

Generic Modbus DDXML Device Type Manager User Manual

04/2016

The information provided in this documentation contains general descriptions and/or technical characteristics of the performance of the products contained herein. This documentation is not intended as a substitute for and is not to be used for determining suitability or reliability of these products for specific user applications. It is the duty of any such user or integrator to perform the appropriate and complete risk analysis, evaluation and testing of the products with respect to the relevant specific application or use thereof. Neither Schneider Electric nor any of its affiliates or subsidiaries shall be responsible or liable for misuse of the information contained herein. If you have any suggestions for improvements or amendments or have found errors in this publication, please notify us.

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All pertinent state, regional, and local safety regulations must be observed when installing and using this product. For reasons of safety and to help ensure compliance with documented system data, only the manufacturer should perform repairs to components.

When devices are used for applications with technical safety requirements, the relevant instructions must be followed.

Failure to use Schneider Electric software or approved software with our hardware products may result in injury, harm, or improper operating results.

Failure to observe this information can result in injury or equipment damage.

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Important Information

NOTICE

Read these instructions carefully, and look at the equipment to become familiar with the device before trying to install, operate, or maintain it. The following special messages may appear throughout this documentation or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.



The addition of this symbol to a Danger safety label indicates that an electrical hazard exists, which will result in personal injury if the instructions are not followed.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

DANGER

DANGER indicates an imminently hazardous situation which, if not avoided, **will result in** death or serious injury.

WARNING

WARNING indicates a potentially hazardous situation which, if not avoided, **can result in** death or serious injury.

CAUTION

CAUTION indicates a potentially hazardous situation which, if not avoided, **can result in** minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to physical injury.

PLEASE NOTE

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

A qualified person is one who has skills and knowledge related to the construction and operation of electrical equipment and its installation, and has received safety training to recognize and avoid the hazards involved.

BEFORE YOU BEGIN

Do not use this product on machinery lacking effective point-of-operation guarding. Lack of effective point-of-operation guarding on a machine can result in serious injury to the operator of that machine.

WARNING

UNGUARDED MACHINERY CAN CAUSE SERIOUS INJURY

- Do not use this software and related automation equipment on equipment which does not have point-of-operation protection.
- Do not reach into machinery during operation.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

This automation equipment and related software is used to control a variety of industrial processes. The type or model of automation equipment suitable for each application will vary depending on factors such as the control function required, degree of protection required, production methods, unusual conditions, government regulations, etc. In some applications, more than one processor may be required, as when backup redundancy is needed.

Only the user can be aware of all the conditions and factors present during setup, operation, and maintenance of the machine; therefore, only the user can determine the automation equipment and the related safeties and interlocks which can be properly used. When selecting automation and control equipment and related software for a particular application, the user should refer to the applicable local and national standards and regulations. The National Safety Council's Accident Prevention Manual (nationally recognized in the United States of America) also provides much useful information.

In some applications, such as packaging machinery, additional operator protection such as point-of-operation guarding must be provided. This is necessary if the operator's hands and other parts of the body are free to enter the pinch points or other hazardous areas and serious injury can occur. Software products alone cannot protect an operator from injury. For this reason the software cannot be substituted for or take the place of point-of-operation protection.

Ensure that appropriate safeties and mechanical/electrical interlocks related to point-of-operation protection have been installed and are operational before placing the equipment into service. All interlocks and safeties related to point-of-operation protection must be coordinated with the related automation equipment and software programming.

NOTE: Coordination of safeties and mechanical/electrical interlocks for point-of-operation protection is outside the scope of the Function Block Library, System User Guide, or other implementation referenced in this documentation.

START-UP AND TEST

Before using electrical control and automation equipment for regular operation after installation, the system should be given a start-up test by qualified personnel to verify correct operation of the equipment. It is important that arrangements for such a check be made and that enough time is allowed to perform complete and satisfactory testing.

CAUTION

EQUIPMENT OPERATION HAZARD

- Verify that all installation and set up procedures have been completed.
- Before operational tests are performed, remove all blocks or other temporary holding means used for shipment from all component devices.
- Remove tools, meters, and debris from equipment.

Failure to follow these instructions can result in injury or equipment damage.

Follow all start-up tests recommended in the equipment documentation. Store all equipment documentation for future references.

Software testing must be done in both simulated and real environments.

Verify that the completed system is free from all short circuits and grounds that are not installed according to local regulations (according to the National Electrical Code in the U.S.A, for instance). If high-potential voltage testing is necessary, follow recommendations in equipment documentation to prevent accidental equipment damage.

Before energizing equipment:

- Remove tools, meters, and debris from equipment.
- Close the equipment enclosure door.

-
- Remove all temporary grounds from incoming power lines.
 - Perform all start-up tests recommended by the manufacturer.

OPERATION AND ADJUSTMENTS

The following precautions are from the NEMA Standards Publication ICS 7.1-1995 (English version prevails):

- Regardless of the care exercised in the design and manufacture of equipment or in the selection and ratings of components, there are hazards that can be encountered if such equipment is improperly operated.
- It is sometimes possible to misadjust the equipment and thus produce unsatisfactory or unsafe operation. Always use the manufacturer's instructions as a guide for functional adjustments. Personnel who have access to these adjustments should be familiar with the equipment manufacturer's instructions and the machinery used with the electrical equipment.
- Only those operational adjustments actually required by the operator should be accessible to the operator. Access to other controls should be restricted to prevent unauthorized changes in operating characteristics.

About the Book



At a Glance

Document Scope

The user manual describes the functions of the Generic Modbus DDXML Device Type Manager and how to use the Generic Modbus DDXML Device Type Manager to configure the device which supports Modbus Serial Line or Modbus TCP protocol.

Validity Note

This document is valid for Generic Modbus DDXML Device Type Manager.

Chapter 1

General Description

Overview

This chapter describes the general information of Generic Modbus DDXML Device Type Manager.

What Is in This Chapter?

This chapter contains the following topics:

Topic	Page
Introduction of Generic Modbus DDXML Device Type Manager	12
Architecture	14

Introduction of Generic Modbus DDXML Device Type Manager

Introduction

A DTM is dedicated to one specific device type or a device family. The Generic Modbus DDXML Device Type Manager is not a DTM specific to one device or device family. The functions and Graphical User Interface (GUI) are implemented in a universal way. This allows the DTM to be used with any device which supports Modbus Serial or Modbus TCP protocols having corresponding DDXML profile.

The Generic Modbus DDXML Device Type Manager uses DDXML as their device description format. The Generic Modbus DDXML Device Type Manager is a single DTM which generates device types for many devices. The Generic Modbus DDXML Device Type Manager generates its device type at runtime using pre-configured DDXML files. The device type is generated only if the DDXML is in conformity with the schemas defined by DDXML specification. Each device type will represent only one device. Device types are created for each device in the device catalog of FDT Frame Application. The Generic Modbus DDXML Device Type Manager is based on FDT 1.2.1 standard.

NOTE: The Generic Modbus DDXML Device Type Manager supports Little-Endian data format.

NOTE: This DTM provides limited functionalities and features to standard DDXML profiles and provides device-specific functionalities for pre-installed DDXML profiles.

DDXML Description

DDXML is a standard description for identification, functional attributes, structural and communication parameters of a device. It enables a device to support its integration within a system, diagnostics and calibration, DTM generations, and configuration.

DDXML complies to ISO - 15745 (Industrial Automation Standard) and is similar to EDDL. Electronic Device Description Language (EDDL) technology is used by major manufacturers to describe the information that is accessible in digital devices. Electronic device descriptions are available for many millions of devices that are currently installed in the process industry. The technology is used by the major process control systems and maintenance tool suppliers to support device diagnostics and calibration.

Features of Generic Modbus DDXML Device Type Manager

The Generic Modbus DDXML Device Type Manager provides the following features:

- Display identification information of a device
- Online monitoring of device parameters
- Online and Offline configuration of device parameters
- Load device parameter configuration from device
- Store device parameter configuration to device
- Device auto discovery

Limitations of Generic Modbus DDXML Device Type Manager

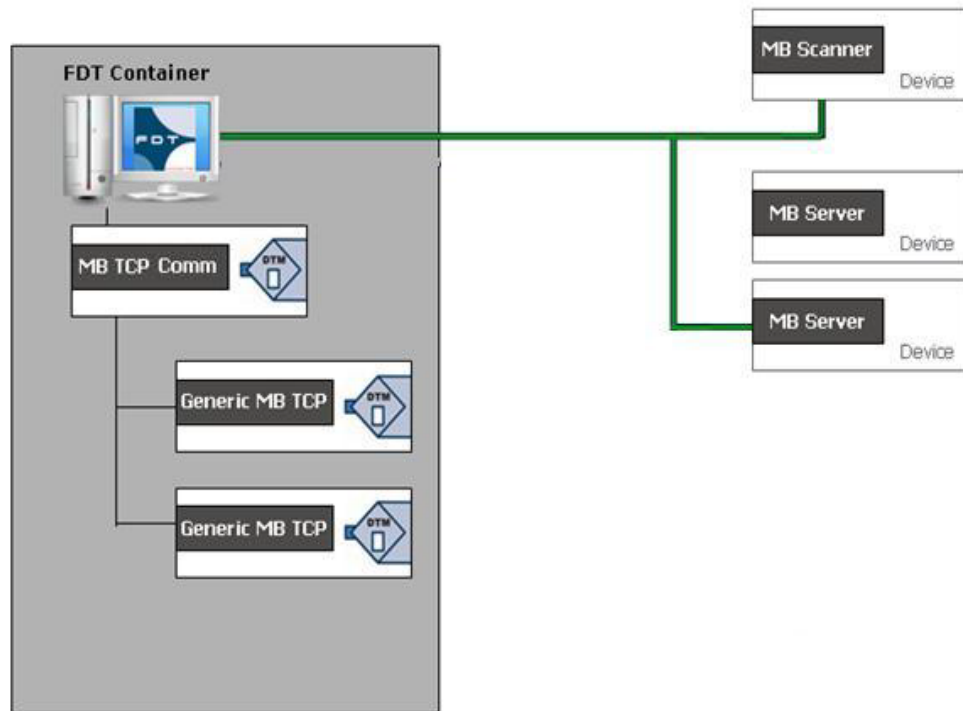
The limitations of Generic Modbus DDXML Device Type Manager are as follows:

- Loss of connection can also be detected when performing an online action, loading data from a device or storing data to a device.
The DTM will show a message for communication time out if the data transfer could not be completed.
- When installing a new version of an existing DDXML profile, you have to delete all impacted DTM instances created with previous profiles and re-create them in order to activate the modifications.

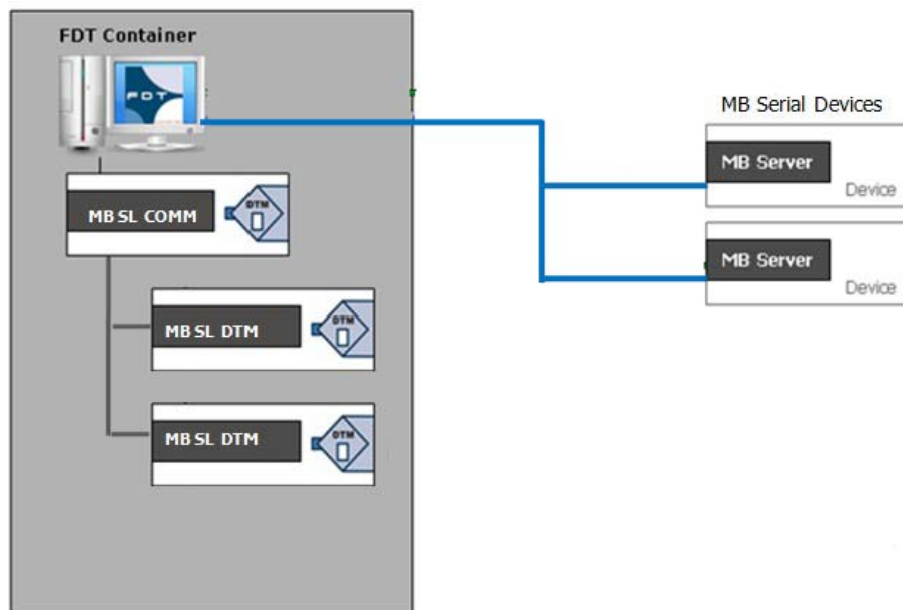
System View

The Generic Modbus DDXML Device Type Manager can be used with devices which support Modbus Serial Line and Modbus TCP protocol.

The following figure shows the usage of the Generic Modbus DDXML Device Type Manager when used along with the Modbus TCP Communication DTM which supports Modbus TCP channels:



The following figure shows the usage of the Generic Modbus DDXML Device Type Manager when used along with the Modbus Serial Line Communication DTM which supports Modbus Serial Line channels:



Architecture

Description

FDT/DTM (Field Device Tool/Device Type Manager) is a technology which allows easier device integration. FDT provides a common environment for accessing the devices sophisticated features. Any device can be configured, operated, and maintained through the standardized user interface – regardless of supplier, type or communication protocol.

FDT technology standardizes the communication interface between field device and the system. FDT is independent of:

- The communication protocol
- The software environment of either the device or the host system

FDT technology delivers value in configuration, engineering task, commissioning and asset management.

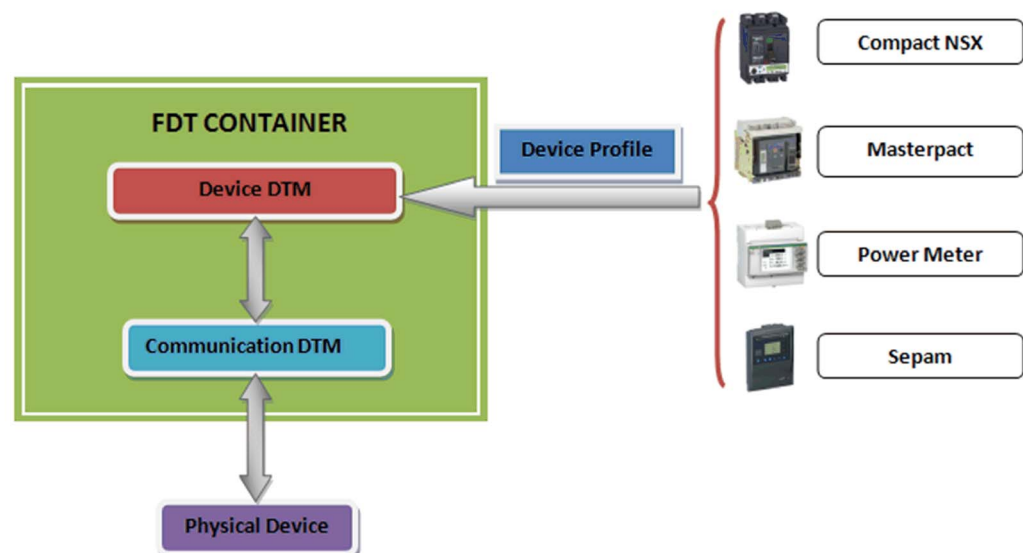
The main characteristics of this technology are:

- The possibility to integrate our device in the third-party FDT containers
- Acts as a tool for easy updates of device parameters

The DTM provides a unified structure for accessing device parameters, configuring and operating the devices. DTM's can range from a simple Graphical User Interface for setting device parameters to a highly sophisticated application capable of performing complex real-time calculations for diagnosis and maintenance purposes.

FDT/DTM Architecture

The following figure shows the architecture of FDT/DTM for Generic Modbus communication:



Chapter 2

Installation and Uninstallation

Overview

This chapter explains how to install and uninstall Generic Modbus DDXML Device Type Manager.

What Is in This Chapter?

