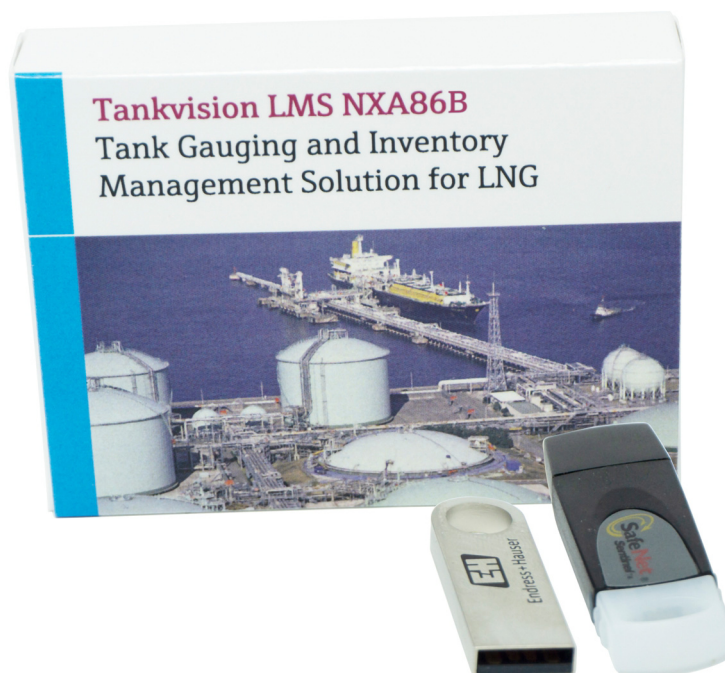
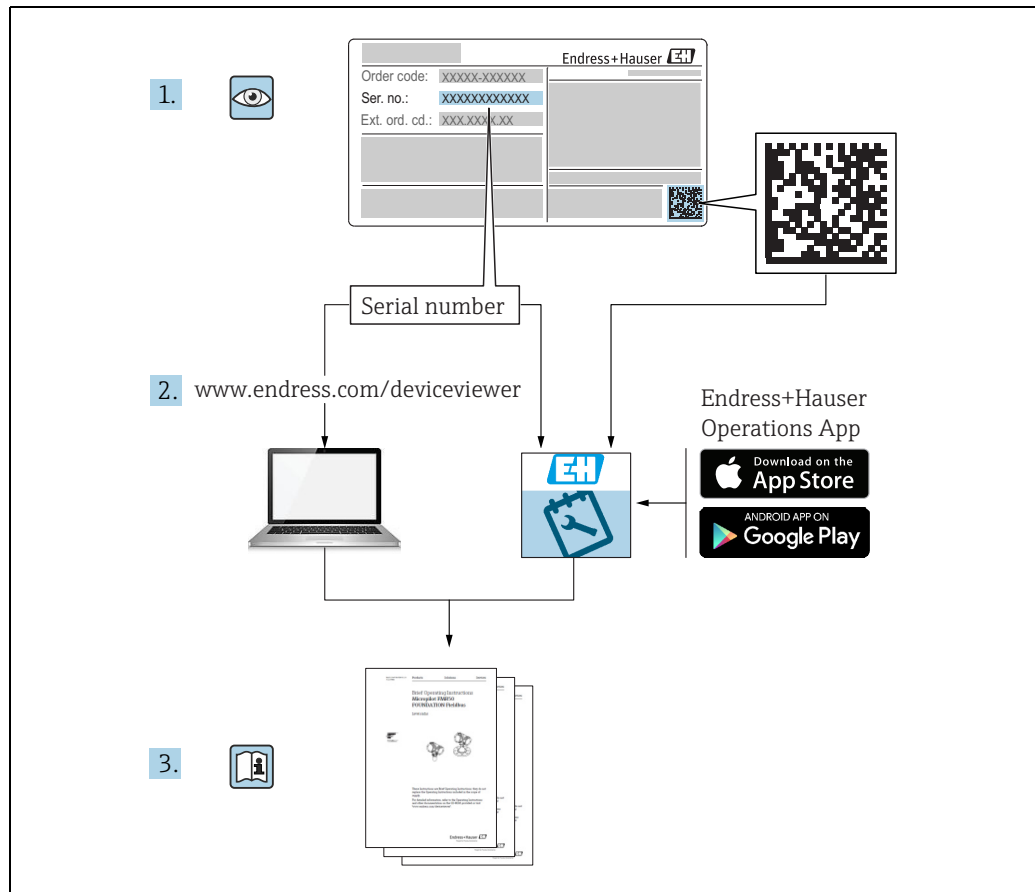


Operating Instructions

Tankvision LMS NXA86B

Installation





A0023555

Make sure the document is stored in a safe place such that it is always available when working on or with the device.

To avoid danger to individuals or the facility, read the "Basic safety instructions" section carefully, as well as all other safety instructions in the document that are specific to working procedures.

The manufacturer reserves the right to modify technical data without prior notice. Your Endress+Hauser distributor will supply you with current information and updates to these Instructions.

Change history

Document version	Valid for SW version	Changes to the previous version
BA01700G_01.17	18.0.2 and 18.0.3	Initial version
BA01700G_02.18	18.1.1	Compatibility with Windows 10 and Windows Server 2016
BA01700G_03.22	18.3.2	SQL Server connection details updated. Server configuration details updated.

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1 About this document

1.1 Document function





This manual should support during the installation of Tankvision LMS NXA86. Beside basic PC operating knowledge no special training is needed to perform the Tank Gauging System operations. Nevertheless it is recommended receiving a training on the system by Endress+Hauser.

1.2 Symbols




1.2.1 Safety symbols

Symbol	Meaning
 A0011189-EN	DANGER! This symbol alerts you to a dangerous situation. Failure to avoid this situation will result in serious or fatal injury.
 A0011190-EN	WARNING! This symbol alerts you to a dangerous situation. Failure to avoid this situation can result in serious or fatal injury.
 A0011191-EN	CAUTION! This symbol alerts you to a dangerous situation. Failure to avoid this situation can result in minor or medium injury.
 A0011192-EN	NOTICE! This symbol contains information on procedures and other facts which do not result in personal injury.



1.2.2 Electrical symbols

Symbol	Meaning
 A0011197	Direct current A terminal to which DC voltage is applied or through which direct current flows.
 A0011198	Alternating current A terminal to which alternating voltage is applied or through which alternating current flows.
 A0011200	Ground connection A grounded terminal which, as far as the operator is concerned, is grounded via a grounding system.
 A0011199	Protective ground connection A terminal which must be connected to ground prior to establishing any other connections.

1.2.3 Symbols for certain types of information

Symbol	Meaning
 A0011193	Tip Indicates additional information.
 A0011195	Reference to page Refers to the corresponding page number.
1. , 2. , 3. ...	Series of steps
 A0018373	Result of a sequence of actions

1.2.4 Symbols in graphics

Symbol	Meaning
1, 2, 3 ...	Item numbers
1. , 2. , 3. ...	Series of steps
A, B, C ...	Views
 A0011187	Hazardous area Indicates a hazardous area.
 A0011188	Indicates a non-hazardous location Safe area (non-hazardous area)

1.3 Documentation



For an overview of the scope of the associated Technical Documentation, refer to the following:

- W@M Device Viewer: Enter the serial number from the nameplate
www.endress.com/deviceviewer
- Endress+Hauser Operations App: Enter the serial number from the nameplate or scan the matrix code on the nameplate

1.4 Registered trademarks

Microsoft®, Windows® and Internet Explorer®
Registered trademarks of the Microsoft Corporation

Modbus™
Modbus is a registered trademark of Schneider Electric USA, Inc.

Java®
Registered trademark of Sun Microsystems, Inc.

Mozilla® Firefox®
Registered trademark of the Mozilla Foundation

Android® and Google Play® are registered trademarks of Google Inc.

iPhone® and iPad® are trademarks of Apple® Inc., registered in the U.S. and other countries.

