Installation and Commissioning of Process Historian and Information Server in a PCS 7 Environment

SIMATIC Process Historian 2014 SP2
SIMATIC Information Server 2014 SP2

https://support.industry.siemens.com/cs/ww/en/view/66579062

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Preface

Objective

This document describes the steps which should be carried out for the installation and setting up of the Process Historian (PH) and the Information Server (IS) within a PCS 7 environment.

It also explains the commissioning procedure for the PH and IS as well as instructions for system checking and troubleshooting.

Core contents

The following topics will be discussed in detail:

- Installation requirements
- Installation of the Process Historian
- Installation of the Information Server
- Installing of the Operator Station
- Commissioning of the systems after installation
- Scenarios and instructions for system checking and troubleshooting

Validity

This document is valid for the following components:

- SIMATIC PCS 7 V8.2
- Process Historian 2014 SP2
- Information Server 2014 SP2

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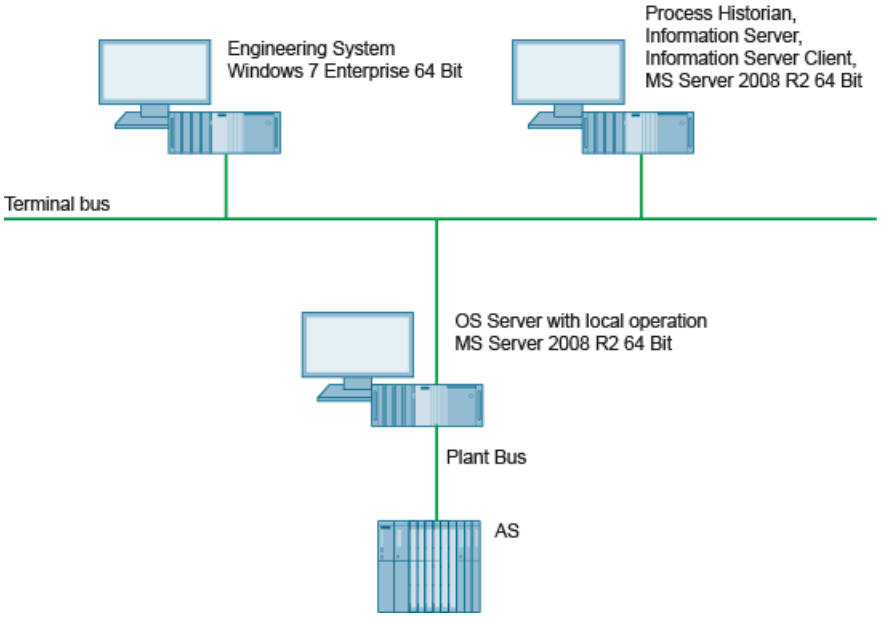
1 Introduction

1.1 Overview

This application example is based on the following PCS 7 architecture:

Figure 1-1: Overview of the installation structure



PH used / IS hardware used in this example

- Fujitsu Primergy Server RX2560 M1
- Server 2012 R2 Standard, 64 bit
- 64 GB SDRAM
- 2 x 300 GB 2.5-inch SAS 12 GB/s HDD
- 4 x 600 GB 2.5-inch SAS 12 GB/s HDD
- 16 x 1.2 TB 2.5-inch SAS 12 GB/s HDD
- Redundant power supply

The document describes the installation of a 2014 SP2 Process Historian on a Fujitsu Primergy Server RX2560 M1. It examines the configuration of the RAID system and the installation.

For further information about the Fujitsu Primergy Server RX2560 M1 please see the following manual on the Fujitsu website:

https://sp.ts.fujitsu.com/dmsp/Publications/public/ds-py-rx2560-m1.pdf

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Source: www.fujitsu.com

Note The description is also valid for the Process Historian / Information Sever 2014 SP2 Update 1 and Update 2.

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1.2 PH / IS Installation sequence on a Fujitsu Primergy Server

Requirements

For the installation you require

- the hardware and software described in Section 1.3.
- Adequate Know-how in the handling of SIMATIC PCS 7, PC hardware configuration, RAID systems and software installation.

Installation sequence

Note the following installation sequence for installation:

1. Configuration of the RAID system
2. Installation of the operating system
3. Installation of the components necessary for operation
4. PH / IS Software Installation
5. Installation of the database

1.3 Components used

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The Application Example has been created with the following hardware and software components:

Component	Quantity
Fujitsu Primergy Server RX2560 M1	1
Process Historian 2014 SP2	1
Information Server 2014 SP2	1

The following assumptions on system configuration apply to the sample application:

System characteristics	Value
Number of connected OS servers	3
Measurement value: Load per OS system	1500 Measured values/s
Alarm messages, Load per OS system	5 alarms/s
Online availability of data	2 years
Use of SIMATIC BATCH	Yes

Based on the assumptions concerning the system configuration, the following load results for the Process Historian:

Total Measurement value Load:

$$1500\frac{Measurement\ values}{s} * 3\ Server = 4500\frac{Measurement\ values}{s}$$

Total Alarm messages Load:

$$5\frac{Messages}{s} * 3\ Server = 15\frac{Messages}{s}$$

Note The system described is intended for combined operation of Process Historian and Information Server.

2 Installation requirements

Process Historian and Information Server can be installed on a single device or on two different ones. If PH and IS are installed on the same computer, both the installation requirement and the necessary adjustments must be given.

In this application example it is assumed that the PH and IS are installed on the same computer.

Note

The requirements for installing the PH must be met. The corresponding requirements are listed in the "INSTALLNOTESPRHIDEDE.chm" documents.

The Install Notes can be found on the Product DVD in the folder “<DVD Drive>:\DVD_1\27b_PH+IS_Install_and_Release-Notes\German".

Note

The requirements for installing the IS must be met. The corresponding requirements are listed in the "INSTALLNOTESINFSVDEDE.chm" documents.

The Install Notes can be found on the Product DVD in the folder “<DVD Drive>:\DVD_1\27b_PH+IS_Install_and_Release-Notes\German".

NOTICE

The computer SID is a unique security identifier. The Process Historian identifies the OS systems from their computer SID.
Computers that have the same computer SID and swap data onto the PH, cannot be clearly identified by the PH. This may cause malfunctions on the PH.

If computers are cloned, the computer SID is not adjusted automatically.

In the PCS 7 environment, unique computer SIDs are a requirement for error-free functionality.

The PH/IS machine, too, needs to have a unique SID.

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2.1 Installation requirements for the Process Historian

The following installation requirements must be met:

- Windows Server 2012 R2 (64-bit) Standard / Enterprise or Windows Server 2008 R2 (64-bit) Standard / Enterprise
- Microsoft SQL Server 2014 SP1 64-bit.

  The SQL Server is automatically installed when the Information Server is installed.
- The Process Historian requires the "Microsoft Message Queuing" service.
- The computer must have enough free storage space available for the installation of the Process Historian.
- As part of the PH installation, Microsoft NET Framework 4.0 is also installed. The setup program checks to see if version 3.5 of Microsoft.NET Framework is available.

  Microsoft.NET Framework 3.5 must be installed prior to installation of the PH and the IS.

Note

Process Historian is a long-term archive. The hard disk space required can be high, depending on the alarm and tag load together with the period to be saved.

Use hard disks with a sufficiently large capacity.

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2.2 Installation requirements for the Information Server

The Information Server can be installed on different systems.

All the suitable Microsoft operating systems and software components are listed in the following table:

Table 2-1

Operating system	Configuration	Remarks
Windows 7	Professional SP1 Enterprise SP1 Ultimate SP1	Standard installation 32-bit and 64-bit
Windows Server 2008	Standard SP2	32-bit
Windows Server 2008 R2	Standard SP1	64-bit
Windows Server 2012 R2	Standard	64-bit

- The Information Server requires the "Internet Information Services" (IIS) service.
- As part of the PH installation, Microsoft.NET Framework 4.0 is also installed. As the setup program checks whether the previous 3.5 version is available, Microsoft.NET Framework 3.5 must be present before installing the PH and the IS.
- Visual Studio Tools for Office (VSTO runtime)
- Microsoft SQL-Server 2014 SP1 64-Bit. The SQL Server is automatically installed when the Information Server is installed.
- The Internet browser used must support HTML5.

Table 2-2

Product	Version / Comments
Internet Explorer	As of version 11
Mozilla Firefox	Latest version
Google Chrome	Latest version

2.3 Installation requirements for the IS client

2.3.1 Requirements for the Internet Explorer IS client

- Operating systems, see Information Server
- The Internet browser used (see table) must support HTML5.

Table 2-3

Product	Version / Comments
Internet Explorer	As of version 11.0
Mozilla Firefox	Latest version
Google Chrome	Latest version

2.3.2 Requirements for the Office IS client

- Operating systems, see Information Server
- Microsoft.NET Framework 4.0
- Information Server Office add-in (the Office add-in requires the VSTO runtime)
- Visual Studio Tools for Office (VSTO runtime)
  MS Excel (32 bit) and VSTO form the basis for the Information Server MS Excel Add In.

  VSTO is located in the folder “R:\27_InformationServer__V8.2\VSTOR" of the PCS 7 DVD 2

Note The VSTO component from the PCS 7 general setup is automatically installed if the components setup "Information Server - MS Office Add-in 2014" is selected in the user-defined installation.

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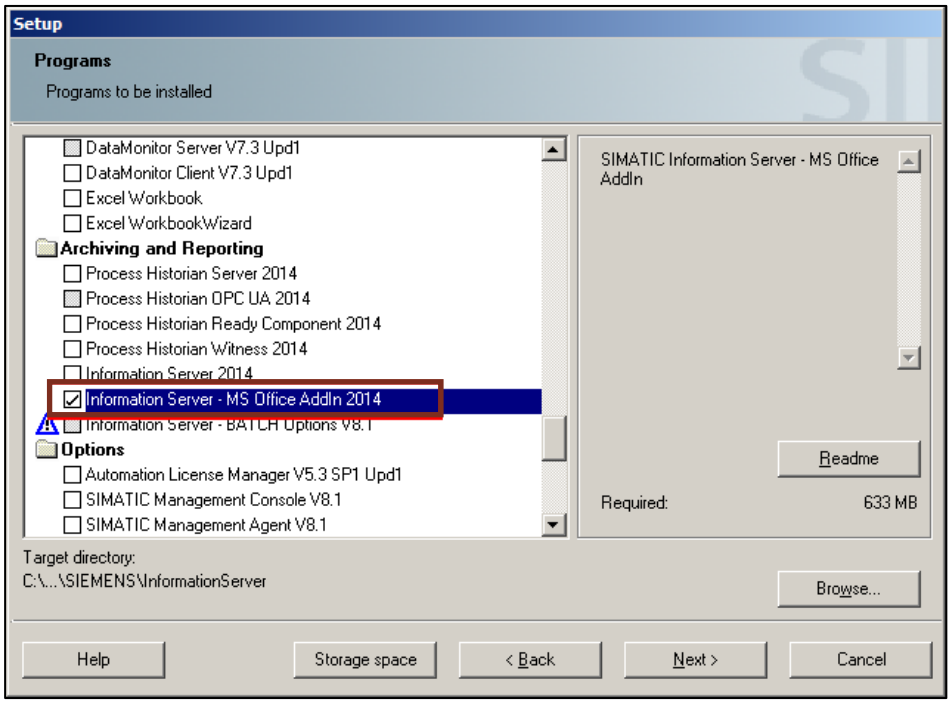

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Note

The PCS 7 setup automatically installs the correct version of Microsoft.NET.

If you do not install the Information server Office Add In with the PCS 7 setup, you must install Microsoft.NET Framework manually.

You will find Microsoft.NET Framework 4.0 on the PCS 7 DVD1/2 under the path: "08_DotNetFramework\ NDP451-KB2858728-x86-x64-AllOS-ENU.exe".

Alternatively, you can download Microsoft.NET Framework 4.0 at the following link:
http://www.microsoft.com/en-US/download/Details.aspx?id=17718

Supported Office versions:

- Microsoft Office 2007 SP3 (32 bit)
- Microsoft Office 2010 SP1 (32 bit)
- Microsoft Office 2013 (32 bit)

3 Server configuration

The hardware selection and the implementation of the RAID configuration are described in the following.

NOTICE	**Before you can install the Process Historian / Information Server, the RAID system must be fully configured.** **This operation may take several hours.**

3.1 Calculation of the HW requirements with the PH HW Advisor

You can determine hardware suitable for your system and quantity structure with the help of the Siemens tool “PH-HWAdvisor”.

Note In the application example “Determination of suitable hardware for the 2014 Process Historian with the tool “PH-HWAdvisor” you will find a download link and instructions on its use at:
https://support.industry.siemens.com/cs/ww/en/view/109740115

Note If you need assistance with the choice of appropriate Process Historian hardware, please get in touch with your SIEMENS contact.

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For the assumed system characteristics from section 1.3 a calculation was carried out with the “PH-HWAdvisor“ tool. The following image shows an example of the calculation in the PH-HWAdvisor.

End customer:	Example	**Number of PCS 7 OS systems:**	3
Project name:	Example	**Tag values / s / PCS 7 OS system:**	1500
Company:	Example	**Alarms / min / PCS 7 OS system:**	15
Project responsible:	Example Example	**Data online available:**	2 years
SIMATIC PCS 7 Version:	V8.2	**SIMATIC Batch enabled:**	YES
		PH redundant:	NO
Siemens editor:	Example Example	**PH and IS on the same HW platform:**	YES
Siemens region:	Example	**DB & segment backups stored on PH:**	NO
PHILOS number:	Example		

2. Storage requirements

Tags[GB]:	3.128,04
Tags[TB]:	3,05
Alarms[GB]:	1.221,95
Alarms[TB]:	1,19
Storage Requirement[TB]:	4,25
Storage Requirement for archive segments per year[TB]:	2,20

3. Hardware recommendation

CPU	Intel® Xeon® processor E5-2643v4			
	(6C/12T, 3.40 GHz, TLC: 20 MB, Turbo: 3.60 GHz, 9.6 GT/s,			
	Mem bus: 2,400 MHz, 135 W, AVX Base 2.80 GHz, AVX Turbo 3.60 GHz)			
	Comparable or better CPU			
RAM ***	64 GB DDR4-2400 ECC			
HDD ****	**Partition**	**Storage**	**RAID**	**Hard disks**
	system	600 GB	RAID 1	2x 600 GB
	transaction log	600 GB	RAID 1	2x 600 GB
	common data	300 GB	RAID 1	2x 300 GB
	Information Server database	1200 GB	RAID 1	2x 1200 GB
	alarms	2400 GB	RAID 10	4x 1200 GB
	tags (data group 0)	1200 GB	RAID 1	2x 1200 GB
	tags (data group 1)	1200 GB	RAID 1	2x 1200 GB
	tags (data group 2)	1200 GB	RAID 1	2x 1200 GB
	SIMATIC Batch	2400 GB	RAID 10	4x 1200 GB

For the application example a hardware configuration was used which provides a performance comparable or superior to the minimum requirements determined by the tool.

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Size M + batch data + IS

Basics	
Platform	Fujitsu Primergy RX2560 M1 with Windows Server 2012 R2, Standard Edition
Processor	Intel® Xeon® processor E5-2643v3 (6C/12T, 3.40 GHz, TLC: 20 MB, Turbo: 3.60 GHz, 9.6 GT/s, Mem bus: 2,133 MHz, 135 W, AVX Base 2.80 GHz, AVX Turbo 3.40 GHz)
RAM	64 GB, ECC

Distribution	Storage technology	Storage capacity (in total)	Number & capacity of hard disks
operating system	Raid 1, 2.5-inch, SAS 12Gb/s	600 GB	2 x 600 GB
transaction log file	Raid 1, 2.5-inch, SAS 12Gb/s	1,8 TB	2 x 1,8 TB
tags (data group 0)	Raid 1, 2.5-inch, SAS 12Gb/s	1,8 TB	2 x 1,8 TB
tags (data group 1)	Raid 1, 2.5-inch, SAS 12Gb/s	1,8 TB	2 x 1,8 TB
tags (data group 2)	Raid 1, 2.5-inch, SAS 12Gb/s	1,8 TB	2 x 1,8 TB
tags (data group 3)	Raid 1, 2.5-inch, SAS 12Gb/s	1,8 TB	2 x 1,8 TB
alarms	Raid 10, 2.5-inch, SAS 12Gb/s	3,6 TB	4 x 1,8 TB
common data	Raid 1, 2.5-inch, SAS 12Gb/s	600 GB	2 x 600 GB
Information Server database	Raid 1, 2.5-inch, SAS 12Gb/s	1,8 TB	2 x 1,8 TB
batch data	Raid 1, 2.5-inch, SAS 12Gb/s	1,8 TB	2 x 1,8 TB

22 hard disks in total

With this HW configuration following options are not allowed:

- PH redundancy

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3.2 Hardware RAID configuration

The server architecture allows the RAID system of the Fujitsu Primergy Server Size M to be freely configured.

The following hard disk and RAID configuration is used for the quantity structure of the application example:

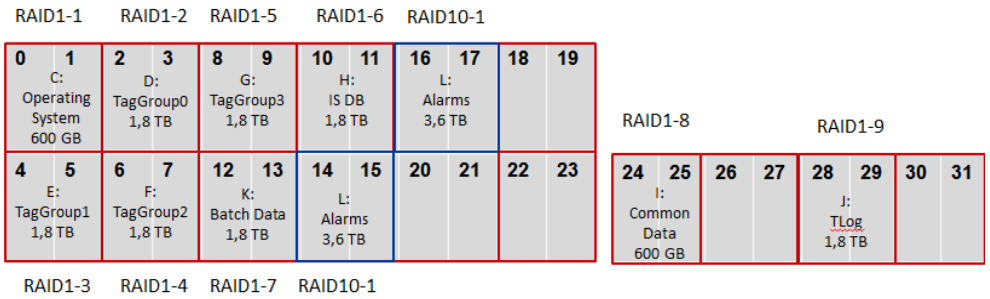
- Configuration with 22 hard disks
- RAID1 configuration
- RAID10 configuration

The hard disks have the following designation and tasks within the Process Historian:

RAID	Drive name	Size	Name	Data
RAID1-1	C:	600 GB	Operating system	Operating system
RAID1-2	D:	1.8 TB	TagGroup0	Runtime Data Group 0, Compressed Data Group 3
RAID1-3	E:	1.8 TB	TagGroup1	Runtime Data Group 1, Compressed Data Group 0
RAID1-4	F:	1.8 TB	TagGroup2	Runtime Data Group 2, Compressed Data Group 1
RAID1-5	G:	1.8 TB	TagGroup3	Runtime Data Group 3, Compressed Data Group 2
RAID1-6	H:	1.8 TB	IS DB	Information Server DB
RAID1-7	I:	600 GB	CommonData	Configuration data, General database data
RAID1-8	J:	1.8 TB	TLog	Transaction logfile
RAID1-9	K:	1.8 TB	Batch file	SIMATIC BATCH data
RAID10-1	L:	3.6 TB	Alarms / Messages	Alarms and Operator Messages

All the hard disks are accessible from the front side of the server. Install the hard disks in the logical sequence of the RAID configuration.

For the RAID1 configuration all the hard disks are installed one next to the other.



Note The number of RAID1 hard disks determines the capacity of the Process Historian.

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3.3 Software RAID configuration

You must carry out the RAID configuration of the server hard disks before you can install the operating system and Process Historian.

The Fujitsu Primergy Server is delivered with software for the RAID configuration:

- DVD "Servers View Suite – Installation"
- DVD “Operating System – Recovery DVD Windows Server 2012 R2 Standard”
- DVD "Server View Suite – Management and Serviceability”

The software configuration of the RAID system is divided into several parts. These parts are described in the following sections.

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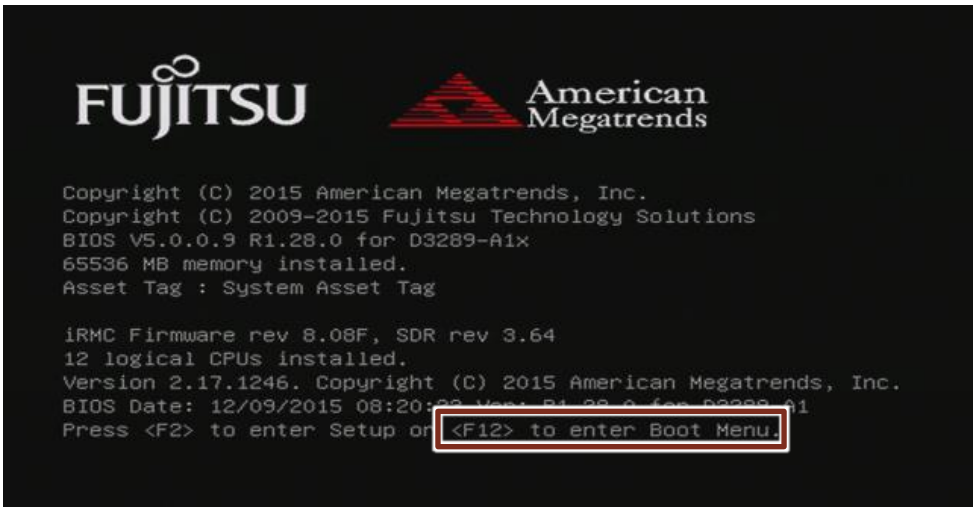
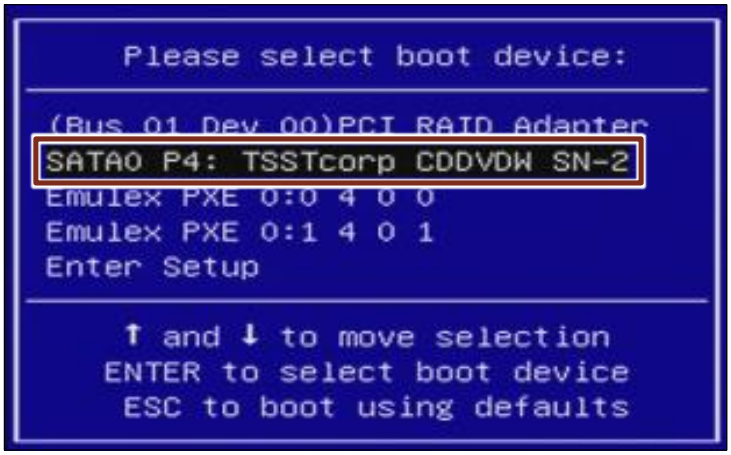
3.3.1 Initialization

1. Insert the “ServerView Suite Installation” DVD in the DVD drive.
2. Press “F12” while the system is booting in order to access the boot menu.



