RELEASE NOTES

VibroSight ® software
version 3.7.0

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 3.7.0 (CD part number 609-004-000-044).

This document contains information about changes to the software since the previously released version (VibroSight 3.6.0), 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. 660-010-006-221A)

VibroSight help

VM600 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 3.6.0 (MSS document ref. 660-010-013-224A)
- VibroSight 3.5.0 (MSS document ref. 660-010-013-223A)
- VibroSight 3.4.0 (MSS document ref. 660-010-013-222A)
- VibroSight 3.3.0 (MSS document ref. 660-010-013-221A)
- VibroSight 3.2.0 (MSS document ref. 660-010-013-220A)
- VibroSight 3.1.0 (MSS document ref. 660-010-013-219A)
- VibroSight 3.0.0 (MSS document ref. 660-010-013-218A)
- VibroSight 2.12.7 (MSS document ref. 660-010-013-217A)
- VibroSight 2.12.6 (MSS document ref. 660-010-013-216A)
- VibroSight 2.12.5 (MSS document ref. 660-010-013-215A)
- VibroSight 2.12.4 (MSS document ref. 660-010-013-214A)
- VibroSight 2.12.3 (MSS document ref. 660-010-013-213A)

- VibroSight 2.12.2 (MSS document ref. 660-010-013-212A)
- VibroSight 2.12.1 (MSS document ref. 660-010-013-211A)
- VibroSight 2.12.0 (MSS document ref. 660-010-013-210A)
- VibroSight 2.11.6 (MSS document ref. 660-010-013-209A)
- VibroSight 2.11.5 (MSS document ref. 660-010-013-208A)
- VibroSight 2.11.4 (MSS document ref. 660-010-013-207A)
- VibroSight 2.11.3 (MSS document ref. 660-010-013-206A)
- VibroSight 2.11.2 (MSS document ref. 660-010-013-205A)
- VibroSight 2.11.1 (MSS document ref. 660-010-013-204A)
- VibroSight 2.11.0 (MSS document ref. 660-010-013-203A)
- VibroSight 2.10.1 (MSS document ref. 660-010-013-201A)
- VibroSight 2.10.0 (MSS document ref. VIBROSIGHT-RN/E)
- VibroSight 2.9.7 (MSS document ref. VIBROSIGHT-RN/E)
- VibroSight 2.9.6 (MSS document ref. VIBROSIGHT-RN/E)
- VibroSight 2.9.5 (MSS document ref. VIBROSIGHT-RN/E)
- VibroSight 2.9.4 (MSS document ref. VIBROSIGHT-RN/E)
- VibroSight 2.9.2 (MSS document ref. VIBROSIGHT-RN/E)
- VibroSight 2.9.1 (MSS document ref. VIBROSIGHT-RN/E)
- VibroSight 2.9.0 (MSS document ref. VIBROSIGHT-RN/E).

Structure of the release notes

This document presents information in the following order: general items first, then in terms of the software modules that constitute VibroSight, such as Configurator, Event Viewer, Mimic, 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 VSV30x.

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

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

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1 Licensing

In general, the licence required to enable purchased product options remains unchanged between update and/or maintenance level releases, for example, from version 3.6.0 to version 3.7.0. 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 3.7.0 is a minor level release and a new licence key file is not required for upgrades from VibroSight 3.6.0. 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 importing data from CSV files into VibroSight

The VibroSight software now includes support for importing data from CSV files into VibroSight in order to allow data from third party systems such as other monitoring systems and/or control systems (DCS or PLC) to be easily incorporated, and take advantage of the speed and power of VibroSight for machinery monitoring, remote monitoring and diagnostics.

NOTE:	A CSV file is a comma-separated values file, that is, a delimited text file text that uses commas to separate values. CSV files are typically used to share (import/export) data between programs that store data in tables, such as databases or spreadsheets.

Data imported from CSV files can be displayed live in VibroSight Vision and/or it can be logged to the VibroSight data repository. Once imported into a VibroSight data repository (VibroSight historical data folder (`*.vshdf`)), data from third-party systems is considered as VibroSight data and is handled and treated in exactly the same way. For example, the data can be displayed and analysed using VibroSight Vision, and so on.

NOTE:	Just like all of the other measurement data available in a VibroSight monitoring system, data imported from CSV files can be logged into a VibroSight data repository so that it remains available as historical data − by simply configuring data logging rules for the imported CSV data entities in VibroSight Configurator.

Importing data from CSV files into a VibroSight data repository is particularly useful when:

- Users are migrating from an existing machinery monitoring system to VibroSight and they want to access the legacy system data using VibroSight.
- Users want to use the speed and power of VibroSight data for the display and analysis and of all of their plant-wide data.
- Users want to centralise data from multiple different systems in a single VibroSight data repository for ease of data management.