2 Basic safety instructions

2.1 Requirements for the personnel

The personnel for installation, commissioning, diagnostics and maintenance must fulfill the following requirements:

- Trained, qualified specialists must have a relevant qualification for this specific function and task.
- Are authorized by the plant owner/operator.
- Are familiar with federal/national regulations.
- Before starting work, read and understand the instructions in the manual and supplementary documentation as well as the certificates (depending on the application).
- Follow instructions and comply with basic conditions.

The operating personnel must fulfill the following requirements:

- Are instructed and authorized according to the requirements of the task by the facility's owner-operator.
- Follow the instructions in this manual.

2.2 IT security

We only provide a warranty if the device is installed and used as described in the Operating Instructions. The device is equipped with security mechanisms to protect it against any inadvertent changes to the device settings.

IT security measures in line with operators' security standards and designed to provide additional protection for the device and device data transfer must be implemented by the operators themselves.

2.3 Intended use

2.3.1 Application

Tankvision LMS is a total LNG Tank Storage and Management solution for Peak Shaving, Receiving and Production LNG facilities. The LMS system has been designed to interface to all instruments commonly found on LNG storage tanks, and to collect and present the instrument data through a range of intuitive graphical user interfaces. A typical LNG Tank will have a wide range of measurement instruments to measure Liquid Level, Liquid Density, Liquid and Vapour Temperature, Liquid and Vapour Pressure, Skin Temperature and much more.

Typically each tank would be fitted with an LTD gauge, two further level gauges configured as a Primary and Secondary, and an Alarm Gauge. The LTD gauge is a servo operated unit mounted on the tank roof. The purpose of the LTD gauge is to take accurate profiles of temperature and density throughout the liquid, and whilst not profiling provide continuous liquid level, temperature and density measurement. The Primary and Secondary gauges can be either servo and or radar operated units also mounted on the tank roof. The purpose of these gauges is to provide continuous liquid level measurement, and average liquid temperature measurement. They provide redundancy on the measurement of level and temperature. The average liquid temperature is derived from a multi point temperature sensor device. The alarm gauge is often a servo or radar based gauge configured to provide volt free contact alarm status to an independent system.

An LMS system can operate in a simple standalone configuration or as a fully redundant system where security and integrity are of paramount importance. The LMS system has a flexible and scalable architecture allowing it to be tailored to a number of different applications easily.

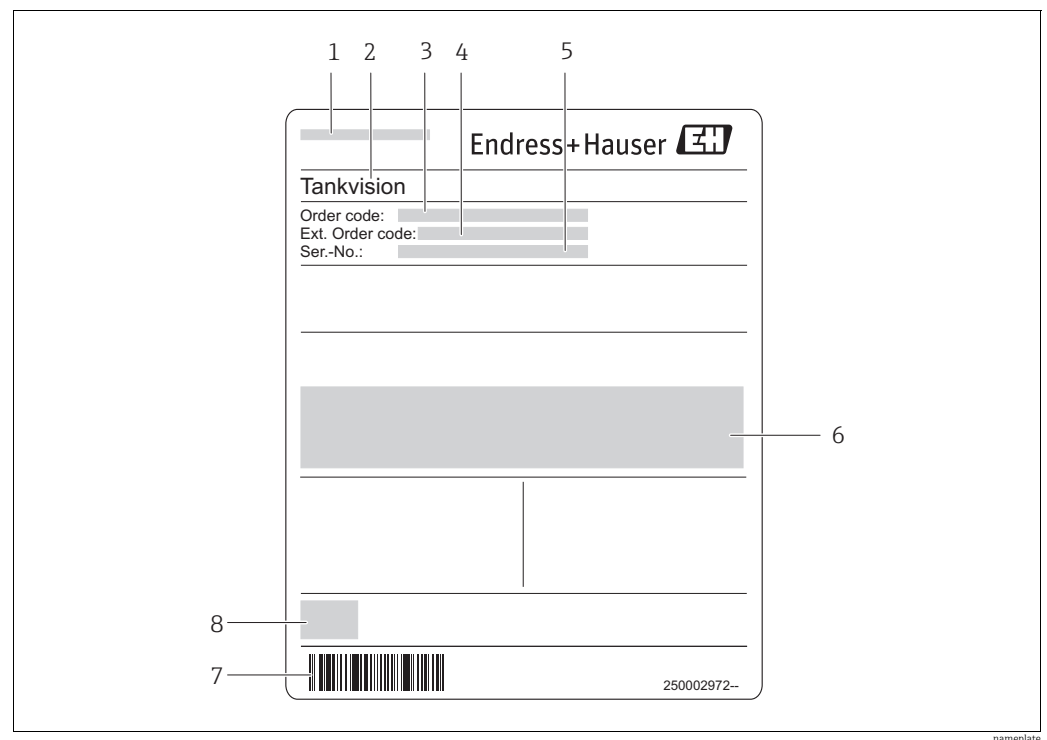
3 Identification

3.1 Product identification

The following options are available for identification of the software:

- Nameplate specifications
- Order code with breakdown of the software features on the delivery note
- Enter serial numbers from nameplates in *W@M Device Viewer*:
www.endress.com/deviceviewer - All information about the software is displayed.

3.2 Nameplate



- 1 Address of manufacturer
- 2 Device name
- 3 Order code
- 4 Extended order code (Ext. ord. cd.)
- 5 Serial number (Ser. no.)
- 6 Certificate and approval relevant data
- 7 Barcode
- 8 CE mark

3.3 Order code and device version



To find out the version of your software, enter the order code indicated on the nameplate in the search screen at the following address:
www.products.endress.com/order-ident

4 Installation General Guidelines



For this installation it is necessary that Microsoft Windows is installed on the C: drive of the PC. If it is not, do not attempt the installation and contact Endress+Hauser.



Please ensure that Microsoft Windows is completely up to date before proceeding with the installation. Failure to do this may prevent the software running properly.

The suite of application modules making up the Tankvision LMS system are generally provided on CD.

The installation process is relatively simple and straightforward following the same procedures as almost all other Windows applications.


1. Insert the CD into the CD ROM drive.
The system should normally auto start and begin running the set-up procedure.
2. Follow the set up prompts and enter the relevant data when and where requested.
3. When the installation is finally complete remove the CD and any other media from drives.

You will normally be requested to perform a system reset before the system can be used.

On very complex systems, particularly large multi-user client server systems the installation process may be more complex requiring a separate installation for the database and other operating system components.

Furthermore, systems requiring remote access via a Remote Access Connection and/or providing a Web server will require configuration and set-up by engineers experienced in Windows Networking and related technologies.

5 Software Installation

 Refer to the release notes for your version of the software before proceeding with the installation.

This procedure assumes that you are installing onto a PC without a previous version of the software. If you are intending to perform an upgrade make a backup of that system's databases and uninstall it first.

5.1 Logging onto Windows

Log onto to your computer using an account with administrative privileges.

