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Integration of SIMATIC PCS 7 Asset Management into existing projects

SIMATIC PCS 7

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1 Overview

Introduction

The purpose of this application is to incorporate the integrated Asset Management into an existing PCS 7 project.

The document describes the conditions and the actions required to prepare PCS 7 projects of different versions for the integration of PCS 7 Asset Management.

NOTE

The complete system description of the SIMATIC PCS 7 Maintenance Station can be found in the manual "[SIMATIC Process Control System PCS 7 Maintenance Station V9.1](#)".

Key content

The main focus for the incorporation of the integrated Asset Management into an existing project rests on the following key tasks:

- Preparatory activities
- Engineering and configuring Asset Management

Environment of creation of document

The screenshots have been made with PCS 7 V9.1 and PCS 7 V9.1 SP1.

Validity

This document is valid for all PCS 7 versions.

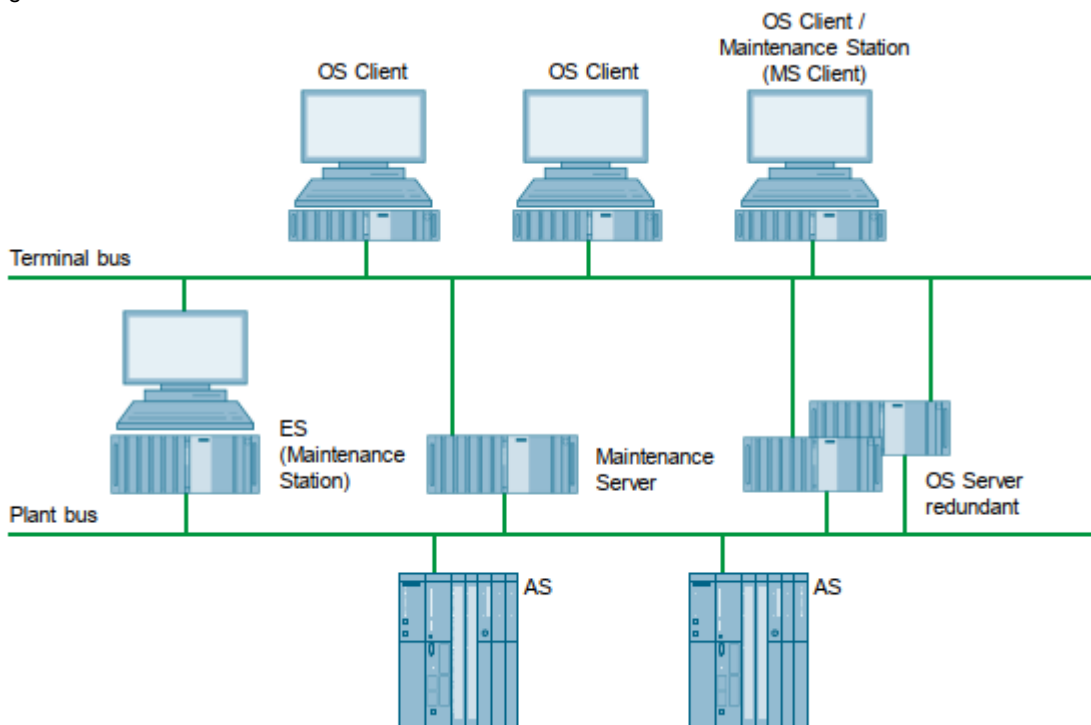
2 Prerequisites

2.1 Plant structure

This description is based on a server-client architecture in which the Maintenance Server (MS Server) is configured on either an existing OS Server (-> combined OS/MS Server) or on a separate PC station (-> pure MS Server).
 An OS Server installation from the PCS 7 Media Package is necessary in both cases.
 The Maintenance Client (MS Client) is configured on a PCS 7 Client and on the Engineering Station.

Configuration with separated MS Server and OS Server (Variant A):

Figure 2-1

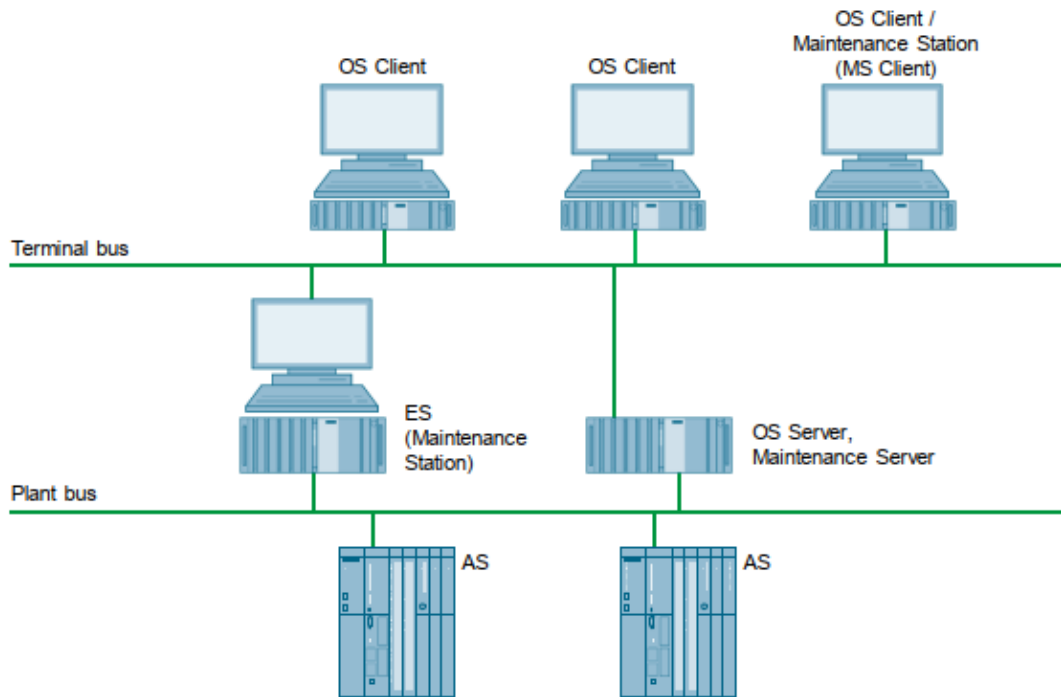


NOTE

The Maintenance Server can be run redundantly.

Configuration with combined MS and OS Server (Variant B):

Figure 2-2



A combined OS/MS Server is always connected to the terminal bus and to the plant bus.

A pure MS Server is always connected to the terminal bus. A connection to the plant bus is only necessary in case Ethernet devices (e.g. Scalance Switches) on the plant bus shall be monitored via SNMP protocol.

Therefore a standard network card (no CP 16xx card) is sufficient.

NOTE

=> A PCS 7 OS Server BCE can be used for a separate MS Server. It is connected to the plant bus and terminal bus via two standard network cards.

With few exceptions, which are due to client-server settings, this document can also be used for an ES/OS single-user architecture.

2.2 Additionally required software and licenses

The following table lists the additional software licenses for the Maintenance Station on the ES and the MS Server using PCS 7 V9.1 as an example.

Configuration with separate MS Server (Variant A):

Table 2-1

SIMATIC PC Station	Required software	Required licenses
ES	SIMATIC PCS 7 MAINTENANCE STATION ENGINEERING V9.1	6ES7658-7GX68-0YB5
- PDM not used	----	----
- If PDM is already installed without PDM Server:	SIMATIC PDM SERVER V9.2	6ES7658-3TX78-2YB5
- PDM completely new:	SIMATIC PDM PCS 7 SERVER V9.2	6ES7658-3TD78-0YA5
MS Server (new PC station, without hardware)	SOFTWARE SIMATIC PCS 7 OS-SERVER V9.1 (PO 100)	6ES7658-2BA68-0YA0
	SOFTWARE SIMATIC PCS 7 MAINTENANCE STATION RUNTIME BASIC PACKAGE V9.1 (incl. SNMP-OPC server license and 100 Asset TAGs)	6ES7658-7GB68-0YB0
	Optional: 100 Asset TAGs 1000 Asset TAGs	6ES7658-7GB00-2YB0 6ES7658-7GC00-2YB0

Configuration with combined MS / OS Server (Variant B):

Table 2-2

SIMATIC PC Station	Required software	Required licenses
ES	See A)	See A)
OS / MS Server (existing PC station)	SOFTWARE SIMATIC PCS 7 MAINTENANCE STATION RUNTIME BASIC PACKAGE V9.1 (incl. SNMP-OPC server license and 100 Asset TAGs)	6ES7658-7GB68-0YB0
	Optional: 100 Asset TAGs 1000 Asset TAGs	6ES7658-7GB00-2YB0 6ES7658-7GC00-2YB0

There are no additional licenses necessary on OS Servers and OS/MS Clients!

NOTE

For more information on software, licenses, other configurations and how Asset TAGs are counted, refer to the "[SIMATIC PCS 7 Standard Architectures](#)" manual.

