Industrial IT
800xA - Device Management
PROFIBUS
System Version 4.1

Configuration

Industrial IT enabled

ABB

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800xA - Device Management
PROFIBUS
System Version 4.1

Configuration

NOTICE

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About This Book

General

This book describes how to use the PROFIBUS Device Integration in detail. For the latest information, please also refer to the corresponding Release Notes.

Use of Caution, Information, and Tip Icons

This publication includes **Caution** and **Information** where appropriate to point out safety-related or other important information. It also includes **Tips** to point out useful hints to the reader. The corresponding symbols should be interpreted as follows:

The caution icon indicates important information or a warning related to the concept discussed in the text. It may indicate the presence of a hazard, which could result in *software corruption or damage to equipment/property.*

The information icon alerts the reader's attention to pertinent facts and conditions.

The tip icon provides advice about how, for example, to design your project or use a certain function.

Although **Caution** hazards are associated with equipment or property damage, it should be understood that operation of damaged equipment could, under certain operational conditions, result in downgraded process performance leading to personal injury or death. Therefore, comply fully with all **Caution** notices.

Document Conventions

The following conventions are used for the presentation of material:

- The words in names of screen elements (for example, the title in the title bar of a window, the label for a dialog box field) are written with initial capital letters.
- Capital letters are used for the name of a keyboard key if it is labeled on the keyboard. For example, press the ENTER key.
- Lower case letters are used for the name of a keyboard key that is not labeled on the keyboard. For example, the **space bar**, **comma key**, and so on.
- "Press CTRL+C" indicates that you must hold down the CTRL key while pressing the C key (to copy a selected object in this case).
- "Press **ESC E C**" indicates that you must press and release each key in sequence (to copy a selected object in this case).
- The names of pushbuttons and toggle buttons appear in brackets and bold type. For example, click **[OK]**.
- The names of menus and menu items appear in bold type. For example, the **File** menu.
  - The following convention is used for menu operations: MenuName > MenuItem > CascadedMenuItem. For example: select **File** > **New** > **Type**.
  - The **Start** menu name always refers to the **Start** menu on the Windows taskbar.
- System prompts/messages appear in the Courier font and user responses/inputs appear in the Courier bold font. For example, if you enter a value out of range, the following message appears:

  ```
  Entered value is not valid. The value must be 0 to 30.
  ```

  You may be told to enter the string TIC132 in a field. The string is shown as follows in the procedure:

  TIC132

  Variables appear in lower case letters.

  sequence name

Terminology

The following is a list of terms associated with this product that you should be familiar with. The list contains terms and abbreviations that are unique to ABB or have a usage or definition that is different from standard industry usage.

Term/Acronym	Description
ACD	Asset Condition Document. Contains all information necessary to describe an asset condition. Generated by the Asset Monitor.
Aspect Objects	ABB technology for representing real world objects in data models, containing all the necessary information for design, engineering, operation, and maintenance. Object data is grouped into aspects, each representing certain characteristics of an object. There are several ways of presenting aspect object data.
Aspect Object Type	Defines certain characteristics that are shared between several object instances, such as a basic set of common aspects. This makes it possible to create and efficiently re-use standardized solutions to frequently recurring problems. For example, rather than building an object from scratch for every valve in a plant, you can define a set of valve types, and then create all valve objects of these instances.
Asset Monitor	Application responsible for retrieving data from, and interacting with, multiple data servers, OLE for Process Control ® (OPC®) servers, etc.). It analyzes the data and when necessary, issues an Asset Condition Document and notifies the process portal of the detected condition.
Device Type Manager (DTM)	Software component (device driver) for configuring, diagnosing, forcing, and displaying the measured variables, etc. of a field device. It is familiar with the way the device works and supplies device-specific documentation.

Term/Acronym	Description
Device Description Language (DDL)	Interpretable language for the formal description of device parameters
Frame Application (FA)	Frame application (runtime environment) in accordance with the FDT specification for operating DTMs
Fieldbus Builder (FBB)	ABB aspect system for fieldbus and DTM management, implementing a Frame Application according to specification FDT 1.2
Field Device Tool (FDT)	The FDT concept describes the interface between a Frame Application and the device-specific software (DTM = Device Type Manager) of the device manufacturer. It enables devices produced by different manufacturers and different fieldbuses to be integrated in a single system. Currently supporting fieldbus protocols for PROFIBUS and HART.
Highway Addressable Remote Terminal (HART)	Digital communication protocol developed for applications in industrial process control.
Graphical User Interface (GUI)	Graphical user interface
OLE for Process Control (OPC)	Standardized interface between client and server applications for data exchange based on the Microsoft basic technologies COM/DCOM, not restricted by computer capacity. The advantage of OPC is that field devices and applications from different manufacturers can now communicate with each other without special modifications having to be made.

Term/Acronym	Description
System Extension	A solution or product developed with the Aspect Integrator Platform might typically contain several aspect systems, services, object types, and aspect objects. The System Extension mechanism enables a whole set of corresponding definition files to be read in at once. It makes it easy to load complex add-on solutions as options.
View	Aspects can be presented in a number of ways depending on the task performed e.g. viewing or configuration. Each presentation form is called a view.

Relevant Documentation

The table below contains a list of relevant documentation.

Title	Description
Industrial IT, 800xA - Device Management, HART, Configuration, 3BDD011748	The document describes the basic features and how to configure the individual software components
Industrial IT, 800xA - Device Management, HART, Release Notes, 3BDS011768	This document contains the latest information about HART Device Management
Industrial IT, 800xA - Device Management, PROFIBUS, Release Notes, 3BDS011767	This document contains the latest information about PROFIBUS Device Management
Industrial IT, Device Library Wizard, User Instructions, 3BDD011857	The document describes how to use the Device Library Wizard.
Industrial IT, Device Library Wizard, Release Notes, 2PAA100110	This document contains the latest information about the Device Library Wizard

Title	Description
Industrial IT, Fieldbus, Basic HART DTM/HART DTM Builder, Configuration, 3BDD011754	The document describes how to build device specific HART DTMs using the HART DTM Builder
Industrial IT, Fieldbus, Basic PROFIBUS DTM/PROFIBUS DTM Builder, Configuration, 3BDD011753	The document describes how to build device specific PROFIBUS DTMs using the PROFIBUS DTM Builder
Control IT, S800 I/O DTM, 3BSE027630	The document describes the features and how to configure the S800 DTM
Industrial IT, 800xA - Engineering, Engineering Workplace, Basic Engineering Functions, 3BDS011223	The document describes the work with Bulk Data Manager
Industrial IT, 800xA - System, Configuration, 3BDS011222	The document describes the concepts and how to configure the 800xA System in a step by step form
Industrial IT, 800xA - Asset Optimization, Configuration, 3BUA000118	The document describes the basic features and how to configure Asset Optimization
Industrial IT, 800xA - Control and I/O, PROFIBUS DP, Wiring and Installation, 3BDS009029	The document describes the installing of the PROFIBUS network
Industrial IT, 800xA - Control and I/O, PROFIBUS DP, Engineering and Configuration, 3BDS009030	The document describes the configuration of the PROFIBUS DP-V1 in the 800xA System

Section 1 Introduction

Product Overview

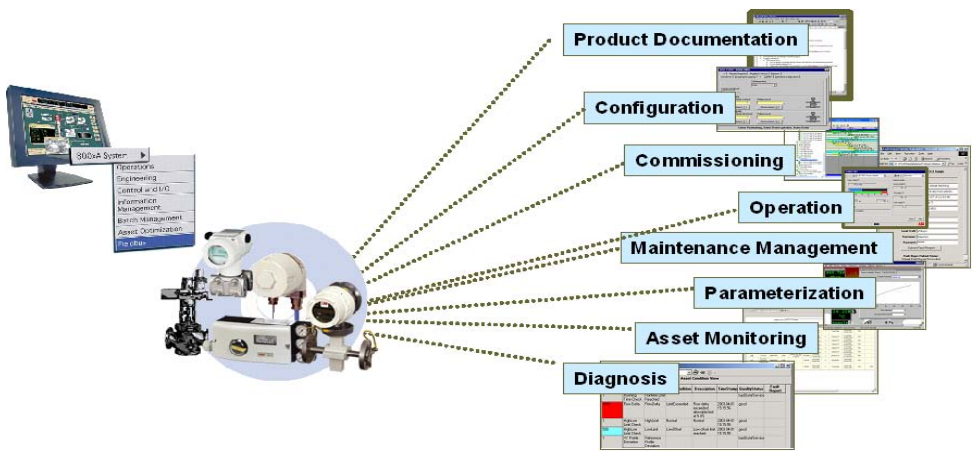


Figure 1. Components of the PROFIBUS Device Integration

PROFIBUS is an international standardized communication protocol for the manufacturing and process industries. Two different fieldbus types are supported for the 800xA system: PROFIBUS DP, the high speed bus with scalable transmission rates up to 12 Mbit/s and optimized for interaction with field devices such as remote I/O, drives, motor controller. PROFIBUS PA is a serial 2-way communication bus with 31,25 kbit/s, designed for connection of bus-powered 2-wire field devices such as transmitters and actuators. It can be also applied to intrinsically safe applications.

The PROFIBUS Device Integration consists of a set of software components for the efficient planning, commissioning, and servicing of PROFIBUS field devices within ABB's Industrial IT 800xA system.

The main components are:

- Fieldbus Builder PROFIBUS/HART
- PROFIBUS Device Integration Library
- Device Library Wizard (optional, must be downloaded from the ABB Solutionsbank)

The PROFIBUS Device Integration installs the necessary software components as well as preconfigured object types using appropriate "system extensions". This means that for new device objects, the functions of the installed components of this product are immediately available.

The object types in the Device Integration Package are created by ABB and tested for use in the 800xA system. ABB created these object types based on data provided by individual device vendors (e.g. GSDs, Device specific DTMs and Asset Monitor behavior specifications), which ABB relies on as accurately reflecting the actual device specification and behavior. Therefore, ABB cannot assume liability for events that are caused by devices that are not functioning according to fieldbus standards, or device specifications, or for events that are caused by mismatches between the device behavior and the input data provided by the device vendor.

Notes for use

The PROFIBUS Device Integration must be installed on the following computers:

- Any workstation from which the user wants to have access to field devices via FDT/DTM.
- Any Connectivity Server installed in the system.
- Any Aspect Server installed in the system.

We recommend that the Device Integration is installed on every PC used in the system, except Thin Client nodes.

Asset Monitors and CMMS Connectivity will only run with the PROFIBUS Device Integration, if the Asset Optimization option and the related CMMS software is installed and licensed in the system.

During installation of the PROFIBUS Device Integration a Device Integration Library is also implemented in the system. We recommend that only the field devices deployed in the system by the library are used for fieldbus engineering.

The device object types in the Device Integration Library have been tested together with the associated real field devices in the 800xA system. This assures the user full functionality without additional integration effort.

Licenses for device-specific DTMs are not subject to the System 800xA licensing arrangements and are not included in the PROFIBUS Device Integration. Licenses for device-specific DTMs should be applied for from the relevant device manufacturer.

Unless described in more detail, object types and aspects of the Device Integration software are configured and may not be modified by the user. ABB Service must be informed before the user makes any changes to the aspects described in this document.

ABB cannot guarantee an operable 800xA system if aspects of device object types from the Device Integration Library are modified manually. Only tested software (DTMs) may be installed on the system computer. All software supplied in the Device Integration meets this requirement.

Additional information can be found in Section 4, PROFIBUS Device Integration Library.

Components and Functions

Fieldbus Builder PROFIBUS/HART

The Fieldbus Builder PROFIBUS/HART is the main component within the Device Integration package. It forms the FDT compliant interface between Process Portal A as a part of the 800xA core system and the field devices represented by its DTMs (Device Type Manager).

The main tasks for PROFIBUS devices are:

- Managing (add, move, remove, or copy) PROFIBUS devices connected to the AC 800M / CI 854
- Topology planning down to PROFIBUS devices
- DTM call up from System 800xA clients
- Comparison of field device internal- and instance data
- Upload, download and commissioning

Please see Section 3, Fieldbus Builder PROFIBUS/HART for detailed information.

PROFIBUS Device Integration Library

The PROFIBUS Device Integration Library contains preconfigured ABB and third party field device objects enhanced with the essential Aspects for:

- Product Documentation
- Asset Monitoring
- Computerized Maintenance Management Systems (CMMS Connectivity)
- Configuration, Parameterization, Operation via DTM

Product Documentation

Product Documentation is directly available at the device object. Key product data are bundled in convenient electronic format. Thereby documents like Data Sheet, Installation, Configuration, and Operation Manual as well as maintenance and service manual are accessible via mouse click.

Asset Monitoring

Asset Monitor, Asset Reporter and Asset Viewer acquire and analyze asset status and condition information. They notify operators and maintenance personnel when an abnormal condition calls for maintenance action.

Maintenance Management

CMMS Connectivity provides the seamless integration of the Computerized Maintenance Management Systems (CMMS) into the Industrial IT system environment. Asset related maintenance information is accessed via standard, preconfigured CMMS views allowing for the quick and efficient assessment of maintenance needs and status.

Device Type Manager

DTMs are the configuration and management software component for a field device. It is familiar with all of the device's rules to ensure the correctness of the device configuration.

The DTM contains graphical user dialogs essential for device configuration, parameterization, diagnostics, and maintenance and enables offline engineering without requiring the connected field devices. In addition, online engineering with connected field devices is also possible.

During setup of the PROFIBUS Device Integration Library the following DTMs are installed:

- Basic PROFIBUS DTM
  As it uses device-specific templates, the Basic PROFIBUS DTM also enables custom access to the corresponding device.
- S800 I/O DTM
  Used for the configuration and diagnosis of HART devices, which are connected to a S800 module.
- S900 I/O DTM
  Used for the configuration and diagnosis of HART devices, which are connected to a S900 module.

- Device specific DTMs
  Additional DTMs are prepared for installation from the hard disk, which can be installed directly from the Device Integration setup program or later on via *Install DTM* Aspect directly at the object type.

Please read the PROFIBUS Device Integration Release Notes for detailed information about limits and additional licenses may be required for some DTMs.

Device Library Wizard and Device Object Types (optional)

For easy integration of devices into the Industrial IT 800xA environment ABB provides a continuously increasing set of pre-integrated device types for PROFIBUS protocol in the form of device object types.

Pre-integrated device types for the Industrial IT 800xA environment are available from ABB Solutionsbank for all supported fieldbus protocols in the form of device object typs.

The Device Library Wizard is a tool that is used for adding these separately delivered device object types to the PROFIBUS Device Integration Library of an 800xA system. It will be installed and operate on an Industrial IT 800xA system node.

Please see Section 5, Device Library Wizard (optional) for detailed information.

New In This Release

Table 1. Versions

Version	Description
3.1	First version
3.1 SP1	Second version, containing bug fixes and additional device object types
3.1 SP2	Third version, containing bug fixes and additional device object types
4.0	800xA system version with new functionality: • DTM communication mode vie topology context menu • Enhanced diagnosis messages • DTM Setup Tool, allows easy DTM installation • Support of additional device types • Enhanced documentation • Enhanced import/export functionality of the Fieldbus Builder PROFIBUS/HART
4.1	New system version, containing bug fixes and additional device object types. New functionality: • Support of the Device Library Wizard • Support of additional device types

Prerequisites and Requirements

For prerequisites and requirements, please refer to Industrial IT, 800xA - System, Installation 3BSE034678, stored on the 800xA system DVD/CDs.