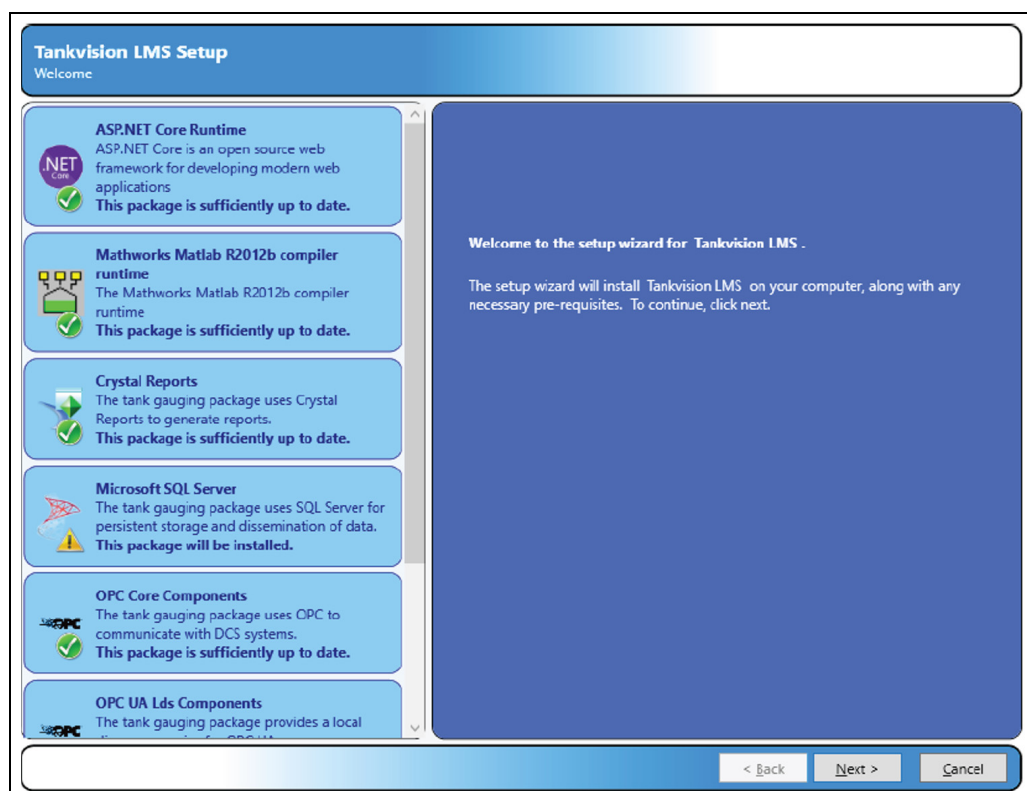
5.2 Inserting the CD

Insert the set-up CD into your CD ROM drive.

If you have **Auto Play** enabled then the installation will start automatically. If you don't, browse to the CD folder from My Computer and double click the **Setup.exe**.

5.3 Setup Welcome

Within a few seconds the main part of the application installation is started with the display of the following screen.



BA0xxxxGEN_Installation_0002

Click **Next** to continue with the installation or **Cancel** to terminate the installation procedure.

5.4 Installing the Pre-requisites





The first stage of the installation process is to check for and if necessary install the pre-requisite Windows components on your computer.

The pre-requisites installed are:

- ASP.NET Core Runtime
- SAP Crystal Reports
- Microsoft SQL Server (2019)
- OPC Core Components
- OPC UA Lds Components
- Mathworks MatLab Runtime (only required if Rollover Prediction is to be used)

If your computer already has these packages installed on it, the installer will detect them and check the correct versions are present, and only perform the installation if necessary.

The icon displayed indicates whether the component is required or not.

Icon	Description
 Icon_Uptodate	The package is sufficiently up to date, and does not require installing.
 Icon_Missing	The package is either missing or is of an earlier version than is needed. The package will be installed.
 Icon_Incompatible	The installed package is incompatible with the tank gauging software, and the installation will not proceed.
 Icon_Optional	The package is an optional requirement. See section on SQL Server, → 10.

There are no user configurable options for the installation of these Windows components; they will all occupy space on the C: drive of your computer.



If your MS Windows installation is not on C: do not start the installation.

If the installation of any of the pre-requisites requires Windows to restart, then the pre-requisite installer will restart the computer before starting to install the tank gauging application.

5.4.1 Microsoft SQL Server

The need to install Microsoft SQL Server is determined by the type of installation you are going to perform. Every tank gauging server system must have SQL Server installed on it.

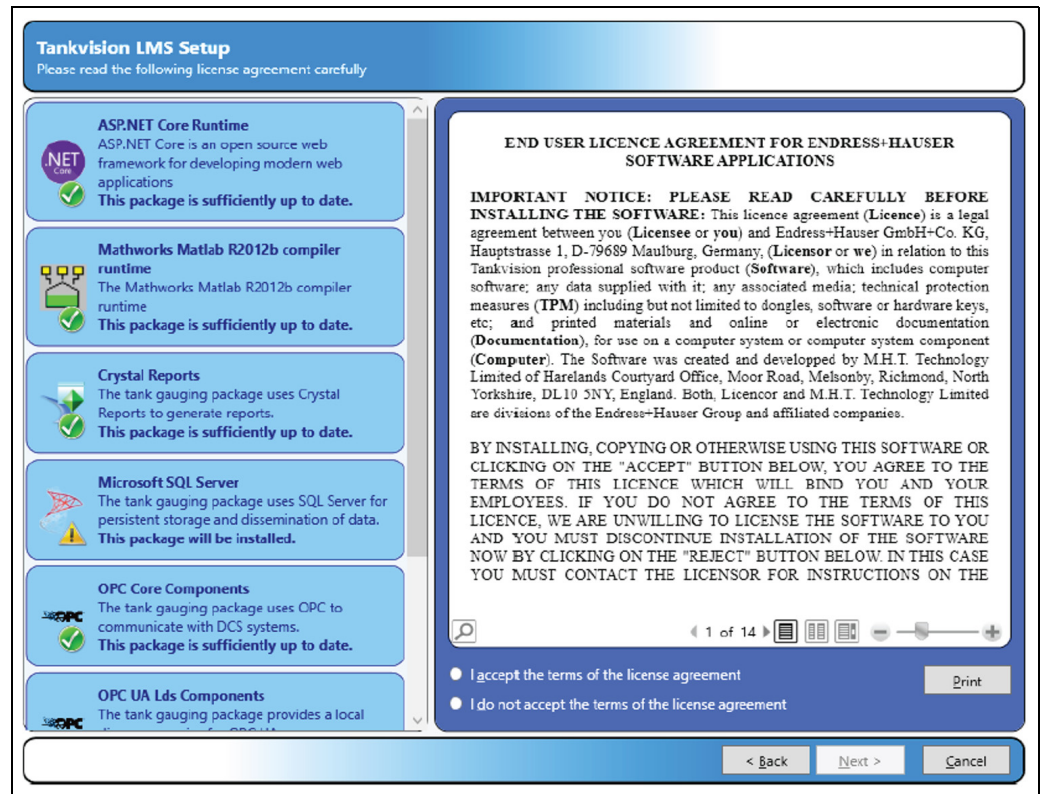
The bundled Microsoft SQL Server Express is only recommended for small single server systems, if a redundant or large system is required then you must install full Microsoft SQL Server (2016/2017/2019) prior to the tank gauging install.



If full SQL server is installed it must be configured to use the SQL_Latin1_General_CP1_CI_AS collation.

5.5 License Agreement

This screen presents the license agreement.



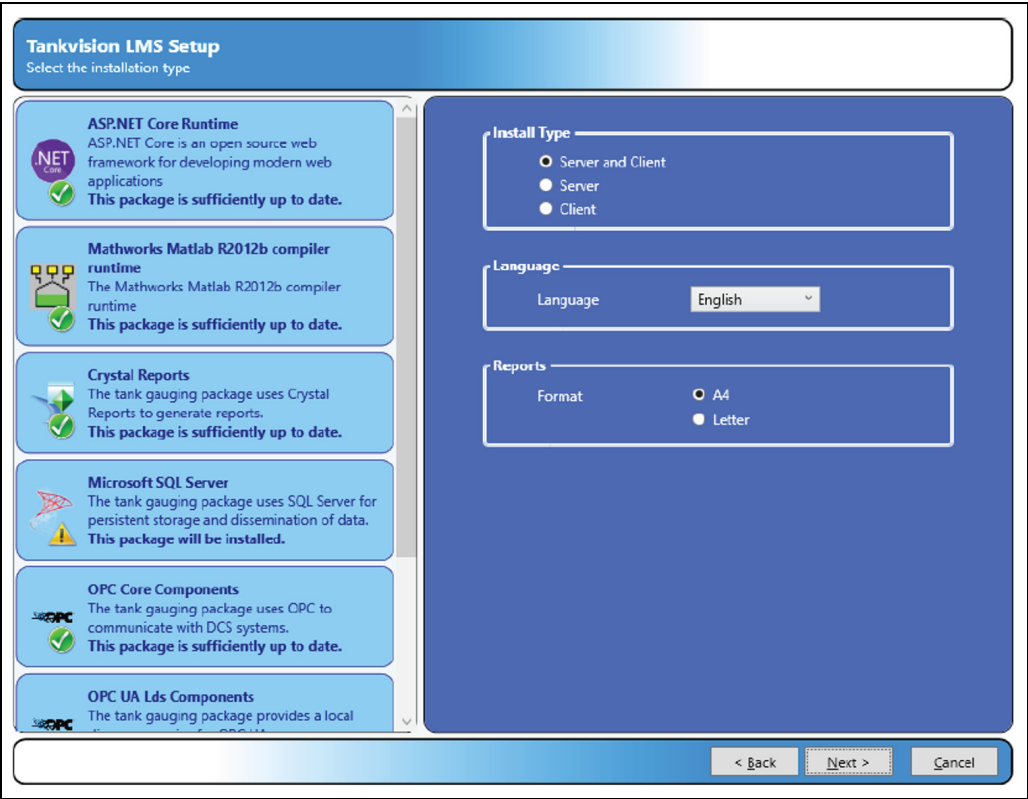
BA01700GEN_Installation_0013

- If you agree to the terms of the license agreement select **I accept the license agreement** to continue.
- If you do not agree to the terms of the license agreement the installer will guide you to exiting the installation.