3 Preparations

3.1 PC setup and communication settings

If you want to monitor any network components on the plant bus with a Maintenance Station and if you use a CP 1613 or CP 1623 for access, the “Miniport” Adapter (in older PC types “NDIS” adapter) is used for the TCP/IP connections via the SNMP protocol.

NOTE

On bundle IPCs the Miniport Adapter for a CP 16xx card and the DiagMonitor is already preinstalled.

IP network assignment

Plant bus and terminal bus networks are already configured with separate networks.

In case of a separate MS server, its standard network card for the plant bus should be configured with an address of a separate, third network for SNMP communication.

In the case of a combined MS/OS server that uses a miniport adapter on the plant bus for SNMP communication, the IP address for this adapter should also be on a third, different IP network.

The addresses of the monitored Ethernet devices on the plant bus (e.g. Scalance switches) should belong to the SNMP network and not to the plant bus network.

Note

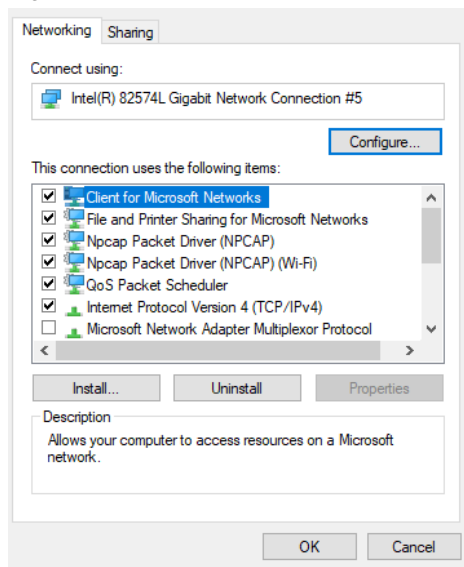
Information on configuration and project engineering of a multiproject can be found in "[SIMATIC PCS 7 Compendium Part A - Configuration Guidelines \(V9.1\)](#)" in the chapter entitled "[Creating the multiproject](#)".

For more information on PC and communication settings for the terminal bus, refer to the chapter entitled "[Configuring the terminal bus](#)".

Presets for SIMATIC CP 16xx

1. Open the network settings of the plant bus via "Settings > Network and Internet > Change adapter options".
2. Select the plant bus that was created; then open the settings.
3. Disable the "Client for Microsoft Networks" and "File and Printer Sharing for Microsoft Networks" protocols. Click "OK" to confirm your selection.

Figure 3-1



4. Check the current configuration of your network adapters via "Start > All Programs > Siemens Automation > SIMATIC > SIMATIC NET > Communication settings".
5. Check the MAC address and the TCP/IP settings to see whether they match the plan.

Note

For information on the communication processor, refer to the following manuals:

- "[SIMATIC CP 1623](#)"
- "[SIMATIC CP 1628](#)"

Configuration of the SIMATIC CP 16xx in the multiproject

All required information on configuring the SIMATIC CP 16xx can be found in the [SIMATIC PCS 7 Compendium Part A - Configuration Guidelines \(V9.1\)](#).

Installing the DiagMonitor

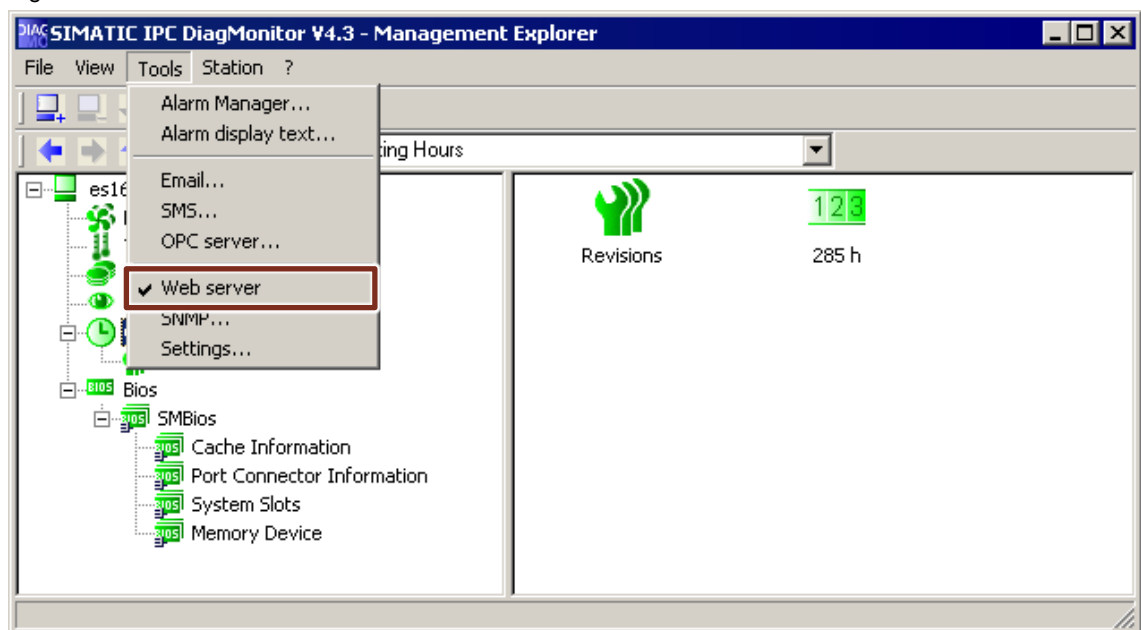
The DiagMonitor software monitors, signals and alarms and visualizes the operating state of SIMATIC Industrial PCs.

Install the SIMATIC DiagMonitor software on all IPCs. This software is included in the PCS 7 Media Package, below the folder “Additional Products”.

For further information, please refer to the manual “[PCS 7 – PC configuration and authorization](#)”, chapter “[DiagMonitor](#)”.

From PCS 7 V7.1 the web server interface of the DiagMonitor must be activated and authorized in the Windows Firewall so that it can be accessed via the Diagnostics faceplates of an IPC.

Figure 3-2



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Please refer to the manual “[PCS 7 Maintenance Station](#)”, chapter “[Configuring the monitoring of industrial PCs and network objects, Requirements](#)”

Setting up the SNMP service

Set up the SNMP service on the PCs to be monitored as described in the manual "[PCS 7 – PC configuration and authorization](#)", chapter "[Enable and configure SNMP](#)".

Configure security settings for the SNMP service

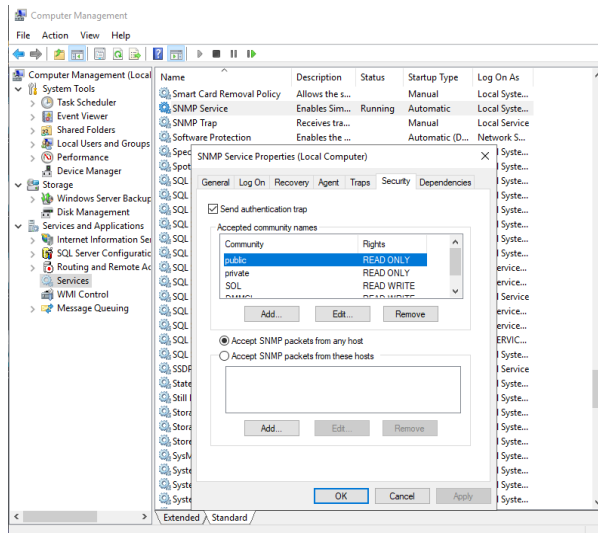
1. Right-click the Windows Start menu. Select "Computer Management" from the context menu.
2. Once at Computer Management, select "Services and Applications."
3. Select "Services".
4. Open "SNMP Services".
5. Go to the "Security" tab.
6. Add the read only community "public" (default for most devices).
7. Add the read & write community "SQL" or "DMMCL" (default for SIMATIC IPCs).
8. Select the setting "Accept SNMP packets from any host" if access should not be restricted. If you wish to restrict access, use the other selection available and enter the necessary computer names.

Note

If a firewall is active, ports 161 and 162 UDP (SNMP/SNMP trap) must be entered in the exception list.

9. Close the dialog.

Figure 3-3



NOTE

The PCS 7 Maintenance Station only supports SNMPv1.

3.2 Necessary settings in the SIMATIC Manager

Various settings and checks are required in the SIMATIC Manager for Asset Management.

3.2.1 Overview general settings

Table 3-1

Settings	Location	Comment
Local language and Language for display devices	SIMATIC Manager	Set the working language for the PCS 7 OS project in the process control system.
AS station name	SIMATIC Manager	<= 14 characters No spaces
Object names	HW Config	
PC station name	SIMATIC Manager	<= 19 characters No spaces
PC station computer name	SIMATIC Manager	Only capital letters and numbers The computer name must begin with a letter. <= 15 characters
S7 program	SIMATIC Manager	Message number range must be the same for all S7 programs in the multiproject/project. The name of an S7 program cannot be assigned twice.
Diagnostic blocks		The diagnostic blocks must have at least version V6.1. Use an appropriate library if necessary. Libraries are necessary for the use of Asset Management.
OS Compilation mode		Area-oriented:
Setting for plant hierarchy		The plant hierarchy settings must be the same in all projects in the multiproject or project.
PCS 7 OS project type single-station project (only applies to PDM MS)	WinCC Explorer	The type Single-station project must be selected in the project properties.
Group display hierarchy	WinCC Explorer	If using user diagnostics, the group display hierarchy must be generated automatically.