3. Select the DVD drive as boot device.



4. Select the option “ServerView Installation Manager (WinPE64) [HW conf. and OS inst.]”.

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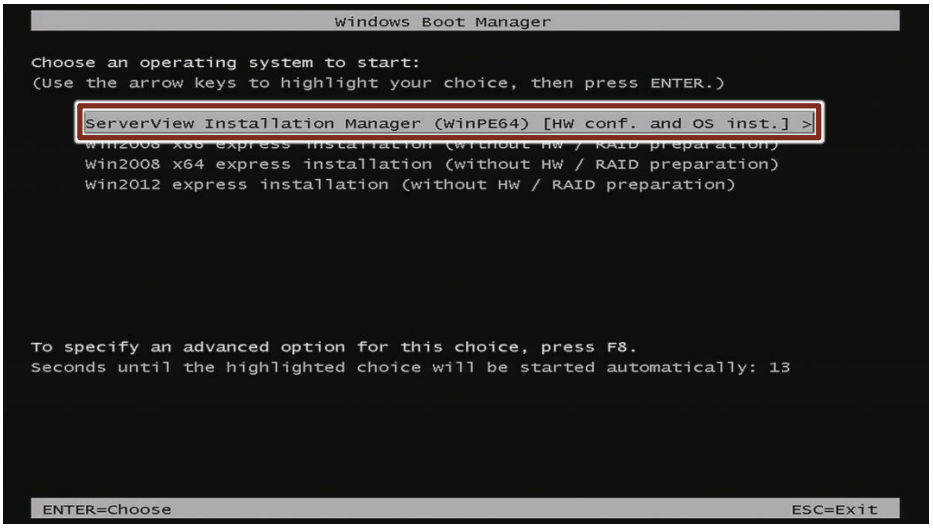
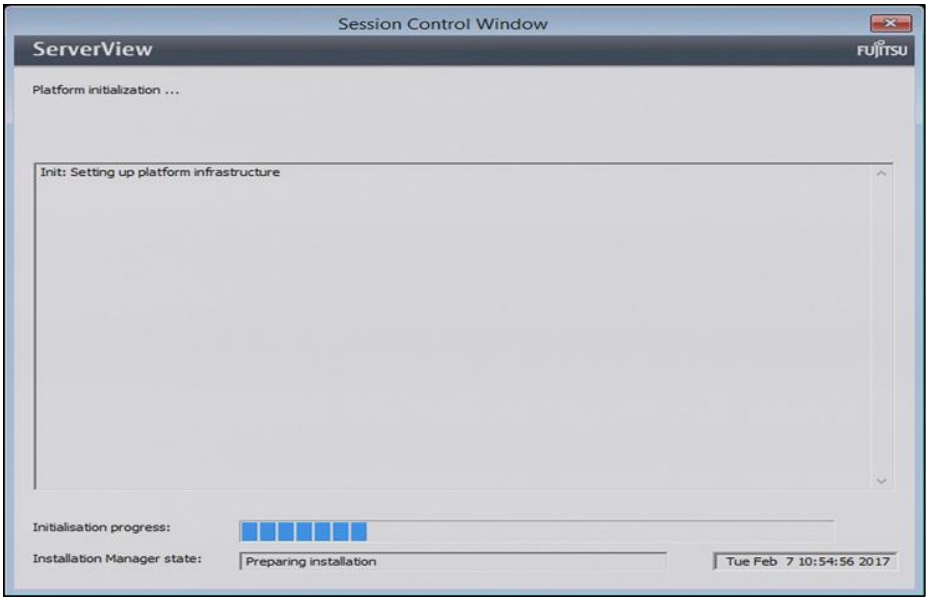


5. Click on the “English” button. English is selected as the language.

Initialization “Setting up platform infrastructure” is executed.

This can take several minutes. The dialog window then opens for further installation settings.



6. Select the following installation settings:

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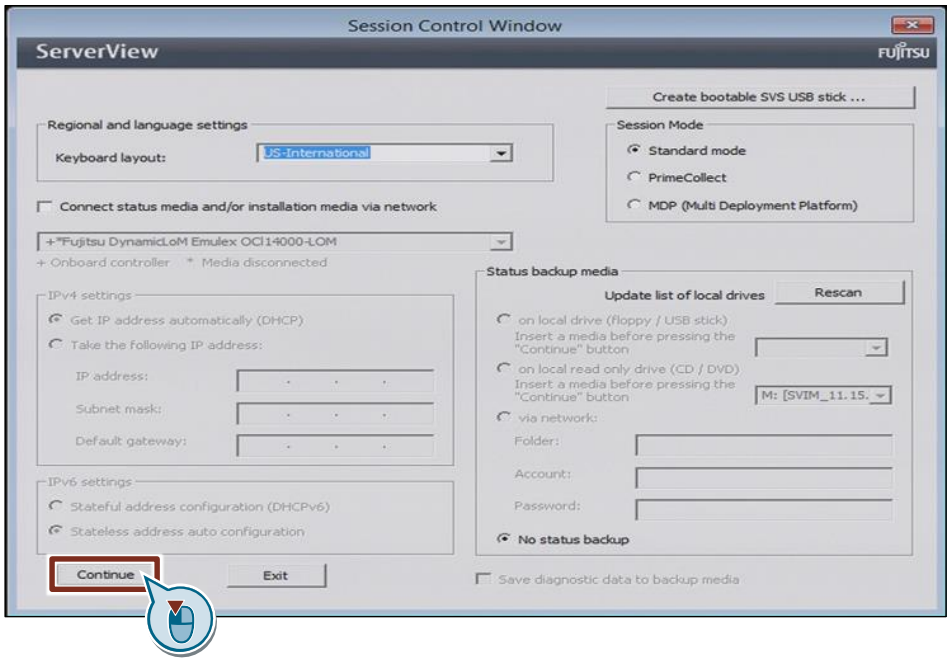
- Keyboard layout: “US – International”
- Session mode: "Standard mode"
- If necessary, deactivate the “Connect status media and/or installation media via network” option box

7. Click the "Continue" button to complete the installation.



Result

“Initialization and registering of Browser components” is executed. This can take several minutes.

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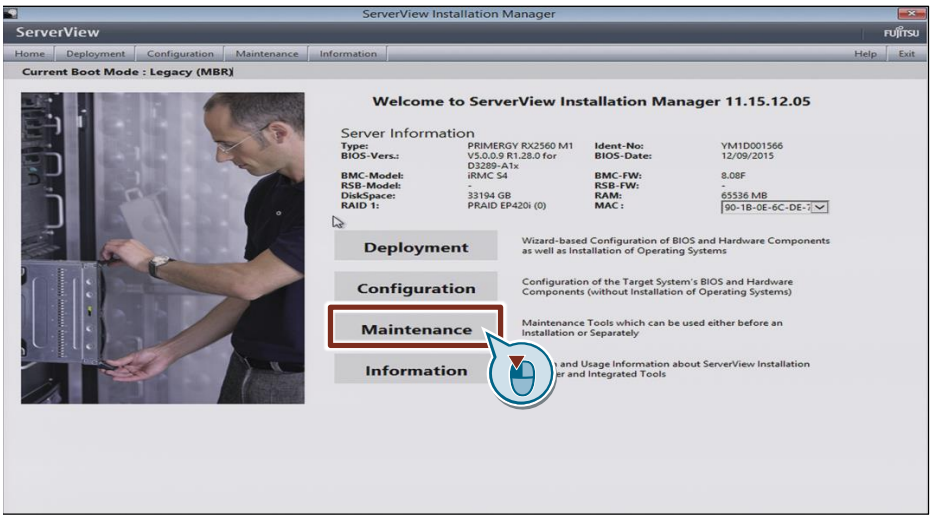
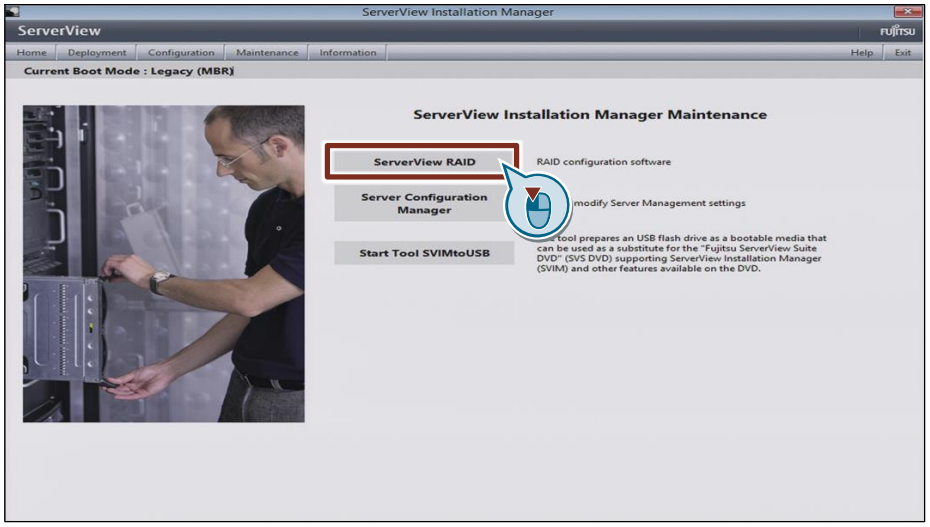
3.3.2 Start RAID configurator

1. Click on the "Maintenance” button.



2. Click on the "ServerView RAID” button.

   The “ServerView RAID Manager” menu opens.



3. In the hardware overview list, right-click on “PRAID EP420i (0)” and select the option "Create logical drive…".

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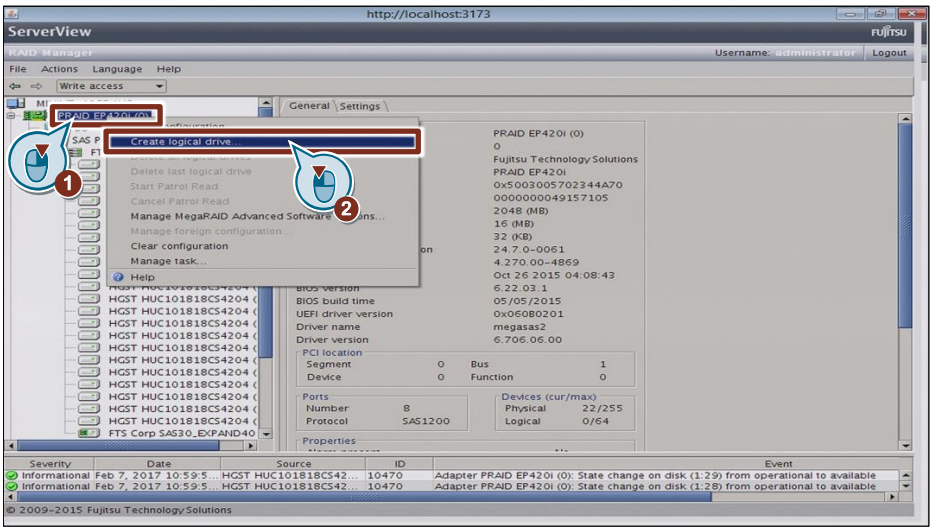
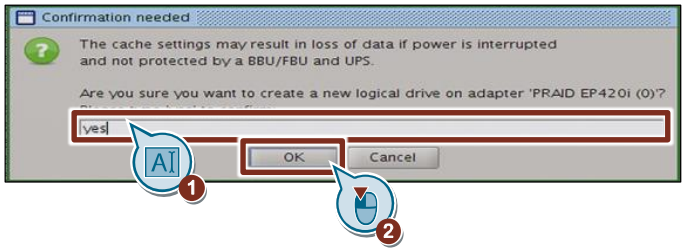


4. Confirm the dialog window “Write Access needed!” with “Yes”.
   The dialog window “Create logical drive: PRAID EP420i (0)” opens.



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3.3.3 RAID1 configuration for the operating system

Note

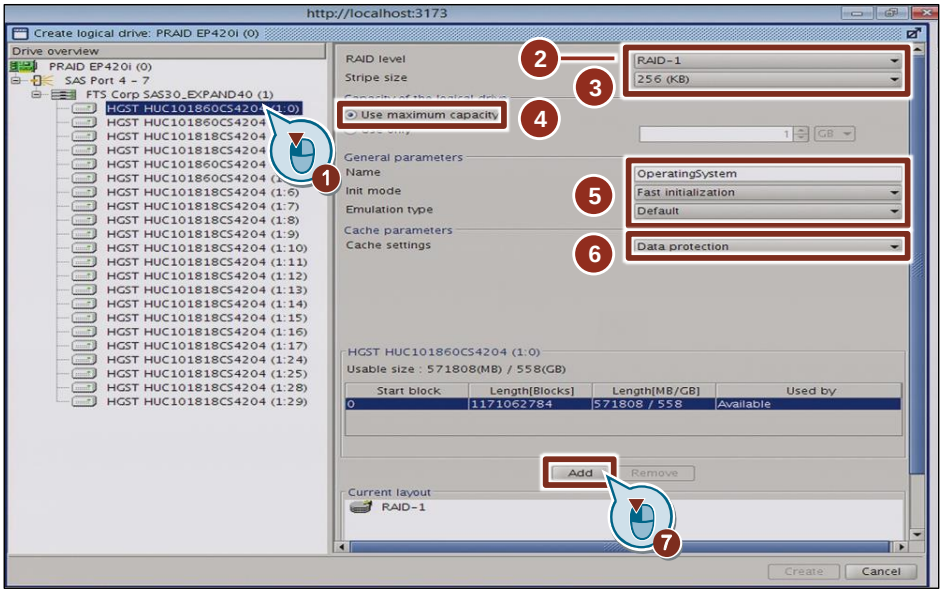
For the RAID configuration observe the selection of the correct hard disks and their capacity according to the assignment in section 3.2.

Note

Generating the RAID system takes several minutes. You can shorten the time by configuring all the RAID systems at the same time. The RAID systems are generated in parallel.

Configuration of the hard disks for the operating system

1. Select the first hard disk (1:0) in the hardware list.
2. Select "RAID-Level" "RAID-1" from the drop-down list.
3. Select “256 (kB)” as block size in the drop-down list.
4. Select “Use maximum capacity” as hard disk size.
5. Select the following settings in the "General parameters" field:
   - Name: "OperatingSystem"
   - Init mode: “Fast initialization”
   - Emulation type: “Default”
6. Make the setting “Data protection” in the "Cache settings” drop-down list.
7. Click on the "Add" button.



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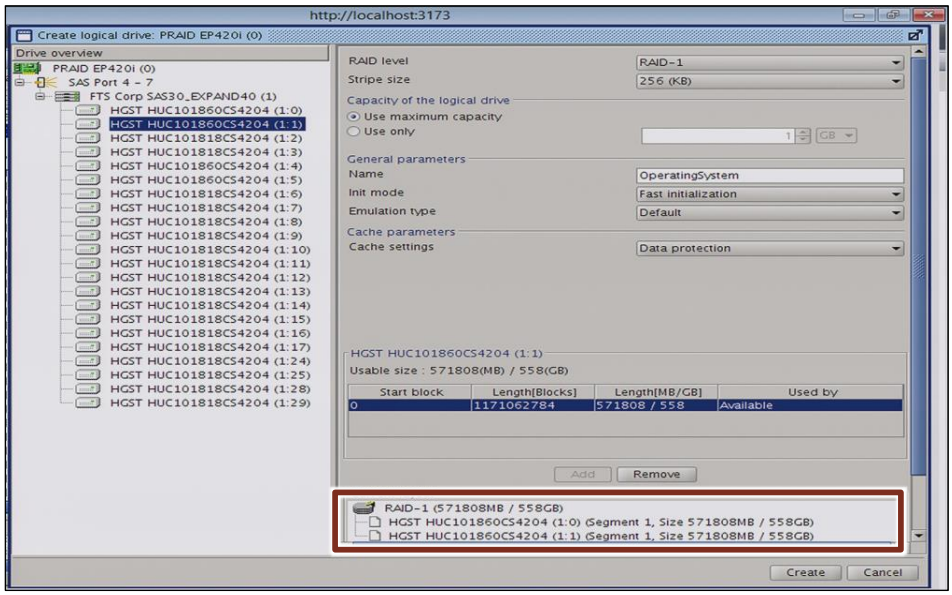
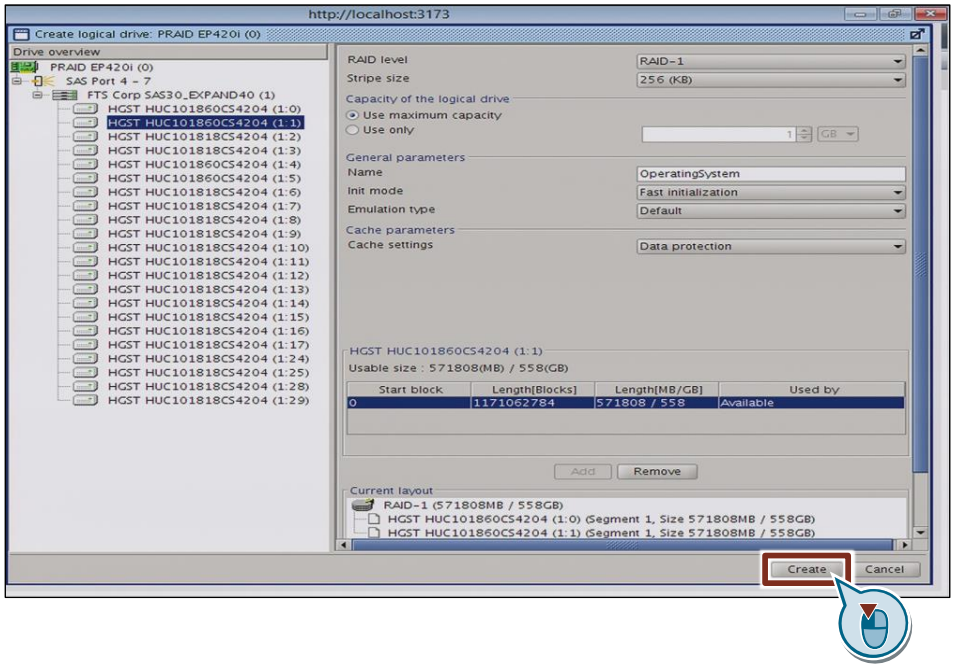
8. Select the second hard disk (1:1) and carry out steps 2 – 7 once again.



The hard disks (1:0) and (1:1) are prepared for the RAID1 configuration of the operating system.

9. Click on the “Create” button.



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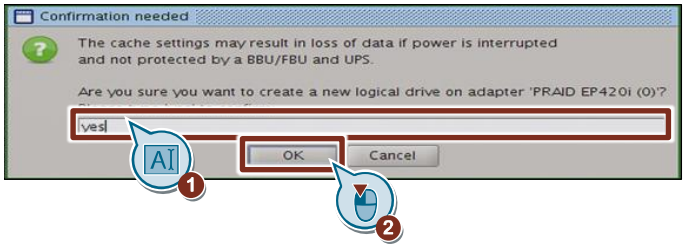
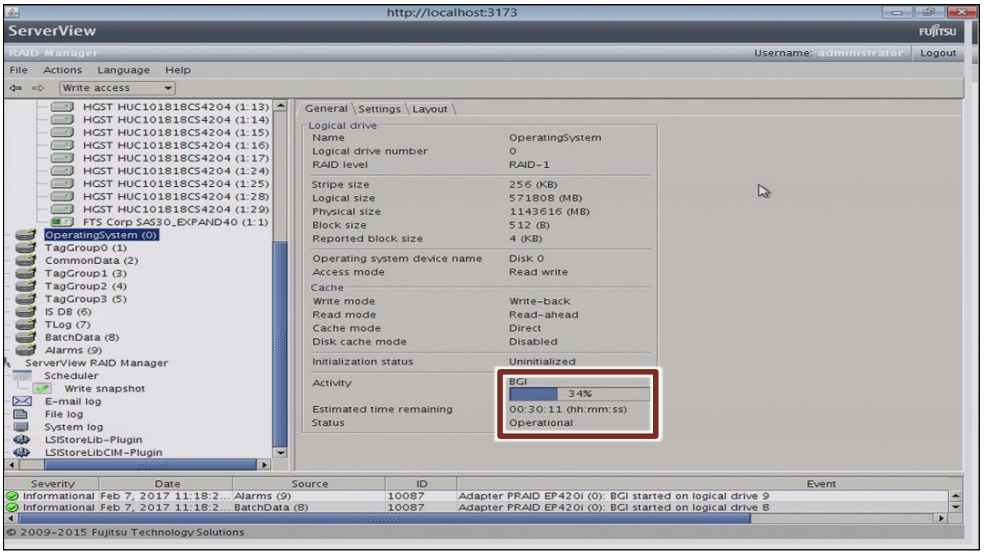
10. Enter “yes” and click on the "OK" button.



The RAID1 configuration for the operating system is initialized.



3.3.4 RAID1 configuration for the archive data

Note

Generating the RAID system takes several minutes. You can shorten the time by configuring all the RAID systems at the same time. The RAID systems are generated in parallel.

For the archive data repeat the steps from section 3.3.2 for all the hard disk pairs of the RAID1 configuration. Your hardware configuration according to section 3.2 will show you the corresponding hard disk partner.

1. Select the first hard disk of the hard-disk pair in the hardware list that is used for the respective RAID1 configuration.
2. Select "RAID-Level" "RAID-1” from the drop-down list.
3. Select “256 (kB)” as block size in the drop-down list.
4. Select “Use maximum capacity” as hard disk size.

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5. Select the following settings in the "General parameters" field:
   - Name: Designation according to the list in section 3.2
   - Init mode: “Fast initialization”
   - Emulation type: “Default”
6. Make the setting “Data protection” in the "Cache settings” drop-down list.
7. Click on the "Add" button.
8. Select the second hard disk of the pair and perform steps 1 – 7 once again.