Click **Next** to continue.

5.6 Installation Type

This screen allows you to determine which parts of the system are to be installed on your computer.



BA01700GEN_Installation_0014

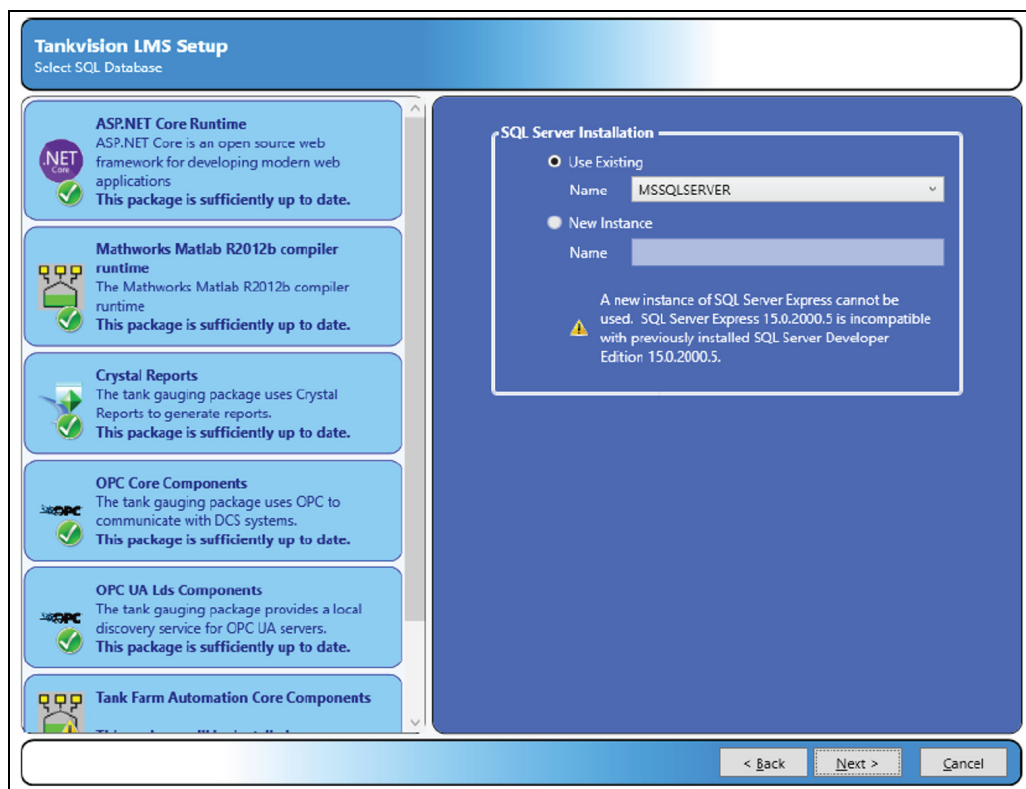
Installation type options are:

Installation Type	Description
Standalone system	Installs both the GUI and the server components
Server	Installs just the underlying server components
Client	Installs just the graphical user interface (GUI) components

Additionally, you can select the language that will be presented in the tank gauging system user interface and the paper size used for printed reports. Press the **Next** button to continue with the installation.

5.7 SQL server connection details

Choose the SQL Server installation you want to use to store the tang gauging system data:



TaVi_NXA86_SQL_Server_conn

If a compatible version of SQL Server is already installed, then the option to **Use Existing** will be available. To use an existing instance of SQL Server, ensure that the **Use Existing** option is selected and then select the instance from the list.

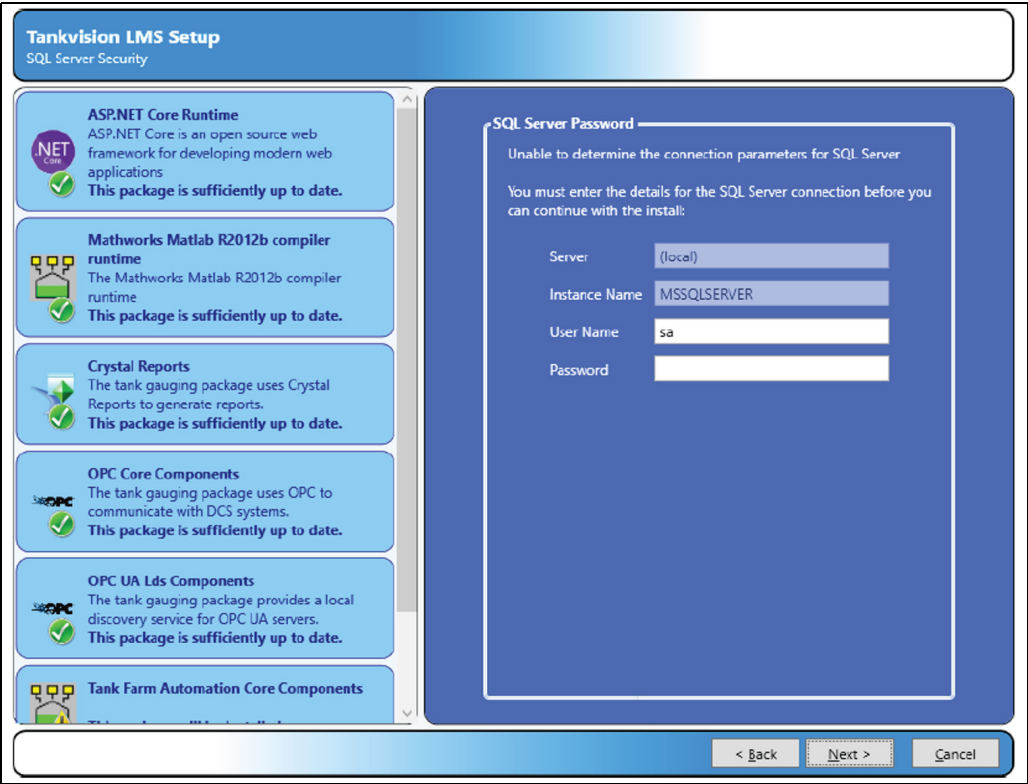
To install a new instance of SQL Server, select the **New Instance** option and then enter the instance name. To install a new default instance of SQL Server, leave the **Name** field blank.