Note

For detailed configuration information, refer to the "[Process Control System PCS 7 Maintenance Station](#)" manual.

3.2.2 Project settings

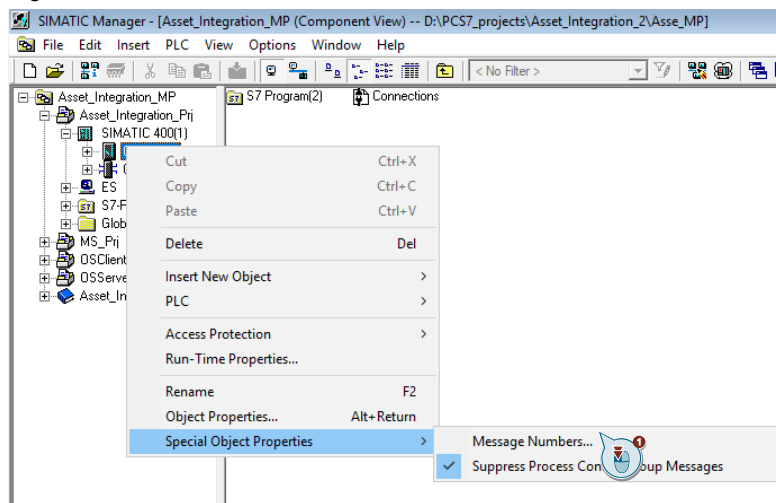
The following settings must be checked in the Component View of the SIMATIC Manager:

Assignment of message numbers

Check whether all projects of the multiproject have the same message concept, usually "CPU-oriented unique message numbers".

1. For this purpose mark the CPU and call the corresponding context menu with the right mouse button. Select "Special Object Properties > Message Numbers...".

Figure 3-4



2. Check here whether the projects coincide.

Version of the used block library

Make sure that your multiproject uses only channel blocks which were taken from the PCS 7 Library >= V6.1 SP1 or the PCS 7 Advanced Process Library. These blocks are needed for the generation of the diagnostics hierarchy.

NOTE

If you have used older channel blocks and update them with the required versions, an AS download in "stop" will be necessary due to the interface changes of the channel blocks.

Generation of module drivers

Check whether the channel blocks were created faultlessly (see report).

Compilation mode

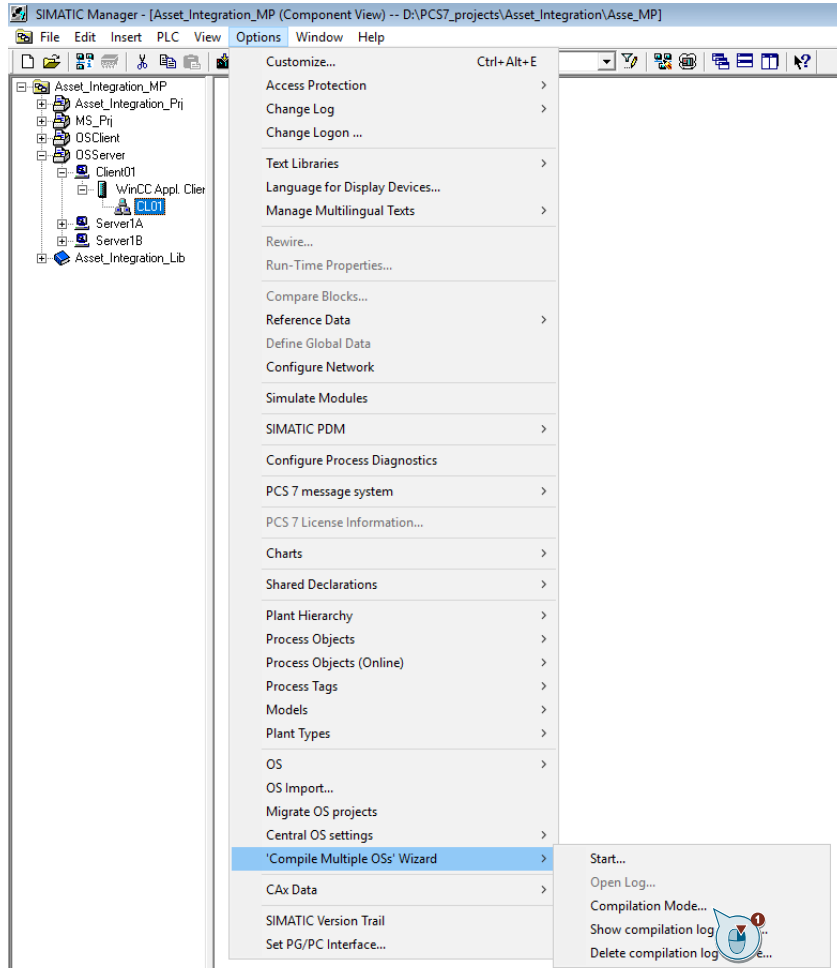
Check whether the OS compilation modes have been set to "area-oriented" for all subprojects of the multiproject which contain an OS. This setting is a prerequisite for the utilization of Asset Management.

1. Select a subproject and, in the menu bar, select "Options > 'Compile Multiple OSs' Wizard > Compilation Mode...".

NOTE

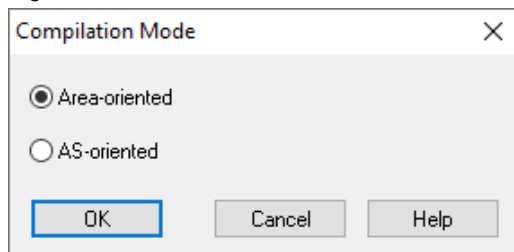
At least one hierarchy folder must have been inserted in the plant hierarchy for the selected project.

Figure 3-5



2. Select “Area-oriented” and confirm by clicking on “OK”.

Figure 3-6

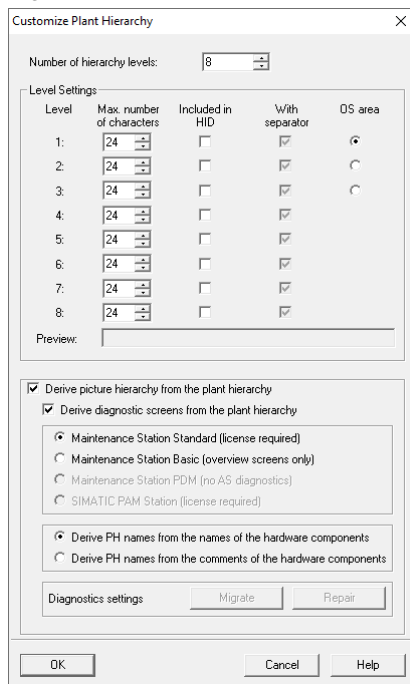


Plant hierarchy

The plant hierarchies must have the same settings in all projects of the Multiproject. You can check this in SIMATIC Manager via “Options > Plant Hierarchy > Settings...”.

The diagnostics area can contain up to 6 hierarchy levels. Depending on the level for the OS area in total 6 to 8 plant hierarchy levels are needed.

Figure 3-7



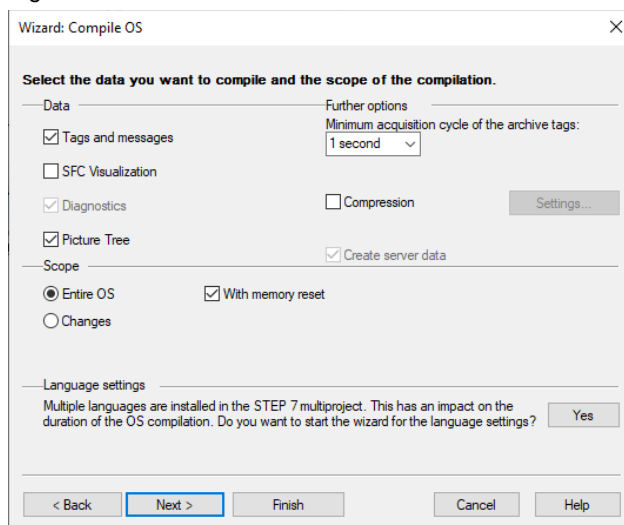
Consistency check

The cross-project consistency check should be completed successfully (i.e. the names of the S7 programs are unique across the whole multiproject, and S7 program names should not contain any spaces).

Compiling the OS

The options "Picture Tree" and "Diagnostics" must be activated during the OS compilation.