Intended User

The configuration document is designed specifically for planning engineers, commissioning engineers, and maintenance personnel. Those using this document should be familiar with the basic method of operation of the PROFIBUS protocol.

Product Support

Contact ABB technical support for assistance in problem reporting.

Section 2 Getting Started

Overview

This section uses actual examples to describe how device objects with asset monitors are used in a fieldbus system and how DTMs are started. Information about DTM functionality can be found in each device-specific description.

Prerequisites and Requirements

The following requirements must be met, in order to be able to carry out the actions described in this section:

- All necessary software is installed on the related system node. Please refer to Industrial IT, 800xA - System, Installation 3BSE034678 for detailed information.
- DCOM settings for PROFIBUS Device Integration components are adapted according Industrial IT, 800xA - System, Post Installation Setup 3BUA000156R4101 manual.
- A directory must be shared for DTM access on every system node. Please refer to Industrial IT, 800xA - System, Post Installation Setup 3BUA000156R4101 manual, section “Shared Folder for PROFIBUS and HART Device Integration”
- An 800xA system has been created and started.

- The following system extensions have been added:
  - AC 800M/C Connect
  - Fieldbus Builder PROFIBUS/HART
  - HART Device Integration Library - Basics (mandatory for DTM communication. The required license is covered by the PROFIBUS Device Integration)
  - PROFIBUS Device Integration Library - Basics
  - PROFIBUS Device Integration Library - Asset Monitoring (optional, requires Asset Optimization installation and loading of the relevant system extensions)
- The Plant Explorer Workplace has been started.
- The user has configuration and download permissions.

Fieldbus topology in the 800xA system

Once an 800xA system has been started, a fieldbus topology starting at the controller and ending at the field device can be created in the Control Structure of the Plant Explorer. Starting with the root node, the simplest example of a fieldbus system for PROFIBUS and HART is set up as follows using the Plant Explorer context menu (right mouse button):

Control Network - > Control Project -> Controller Group -> AC 800M -> "Field Devices"

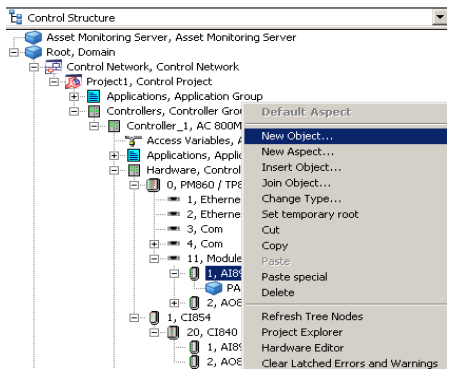


Figure 2. Control Structure with fieldbus topology

Preparing device object types for usage

The PROFIBUS device objects are present in the object type structure once the system extensions of the PROFIBUS Device Integration Library have been loaded into the 800xA system.

Some device object types which have been implemented in the 800xA system using the PROFIBUS Device Integration Library have a device-specific DTM for device configuration, parameterization and operation. The device-specific DTM may also include licensing, whereby the end user has to purchase the license separately directly from the device manufacturer.

The PROFIBUS Device Integration Package copies the installation routines of the DTMs to the local hard drive. Afterwards the DTMs can be executed via the relevant device object type.

In case, that the Device Library Wizard is used to extend the PROFIBUS Device Integration Library, the Device Type Manager (DTM) is installed automatically on the 800xA's system node.

Licenses for device-specific DTMs are not subject to the System 800xA licensing arrangements and are not included in the PROFIBUS Device Integration Package. Licenses for device-specific DTMs should be applied for from the relevant device manufacturer.

Device-specific DTMs need to be installed on every 800xA system node on which the PROFIBUS Device Integration is executed. The DTM-specific licensing arrangements need to taken into account.

Device object types cannot be used or instantiated if the associated DTM is not installed.

Installation of Device Type Manager (DTM)

This subsection can be skipped, if the device object type is installed separately via Device Library Wizard.

The installation of the Device Type Manager (DTM) is mandatory for object types, which are used in the field device topology. In case, that the DTM is already installed on the system nodes, this subsection is not applicable.

Notice, that it is mandatory to install specific Device Type Manager (DTM) before the device object is instantiated in Plant Explorers Control Structure. That applies also to device objects, coming into the system as instances in an already created Control Structure via import, e.g. during upgrade or recovery procedures.

Detailed information for upgrade procedure are described in the 800xA system upgrade manual.

The following steps need to be carried out for the relevant object type, if the device specific DTM is not yet installed on the system node.

DTMs can be installed via setup tool, located in
Start -> All Programs -> ABB Industrial IT 800xA -> DevMgmt - PROFIBUS -> PROFIBUS DTM Setup Tool
or via the steps described below:

1. Switch to the Plant Explorers Object Type Structure.
2. A folder structure containing the various 800xA system object groups appears. Click "+" to open the folder structure "*Object Types->Control System->AC 800M/C Connect->Controller Hardware*".
3. Select the master device object used in the system.

For PROFIBUS, object types are stored inside the *Object Types->Control System->AC 800M/C Connect->Controller Hardware* catalog.
This catalog level includes a master object type and the suitable module object types of the master object type. The master object type contains device specific parameter for the cyclic communication, documentation, CMMS and Asset aspects. Optional a Device Type Manager (DTM) is assigned to the master object type. For instantiation of new device types in the Control Structure only the master object type shall be used. Module object types can only be placed below master object types.

The name of the master object type are described in the product release notes.

4. Select the *Install <DTM>* Aspect, if applicable.
5. Double-click on the *Install <DTM>* Aspect to start the associated installation program.
6. Follow the instruction of the DTM setup program.

Steps 1 to 6 need to be carried out on every 800xA system node on which the PROFIBUS Device Integration has been installed.

Further information about device object types can be found in Section 4, PROFIBUS Device Integration Library.

Preparing Hardware Definition files (hwd) for Control Builder M

Hardware Definition files are needed in the Control Builder M project to establish the communication between AC 800M controller and the certain PROFIBUS devices. The Hardware Definition files (hwd) are based on the specific GSD file of the PROFIBUS devices and contains basic communication parameter as well as user specific parameter and diagnosis for the cyclic communication.

Hardware Definition files for PROFIBUS devices are part of the PROFIBUS Device Integration Library. Please see Section 4, PROFIBUS Device Integration Library for detailed information.

The hwd file is mandatory for object types, which are used in the field device topology. In case, that the hwd file is already integrated in the Control Builder M project, this subsection is not applicable.

This subsection describes the first steps to copy hwd files of the used PROFIBUS devices to the related path of the Control Builder M project. The integration of the hwd file is described in Hardware Definition File Integration on page 42.

Two possibilities are available to copy hwd files to the Control Builder M project path:

- In the object type structure on the master object type via *Update Hardware Definition* aspect
  This aspect allows upload hwd files, if a complete new AC 800M control network shall be setup and if the AC 800M project is not placed yet in the Control Structure.
- In the Control Structure on the CI 854 object instance via *Update PROFIBUS Device HWD* File aspect
  This aspect allows upload hwd files during commissioning, if a AC 800M project and a CI854 object is already inserted in the Control Structure.

Update Hardware Definition

The aspect *Update Hardware Definition* is only available in the Plant Explorers object type structure at the PROFIBUS master object type. The following steps have to be carried out:

1. Open Plant Explorer and switch to the object type structure.

2. Browse to the PROFIBUS master object type (*Object Types -> Control System -> AC 800M/C Connect -> Controller Hardware*).
3. Select the PROFIBUS master object type.

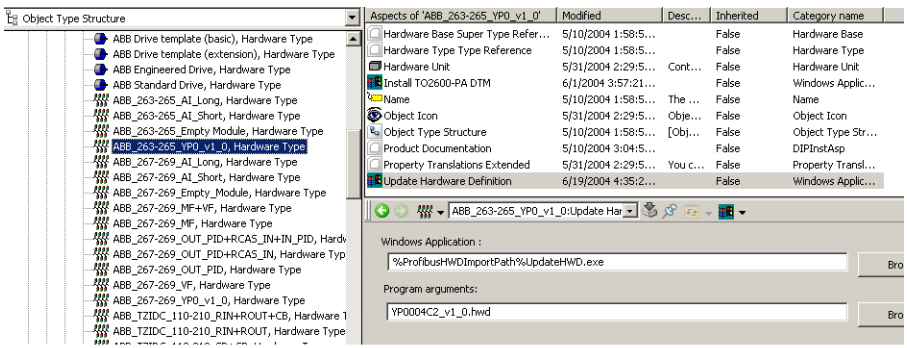


Figure 3. Update Hardware Definition aspect

4. Double click the aspect *Update Hardware Definition.*

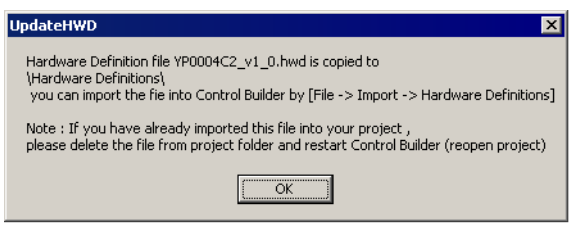


Figure 4. Upload message box

5. Click [OK].

The hwd file is now copied to the Control Builder M project directory. Please go ahead with System 800xA Server Path Settings on page 33. Alternative the procedure described below can be performed to copy Hardware Definition files to the Control Builder M project.

Update PROFIBUS Device HWD File

The aspect *Update PROFIBUS Device HWD File* is only available in the Plant Explorers Control Structure at the PROFIBUS object type CI854. The following steps have to be carried out:

1. Open Plant Explorer and switch to the Control Structure.
2. Browse to the PROFIBUS object *CI854*.
3. Select the *CI854* object.
4. Select the *Update PROFIBUS Device HWD File* aspect.

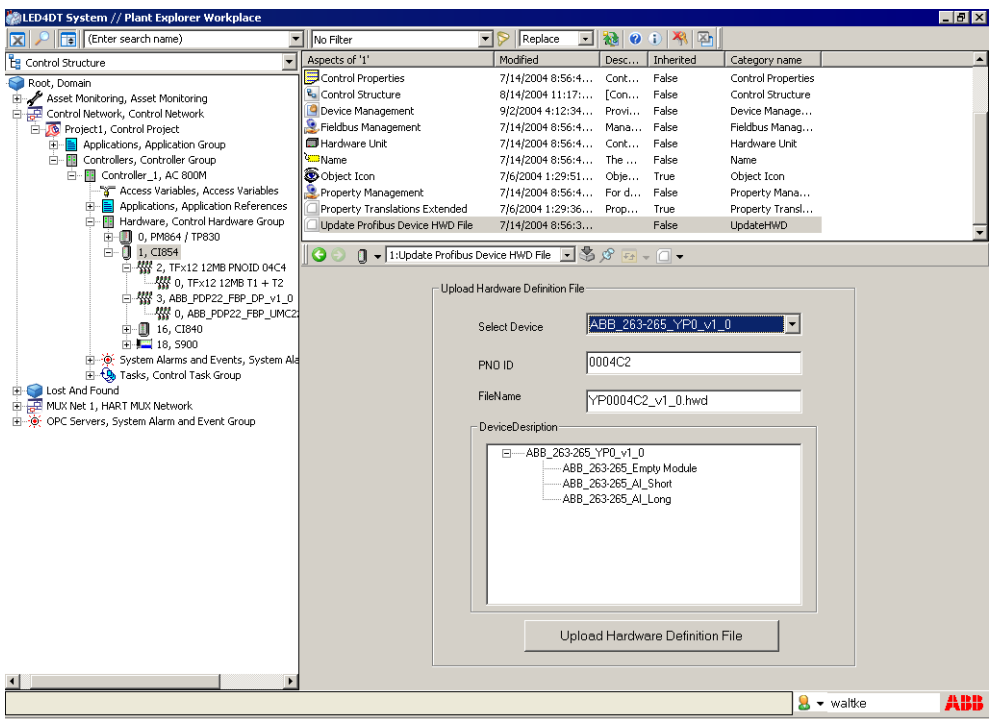


Figure 5. Update PROFIBUS Device HWD File aspect

5. Select the device, which shall be inserted in the project. Use the pull down menu *Select Device.*

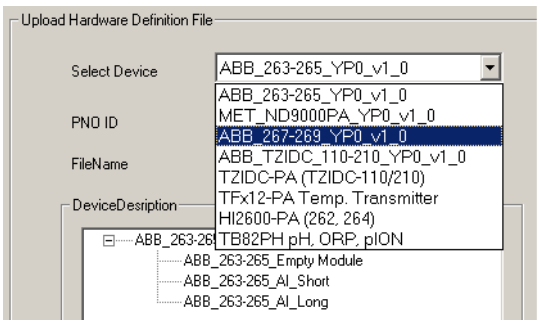


Figure 6. Select Device

6. Click [Upload Hardware Definition File].]

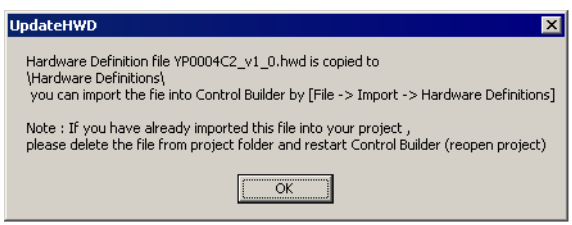


Figure 7. Upload message box

7. Click [OK].

The hwd file is now copied to the Control Builder M project directory. Please go ahead with System 800xA Server Path Settings on page 33. Alternative the procedure described in *Update Hardware Definition* can be performed to copy Hardware Definition files to the Control Builder M project.

System 800xA Server Path Settings

Once the shared folder (please refer to Industrial IT, 800xA - System, Post Installation Setup 3BUA000156R4101 manual, section *Shared Folder for PROFIBUS and HART Device Integration*) has been enabled, it is necessary to notify the paths to the Fieldbus Builder PROFIBUS/HART and the OPC Server.

1. Open the Control Structure in the Plant Explorer workplace.
2. Select the *FBB PH Settings* Aspect at the *Root* Object in the Aspect window.

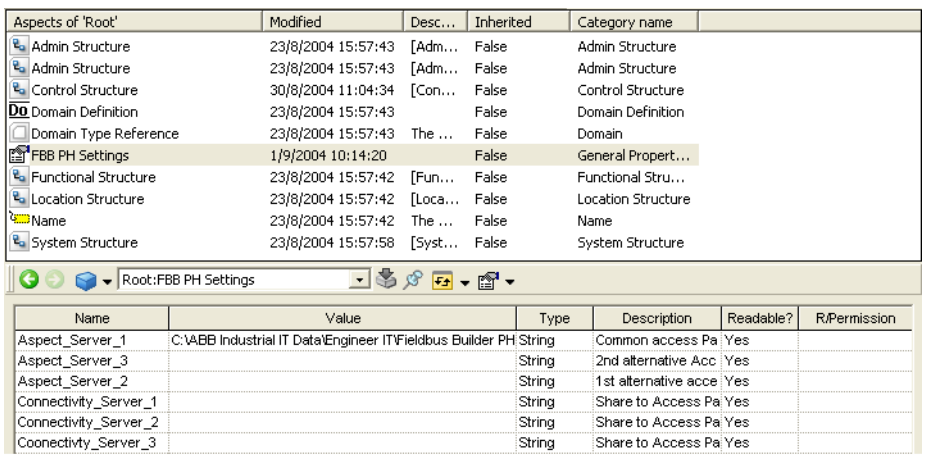


Figure 8. FBB PH settings Aspect in the Control Structure

3. Change the path below the *Value* tab to the directory of the specific server using the *UNC* path setting. If no redundant or fewer servers are entered in the 800xA System leave the *Value* tab empty. This configuration needs to be carried out once per system. The paths which are included are stored in the Aspect Directory where they are available to each connected client.
   Example for an Aspect Server:
   \\aspect server\Fieldbus Builder PH

Please ensure, that the *Fieldbus Builder PH* folder is shared on each Aspect and Connectivity Server.