You will not be able to install a new instance of SQL Server if you already have a version of SQL Server installed which is incompatible with SQL Server 2019 Express

5.8 SQL server password

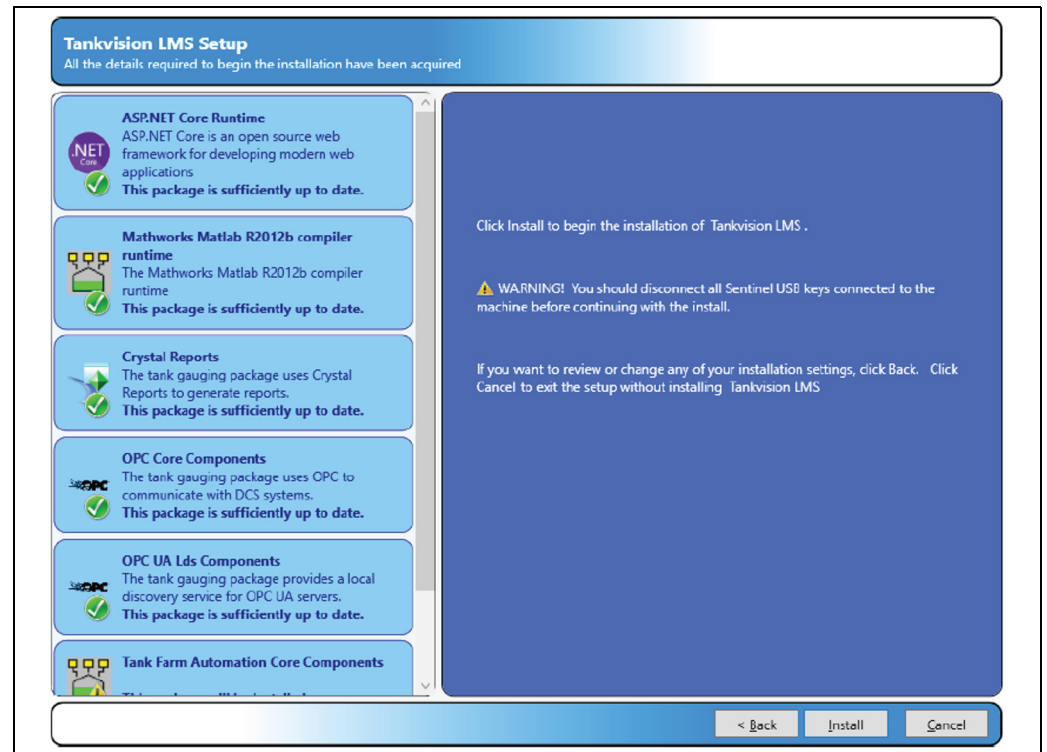
If the installer is unable to connect to an existing instance of SQL Server, then a screen will be displayed allowing the entry of the administrator user name and password:



TaVi_NXA86_SQL_Server_password

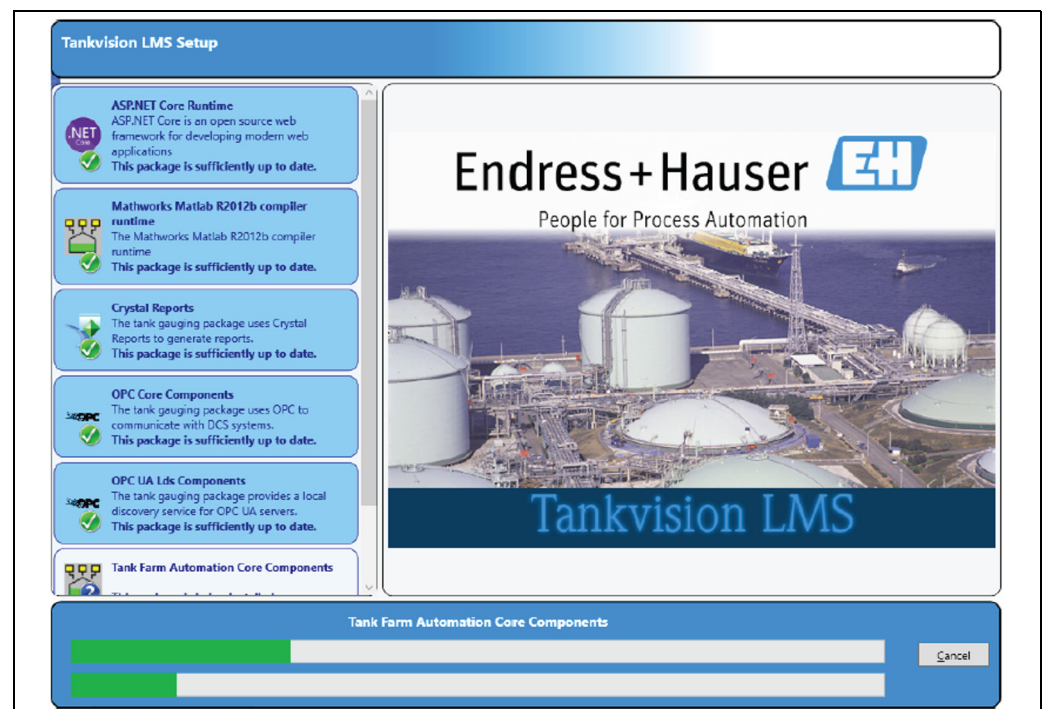
5.9 File Copying

The installation is now ready to continue click **Install** to start the file copying process.



BA0xxxxGEN_Installation_0005

The Next screen displays a progress bar indicating the progress of the file copying and installation. The contents will change illustrating system features.



BA0xxxxGEN_Installation_0006

Press the **Cancel** key at any time during this process to abort the installation.

5.10 Server Configuration

You must now specify what database to restore on your computer (see figure below), the choice will affect how much configuration you need to do after the installation has completed.

TaVi_NXA86_Installation_EN_039

5.10.1 Preconfigured databases

By default the installation includes sets of preconfigured databases which can be used to initialise the system. To use a pre-configured database, select the **Pre-configured Database** option and then choose the required database from the list. Typically this list will include an option for a **Blank Database** and one demo database.



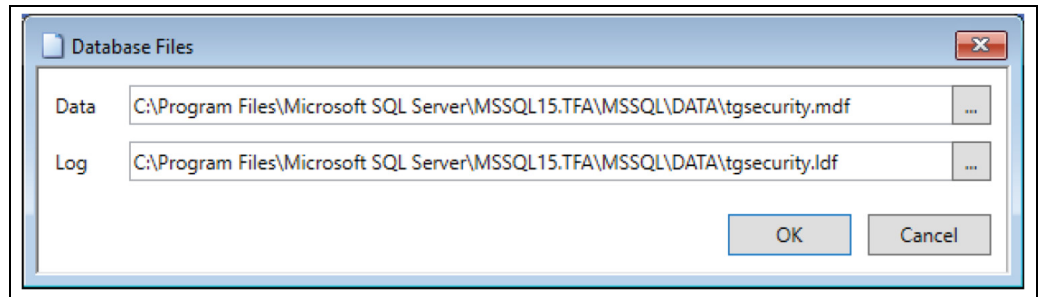
The **Blank Database** contains no initial configuration data and is suitable for starting a fresh site.

5.10.2 Existing backup

To restore a compressed backup taken from an earlier version of the software, select the **Existing Backup** option and enter the full filename of the backup. Alternatively, click the browse button [...] to the right of the corresponding field to select the backup file.

5.10.3 Database location

To change the location where the files for a database are stored, click on the browse button [...] to the right of the corresponding database name. A screen will be displayed allowing for entry of the new file locations:



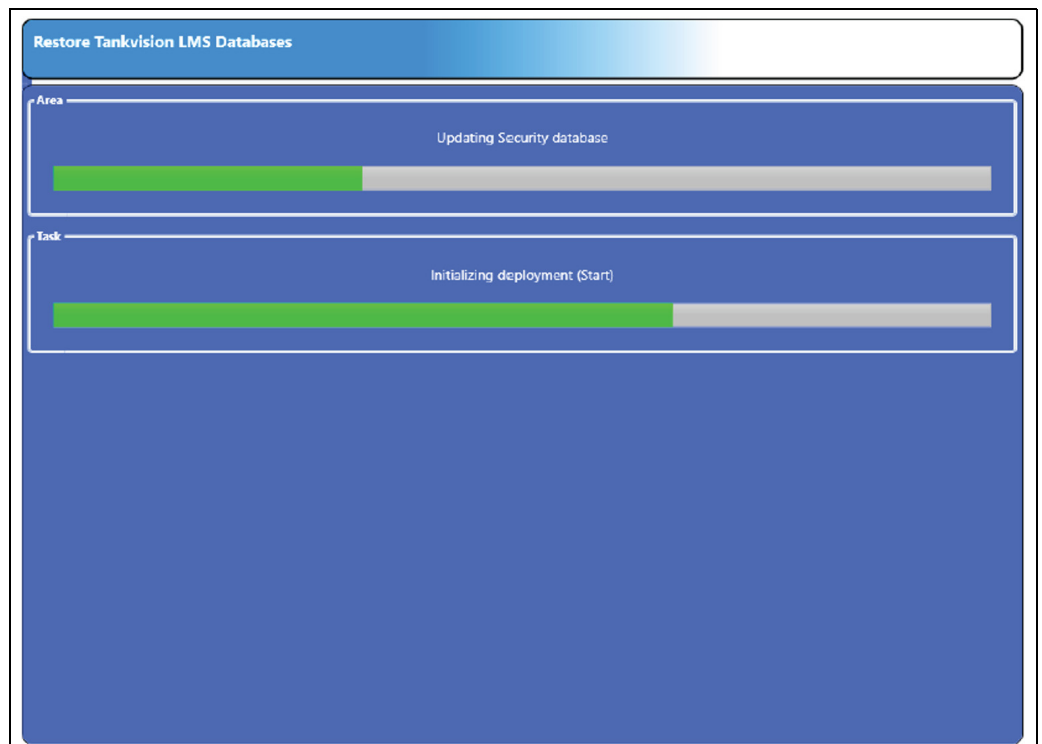
TeVi_NXS85_database_files

5.10.4 Configuration files

If an existing backup has been selected, then there is also the option to restore any configuration files that are contained in the backup. To select the configuration files to be restored, ensure that there is a tick next to the relevant configuration file.

5.10.5 Restore Databases/Files

To continue with the install, click on the **Restore** button. The selected databases and configuration files will be installed on the system. Whilst this is in progress the following screen will be displayed:



TaVi_NXA86_Installation_EN_042

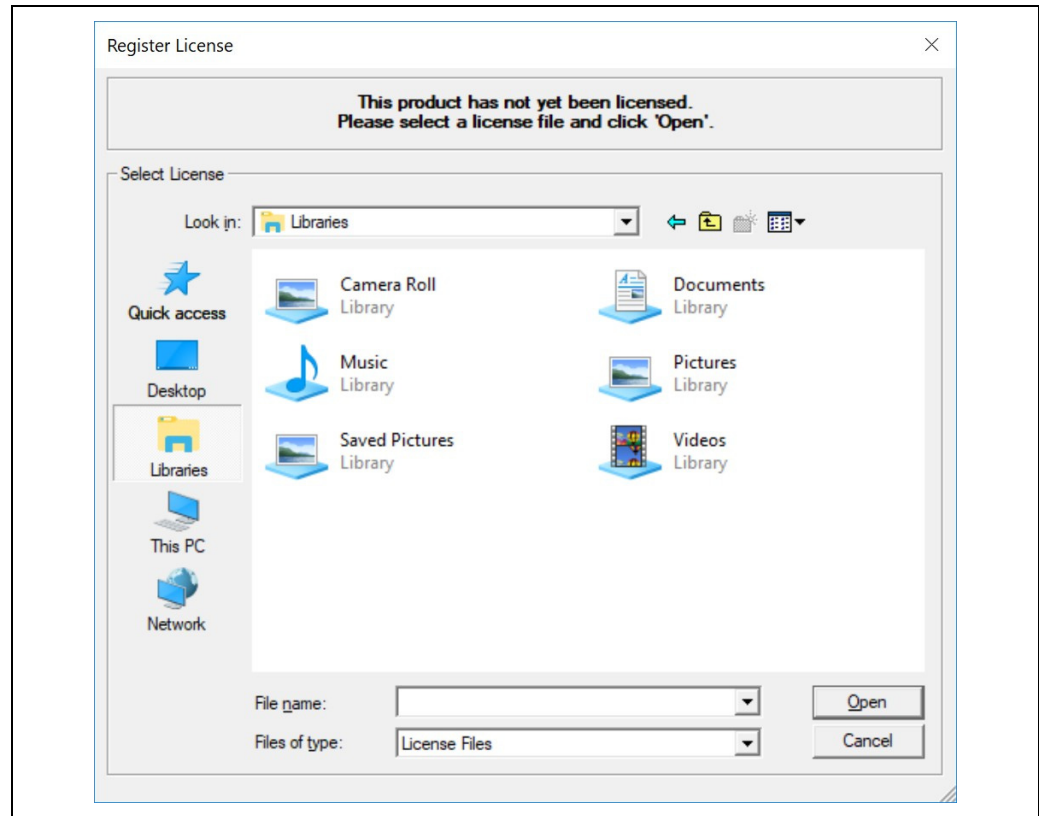
5.10.6 Enter the license

Next you are prompted to enter the tank gauging server license, if this installation was a "Server and Client" or "Server" type.

The license.xml file is generally provided on a CD but can be copied to any convenient location. The file contains encrypted information that will make the file invalid if it is edited.

Insert the Sentinel hardware key provided into one of your computer's USB ports and then browse to locate the license.xml file that contains your license details.

The license file will not work unless the key is present.



The license can be read from a shared network drive, a USB flash drive or a floppy disk.

Click **Open** to continue.

5.10.7 Set Administrator and Engineer Passwords

After restoring the database you must now provide a suitable password for the tank gauging administrator account. If you previously chose to install a pre-configured database, then the administrator account password will be reset by the value you enter here.

Tankvision LMS Setup
Reset Administrator and Engineer Passwords

ASP.NET Core Runtime
ASP.NET Core is an open source web framework for developing modern web applications
This package is sufficiently up to date.

Mathworks Matlab R2012b compiler runtime
The Mathworks Matlab R2012b compiler runtime
This package is sufficiently up to date.

Crystal Reports
The tank gauging package uses Crystal Reports to generate reports.
This package is sufficiently up to date.

OPC Core Components
The tank gauging package uses OPC to communicate with DCS systems.
This package is sufficiently up to date.

OPC UA Lds Components
The tank gauging package provides a local discovery service for OPC UA servers.
This package is sufficiently up to date.

Tank Farm Automation Core Components

Administrator
User Name: Administrator
Password:
Confirm Password:

Engineer
Password:
Confirm Password:

< Back Next > Cancel

BA0xxxxGEN_Installation_0007

Click **Next** to continue.

The Engineer Login feature is a response to the problems caused when the Administrator password to a system is lost or the account is deleted.

The engineer login differs from the other "normal" logins in that it can't be removed and you use a special login application to utilise it. On the Windows Start Menu you will find an entry **Engineer Login**. When you start this application, you will first be prompted for your Engineer password as shown below.

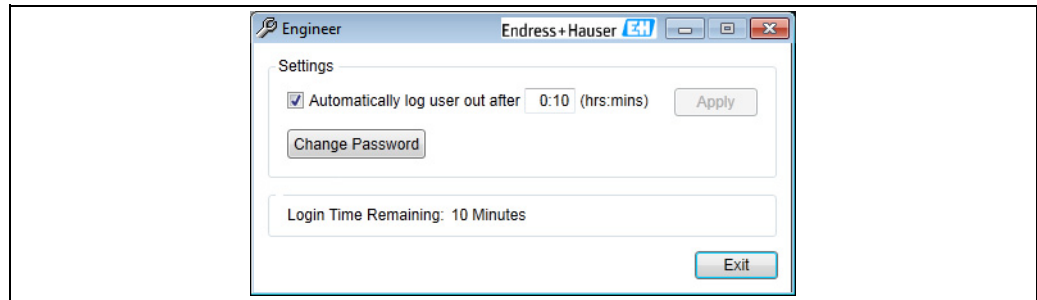
Engineer Login Endress+Hauser

Password:

OK Cancel

Terminalvision_Installation_EN_020

When you login through this window a second window appears, which you should leave open all the time you wish to remain logged in as the Engineer.