This chapter contains the following topics:

Topic	Page
System Requirements	16
Installation Procedure of the Generic Modbus DDXML Device Type Manager	17
Uninstallation Procedure of the Generic Modbus DDXML Device Type Manager	21

System Requirements

Hardware Requirement

The hardware requirements for installing the Generic Modbus DDXML Device Type Manager are:

Requirement	Minimum	Recomended
Processor	Intel Pentium single core or compatible platforms with 1 GHz	Intel core 2 duo processor with processor speed higher than 1 GHz
Disk space	100 Megabyte	Higher than 100 Megabyte
RAM	1 Gigabyte	Higher than 1 Gigabyte

Software Requirements

The Generic Modbus DDXML Device Type Manager can be installed in the following operating system mentioned in the below table:

Operating System	Edition/Service Pack
Windows 7 32-Bit	Professional/Ultimate/Enterprise Edition
Windows 7 64-Bit	Professional/Ultimate/Enterprise Edition
Windows 8 32-Bit	Professional
Windows 8 64-Bit	Professional
Windows 8.1 32-Bit	Professional
Windows 8.1 64-Bit	Professional

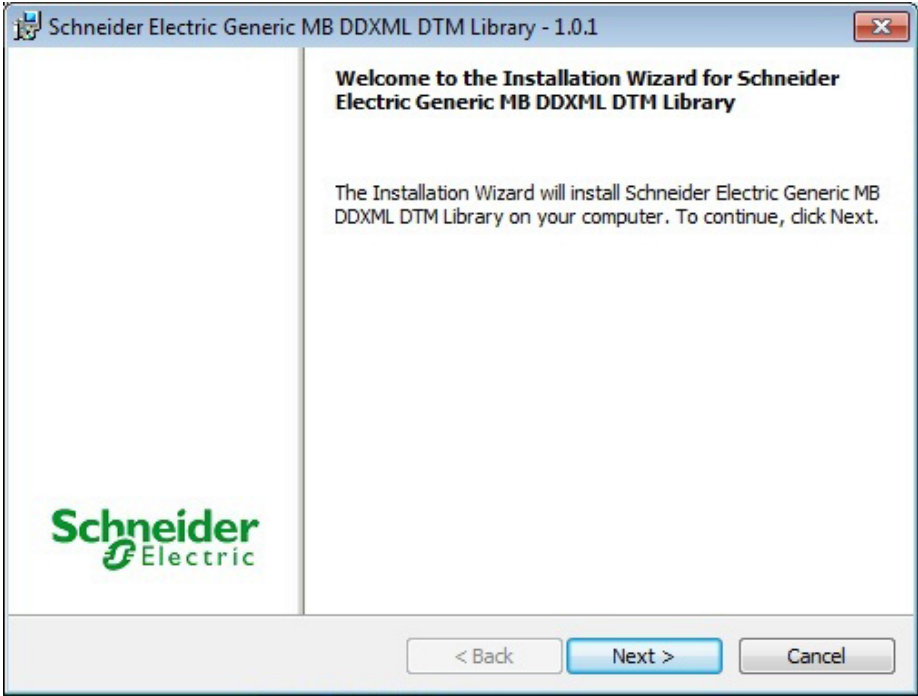
The software that needs to be installed is:

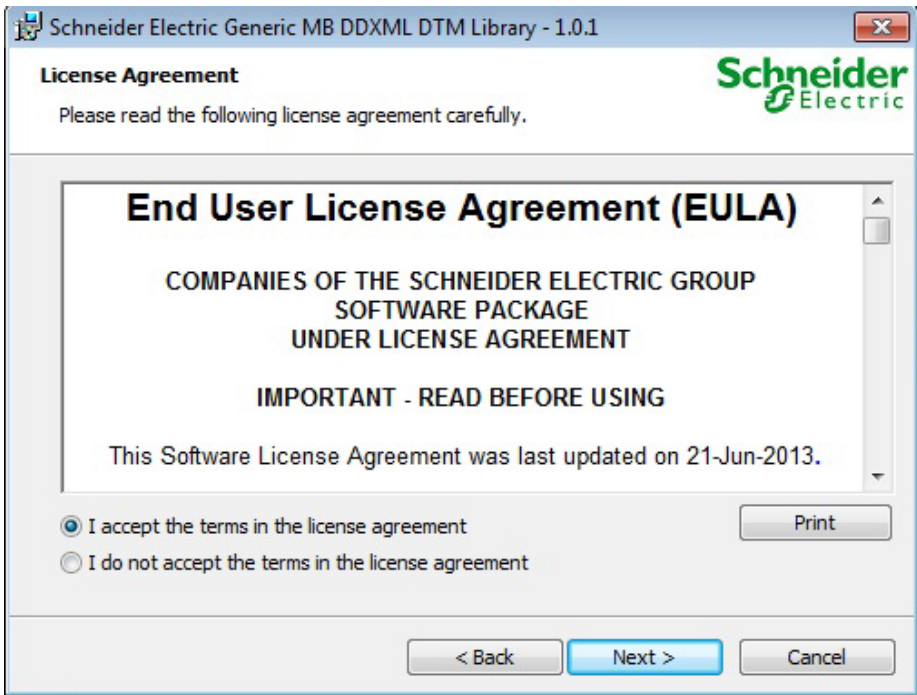
Software	Edition
Microsoft .NET Framework	V3.5 SP1
Unity Pro	V8.1
Psx DTM Library	V2.5.14

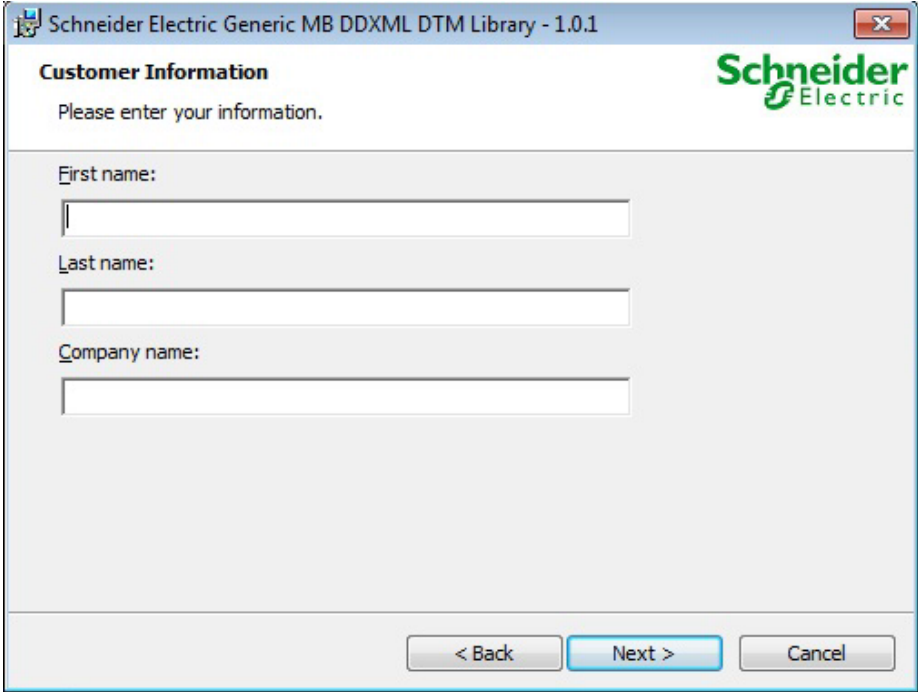
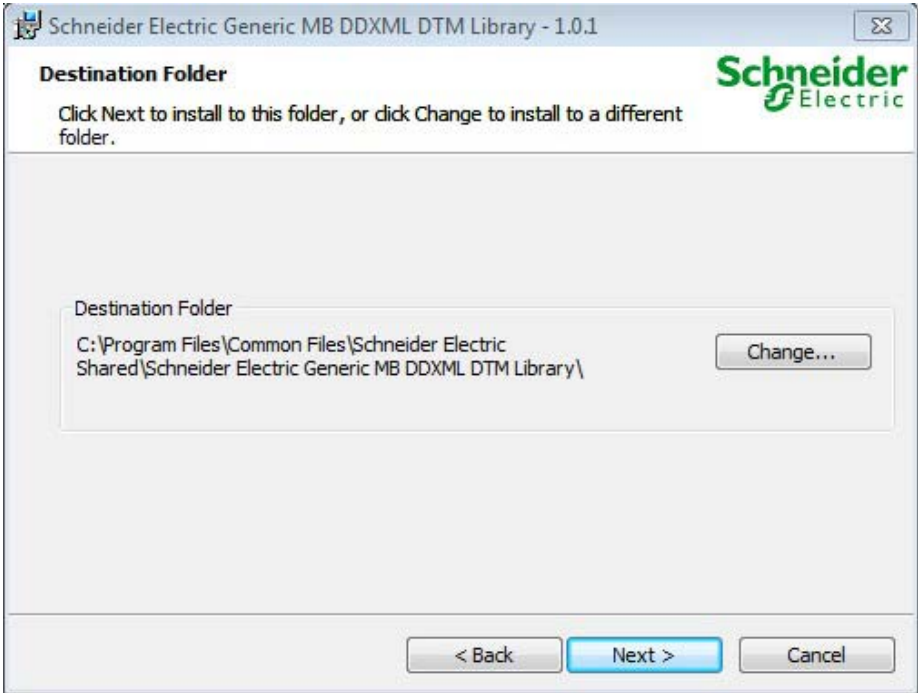
Installation Procedure of the Generic Modbus DDXML Device Type Manager

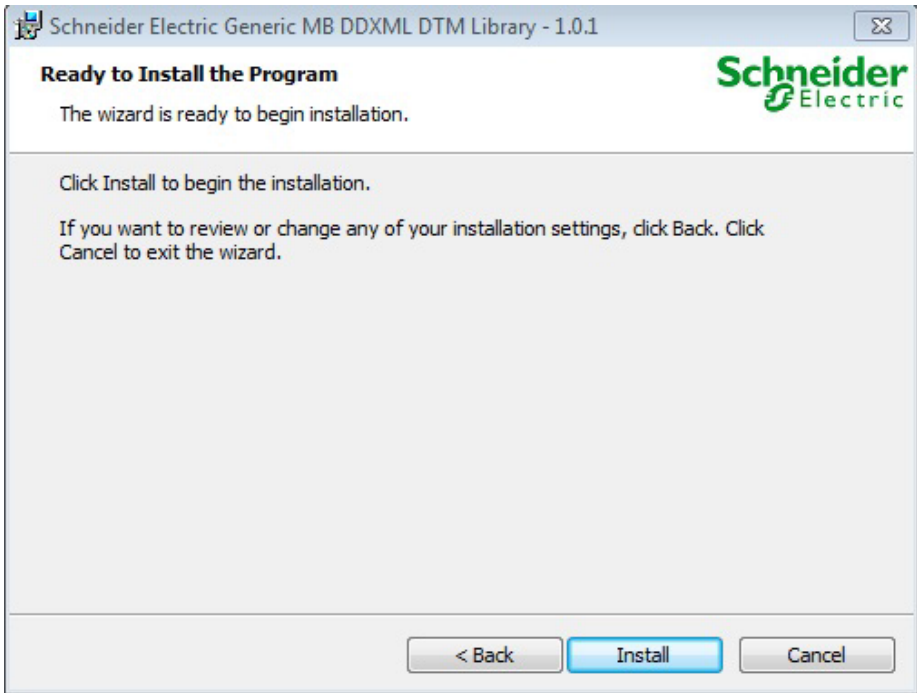
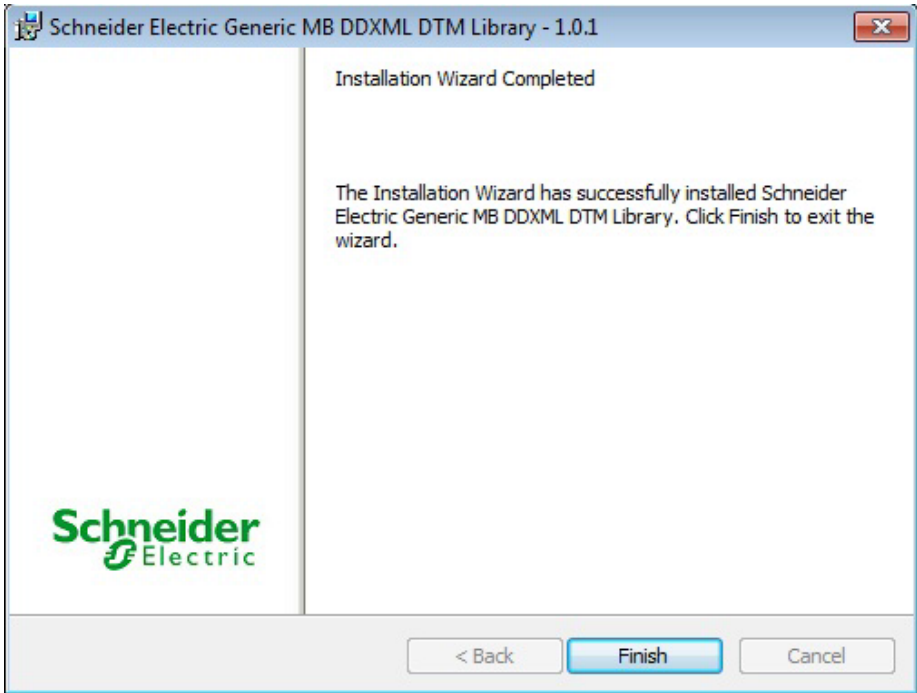
Installing the Generic Modbus DDXML Device Type Manager

The below table shows the steps to install the Generic Modbus DDXML Device Type Manager:

Step	Action
1	Double-click the <i>Schneider Electric Generic MB DDXML DTM Library.exe</i> file.
2	Click Next . 

Step	Action
3	<p>Read the End User License Agreement (EULA) carefully. If you agree the terms in the license agreement, select I accept the terms in the license agreement in the License Agreement dialog box, and then click Next.</p>  <p>NOTE: If you do not agree the terms in the license agreement, select I do not accept the terms in the license agreement in the License Agreement dialog box, and then click Cancel to cancel the installation.</p> <p>NOTE: When you click I do not accept the terms in the license agreement the Next button will be unavailable.</p>

Step	Action
4	<p>Enter the First name, Last name, and Company name in the Customer Information dialog box, and then click Next.</p> <p>The below list describes the fields in the Customer Information dialog box:</p> <ul style="list-style-type: none"> • First name - field to enter your first name • Second name - field to enter your second name • Company name - field to enter your company name 
5	<p>Click Next in the Destination Folder dialog box.</p>  <p>NOTE: The Destination Folder gives the default directory where the installation files will be stored. To change the default directory click Change in the Destination Folder dialog box and then select the desired directory.</p>

Step	Action
6	<p>Click Install in the Ready to Install the Program dialog box.</p>  <p>NOTE: The Ready to Install the Program dialog box appears when you complete the installation settings. If you want to review or change your installation settings, click Back.</p>
7	<p>Click Finish to complete the installation process.</p> 

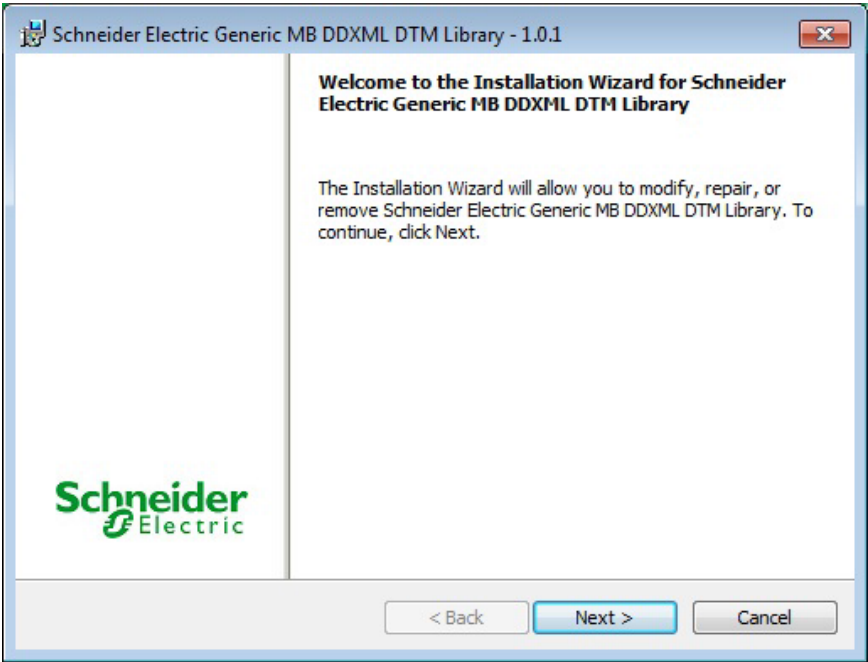
NOTE: If you want to quit the installation process at any point during the installation, click **Cancel**, and then click **Yes**.