4. Click [Apply].

All Aspect Server and Connectivity Server with its share folder shall be included in the FBB PH Settings aspect. If more Connectivity Server then configuration rows of the FBB PH Settings are connected to the system, additional rows can be included manually.

5. Change to the configuration mode of the *FBB PH Settings* aspect.

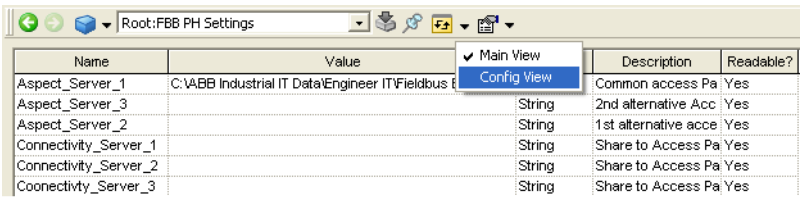


Figure 9. FBB PH Settings config menu

6. Select a server in the left side window.

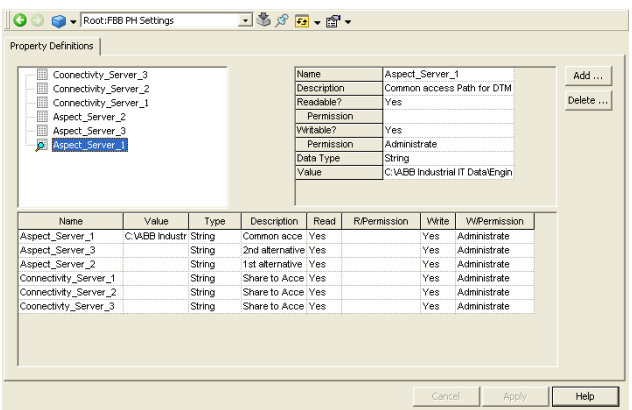
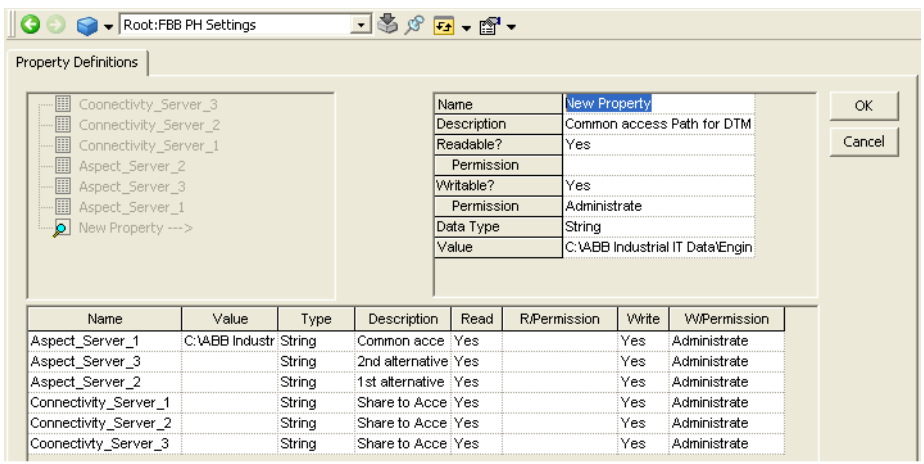


Figure 10. Configuration Mode

7. Press *Add...* button in the window and select *Property After* from the menu.

Figure 11. Add Server

8. Change *Name* and *Value* field:
   - *Name* is the new name of the server, e.g Connectivity_Server_4
   - *Value* is the UNC path to the share folder



Name	New Property
Description	Common access Path for DTM
Readable?	Yes
Permission	
Writable?	Yes
Permission	Administrate
Data Type	String
Value	C:\ABB Industrial IT Data\Engin

OK
Cancel

Name	Value	Type	Description	Read	R/Permission	Write	W/Permission
Aspect_Server_1	C:\ABB Industr	String	Common acce	Yes		Yes	Administrate
Aspect_Server_3		String	2nd alternative	Yes		Yes	Administrate
Aspect_Server_2		String	1st alternative	Yes		Yes	Administrate
Connectivity_Server_1		String	Share to Acce	Yes		Yes	Administrate
Connectivity_Server_2		String	Share to Acce	Yes		Yes	Administrate
Coonectivty_Server_3		String	Share to Acce	Yes		Yes	Administrate

Figure 12. New configuration of server

9. Confirm change with *Apply.*

Steps 6 to 9 need to be repeated till all server are included in the aspect.

Pre-commissioning Control Networks, AC 800M and OPC

In order to create an AC 800M controller network with the associated communications interfaces for e.g. PROFIBUS as well as the I/Os (local, remote) in the Control Structure, a Control Network must first be set up. The Control Network also comprises the assignment of the relevant OPC Server to a Connectivity Server.

Creating an AC 800M Controller

1. Switch to the Control Structure in the Plant Explorer.
2. Select the *Root* node.
3. Right-click on the mouse and select *New Object*.

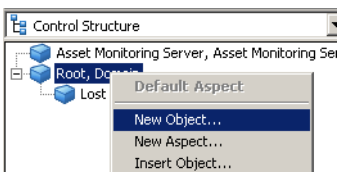


Figure 13. Select "New Object..."

4. Browse to the *Control Network* object (*Object Types -> Control System -> AC 800M/C Connect -> Control Types*), select *Control Network* and enter a new name if required.

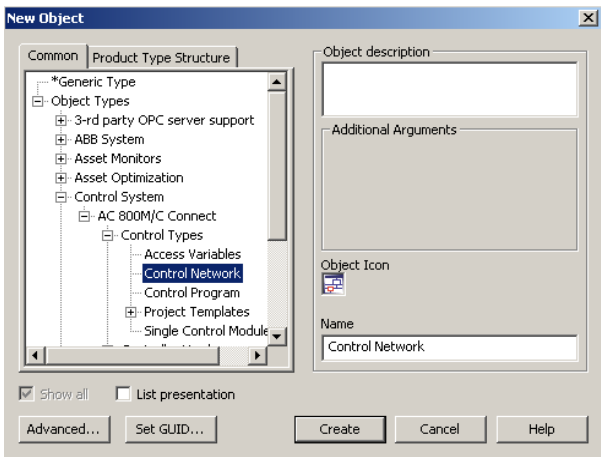


Figure 14. Select Control Network as the new object

5. Click [Create].
6. Select the newly created Control Network object and right-click on the mouse.
7. Select *New Object* in the context menu.

8. Select the required controller type, for example *AC 800M controller*, and enter a project name in the Name box.

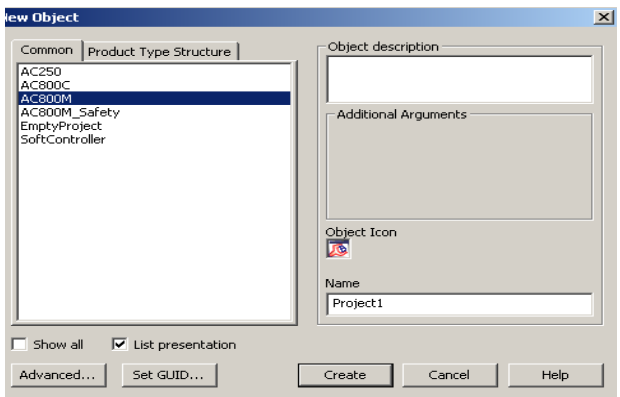


Figure 15. Selecting the AC 800M controller

9. Click [Create].

You have now created the Control Network with an AC 800M Controller. Several AC 800M Controllers can be created under one Control Network.
Repeat steps 6 to 9 as required to do this.

To create a new Control Network and AC 800M Controller, repeat steps 1 to 9.

Further information on the Control Network and Controller can be found in the relevant product documentation.

AC 800M OPC Server

Parameter display and faceplates are mainly supplied with data via the AC 800M OPC Server. Information about configuring and starting the AC 800M OPC Server can be found in the relevant product documentation.

Pre-configuration of the AC 800M controller

To ensure error-free communication for a field device with a DTM, an additional setting must be made for the AC 800M controller in the Plant Explorer.

In order that field devices can be accessed with DTM (Device Type Manager) via the AC 800M controller, the communication path (Tool Routing) must be enabled in each controller.

Only when Tool Routing is **enabled**, communication with DTMs for field devices is possible in the 800xA system.

Tool Routing is disabled by default. In order to activate it, the processor module of the AC 800M controller, e.g. PM860/TP860, is selected in the Control Structure.

The *Control Properties* aspect appears in the aspect window. Select the aspect to open an overview of the various properties of the module in the main Plant Explorer window. One of the property entries is *TOOLROUTING*.

Set this *Property Value* to *Enabled*and click [Apply].

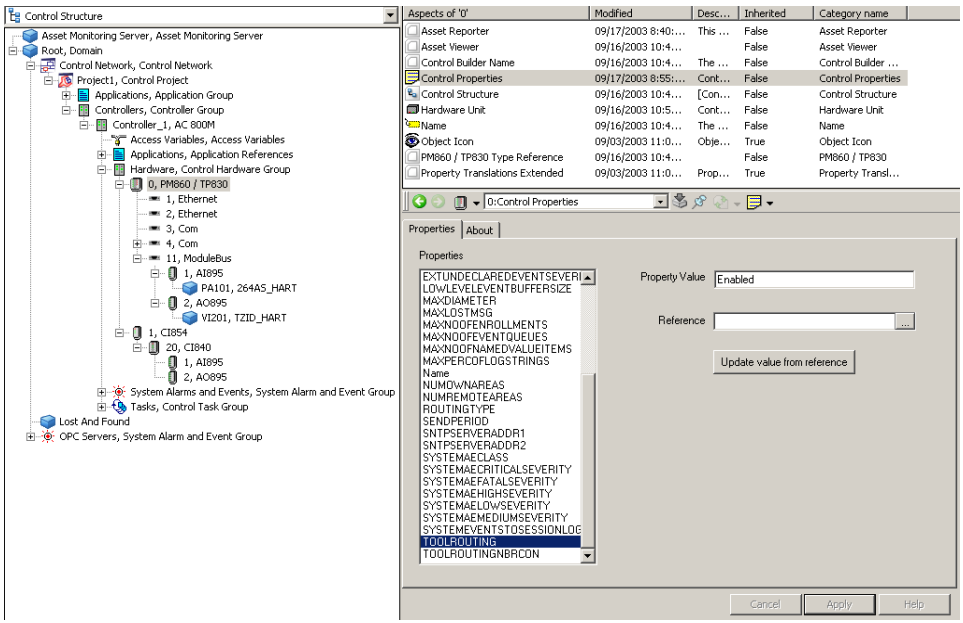


Figure 16. Tool Routing enabled for DTM access

Increase *TOOLROUTINGNGBRCON* to *50*, if more than 50 devices are placed below a CI 854 PROFIBUS communication interface or if also HART device objects are used.

Setting up a PROFIBUS Fieldbus Topology

Together with the AC 800M Controller and the CI854 communication interface, the 800xA System is capable of setting up a PROFIBUS communication. This section describes a sample set-up for a PROFIBUS PA device. The following steps have been performed in the Plant Explorers Control Structure. PROFIBUS devices can also be instantiated via the Control Builder M.

Communication Interface CI854

The communication interface CI854 establishes the PROFIBUS network for an AC 800M controller. Up to 12 CI854 can be placed at the Controller, 6 lines can be build up in redundant mode. Also line redundancy is supported from each CI854 interface.

This section describes a simple PROFIBUS network configuration. Mainly the configuration via Device Type Manager is part of this document.

Detailed information are described in the relevant product documentation of the Control Builder M. Additionally there is a document describing how to build up a physical PROFIBUS network.

1. Open the Plant Explorer workplace.
2. Switch to the Control Structure.
3. Open the substructure below the Project object.
4. Browse to the *Hardware* object, placed below the AC 800M controller.

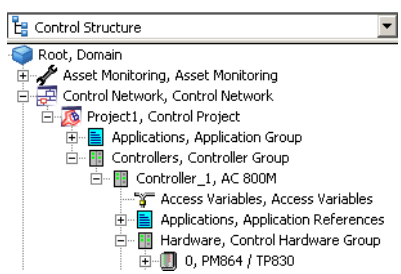


Figure 17. Control Structure with AC 800M

5. Select the *Hardware* object.
6. Right-click on the mouse and select *New Object*.
7. Browse to the *CI854* object, stored in the AC 800M hardware catalog.
8. Enter the CEX bus number of the module placed, e.g. *1*, in the name box.

The CEX bus is the internal communication bus for data transmission between AC 800M controller and the connected communication interfaces. The communication interfaces are located on the left side of the controller and are numbered from left to right. Starting number is One.

Example:
If the CI854 module is the second module on this bus, the number *2* must entered in the name box.

Information relating to CI854 modules and instancing instructions can be found in the relevant product documentation.

9. Click [Create].

The module is instanced both on the slot number in the Plant Explorers Control Structure and in the Control Builder M project.

Repeat steps 5 to 8 until all of the desired modules have been placed.

Hardware Definition File Integration

The Control Builder M needs to have converted GSD files to establish cyclic communication between CI854 and the related field device. The converted GSD file, which is stored in a Hardware Definition file (hwd), can be inserted in the Control Builder M project. All device object types in the PROFIBUS Device Integration Library as well as device object types, included to the library via Device library Wizard, does contain a valid Hardware Definition file. The hwd file has to be copied manually to the Control Builder M directory via specific aspect at the device object type. Please follow the procedure described in Preparing Hardware Definition files (hwd) for Control Builder M on page 29 before perform the steps below.