The import of data from CSV files into VibroSight currently supports the import of scalar and vector data entities (extracted data) only. (That is, the import of dynamic measurement data such as waveforms, spectra or orbits is not yet supported). For the scalar and vector data entities, it is also possible to import rotational speed and/or data quality information corresponding to the scalar and vector data.

NOTE:	When importing data from CSV files into VibroSight, the data quality information corresponding to the scalar and vector data supports the same quality codes/flags as used by OPC DA (data access). For example, $192_{dec.}$ ($C0_{hex.}$) is good quality and $0_{dec.}$ ($0_{hex.}$) is bad quality.

To configure and use a VibroSight Server to import data from CSV files:

In VibroSight Configurator:

1. Create a new VibroSight Server configuration (**File > New > VibroSight Server configuration**) or open and modify an existing one (**File > Open > …** (`*.vscfg`)).
2. In the Hardware view, under the VibroSight Server configuration node (the root node in the hierarchical tree structure), right-click on **External data sources**, then click **New CSV data source**.
   A data source for the CSV files is created under **External data sources**, with a default name such as 'CSV Data Source 1' and the parameters window (centre) updates to display the parameters for the external CSV data source.
3. In the parameters window (centre), configure the external CSV data source parameters, as follows:
   Name: Use the default name for the external CSV data source or change it, as required.
   State: An external CSV data source is Enabled by default but can be Disabled, as required.
   Input directory: The location of the folder that will contain the CSV (`*.csv`) files from the third-party system or systems. That is, where the CSV data files to be imported will be made available.
   NOTE: `…\External CSV Files` is the default but can be changed as required.
   NOTE: This can be a folder on the computer running the VibroSight Server or a network directory/folder.
   Remove CSV files after processing: When this check box is selected, the VibroSight Server will automatically delete a CSV (`*.csv`) file from the input folder after it has finished processing it.
   NOTE: It can be useful to see the CSV (`*.csv`) files in the input folder when initially configuring and working with a VibroSight Server. But once the system is working as expected, it is recommended to select this check box to automatically delete them in order to reduce storage

requirements (avoiding potential issues such as a disk-full situation).
Remove invalid CSV files: When this check box is selected, the VibroSight Server will automatically delete from the input folder any CSV (`*.csv`) files that are invalid and cannot be processed (for example, corrupted files).
CSV separator: Select the character used to separate (delimit) the data in the CSV files. Comma is the default.
File encoding: Select the file encoding (character set) used by the CSV files.
1252 : Western European (Windows) is the default.
Time zone: Select the time zone (local computer/site time) used by the timestamps in the CSV files. UTC (coordinated universal time) is the default.
Timestamp column: Enter the title of the column in the CSV file containing timestamp data. Timestamp is the default.
Timestamp pattern: Enter the syntax of timestamp data used by the CSV files, where:
dd is the day (as a number from 01 through 31; a single-digit day is formatted with a leading zero),
MM is the month (as a number from 01 through 12; a single-digit month is formatted with a leading zero),
yyyy is the year (as a number with a minimum of four digits; if the year has fewer than four digits, the number is padded with leading zeros to produce four digits),
HH is the hour (as a number from 00 through 23, that is, the hour is represented by a zero-based 24-hour clock that counts the hours since midnight; a single-digit hour is formatted with a leading zero),
mm is the minute (as a number from 00 through 59; a single-digit minute is formatted with a leading zero),
ss is the second (as a number from 00 through 59; a single-digit second is formatted with a leading zero).
dd.MM.yyyy HH:mm:ss is the default.

4. In the Hardware view, right-click on the CSV data source node (default name: 'CSV Data Source 1'), then click **New processing block**.
   A processing block is created under the CSV data source node, with a default name such as 'Processing block 1' and the parameters window (centre) updates to display the parameters for the processing block. The default name can be changed, as required.
   Note: One or more processing blocks are required to contain/organise the scalar and vector data entities that will be imported.

5. In the Hardware view, right-click on the processing block node (default name: 'Processing block 1'), then click **New scalar data entity** or **New vector data entity**, as required.
   A scalar or a vector data entity is created under the processing block node, with a default name such as 'Scalar data entity 1' or 'Vector data entity 1', as selected, and the parameters window (centre) updates to display the parameters for the scalar or vector data entity.
   Note: One or more processing blocks are required to contain/organise the scalar and vector data entities that will be imported.

   In the parameters window (centre), configure the scalar or vector data entity parameters, as follows:
   Name: Use the default name for the data entity or change it, as required.
   State: A data entity is Enabled by default but can be Disabled, as required.
   Physical quantity: The physical quantity for the data entity (for example, acceleration or velocity or displacement).