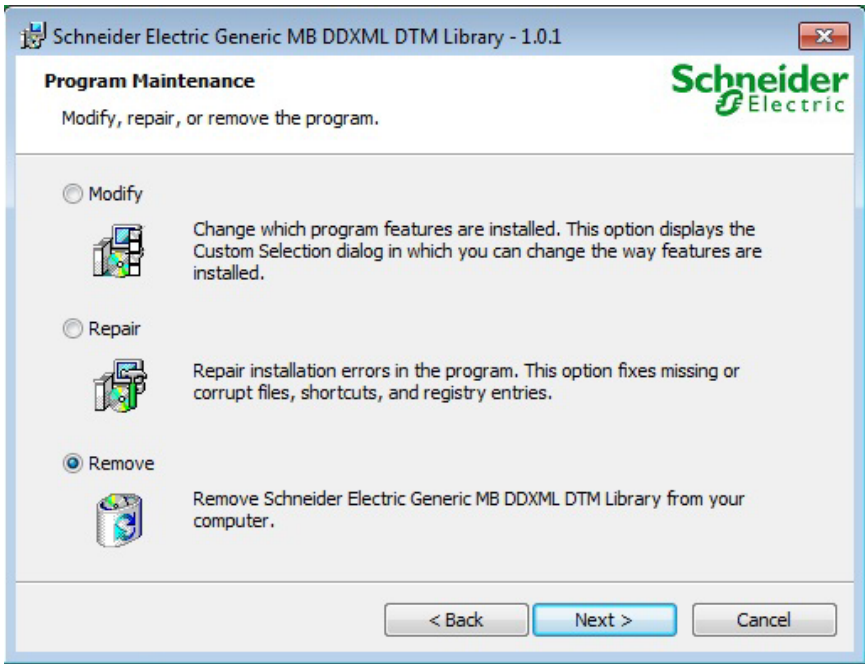
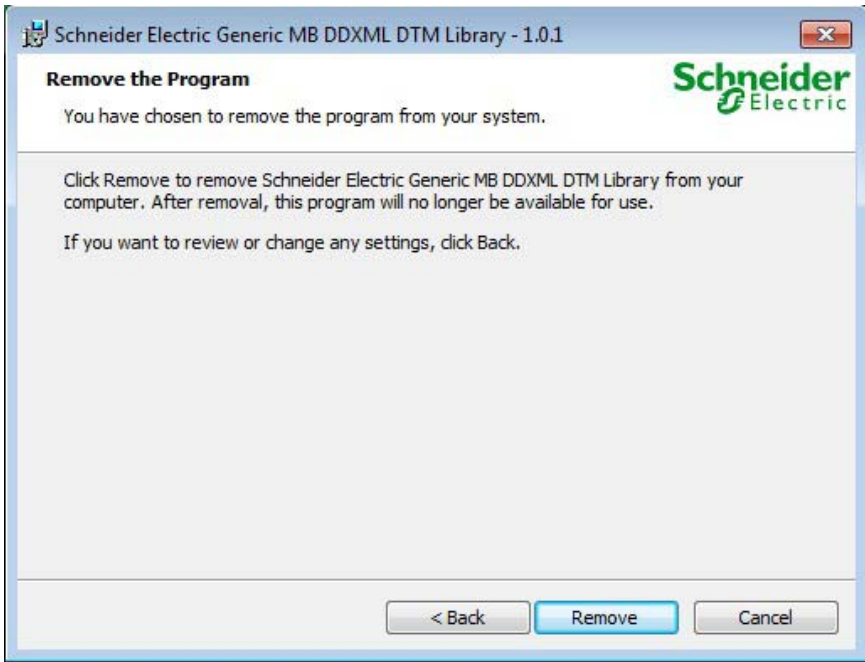
NOTE: After installing a new version of the DTM, you have to delete all impacted DTM instances, which had been created with the previous version of the DTM, from your application and re-create them in order to activate the modifications. Refer to Limitations of Generic Modbus DDXML Device Type Manager ([see page 12](#)).

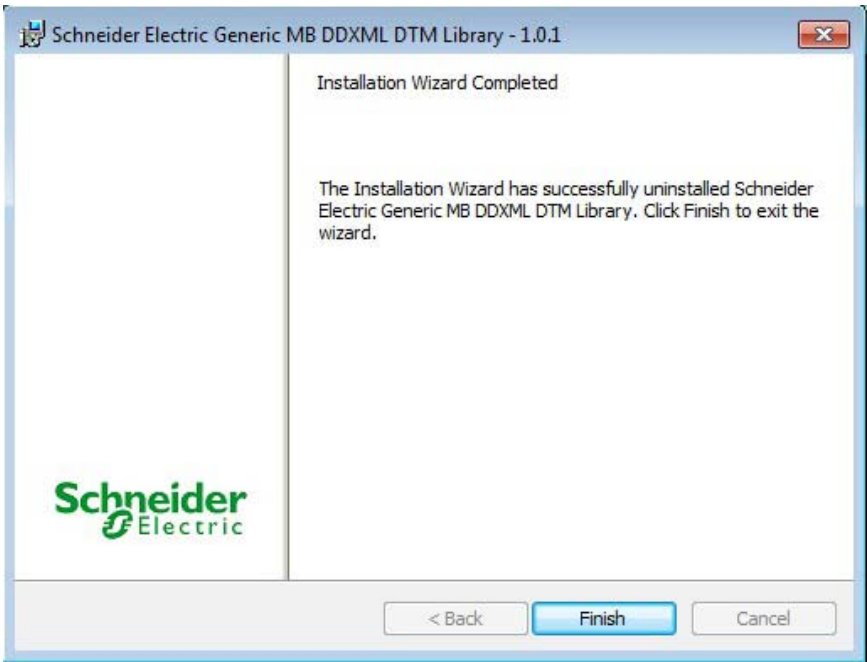
Uninstallation Procedure of the Generic Modbus DDXML Device Type Manager

Uninstallation of the Generic Modbus DDXML Device Type Manager

The below table shows the steps to uninstall the Generic Modbus DDXML Device Type Manager:

Step	Action
1	Click Start → Settings → Control Panel .
2	Double-click Add or Remove Programs .
3	In the Currently installed programs list, double-click Schneider Electric Generic MB DDXML DTM Library .
4	Click Next . 

Step	Action
5	<p>Click Remove, and then click Next in the Program Maintenance dialog box.</p>  <p>NOTE: Click Modify, and then select Next to modify the features.</p> <p>NOTE: Click Repair, and then click Next to replace corrupted files and reinstall missing files, shortcuts, and registry entries.</p>
6	<p>Click Remove in the Remove the Program dialog box.</p> 

Step	Action
7	<p>Click Finish to complete the uninstallation process.</p> 

NOTE: If you want to quit the uninstallation process at any point during the uninstallation, click **Cancel**, and then click **Yes**.

NOTE: If you want to go back to the previous page at any point during the uninstallation, click **Back**.

Chapter 3

Configuration with FDT Container

Overview

This chapter explains the catalog update and project creation for generic device DDXML Device Type Manager library.

What Is in This Chapter?

This chapter contains the following topics:

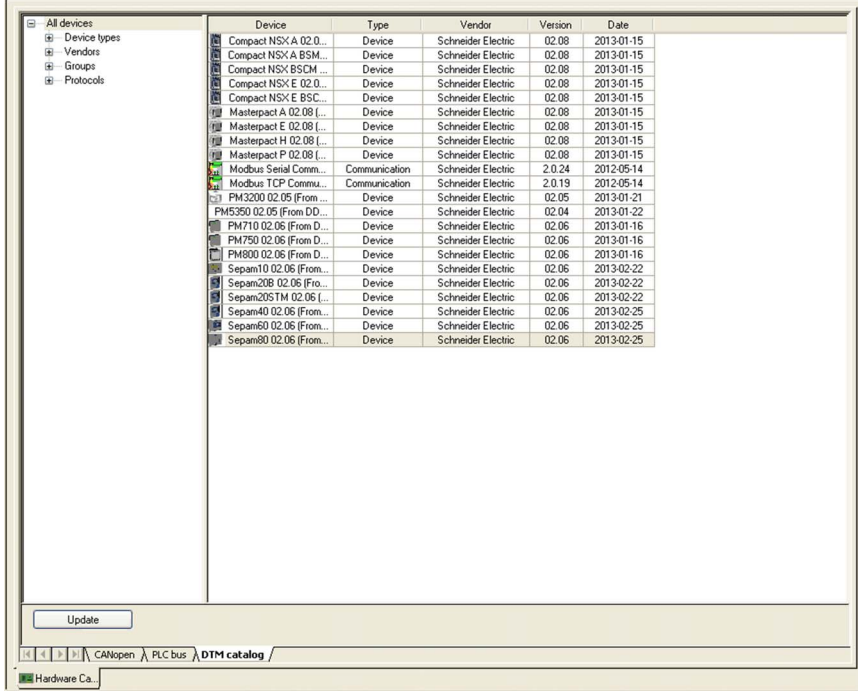
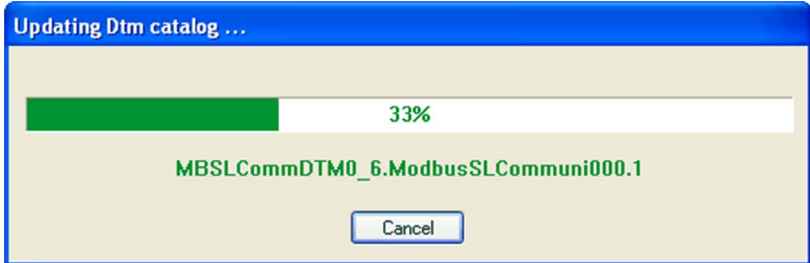
Topic	Page
Catalog Update	26
Supported Device Types	27
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Catalog Update

Description

After the addition of Generic Modbus DDXML Device Type Manager the DTM hardware catalog needs to be updated. The **Hardware Catalog** dialog box shows the devices that can be managed with the installed DTMs in a tree view. The **Hardware Catalog** provides access to DTM information such as version, date, and vendor. Each device DTM from the DDXML is an instance of the Modbus generic DTM for a specific device profile.

The below table shows the steps to update the **Hardware Catalog**:

Step	Action
1	Launch the FDT Frame Application.
2	On the Tools menu of your FDT Frame Application, click Hardware Catalog . Result: The Hardware Catalog window will appear.
3	Select the DTM catalog tab in the Hardware Catalog window. Result: The DTM catalog tab will appear. 
4	Click Update in the DTM catalog tab. Result: The Updating DTM catalog dialog box will appear.  NOTE: The hardware catalog update operation may take some time depending on the installed DTMs and the configuration of the computer you are running the application on. To stop the update operation, click Cancel .
5	Once the update operation is complete, verify that the Hardware Catalog dialog box displays the device in the list for the installed DTMs.

Supported Device Types

Description

The DTM supports device types that communicate through Modbus Serial or Modbus TCP protocol. The DTM supports deprecated device types that may not be used for new configuration creation.

The following device types are supported by Generic Modbus DDXML DTM:

Sl. No.	Device Type	Protocol Supported	Deprecated
1	Masterpact_P_IFM 02.22	Modbus Serial	–
2	Masterpact_P_BCM 02.22	Modbus Serial	–
3	Masterpact_H_IFM 02.22	Modbus Serial	–
4	Masterpact_H_BCM 02.22	Modbus Serial	–
5	Masterpact_E_IFM 02.22	Modbus Serial	–
6	Masterpact_E_BCM 02.22	Modbus Serial	–
7	Masterpact_A_IFM 02.22	Modbus Serial	–
8	Masterpact_A_BCM 02.22	Modbus Serial	–
9	Masterpact_A 02.13	Modbus Serial	YES
10	Masterpact_H 02.13	Modbus Serial	YES
11	Masterpact_P 02.13	Modbus Serial	YES
12	Masterpact_E 02.13	Modbus Serial	YES
13	CompactNSX_A 02.12	Modbus Serial	YES
14	CompactNSX_E 02.12	Modbus Serial	YES
15	CompactNSX_A_IFM 02.22	Modbus Serial	–
16	CompactNSX_E_IFM 02.22	Modbus Serial	–
17	Masterpact_P_IFE 02.22	Modbus TCP	–
18	Masterpact_H_IFE 02.22	Modbus TCP	–
19	Masterpact_E_IFE 02.22	Modbus TCP	–
20	Masterpact_A_IFE 02.22	Modbus TCP	–
21	CompactNSX_A_IFE 02.22	Modbus TCP	–
22	CompactNSX_E_IFE 02.22	Modbus TCP	–
23	Sepam10 02.08	Modbus Serial	–
24	Sepam20B 02.08	Modbus Serial	–
25	Sepam20STM 02.08	Modbus Serial	–
26	Sepam40 02.08	Modbus Serial or Modbus TCP	–
27	Sepam60 02.08	Modbus Serial or Modbus TCP	–
28	Sepam80 02.08	Modbus Serial or Modbus TCP	–

The Device type name displayed in the FDT device catalog is in the following format:

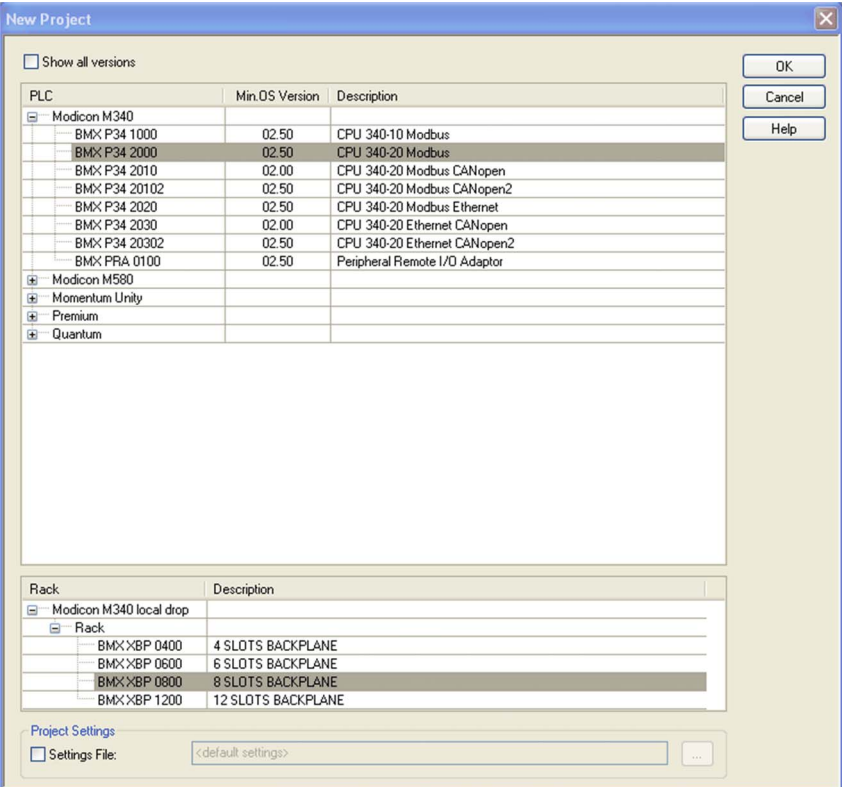
- Product ID + Profile version
For example, Sepam80 02.08 where, Sepam80 is the product ID and 02.08 is the profile version.
- Product ID + Firmware version + File version
For example, Sepam80 0501 02.08 where, Sepam80 is the product ID, 0501 is the firmware version, and 02.08 is the profile version.