1. Open Control Builder M as described below:
   - Open Plant Explorer workplace
   - Switch to the Control Structure
   - Browse to the Control Project object
   - Select the Control Project Object
   - Right-click on the mouse and select *Open Project*
2. Switch to the Control Builder M project window.
3. Select *File -> Insert Hardware Definitions.*

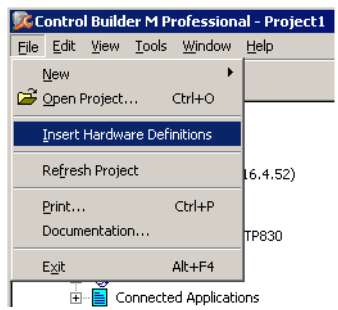


Figure 18. Insert Hardware Definitions

4. Move up one directory level.

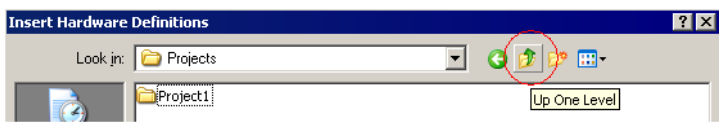


Figure 19. CBM project path

5. Open *Hardware Definitions* folder.

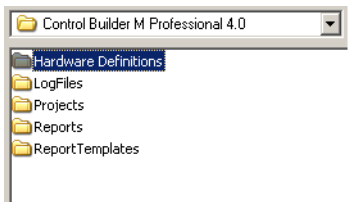


Figure 20. Hardware Definitions folder

6. Select hwd files (multiple selection is possible).

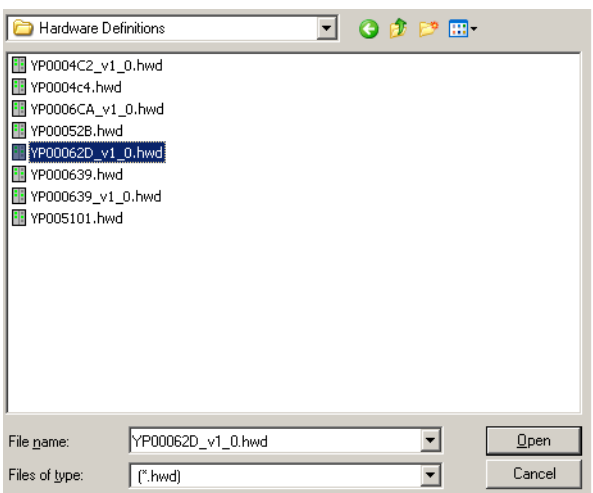


Figure 21. Select Hardware Definition files

7. Click [Open].

Hardware Definition files are inserted in the Control Builder M project.

Hardware Definition files are only inserted into a single project. If more AC 800M projects with PROFIBUS devices are used in the 800xA system, steps 1 to 7 have to be repeated.

Pre-settings for Instantiation

Instantiation of field devices are only possible with the Fieldbus Builder PROFIBUS/HART in *Communication disabled* mode. If *Communication enabled* mode is active, it must be deactivated for device instantiation (Communication disabled).

Two possibilities are available to set the Fieldbus Builder in Communication disabled:

- Via context menu of the *Fieldbus Management* aspect at the device object.
- Via *Device Functions ...* context menu in the Control Structure of the Plant Explorer workplace.

Communication mode via Fieldbus Management aspect

1. Select the *CI854* object in the Plant Explorers Control Structure.
2. Select the *Fieldbus Management* aspect in the Aspect window.
3. The mode icon in the preview window indicates the current mode (must be *Communication disabled* for fieldbus configuration).

The icon appears on the bottom left of the preview window.

4. If the mode is *communication enabled*, select the *Fieldbus Management node* in the preview window.

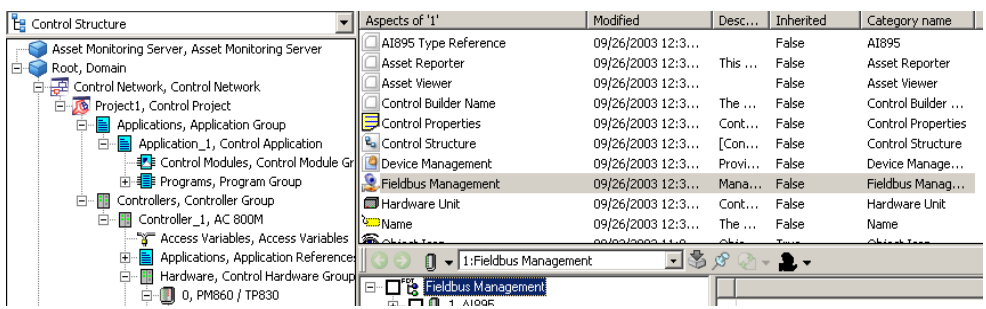


Figure 22. Fieldbus Management aspect

5. Click with the right mouse button and select *Communication enabled* (the check mark will disappear from this item).
6. The Mode icon switches to *Communication disabled*.
7. The device object can be switched to *Communication enabled* mode by selecting *Communication enabled* in the context menu.

In *Communication enabled* mode, the DTMs required for the communication sequence are started although they do not affect actual fieldbus communication. In *Communication disabled* mode, only the DTM for the selected object is called.

Communication mode via *Device Functions* menu

1. Select the *CI854* object in the Plant Explorers Control Structure.
2. Click with the right mouse button to open the context menu.
3. Select *Device Functions*... in the context menu.

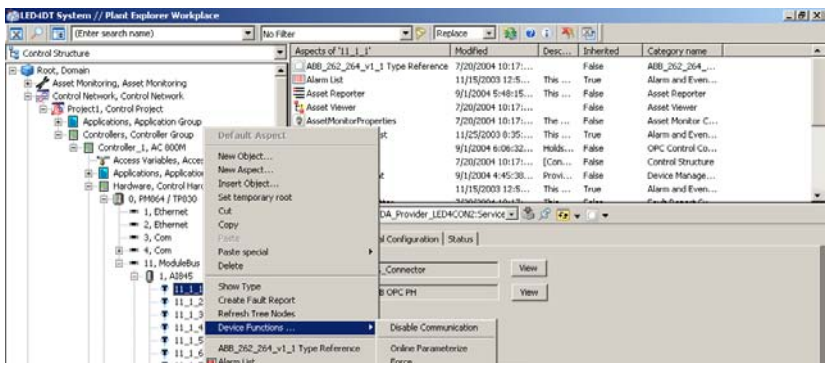


Figure 23. Device Functions ...

4. The sub menu of *Device Functions* ... indicates the current mode (will be *Communication disabled* for fieldbus configuration).

The sub menu allows also changing the mode by selecting the menu item.

Instancing of PROFIBUS Device Objects

Instancing PROFIBUS device objects can be performed either in the Plant Explorers Control Structure or in the Control Builder M project window.

Field device of the PROFIBUS Device Library are integrated into the fieldbus topology as follows.

The PROFIBUS Device Integration Library include PROFIBUS device objects, prepared for use of vendor specific DTM. In this case the DTM has to be installed manually before instantiation. For a description of how to install specific DTMs, see Installation of Device Type Manager (DTM) on page 27.

Vendor specific DTMs sometimes include a license mechanism to run the DTM without limitations. Only the DTM software is part of the Device Integration Package, the specific license of a DTM not. The DTM license has to be ordered separately from the DTM vendor. Licenses for a DTM are not included in the 800xA licensing.

It is recommended to know the device addresses of each PROFIBUS device, located on the PROFIBUS line, before starting the device instantiation. If the devices are already connected to the PROFIBUS network, download the created project first. Then start the PROFIBUS CI854 Web Server to get the live list of connected PROFIBUS devices. The Web Server is described in CI854 Web Server on page 85 and in the related CI854 product documentation (Industrial IT 800xA - Control and I/O, PROFIBUS DP, Engineering and Configuration 3BDS009030).

Plant Explorers Control Structure

1. Open Plant Explorer workplace.
2. Switch to the Control Structure.
3. Open the substructure below the Project object.
4. To place a PROFIBUS device on the CI854, select the *CI854* Hardware object.
5. Right-click on the mouse and select *New Object* in the context menu.
6. Browse to the required PROFIBUS master object in the AC 800M hardware catalog, e.g. *ABB_TFx12_YP0_v1_0*.

7. Enter the PROFIBUS address of the object placed, e.g. 20, in the name box.
8. Click [Create].
9. To place a specific device module below the PROFIBUS master object, select the PROFIBUS master object.
10. Right-click on the mouse and select *New Object*.
11. Browse to the required device module in the AC 800M hardware catalog, e.g. *ABB_TFx12_Temp1*.
12. Enter the slot number of the module placed, e.g. *1*, in the name box.

Modules always start at slot 1.

13. Click [Create].

The device module is instanced both in the Plant Explorers Control Structure and in the Control Builder M project.

Repeat steps 9 to 13 until all of the desired modules have been placed on the remote I/O.

The above steps should be applied analogously for instancing of an S800 and S900 Remote I/O. In this case the S800 and S900 modules and the specific gateways are selected.

Please go ahead with Configuration and Commissioning of PROFIBUS Device Objects on page 50. Alternative the procedure described below can be performed to instantiate PROFIBUS device objects.

Control Builder M project

1. Open Control Builder M as described below:
   - Open Plant Explorer workplace
   - Switch to the Control Structure
   - Browse to the Control Project object
   - Select the Control Project Object
   - Right-click on the mouse and select *Open Project*

2. Switch to the Control Builder M project window.
3. Browse to the *CI854* object.
4. Select the *CI854* object.
5. Right-click on the mouse and select *New Unit -> GSD Import -> "Device"*.

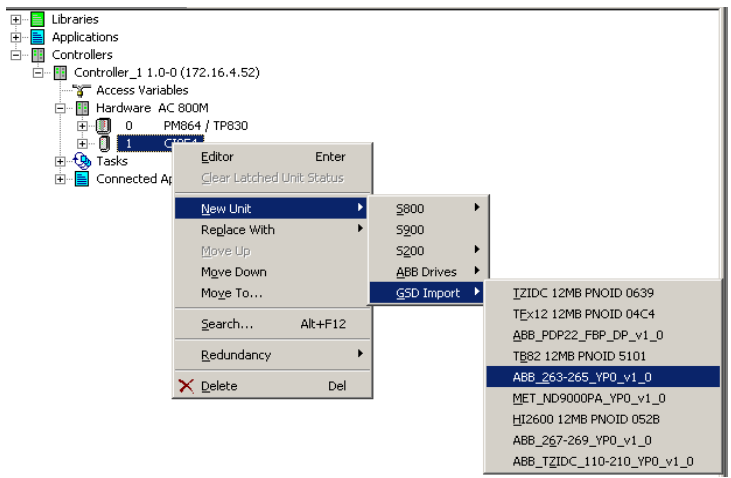


Figure 24. Select Device in the CBM project

6. Select the PROFIBUS address of the object placed, e.g. *20*, from the pull down menu.
7. Click [OK].
8. To place a specific device module below the PROFIBUS master object, select the PROFIBUS master object.
9. Right-click on the mouse and select *New Unit -> GSD Import -> "Module"*.
10. Browse to the required device module, e.g. *ABB_TFx12_Temp1*.
11. Select the slot number of the module placed, e.g. 1, in the pull down menu.
12. Click [OK].

The device module is instanced both in the Plant Explorers Control Structure and in the Control Builder M project.

Configuration and Commissioning of PROFIBUS Device Objects

There is no synchronization of device configuration data between Control Builder M project and the Device Type Manager (DTM). Device parameter, which may be necessary for both parts, must be configured twice - in the Control Builder M project and the DTM.

For example:
The device modules, which are configured in the Control Builder M project, are not automatically available in the DTM. The used device module must be configured also in DTM, if applicable.

Once the PROFIBUS Device Objects have been instanced and downloaded, they can be configured for the application via DTM. A configuration describes the creation of a parameter set for a particular device in the database only (in the Aspect Server). To do this, the Fieldbus Management must be switched to *Communication disabled* mode (see Instancing of PROFIBUS Device Objects on page 47).

A detailed description of how to start the relevant DTM is given in Starting the Device Type Manager (DTM) on page 54. The configuration of the device via a DTM is described in the associated DTM documentation and is not included in this documentation.

Once the configuration phase is complete for all PROFIBUS Device Objects, the data records for the relevant device or selection of devices can be

- verified,
- loaded to the device/selection of devices,
- saved in one or more export file(s).

These functions are executed via the *Fieldbus Management* Aspect and its subconditions. Instance data can be verified and exported with the Fieldbus Management in *Communication disabled* mode, but loading is only possible in *Communication enabled* mode. In order to load fieldbus lines, select the line via the context menu of the Fieldbus Management and then click on *Download selection* to start.

Verify

Selecting the verify option in the Fieldbus Management menu compare the online device date with the inside the 800xA stored offline configuration data set. The result is *true*, if the data set are equal, otherwise *false*.

If the verification result is false, an up- or download is recommended for data synchronization.

Download and Upload

When several devices are selected, the PROFIBUS/HART Fieldbus Builder starts a batch process for up- or download, which is processed sequentially. Execution of the batch process continues even if errors occur in individual DTMs. Each event (faulty/successful execution) is documented in the Fieldbus Management status window. If an error occurs, an error message is displayed after the end of the batch process to indicate that the batch process is faulty.

Loading errors can arise if this function is not supported by the DTM, e.g. S800 modules, or if the DTM cannot establish a connection to the device.

Export and Import

The export file of an instance data record is saved with a time stamp in a folder which is specific to the Device Object. This makes it possible to build up a device configuration history. Exported device data set can be imported again by selecting the specific export file. The export and import process is carried out manually by the user.

Further information on the Fieldbus Management Aspect can be found in Fieldbus Management on page 70.

Synchronization of DTM specific data through the 800xA system

DTMs, installed on each client, may store their private internal data in a separate file on the hard disc. This private data could be e.g. log files, last open view, etc. However, “private internal data” does not mean the instance data set of the device parameter. As a default, the DTM stores the private data locally in the shared folder directory on each client.

The shared folder directory is described in Industrial IT, 800xA - System, Post Installation Setup 3BUA000156R4101 manual, section “Shared Folder for PROFIBUS and HART Device Integration”.

Synchronization of DTM specific data shall be executed by the user after finishing instancing and configuration of device objects in the Plant Explorers Control Structure.

To synchronize the private DTM data the following steps must be carried out by the user:

1. Open Plant Explorer workplace.
2. Switch to the Control Structure.
3. Open the substructure below the Project object.
4. Select a device object below which hold a *Fieldbus Management* aspect
5. Select the *Fieldbus Management* aspect.
6. The Fieldbus Management view appears in a window of the Plant Explorer.

Double-clicking on an Aspect in the Aspect window will open up its contents in a separate process window.

7. Select the *Fieldbus Management* node in the Fieldbus Management tree.
8. Click with the right mouse button to open the context menu.
9. Select *Synchronize DTM related path*

It is recommended to start DTM data synchronization to the end of configuration work to keep network utilization small.

Deleting Device Objects

Deleting device objects can only be made in *Communication disabled* mode.

The following operations must be carried out to delete the field device from the Control Structure:

PROFIBUS device objects can be also deleted from the Control Builder M tool. Open the Control Builder M project, select the specific device object and click the right mouse button. Device/module can be deleted, exchanged or moved to another PROFIBUS address.

1. Open Plant Explorer workplace.
2. Switch to the Control Structure.
3. Open the substructure below the project object.
4. Select the field device to be deleted in the Control Structure of the Plant Explorer.
5. Click with the right mouse button to open the context menu.
6. Select *Delete* in the context menu.

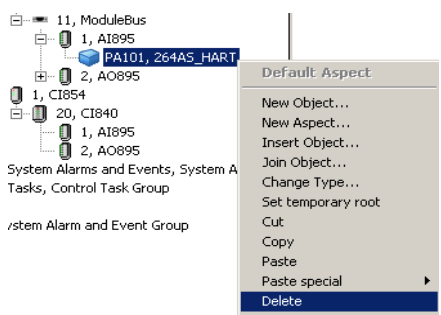


Figure 25. Delete device object

Starting the Device Type Manager (DTM)

In addition to the Fieldbus Management aspect, every field device features a Device Management aspect. The Device Management aspect opens the associated DTM (Device Definition) in the main window with the instance data record.

DTMs can be started in *Communication disabled* mode to configure field device objects or, if changes are to be made directly in the device, in *Communication enabled* mode. Depending on the mode, the DTM will appear with various functional windows. The various modes are selected via the Fieldbus Management aspect of the relevant device object.