Unit: The unit for the data entity (for example, g or m/s^2 when the physical quantity is acceleration).
Qualifier: The qualifier (rectifier) unit for the data entity (for example, average, RMS or peak).
Amplitude column: The path name for the amplitude component of a scalar or vector data entity. Default is <Processing block name>\<Data entity name>\Amplitude, where the 'Processing block name' and 'Data entity name' depend on parameters configured earlier but 'Amplitude' can be changed here as required.

In addition, for a vector data entity only, there are:
Phase qualifier: The phase qualifier (reference) for the phase component of a vector data entity.
Phase column: The path name for the phase component of a vector data entity.
Default is <Processing block name>\<Data entity name>\Phase, where the 'Processing block name' and 'Data entity name' depend on parameters configured earlier but 'Phase' can be changed here as required.

Rotation speed column (optional): If required, the path name for the rotational speed data corresponding to the data entity.
Default is <Processing block name>\<Data entity name>\Speed, where the 'Processing block name' and 'Data entity name' depend on parameters configured earlier but 'Speed' can be changed here as required.
Rotation speed unit: The unit for the rotational speed data corresponding to the data entity (rpm or rps).

Quality column (optional): If required, the path name for the data quality information corresponding to the data entity.
Default is <Processing block name>\<Data entity name>\Speed, where the 'Processing block name' and 'Data entity name' depend on parameters configured earlier but 'Speed' can be changed here as required.

Under **Full display range**, the Minimum value and the Maximum value to be used by default to display the data entity can also be configured.
Under **Alarms**, a 1D fixed limit alarm for the data entity can also be configured.

NOTE: When configuring scalar or vector data entity parameters, the path names are the actual paths to the effective data columns in the CSV files themselves.

NOTE: After one or more processing blocks containing one or more scalar data entities and/or vector data entities have been configured, a template CSV file corresponding to the configured processing block and data entity structure can be exported in order to be used as a reference for the creation and population of the real CSV files with data that will be imported.
In the Hardware view, right-click on the CSV data source node (default name: 'CSV Data Source 1'), then click **Export CSV data template file** and save the template file (`*.csv`) under the required file name.

6. In the Data storage view, configure the data logging and event logging (Data logging) of the remote VibroSight Server in the usual way.
   NOTE: If data logging rules are not configured for the data imported from CSV files, then the CSV data will be available as live data only.

7. In the Data storage view, configure the integrated data management (Data Management) of the central VibroSight Server in the usual way.
8. Create and activate the central VibroSight Server in the usual way (**File > Save as > Server / database**, then **File > Apply changes to running configuration**).

Application tips and tricks

Use the exported CSV data template file (see step 5 above) as a reference for the creation and population of the real CSV files with data that will be imported into VibroSight.

The optimal organisation and structure of processing blocks and scalar and/or vector data entities used to import data from CSV files into VibroSight depends primarily on the application and the third party data source or sources being used.

For example:

- A single CSV file, containing both scalar and vector data, could be used for each separate time period to be imported.
- Different CSV files, one containing scalar data and one containing vector data, could be used for each separate time period to be imported.
- Different CSV files, containing scalar and/or vector data for a particular machine or process, could be used for each time separate time period to be imported.

However, there is one very important condition to observe when importing data from CSV files into VibroSight, namely, that the data must be made available in a strict chronological order.
More specifically:

- In the CSV files themselves, the timestamps (and data) must be in a chronological order. For example:

```
Timestamp,Processing Block 1\Scalar Data Entity 1\Amplitude,…
17.09.2018 14:05:30,10,…
17.09.2018 14:06:30,15,…
17.09.2018 14:07:30,13,…
17.09.2018 14:08:30,20,…
…
```

- The CSV files themselves must be copied to the **Input directory** (default: `…\External CSV Files`) in chronological order. That is, CSV files containing data with earlier timestamps must be made available and imported before CSV files containing data with later timestamps.

NOTE:	When importing data from CSV files into VibroSight, it is important to important to make the data available in a strict chronological order. This is because VibroSight Server keeps track of the latest (most recent) timestamp for each individual data entity and will not allow data earlier than the latest (most recent) timestamp to be imported.

In the VibroSight Server user interface:

1. On the **Status** tab, under **Server features**, ensure that **CSV import** is enabled.
2. On the **Status** tab, under **Server features**, ensure that **Data logging manager** is enabled if the central VibroSight Server is required to log data to its data repository.
   NOTE: If the central VibroSight Server is to be used for the display of live data only, then data logging is not required.

Once a configuration is activated (applied) to a central VibroSight Server and **CSV import** and **Data logging manager** are enabled, the VibroSight Server is ready to start the import and collation of data from CSV files.

NOTE:	For the VibroSight Server, the data update rate depends on the availability of the CSV (`*.csv`) files in the input folder monitored by the VibroSight Server.