The hard disk pair is prepared for the corresponding RAID1 configuration.

9. Click on the “Create” button.
10. Enter “yes” and click on the "OK" button.
11. Wait for the RAID configuration to be generated.

Result

The RAID1 configuration for the archive data hard disk pair is initialized.

3.3.5 RAID10 configuration for the message data

A RAID10 configuration is used for the Message archive.

For this purpose, combine four hard disks into a RAID10 configuration. Your hardware configuration according to section 3.2 will show you the corresponding four hard disks.

1. Select the first hard disk in the hardware list.
2. Select "RAID-Level" "RAID-10” from the drop-down list.
3. Select “256 (kB)” as block size in the drop-down list.
4. Select “Use maximum capacity” as hard disk size.
5. Select the following settings in the "General parameters" field
   - Name: "Alarms"
   - Init mode: “Fast initialization”
   - Emulation type: “Default”
6. Make the setting “Data protection” in the "Cache settings” drop-down list.

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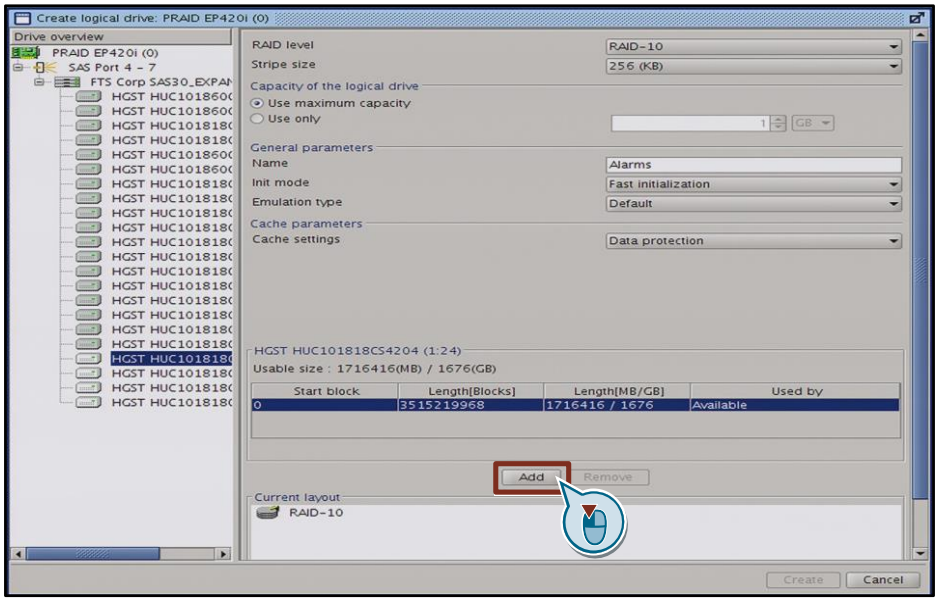
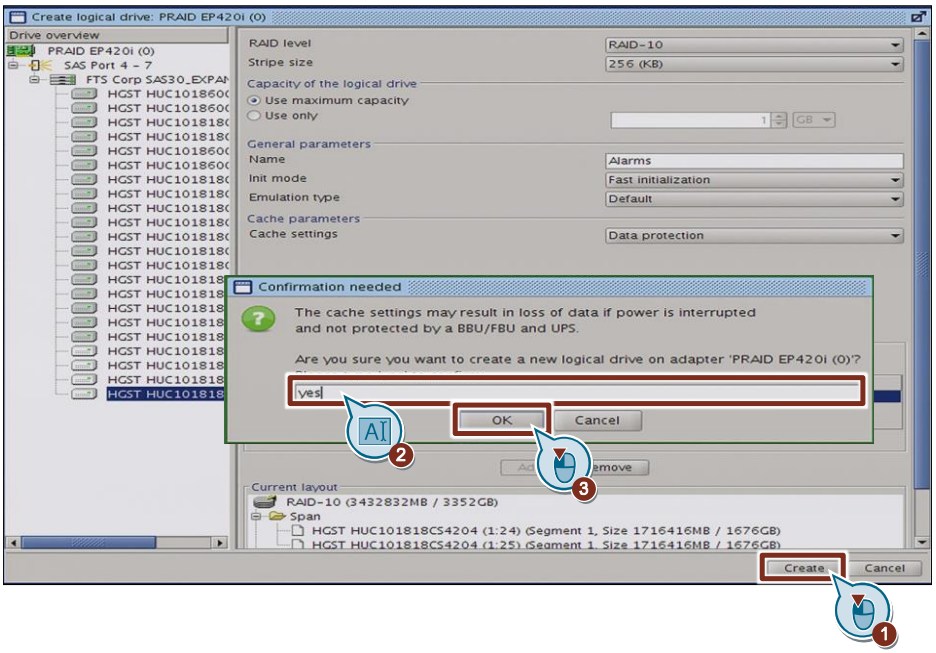
7. Click on the "Add" button.



8. Perform steps 1 – 7 for the remaining three hard disks.
9. Wait for the RAID configuration to be generated.

The four interconnected disks are ready for RAID10 configuration.

10. Click on the “Create” button.
11. Enter “yes” and click on the "OK" button.



12. Wait for the RAID configuration to be generated.

The RAID10 configuration for the Message archive is initialized. Upon completion of the initialization of all RAID configurations, the server is ready for the installation of the operating system and Process Historian.

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3.4 Installation of the operating system

Important notes on the installation

- Do not use the name "HIST" or "HISTORIAN" for the PH computer because it is already pre-set for the SQL Server instance. If you should assign this name to the PH computer, this will cause a conflict with the SQL server and the database assistant will not function.
- Do not use the name "NFSERVER" for the IS computer because it is already pre-set for the SQL Server instance. A double assignment of the name will lead to function disruptions.
- In the course of the installation of all PCS 7 devices, the administrator should always have the same username and the same password.

NOTICE	**The Process Historian 2014 and the Information Server 2014 are approved for use in both the PCS 7 and WinCC environments.** **Only the PCS 7 documentation applies with regards to the installation requirements in the PCS 7 environment.** **The installation requirements differ from the PCS 7 installation requirements.** **The installation requirements for PH/IS can be found on the product DVD 1 in the path: "<DVD drive>: 27b_PH+IS_Install_and_Release - Notes\German\InstallNotesPRHIdeDE.pdf".**

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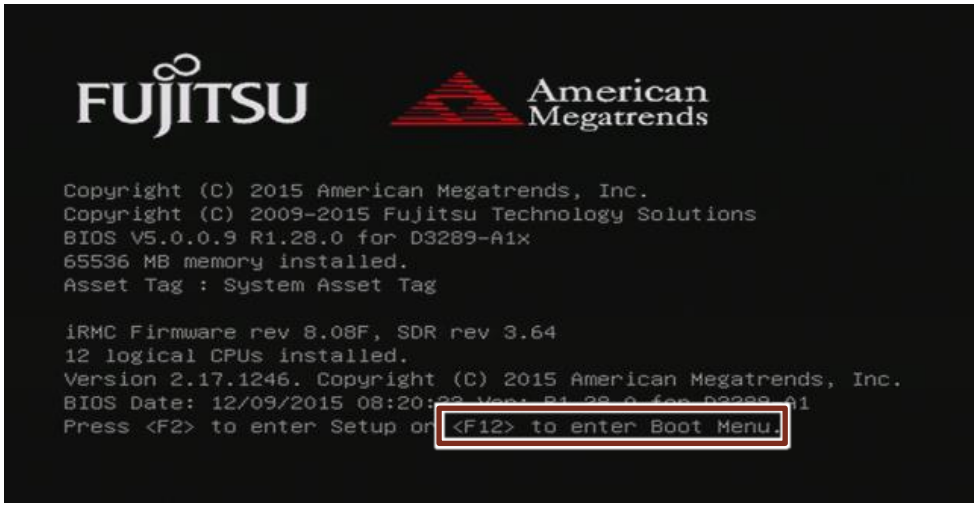
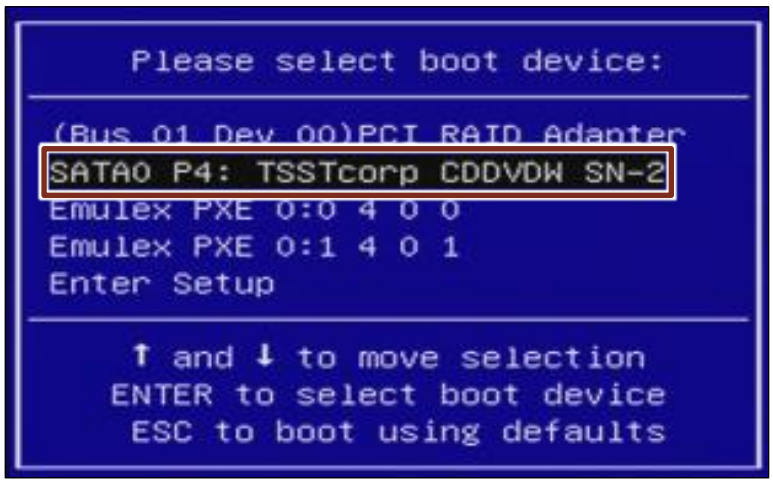
3.4.1 Initialization

1. Insert the “ServerView Suite Installation” DVD in the DVD drive..

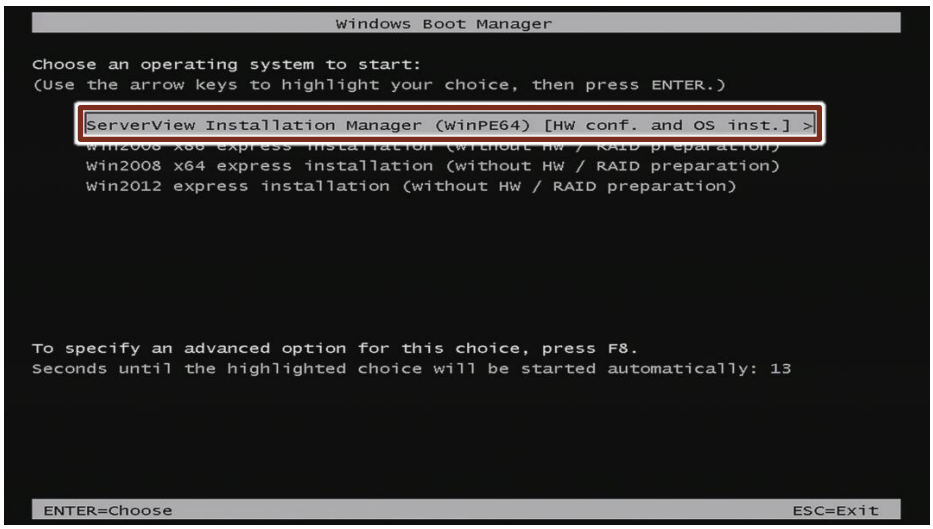
2. Press “F12” while the system is booting in order to access the boot menu.



3. Select the DVD drive as boot device.



4. Select the option "Server View Installation Manager (WinPE64) [HW conf. and OS inst.]".



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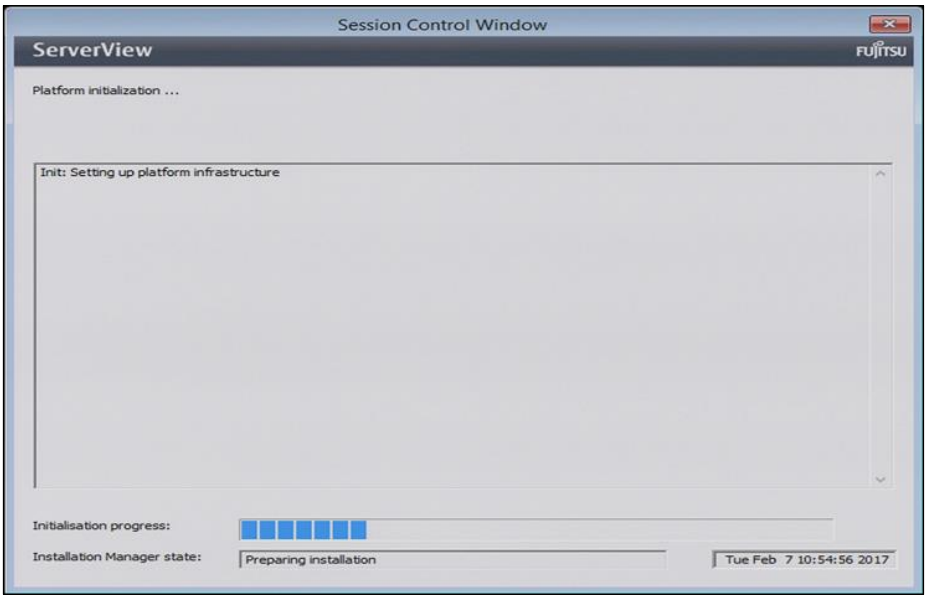
5. Click on the “English” button. English is selected as the language.

Initialization “Setting up platform infrastructure” is executed.

This can take several minutes. The dialog window then opens for further installation settings.



6. Select the following installation settings:
   - Keyboard layout: “US – International”
   - Session mode: "Standard mode"
   - If necessary, deactivate the “Connect status media and/or installation media via network” option box
7. Click the "Continue" button to complete the installation.

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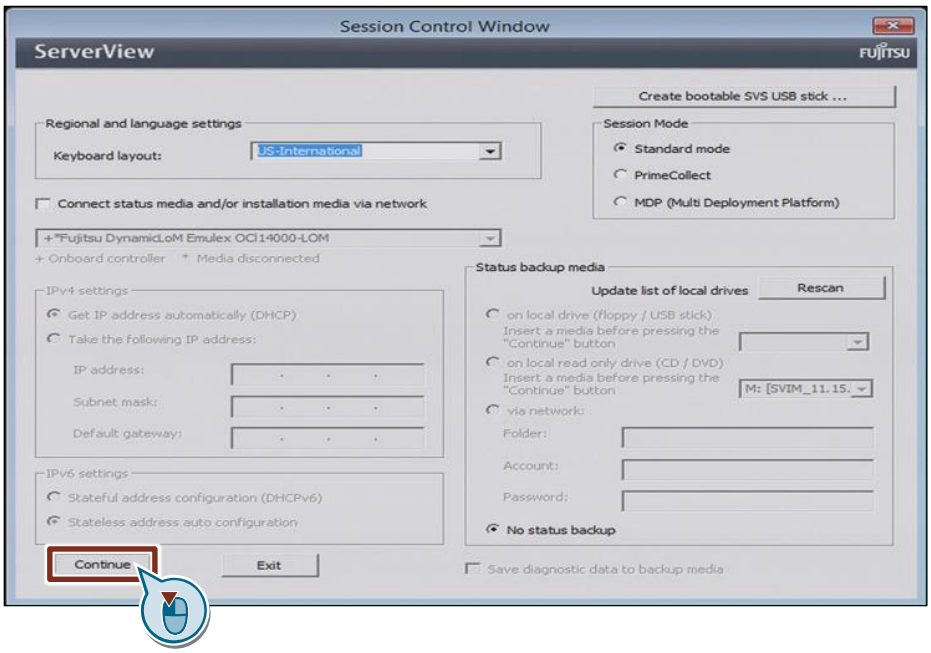
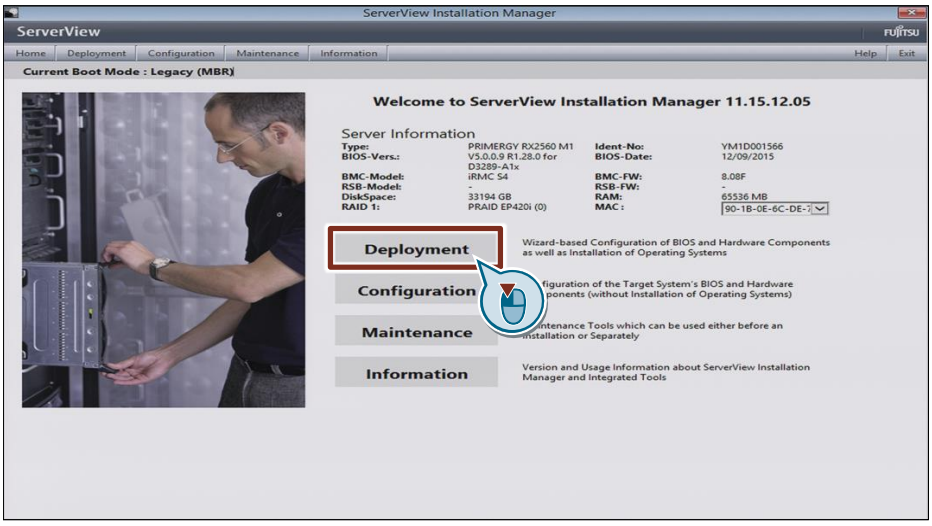


Result

"Initialization and registering of Browser components" is executed.

3.4.2 Selection of operating system

1. Click on the "Deployment" button to start the installation dialog.



2. Activate the "Customized" check box and click on the "Next" button.

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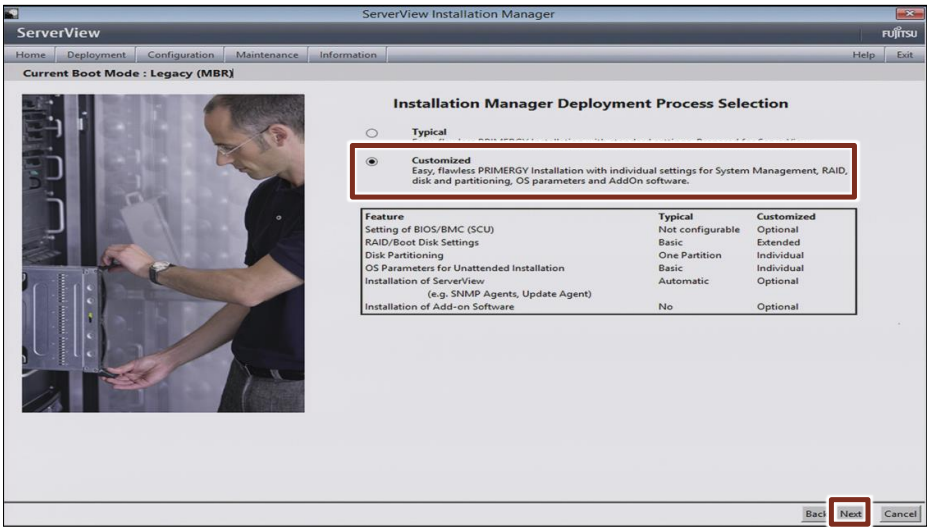

3. Activate the “Create a new configuration file” check box.
4. Select the following options in the four "Select the Operating System" drop-down lists:
   - "Windows"
   - “MS Windows Server 2012 R2”
   - “Windows Server 2012 R2 Standard”
   - “(first release)”

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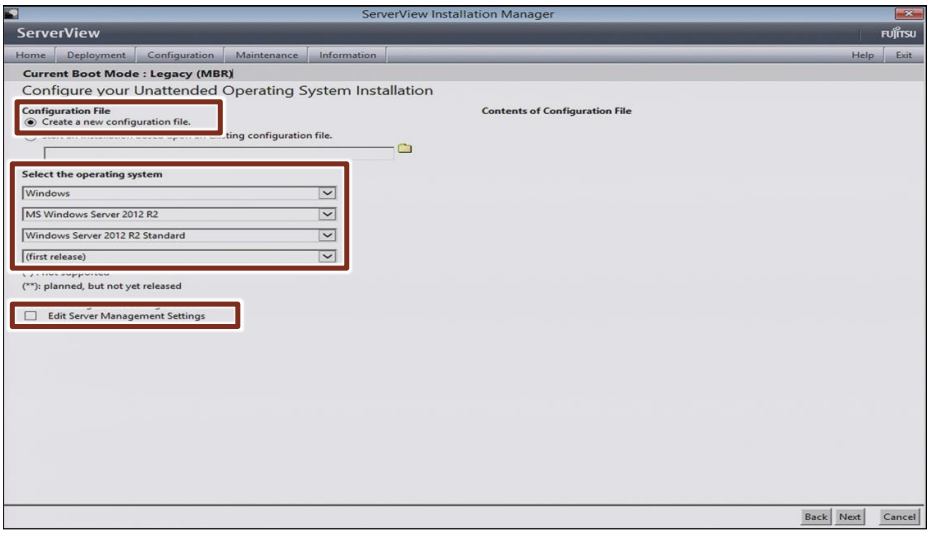
5. Deactivate the option box “Edit Server Management Settings”.



6. Click on the "Next” button.

Result

The installation pre-settings have concluded and the dialog changes over to the settings for the partitioning of the hard disks.

3.4.3 Defining the operating system partitioning

The RAID system to be used for the operating system is chosen in this dialog. The basic setting for this is hard disk 1.

If you wish to install the operating system on a different hard disk, use the “Remove Partition” button for hard disk 1.

Select a different Hard Disk Drive for the operating system using the “Add Partition” button.

Note

The “Add Partition” and “Remove Partition” buttons change the choice of operating system partition but do not modify any partition settings.

The Fujitsu Primergy Server type is detected automatically.