Communication enabled mode starts all DTMs required for the communication sequence. Individual DTMs in this connection sequence can not switch to *Communication disabled* mode without affecting other DTMs started in this sequence.

Setting objects to Communication disabled/enabled mode is described in Instancing of PROFIBUS Device Objects on page 47.

Two possibilities are available to open a DTM:

- Via *Device Management* aspect in the aspect window.
- Via *Device Functions* ... context menu in the Control Structure of the Plant Explorer workplace.

Certain device-specific DTMs can only be started via the Device Functions context menu. With these DTMs, the Device Management window has a gray background and does not allow graphic interfaces to be displayed.

Open DTM via Device Management Aspect

The following operations must be carried out to open the field devices DTM via Device Management aspect:

1. Open Plant Explorer workplace.
2. Switch to the Control Structure.
3. Open the substructure below the project object.
4. Select the field device object in the Control Structure.
5. Select the *Device Management* aspect in the aspect window.
6. The DTM appears in the main window of the Plant Explorer if it is selected via the Device Management Aspect, or in its own window if it is selected via the *Device Functions* context menu.

Double-clicking on an Aspect in the Aspect window will open up its contents in a separate process window.

7. Other DTM views can be activated via the menu bar of the Device Management window

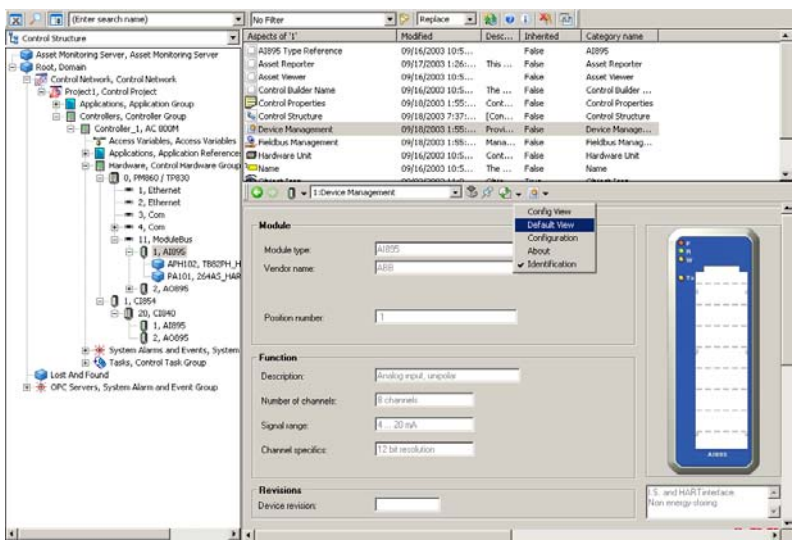


Figure 26. Preview window with DTM and context menu vie Device Management.

Open DTM via context menu in the Control Structure

The following operations must be carried out to open the field devices DTM via context menu in the Control Structure:

1. Open Plant Explorer workplace.
2. Switch to the Control Structure.
3. Open the substructure below the project object.
4. Select the field device object in the Control Structure.
5. Click with the right mouse button to open the context menu.
6. Select *Device Functions ...* in the context menu.

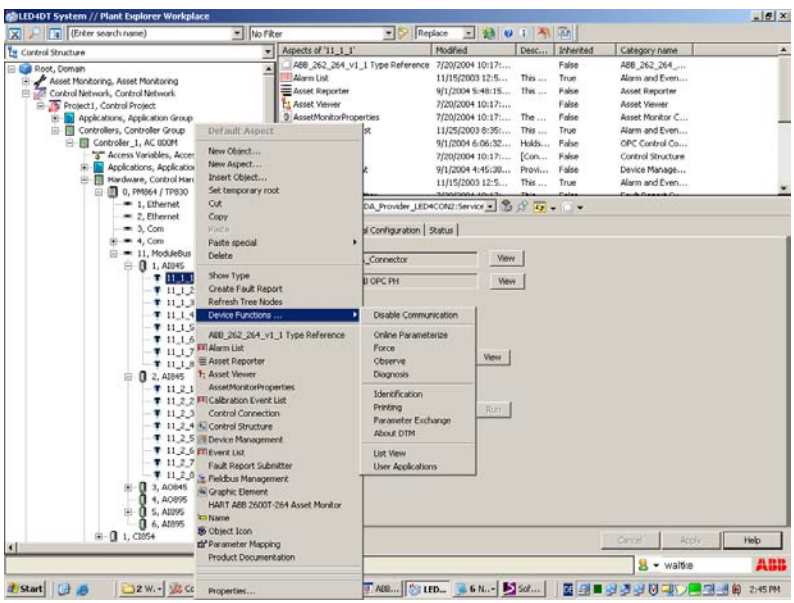


Figure 27. Device Functions ...

7. The DTM appears in a new window in front of the Plant Explorer.
8. Other DTM views can be activated via the menu bar of the DTM window bar or if applicable via DTM specific menus.

Section 3 Fieldbus Builder PROFIBUS/HART

Overview

The Fieldbus Builder PROFIBUS/HART is a component of the PROFIBUS Device Integration and can only be used in the Industrial IT 800xA system.

Device Integration products are available for the HART, PROFIBUS, and FOUNDATION fieldbus protocols. Each product contains a Device Integration Library, which, together with the Fieldbus Builder contained in the product, can be used for field device management.

The Fieldbus Builder PROFIBUS/HART integrates the FDT/DTM technology in the Industrial IT 800xA system and provides the infrastructure in ABB's Aspect Platform to access field devices, coming with the Device Integration Library of the Device Integration products.

In accordance with the functionality of the DTM, the Fieldbus Builder PROFIBUS/HART accesses field devices for

- Configuration
- Parameterization
- Diagnostics
- Maintenance
- Documentation

The current version of the Fieldbus Builder PROFIBUS/HART supports the FDT 1.2 standard interface.

The Fieldbus Builder PROFIBUS/HART supports the following functions in the hardware topology of the Plant Explorer Control Structure:

- Selecting a device object starts the corresponding DTM
- The DTM is supplied with instance data from the 800xA system database
- Saving of the current DTM instance data
- Management of the fieldbus topology structure up to the HART field devices
- Configuration and removal of the communication paths for online communication between the DTM and the physical field device in the system
- Provision of DTM internal instance data for bulk data applications (if supported by the DTM)
- Support of 800xA System Audit Trail interface

The information following this section provides a general description of the Fieldbus Builder PROFIBUS/HART. Some descriptions about Fieldbus Builder Aspects are only required if you wish to develop your own object types.

ABB cannot guarantee an operable 800xA system if device object types are created/used manually. Only tested software (DTMs) may be installed on the system computer. All software supplied in the Device Integration meets this requirement.

Additional information about the device library and the integration of new device objects can be found in Section 4, PROFIBUS Device Integration Library.

FDT 1.2 User Roles in the 800xA System

Every System user has a user role, which is set by the system administration in the configuration wizard of the 800xA system. This information is stored in the Plant Explorer under *User Structure*. The following user roles are available:

- Application Engineer
- Everyone
- Operator
- Software Developer
- System Engineer

These system user roles are converted to user roles conforming to FDT 1.2 in accordance with the following table and are transferred to the DTM when it is called.

Table 2. Managing user roles

System user role	FDT 1.2 user role					
	OEM Service	Administrator	Planning Engineer	Maintenance	Operator	Observer
Software Developer	X	X				X
System Engineer	X	X				X
Application Engineer			X	X		
Operator					X	
Everyone						X

In accordance with FDT 1.2, the DTM decides which functions are activated by which user role.

Fieldbus Builder PROFIBUS/HART Aspects

Aspect Overview

Once the Fieldbus Builder PROFIBUS/HART has been installed, it is available as a new aspect system. The aspect system adds the following aspects to the 800xA system:

Table 3. PROFIBUS/HART Fieldbus Builder aspects

Aspect	Function
Device Definition	This aspect allows an installed DTM to be assigned to a specific object in the object type structure.
Device Management	This aspect starts the DTM with its instance data.
Fieldbus Management	This aspect opens the graphical user interface of the PROFIBUS/HART Fieldbus Builder.
FBB PH Settings	This aspect enables private DTM data synchronization through the system.
Module Definition	For DTMs with internal module planning. This aspect is used to assign a module with a unique ID for the corresponding master DTM and is only visible in the object type structure. It is required for modular DTMs (module planning takes place within the DTM) in order to identify the modules in the Plant Explorer uniquely, and to position and present them.
Module Management	For DTMs with internal module planning. This aspect is used by the Fieldbus Builder PROFIBUS/HART to save instance-specific data for a module and is only visible in the object type structure.
PROFIBUS Management	This aspect allows the access to the AC 800M/CI854 web server for all connected PROFIBUS CI854 modules on this controller.

Table 3. PROFIBUS/HART Fieldbus Builder aspects

Aspect	Function
FBB-OPC Configuration	For internal 800xA use only. Basic aspect containing the configuration rules for the OPC instance data.
Property Management	For internal 800xA use only. This aspect allows access to the instance data set of the DTM if the DTM supports this function. It can be used for bulk data applications.

The Fieldbus Builder PROFIBUS/HART aspect system can be found under:

Aspect System Structure > Fieldbus Builder PH

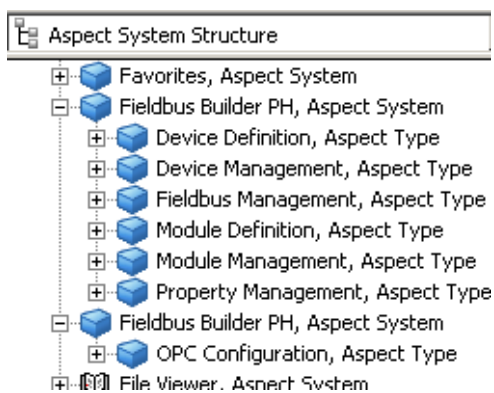


Figure 28. Aspect system structure

As illustrated in Figure 28, the Fieldbus Builder PROFIBUS/HART aspect system is divided into two system entries.

The first system entry contains aspects required for working with device objects and for their configuration.

The second system entry contains an aspect for accessing internal device data via OPC communication.

Unless described in more detail, the aspects of the Fieldbus Builder PROFIBUS/HART are configured and may not be modified by the user. ABB Service must be informed before the user makes any changes to the aspects described in this document.

Aspects in the object type structure

The object type structure contains the device objects to be used in the projects. The individual device objects are described in the Section 4, PROFIBUS Device Integration Library.

Objects in the object type structure managed using the Fieldbus Builder PROFIBUS/HART must have the following aspects:

- *Device Definition*
  This aspect assigns the DTM to the object
- *DIP Fieldbus Builder PH Extension Definition*
  This aspect handles the Fieldbus Builder aspects during instantiation

The aspects described here are configured for the device object types supplied with the device library and do not need any other settings. Unless indicated otherwise, these aspects are designed to be used for developing new object types, which may only be implemented in an 800xA system once they have been approved by ABB. Please contact ABB Service.

Device Definition

The *Device Definition* aspect is used to assign the **installed** DTM to the specific device object in the object type structure.

All DTMs used should be installed for subsequent operations. Third-party manufacturer DTMs are not subject to ABB license conditions. Additional information can be found in Section 4, PROFIBUS Device Integration Library.

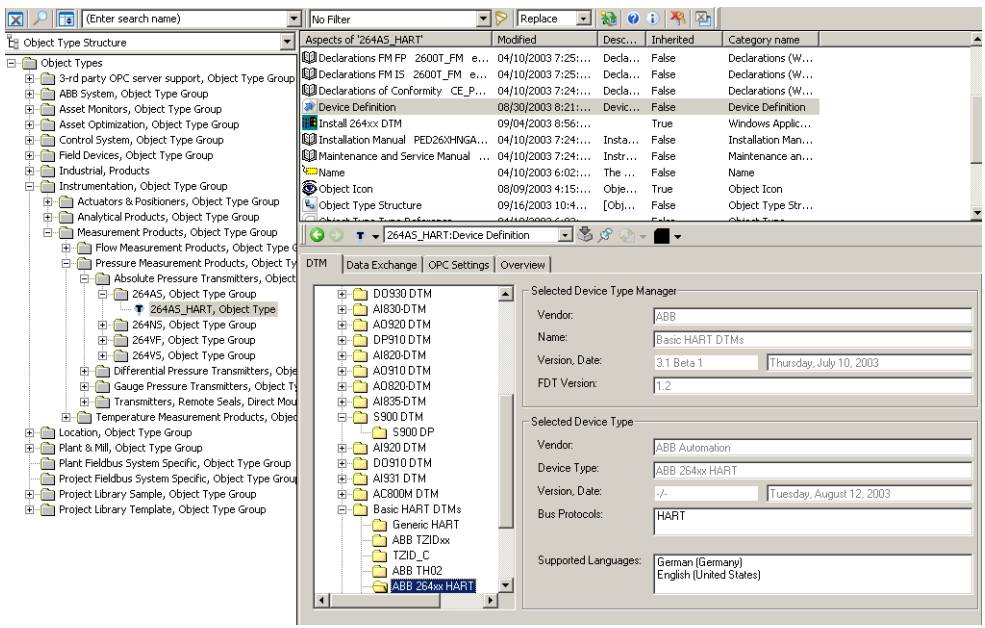


Figure 29. Device Definition aspect in the object type structure

Once the Device Definition aspect has been selected, a Fieldbus Builder PROFIBUS/HART window will appear containing four tabs:

- DTM
- Data Exchange
- OPC Settings
- Overview

DTM

The user can use the *DTM* tab to assign a specific DTM to a device object in the object type structure.

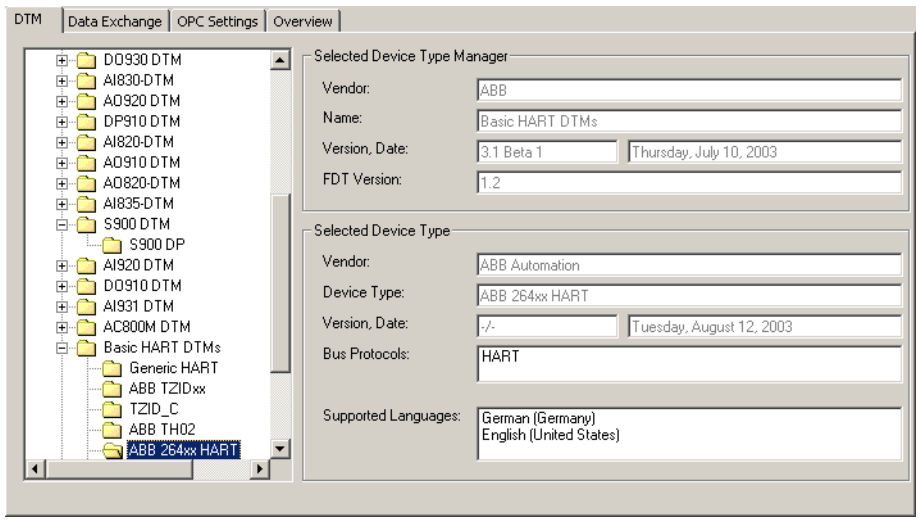


Figure 30. DTM selection on the object type

Once the Device Definition aspect has been selected, the Fieldbus Builder PROFIBUS/HART browses the computer *Registry* for all installed DTMs.

The initial execution of this function may take some time, depending on the number of installed DTMs.

Once the Fieldbus Builder has completed its search of the *Registry*, the installed DTMs are sorted according to manufacturer. The selected DTM displays the data it contains relating to the vendor and device type.