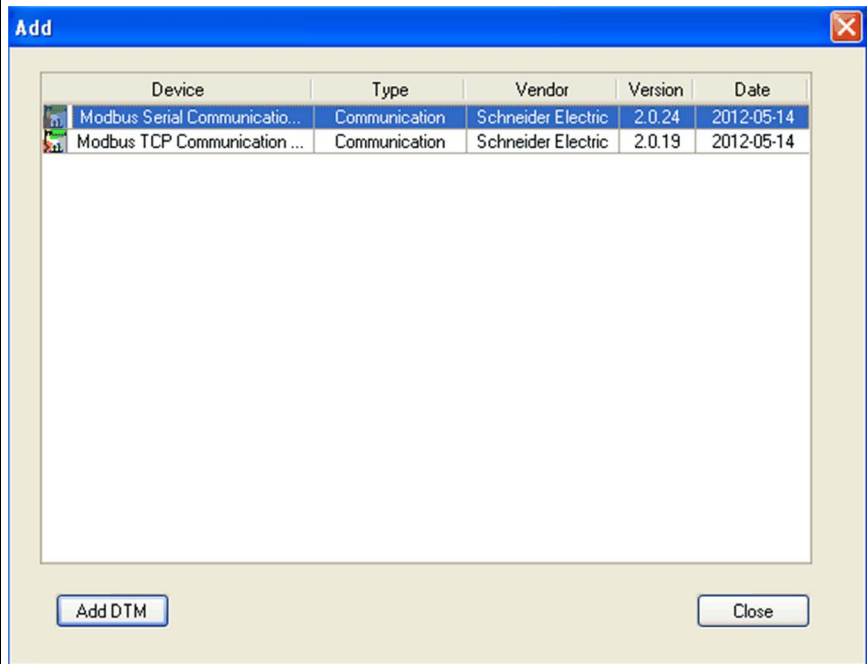
NOTE: The firmware and profile version is defined in XX.YY format where, XX is the major version and YY is the minor version.

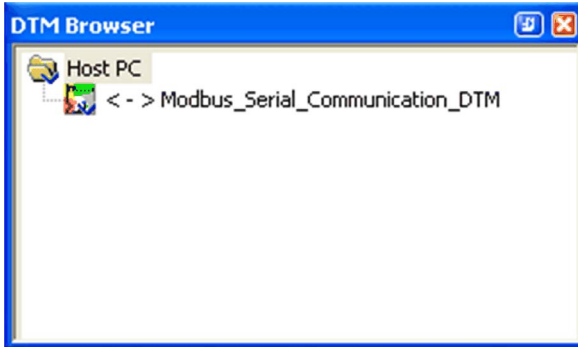
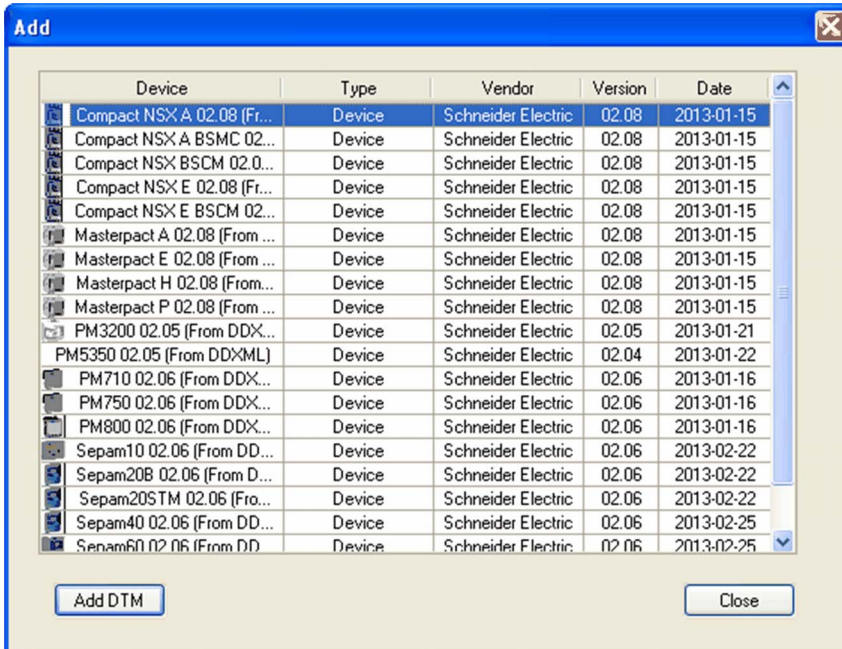
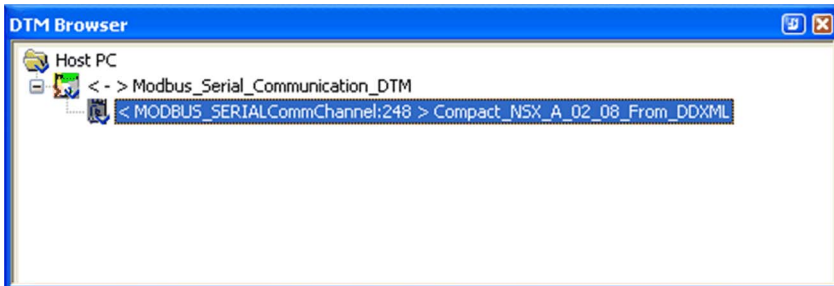
Project Creation

Addition of Device DTM in the DTM Browser

The below table shows the steps to create a project and access the offline screen:

Step	Action
1	<p>Launch the FDT Frame Application, and then click New on the File menu. Result: The New Project dialog box will appear on the FDT Frame Application.</p> 
2	<p>Select the PLC device in the New Project dialog box, and then click OK.</p>

Step	Action															
3	<p>On the Tools menu, click DTM Browser.</p> <p>Result: The DTM Browser window will appear on the FDT Frame Application.</p> 															
4	<p>In the DTM Browser window, right-click the Host PC, and then click Add.</p> <p>Result: The Add dialog box will appear.</p>  <table><thead><tr><th>Device</th><th>Type</th><th>Vendor</th><th>Version</th><th>Date</th></tr></thead><tbody><tr><td>Modbus Serial Communicatio...</td><td>Communication</td><td>Schneider Electric</td><td>2.0.24</td><td>2012-05-14</td></tr><tr><td>Modbus TCP Communication ...</td><td>Communication</td><td>Schneider Electric</td><td>2.0.19</td><td>2012-05-14</td></tr></tbody></table>	Device	Type	Vendor	Version	Date	Modbus Serial Communicatio...	Communication	Schneider Electric	2.0.24	2012-05-14	Modbus TCP Communication ...	Communication	Schneider Electric	2.0.19	2012-05-14
Device	Type	Vendor	Version	Date												
Modbus Serial Communicatio...	Communication	Schneider Electric	2.0.24	2012-05-14												
Modbus TCP Communication ...	Communication	Schneider Electric	2.0.19	2012-05-14												

Step	Action
5	<p>Select the communication DTM from the list in the Add dialog box, and then click Add DTM. Result: The communication DTM will appear in the tree view of the DTM Browser window.</p>  <p>NOTE: The communication DTM can be either Modbus_Serial_Communication_DTM for device which supports Modbus serial line protocol or Modbus_TCP_Communication_DTM for device which supports Modbus TCP protocol.</p>
6	<p>In the DTM Browser window, right-click the communication DTM, and then click Add. Result: The Add dialog box will appear.</p>  <p>NOTE: The device DTM displayed in the Add dialog box depends on the communication DTM selected. Only the device DTMs supported by the selected communication DTM will be displayed.</p>
7	<p>Select the device DTM from the list in the Add dialog box, and then click Add DTM. Result: The device DTM will appear in the tree view of the DTM Browser window.</p> 

Step	Action
8	In the DTM Browser window, right-click the device DTM, and then click Device Menu → Configuration to access the offline window.
9	On the File menu, click Save to save the project with the desired name.

Chapter 4

Generic Modbus DDXML Device Type Manager Main Screens

Overview

This chapter explains the main screens of the Online and Offline mode in Generic Modbus DDXML Device Type Manager.

What Is in This Chapter?

This chapter contains the following sections:

Section	Topic	Page
4.1	Description of Main Screen	34
4.2	Offline Mode	37
4.3	Online Mode	44

Section 4.1

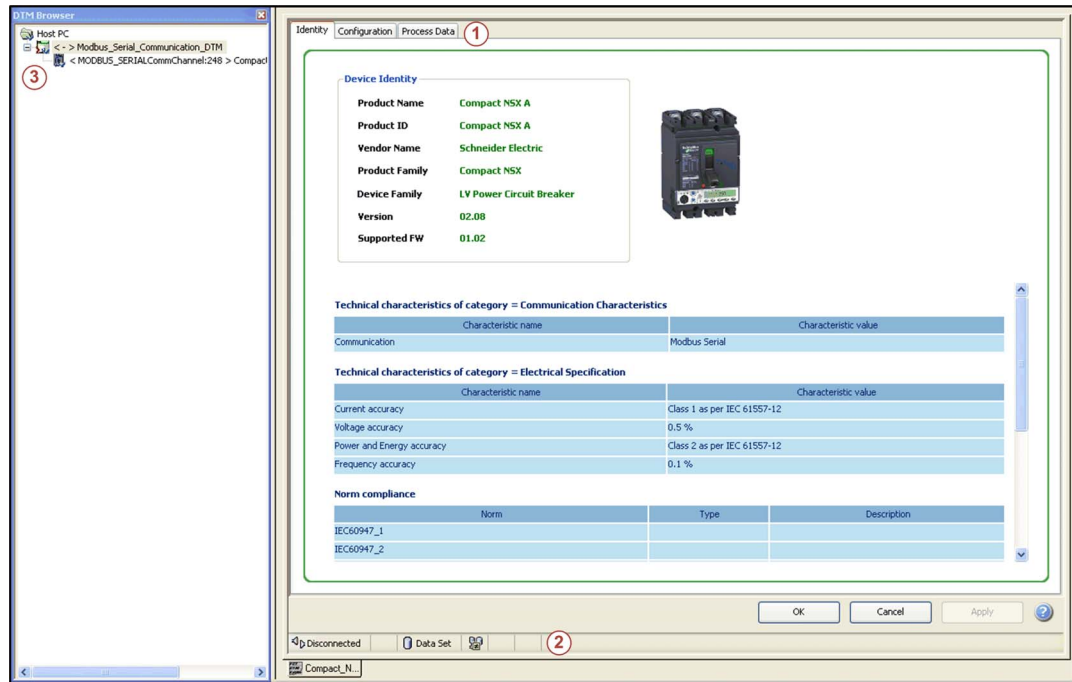
Description of Main Screen

Overview

Main Screen

The main screen is divided into three zones. It is useful to know the terms that are used in connection with various user interface elements. This knowledge aids you in understanding other help topics.

The following figure shows the main screen of Generic Modbus DDXML Device Type Manager:



- 1 Tab menu
- 2 Status bar
- 3 DTM browser

Tab Menu

The Tab menu has the following tabs:

- **Identity**, this tab gives the general information of the connected device, for details refer to Identity tab ([see page 38](#)).
- **Configuration**, this tab is used to configure the device parameters, for details refer to Configuration tab ([see page 39](#)).
- **Process Data**, this tab is used to select the Input/Output process channels, for details refer to Process Data tab ([see page 41](#)).

The below table shows the access limits to tabs for different users:

User	Identity Tab	Configuration Tab	Process Data Tab
Administrator	Yes	Yes	Yes
Observer	Yes	No	No

NOTE: The **Process Data** tab is available for the device DTM, only if the communication DTM supports Modbus communication DTM. For example, Modbus TCP communication DTM or Mx80 Master DTM.

User Role

You can set the user roles at the FDT frame level. The user role information is passed to the DTM when it is started.

According to the FDT 1.2.1 specification following user roles are available:

- Administrator
- Planning Engineer
- Operator
- Maintenance
- Observer

The DTM supports Observer and Administrator user roles. Planning Engineer, Operator, and Maintenance roles are mapped to Administrator currently since the functional mapping for each is not defined.



The Administrator and Observer adaptation as user roles for DTM is describes as follows:

- **Administrator:** has no access restrictions and can update the parameter values and perform data exchange with device.
- **Observer:** cannot configure/update the parameter value, cannot perform data exchange with device (upload/download). The DTM screens for parameter configuration are read only. Only **Identity** tab and **Diagnosis** window is available.

Parameter Status Icons

The parameter status icons provide information about the current state of the parameter.

The below table shows the different parameter modification state:







Icon	Meaning
	The parameter was modified and has an invalid value.
	The parameter was modified and has a valid value.

Status Bar




The status bar provides information about the current status of the DTM.

NOTE: In some cases the connection shown in the status bar does not reflect the real connection status of the DTM with the device. Refer to Limitations of Generic Modbus DDXML Device Type Manager ([see page 12](#)).



The below table shows the different connection states:

Icon	Meaning
	Device is connected to system.
	System is going to connect to device.
	System not connected with device.
	System is going to stop connection with device.
	Connection disturbed: Incorrect device found or connection aborted.
	Device communication with the DTM is in progress.

The below table shows the different data source states:

Icon	Meaning
	Displayed values are loaded from the instance data set. Changed values are affected on the instance data set only.
	Displayed values are loaded from the instance data set. Data set is locked.
	Instance data set not equal to device data set. Not displayed in case no device data set is loaded.

The below table shows the different device diagnosis states:

Icon	Meaning
	Device diagnosis is deactivated.
	Device diagnosis is active and the output signal is active.

DTM Browser

The **DTM Browser** provides a tree view of the devices contained in a project.

Section 4.2

Offline Mode

Overview

This section explains the different tabs in the offline mode.

What Is in This Section?

This section contains the following topics:

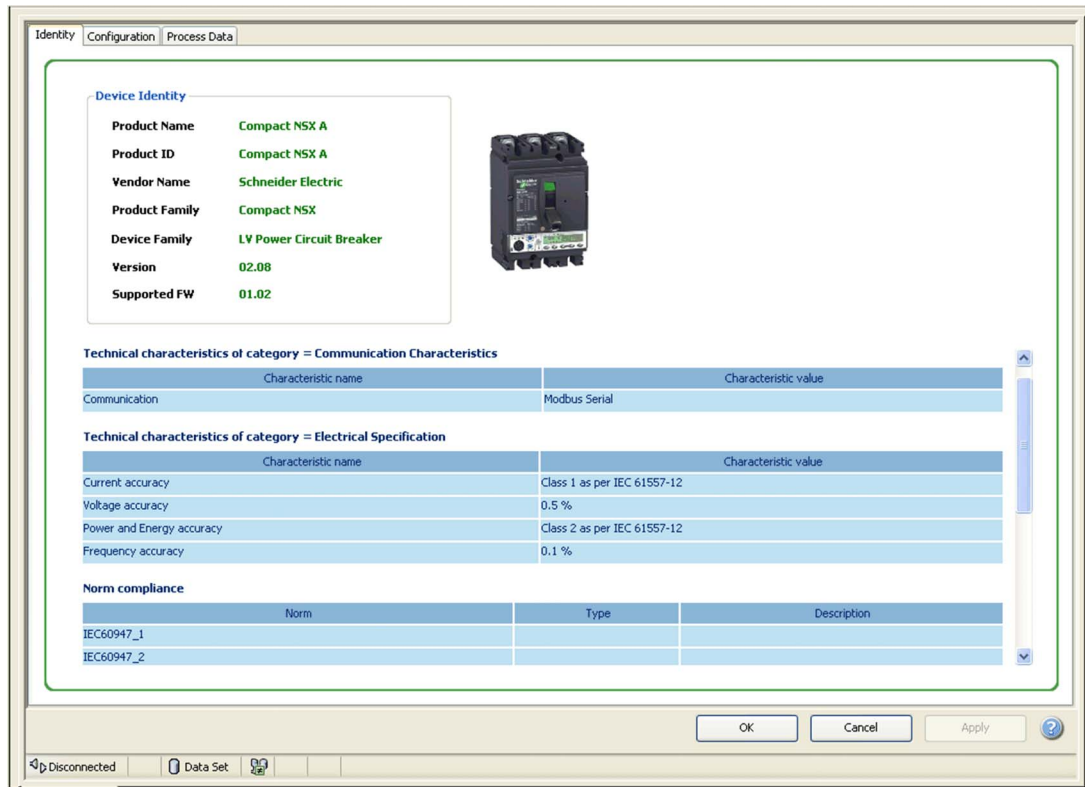
Topic	Page
Identity Tab	38
Configuration Tab	39
Process Data Tab	41
Heartbeat Configuration	43

Identity Tab

Description

The **Identity** tab gives the general information about the device. You can view the product name, product family name, version and other information about the device. The information provided inside the **Identity** tab depends on the information provided in the DDXML.

