4
2.12.0 609-004-000-027						✓

Notes for Table 3

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 DMS device firmware using PNRs such as *642-xxx-000-xxx*, which correspond to the actual firmware that is running on the device.

2. VibroSight 2.10.1, 2.11.0 and 2.11.1 included features that were activated in order to ensure compatibility with development versions of VibroSmart DMS device firmware. However, only the later versions of each should now be used, that is, VibroSight 2.12.0 and the VSN010 642-004-000-008 firmware.

3. Updating to this version of VibroSmart VSN010 firmware requires a two-step process:

(i) All VSI010 devices in the DMS should be upgraded to the latest *.xmsifw* firmware and all VSV300 devices in the DMS should be upgraded to the latest *.xtranfw* firmware.
Note: It is necessary to wait until these VibroSmart DMS modules have automatically restarted after the firmware update before continuing, that is, for up to 10 minutes (up to 5 minutes for the firmware update and up to 5 minutes for the duration of the restart (reboot)).

(ii) Then all VSN010 devices in the DMS should be upgraded to the latest *.redboxfw* firmware.

As this version of VibroSmart DMS device firmware enables the rapid spanning tree protocol (RSTP), this sequence is necessary in order to avoid broadcast storms on the network.

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

Notes:
For a VibroSmart DMS 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 DMS devices should be re-activated and the VibroSmart DMS devices should be restarted.

Procedure:
(1) Ensure that a copy of the configuration for the VibroSmart DMS 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 DMS devices), VibroSight Configurator can be used to obtain a copy of the configuration as follows:
• For a VibroSmart DMS using a VibroSight Server, the **File > Open > Server / Database** command can be used to read the configuration from the VibroSight Server.
• For a VibroSmart DMS not using a VibroSight Server (that is, a “stand-alone” VibroSmart DMS), the **File > Open > Device** command can be used to read the configuration directly from the VibroSmart DMS modules.
Then the **File > Save As > File** command can be used to store a copy of the configuration for the VibroSmart DMS.

(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 DMS 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 DMS (see step (1)), then 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 DMS 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 DMS 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 VSV300 module firmware compatibility

	VibroSmart VSV300 firmware (see note 1)					
VibroSight software version CD part number	642-001-001-004.xtranfw	642-001-001-006.xtranfw	642-001-001-007.xtranfw	642-001-001-008.xtranfw	642-001-001-009.xtranfw	642-001-000-010.xtranfw
2.9.7 609-004-000-017	✓					
2.10.0 609-004-000-018	✓					
2.10.1 609-004-000-019	See note 2					
2.11.0 609-004-000-020						
2.11.1 609-004-000-021						
2.11.2 609-004-000-022			✓ See note 3	✓ See note 3		
2.11.3 609-004-000-023				✓		
2.11.4 609-004-000-024					✓	
2.11.5 609-004-000-025					✓	
2.11.6 609-004-000-026						✓ See note 4
2.12.0 609-004-000-027						✓

Notes for Table 4

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 DMS device firmware using PNRs such as *642-xxx-000-xxx*, which correspond to the actual firmware that is running on the device.

2. VibroSight 2.10.1, 2.11.0 and 2.11.1 included features that were activated in order to ensure compatibility with development versions of VibroSmart DMS device firmware. However, only the later versions of each should now be used, that is, VibroSight 2.12.0 and the VSV300 642-001-000-010 firmware.

3. Updating to these versions of VibroSmart VSV300 firmware requires a two-step process:

(i) All VSI010 devices in the DMS should be upgraded to the latest .xmsifw firmware and all VSV300 devices in the DMS should be upgraded to the latest .xtranfw firmware.
Note: It is necessary to wait until these VibroSmart DMS modules have automatically restarted after the firmware update before continuing, that is, for up to 10 minutes (up to 5 minutes for the firmware update and up to 5 minutes for the duration of the restart (reboot)).