In practice, a VibroSight Server continuously monitors the designated directory/folder (**Input directory**) for CSV (`*.csv`) files. As the files appear in the designated directory/folder, the VibroSight Server uses the timestamps of the files to help organise and sort them before parsing the files and adding the CSV data to its own local data repository (VibroSight historical data folder (`*.vshdf`) file).

The VibroSight Server's **Log messages** tab is used to display any messages related to the import of data from CSV files into VibroSight, such as problems processing CSV files due to missing or incorrectly formatted data.

In VibroSight Vision:

1. Create a new project (**File > New project**) using **VibroSight Server** as the data source, then select and connect to the VibroSight Server.
2. Use the Time range window to work with live (**Live data**) or historical (**Machine states**, **Alarms** or **Custom historical**) data, as required.
   - When working with live data, the update rate for the data displayed in a plot depends primarily on how often CSV (`*.csv`) files are copied to the input folder monitored by the VibroSight Server.
   - When working with historical data, the data displayed in a plot depends primarily on the availability of the imported data in the VibroSight historical data folder (`*.vshdf`) file used as the data repository by the VibroSight Server (which in turn depends on how often CSV (`*.csv`) files are copied to the input folder monitored by the VibroSight Server and the contents of the CSV (`*.csv`) files).
     For example, for CSV (`*.csv`) files covering a time range of 10 minutes that are regularly imported (approximately every 10 minutes), a historical data plot would display the most recent data in 10 minute 'chunks'.

2.2 New maths functions for mathematical post-processing

VibroSight 3.7.0 adds the following new maths function to the VibroSight software's 'Mathematical outputs' application specific package:

- *tagval (a, b)*
  Returns the value of *a* from *b* seconds ago.
- *tagdiff (a, b)*
  Returns the difference between the current value of *a* and the value of *a* from *b* seconds ago.

NOTE:	The *tagdiff (a, b)* function replaces the *derivative (a, b)* function that was previously available.

- *tagmin (a, b, c)*
  Returns the minimum value of *a* for the time period between *b* seconds and *c* seconds ago.
- *tagmax (a, b, c)*
  Returns the maximum value of *a* for the time period between *b* seconds and *c* seconds ago.
- *tagavg (a, b, c)*
  Returns the average value of *a* for the time period between *b* seconds and *c* seconds ago.
- *tagstd (a, b, c)*
  Returns the standard deviation of *a* for the time period between *b* seconds and *c* seconds ago.

The 'Mathematical outputs' application specific package allows a VibroSight Server to perform 'basic math' post-processing on the data available in its data repository in order to calculate and create new data and information.

NOTE:	A new licence key file is required to enable optional packages, such as Mathematical outputs.

All of the new maths functions operate on scalar data entities (extracted data), including data from third-party systems imported into VibroSight via Modbus or OPC.

Examples

tagval (a, b)
tagval (a, 5) returns the value of *a* from 5 seconds ago.

tagdiff (a, b)
tagdiff (a, 60) returns the difference between the current value of *a* and the value of *a* from 60 seconds ago. For example, it returns 2 if the current value of *a* is 10 and the value of *a* from 60 seconds ago is 8.

tagmin (a, b, c)

tagmin (a, 61, 1)

Returns the minimum value of *a* for the 1 minute time period between 1 second and 61 seconds ago.

tagmax (a, b, c)

tagmax (a, 61, 1)

Returns the maximum value of *a* for the 1 minute time period between 1 second and 61 seconds ago.

tagavg (a, b, c)

tagavg (a, 61, 1)

Returns the average value of *a* for the 1 minute time period between 1 second and 61 seconds ago.

tagstd (a, b, c)

tagstd (a, 61, 1)

Returns the standard deviation of *a* for the 1 minute time period between 1 second and 61 seconds ago.

NOTE:	When working with the new maths functions: • Data from up to 4 hours ago (14400 seconds) can be used. • If no data value is available from the VibroSight data repository for a specified time, a default value of '0' is used.

Data quality information

When working with the VibroSight software's 'Mathematical outputs' application specific package, scalar data entities (extracted data) added as variables to mathematical expressions have an associated data quality variable that provides data quality information for the variable.

For example, if a scalar data entity (extracted data) is added to a mathematical expression with the **Variable Name: a**, then VibroSight now automatically adds an associated data quality variable **Quality Variable Name: aQuality**. (The default variable names can be changed as required.)

The data quality variable appears in a new **Quality Variable Name** column, beside the **Variable Name** column, in the variables table, under **Mathematical expression**.

The associated data quality variable is a bit/flag with the following possible values:

- **1** to indicate that the quality of the associated data variable is good.
- **0** to indicate that the quality of the associated data variable is not good.