The installed DTM is now called for the first time.
This is a way of checking that the DTM has been installed correctly.

New installed DTMs can only be shown after stopping the Device Management Server. The Plant Explorer Workplace has to be closed to stop this server.

Data exchange

Address information for the field device is configured here and transferred to the DTM. Some DTMs may use a format not specified in the FDT for transferring address information. These may be DTMs, which, for example, use proprietary protocols such as internal module bus protocols for remote I/O.

This is an optional tab for address information for DTMs, which do not support the standard FDT format.

By default, all fields in this version are **empty**.

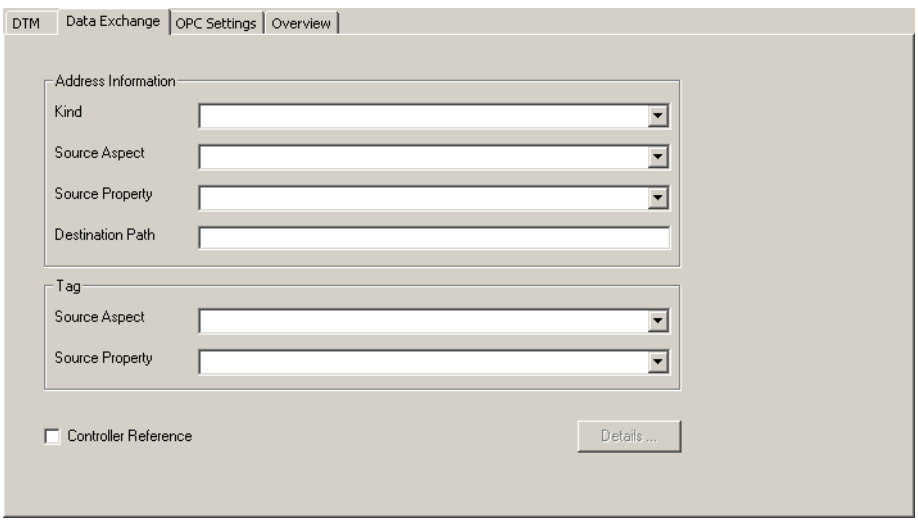


Figure 31. Data exchange settings

OPC Settings

The user can use the *OPC Settings* tab for an additional assignment of an OPC DTM to a field device object in order to make device data available to higher-level applications via OPC access. For this purpose, an OPC-compatible DTM is selected from the proposed DTM list.

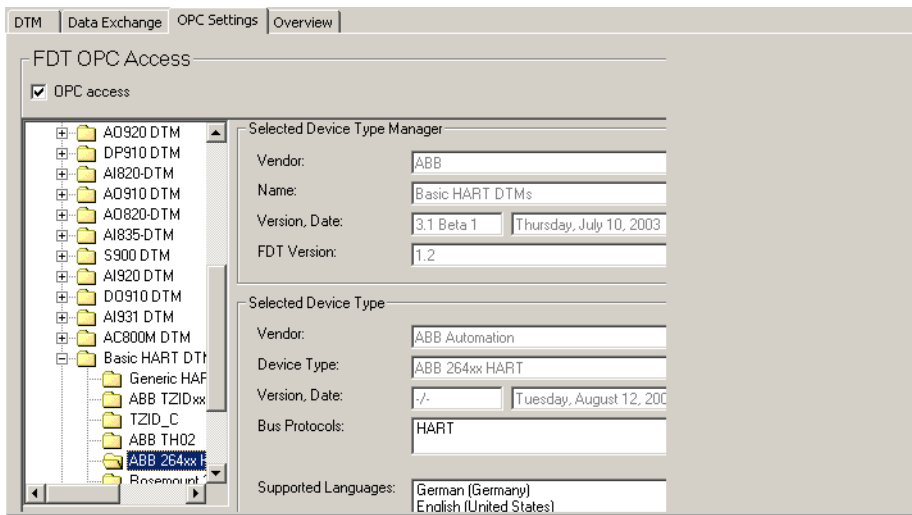
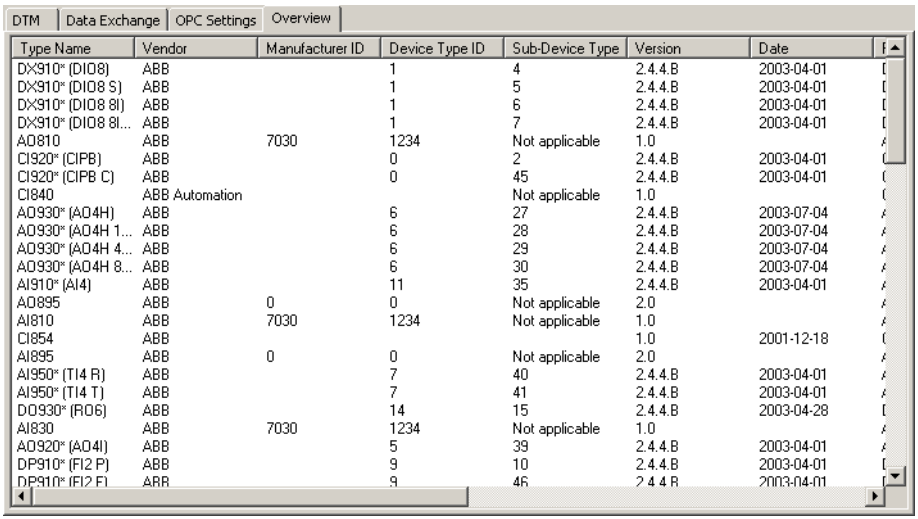


Figure 32. OPC access settings

Overview

The *Overview* tab lists the DTMs installed on the system node with DTM-specific information. Should service be required, the overview provides a means of evaluating the required DTM information quickly.



Type Name	Vendor	Manufacturer ID	Device Type ID	Sub-Device Type	Version	Date
DX910* (DIO8)	ABB		1	4	2.4.4.B	2003-04-01
DX910* (DIO8 S)	ABB		1	5	2.4.4.B	2003-04-01
DX910* (DIO8 8I)	ABB		1	6	2.4.4.B	2003-04-01
DX910* (DIO8 8I...	ABB		1	7	2.4.4.B	2003-04-01
AO810	ABB	7030	1234	Not applicable	1.0	
CI920* (CIPB)	ABB		0	2	2.4.4.B	2003-04-01
CI920* (CIPB C)	ABB		0	45	2.4.4.B	2003-04-01
CI840	ABB Automation			Not applicable	1.0	
AO930* (AO4H)	ABB		6	27	2.4.4.B	2003-07-04
AO930* (AO4H 1...	ABB		6	28	2.4.4.B	2003-07-04
AO930* (AO4H 4...	ABB		6	29	2.4.4.B	2003-07-04
AO930* (AO4H 8...	ABB		6	30	2.4.4.B	2003-07-04
AI910* (AI4)	ABB		11	35	2.4.4.B	2003-04-01
AO895	ABB	0	0	Not applicable	2.0	
AI810	ABB	7030	1234	Not applicable	1.0	
CI854	ABB				1.0	2001-12-18
AI895	ABB	0	0	Not applicable	2.0	
AI950* (TI4 R)	ABB		7	40	2.4.4.B	2003-04-01
AI950* (TI4 T)	ABB		7	41	2.4.4.B	2003-04-01
DO930* (RO6)	ABB		14	15	2.4.4.B	2003-04-28
AI830	ABB	7030	1234	Not applicable	1.0	
AO920* (AO4I)	ABB		5	39	2.4.4.B	2003-04-01
DP910* (FI2 P)	ABB		9	10	2.4.4.B	2003-04-01
DP910* (FI2 F)	ABB		9	46	2.4.4.B	2003-04-01

Figure 33. Overview of installed DTMs

No settings can be made in this tab.

DIP Fieldbus Builder PH Extension Definition

The *DIP Fieldbus Builder PH Extension Definition* aspect is linked to field device objects in the object type structure when the "Device Integration Library" system extension is loaded.

The aspect contains instantiation rules for the device object, which are tested by the Fieldbus Builder PROFIBUS/HART when the type is inserted in the Control Structure.

This aspect does not require any further configuration by the user.

Aspects in the Control Structure

Fieldbus Builder PROFIBUS/HART user interface

The main user interface for the Fieldbus Builder PROFIBUS/HART is the Control Structure of the Plant Explorer. Within the Control Structure, the Fieldbus Builder PROFIBUS/HART is controlled by means of the following aspects:

- Fieldbus Management
- Device Management

All plans for field devices (including eventual startup) are to be made in the Control Structure of the Plant Explorer with the *Fieldbus Management* aspect. The PROFIBUS/HART Fieldbus Builder works exclusively in conjunction with this structure.

Fieldbus Management

This aspect is used to open the graphical user interface of the Fieldbus Builder PROFIBUS/HART in the window.

Fieldbus Management is to be used:

- To assign HART field devices to input/output module channels with HART functionality
- To manage the *Communication disabled* and *Communication enabled* operating modes
- To read and load the field device data of objects by means of their DTMs
- To configure the OPC Server PROFIBUS/HART
- To import and export DTM device instance data

Selecting the *Fieldbus Management* aspect opens the Fieldbus Builder user interface in the main window of the Plant Explorer.

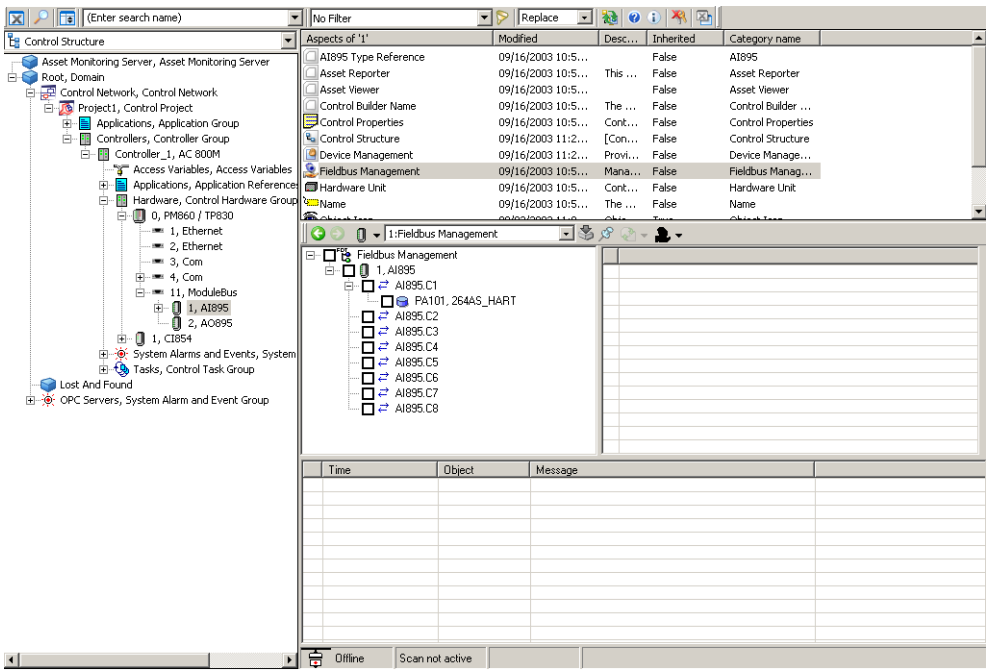


Figure 34. Fieldbus Management view

The user interface comprises four areas:

- Fieldbus tree window
- Object information window
- Message window
- Status bar

Fieldbus tree window

The fieldbus tree window displays the fieldbus structure part of the Control Structure along with the channel information from the parent object (higher-level object).

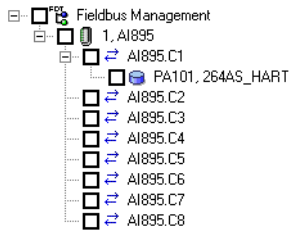


Figure 35. Fieldbus tree window

The following functions are made available to the user:

- Modification of the Fieldbus Management mode (Communication disabled/enabled)
- Channel assignment of field device objects to the parent object (I/O mapping)
- Expansion of fieldbus topology in the fieldbus tree window
- Selection of a number of field device objects for automated processing
- Configuration of the OPC server for field devices
- DTM functions including Download, Upload, Verify (if supported by the DTM)
- Import and export of instance data for each device object

The properties described above can be accessed via context menus and can be displayed by selecting the object node and clicking with the right mouse button.

Context menu in the fieldbus tree

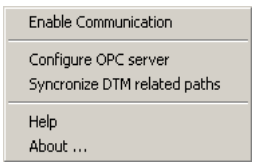
Depending on the object node selected, the user is offered various context menus. The fieldbus tree differentiates between 3 types of node:

- Fieldbus Management node
  This is always the master node in the fieldbus tree window.
- Channel objects
  Instead of displaying address information, channel objects are identified by an icon representing two arrows pointing in opposite directions.
- Device objects
  Device objects in the fieldbus tree always display a device address in the form of an integer number or a tag name.

Context menu entries are activated/deactivated on the basis of the user role as well as the communication mode (Communication disabled/enabled).

Fieldbus Management node

The Fieldbus Management master node element in the fieldbus tree window provides access to general settings for the Fieldbus Builder PROFIBUS/HART via the context menu.

Context menu	Field	Function
	Communication enabled	The absence of a tick beside *Communication enabled* indicates that the fieldbus tree is in *Communication disabled* mode. This is also indicated in the status bar.
	Configure OPC Server	Reads the fieldbus topology and transfers this to the OPC Server PH.
	Synchronize DTM related path	Synchronizes DTM and OPC data with all Aspect and Connectivity Server, configured in the *FBB PH Settings* aspect.
	Help	Calls the help function
	About ...	Displays Fieldbus Builder PROFIBUS/HART license and revision information

Communication disabled mode is activated by default. Depending on the mode selected, the DTMs will offer the user various functions.

Table 4. Fieldbus Management modes

Mode	Function
Communication disabled mode	For planning and changing the fieldbus structure
Communication enabled mode	Activates all functions required for communication with the field devices

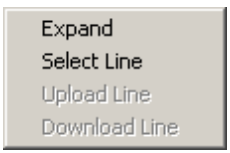
The selected mode applies to the entire fieldbus line, as far as the master nodes.

Changing from *Communication enabled* to *disabled* mode may take some time if communication with field devices is still active.
The disconnection of the data path is indicated by a progress bar in the status bar.

If the tree is active in *Communication enabled* mode, the user may not modify the fieldbus topology. This means that no new devices can be integrated into the active topology and no address modifications can be made directly on the object.

Channel object

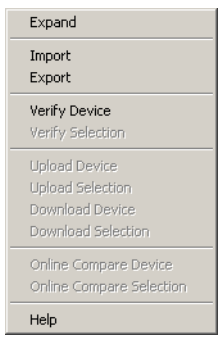
Channel object mode enables the user to display lower-level fieldbus structures quickly and to select device objects on the same layout level. Selected device objects are processed via the operational routine of the Fieldbus Builder PROFIBUS/HART, i.e. the DTM parameter set is loaded from the device to the instance data set or written from the data set to the device (upload/download) as long as the DTM supports this function. Channel objects are identified by an icon representing two arrows pointing in opposite directions.

Context menu	Field	Function
	Expand	Expands the topology tree below the channel object node.
	Select Line	This function can be used to select all device objects on the same level.
	Upload Line	This function calls the selected DTMs without GUI, reads the current data from the fieldbus devices, and uses this as the new instance data. The function is only available in *Communication enabled* mode.
	Download Line	This function calls the selected DTMs without GUI and downloads the instance data to the fieldbus devices. The function is only available in *Communication enabled* mode.