(ii) Then all VSN010 devices in the DMS should be upgraded to the latest .redboxfw firmware.

As these versions of VibroSmart DMS device firmware enable the rapid spanning tree protocol (RSTP), this sequence is necessary in order to avoid broadcast storms on the network.

4. Updating to this version of VibroSmart VSV300 firmware requires a specific process:

Notes:
For a VibroSmart DMS 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 DMS devices should be re-activated and the VibroSmart DMS devices should be restarted.

Procedure:
(1) Ensure that a copy of the configuration for the VibroSmart DMS 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 DMS devices), VibroSight Configurator can be used to obtain a copy of the configuration as follows:
• For a VibroSmart DMS using a VibroSight Server, the **File > Open > Server / Database** command can be used to read the configuration from the VibroSight Server.
• For a VibroSmart DMS not using a VibroSight Server (that is, a “stand-alone” VibroSmart DMS), the **File > Open > Device** command can be used to read the configuration directly from the VibroSmart DMS modules.
Then the **File > Save As > File** command can be used to store a copy of the configuration for the VibroSmart DMS.

(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 DMS 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 DMS (see step (1)), then 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 DMS 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 DMS devices can be inconsistent and should be ignored. Normal LED behaviour resumes after the firmware update is complete (after step (7)).

6.4.3 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 DMS 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 DMS 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 DMS 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 DMS is available before updating the firmware of any of the VibroSmart DMS modules used in the DMS.

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

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

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

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

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 DMS 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 DMS 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 DMS 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 DMS device selected. `.tgz` files are for VM600 cards and `.*fw` files are for VibroSmart DMS devices.

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

   For XMx16 cards and VibroSmart DMS 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 DMSs, where systems are operating with different versions of VibroSight.

6.5 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 DMS modules).
- Use the VibroSight Server window to check that the data acquisition, data post-processing and data logging settings are as expected. (Click **Data > Acquisition**, **Data > Post-processing** and **Data > Logging** and disable/enable the drivers, processing managers and logging as required.)

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
CH-1701 Fribourg
Switzerland

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

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 XP and Windows Server 2003 R2	Windows Vista and Windows Server 2008	Windows 7 and Windows Server 2008 R2	Windows 8 and Windows Server 2012
VibroSight software compatible?	Yes, but not recommended for new installations as Microsoft support for Windows XP SP3 ended on 08 June 2014	Yes, but not recommended. Windows Server 2008 R8 should be used instead of Windows Server 2008	Yes – recommended for new installations	To be announced

Microsoft .NET Framework versions pre-installed on Windows operating systems

	Windows XP and Windows Server 2003 R2	Windows Vista and Windows Server 2008	Windows 7 and Windows Server 2008 R2	Windows 8 and Windows Server 2012
Microsoft .NET Framework pre-installed on Windows operating system	None on XP. .NET Framework 2.0 on Server 2003 R2	.NET Framework 3.0	.NET Framework 3.0 SP1	.NET Framework 4.5

VibroSight software's Microsoft .NET Framework requirements

VibroSight software version	Windows XP and Windows Server 2003 R2	Windows Vista and Windows Server 2008	Windows 7 and Windows Server 2008 R2	Windows 8 and Windows Server 2012
VibroSight 2.9.1 or earlier	.NET Framework 3.5 SP1	.NET Framework 3.5 SP1	.NET Framework 3.5 SP1	.NET Framework 3.5 SP1
VibroSight 2.9.2 and 2.9.3	.NET Framework 4	.NET Framework 4	.NET Framework 4	.NET Framework 4
VibroSight 2.9.4 or later	.NET Framework 4	.NET Framework 4.5	.NET Framework 4.5	.NET Framework 4.5
VibroSight 2.12.0 or later	.NET Framework 4 and .NET Framework 2.0.	.NET Framework 4.5 and .NET Framework 2.0.	.NET Framework 4.5 and .NET Framework 2.0.	.NET Framework 4.5 and .NET Framework 2.0.