Figure 3-8



The option "Diagnostics" is automatically activated on the MS Server. It can be changed only during change compilation.

Naming of components in the Hardware Configuration

The names of all components (e.g. stations, modules) should not be longer than 14 characters and should be unique.

The function "Generate module drivers" uses this name to create the respective driver block, which is displayed in the diagnostics area. The name is truncated after 14 characters and "_<n>" is added as an ending. This ensures that it is unique in the CFC. A CFC module can consist of a maximum of 16 characters.

NOTE

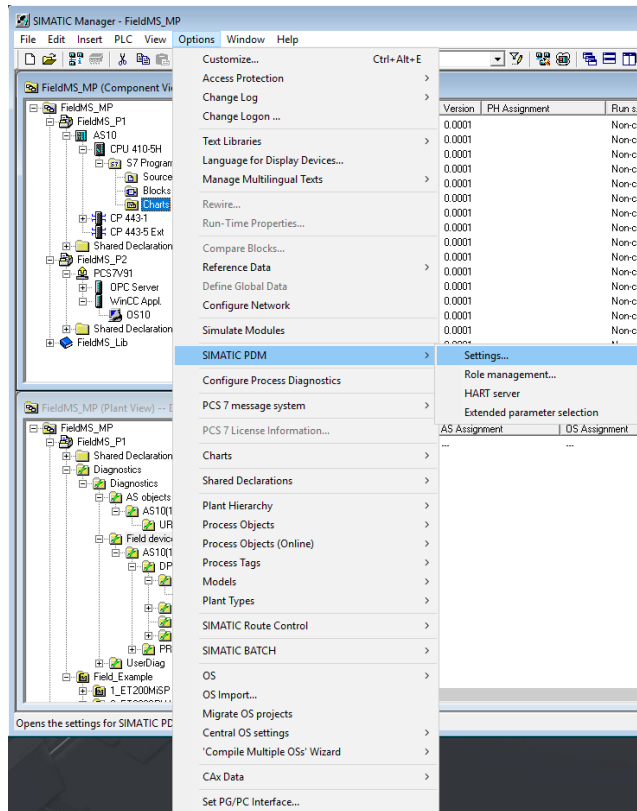
If the name of an AS station shall be longer than 14 characters, additional information can be inserted in the comment field of each component, which is also displayed in the diagnostics faceplates.

3.2.3 Settings for projects with PDM

Maintenance station settings

1. Select a subproject in the multiproject and select the menu command "Options > SIMATIC PDM > Settings...".

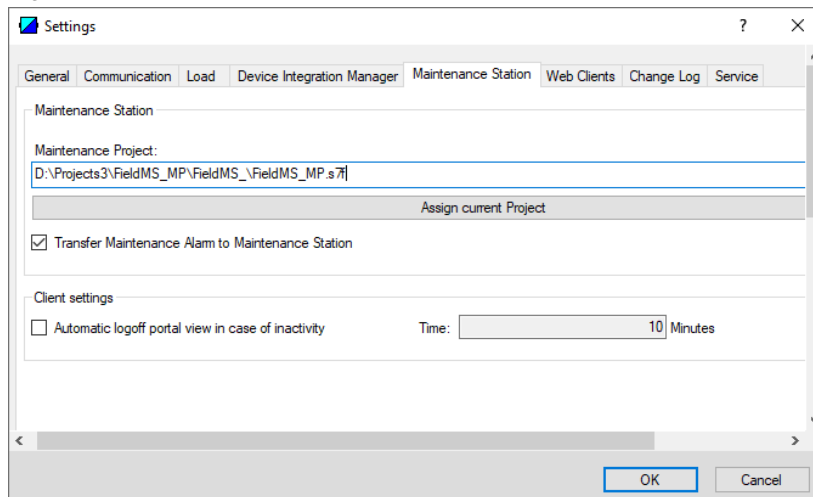
Figure 3-9



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2. Switch to the "Maintenance Station" tab and check whether the path entered is the same as the path of your multiproject. If this is not the case, correct the save path with the "Current multiproject" buttons or enter the path manually.

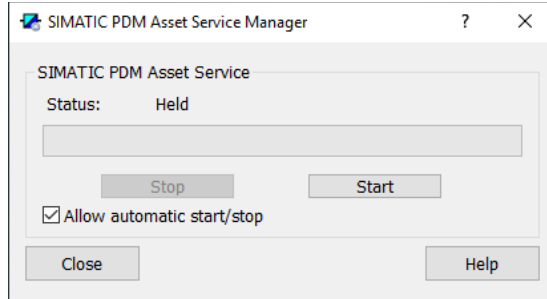
Figure 3-10



The option " Transmit maintenance alarm to maintenance station" must be activated if, in addition to the maintenance requirement (green) and maintenance request (yellow) messages, the maintenance alarms (red) of field devices are also to be reported, which then lead to QBad = 1 at the channel modules.

- Restart the PDM Asset Service Manager in the Windows taskbar (blue or green symbol).

Figure 3-11



Assignment of device types for the field devices

Before generating diagnostic images, all device types must have been assigned with PDM. If device description files are missing, they must first be imported into the PDM device catalog. To do this, open the Device Integration Manager, select "List of used device descriptions" and mark the desired multi-project.

Missing device description files are displayed with a black circle in the "Status" column:

Figure 3-12

Status	Path	Device name	Manufacturer	Communication	Type	New version	Integrated version	Integration date	Description	Type ID	GSD file	New ECO Revision	Integrated ECO revision	New Device Revision	Integrated device revision	DVD Version	FDI sign
✓	PROFIBUS DP	PROFIBUS DP	Siemens AG	PROFIBUS_DP	REMOTEIO												
✓	Siemens AG	Siemens AG	Siemens AG	PROFIBUS_DP	REMOTEIO												
✓	ET200M	ET200M	Siemens AG	PROFIBUS_DP	REMOTEIO	V1.1.17					w4881n.gsd						
✓	ET200SP	ET200SP	Siemens AG	PROFIBUS_DP	REMOTEIO	V1.1.19					w428110.gsd						
✓	Network Components	Network Components	Siemens AG	PROFIBUS_DP	NETWORK_COMP												
✓	Siemens AG	Siemens AG	Siemens AG	PROFIBUS_DP	NETWORK_COMP												
✓	DP PA Link / Y Link (SMD)	DP PA Link / Y Link (SMD)	Siemens AG	PROFIBUS_DP	NETWORK_COMP	01.01.06	3/23/2021		Interface module for	0x0001	w5881n.gsd	0x0006	0x0001				
✓	Siemens AG	Siemens AG	Siemens AG	PROFIBUS_DP	NETWORK_COMP	V1.1.15	3/23/2021		DP-PA-Coupler ext.	0x0001	w428110.gsd	0x000F	0x0001				
✓	Switchgear	Switchgear	Siemens AG	PROFIBUS_DP	SWITCHGEAR												
✓	Siemens AG	Siemens AG	Siemens AG	PROFIBUS_DP	SWITCHGEAR												
✓	SIMOCODE pro V (standard)	SIMOCODE pro V (standard)	Siemens AG	PROFIBUS_DP	SWITCHGEAR	V12.0.0.0	3/24/2021		SIRIUS Motor Man...	0x0001	s3188n.gsd	0x000d	0x000d	0x0020	162019		
✓	HART	HART	Siemens AG	HART Communicatio...	HART												
✓	Siemens AG	Siemens AG	Siemens AG	HART Communicatio...	HART												
✓	Temperature	Temperature	Siemens AG	HART Communicatio...	HART												
✓	Siemens AG	Siemens AG	Siemens AG	HART Communicatio...	HART												
✓	SITRANS TH300	SITRANS TH300	Siemens AG	HART	SENSOR - TEMPER.	01.01.06	3/24/2021		Temperature transm...	0x0013		0x0006	0x0001	162019			
✓	Siemens AG	Siemens AG	Siemens AG	HART	SENSOR - TEMPER.				Temperature transm...					162019			
✓	Pressure	Pressure	Siemens AG	HART Communicatio...	HART												
✓	Siemens AG	Siemens AG	Siemens AG	HART Communicatio...	HART												
✓	SITRANS P300	SITRANS P300	Siemens AG	HART	SENSOR - PRESSU...	1.02.05	3/24/2021		Pressure transmitter...	0x0008		0x0008	0x0003	162019			
✓	Level	Level	Siemens AG	HART Communicatio...	HART												
✓	Siemens AG	Siemens AG	Siemens AG	HART Communicatio...	HART												
○	SITRANS_LR190	SITRANS_LR190	Siemens AG	HART	SENSOR - LEVEL - E...												
✓	CFC	CFC	Siemens AG	DATA OBJECTS	CFC												
✓	Siemens AG	Siemens AG	Siemens AG	DATA OBJECTS	CFC												
✓	AssetMon	AssetMon	Siemens AG	DATA OBJECTS	CFC	1.0.1	3/24/2021		AssetMon DD	0x00c		0x0101	0x0001	162019			

The assignment of device types can be checked in the Process Device Plant View of the SIMATIC Manager.