These data quality variables can be used in the mathematical expressions in the same way as the data variables, and are typically used with boolean expressions to test data quality before returning results. For example:

result = if(aQuality, a, 0);

To configure and use the new maths functions

In VibroSight Configurator:

1. Create a new VibroSight Server configuration (**File > New > VibroSight Server configuration**) or open and modify an existing one (**File > Open > …** (`*.vscfg`)).

2. Create a new Basic math processing block or modify an existing one.
   To create a new Basic math processing block, in the Hardware view, at the VibroSight Server node level, right-click then click **New Basic math processing block**.

3. Create a new Scalar data entity or modify an existing one.
   To create a new Scalar data entity, in the Hardware view, at the Basic math processing block level, right-click then click **New Scalar data entity**.

4. Select the Scalar data entity and configure the associated mathematical expression.
   In the Hardware view, select the Scalar data entity, then in the parameters windows (centre): Under **Mathematical expression**, under **Variables**, click **Add** to add the variable from the associated data repository/configuration that the derivative function will operate on.

   Note: A **Variable name** is automatically assigned to the variable under **Variables** and the listed variable name must be used in the mathematical expressions under **Expression**. (The default variable names, which start with the letter 'a', can be changed as required.)
   Also for the variable (**Variable name**), an associated data quality variable (**Quality Variable name**) is automatically assigned to the variable under **Variables**, and can also in the mathematical expressions under **Expression**. (The default data quality variable names, which start with the word 'aQuality', can be changed as required.)

   Under **Mathematical expression**, click **Available elements** (right), then use the drop-down box to select **Functions**, then scroll down through the list of functions to find one of the new maths functions (**tagavg(,,)**, **tagdiff(,)**, **tagmax(,,)**, **tagmin(,,)**, **tagstd(,,)**, **tagval(,)**) and then double-click on the function in order to add it the function to the **Expression** field.
   In the **Expression** field, edit the function to configure the required mathematical expression, for example, **tagval *(a, 5)***.
   Notes: Clicking on a function under **Available elements** displays a tooltip providing additional information on the function; double-clicking on a function under **Available elements** adds the function to the mathematical expression, at the cursor position, under **Expression**.

5. In the Data storage view, configure the data logging and event logging (Data logging) of the remote VibroSight Server in the usual way.

6. In the Data storage view, configure the integrated data management (Data Management) of the remote VibroSight Server in the usual way.

7. Create and activate the remote VibroSight Server in the usual way (**File > Save as > Server / database**, then **File > Apply changes to running configuration**).

In the VibroSight Server user interface:

1. On the **Status** tab, under **Device drivers**, ensure that any required device drivers are enabled, such as VM600 and/or VibroSmart.
2. On the **Status** tab, under **Server features**, ensure that **Basic Math** and **Data logging manager** are enabled.

Once a configuration is activated (applied) to a VibroSight Server and Basic math and Data logging manager are enabled, the VibroSight Server is ready to generate and provide the 'Mathematical outputs' using the derivative function.

NOTE:	For the new maths functions, the data update rate for the outputs depends on the data update rate for the variables used in the mathematical expressions. For example, if the variables are data from a VM600 card or VibroSmart module, then the data update rate depends on the **Standard update rate** configured for the card or modules, which is 1 s by default (but can be as fast as 100 ms).

2.3 Unit preferences – new physical quantity and units

To improve support for machinery monitoring applications, the default Metric and Imperial unit sets included in VibroSight have been updated to include the strain physical quantity and commonly used symbols (units) listed in Table 1.

To view and/or change 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 1: New physical quantity and units in VibroSight 3.7.0

Physical quantity	Enabled	Default unit	Used units
Strain	✓	ε	ε, με

The new strain physical quantity and units are available in both the Metric and Imperial unit sets.

Previously, strain did not use a default unit (**Default unit: (none)**) as strain is a ratio of two similar physical quanties (for example, $\Delta L / L$), so the units cancel and strain is mathematically unitless.

3 Solved problems and bug fixes

3.1 Improvements and bug fixes

General stability improvements across the VibroSight 3.7.0 software.

3.2 Problems migrating older VibroSight Mimic projects

When migrating VibroSight Mimic projects created in earlier versions of VibroSight to later versions of VibroSight, the Mimic projects could fail to update correctly in which case they would stop working (crash) with later versions of VibroSight.

In particular, this was seen when migrating a VibroSight Mimic project created with VibroSight 2.12.7 to VibroSight 3.6.0.

A temporary workaround is to migrate the VibroSight Mimic project in two steps, as follows:

1. Install VibroSight 3.4.1 and use VibroSight Mimic to open, update and save the Mimic project.
2. Install VibroSight 3.6.0 and use VibroSight Mimic to open, update and save the Mimic project. The VibroSight Mimic project will then behave normally and can be used as expected.