1. Select "Configuration > Mass Storage > Configuration" in the tree.

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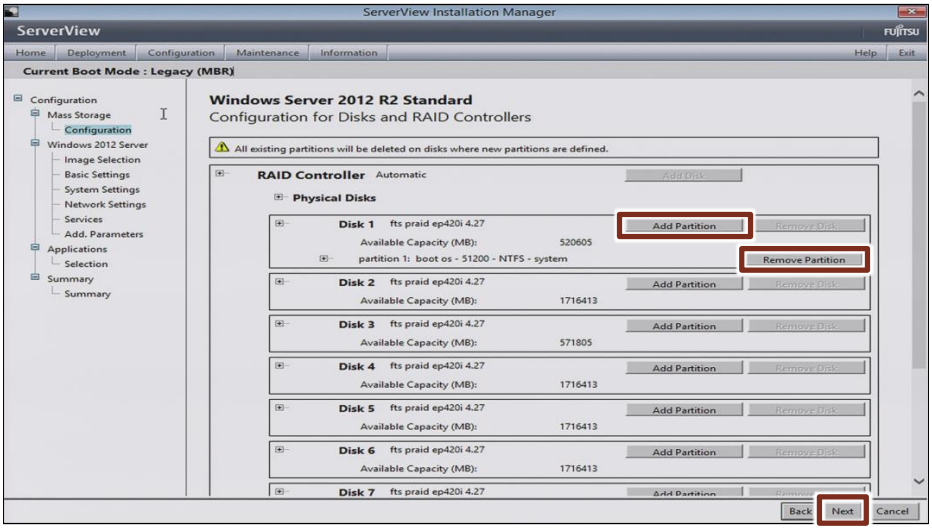
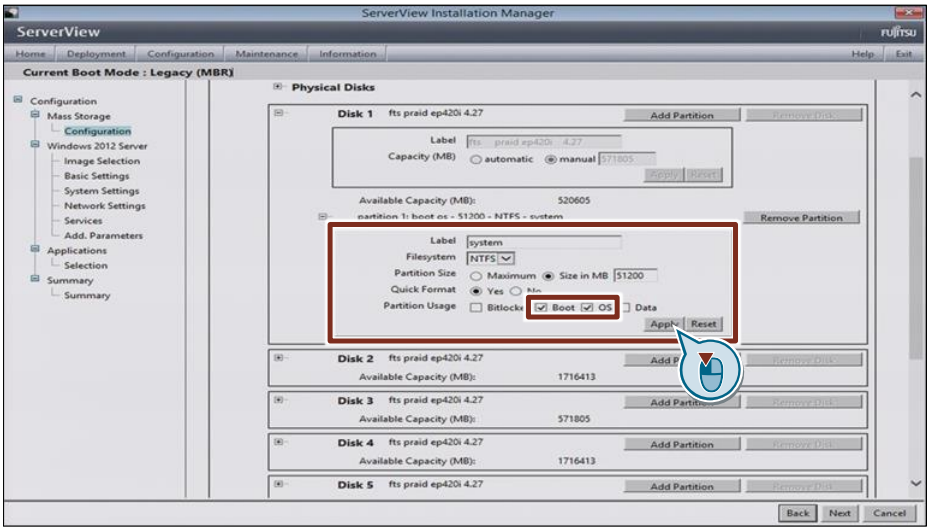
2. Select the RAID1 configuration via "Remove / Add Partition" that is to be used for the installation of the operating system.



3. Open the drop-down menu of the hard disk selected. To do this, click on the “+” button.
4. If necessary make the following settings for the partition:
   - Label: "system"
   - File system: “NTFS”
   - Partition size: at least 50GB
   - Quick Format: "Yes"
   - Partition usage: Select option boxes “Boot” and “OS”
5. Confirm the settings with the “Apply” button.



6. Click on "Next".

Result

You have finished making the partition settings to install the operating system.

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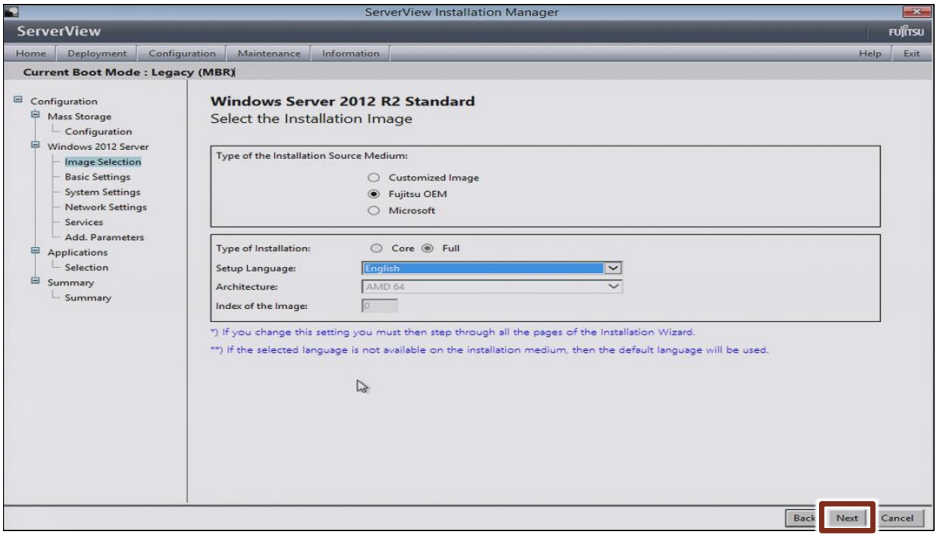
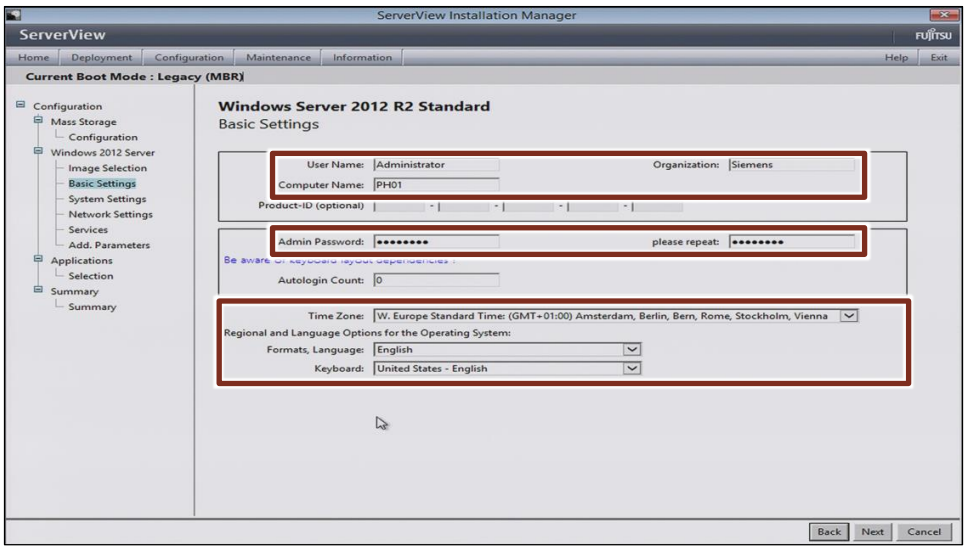
3.4.4 Operating System Settings

Basic settings

1. If necessary, activate the following option fields:
   - Type of installation source medium: "Fujitsu OEM”
   - Type of installation: "Full”
   - Setup language: "English”
2. Click on the "Next” button.



3. Define the basic settings for Windows:
   - User name: e. g. "Administrator"
   - Organization: e.g. Company name of customer
   - Computer name: e.g. "PH01"
4. Create an administrator password.
5. Make the time zone, regional and language settings.



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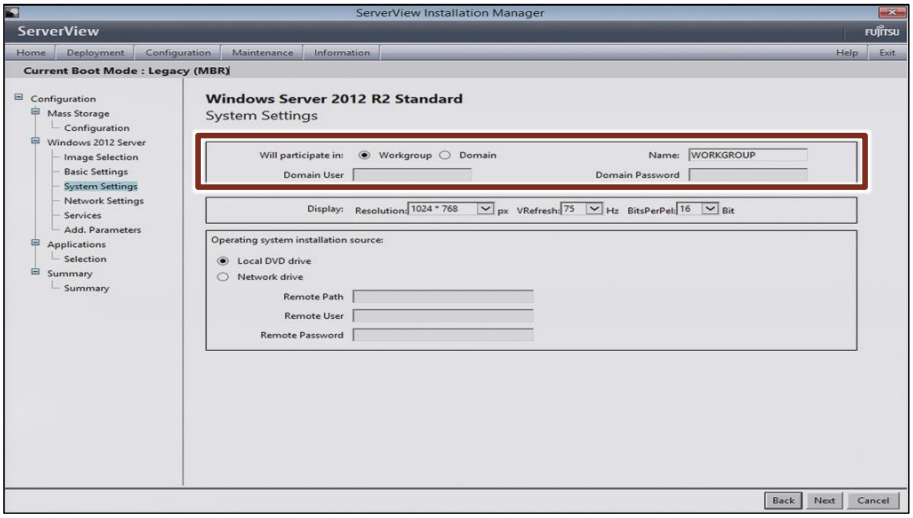
6. Click on the "Next” button.

System settings

Define the system settings for Windows:

7. Activate the option field "Workgroup".
8. Here you specify the name of the work group ("WORKGROUP” as default).



9. Click on the "Next” button.

Note

Operation in a domain

For the operation of the Process Historian in a domain, please refer to the point "Integration into a Domain" in the application example "Installation, Operation and Maintenance of the Process Historian and the Information Server in the PCS 7 Environment": https://support.industry.siemens.com/cs/ww/en/view/66579062

Note

Change over to a different work group after installation

If you change the workgroup after the installation, follow the instructions in the "Installation, Operation and Maintenance of the Process Historian and the Information Server in the PCS 7 Environment" section under "Moving Workgroup A to Workgroup B (Workgroup Change)”:
https://support.industry.siemens.com/cs/ww/en/view/66579062

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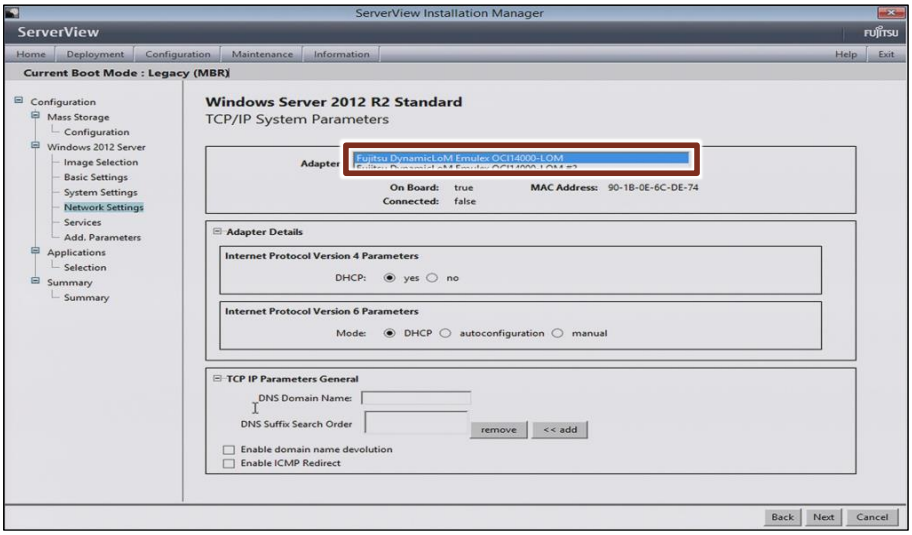
Network settings

Set the network adapter that is to be used for communication.

In the case of a redundant network, the Fujitsu server has two network cards from which you select the first network card:

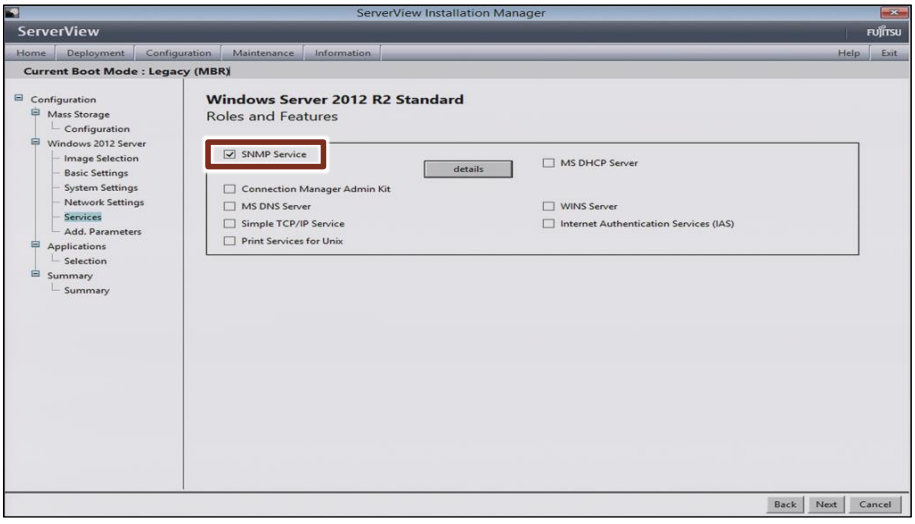
10. Under “Adapter”, select the first network card “Fujitsu DynamicxLoM Emules”.



11. Click on the "Next” button.

Service settings

12. Activate the "SNMP Service" option box.
13. Deactivate all the other option boxes.



14. Click on the "Next” button.

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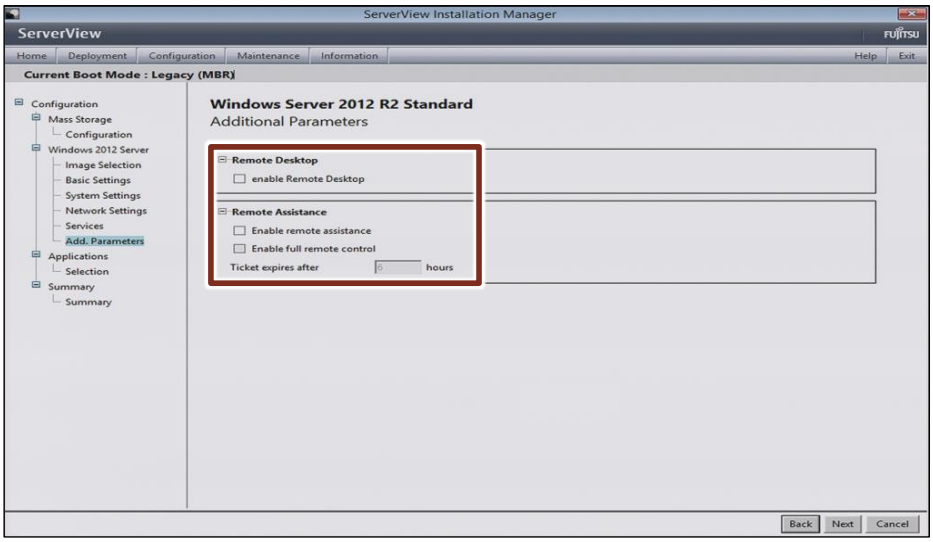
Additional settings

15. Deactivate the option box (if necessary).

    In this application example remote access is not permitted.



16. Click on the "Next” button.

Application settings

Do not make any changes to the default settings.

All the preselected applications are installed

17. Click on the "Next” button. An overview of all the selected settings is displayed.

18. Click on the "Start Installation" button. The operating system installation is started.

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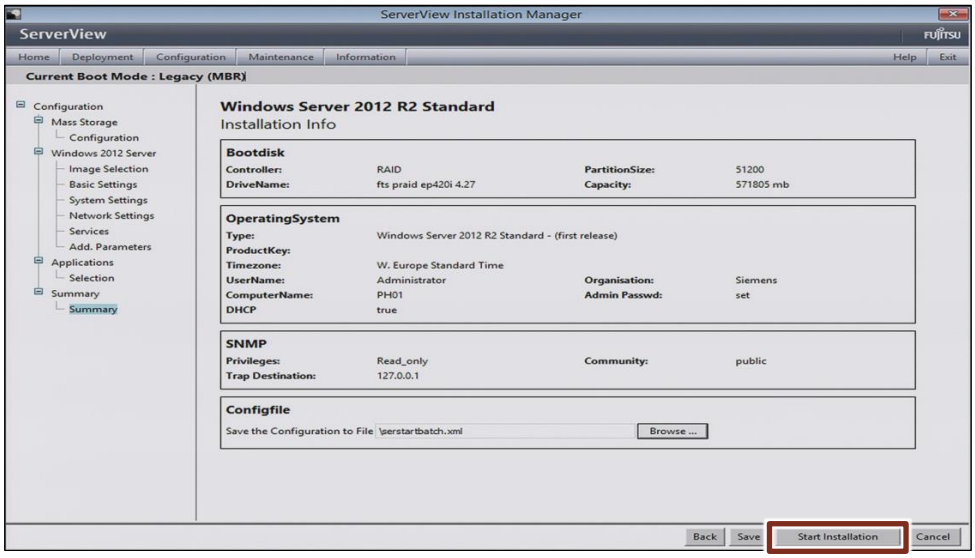

Result

All the pre-settings for the installation of the Windows Server 2012 R2 Standard operating system have been concluded. The installation begins and the server restarted.

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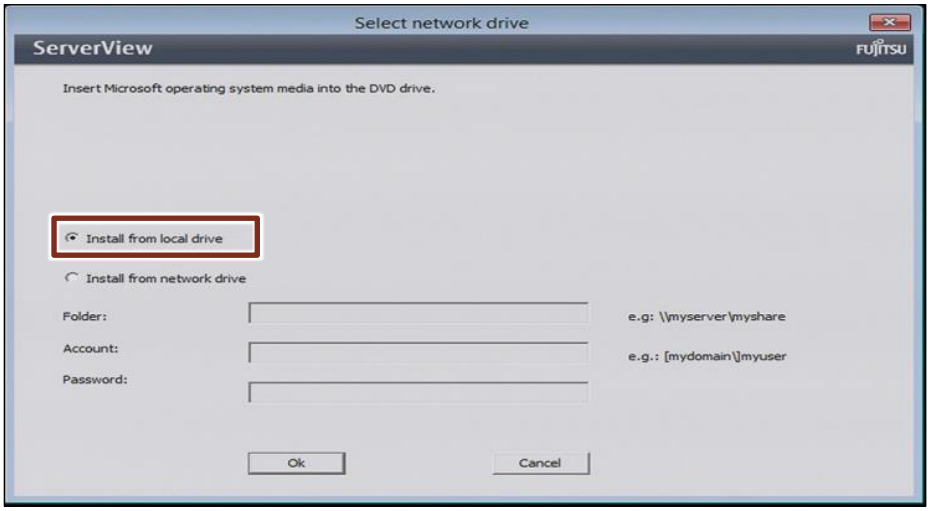
3.4.5 Installation

Observe the following steps when carrying out the installation:

1. Await the restart of the server.

   The "Unattended Installation running" installation window appears.
2. When prompted, insert DVD “Operating System – Recovery DVD Windows Server 2012 R2 Standard”
3. Activate option "Install from local drive".



4. To trigger the installation, click on the "OK” button.

Note The server is automatically restarted several times. Do not switch the server off manually during the installation.

3.4.6 Finishing the installation

The following steps must be carried out for the final completion of the operating system installation:

At the end of the installation, a window appears with the prompt to remove all removable media from the drives.

1. Remove the DVD from the drive and click on “OK”.

   The PC is restarted.

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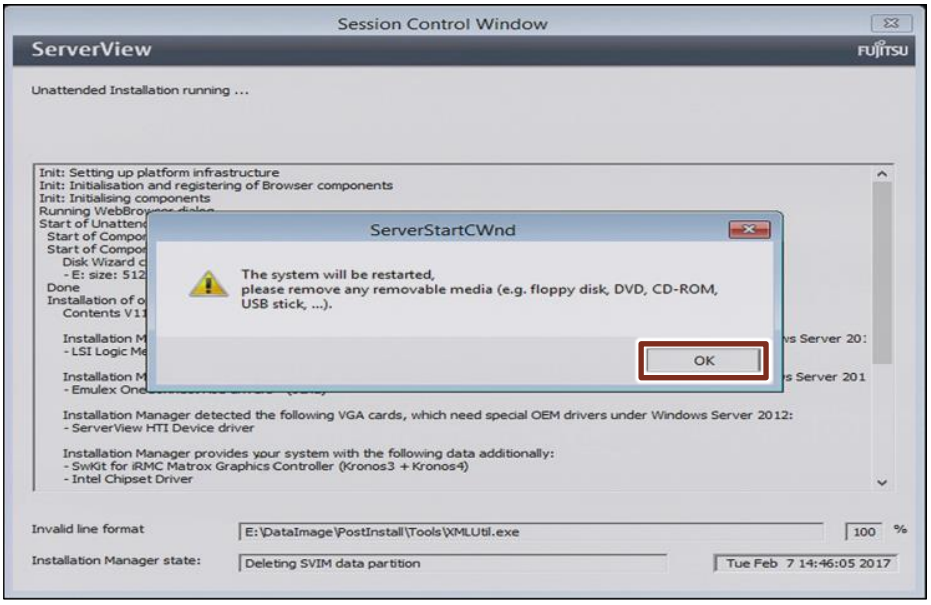
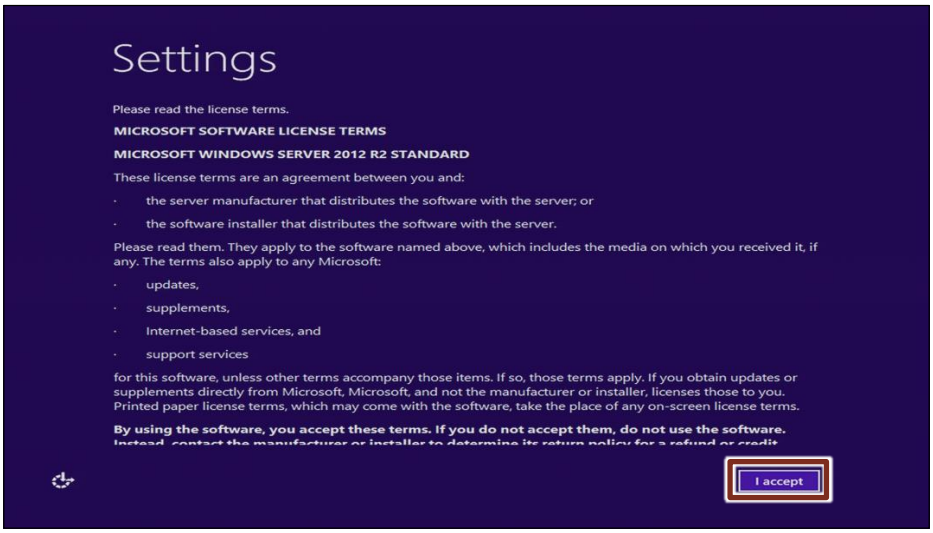