The following figure shows the **Identity** tab:



The below table contains the description of the configuration commands available in the **Identity** tab:

Command	Description
OK	Stores the parameter modifications and closes the window.
Cancel	Cancels the parameter modifications and closes the window.
Apply	Stores the parameter modifications but the window remains open.

The below table describes the different fields of the **Identity** tab:

Field	Description
Device Identity	Product Name Displays the name of the product.
	Product ID Displays the product ID.
	Vendor Name Displays the name of the product vendor.
	Product Family Displays the name of the product family.
	Device Family Displays the name of device family of the product.
	Version Displays the version of the product.
Device Image area	Displays the image of the device. NOTE: You can see the device image only if the DDXML contains the information.
Some of the fields for technical characteristics like Communication Characteristics , Electrical Specification , Norm compliance and other information will be displayed only if the DDXML has these information. This can vary with different device types depending on the device DTM you select.	

Configuration Tab

Configuration of the Device Parameter

The **Configuration** tab will display the parameters that you can configure inside the device. This tab displays the device parameter in hierarchical grouping format. You can search a device parameter by its name in the search field provided in this tab. You can configure the current value of the device parameter in this tab.

NOTE: The **Configuration** tab is only for modifying the parameters in offline mode. If you need to synchronize modified parameter with the device, perform Load from device ([see page 58](#)) or Store to device ([see page 59](#)).





The following figure shows the **Configuration** tab:

The below table shows the description of the configuration commands available in the **Configuration** tab:

Command	Description
OK	Stores the parameter modifications and closes the window.
Cancel	Cancels the parameter modifications and closes the window.
Apply	Stores the parameter modifications but the window remains open.

The below table describes the different fields of the **Configuration** tab:

Field	Description
Parameter Name	Displays the parameter name in a hierarchical view based on different grouping.
Current Value	Displays the current value of the device parameter.
Default Value	Displays the default value of the device parameter.
Unit	Displays the unit of the device parameter.
Minimum Value	Displays the minimum value of the device parameter. NOTE: If the minimum value is not specified in the DDXML for a device parameter it displays 0 in the Minimum Value .
Maximum Value	Displays the maximum value of the device parameter. NOTE: If the maximum value is not specified in the DDXML for a device parameter it displays the maximum value of its data type in the Maximum Value .
Logical Address	Displays the address of the device parameter in the Modbus register.

Field	Description
Search Field	<p>You can search a device parameter using its parameter name in the search field. The following steps show how to search for device parameter:</p> <ol style="list-style-type: none"> 1. Enter the device parameter name in <input type="text"/> . 2. Click , or press the Enter key in the keyboard.
Description	Displays the name of the selected device parameter.
	The symbol indicates that the parameter group is collapsed. If you click this symbol, it will expand the parameter group and display the listed parameters under each group.
	The symbol indicates that the parameter group is expanded. If you click this symbol, it will collapse the parameter group and hide the listed parameters under each group.



Parameter Configuration

The **Current Value** can be configured by entering a value within the range of the parameter. The status of the modified parameter is shown in the column between **Parameter Name** and **Current Value**.

The below table shows the steps to configure the device parameter:

Step	Action
1	Double-click the Current Value box for the device parameter you want to configure.
2	<p>Enter the value, and then click OK or Apply.</p> <p>NOTE: Enter the value within the range of the device parameter. If you enter an invalid value, an exclamation symbol will appear along side the device parameter name. If you enter a valid value, a pencil symbol will appear along side the device parameter name but the entered value will not be stored in the dataset of the DTM.</p>

The below table shows the **Current Value** parameters which can be configured:

Icon	Meaning
	Parameter can be configured. In this example, you can modify the parameter Year .
	Parameter cannot be configured. In this example, you cannot modify the parameter Ia .

WARNING

UNEXPECTED BEHAVIOR OF APPLICATION

- Make sure that the configuration is performed by experienced person and the data are not modified accidentally.
- Configure the device parameter value within the permissible limit.
- Make sure that you are aware of the permissible limit of the device parameters. Refer to the user manual of the device for the permissible limit of the device parameters while configuring the device parameter.
- Make sure that you are aware of the functional meaning of different Modbus registers.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

NOTE: The configuration parameter list may change after installing a new DDXML profile. Refer to Limitations of Generic Modbus DDXML Device Type Manager ([see page 12](#)).

Process Data Tab

Processing Input/Output Data

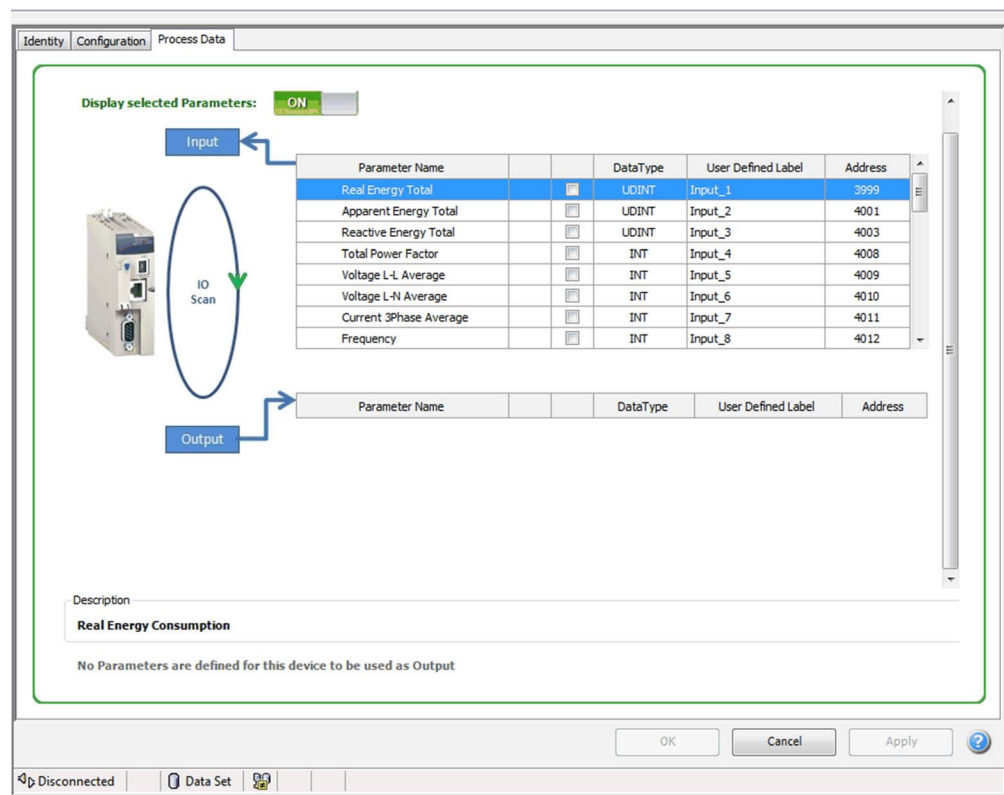
A DTM can provide process data in order to expose detailed information to external systems such as controllers, Human Machine Interface (HMI) applications or to the frame application itself, about the process values available on the device. Process data is the information that the external system uses to interpret and to access the runtime values directly in the device with standard protocol services. The DTM shall expose Modbus process channels in order to expose the Input/Output data inside the device.

A PLC program is generally executed repeatedly as long as the device is running. The status of physical input points is copied to an area of memory accessible to the processor, sometimes called the I/O image table. The program is then run from its first instruction to the last. It takes some time for the processor of the PLC to evaluate all the instructions and update the I/O image table with the status of outputs. This process is called I/O scanning. The I/O data that are exposed through the process channels to the PLC are evaluated with the instruction in the PLC program for data process. The **Process Data** tab has 2 separate fields for **Input** and **Output** variables.

NOTE: The **Process Data** tab is unavailable for device DTM which supports Modbus serial line protocol.

NOTE: Some device DTM does not have Input/Output process data, as the DDXML does not contain the information for the process data.

The following figure shows the **Process Data** tab:



The below table contains the description of the configuration commands available in the **Process Data** tab:

Command	Description
OK	Stores the parameter modifications and closes the window.
Cancel	Cancels the parameter modifications and closes the window.
Apply	Stores the parameter modifications but the window remains open.

The below table shows the description of various fields in **Process Data** tab:

Field	Description
Configure	Click ON to expose the Input/Output data of the device. Click OFF to stop exposing the Input/Output data of the device.

Field	Description
Input	Displays the input variable device parameter which can be exchanged through the Modbus process channels. NOTE: If there are no input variable device parameters displayed, the message No Parameter are defined for this device to be used as Input is displayed in the tab.
Output	Displays the output variable device parameter which can be exchanged through the Modbus process channels. NOTE: If there are no output variable device parameters displayed, the message No Parameter are defined for this device to be used as Output is displayed in the tab. NOTE: If there are no input and output variable device parameters displayed, the message No Parameter are defined for this device to be used as Input/Output is displayed in the tab.
Description	Displays the device description.

The **Input** and **Output** fields have different device parameters which can be exchanged through Modbus process channels.

The below table shows the parameters in the **Input** and **Output** fields:

Parameter	Description
Parameter Name	Displays the device parameter name.
Status	It has a check box against each Parameter Name . Check the box to exchange the input/output variables through the Modbus channels.
Data Type	Displays the data type of the device parameter.
User Defined Label	You can define custom labels for the device parameters you select. If you define a custom label, then this will be the name of the channel provided to the master DTM. NOTE: If you do not define a custom label the DTM will auto generate names.
Address	Displays the Modbus address of the device parameter.

NOTE: The process data variable list may change after installing a new DDXML profile. Refer to Limitations of Generic Modbus DDXML Device Type Manager ([see page 12](#)).

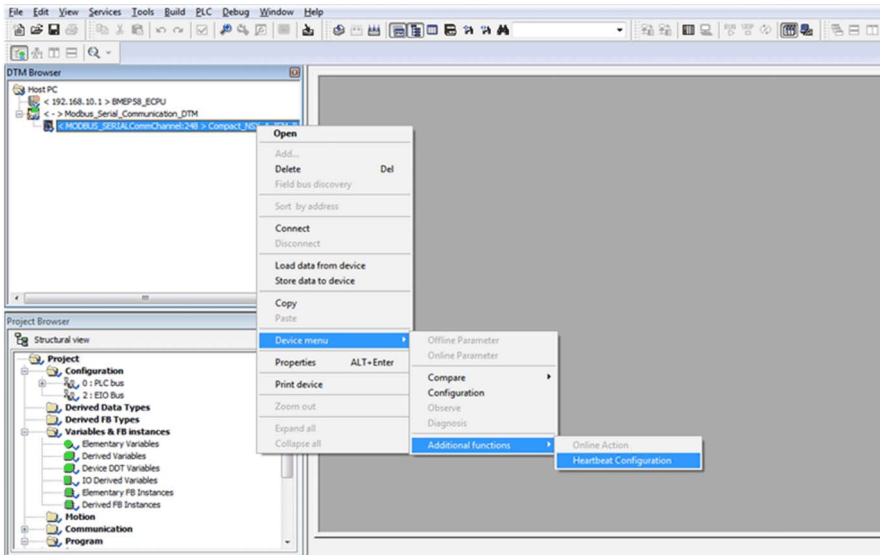
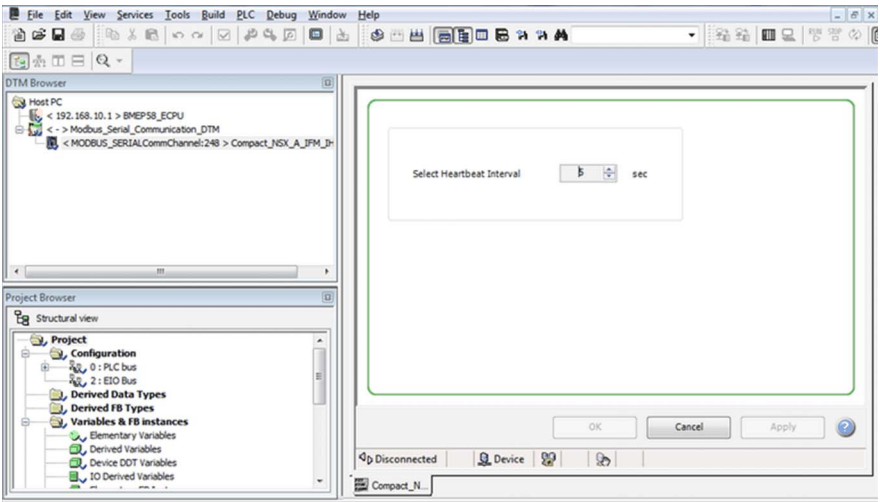
Heartbeat Configuration

Description

In the online mode, the DTM can disconnect from the device due to various reasons like, device is inoperable and not responding, or physical connection is disturbed.

The DTM pings to the device continuously on regular intervals when the DTM establishes connection with a device. The interval at which the DTM pings to device is heartbeat interval. The heartbeat interval can be set in the range of 3–30 seconds

The table shows the steps to set the heartbeat interval:

Step	Action
1	<p>Right-click the device DTM, and then click Device Menu → Additional Functions → Heartbeat Configuration.</p> 
2	<p>In the Select Heartbeat Interval box, enter or select the heartbeat interval.</p> 
3	<p>Click OK.</p>

NOTE: The heartbeat interval can be set only in the offline mode. The DTM pings to the device at regular intervals in the online mode. The heartbeat interval cannot be set in the online mode.

Section 4.3

Online Mode

Overview

This section explains the different windows in the online mode.

What Is in This Section?

This section contains the following topics:

Topic	Page
Online Mode	45
Diagnosis Window	47
Online Action Window	51

Online Mode

Introduction

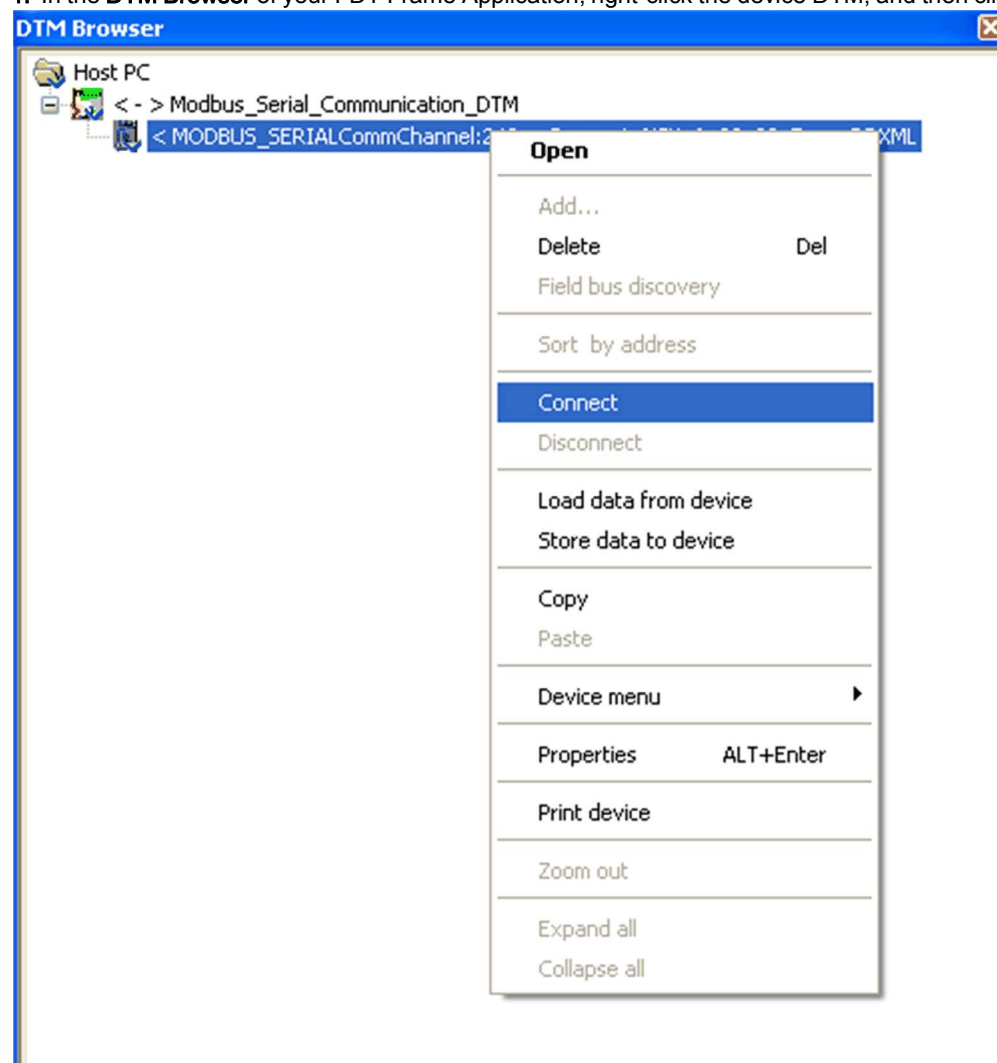
You are connected to the device while working in the online mode. You can retrieve and display the configuration of the connected device using the **Diagnosis** window. You can set the values of device parameter in the **Online Action** window.