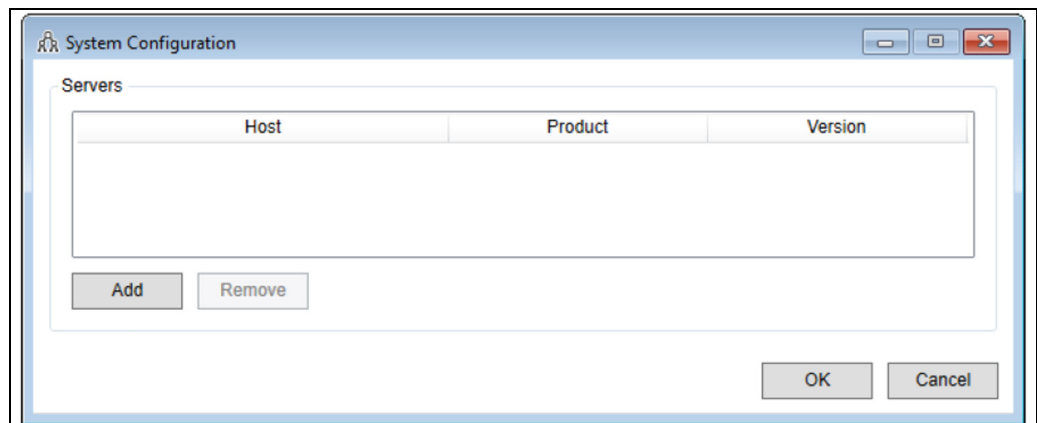
Terminalvision_Installation_EN_021

While this Window is open the security system is temporarily disabled so that you can reset the administrator account password, create new login accounts or change aspects of the system configuration. Exiting the application returns the system back to an unlogged in state.

Running this application will log out the current user and log in the engineer. The engineer always has full access rights to everything.

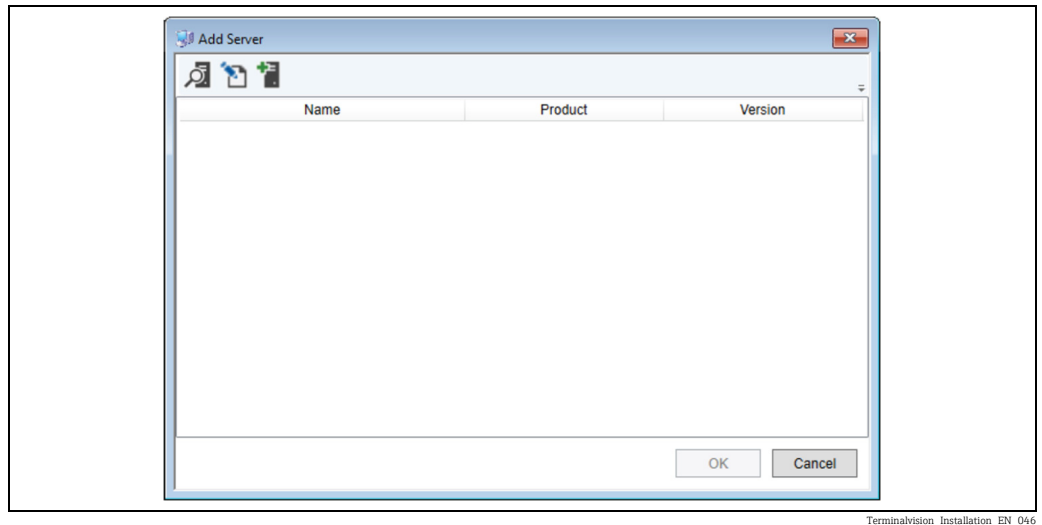
5.11 Client Configuration



If you selected a client-only install you will be presented with the **System Configuration** application in which to configure the connection to the server(s).

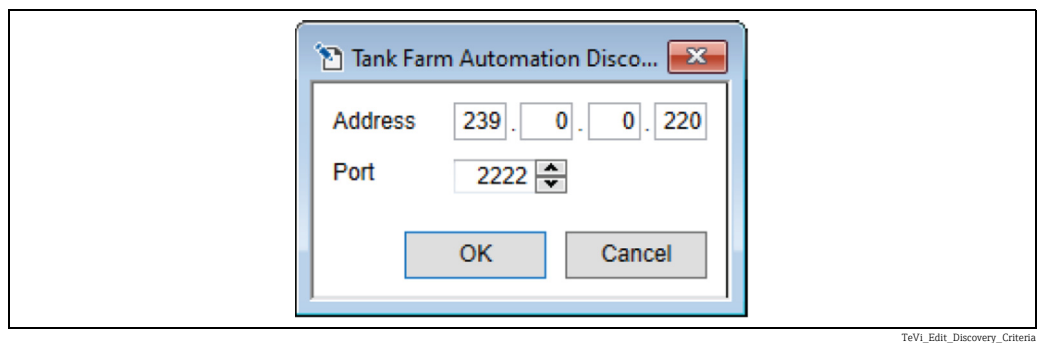



Terminalvision_Installation_EN_045

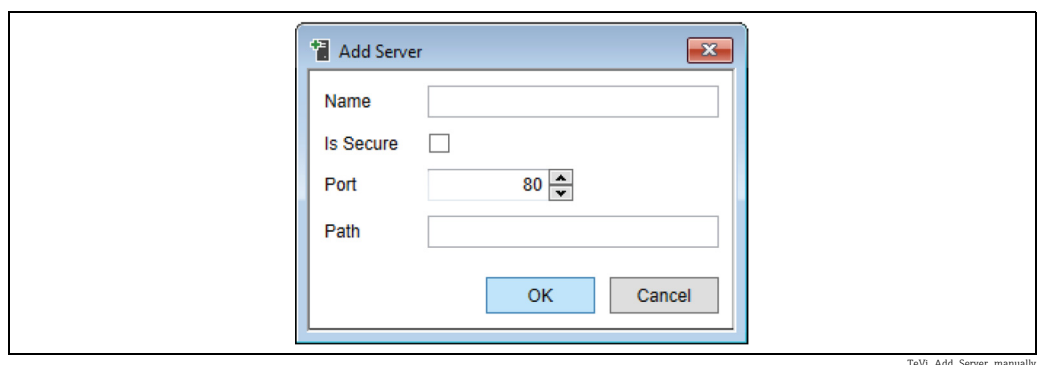
Upon clicking **Add** another screen will be displayed allowing you to choose the server(s) to be added:



All servers which have been automatically detected by the system will be listed. To refresh the list, click the Refresh () button. If the server has been configured to use an alternative discovery address, it will be necessary to edit the search criteria used for discovery. To do this, click the Edit Criteria button (). The following screen will be displayed:



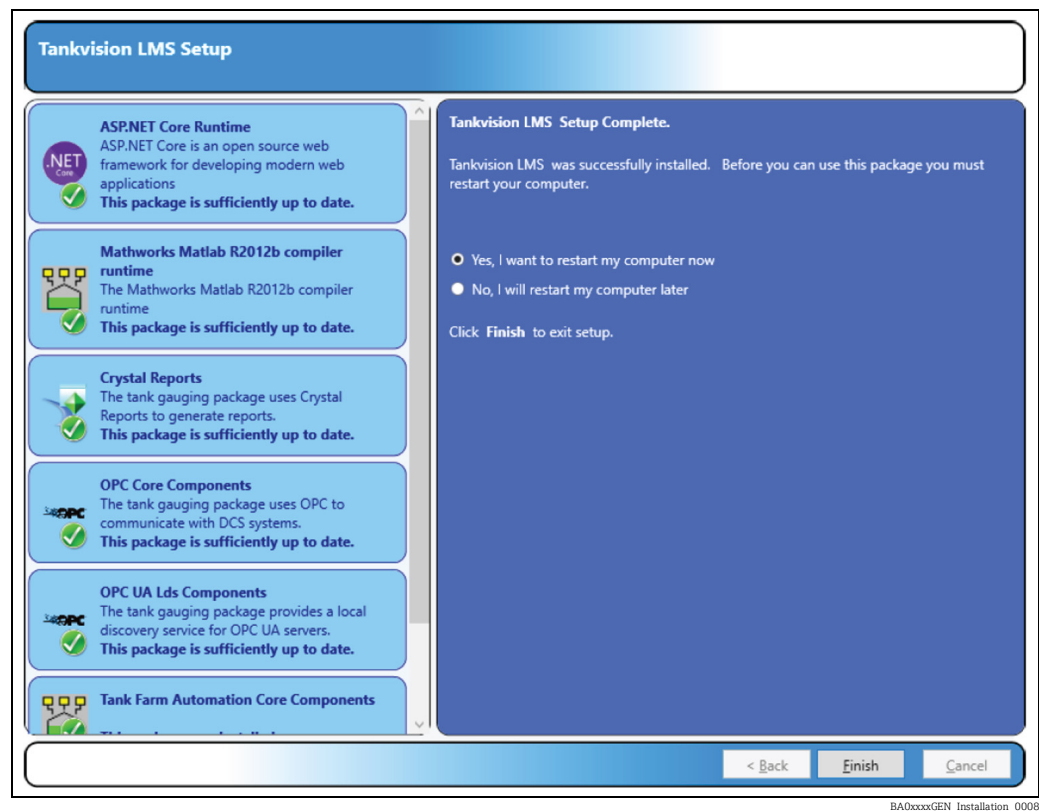
It is also possible to add a server manually. To do this, click the **Add Server** button (). The following screen will be displayed:



In most cases only the **Name** needs to be configured. The options **Is Secure**, **Port** and **Path** are for advanced configuration of the Olympus Service and can be left as preset.

5.12 Finishing the installation

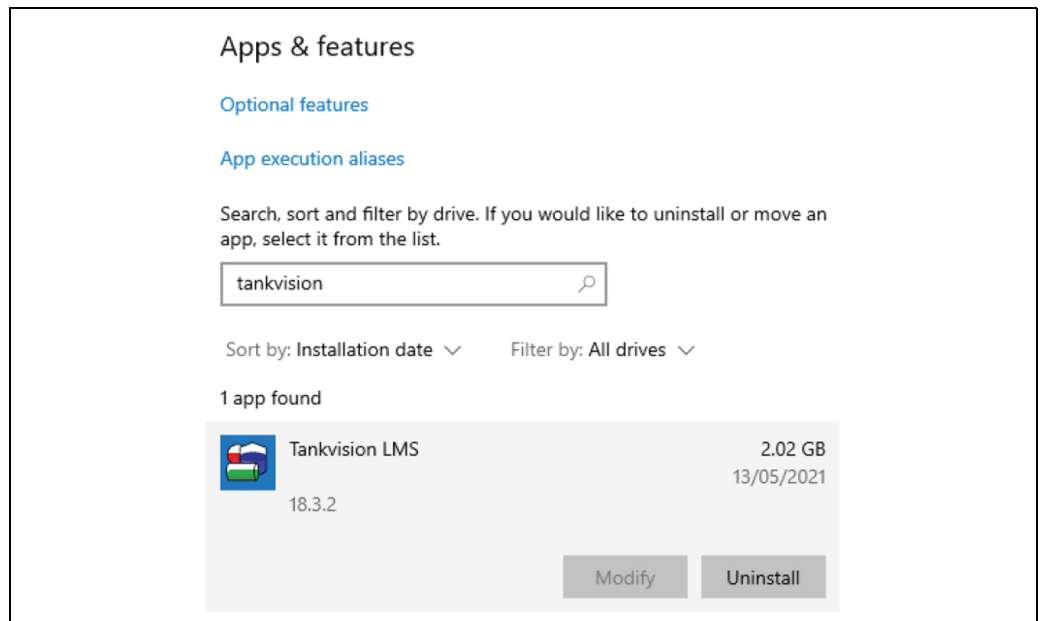
The installer will now complete the installation by installing some Windows services, which should take around 30 seconds and finally present you with a completion message.



Press the **Finish** button to continue with a reboot of your computer to complete the installation process.

6 Uninstall

The system is uninstalled via the standard Microsoft **Add or Remove Programs** section applicable for your version of Windows.

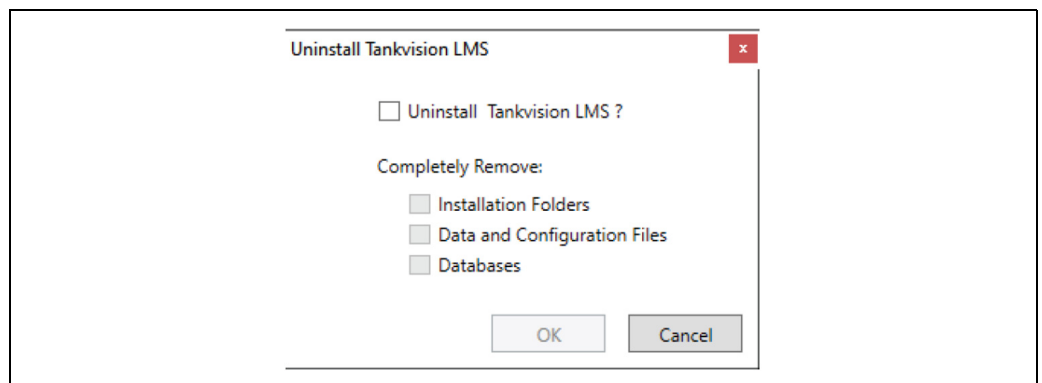


BA0xxxxGEN_Installation_0010



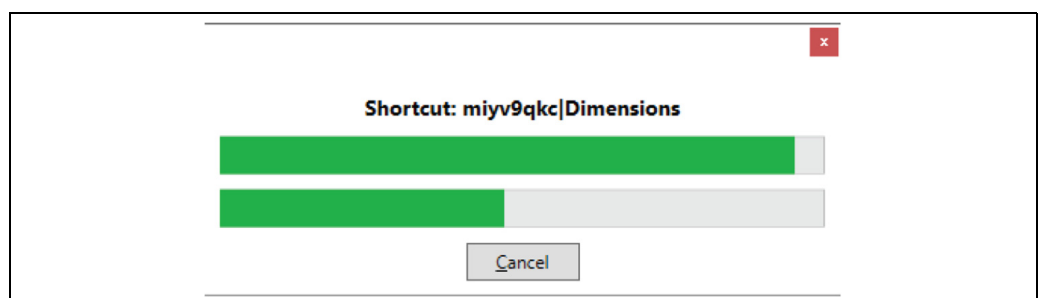
Make sure to take copies of any backups or files you may wish to restore later.

1. Select the parts of the product you would like to uninstall:



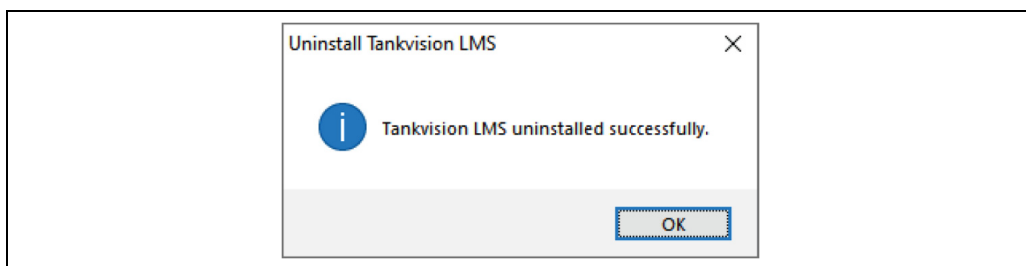
BA0xxxxGEN_Installation_0011

2. Select **Next**.
The progress bar will indicate the uninstallation process.



TaVt_NXA86_uninstall_progress

Once uninstall is complete, you will see the finish dialog.



BA0xxxxGEN_Installation_0012

3. Click **Finish**.
4. If the installed pre-requisites are to be removed, they must be uninstalled manually:
 - Microsoft SQL Server
 - OPC Core Components
 - SAP Crystal Reports
 - MATLAB Compiler runtime

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