2. Confirm the license conditions with "I accept".



3. In the window "SVIM Messenger: System Restart Required" click on the "Restart system" button to restart the server.

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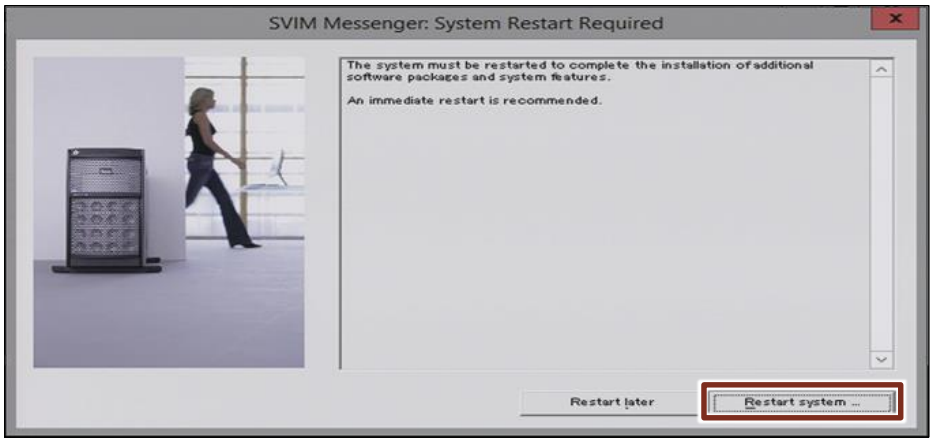
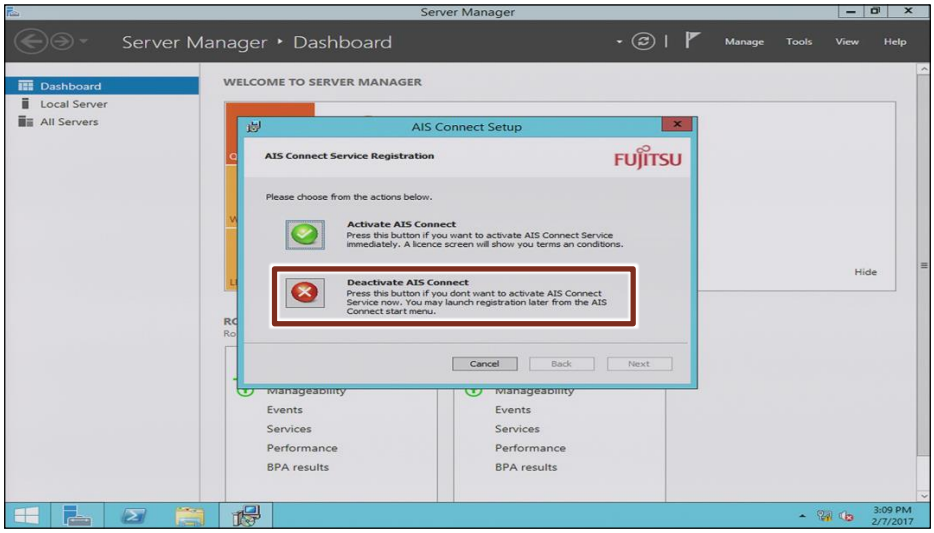
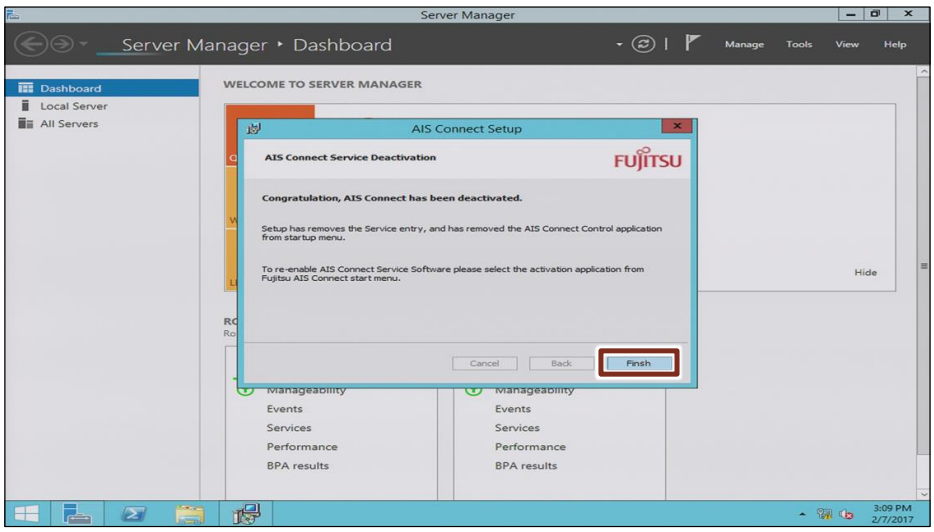


4. After restarting, deactivate the AIS Connect Service the “AIS Connect Setup” window. To do this, click on the “Deactivate AIS Connect” button.



5. Click on the "Next” button.
6. Click on the "Finish" button. The configuration of the AIS Connect Setup is concluded.



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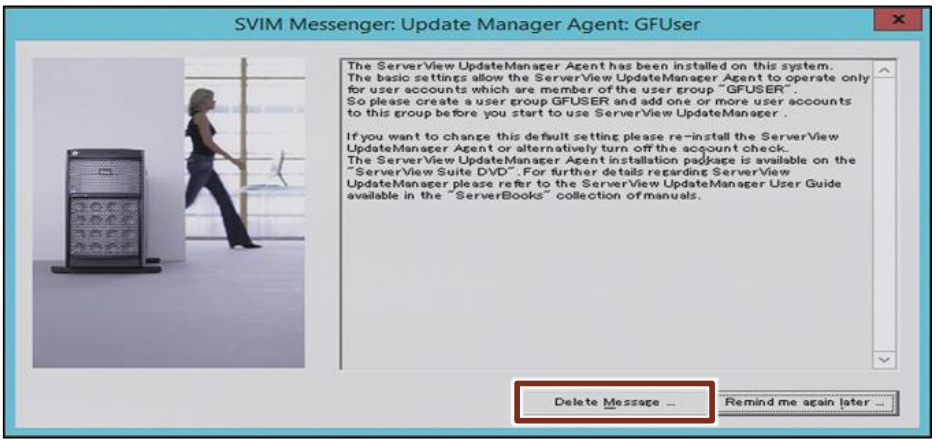
The “SVIM Messenger window: Update Manage Agent: GFUser” appears (if necessary, minimize the Server Manager window first).

If you do not want to receive any new information about the Server Manager user settings, click on the "Delete Message" button.

Otherwise click on the "Remind me again later” button.



Result

The Operating System of the server has been successfully installed.

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3.5 Partitioning the hard disks

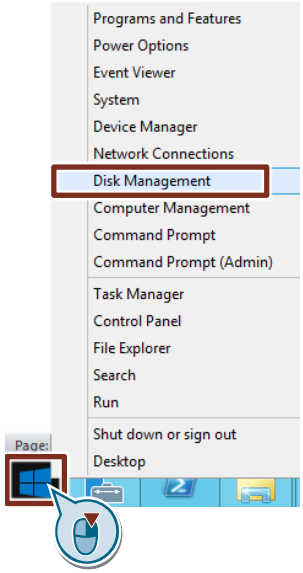
3.5.1 Preparing for calibration

In order to be able to use your Fujitsu server, after the installation of the operating system you must allocate the storage sectors and partition the hard disks accordingly.

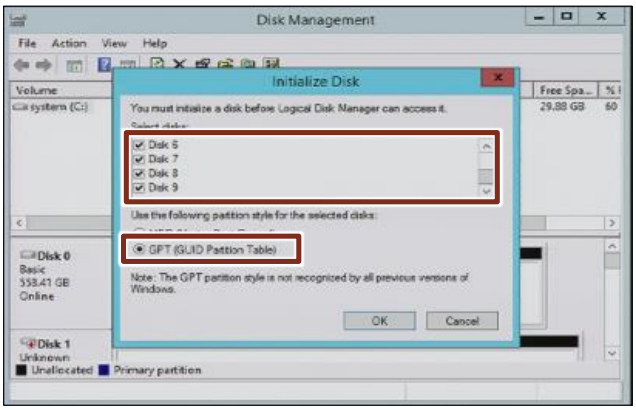
The hard disk RAID configuration is already initialized.

Proceed as follows to define the storage volume:

1. Open Computer Management. Right-click the "Windows Start” button.
2. Select the "Disk Management" option. The “Initialize Disk” window appears.



3. Activate the option boxes of all visible hard disks.
4. Activate the "GPT (GUID Partition Table)" check box and click on the “OK” button.



The "Disk Management" window appears with the partitioned hard disks.

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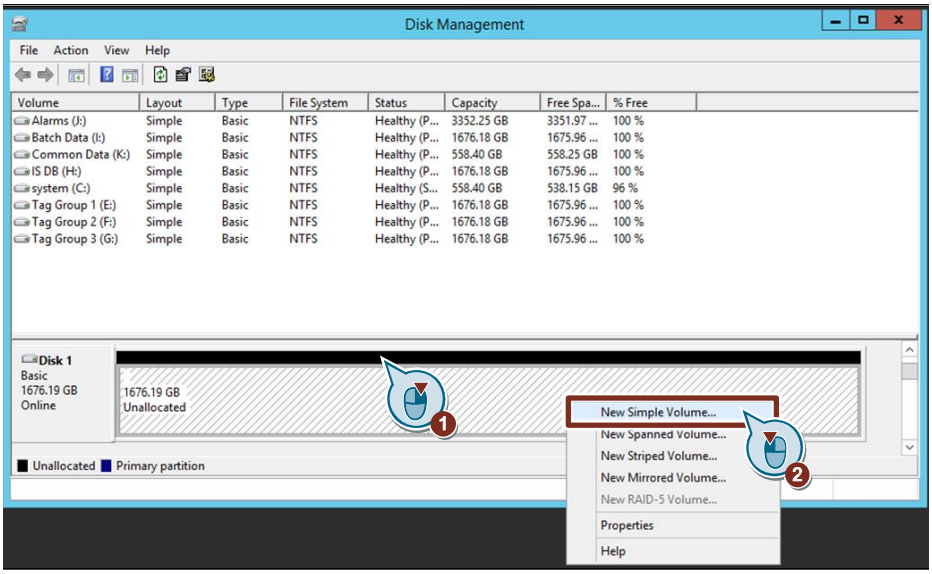
3.5.2 Performing the partitioning

Carry out the following steps for all the hard disks on your server. The hard disks should have the same names as in the RAID configuration (Section 3.2) of the hard disks for easier handling.

Partitioning the hard disk

1. Select a non-partitioned hard disk.
2. Open the editing menu by right-clicking on the non-partitioned sector of the hard disk display (represented by black bar)
3. Click on "New Simple Volume". The Configuration Wizard opens.



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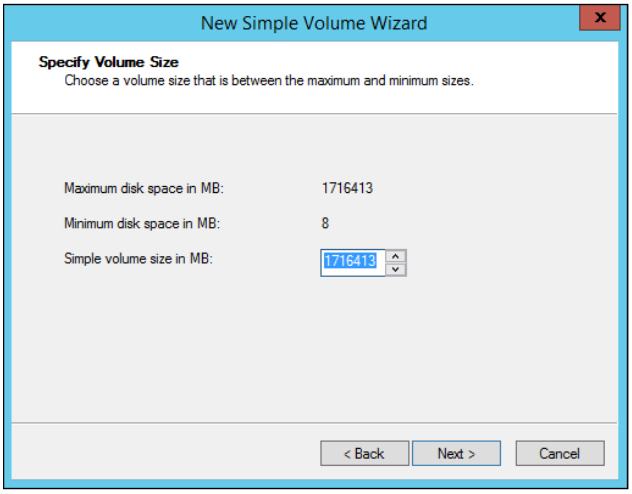
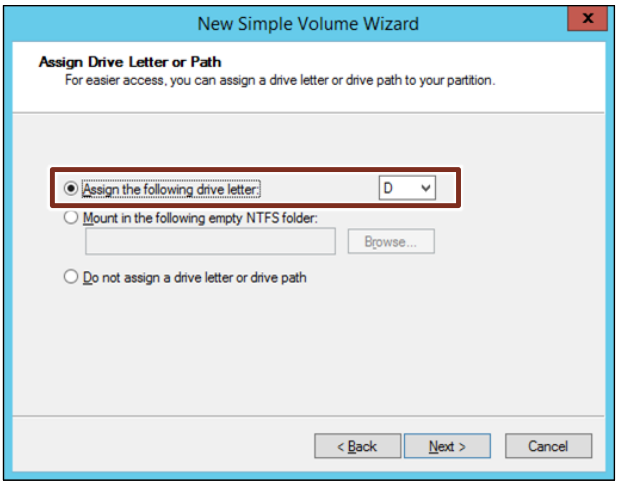
4. Set the maximum hard disk size and click on the "Next" button.



5. Set the new drive letter and click on the “Next” button.



6. Select the following settings to format the hard disk:
   - File system: “NTFS”
   - Allocation unit size: “Default”
   - Volume label: Name according to list in Section 3.2
7. Select the “Perform a quick format” check box.

   If necessary, deactivate the "Enable file and folder compression" checkbox.

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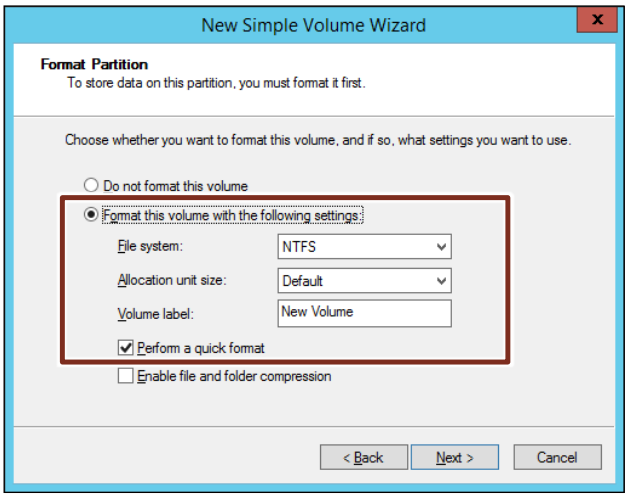
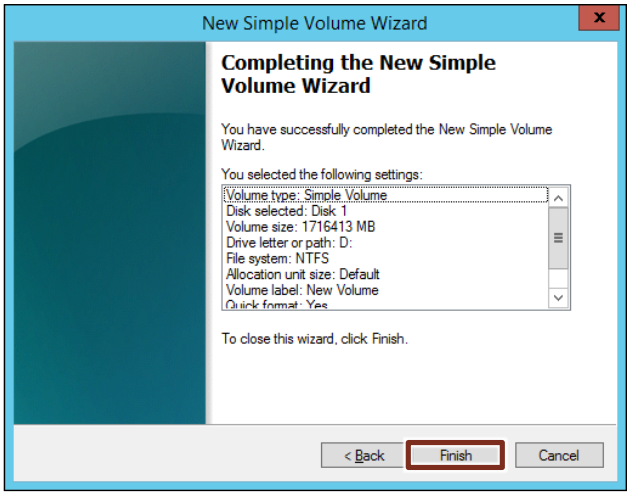


8. Click on the "Next” button.
9. Click on the "Finish" button.



Result

You have successfully partitioned the selected hard disk. Carry out these steps for all non-partitioned hard disks.

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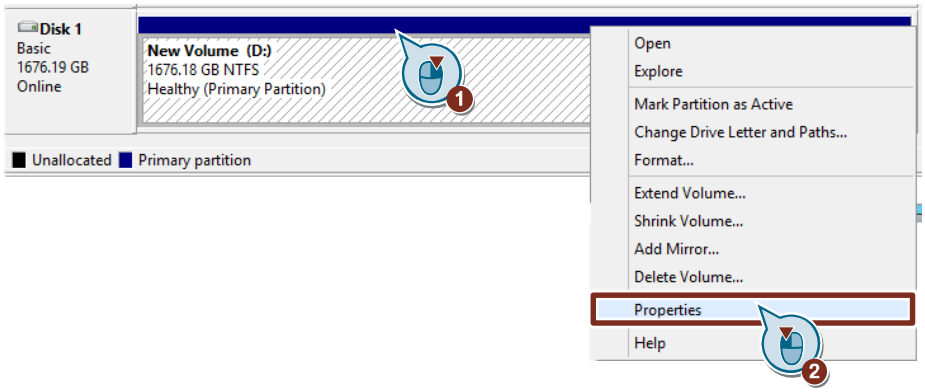
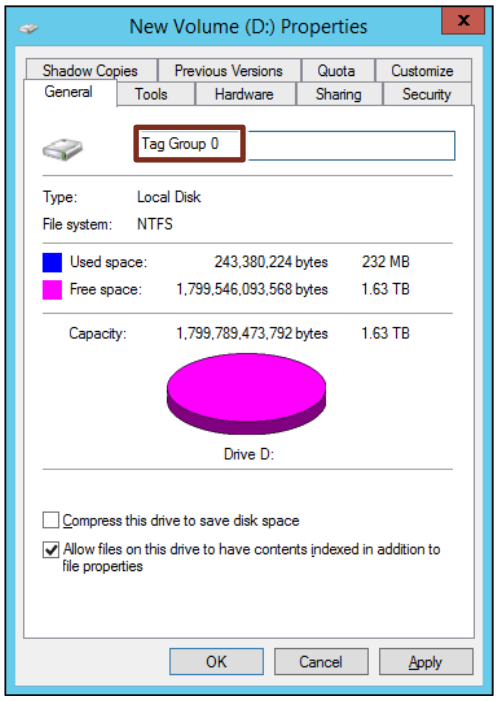
3.5.3 Subsequent modification of the hard disk name

1. Select the partitioned disk whose name you want to change.
2. Open the editing menu by right-clicking on the partitioned sector of the hard disk display (represented by blue bar)
3. Click on "Properties".



4. You can enter a new name in the settings window.

   The hard disks should have the same names as in the RAID configuration (Section 3.2) of the hard disks for easier handling.



5. Click on "Apply" to finish and then exit the dialog.

Result

You have successfully changed the name of the hard disk.

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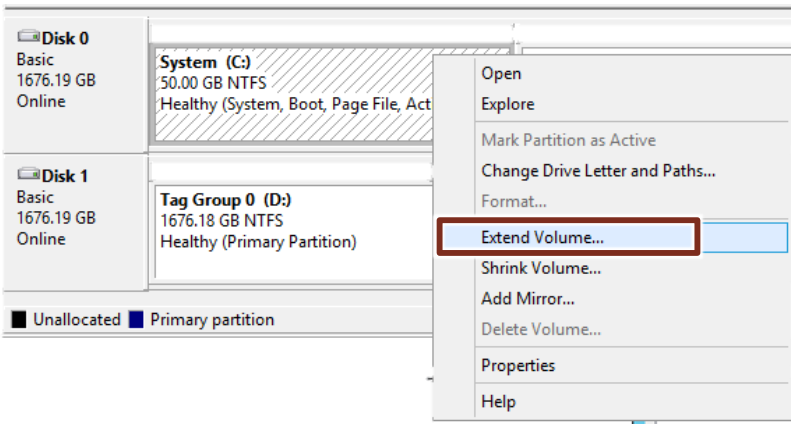
3.5.4 Expansion of the operating system partition

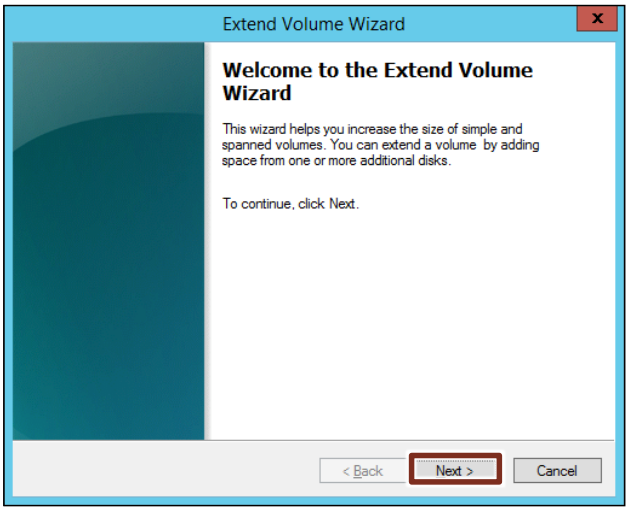
It may be necessary to adjust the hard disk with the operating system installation (usually with the designation letter "C:" for the drive), since during the installation of the operating system the hard disk was not completely partitioned / used.

Perform the following steps to expand and fully partition the operating system disk:

1. Select the hard drive with the operating system installation
2. Open the editing menu by right-clicking on the non-partitioned sector of the hard disk display (represented by black bar).
3. Select "Extend Volume…". The Configuration Wizard opens.



4. Click on the "Next" button.



5. Select the non-partitioned storage area of the hard disk by selecting the hard disk in the "Available" sector and adding it to the "Selected" sector by clicking on the "Add >" button.

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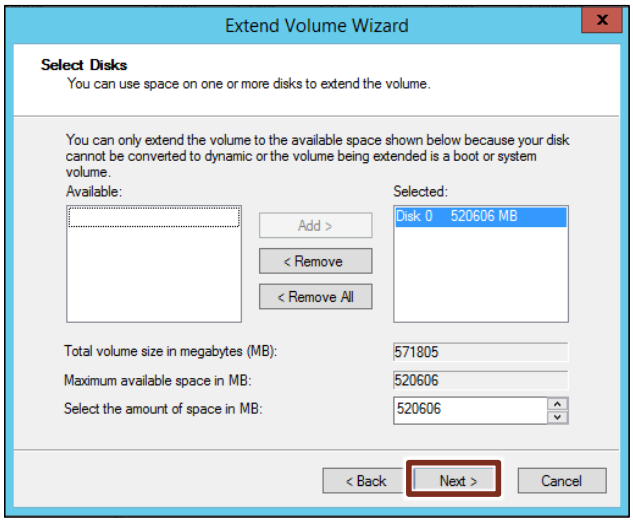
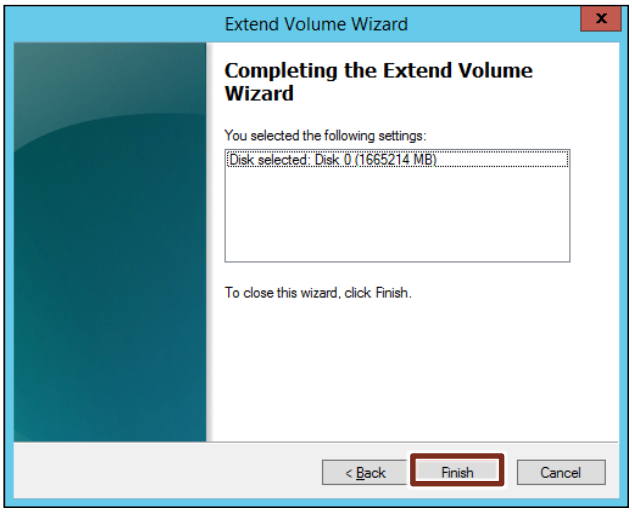
6. Use the entire remaining hard disk and click on the “Next” button. Die Overview page of the Wizard opens.