The below table shows the access limits to the online windows for different users:

User	Diagnosis Window	Online Action Window
Administrator	Yes	Yes
Observer	Yes	No

Do the steps that follow to switch to online mode:

1. In the **DTM Browser** of your FDT Frame Application, right-click the device DTM, and then click **Connect**.



NOTE: When you click **Connect**, a message appears if the DTM profile is not compatible with the connected device or when the firmware version of the connected device is different from the firmware supported by the DTM profile.

NOTE: If the device is not connected to the DTM, then a communication timeout message is displayed.

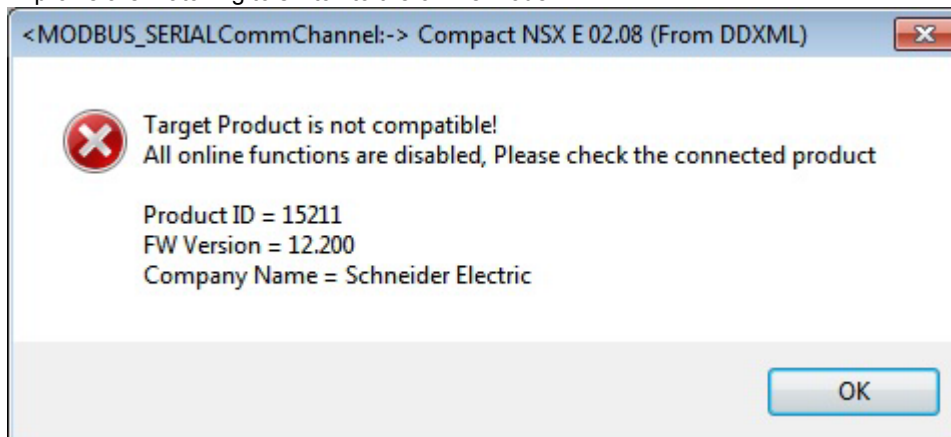
WARNING

UNEXPECTED BEHAVIOR OF APPLICATION

- Make sure that you are connected to the correct device.
- Device may accept multiple inputs, make sure that the configuration transferred is updated correctly.

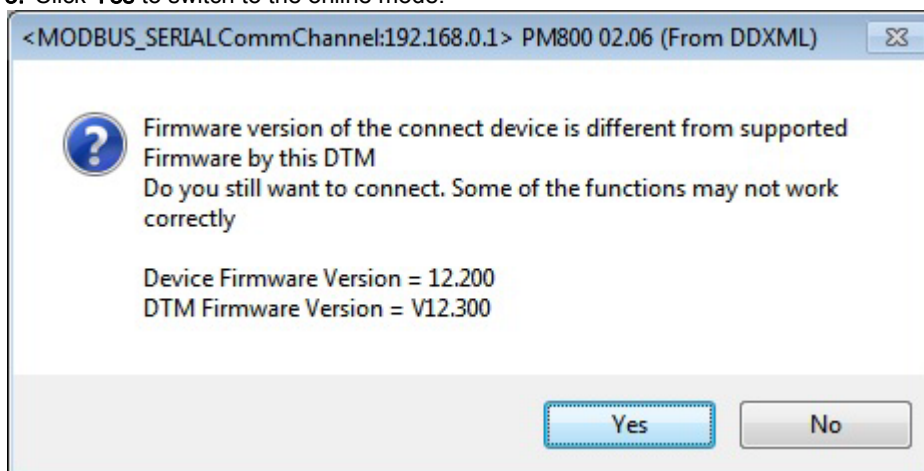
Failure to follow these instructions can result in death, serious injury, or equipment damage.

2. Click **OK** to stop the connection, and then make sure that the connected device and the selected DTM profile are matching to switch to the online mode.



NOTE: The message shown above appears only when the DTM profile is not compatible with the connected device.

3. Click **Yes** to switch to the online mode.



NOTE: The message shown above appears only when the firmware version of the connected device is different from the firmware supported by the DTM profile. If you click **Yes**, some of the functions may not work correctly. Click **No** to stop the connection.

NOTE: After the above step the DTM is connected to the device. In some cases, the connection shown in the status bar may not reflect the real connection status of the DTM with the device. Refer to Limitations of Generic Modbus DDXML Device Type Manager ([see page 12](#)).

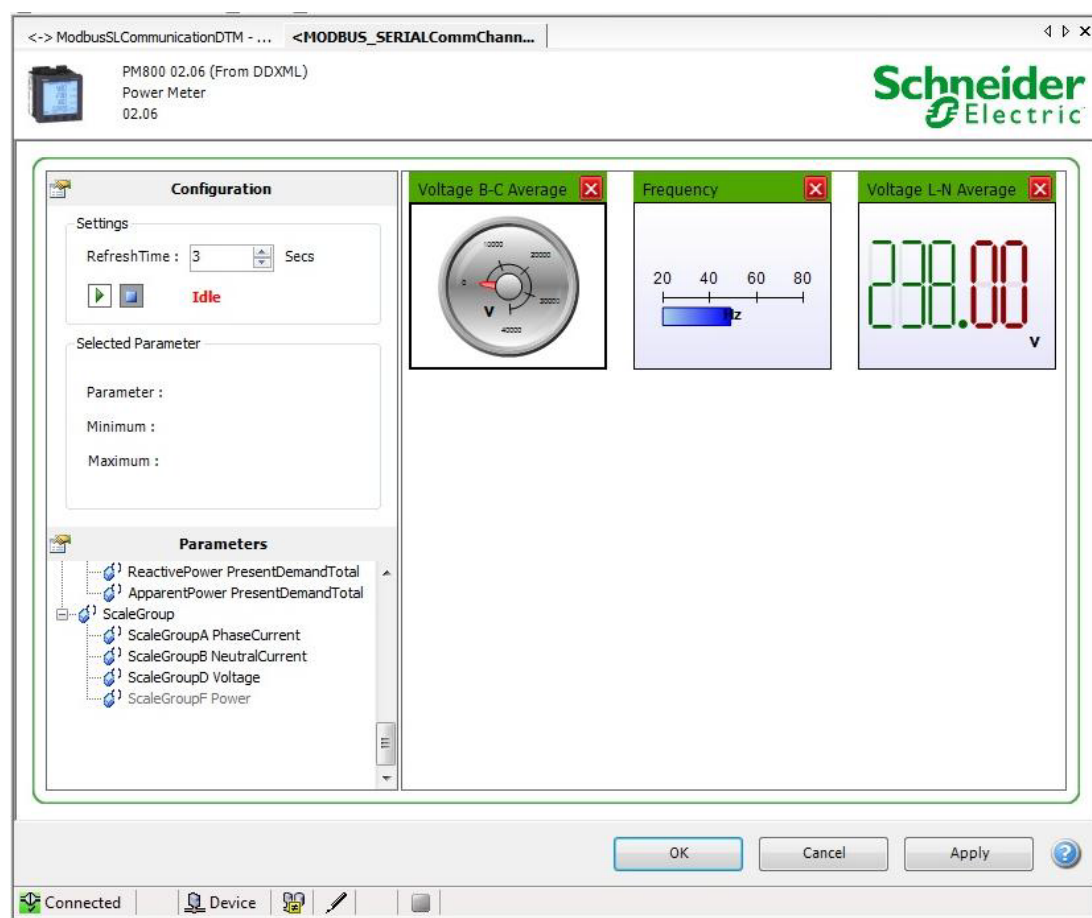
Diagnosis Window

Introduction

The **Diagnosis** window is available when the DTM profile is connected to the device. The **Diagnosis** window allows you to monitor the connected device. The **Diagnosis** window displays a list of device parameter in hierarchical view. You can select the device parameter from the parameter list that you want to monitor. You can see the online values of the device parameter in this window. This window is available only in the online mode.

The below table shows the steps to access the **Diagnosis** window:

Step	Action
1	Switch to the online mode, for details refer to online mode (see page 45).
2	Right-click the device DTM, and then click Device Menu → Diagnosis .
3	Make sure that the DTM is connected to the device.



The below table contains the description of the configuration commands available in the **Diagnosis** window:



Command	Description
OK	Stores the parameter modifications and closes the window.
Cancel	Cancels the parameter modifications and closes the window.
Apply	Stores the parameter modifications but the window remains open.

Description

The **Diagnosis** window is divided into 2 main zones:

- **Configuration** and **Parameter** area in the left zone
- The display area in the right zone


The below table contains the description of different fields in the left zone:

Field	Description
Refresh Time	The time interval for which the device parameter refreshes during monitoring time. You can set a value in the range of 3-30secs.
	You can monitor the selected parameter value with the click of this button.
	You can stop monitoring the selected parameter value with the click of this button.
Parameter	Displays the name of the currently selected widget in the Diagnosis window.
Minimum	Displays the minimum value of the currently selected widget in the Diagnosis window.
Maximum	Displays the maximum value of the currently selected widget in the Diagnosis window.
Parameters	Displays the hierarchical view of the device parameters based on different grouping.

Monitor the Device Parameter

You can monitor the device parameters in the online mode using the **Diagnosis** window in the display area.

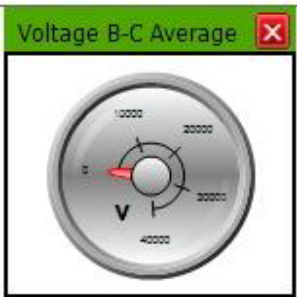
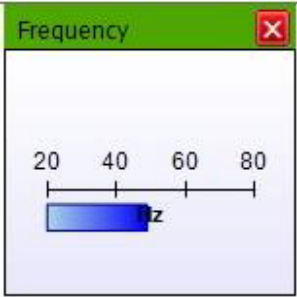
The below table shows the steps to monitor the device parameter in **Diagnosis** window:

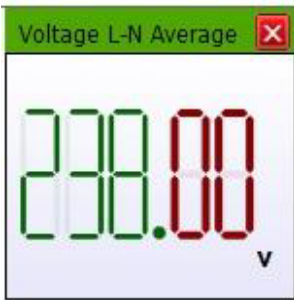
Step	Action
1	Select the device parameter that you want from the hierarchical view of the parameters.
2	Drag the device parameter to the display area. Result: You can see the device parameter widget in the display area. NOTE: The device parameter that you select appears in gray color under the Parameters field.
3	Click  to monitor the device parameter value in the widget.
4	Click Apply or OK to save the device parameter widget in the display area.

Widget Types

Right-click the device parameter widget to select different views. The parameter name is displayed on top of the widget. The widget displays the parameter value with the unit of the device parameter.

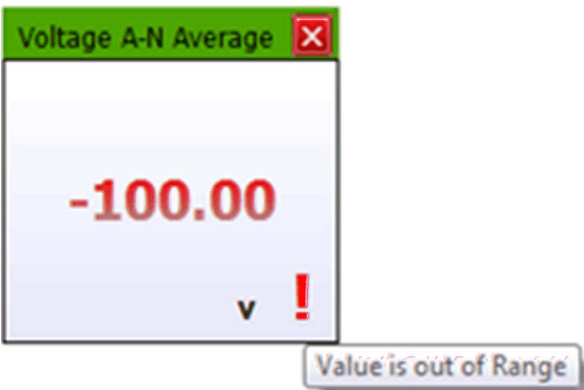
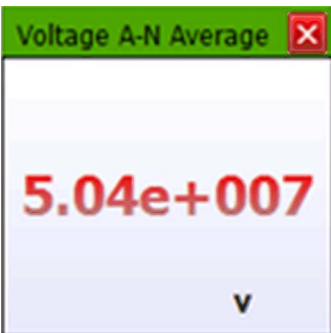
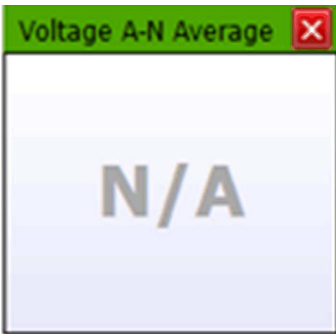
There are 3 different views:

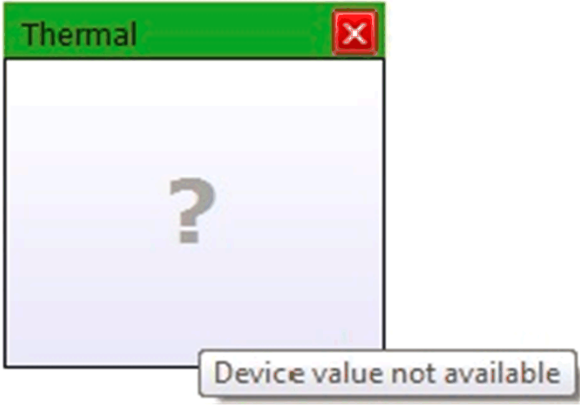
Widget type	Widget image
Gauge	
Linear	

Widget type	Widget image
Digital	

NOTE: The diagnosis parameter list may change after installing a new DDXML profile. Refer to Limitations of Generic Modbus DDXML Device Type Manager ([see page 12](#)).

Widget Types for Different Parameter Values

Parameter value description	Widget type
Out of range value: displayed when the parameter value is not within the minimum value and maximum value range.	
Exponential value: displayed when the parameter value is large.	
N/A: displayed when the parameter value is defined as NA (Not Applicable) in the value label in the device DTM.	

Parameter value description	Widget type
Device value not available: displayed when invalid address exception occurs while reading the monitoring parameters.	 <p>The following figure shows the detected error details displayed in the Log window of the FDT when the Device value not available widget occurs:</p> <pre>Stop: [DTM message] Sepam80_02_08_From_DDXML: Device value not available, Modbus ErrorCode:2</pre>

Align and Delete Widgets

To align the widgets in the display zone, right-click in the display zone, and then click **Auto Align Controls**.

To delete all the widgets in the display zone, right-click in the display zone, and then click **Clear All**.