3.3 Problems installing VibroSight 3.6.0

Depending on the computer and pre-installed software, the VibroSight 3.6.0 installer could experience problems when automatically installing the Microsoft Visual C++ Redistributable Package for Visual Studio required by VibroSight, and report a message including “error: 0x643”.

In fact, it is safe to ignore this installation error message and continue as normal.

3.4 Problems displaying orbit plots

Depending on the measurement data and the combination of Orbit plot settings/properties such as waveform x-axis (Time or Revolutions), and Baseline (Off or enabled), VibroSight Vision experienced problems updating the orbit itself and/or waveforms to display the required data as configured, with more revolutions than configured typically being displayed.

4 Known issues

4.1 Display of timestamps in VibroSight Vision

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

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

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

4.3 Length limitation of VibroSight Server instance names

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

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

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

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

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

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

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

4.4 Display of timestamps in VibroSight clients other than VibroSight Vision

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

4.5 Display of devices in VibroSight System Manager

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

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

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

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

4.6 VibroSight Mimic backwards compatibility

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

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

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

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

NOTE:	When updating existing machinery monitoring projects created with VibroSight 2.12.x to VibroSight 3.x.x, 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*.

4.12 Potential TCP port 50000 conflict

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

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

Accordingly, any potential TCP port 5000 conflict should be resolved before the VibroSight software can be successfully installed and run.

5 Compatibility

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

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

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 3.7.0 is a minor level release and replaces VibroSight 3.6.0.

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 folder (`*.vshdf`) for operation with a VibroSight Server (live data) and VibroSight historical data archive (`*.vshda`) for operation with historical data).

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

Therefore, it is important to note that:

- New machinery monitoring projects created with VibroSight 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 these release notes for further information on VibroSight software and Windows operating system compatibility.

5.1.2 Microsoft .NET Framework

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

NOTE:	VibroSight 3.7.0 or later requires Microsoft .NET Framework 4.7.2.

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

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

5.1.3 Microsoft Visual C++ Redistributable Package

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

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

NOTE:	VibroSight 3.x.x 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 data repositories (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 no firmware upgrades for VM600 cards corresponding to VibroSight 3.7.0.

The latest firmware for the CPUR remains:

- Base System: base-system-640-014-001-002.tgz
- Applications: applications-640-015-001-002.tgz.

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

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

Therefore, for current versions of VM600 cards, firmware upgrades are not required.

5.3 VibroSmart devices

5.3.1 Firmware

There are no firmware upgrades for VibroSmart modules and devices corresponding to VibroSight 3.7.0.

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 VSV30x module remains:

- 642-001-000-016.xtranfw.

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

6 Upgrade procedure

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

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

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

6.1 VibroSight software user settings

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

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

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

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

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

6.2 Updating VibroSight-compatible hardware

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

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

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

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

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

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

6.2.1 VM600 card firmware

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

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

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

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

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

Table 1: VibroSight software and VM600 CPUR firmware compatibility

	VM600 CPUR firmware. See note 1	
VibroSight software version CD part number	Base-system (`*.tgz`)	
	640-014-001-001	640-014-001-002
	Applications (`*.tgz`)	
	640-015-001-001	640-015-001-002
2.12.7 609-004-000-036	✓ See note 2	✓ See note 3
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	✓	✓
3.4.0 609-004-000-041	✓	✓
3.5.0 609-004-000-042	✓	✓
3.6.0 609-004-000-043	✓	✓
3.7.0 609-004-000-044	✓	✓

Notes for Table 1

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

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

Table 2: VibroSight software and VM600 XMx16 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`)				
	640-010-001-011	640-010-001-012	640-010-001-013	640-010-001-014	640-010-001-016
2.12.5 609-004-000-033	✓ See note 2	✓ See note 3			
2.12.6 609-004-000-034	✓	✓			
2.12.7 609-004-000-036			✓ See note 4		
3.0.0 609-004-000-037				✓ See note 5	
3.1.0 609-004-000-038				✓	
3.2.0 609-004-000-039				✓	
3.3.0 609-004-000-040					✓ See note 6
3.4.0 609-004-000-041					✓
3.5.0 609-004-000-042					✓
3.6.0 609-004-000-043					✓
3.7.0 609-004-000-044					✓

Notes for Table 2 (see the next page)

Notes for Table 2

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

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

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

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

4. This version of VM600 XMx16 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.

5. This version of VM600 XMx16 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.

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

6.2.2 VibroSmart device firmware

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

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

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

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

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

Table 5 shows the compatibility between VibroSight software and the VibroSmart VSV30x firmware.