7. Close the Wizard for the new allocation of the hard disk sector. Click on the "Finish" button.



Result

You have successfully expanded the operating system's hard disk partition.

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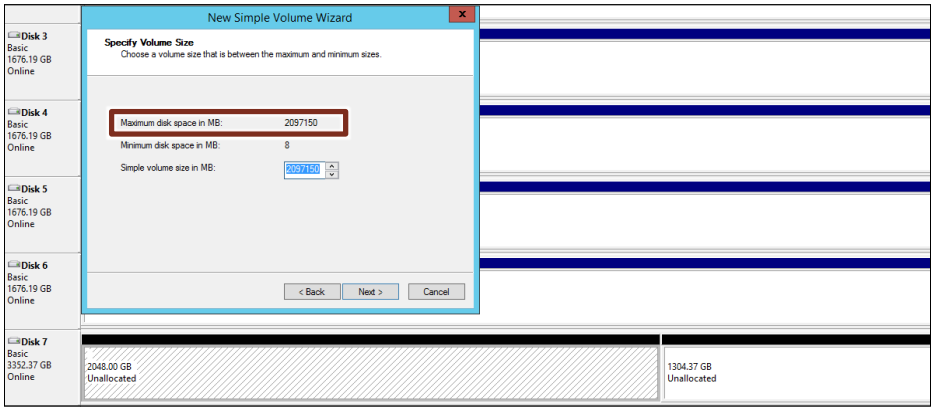
3.5.5 Display of too little unpartitioned storage space

If the non-partitioned sector of a disk only shows a size of 2048 GB but the actual disk sector is larger, then you must convert the disk to a GPT format.

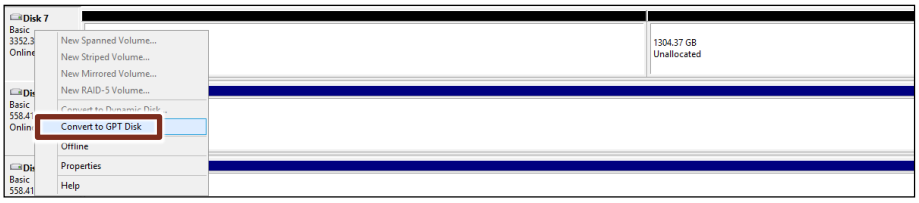
This allows you to partition the hard drive completely.

To convert the hard disk to a GPT format, proceed as follows:

1. Select the hard drive that only displays a sector 2048 GB in size.
2. Open the editing menu by right-clicking in the non-partitioned sector of the hard disk display (represented by black bar) 2048 GB in size.



3. Click on "Convert to GPT Disk". This can take several minutes.



Result

You have successfully converted the hard disk to a GPT format. The non-partitioned portion of the hard disk now includes the full size of the hard disk.

3.5.6 Aligning the disk names

To set and ensure the correct Windows hard disk name in accordance with the RAID configuration, you can compare the names of the hard disks with the RAID configuration. The hard disk numbers are used for orientation.

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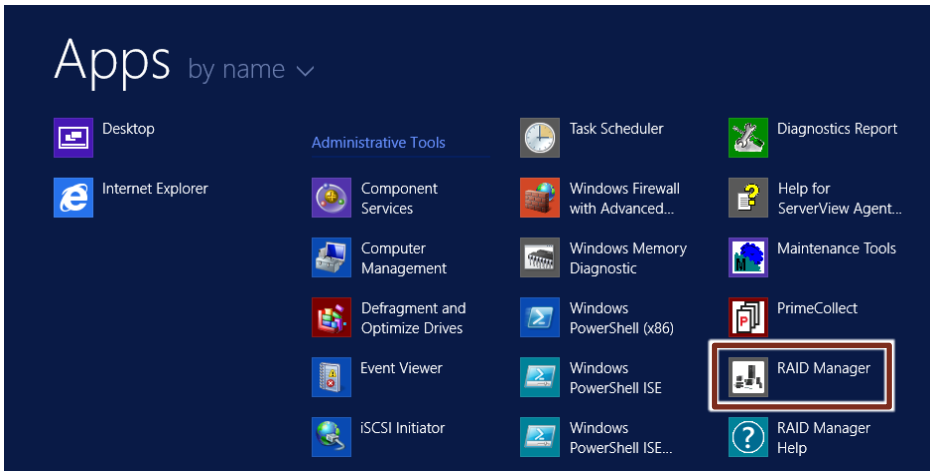
To align the hard disk name, proceed as follows:

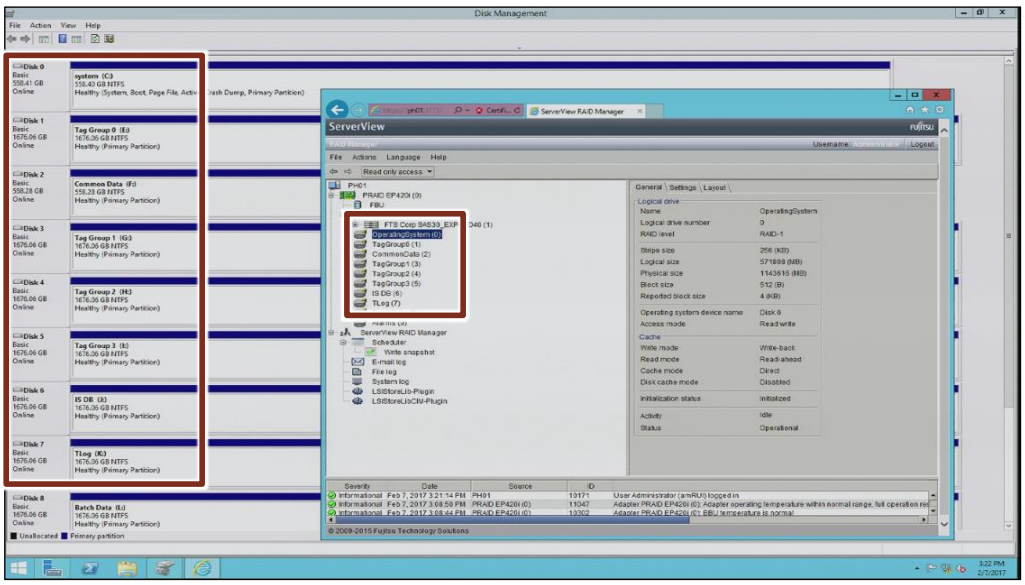
1. Start the "Fujitsu RAID Manager" tool.



2. Start the Microsoft “Disk Management” tool.
3. Compare the names and numbers of the hard disks with each other:

   The numbers of the hard disk are

   - in brackets after the name of the hard disk, e.g. "TagGroup0 (1)".
   - in the MS Disk Management as an identifier in the left sector of the view, e.g. "Disk 1".
   - in the hard disk representation of the partitioned sector of the hard disk, e.g. "Tag Group0 (D:)".



Result

In the interests of easier handling, the names of the hard disks are the same and correspond to those in Sector 3.2.

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4 Installing the Process Historian / Information Server

The following sections describe the steps required to install the Process Historian and the Information Server on the Fujitsu server.

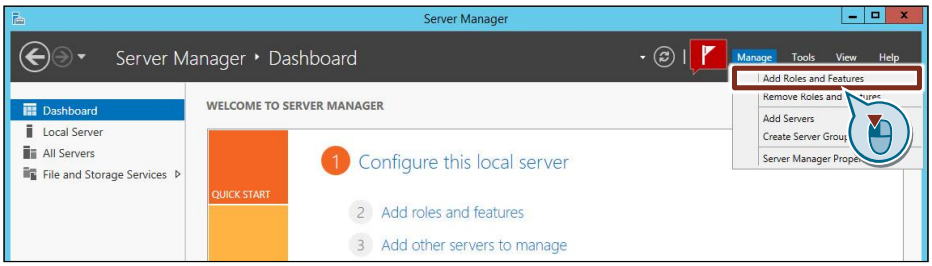
4.1 Installation of system components required for the Process Historian

For the operation of the Process Historian various system components are necessary, which must be installed before the actual installation of the Process Historian.

4.1.1 Installing Message Queuing

1. Start the Server Manager via "Start > Administrative Tools > Server Manager" or via the icon in the task bar.

2. Open the context menu of the "Manage" button in the upper right-hand corner and select "Add Roles and Features".



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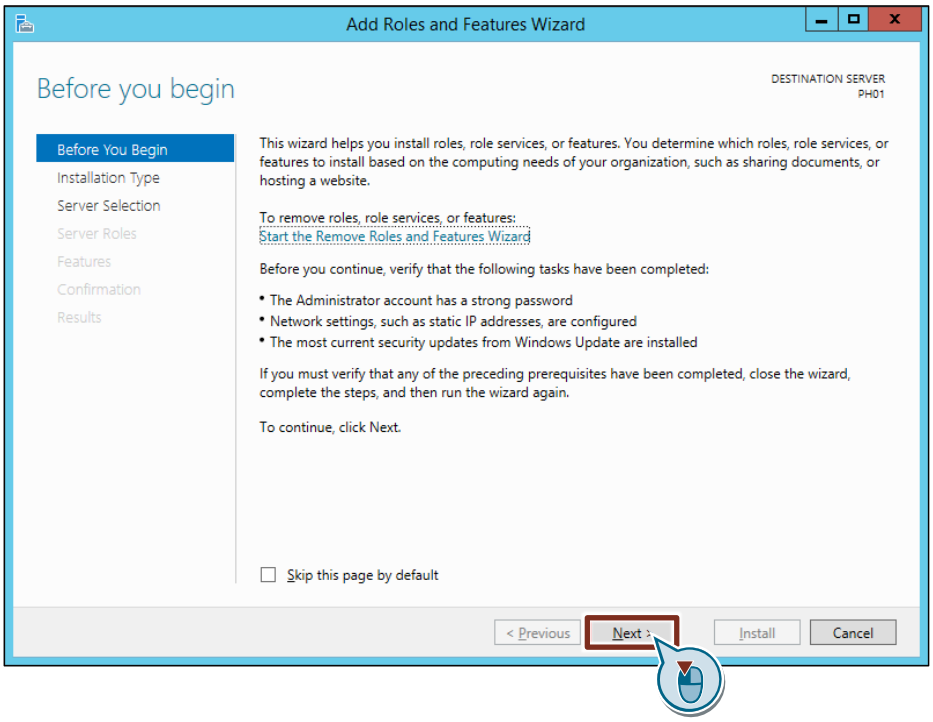
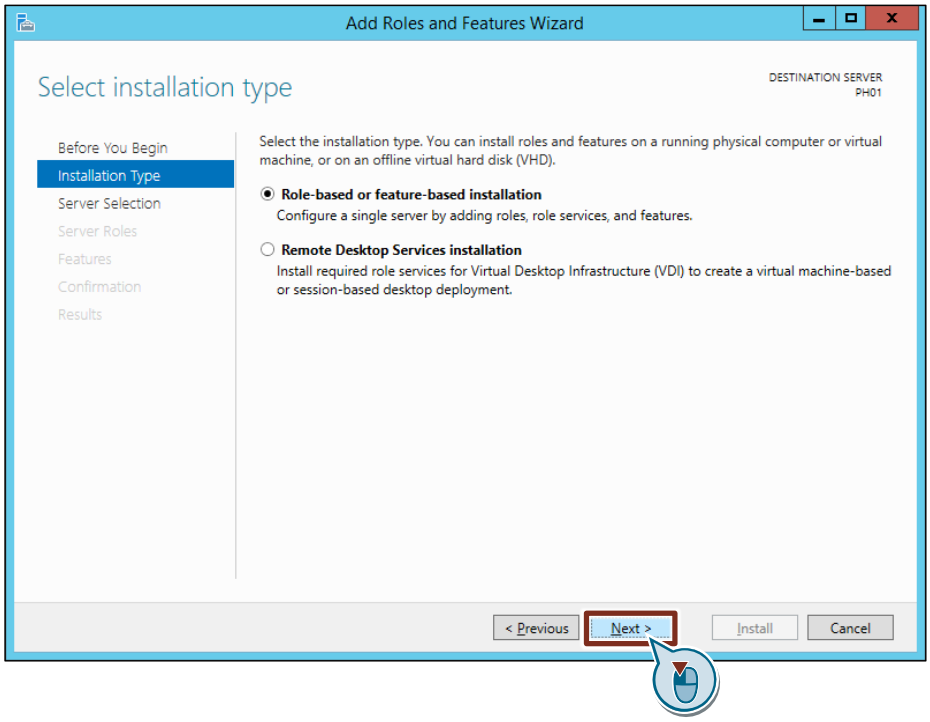
3. Click on the "Next” button.



4. In the "Installation Type" view, select the "Role-based or feature-based installation" option. Click on the "Next” button.



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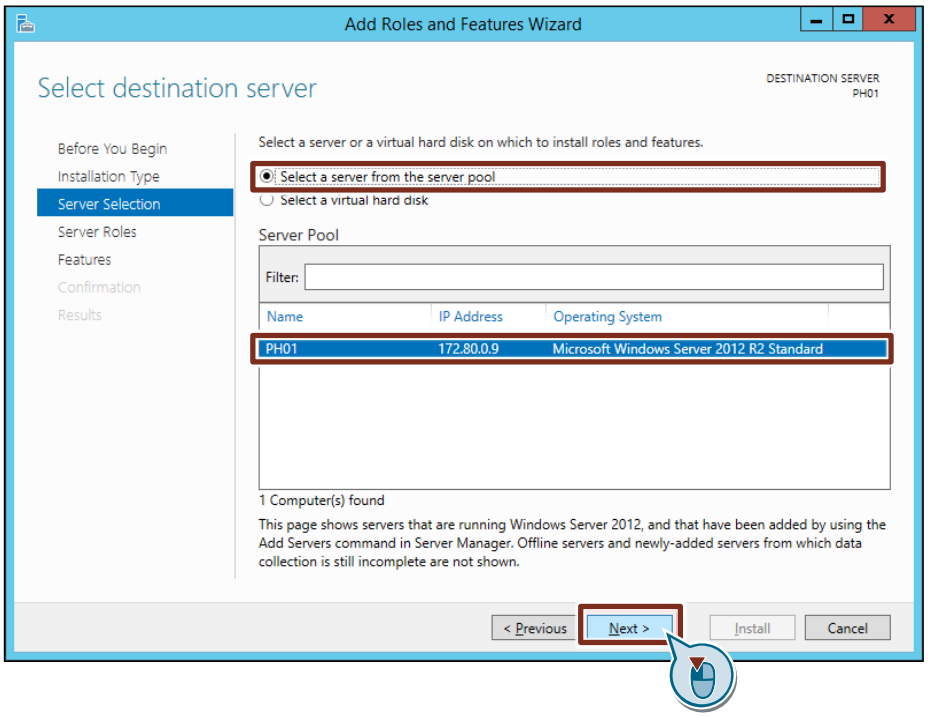
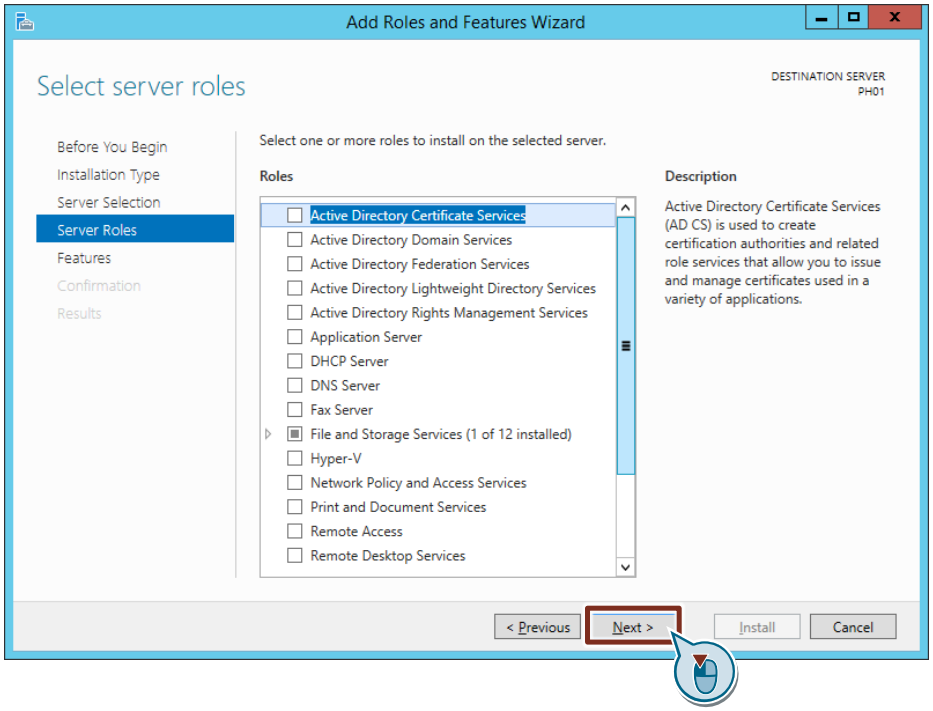
5. In the "Server Selection" view, select the server from the server pool. Click on the "Next" button.



6. In the "Server Roles" view, leave the default settings. Click on the "Next" button.



7. Activate the option "Message Queuing" in the "Features" list. Click on the "Next" button.

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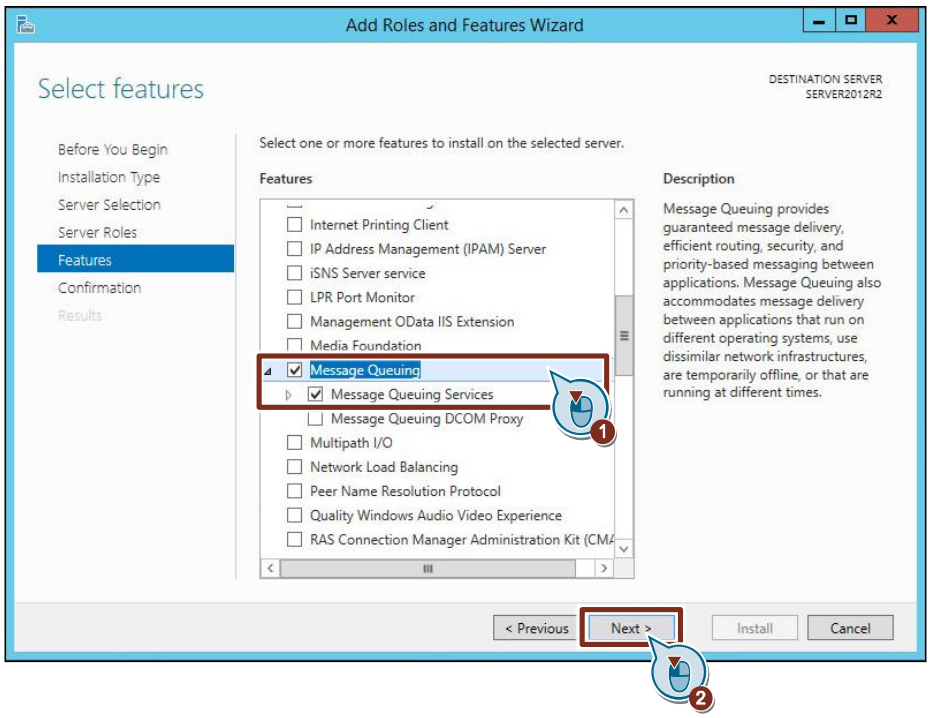
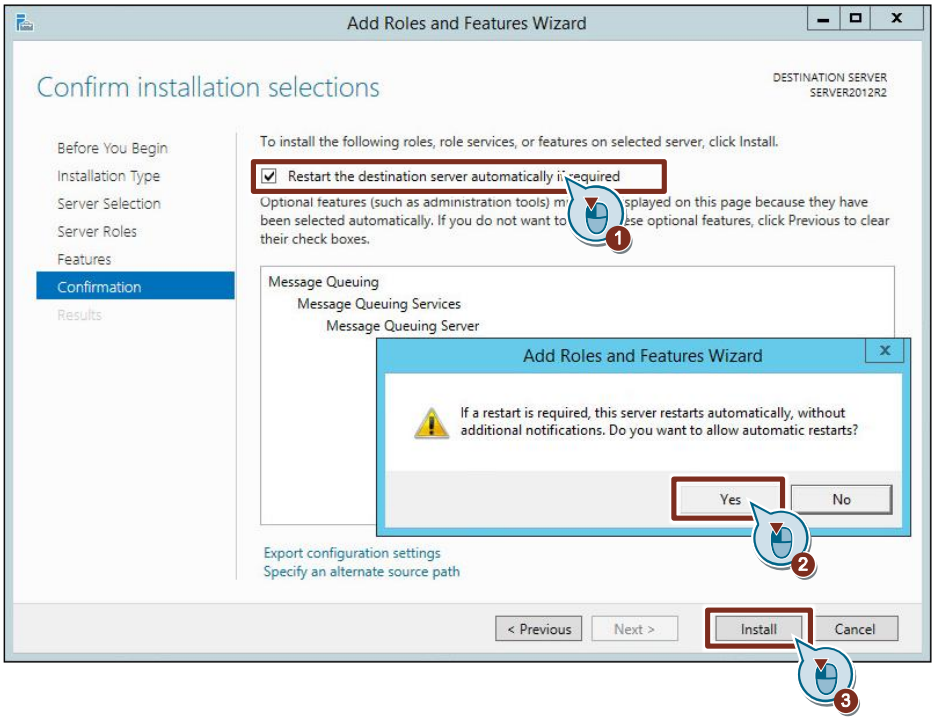


8. Activate in the "Confirmation" view, optionally select the "Restart the destination server automatically if required" check box. Click on the "Install" button.