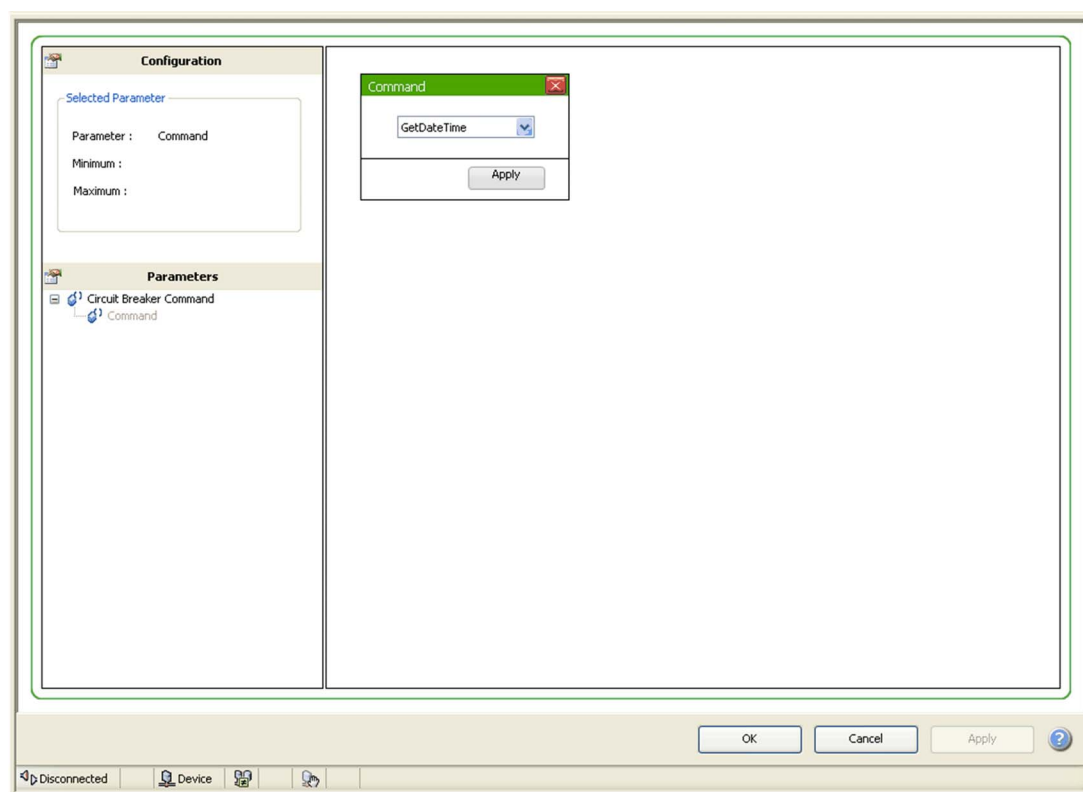
Online Action Window

Introduction

The **Online Action** window is available when the DTM profile is connected to the device. The **Online Action** window displays a list of device parameter in hierarchical view. This window allows you to set the values of the device parameters in the online mode. You can select the device parameter from the parameter list that you want to set. This window is available only in the online mode.

The below table shows the steps to access the **Online Action** window:

Step	Action
1	Switch to the online mode, for details refer to online mode (see page 45).
2	Right-click the device DTM, and then click Device Menu → Additional functions → Online Action .
3	Make sure that the DTM is connected to the device.



The below table contains the description of the configuration commands available in the **Diagnosis** window:

Command	Description
OK	Stores the parameter modifications and closes the window.
Cancel	Cancels the parameter modifications and closes the window.
Apply	Stores the parameter modifications but the window remains open.

Description

The **Online Action** window is divided into 2 main zones:

- **Configuration** and **Parameter** area in the left zone
- The display area in the right zone

The below table contains the description of different fields in the left zone:

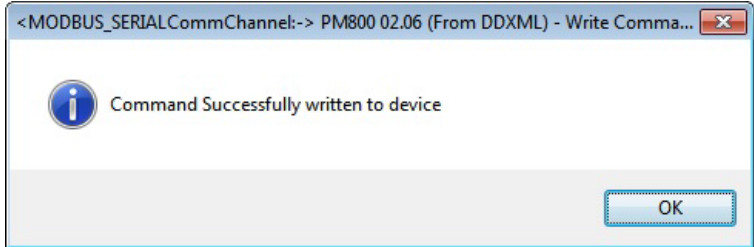
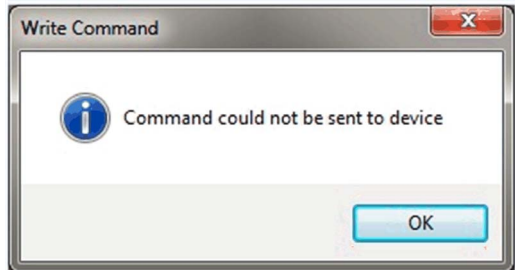
Field	Description
Parameter	Displays the name of the currently selected device parameter dialog box in the Online Action window.
Minimum	Displays the minimum value of the currently selected device parameter dialog box in the Online Action window.

Field	Description
Maximum	Displays the maximum value of the currently selected device parameter dialog box in the Online Action window.
Parameters	Displays the hierarchical view of the device parameters based on different grouping.

Setting the Device Parameter

You can set the value of the desired device parameters in the online mode using the **Online Action** window in the display area.

The below table shows the steps to set the device parameter in **Online Action** window:

Step	Action
1	Select the device parameter that you want from the hierarchical view of the parameters.
2	<p>Drag the device parameter to the display area.</p> <p>Result: You can see the device parameter dialog box in the display area.</p> <p>NOTE: The device parameter that you select appears in gray color under the Parameters field.</p>
3	<p>Set the value in the device parameter dialog box, and then click Apply in the device parameter dialog box.</p> <p>NOTE: When you click Apply in the device parameter dialog box an information message appears on the Online Action window to indicate if the device parameter is written to the device or not. The below information appears when the set value of the device parameter is written to the device:</p>  <p>The below information appears when the set value of the device parameter is not written to the device:</p> 
4	In the Online Action window, click Apply or OK to save the device parameter dialog box in the display area.

⚠ WARNING

UNEXPECTED BEHAVIOR OF APPLICATION

- Make sure that the setting of device parameters is performed by experienced person and the data are not modified accidentally.
- Set the device parameter values within the permissible limit.
- Make sure that you are aware of the online action performed by you, while setting the device parameters.
- Make sure that you are aware of the functional meaning of different Modbus registers.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

NOTE: The online action parameter list may change after installing a new DDXML profile. Refer to Limitations of Generic Modbus DDXML Device Type Manager ([see page 12](#)).

NOTE: The widgets in the window can be aligned and deleted. Refer to Align and Delete Widgets (*see page 50*).

Chapter 5

Heartbeat



Detected Error Messages

Overview

The DTM monitors the availability of connection with the device in the online mode. During the data exchange (upload, download, monitoring, and online action) between the DTM and the device, the DTM detects for disconnection and updates the connection status of the DTM.

The detected error message appears when there is a:

- Loss of communication
- Product type mismatch

Message	Reason	Action
	<p>The DTM disconnects from the device and updates the status as Disturbed and the Communication Error message appears.</p> <p>The Communication Error message appears due to:</p> <ul style="list-style-type: none">• Transaction time-out• The Device connected to the DTM is switched off.• The Device is removed from network or the device is not connected properly.• Read device in the DTM and the connected device is different.	<ul style="list-style-type: none">• Verify that the device connected to the DTM is switched on.• Check the physical connection between the PC and the device, and then reconnect again.• Verify that the device connected to the DTM is correct.
	<p>Read device in the DTM and the connected device is different.</p>	<p>Verify that the device connected to the DTM is correct.</p>

Chapter 6

Load Data from a Device and Store Data to a Device

Overview

This chapter explains how to load data from a device and store data to a device.

What Is in This Chapter?

This chapter contains the following topics:

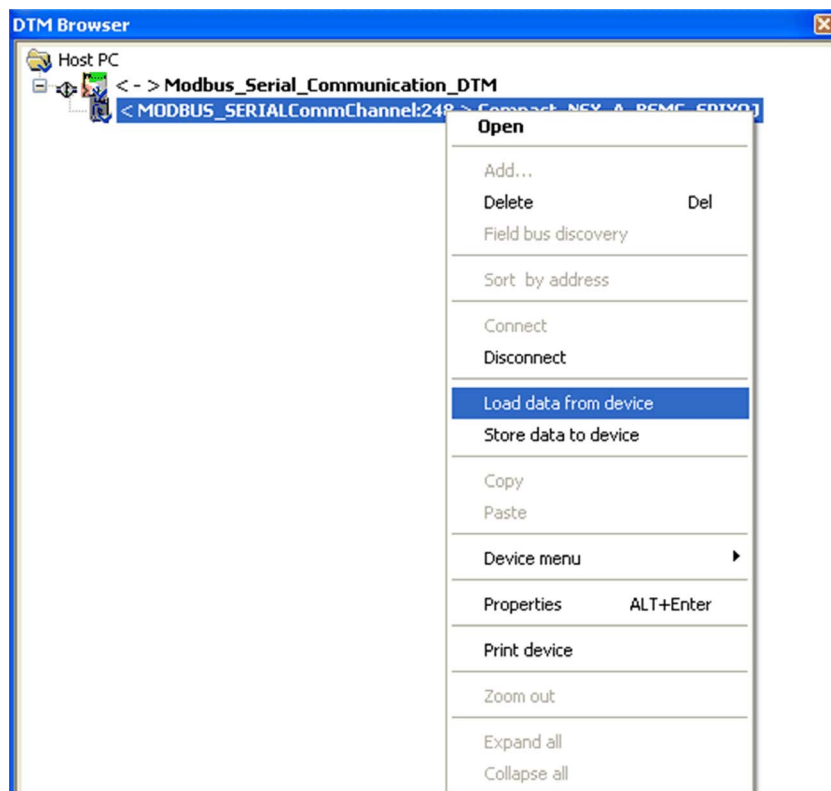
Topic	Page
Load from a Device	58
Store to a Device	59

Load from a Device

Description

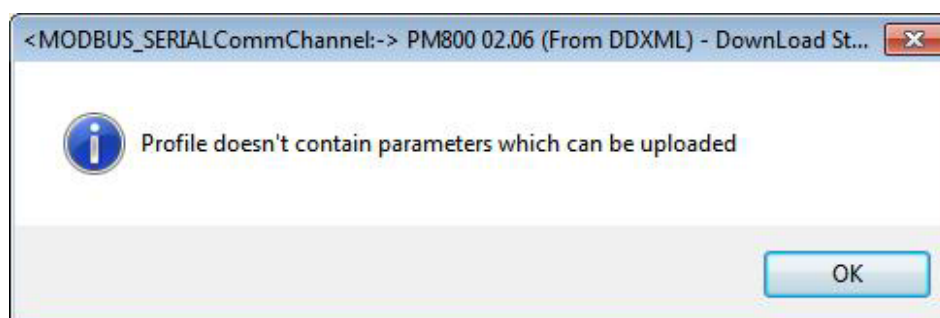
This action allows you to retrieve the configuration of the connected device to your computer. You are only connected to the device during the data transfer.

To retrieve the configuration from the computer, right-click the device DTM in the **DTM Browser** of your FDT Frame Application, and then click **Load data from device**.



An information message appears if you click **Load data from device**. This message appears when the DTM profile does not contain parameters that can be uploaded to the system.

The following figure shows the information message when the profile does not contain parameters which can be uploaded:



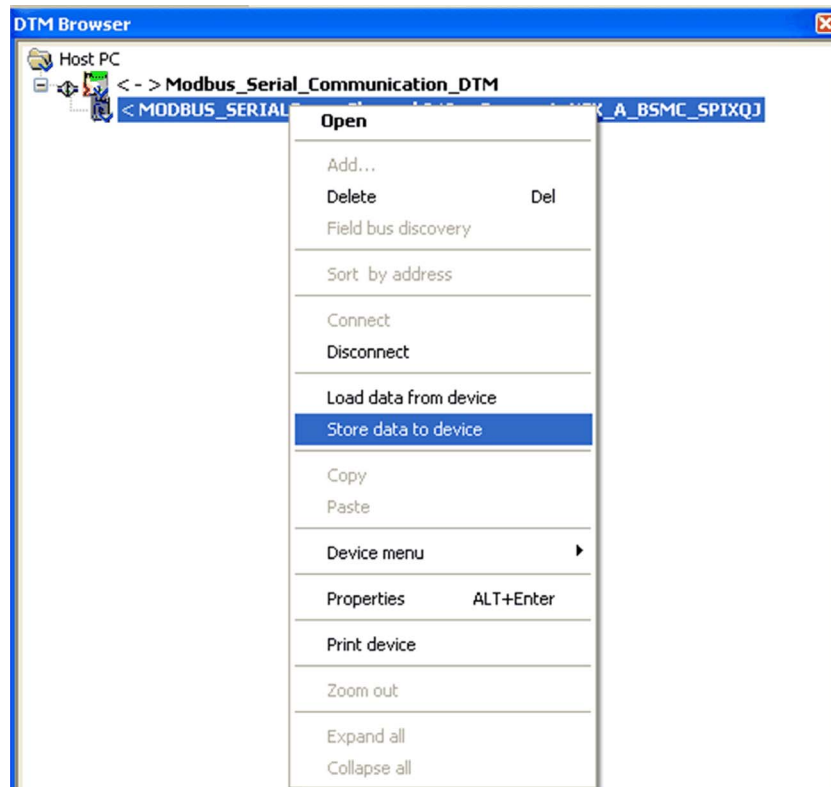
Click **OK** to proceed the action.

Store to a Device

Description

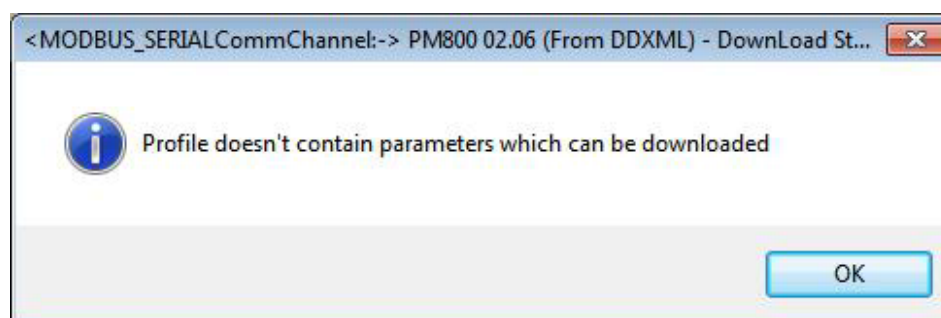
This action allows you to transfer the configuration file from an existing project saved on your computer to the connected device. You are connected to the device during data transfer.

To store the configuration to the device, right-click on the device DTM in the **DTM Browser** of your FDT Frame Application, and then click **Store data to device**.



An information message appears if you click **Store data to device**. This message appears when the DTM profile does not contain parameters that can be downloaded to the device.

The following figure shows the information message when the profile does not contain parameters which can be downloaded to the device:



Click **OK** to proceed the action.

WARNING

UNEXPECTED BEHAVIOR OF APPLICATION

- Make sure that you are connected to the correct device.
- Device may accept multiple inputs, make sure that the configuration transferred is updated correctly.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

Chapter 7

Add/Remove DDXML File

Overview

This chapter explains how to add and remove the DDXML file.

What Is in This Chapter?

This chapter contains the following topics:

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Remove DDXML from Library	66

Add DDXML to Library

Add a DDXML File to Generic DTM Library

The Generic Modbus DDXML Device Type Manager has a wizard to add new DDXML profiles to the generic DTM repository.