3 Preparations

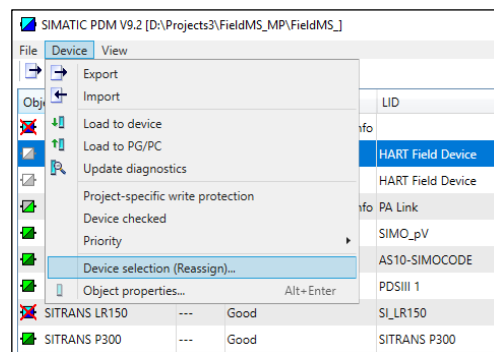
1. Open the Process Device Plant View and check whether all devices have been assigned. Unassigned devices are displayed with a white/grey symbol.

Figure 3-13

Object name	Priority	Device status	LID	Message	Description	Manufacturer	Connection point	Project	Catalog path
AM_Valve	---	No detailed diagnostic info		Non smart De		Siemens AG		FieldMS_P1	/DEVICE/DATA_OBJECTS/CF/CF/SIEMENS/AS
HART Field Device	---		HART Field Device				PROFINET_IO- PROFINET IO system (100)	FieldMS_P1	/SYSTEM/COMPONENTS/DEFAULT/pdm_de
PA Link EFD	---	No detailed diagnostic info	PA Link	SUP SPS	Geb 22	Siemens AG	P8_DP1: DP master system (1) (013)	FieldMS_P1	/DEVICE/PROFINET_DP/NETWORK/COMPC
Reversing starter	Importa	Good	SIMO_pV	---	SUP SPS	Siemens AG	P8_DP1: DP master system (1) (006)	FieldMS_P1	/DEVICE/PROFINET_DP/SWITCHGEAR/SIEM
RevSta_14	---	Good	AS10-SIMOCODE	---		Siemens AG	PROFINET_IO- PROFINET IO system (100)	FieldMS_P1	/DEVICE/PROFINET/SWITCHGEAR/SIEMENS
SITR_P_DSIII	Importa	Good	PDSIII 1		Demo Rack	SUP SPS	PROFINET_IO- PROFINET IO system (100)	FieldMS_P1	/DEVICE/PROFINET_PA/SENSOR/PRESSURE
SITRANS LR150	---	Good	SL_LR150	SUP SPS	DEMO RACK AS21	Siemens AG	P8_DP1: DP master system (1) (010 / 006)	FieldMS_P1	/DEVICE/HART/SENSOR/LEVEL/ECHO/SIEM
SITRANS P300	---	Good	SITRANS P300			Siemens AG	PROFINET_IO- PROFINET IO system (100)	FieldMS_P1	/DEVICE/PROFINET_PA/SENSOR/PRESSURE
TH300SP	---	Good	T12345	SUP SPS	PDM WS 2021	Siemens AG	P8_DP1: DP master system (1) (012 / 006)	FieldMS_P1	/DEVICE/HART/SENSOR/TEMPERATURE/SIE
TH300-PN	---	Good	TH300PN1	SUP SPS	DEMO PROJECT	Siemens AG	PROFINET_IO- PROFINET IO system (100)	FieldMS_P1	/DEVICE/HART/SENSOR/TEMPERATURE/SIE
TH400-CFU	---	Good	SITRANS TH400			Siemens AG	PROFINET_IO- PROFINET IO system (100)	FieldMS_P1	/DEVICE/PROFINET_PA/SENSOR/TEMPERAT
TT01	---	Good	SITRANS TH400	Workshop 123 Referenten-Rack		Siemens AG	PROFINET_IO- PROFINET IO system (100)	FieldMS_P1	/DEVICE/PROFINET_PA/SENSOR/TEMPERAT

2. Assign the related device type to each unassigned object via context menu “Device selection (Reassign)...”:

Figure 3-14



Use the device identification function if possible.

NOTE

Projects with PDM <= V6.1 may contain PDM objects that do not refer to any real existing device because this device was deleted in the hardware configuration at an earlier time. These objects should be deleted first.

After an update to a project with a PDM version >= V8.0 all PDM objects are created automatically. Afterwards the assignment of the device type can be done.

4 Configuration of PC Stations

For detailed information about the individual configuration steps please refer to the "[SIMATIC PCS 7 Maintenance Station](#)" manual.

4.1 Overview

Variant I:

If the OS simulation and a MS Client shall be used on the ES, you need two PC stations for the ES.

The first PC station serves as the Engineering Station with the OS simulation option. It contains a WinCC Application. It has the same name as the name in the Station Configurator and therefore shows a little yellow arrow on the icon.

The second PC station serves as MS Client on the ES and contains a WinCC Application Client. In the PC overview of the diagnostics hierarchy there should not appear two PC stations for the same ES. Therefore, the computer name is therefore left empty for the first PC station.

Table 4-1

Setting	Application	ES: PC-Station 1 (ES)	ES: PC-Station 2 (MS-Client)	MS-Server	OS-Server
PC station name	SIMATIC Manager	Name like in Station Configurat.	Any (e.g. MS-Client)	Computer name (Capitals!)	Computer name (Capitals!)
Computer name	SIMATIC Manager	No name (empty)!	= Computer Name (Capitals!)	= Computer name (Capitals!)	= Computer name (Capitals!)
WinCC Application	HW-Config	WinCC Application	WinCC Application Client	WinCC Application	WinCC Application
OPC Server	HW-Config	--	--	X	--
PDM Application (PCS 7 >= V7.1)	HW-Config	X	--	--	--
Ethernet card (for Plant bus)	HW-Config	CP 16xx (incl. Miniport adapter)	--	Any ¹	CP 16xx (incl. Miniport adapt.)
AS-OS connection	NETPRO	Optional (for OS simulation)	--	-- ¹	One for each related AS
SNMP Service	Windows	X		X	X
Diagnostics Monitor		X		X	X

¹ On a combined OS/MS Server a CP 16xx incl. Miniport / NDIS Adapter and AS-OS connections are needed.

Variant II:

In case the OS simulation is not used on the ES there is only one PC station used for the ES like for the other PC stations:

Table 4-2

Setting	Application	ES	MS-Server	OS-Server
PC station name	SIMATIC Manager	Computer name (Capitals!)	Computer name (Capitals!)	Computer name (Capitals!)
Computer name	SIMATIC Manager	= Computer name (Capitals!)	= Computer name (Capitals!)	= Computer name (Capitals!)
WinCC Application	HW-Config	WinCC Application Client (optional)	WinCC Application	WinCC Application
OPC Server	HW-Config	--	X	--
PDM Application (PCS 7 >= V7.1)	HW-Config	X	--	--
Ethernet card (for Plant bus)	HW-Config	CP 16xx (incl. Miniport adapter)	Any ¹	CP 16xx (incl. Miniport adapt.)
AS-OS connection	NETPRO	--	-- ¹	One for each related AS
SNMP Service	Windows	X	X	X
Diagnostics Monitor		X	X	X

NOTE

The Diagnostics Monitor Webserver must be activated on each monitored SIMATIC IPC.
OS clients and MS clients are configured similarly to OS servers, but with WinCC Application Clients, without CP 16xx adapter and without AS-OS connections.

NOTE

If you want to use the detailed diagnostics (OS object properties) for earlier PCS 7 versions, you must observe the following information:
PCS 7 V6.1: May not be activated!
PCS 7 V7.0: Can be activated only on MS Client on ES
>= PCS 7 V7.1: Not applicable

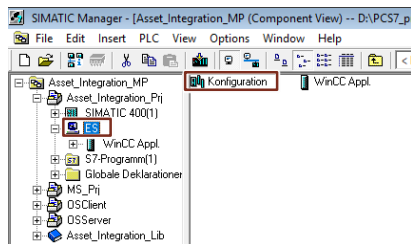
4.2 Configuration of PC stations for the Engineering Station

4.2.1 Variant A: Two PC stations for the ES

Setting up the PC station for AS/OS download and OS Simulation function

1. Open the context menu of the project in the component view and insert a new PC station via “Insert New Object > SIMATIC PC station”.
2. Open the HW Config of the PC station via the context menu.

Figure 4-1



3. Insert into a “WinCC Application” and a “CP 16xx” card (if used, otherwise a “IE General” card) and a PDM application, if PDM is used, in the hardware configuration.

Figure 4-2

Index	Module	Order number	Firmware	MPI address	I address	Co...
1	WinCC Appl.	----				
2	CP 1623	6GK1 162-3AA00	V8.1.1			
3	PDM Application					
4						

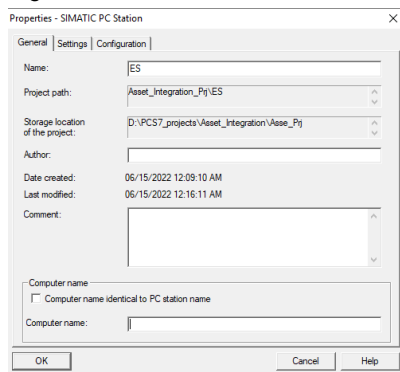
4. Configure the “CP 16xx” communication processor for the communication on the plant bus (see [“PCS 7 Engineering system configuration manual”](#)).