Device object

The context menu for the device object node features DTM functions without GUI specific to the object and the lower-level sub tree structure. Here too, the menu enables the selection of lower-level fieldbus structures and their device objects. As long as the DTMs support the services offered, device object data can be read or written or parameters in the device and in the instance data set simply compared.

Please note that some of the menu items in the context menu may not be supported by a DTM, e.g. Online Compare.

Context menu	Field	Function
	Expand	Expands the topology tree below the channel object node.
	Import	Imports the device-specific instance data set from a file. More information about this function can be found in the "Backup/Restore" section.
	Export	Exports the device-specific instance data set to a file. More information about this function can be found in the "Backup/Restore" section.
	Verify Device	The DTM is called without GUI to verify the instance data record. The result (either "OK" or "Error") is logged in the message window as "Data set valid/invalid".
	Verify Selection	All selected device objects with their DTMs are called without GUI to verify the instance data record. The result (either "OK" or "Error") is logged in the message window as "Data set valid/invalid".

Context menu	Field	Function
	Upload Device	This function calls the DTM without GUI, reads the current data from the fieldbus device, and uses this as the new instance data. The function is only available in *Communication enabled* mode.
	Upload Selection	This function calls the DTMs of the selected objects without GUI, reads the current data from the fieldbus devices, and uses this as the new instance data. The function is only available in *Communication enabled* mode.
	Download Device	This function calls the object DTM without GUI and downloads the instance data to the fieldbus device. The function is only available in *Communication enabled* mode.
	Download Selection	This function calls the selected object DTMs without GUI and downloads the instance data to the fieldbus devices. The function is only available in *Communication enabled* mode.
	Online Compare Device	This function calls the object DTM without GUI. The DTM ensures that the online data is read from the field device and compared with the instance data. The result "Compare finished with Data equal/Data not equal" with a list of differences (part of the DTM) is logged in the message window. In the event of conflicts (errors) in the data records, a detailed analysis can be carried out by calling the DTM with its GUI. The function is only available in *Communication enabled* mode.

Context menu	Field	Function
	Online Compare Selection	This function calls the selected object DTMs without GUI. The function is the same as Online Compare Device, but here for the complete selected device objects. The function is only available in *Communication enabled* mode.
	Help	Calls the help function

Object information window

The object information window contains detailed information about one or more device objects, according to the selection in the fieldbus tree window. Principally, during a bulk process, the process status as well as information about the individual device objects will be displayed to the user. Every device displayed is set up as a dynamic element, i.e. only the last current status is ever displayed.

The current status overwrites the previous status with new parameters. Parameters may therefore toggle in the window.

Table 5. Object information window functions

Field	Functions
Status	The current status of the bulk process is displayed. If several messages are pending, only the message with the highest priority is displayed. Prio.1 Error Prio.2 Message Prio.3 Information
Object	Object name
Tag	Device-internal tag name. Read from the device.
Address	The module or bus address
Description	Indicates whether the object is a module, a channel or a DTM.
Type	Indicates the DTM type read from the DTM.
Vendor	Indicates the DTM vendor.

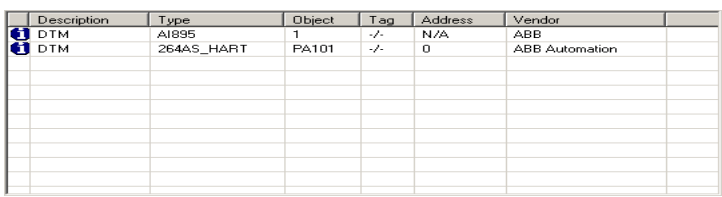


Figure 36. Object information window

Message window

The message window indicates the current status of actions executed, which were defined in the fieldbus tree.

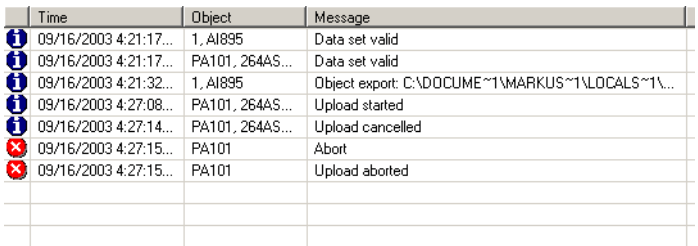


Figure 37. Message window

Table 6. Message window functions

Field	Functions
Empty	The error, message or information icon appears here.
Time	The date and time for the result is entered.
Object	Object name
Message	Message text for the result

Select a field to sort the entries. Select the same field again to invert the sort.

Status bar

The status bar indicates the current Fieldbus Management mode (Communication disabled/enabled) as well as the time characteristic of any DTM actions executed.

Table 7. Fieldbus Management status bar

Field	Functions
Icon, mode	The current mode (Communication disabled or enabled) appears here.
Progress bar	Progress bars appear for functions requiring lengthy execution times. This progress bar does not indicate the execution progress. It only indicates that a function is being executed. Why? For example, the PROFIBUS/HART Fieldbus Builder starts the appropriate DTM for downloading an instance data record to a PROFIBUS field device. The DTM itself downloads the data and only the DTM knows the current status of the download process. The DTM only notifies the Fieldbus Builder PROFIBUS/HART at the end of the process if the download was successful or was terminated with errors. This is logged in the message window.

Device Management

The *Device Management* aspect opens the associated DTM (Device Definition) in the main window with the instance data record.

In Device Management, the Fieldbus Builder PROFIBUS/HART operates in the background and cannot be seen by the user. Its primary task is to call the associated DTM and supply it with data, and to ensure that the instance data is saved to the Aspect directory.

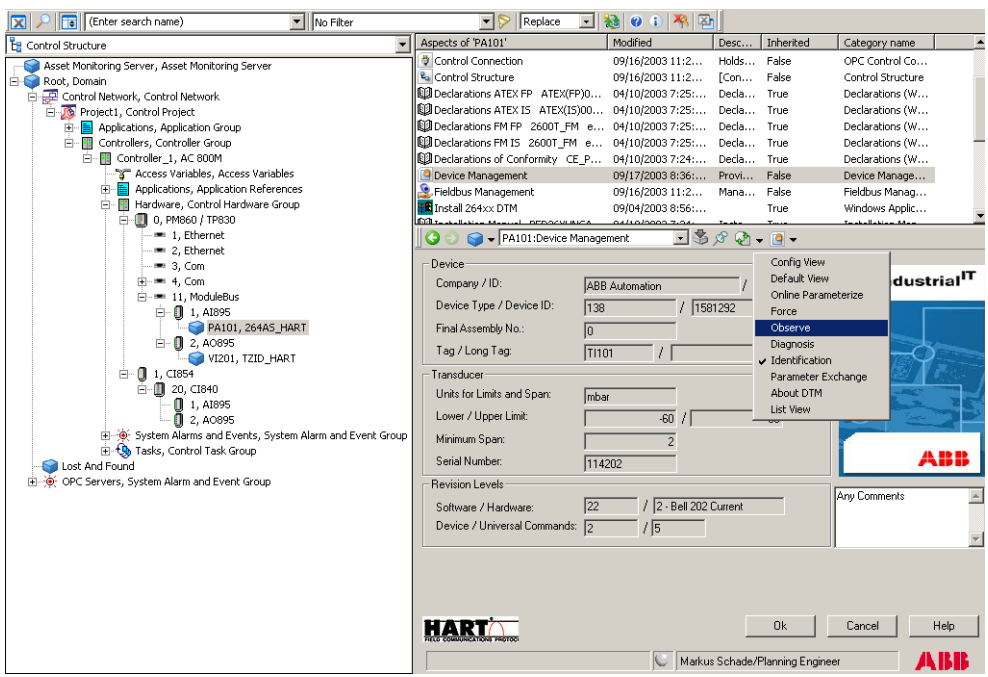


Figure 38. Device Definition aspect with open DTM

DTMs can be started in *Communication disabled* mode to configure field device objects or, if changes are to be made directly in the device, in *Communication enabled* mode. Depending on the mode, the DTM will appear with various functional windows. The various modes are selected via the Fieldbus Management aspect of the relevant device object.

Communication enabled mode starts all DTMs required for the communication sequence. Individual DTMs in this connection sequence can then not switch to *Communication disabled* mode without affecting other DTMs started in this sequence.

Setting this object to *Communication disabled/enabled* mode is described in Instancing of PROFIBUS Device Objects on page 47 in this document.

The following operations must be carried out to open the field devices DTM:

1. Select the field device object in the Control Structure.
2. Two possibilities are available to open a DTM:
   - Select the *Device Management* aspect in the aspect window.
   - Click at the device object in the Control Structure with the right mouse button to open the context menu. Select *Device Functions...* in the context menu.
3. The DTM appears in the main window of the Plant Explorer by using the Device Management Aspect or in its own window by using the *Device Functions...* context menu.
4. Other DTM views can be activated via the menu bar of the Device Management window (DTM-specific) or via *Device Functions...* context menu.

CI854 Web Server

The CI854/CI854A PROFIBUS interface provides some extra functionality via a Web-Interface. This functionality is mainly used for commissioning or for service purpose in the case of an error.

The Web Interface is accessible via a standard web browser like Microsoft Internet Explorer or Netscape Navigator as well as the PROFIBUS Management aspect, accessible via the AC 800M Controller object.

The Fieldbus Builder PROFIBUS/HART add automatically a new *PROFIBUS Management* aspect to the *controller object* when the operating mode is set to *Communication enabled* at first time.

To start the Web Interface enter the IP address of the controller in the address bar of the browser and press enter or select the PROFIBUS Management aspect.

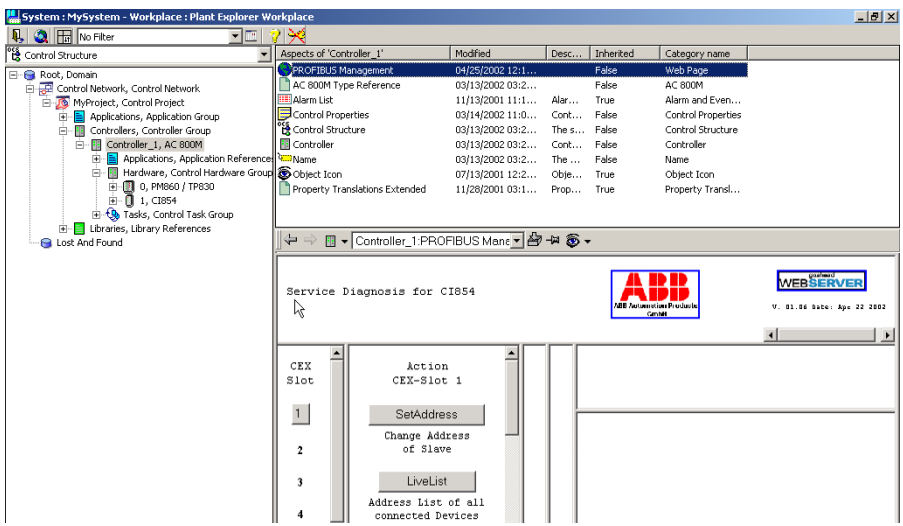


Figure 39. CI854 Web Server via PROFIBUS Management aspect

Pre-configuration the Web Server

Make sure that the browser settings for the connection (for example no proxy server for the controller address) is OK and that the controller is accessible from the PC. Therefore you have to set the parameter “Routing method” to “default gateway” in the settings for the controller.

Set the following settings inside the standard web browser, e.g. Microsoft Internet Explorer

This option is available via start menu:

- **Start > Settings > Control Panel > Internet Options**
- Open **Internet Options**
- Select tab card **Connections**
- Select button **LAN Settings ...**

Set tick mark **Bypass proxy server for local addresses**

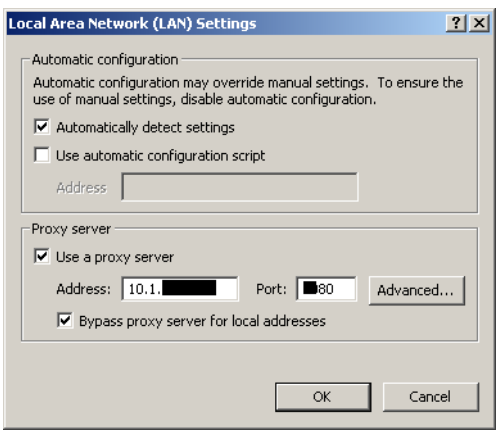


Figure 40. Bypass proxy server for local addresses

Make sure that the tick mark is set for:
Bypass proxy server for local addresses

Web Server functionality

Starting the Web Interface at first you get a list of connected CI854/CI854A in the field “CEX Slot”. Select with a left-click the position you want to operate the diagnosis for. This brings up a list with the following action buttons:

- SetAddress
  Use this service to change the address of a connected PROFIBUS slave device.
- LiveList
  Use this service to see which devices are connected to the PROFIBUS.
- Cycle Time
  Use this service to read the actual measured cycle time for the running PROFIBUS.
- GeneralStatus
  Use this service to get a general overview about the running PROFIBUS.
- MasterSettings
  Use this service to see which settings are actual loaded in the CI854/CI854A PROFIBUS master unit.
- SlaveDiagnosis
  Use this service to see which diagnostics are currently present in the slave unit.
- SlaveConfig
  Use this service to get the actual loaded configuration data.
- Slave-I/O
  Use this service to read the input and output data for a specific slave unit.
- FirmwareInfo
  Use this service to display the actual firmware information of CI854/CI854A.
- HardwareInfo
  Use this service to display the actual hardware information of CI854/CI854A.
- Red.Switchover
  Use this service to perform a redundancy switch over of a connected PROFIBUS slave device.

- ErrorMemory
  This information is of relevance only for the ABB service engineer in case of an error!
- Debug
  This information is of relevance only for the ABB service engineer in case of an error! Additional navigation is possible in the 3rd and 4th window.

Section 4 PROFIBUS Device Integration Library

Overview

The device libraries contain a portfolio of System 800xA tested and certified ABB and third party device objects, minimizing the effort of integration for 800xA system users. Each device is represented in the library by a device type object. ABB's Device Integration Center (DIC) creates these objects for the user and enriches them with all aspects for efficient device management over the entire life cycle, from the design phase to operation and maintenance. To assure interoperability of the system with the device and the related components, the new device type object is tested against the real device.

If a device type is not available in the library, please contact the Device Integration Center to request the integration of an additional device type. The Device Integration Center will add the new device object to one of the next library versions.

Please contact the DIC for further information:

ABB Automation GmbH
Device Integration Center
Schillerstr. 72
32425 Minden

Fax.: +49 571 830 1871
Mail: dic@de.abb.com

The PROFIBUS Device Integration Library provides *preconfigured object types* for corresponding field device types.

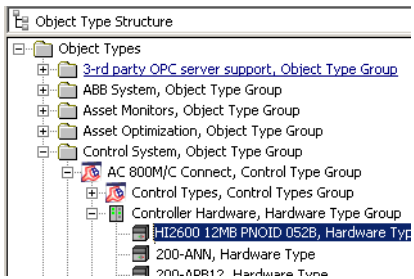


Figure 41. Preconfigured PROFIBUS object types

For PROFIBUS, object types are stored inside the *Object Types->Control System->AC 800M/C Connect->Controller Hardware* catalog.
This catalog level includes a master object type and the suitable module object types of the master object type. The master object type contains device specific parameter for the cyclic communication, documentation, CMMS and Asset aspects. Optional a Device Type Manager (DTM) is assigned to the master object type. For instantiation of new device types in the Control Structure only the master object type shall be used. Module object types can only be placed below master object types.