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

Table 3: VibroSight software and VibroSmart VSI010 firmware compatibility

	VSI010 firmware (`*.xmsifw`). See note 1	
VibroSight software version CD part number	642-002-000-008	642-002-000-009
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		✓
3.4.0 609-004-000-041		✓
3.5.0 609-004-000-042		✓
3.6.0 609-004-000-043		✓
3.7.0 609-004-000-044		✓

Notes for Table 3 (see the next page)

Notes for Table 3

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

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

Notes:

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

Procedure:

(1) Ensure that a copy of the configuration for the VibroSmart is available before updating any device firmware. For example, using the currently installed version of VibroSight (that is, before any updates to the VibroSight software corresponding to updates to VibroSmart devices), VibroSight Configurator can be used to obtain a copy of the configuration as follows:
• For a VibroSmart using a VibroSight Server, the **File > Open > Server / Database** command can be used to read the configuration from the VibroSight Server.
• For a VibroSmart not using a VibroSight Server (that is, a “stand-alone” VibroSmart), the **File > Open > Device** command can be used to read the configuration directly from the VibroSmart modules.
Then the **File > Save As > File** command can be used to store a copy of the configuration for the VibroSmart.

(2) Start VibroSight System Manager, select the device or devices of the same type to be updated (for example, VSI010 modules) and run the Change Firmware command.
When updating multiple VibroSmart devices of the same type to use the same firmware, CTRL+click or SHIFT+click can be used to select multiple devices in the Devices tree structure of the System Explorer window. This way, when the Change Firmware command is run, all of devices that were selected will be updated at the same time. Otherwise, each device must be selected and updated individually.

(3) When the VibroSmart Module(s) Firmware Upgrade window displays a “Firmware upgrade terminated. The firmware has been upgraded successfully …” message, click the **Finish** button to continue.
If after 10 minutes, the VibroSmart Module(s) Firmware Upgrade window does not display a successful message, click the **Cancel** button to close the window and continue.
Then exit (close) VibroSight System Manager.

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

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

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

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

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

Table 4: VibroSight software and VibroSmart VSN010 firmware compatibility

	VSN010 firmware (`*.redboxfw`). See note 1	
VibroSight software version CD part number	642-004-000-010	642-004-000-011
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		✓
3.4.0 609-004-000-041		✓
3.5.0 609-004-000-042		✓
3.6.0 609-004-000-043		✓
3.7.0 609-004-000-044		✓

Notes for Table 4 (see the next page)

Notes for Table 4

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

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

Notes:

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

Procedure:

(1) Ensure that a copy of the configuration for the VibroSmart is available before updating any device firmware. For example, using the currently installed version of VibroSight (that is, before any updates to the VibroSight software corresponding to updates to VibroSmart devices), VibroSight Configurator can be used to obtain a copy of the configuration as follows:
• For a VibroSmart using a VibroSight Server, the **File > Open > Server / Database** command can be used to read the configuration from the VibroSight Server.
• For a VibroSmart not using a VibroSight Server (that is, a “stand-alone” VibroSmart), the **File > Open > Device** command can be used to read the configuration directly from the VibroSmart modules.
Then the **File > Save As > File** command can be used to store a copy of the configuration for the VibroSmart.

(2) Start VibroSight System Manager, select the device or devices of the same type to be updated (for example, VSN010 modules) and run the Change Firmware command.
When updating multiple VibroSmart devices of the same type to use the same firmware, CTRL+click or SHIFT+click can be used to select multiple devices in the Devices tree structure of the System Explorer window. This way, when the Change Firmware command is run, all of devices that were selected will be updated at the same time. Otherwise, each device must be selected and updated individually.

(3) When the VibroSmart Module(s) Firmware Upgrade window displays a “Firmware upgrade terminated. The firmware has been upgraded successfully …” message, click the **Finish** button to continue.
If after 10 minutes, the VibroSmart Module(s) Firmware Upgrade window does not display a successful message, click the **Cancel** button to close the window and continue.
Then exit (close) VibroSight System Manager.

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

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

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

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

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

Table 5: VibroSight software and VibroSmart VSV30x firmware compatibility

	VSV30x firmware (`*.xtranfw`). See note 1				
VibroSight software version CD part number	642-001-000-012	642-001-000-013	642-001-000-014	642-001-000-015	642-001-000-016
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	✓	✓	✓		
3.4.0 609-004-000-041				✓ See notes 2 and 3	✓ See notes 2 and 4
3.5.0 609-004-000-042				✓	✓
3.6.0 609-004-000-043				✓	✓
3.7.0 609-004-000-044				✓	✓

Notes for Table 5 (see the next page)

Notes for Table 5

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

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

Notes:

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

Procedure:

(1) Ensure that a copy of the configuration for the VibroSmart is available before updating any device firmware. For example, using the currently installed version of VibroSight (that is, before any updates to the VibroSight software corresponding to updates to VibroSmart devices), VibroSight Configurator can be used to obtain a copy of the configuration as follows:
• For a VibroSmart using a VibroSight Server, the **File > Open > Server / Database** command can be used to read the configuration from the VibroSight Server.
• For a VibroSmart not using a VibroSight Server (that is, a “stand-alone” VibroSmart), the **File > Open > Device** command can be used to read the configuration directly from the VibroSmart modules.
Then the **File > Save As > File** command can be used to store a copy of the configuration for the VibroSmart.
(2) Start VibroSight System Manager, select the device or devices of the same type to be updated (for example, VSV30x modules) and run the Change Firmware command.
When updating multiple VibroSmart devices of the same type to use the same firmware, CTRL+click or SHIFT+click can be used to select multiple devices in the Devices tree structure of the System Explorer window. This way, when the Change Firmware command is run, all of devices that were selected will be updated at the same time. Otherwise, each device must be selected and updated individually.
(3) When the VibroSmart Module(s) Firmware Upgrade window displays a “Firmware upgrade terminated. The firmware has been upgraded successfully …” message, click the **Finish** button to continue.
If after 10 minutes, the VibroSmart Module(s) Firmware Upgrade window does not display a successful message, click the **Cancel** button to close the window and continue.
Then exit (close) VibroSight System Manager.
(4) Restart VibroSight System Manager and verify that the correct version of firmware is reported for each device that was updated. (When a device is selected in the System Explorer window, this information is available in the main window (centre) under Module PNR. It is also available in the VibroSmart Module(s) Firmware Upgrade window when a device is selected and the Change Firmware command is run).
If a device does not report the correct version of firmware, rerun the Change Firmware command for this device.
Then exit (close) VibroSight System Manager.
(5) Repeat steps (2), (3) and (4) for each type of device to be updated (for example, VSI010 and VSN010 modules).
(6) Start VibroSight Configurator, open the configuration for the VibroSmart (see step (1)), then apply (activate) the configuration. (If required, VibroSight Configurator will automatically update the configuration to the latest version and inform the user.)
Then exit (close) VibroSight Configurator.
(7) Turn the power supply to the VibroSmart off and wait for a few seconds. Then turn the power supply back on and verify that the system operates as expected.
During this firmware update process, the behaviour of the LEDs on the front panel of the VibroSmart devices can be inconsistent and should be ignored. Normal LED behaviour resumes after the firmware update is complete (after step (7)).

3. This version of VibroSmart VSV30x firmware introduces support for hydro air-gap monitoring.
A firmware upgrade is required in order to run VibroSight 3.4.0 or later.

4. This version of VibroSmart VSV30x firmware introduces support for latched alarms.
A firmware upgrade is recommended but is not required in order to run VibroSight 3.6.0 or later.

6.2.3 Updating the firmware using VibroSight System Manager

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

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

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

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

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

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

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

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

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

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

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

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

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

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

   The Actions tool window updates to show the available tools.

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

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

   The Change Firmware dialog box appears.

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

NOTE:	The Change Firmware dialog box automatically opens the firmware folder corresponding to the VibroSight-compatible VM600 card or VibroSmart device selected. `.tgz` files are for VM600 cards and `.*fw` files are for VibroSmart devices.

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

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

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

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

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

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

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

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

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

6.3 Final checks

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

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

In a VibroSight Server user interface:

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

NOTE:	When a VibroSight Server is running as a Windows service, the usual VibroSight Server user interface is not displayed, so VibroSight System Manager must be used to work with the VibroSight Server. That is, VibroSight System Manager can be used to connect to a VibroSight Server in order to check and configure the operation of the server's drivers and features.

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

7 Customer support

7.1 Contacting us

Meggitt 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:

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

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

7.2 Technical support

Meggitt 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 3.7.0 or later	.NET Framework 4.7.2 See note 1
VibroSight 3.4.0 or later	.NET Framework 4.7.1 See note 2
VibroSight 3.0.0 or later	.NET Framework 4.6
VibroSight 2.12.0 or later	.NET Framework 4.5 and .NET Framework 2.0 See note 3
VibroSight 2.9.4 or later	.NET Framework 4.5
VibroSight 2.9.3 and 2.9.2	.NET Framework 4 (Standalone Installer)
VibroSight 2.9.1 or earlier	.NET Framework 3.5 SP1

Notes

1. Microsoft .NET Framework 4.7.2 replaces .NET Framework versions 4.0 to 4.7.1.

2. Microsoft .NET Framework 4.7.1 replaces .NET Framework versions 4.0 to 4.7.

3. Since Microsoft .NET Framework 3.5 also includes .NET Framework 2.0 and .NET Framework 3.0, installing Microsoft .NET Framework 3.5 SP1 is the recommended solution for most computers (rather than installing Microsoft .NET Framework 2.0).