NOTE

The IP networks of the plant bus (if IP protocol is activated) and the CP 16xx Miniport adapter must be different!

5. Open the “Object Properties...” of the PC station.
6. In the “General” tab enter the station name of the component configurator under “Name:”. A yellow arrow then appears in the icon of the PC station.

Figure 4-3



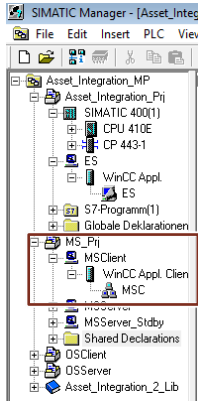
NOTE

Do not enter a name in the field “Computer name:” for this PC station.

Setting up the PC station for the MS Client

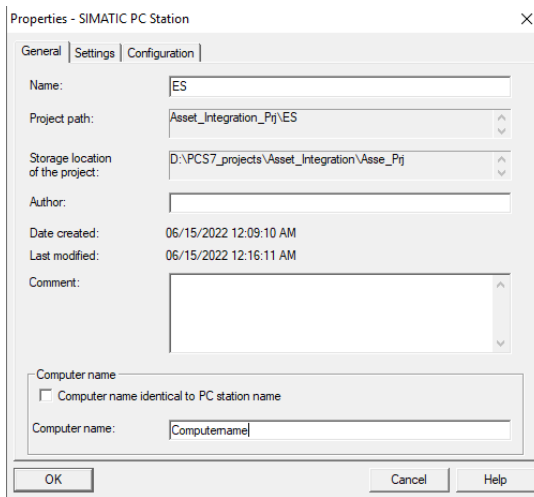
1. Create a PC station for the MS Client and add a “WinCC Application Client”.

Figure 4-4



2. Use the context menu of the PC station to open the “Object Properties...”.
3. In the “General” tab you can enter a freely selectable name in “Name:”, e.g. “MS Client”.
4. Enter the computer name of the ES for “Computer name:”.

Figure 4-5



4.2.2 Variant II: One PC station for the ES

In case the OS simulation is not used, only one PC station is created for the ES.

1. Create a PC station for the MS Client.
2. Add a CP 16xx card and configure it for the communication on the plant bus.
3. Optional: If the MS Client function shall be used on the ES:
Add a "WinCC Application Client".
4. Optional: If PDM is used add a PDM application.
5. Open "Object Properties..." and, in the "General" tab, enter the station name of the component configurator.
Enter the computer name of the ES for "Computer name:".

4.3 Configuration of the PC station for the MS Server

In the following you create the MS Client. Depending on the plant architecture it can be designed as a stand-alone or redundant server.

1. If not already available (one of the existing OS Servers is used as a combined OS/MS Server):
Create a PC station for the MS Server including a "WinCC Application" and an "OPC Server" in its hardware configuration.

Figure 4-6

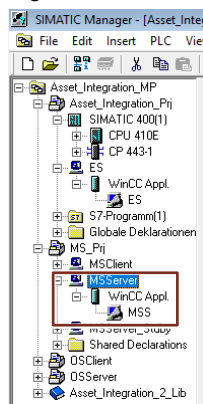


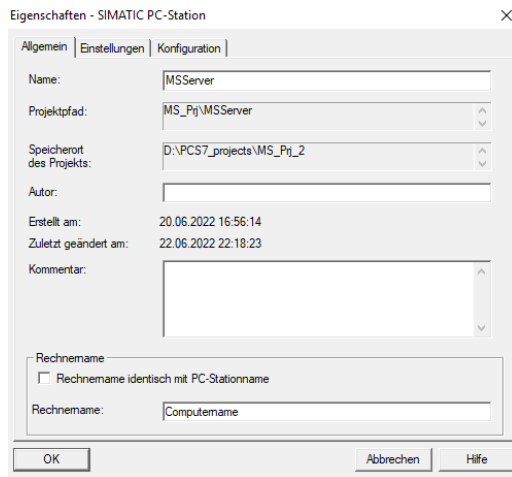
Figure 4-7

Index	Baugruppe	Bestellnummer	Firmware	MPI-Adresse	E-Adresse	K...
1	WinCC Appl.	---				
2	OPC Server		V8.2			
3						
4						

2. Use the context menu of the PC station to open "Object Properties...".
3. In the "General" tab you can enter a freely selectable name in "Name:".

4. Enter the Windows computer name of the destination computer for “Computer name:”.

Figure 4-8



5. Optional:

If the MS server is designed redundant, create an additional PC station for the MS Server Standby and add a “WinCC Application (Stby)” to it.

Figure 4-9

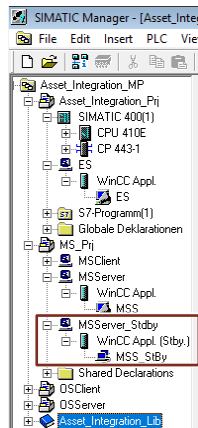


Figure 4-10

Index	Baugruppe	Bestellnummer	Firmware	MPI-Adresse	E-Adresse
1	WinCC Appl. (Slby.)	----			
2					
3					

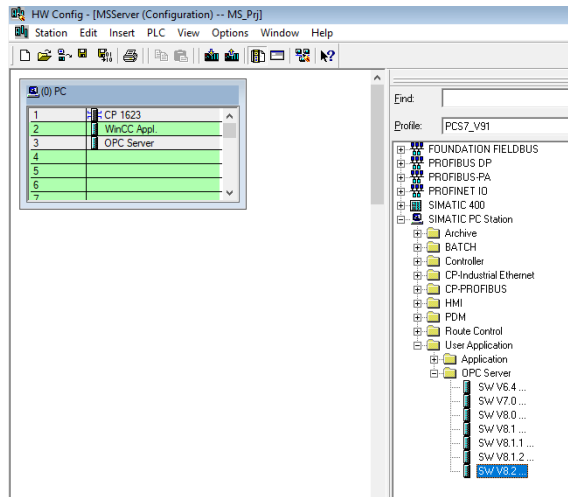
6. Open the “Object Properties...” via the context menu of the PC station.
7. In the “General” tab you can enter a freely selectable name in “Name:”.
8. Enter the Windows computer name of the destination computer for “Computer name:”.

Configuration of the SIMATIC NET OPC Server

Proceed as follows:

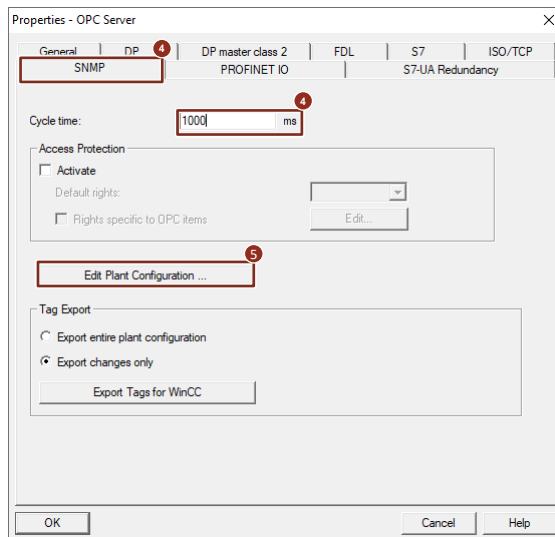
1. Open HW Config of the MS Server using its context menu and select “Open Object”.
2. In the hardware catalog, find the OPC Server (path: “SIMATIC PC Station > User Application > OPC Server”) and add it to the hardware configuration using drag & drop.

Figure 4-11



3. Open the properties of the OPC Server via the context menu “Object Properties...”.
4. Go to the "SNMP" tab and enter a value of at least 1000 ms for "Cycle time:".
5. Click the “Edit Plant Configuration...” button.

Figure 4-12



4 Configuration of PC Stations

6. In the window which opens now you can state your SNMP components via the button "Add...". The following fields must be filled in for every SIEMENS component such as PC, switch, etc.:
 - "Name:" (for PCs the name must be the same as the Windows computer name of the PC station in capital letters)
 - "IP Address:" Preferred is a terminal bus address, otherwise a plant bus address
 - "Device profile:" see table in Maintenance Station manual
 - "Community:" see table in Maintenance Station manual
 - "TimeOut:" 9000 (in ms; Standard)
 - Tick "SNMP Optimization".

In large projects, a longer "Timeout" is recommended, for example 30000 [ms].