9. Wait for the installation to complete and the server to restart.

Result

You have successfully installed the “Message Queuing” system component.

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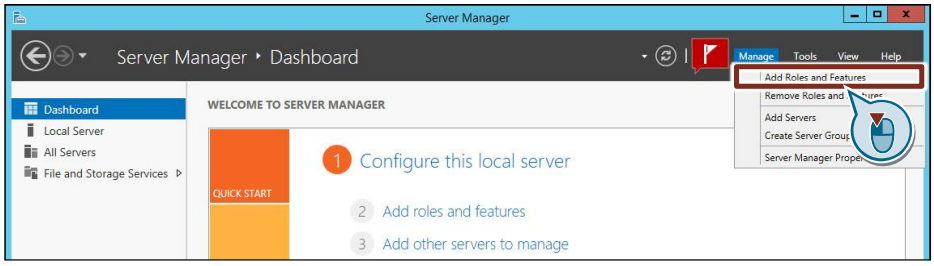
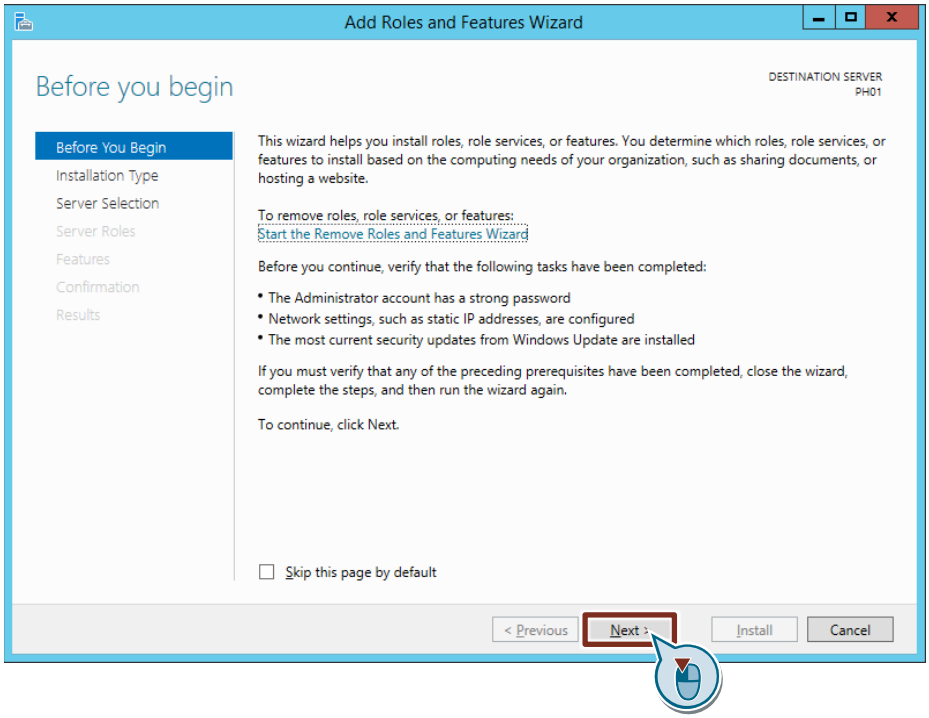
4.1.2 Installation Microsoft.NET framework version 3.5

1. Start the Server Manager via "Start > Administrative Tools > Server Manager" or via the icon in the task bar.

2. Click on "Manage" in the upper right-hand corner and select "Add Roles and Features".



3. Click on the "Next" button.



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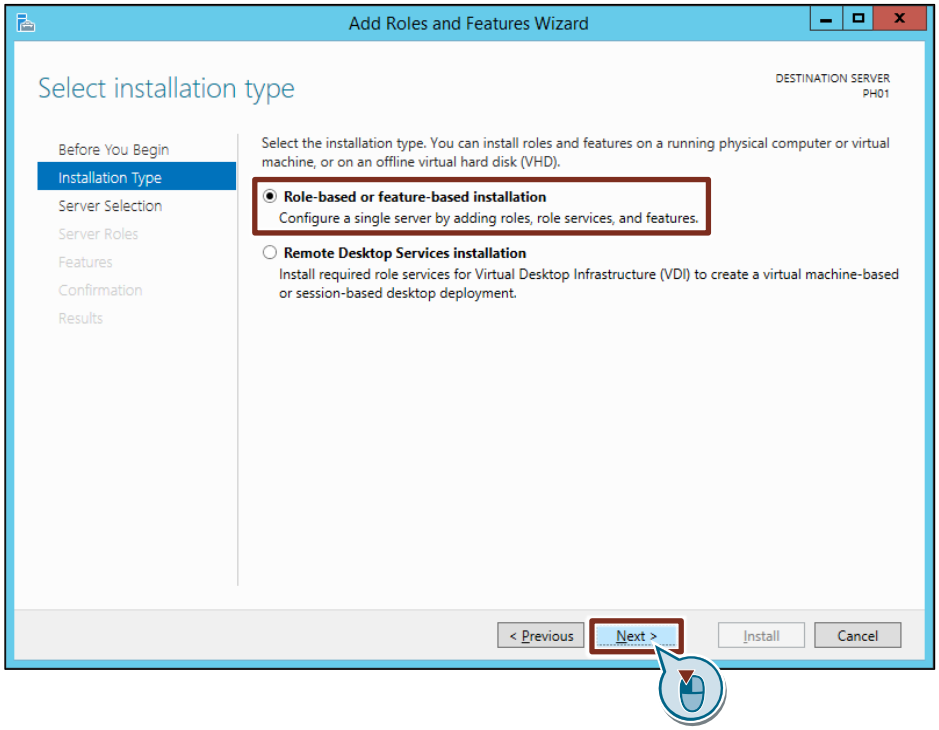
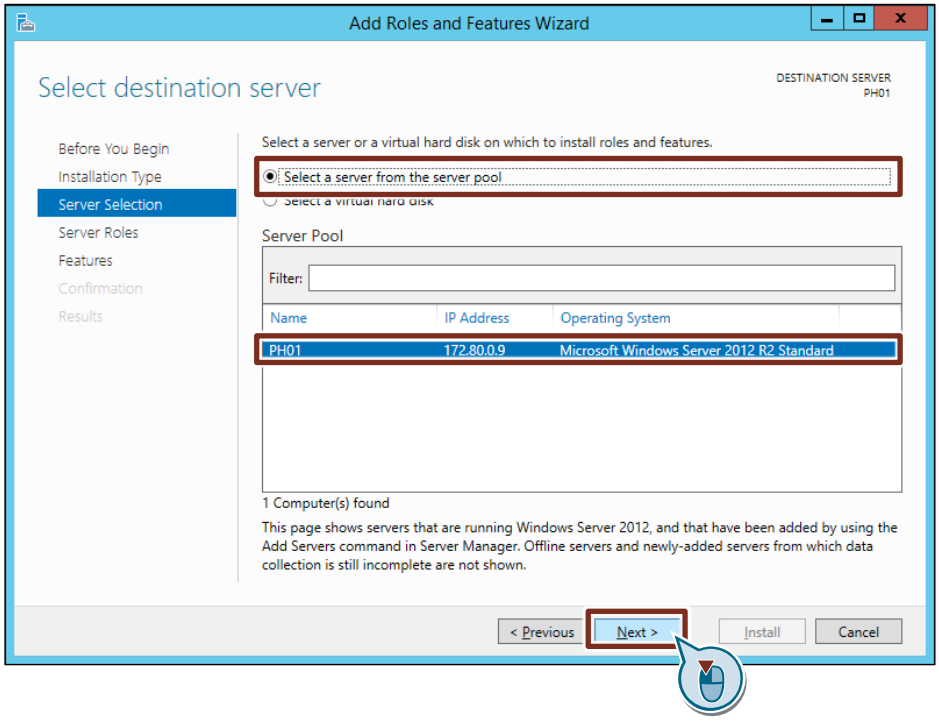
4. In the "Installation Type" view, select the "Role-based or feature-based installation" option. Click on the "Next" button.



5. In the "Server Selection" view, select the server from the server pool and change the view using the "Next" button.



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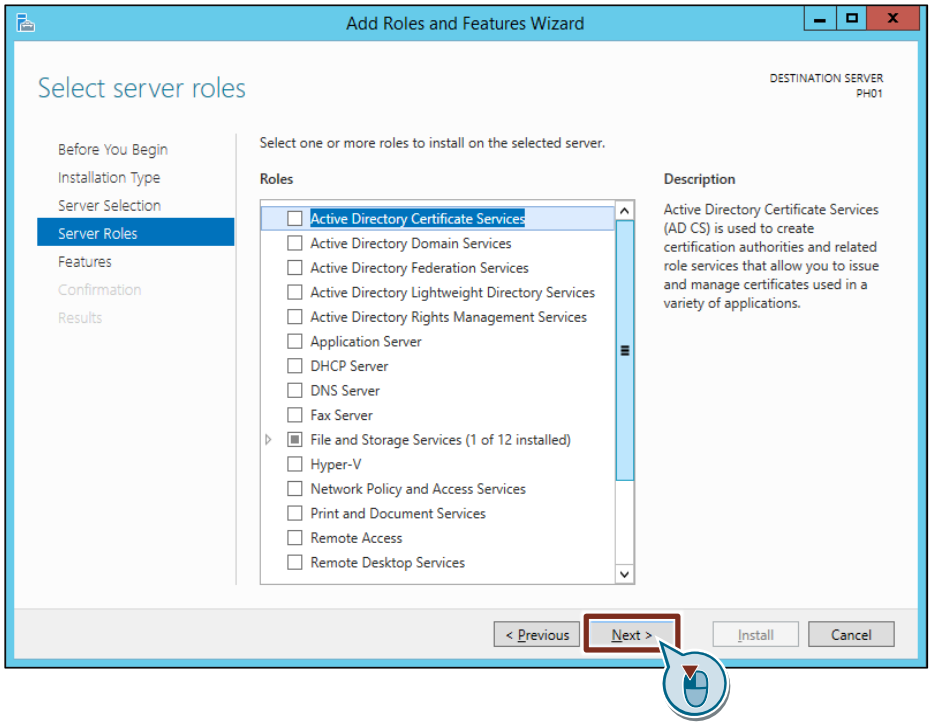
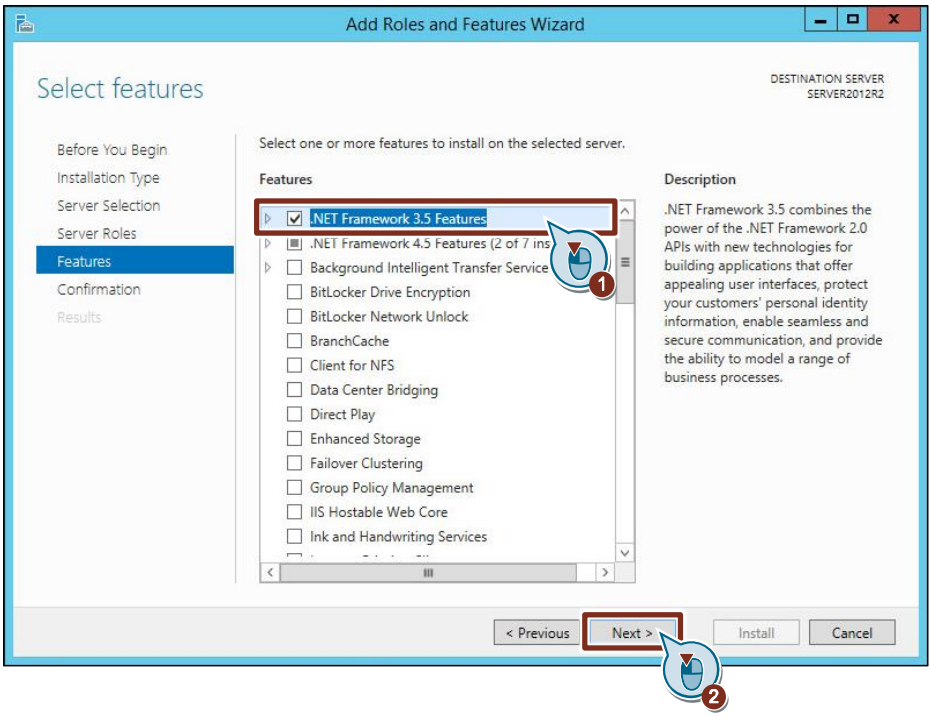
6. In the "Server Roles" view, leave the default settings. Click on the "Next" button.



7. Activate the option ".NET Framework 3.5 Features" in the "Features" list. Click on the "Next" button.



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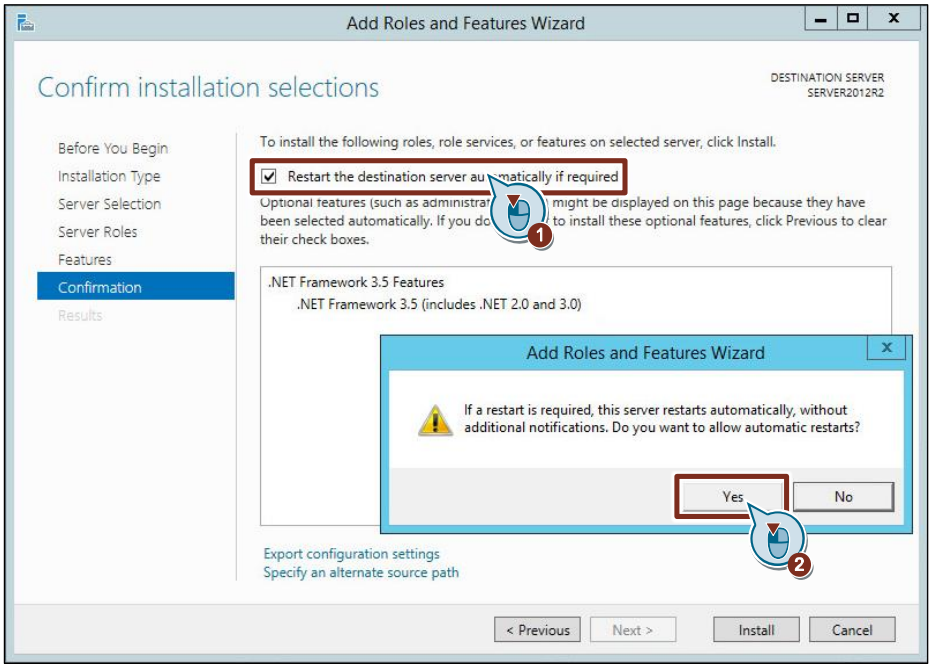
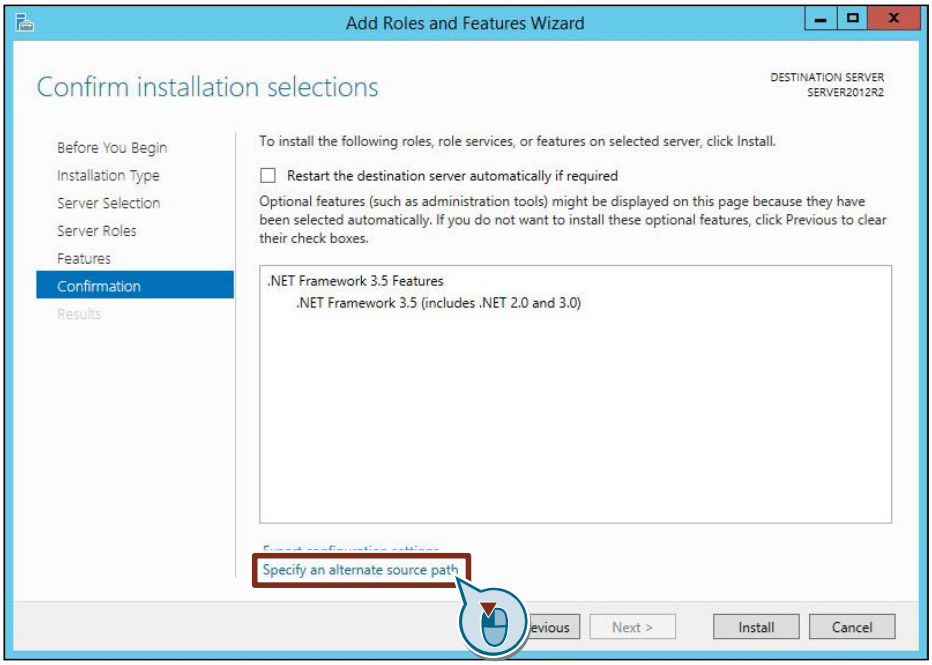
8. If necessary, activate the "Restart the destination server automatically if required" check box in the "Confirmation" view. Confirm the message with "Yes".



9. Change the source of the installation using the "specify an alternate source path" text button and select the installation file.

   You can select, as an installation file, an operating system recovery DVD of your server or a locally-saved installation file.

   End the selection of the installation source with the "OK" button.



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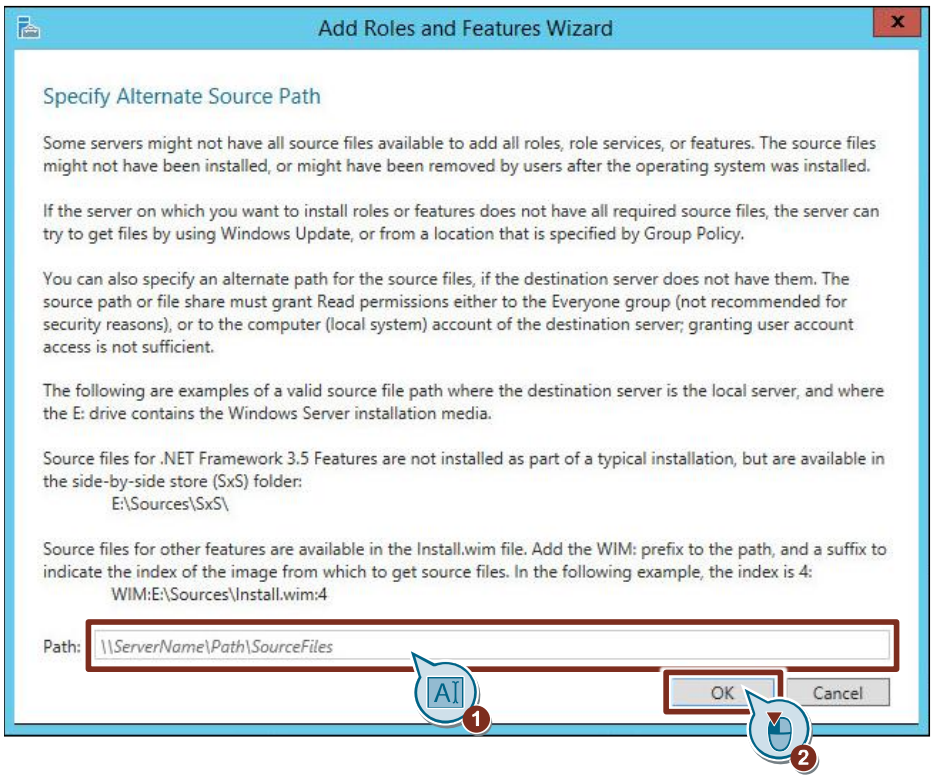

10. Start the installation with “Install."
11. Wait for the installation to complete and the server to restart.

Result

Microsoft.NET Framework 3.5 is installed.

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4.2 Installation of system components required for the Information Server

For the operation of the Process Historian various system components need to be installed before the actual installation of the information server itself.

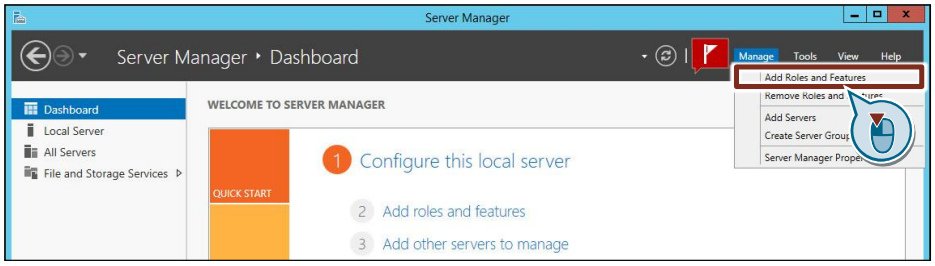
Note If you run only one Process Historian server on the Fujitsu Server, installation of the information server is not necessary.

4.2.1 Installation of the Internet Information Server

For the installation of the system component "Internet Information Server (IIS)", proceed as follows:

1. Start the Server Manager via "Start > Administrative Tools > Server Manager" or via the icon in the task bar.

2. Click on "Manage" in the upper right-hand corner and select "Add Roles and Features". The "Add roles and Features" wizard opens.