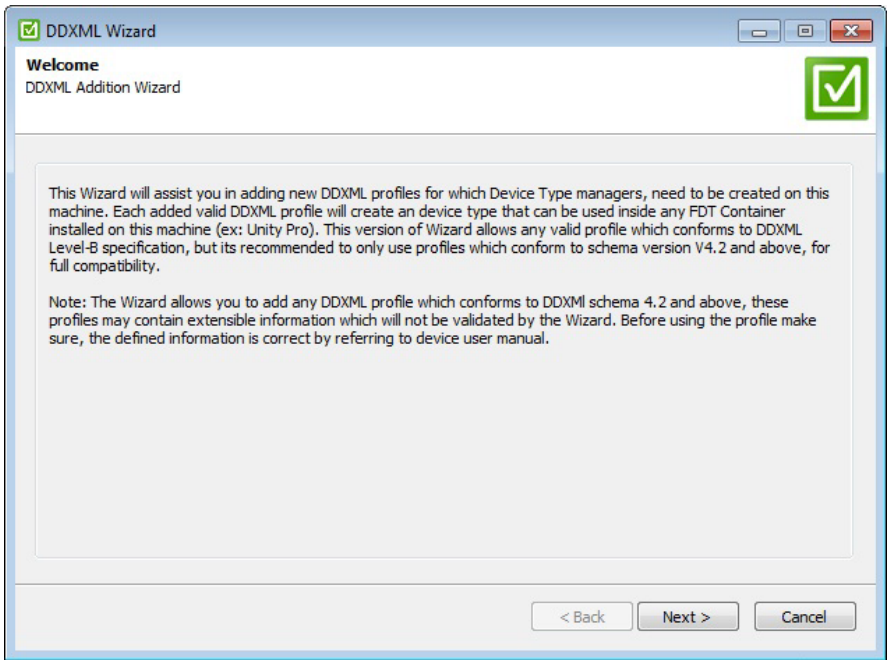
WARNING

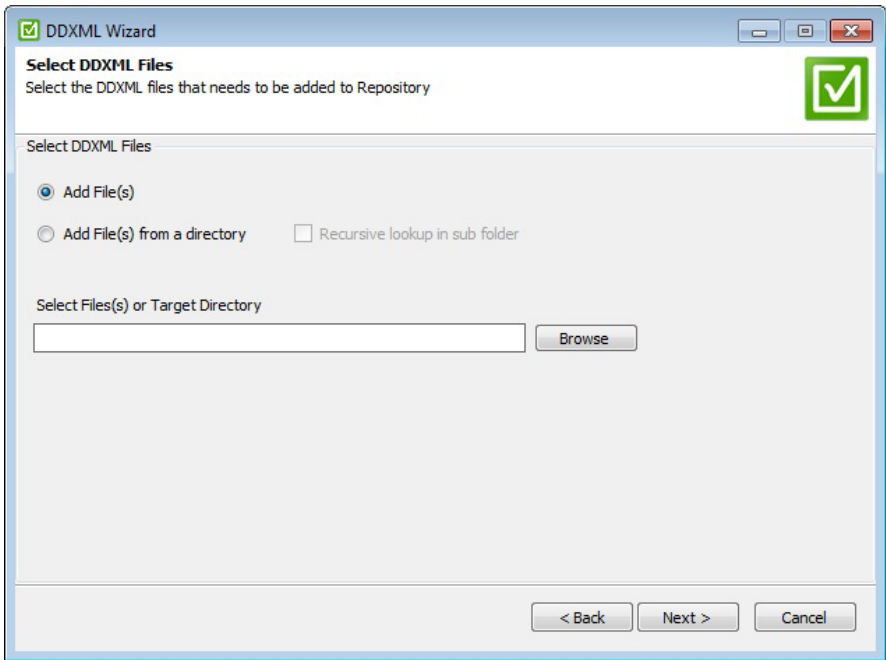
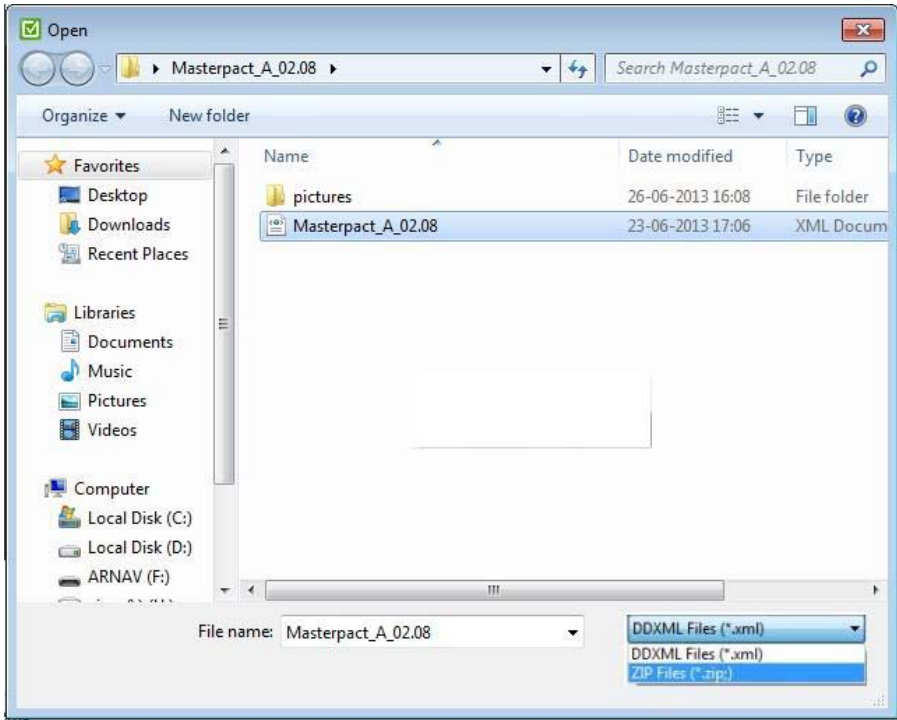
UNEXPECTED BEHAVIOR OF APPLICATION

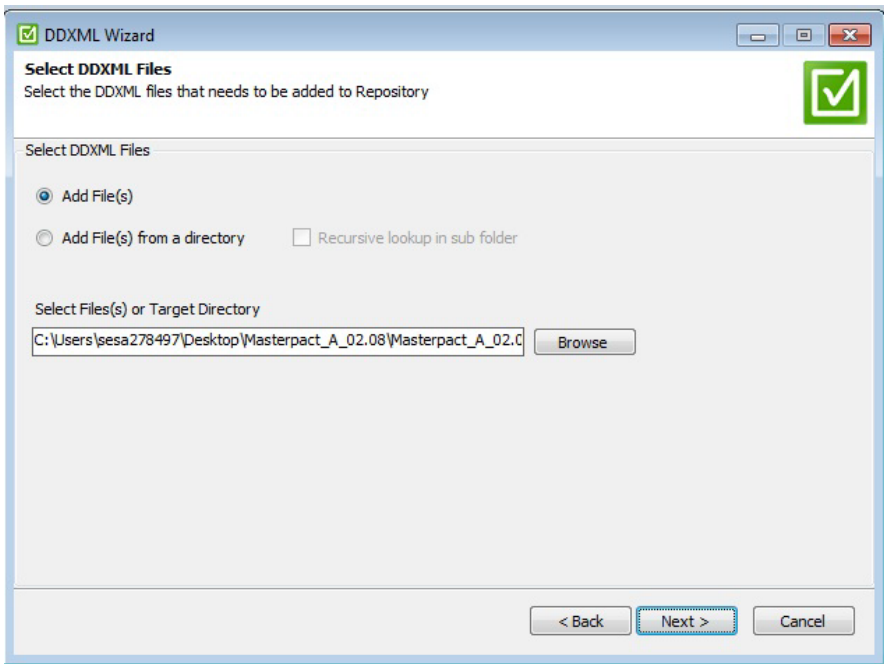
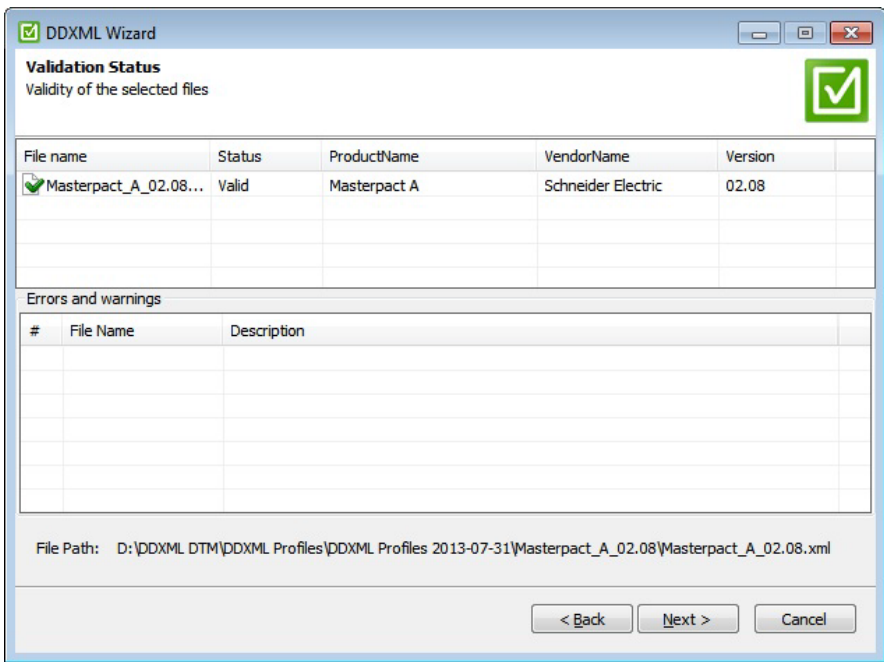
- Modify the DDXML file carefully, as any modification of the DDXML file is under the responsibility of the user. The validation process will not be able to detect invalid parameter values and ranges, while adding the DDXML profile.

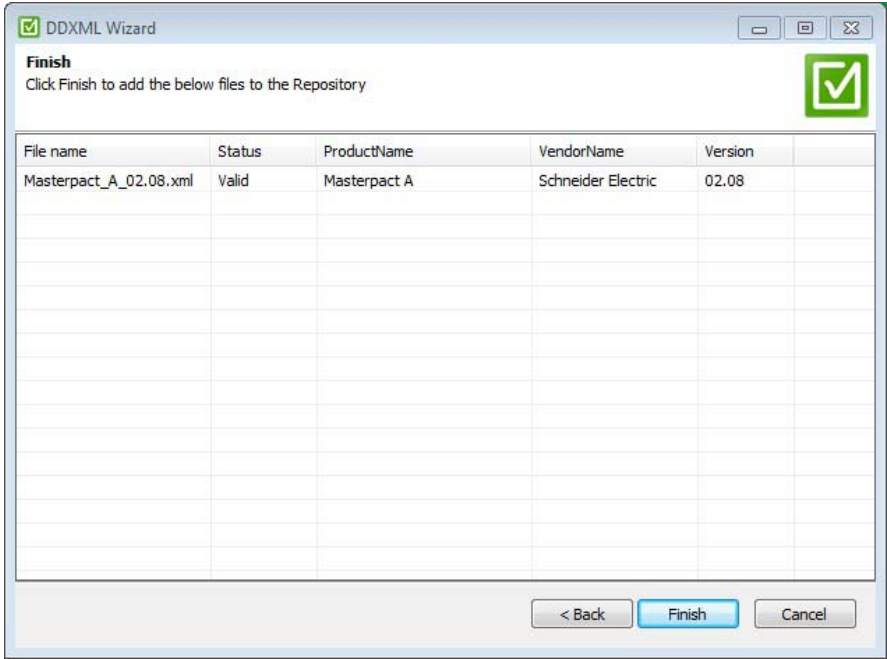
Failure to follow these instructions can result in death, serious injury, or equipment damage.

The below table shows the steps to add a DDXML file to the generic DTM library:

Step	Action
1	Click Start → All Programs → Schneider Electric → Generic DDXML DTM → Add DDXML to Library .
2	Click Next in the Welcome dialog box. <div></div>

Step	Action
3	<p>Click Browse in the Select DDXML Files dialog box.</p>  <p>NOTE: To add all the DDXML files from a folder, click Add File(s) from a directory, and then click Next. If you click Add File(s), you will be able to select only a single DDXML file for addition.</p>
4	<p>Select the DDXML file that you want to add to the generic DTM library, and then click Open</p>  <p>NOTE: If the file type of the DDXML file is <i>.zip</i>, then select ZIP Files (*.zip) from the drop-down list. If the file type of the DDXML file is <i>.xml</i>, then select DDXML Files (*.xml) from the drop-down list.</p>

Step	Action
5	<p>Click Next in the Select DDXML Files dialog box.</p> 
6	<p>Click Next in the Validation Status dialog box.</p>  <p>NOTE: You can see the details of the DDXML file which is selected for addition. In this detail, you can see File name, Status, ProductName, VendorName, and Version of the selected file.</p> <p>NOTE: The “Errors and warnings” field in this dialog box displays the name of the DDXML file and the description of the detected error in the DDXML file which cannot be added in the library after validation below the File Name and Description fields respectively.</p> <p>NOTE: The File Path gives the path of the DDXML from where it is added to the library.</p>

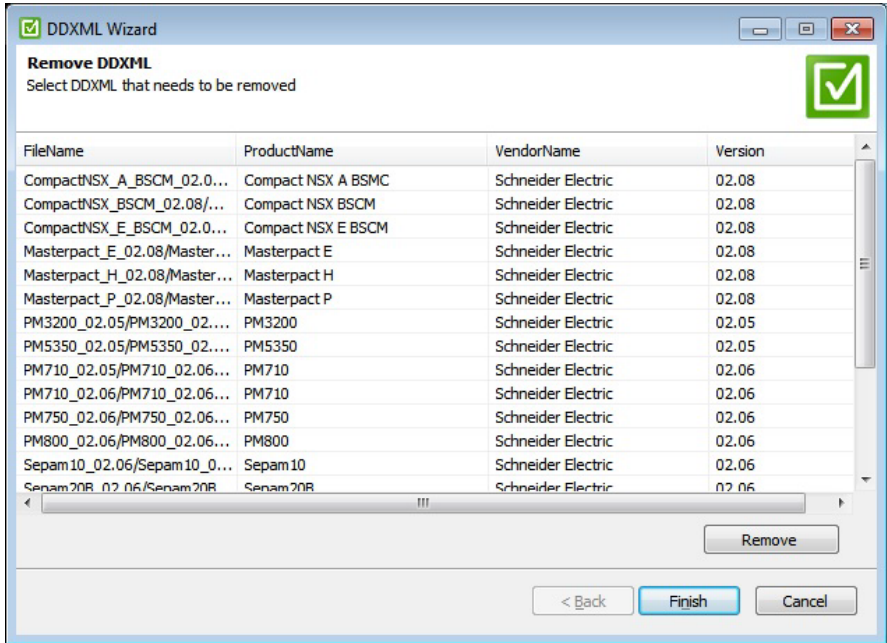
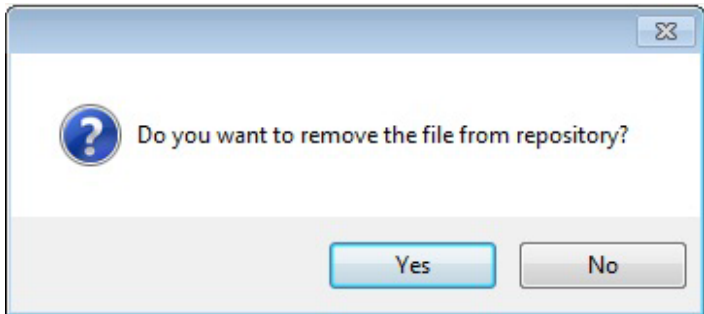
Step	Action
7	<p>Click Finish in the Finish dialog box to complete the addition of DDXML file in the generic DTM library.</p>  <p>NOTE: You can see the details of the DDXML file which is added. In this detail, you can see File name, Status, ProductName, VendorName, and Version of the added file.</p>

NOTE: When installing a new version of the DTM, you have to delete all impacted DTM instances, which had been created with the previous version of the DTM from your application and re-create them in order to activate the modifications. Refer to Limitations of Generic Modbus DDXML Device Type Manager ([see page 12](#)).

Remove DDXML from Library

Remove a DDXML File from Generic DTM Library

The Generic Modbus DDXML Device Type Manager Library provides an option to remove the DDXML from the generic DTM library.

Step	Action
1	Click Start → All Programs → Schneider Electric → Generic DDXML DTM → Remove DDXML From Library .
2	Select the DDXML file from the FileName list, and then click Remove . 
3	Click Yes in the following dialog box to remove a DDXML file from the generic DTM library. 



D

DDXML	Device Description Extensible Markup Language
DTM	Device Type Manager

E

EDDL	Electronic Device Description Language
------	--

F

FDT	Field Device Tool
-----	-------------------

G

GUI	Graphical User Interface
-----	--------------------------

H

HMI	Human Machin Interface
-----	------------------------

P

PLC	Programmable Logic Controller
-----	-------------------------------

T

TCP	Transmission Control Protocol
-----	-------------------------------



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