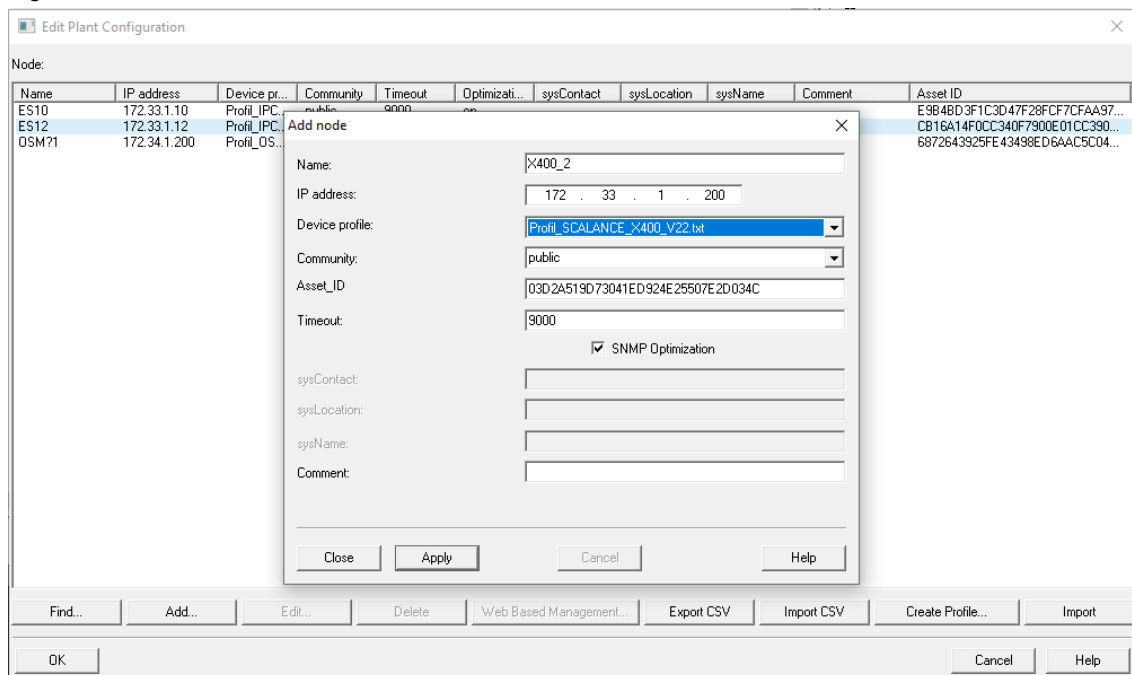
You can add an optional description for the SNMP component under "Comment". After you have added all components, exit the configuration window by clicking the "OK" button.

Selecting "No SNMP" as the device profile will affect the diagnostic screens in the following ways:

NOTE

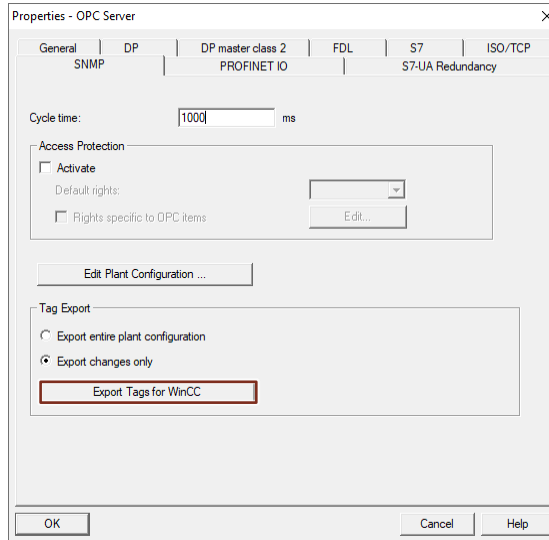
- No block icon will be created for a network object.
- For an industrial PC, the block icon will be that of a PC station.

Figure 4-13



- In the Properties window of the OPC server, transfer the SNMP tags by clicking the "Export Tags for WinCC" button.

Figure 4-14

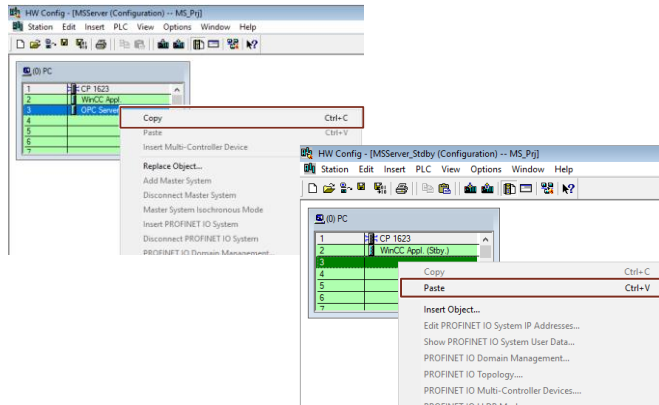


NOTE

The following steps are required only if you are using a redundant MS Server.

- In the HW Config Editor of the MS Master Server select the OPC Server and copy it.
- Open the hardware configuration of the MS stand-by server.
- Select an empty line and add the copied OPC Server to the configuration.

Figure 4-15



NOTE

With this procedure, you do not need to re-enter the SNMP components. Another method for copying the SNMP configuration would be using the "Export CSV" and "Import CSV" button in the SNMP configuration menu.

4.4 Configuring and creating the diagnostics structure

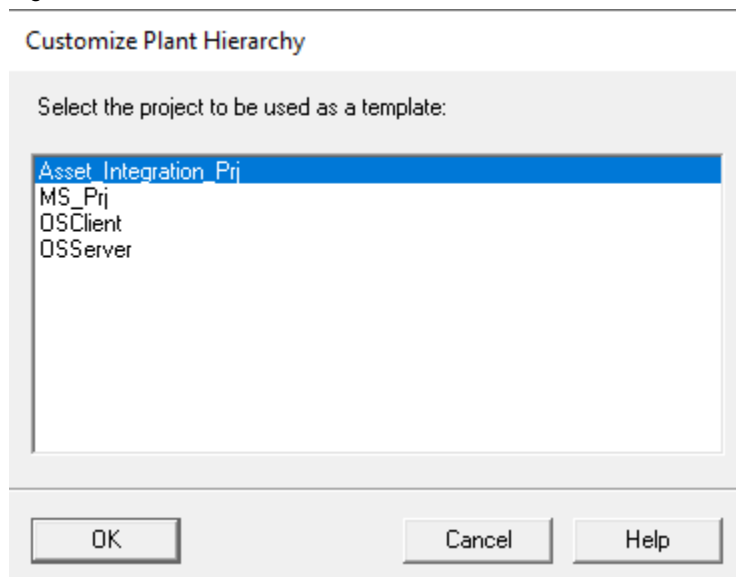
The diagnostics structure is configured and created as described below. When PCS 7 is created, it generates several additional subfolders and diagnostic screens and automatically assigns the names to these folders/diagnostic screens.

NOTE

The automatically generated names of the folders in the diagnostics hierarchy are not to be modified.

1. In SIMATIC Manager, select the multiproject folder, open its context menu and select "Plant Hierarchy > Settings...".
2. Select which hierarchy you wish to use as a template.

Figure 4-16



4 Configuration of PC Stations

3. Tick the box for "Derive diagnostic screens from the plant hierarchy" and select the "Maintenance Station Standard" option.

Figure 4-17

Customize Plant Hierarchy

Number of hierarchy levels: 8

Level	Max. number of characters	Included in HID	With separator	OS area
1:	24	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="radio"/>
2:	24	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="radio"/>
3:	24	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="radio"/>
4:	24	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="radio"/>
5:	24	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="radio"/>
6:	24	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="radio"/>
7:	24	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="radio"/>
8:	24	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="radio"/>

Preview:

Derive picture hierarchy from the plant hierarchy

Derive diagnostic screens from the plant hierarchy

Maintenance Station Standard (license required)

Maintenance Station Basic (overview screens only)

Maintenance Station PDM (no AS diagnostics)

SIMATIC PAM Station (license required)

Derive PH names from the names of the hardware components

Derive PH names from the comments of the hardware components

Diagnostics settings:

4. Select the maintenance server as maintenance station and confirm your selection with "OK".

Figure 4-18

Define maintenance station

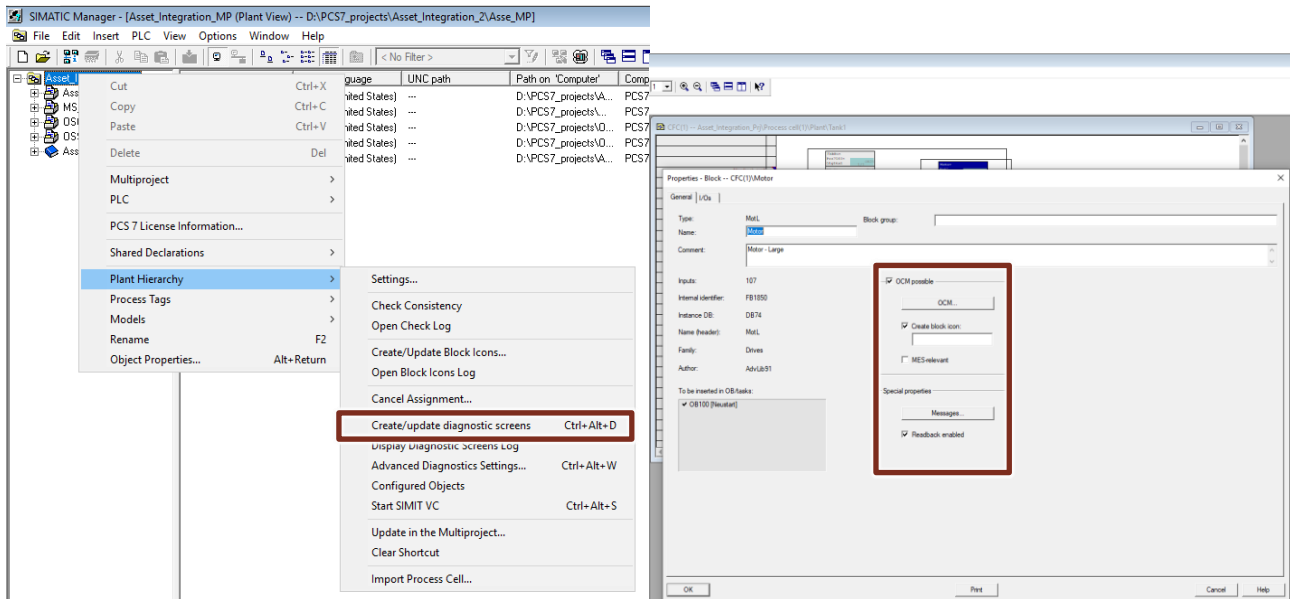
Existing OSs in the multiproject:

OS (only under PC station)	Project
FS\ \NS	Asset Interration Pri
MSServer1... \MSServer	MS_Pri
Server1... \MSS	OS Server

4 Configuration of PC Stations

5. In SIMATIC Manager, select the multiproject folder and click on "Options > Plant Hierarchy > Create/update diagnostic screens".

Figure 4-19



NOTE

With this function the hierarchy folders with the names AS objects, field devices, network objects and PC stations are created on the same hierarchy level below the diagnostics hierarchy folder that maps the OS area.

5 Concluding activities

When you have carried out the required configuration steps you can start the following final activities.

5.1 Compiling and downloading AS, OS and MS Server

1. In case of changes (like block library update):
Compile and download all AS stations.

NOTE

If you used older blocks in the CFC charts and you updated them to newer versions, an AS download in "stop" will be necessary due to interface changes of the channel blocks.

2. In case of changes described before (like project settings, compilation mode setting, changes in picture hierarchy etc.):
Perform a full OS Compile and download all OS servers.
3. In case of a separate MS Server:
Download the PC station of the Maintenance Server from NETPRO.
Optional: Download the PC station of the MS Standby Server.
4. Full compile and download the OS object of the Maintenance Server.
Optional: Download the PC station of the MS Standby Server.

NOTE

The very first time a full download to the MS server is required. Further changes can be translated and downloaded with changes.

(Exceptions see "[PCS 7 Engineering system configuration manual](#)")

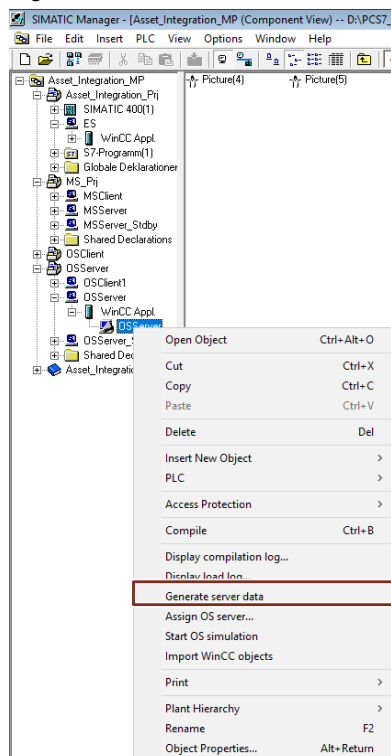
5.2 Actions for MS Clients

One or more OS Clients can be used as MS Clients. The MS Client on the Engineering Station is optional.

Check in the MS Client project(s) whether the server data of all required OS Servers and of the MS Server have been assigned.

1. Create the server data. Select the various OS servers one after the other and perform the "Generate server data" operation.

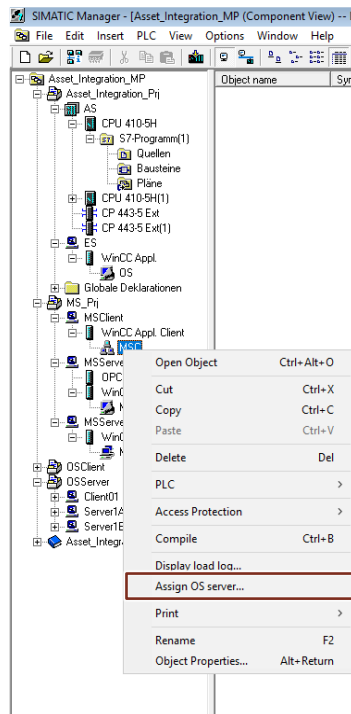
Figure 5-1



5 Concluding activities

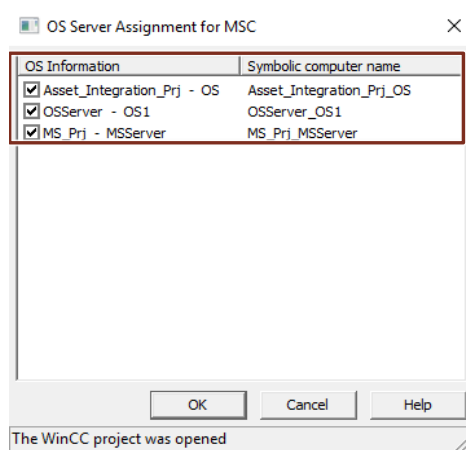
2. In the MS client in SIMATIC Manager, select the OS client application, open its context menu and then select "Assign OS server".

Figure 5-2



3. Select the necessary server data and confirm with "OK".

Figure 5-3



4. Download the Client project to the target PC (via SIMATIC Manager).

6 Appendix

6.1 Service and support

Industry Online Support

Do you have any questions or need assistance?

Siemens Industry Online Support offers round the clock access to our entire service and support know-how and portfolio.

The Industry Online Support is the central address for information about our products, solutions and services.

Product information, manuals, downloads, FAQs, application examples and videos – all information is accessible with just a few mouse clicks:

support.industry.siemens.com

Technical Support

The Technical Support of Siemens Industry provides you fast and competent support regarding all technical queries with numerous tailor-made offers

– ranging from basic support to individual support contracts. Please send queries to Technical Support via Web form:

siemens.com/SupportRequest

SITRAIN – Digital Industry Academy

We support you with our globally available training courses for industry with practical experience, innovative learning methods and a concept that's tailored to the customer's specific needs.

For more information on our offered trainings and courses, as well as their locations and dates, refer to our web page:

siemens.com/sitrain

Service offer

Our range of services includes the following:

- Plant data services
- Spare parts services
- Repair services
- On-site and maintenance services
- Retrofitting and modernization services
- Service programs and contracts

You can find detailed information on our range of services in the service catalog web page:

support.industry.siemens.com/cs/sc

Industry Online Support app

You will receive optimum support wherever you are with the "Siemens Industry Online Support" app. The app is available for iOS and Android:

support.industry.siemens.com/cs/ww/en/sc/2067

6.2 Industry Mall



The Siemens Industry Mall is the platform on which the entire Siemens Industry product portfolio is accessible. From the selection of products to the order and the delivery tracking, the Industry Mall enables the complete purchasing process – directly and independently of time and location:

mall.industry.siemens.com

6.3 Links and literature

Table 6-1

Nr.	Thema
\1\	Siemens Industry Online Support https://support.industry.siemens.com
\2\	Link to this entry page of this application example https://support.industry.siemens.com/cs/ww/en/view/27833758
\3\	SIMATIC PCS 7 Standard Architectures https://support.industry.siemens.com/cs/ww/en/view/32201963
\4\	SIMATIC Process control system PCS 7 - PC Configuration (V9.1) https://support.industry.siemens.com/cs/ww/en/view/109794377/142640712203
\5\	SIMATIC Process Control System PCS 7 Maintenance Station V9.1 https://support.industry.siemens.com/cs/ww/en/view/109794384

6.4 Change documentation

Table 6-2

Version	Date	Modifications
V1.0	03/2010	First version
V1.1	10/2010	Text adaptations
V2.0	06/2022	Update to SIMATIC PCS 7 V9.1
V2.1	08/2022	Correction of mistakes and update to a version less version