The name of the master object type are described in the product release notes.

The PROFIBUS Device Library is continuously enhanced. For updates on the current library content please refer to ABB web page:

http://www.abb.com/controlsystems [1]

[1)] The online version of this document directly guides you to the corresponding web page. Otherwise, please select **System 800xA**, **Device Management** and then **Device Integration Center** on the Control Systems homepage.

Functionality

The preconfigured device object types enable each device to

- *access device-specific components* for
  - configuration, commissioning, and diagnostics via Device Type Manager
  - access to device-specific documentation
- *access 800xA System functionality*
  - Alarm and Event Lists
  - Audit Trail
- *access Asset Optimizer*
  Asset Optimizer allow plant personnel *to collect, compare, and monitor field device data* in order to accurately assess equipment conditions.

For a complete list of currently supported devices and functionality, please refer to the Release Notes of this product listed in Relevant Documentation on page 13!

Integration of new PROFIBUS Device Object Types

The PROFIBUS Device Integration Library covers a basic set of object types for different PROFIBUS devices. This Device Integration Library can be enhanced with additional object types, downloadable via ABB Solutionsbank. By using the Device Library Wizard, new device object can be imported to the 800xA system.

Further information on the Device Library Wizard and single device object types can be found in Section 5, Device Library Wizard (optional).

Pre-configured Aspects in the Object Type Structure

The object type structure contains the device objects to be used in the projects.

PROFIBUS device object types are integrated in the 800xA system by installing the PROFIBUS Device Integration as well as by loading the PROFIBUS Device Integration system extensions. Additional device object types will be loaded to the system via Device Library Wizard. Depending on the system license features can be used without additional configuration work.

The following aspects are attached to each PROFIBUS device object type:

- **Name**
  Name of the device object type
- **Install <DTM> (optional)**
  Reference to the installation program of a device-specific DTM, for which a manufacturer's license must be held at the time of installation. The use of this aspect is described in Installation of Device Type Manager (DTM) on page 27.
- **Product Documentation**
  Access to various device specific documentation. For accessing a single document, please refer to Accessing device specific documentation on page 93.
- **PROFIBUS <channel/generic/specific> Asset Monitor**
  Asset Monitor acquire and analyze asset status and condition information. They notify operators and maintenance personnel when an abnormal condition calls for maintenance action.
- **DIP CMMS Object Type Extension Definition**
  This aspect handles the CMMS aspects during instantiation
- **DIP Maximo Object Type Extension Definition**
  This aspect handles the Maximo CMMS aspects during instantiation

The aspects described here are configured for the device object types supplied with the device library and do not need any other settings. Unless indicated otherwise, this aspect is designed to be used for developing new object types, which may only be implemented in an 800xA system once they have been approved by ABB.

Accessing device specific documentation

Device instances and variants

For accessing device specific documentation, the following steps are necessary:

1. Select the Product Documentation aspect of the device instance

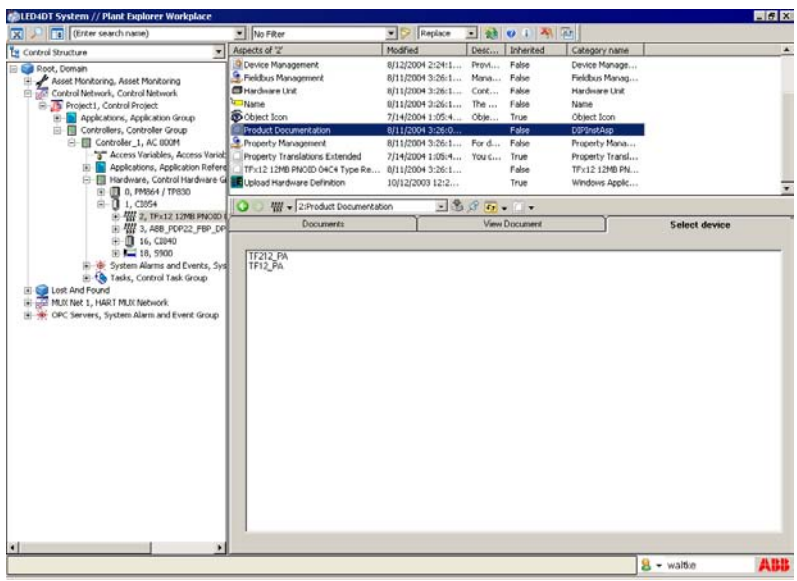


Figure 42. Selecting device's Product Documentation aspect

2. Selecting the device variant

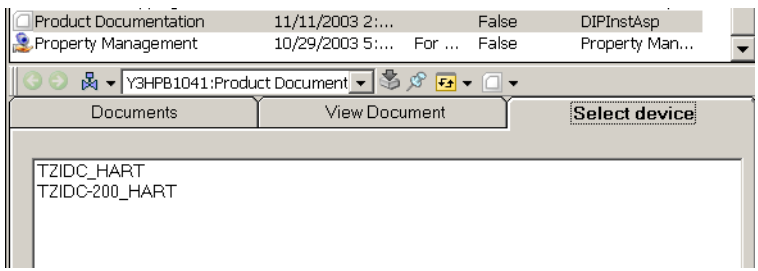


Figure 43. Select Device view

3. Select device specific document, e.g. *Product Data Sheet*,

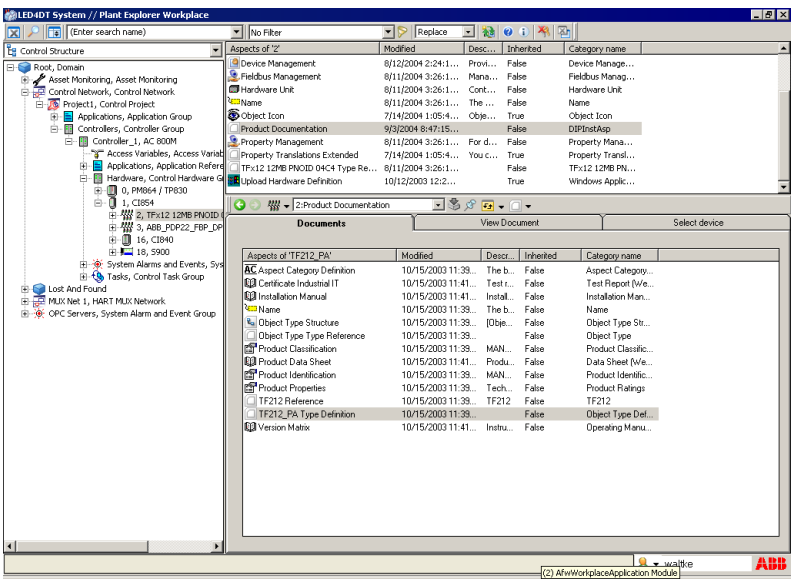


Figure 44. Selecting device specific document

Further System and Device Documentation

Further documentation about Device Integration and devices, e.g. network components, can be found at:

- Start Menu:
  Start > Programs > ABB Industrial IT 800xA > System > Documentation
  - DevMgmt - PROFIBUS
  - DevMgmt - HART
  - Control
  - Asset Optimization
  - IIT800xA System

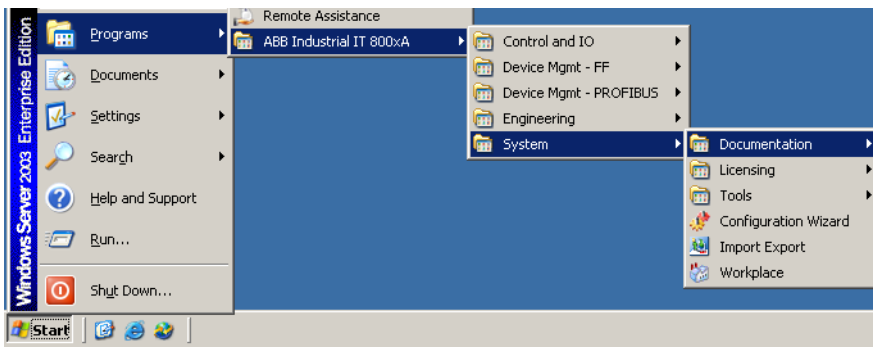


Figure 45. 800xA Documentation

Connection to Asset Optimization

Asset Optimization consists of system extensions that allow plant personnel to collect, compare, and monitor field device data in order to accurately assess equipment conditions.

Information can subsequently be used to set future performance and profitability goals and to assist managers in making these decisions.

The Optimize IT Asset Optimization software consists of the following components, for which the Device Integration Library provides a connection for its preconfigured field device types.

Asset Monitoring

Asset Monitoring provides the infrastructure that monitors, analyzes, and reports asset status/condition information. It notifies operators and maintenance personnel when an abnormal condition calls for maintenance. Asset Monitoring interacts with third-party CMMS applications to optimize the use of plant equipment and processes.
An *Asset Monitor* is an application for retrieving data from, and interacting with, multiple data servers, e.g. OPC Servers. Asset Monitors can detect problems that may not affect the process variables, but do affect the maintenance status of an asset or process.

The ABB Asset Monitoring product must be installed and licensed.

Asset Monitoring library aspects

The aspects listed in Table 8 are added to the field device types, if the related software option is installed and licensed.

Table 8. DIP Asset Object Types Extension Definition

Aspect	Function
Asset Reporter	The Asset Reporter provides a detailed view of an asset condition for an object. It displays information available to it from all Asset Monitors and their corresponding current subconditions.
Asset Viewer	When the Asset Viewer is added to an object, the Asset Condition Tree can be displayed. When displayed, the Asset Condition Tree shows the condition of that object and all its children, visually indicating the presence of a fault report by displaying items in bold text. Context menus permit fault report submission directly from within the Asset Viewer.
PROFIBUS Channel Asset Monitor	Generic asset monitor for devices for monitoring the status byte states of PROFIBUS device.
PROFIBUS generic Asset Monitor	Generic asset monitor for devices for monitoring the diagnosis states of PROFIBUS device.
PROFIBUS <specific> Device Asset Monitor (optional)	Specific asset monitor for devices for monitoring device specific conditions of PROFIBUS device.

CMMS Connectivity

CMMS Connectivity establishes the link that removes the barrier to information exchange between the Computerized Maintenance Management System (CMMS) and the process control system environments and brings maintenance management to the operator environment.

Context menus for process graphics, the alarm and event list, etc. provide access to a number of views and actions for the specific CMMS item.

This allows plant personnel to collect, compare, and monitor field device data in order to accurately assess equipment conditions.

The Asset Optimizer and CMMS products must be installed.

Please refer to the Release Notes of this product listed in Relevant Documentation on page 13 and to the Asset Optimization documentation for detailed information of supported Computerized Maintenance Management System (CMMS).

CMMS library aspects

The Device Integration Library provides a CMMS Connectivity (aspect) connection to the "Computerized Maintenance Management System" (CMMS). The aspects listed in Table 9 are added to the field device types.

Table 9. DIP CMMS Object Type Extension Definition

Aspect	Function
Fault Report Submitter	The Fault Report Submitter aspect makes it possible to submit Fault Reports to the CMMS systems.
View Active Work Order	Lists all active work orders in the CMMS for a particular asset or group of assets.
View Equipment Status	Allows data returned from a status assessment of an asset or group of assets to be viewed.
View Preventive Maintenance Schedule	Lists the preventive maintenance schedule for an asset or group of assets.
View Spare Parts	Lists spare parts in the CMMS for a particular asset or group of assets.
View Work Order History	Lists the history of all work orders in the CMMS for a particular asset or group of assets.
Maximo Equipment ID	The Maximo Equipment ID provides information for mapping the Industrial IT object to the Maximo equipment in the CMMS database for a particular Maximo Server. Multiple Maximo Equipment IDs can be associated with the same asset, thus providing the ability to map to more than one piece of equipment defined in Maximo.

Instantiation new devices using the PROFIBUS Device Integration Library

If a new device is to be instantiated, its object type from the PROFIBUS Device Integration Library's device-specific catalog should be used.

For PROFIBUS, object types are stored inside the *Object Types->Control System->AC 800M/C Connect->Controller Hardware* catalog.

The object types listed there contain all of the features provided by the PROFIBUS Device Integration Library.

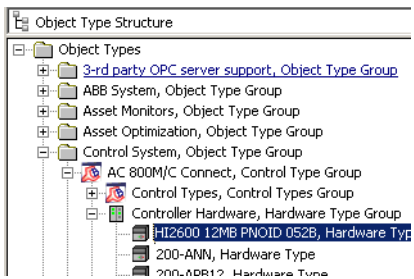


Figure 46. Device-specific catalog for PROFIBUS

Instantiation new devices in the 800xA Plant Explorers Control Structure as well as in the Control Builder M project is described in Section 2, Getting Started

Section 5 Device Library Wizard (optional)

Overview

For easy integration of fieldbus devices into the Industrial IT 800xA environment ABB provides a continuously increasing set of pre-integrated PROFIBUS device types in the form of a single device object types. The Device Library Wizard is a tool that is used for adding these separately delivered device object types to the device libraries of an 800xA system.

The Device Library Wizard is not an integral part of the PROFIBUS Device Integration and must be downloaded manually from the ABB Solutionsbank.

Solutionsbank is accessible via internet link:

- http://solutionsbank.abb.com

System Requirements

The Device Library Wizard will be installed and operate on an Industrial IT 800xA system node. The system requirements relating to the operating system, CPU performance, memory capacity etc. are more than adequate for the installation and operation of the Device Library Wizard software. There are no additional or different requirements to the hard- and software environment for this tool. The system requirements are described in the *Industrial IT, 800xA System, Installation* document.

Prerequisites

The following requirements must be met to allow adding device object types to the device libraries of an 800xA system using the Device Library Wizard.

- An 800xA system has been created and started.
- All required 800xA licenses are loaded to the License Server.
- The PROFIBUS Device Integration system extensions have been added. The required system extensions are described in Prerequisites and Requirements on page 23.
- The Device Library Wizard has been installed on every 800xA system node.
- The user has Windows administrator privileges.

How to use the Device Library Wizard

Pre-integrated device types for the Industrial IT 800xA environment are available from ABB Solutionsbank for all supported fieldbus protocols in the form of device object types. This section describes the process of adding these device object types to an Industrial IT 800xA system using the Device Library Wizard tool.

Adding device object types to the system requires to carry out the following steps:

- **Step 1:** Download device Library Wizard from ABB Solutionsbank.
- **Step 2:** Download designated device object types (zip archives) from ABB Solutionsbank.
- **Step 3:** Extract and install the Device Library Wizard tool.
- **Step 4:** Extract the zip archives containing the device object types to Device Integration Library folders on all involved 800xA nodes.
- **Step 5:** Read corresponding device object type, product and system release notes for details and limitations.
- **Step 6:** Perform fieldbus protocol specific pre-installation actions.
- **Step 7:** Add the designated device object types to the 800xA system utilizing Device Library Wizard on all involved 800xA system nodes.

- **Step 8:** Perform fieldbus protocol specific post-installation actions.

Detailed information about how to use the Device Library Wizard can be found in Device Library Wizard User Instructions 3BDD011857.

Please read also the corresponding Release Notes.

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