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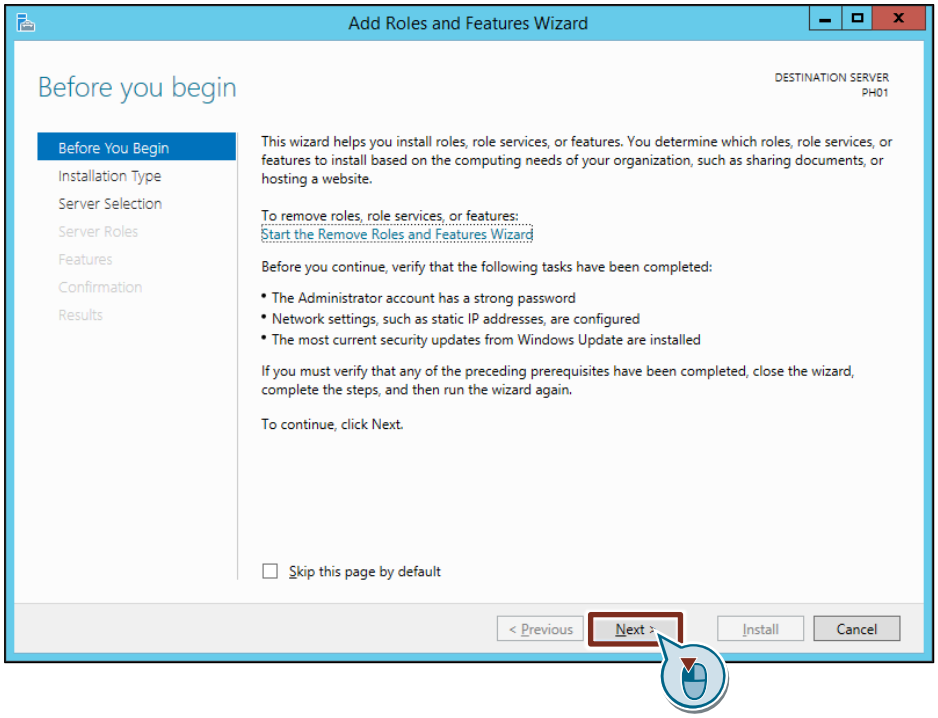
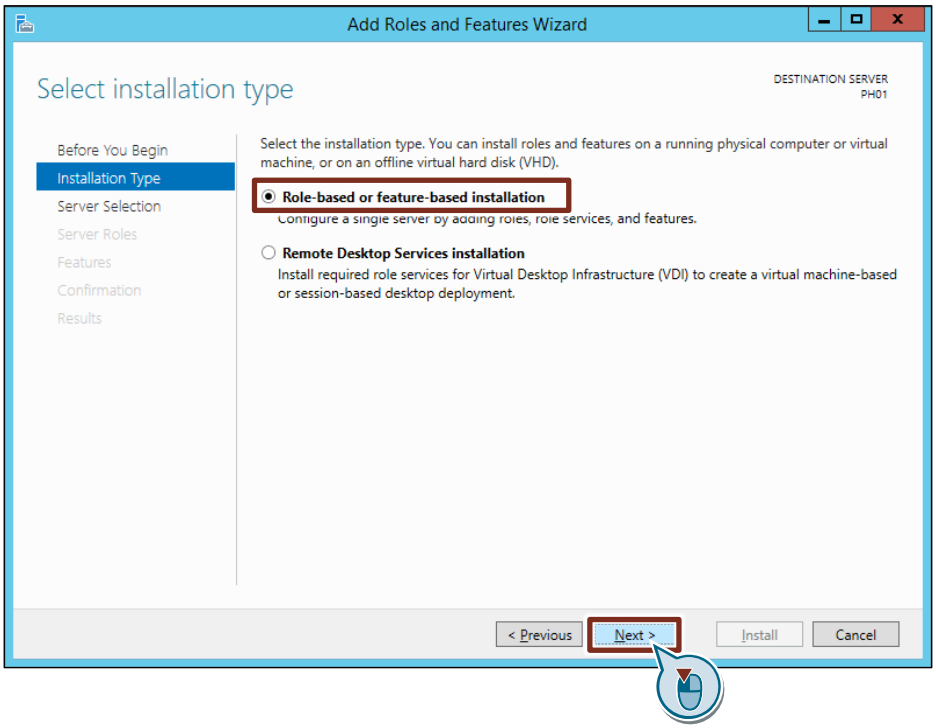
3. Click on the "Next” button.



4. In the "Installation Type" view, select the "Role-based or feature-based installation" option. Click on the "Next” button.



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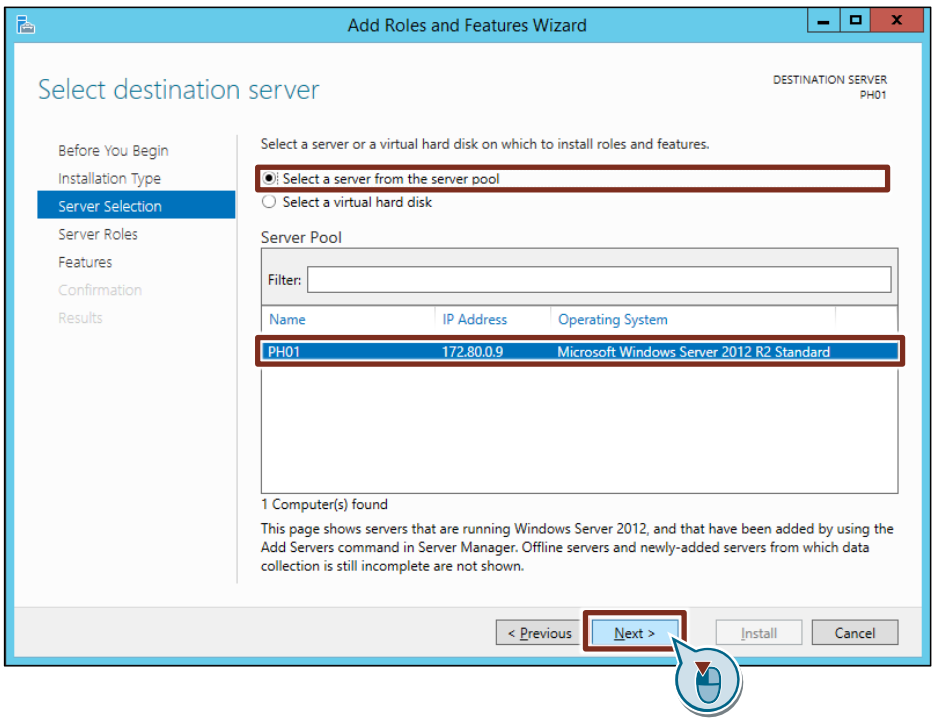
5. In the "Server Selection" view, select the server from the server pool and change the view using the "Next" button.



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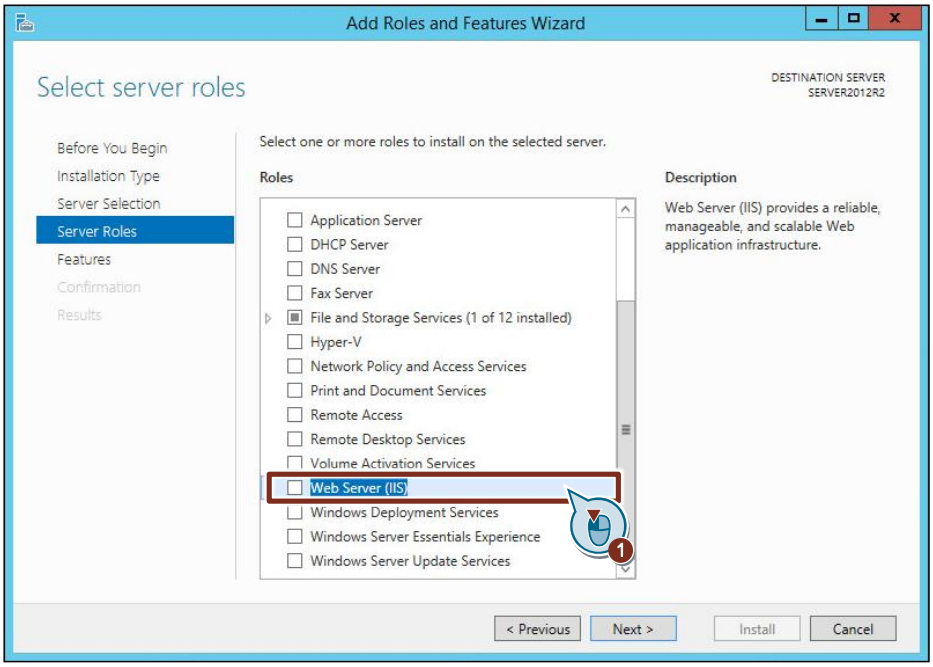
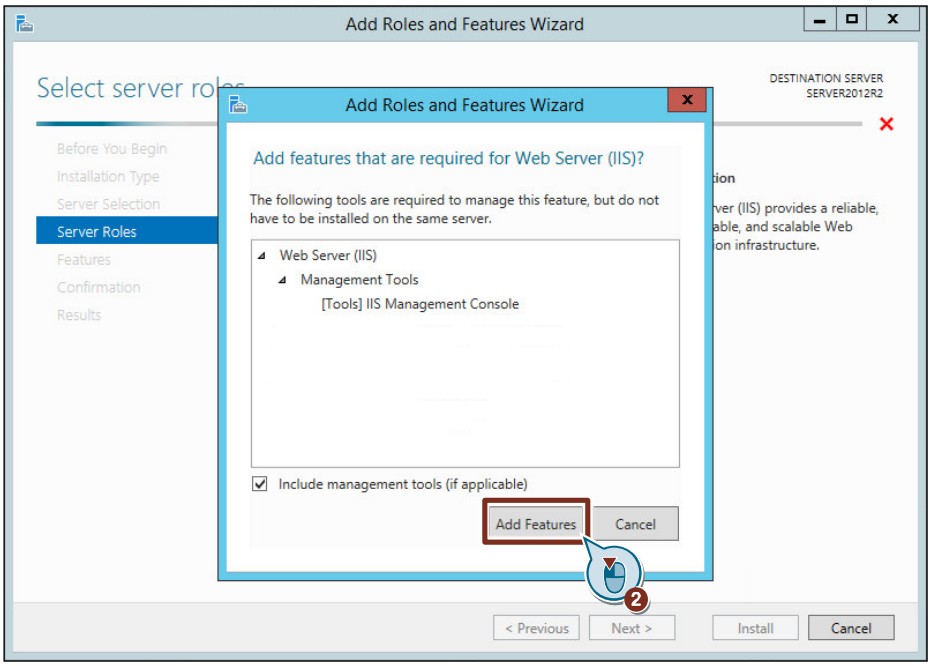
6. In the “Server Roles” view, activate the “Web Server (IIS)” option. A dialog box opens with a reference to the additional necessary component "IIS Management Console". Confirm the additional component with the "Add Features" button.





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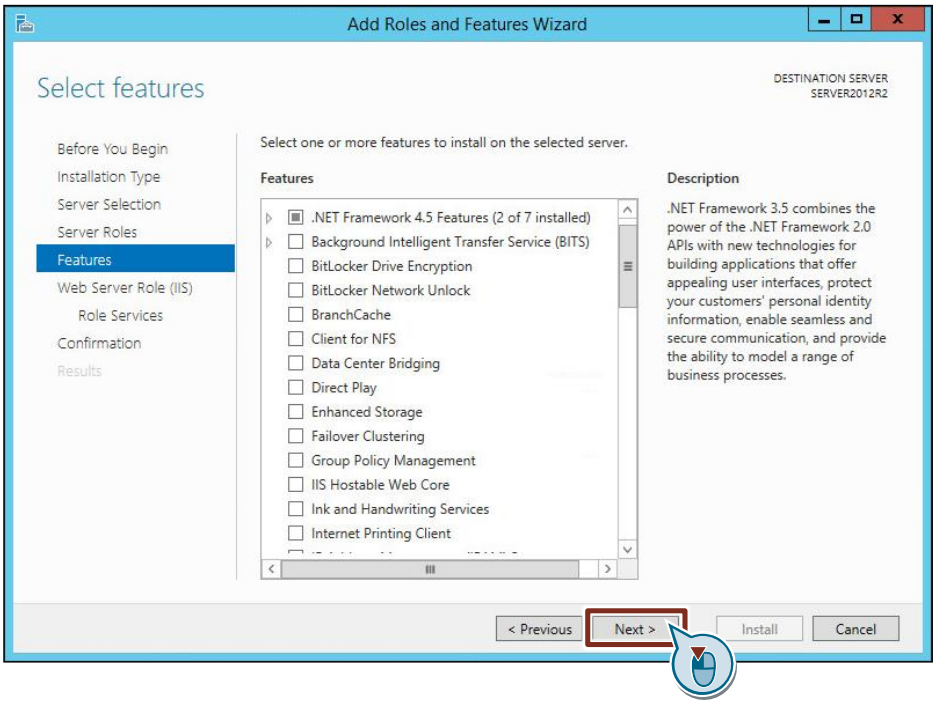
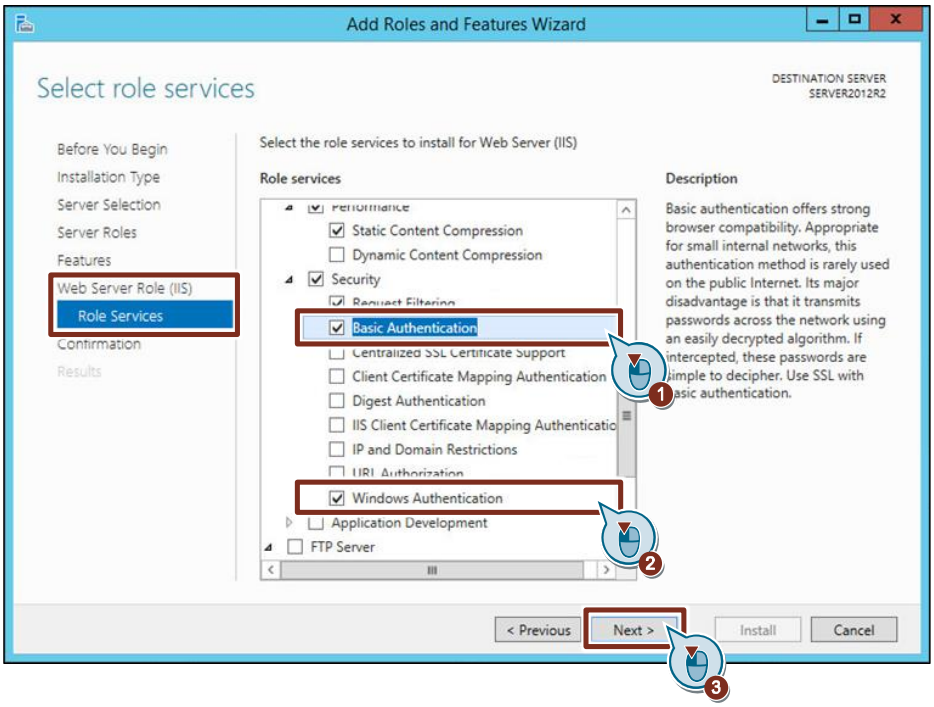
7. In the "Features" view, retain the default settings and change the view using the "Next" button.



8. In the "Web Server Role (IIS) / Role Services" view, in the "Security" section, activate the additional settings "Basic Authentication" and "Windows Authentication".



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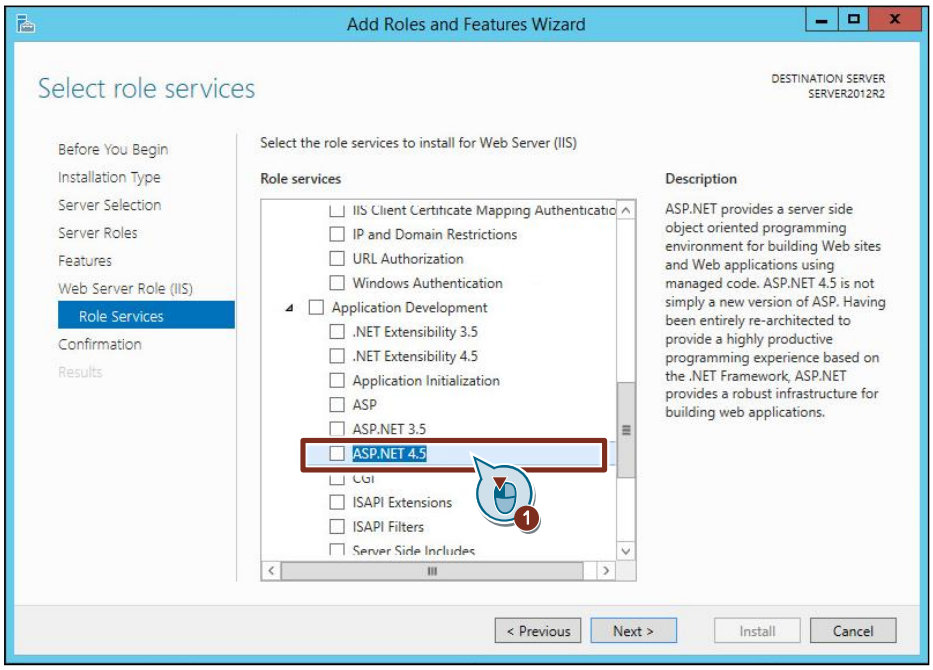
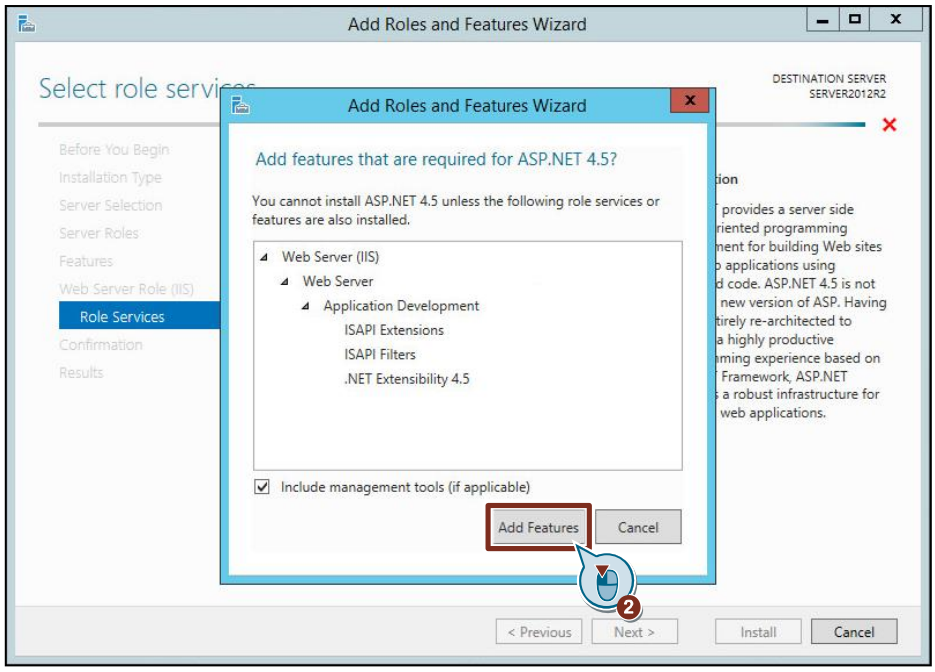
9. Activate option "ASP.NET 4.5” in the "Application Development” section. A dialog opens with a reference to the additional necessary components "ISAPI Filters", "ISAPI Extensions" and ".NET Extensibility 4.5". Confirm the additional component with the "Add Features" button.





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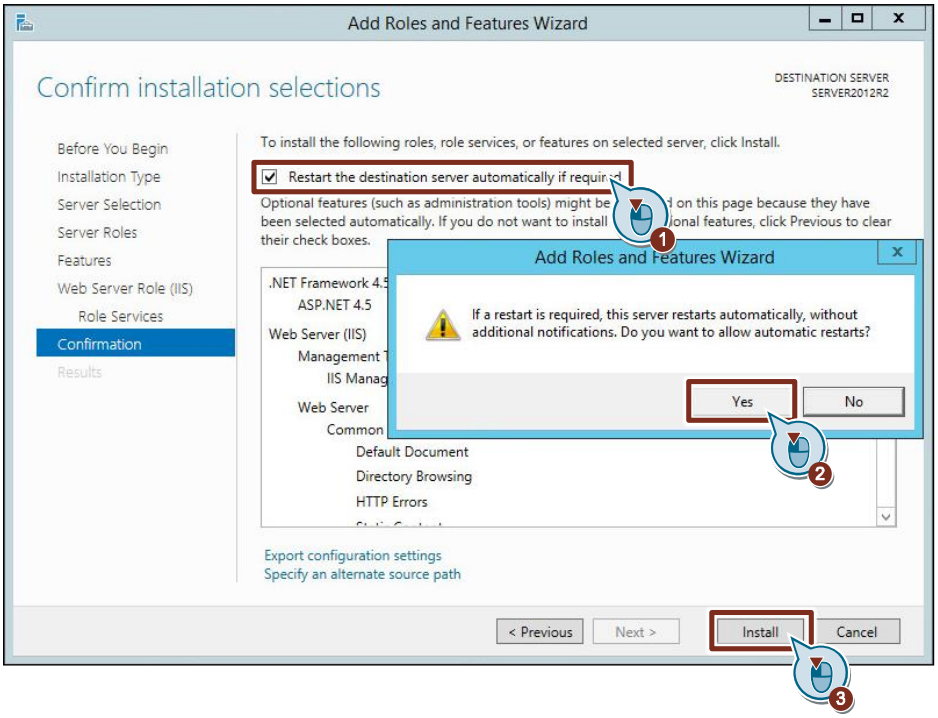
10. If necessary, select "Restart the destination server automatically if required" in the "Confirmation" view, and start the installation of the feature using the "Install" button.



11. Wait for the installation to complete and the server to restart.

Result

You have successfully installed the additional system components for the information server.

4.3 Internet Explorer 11 settings for the Information Server

Note Internet Explorer 11 is a system requirement for the Information Server and the web-based Information Server client.

1. Open MS Internet Explorer 11 as administrator.
2. Select "Tools > Internet Options".
3. In the "General" tab, enter the Homepage "http://<Computer name>". (Setting for when the IS web application is not created as a virtual directory).

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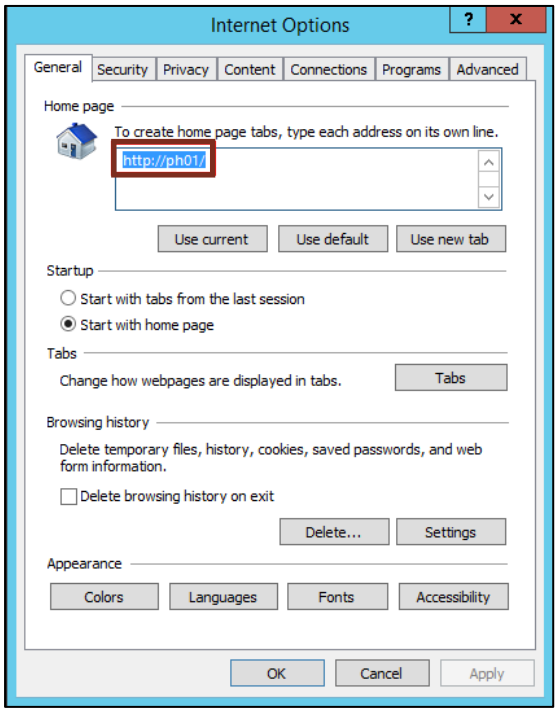
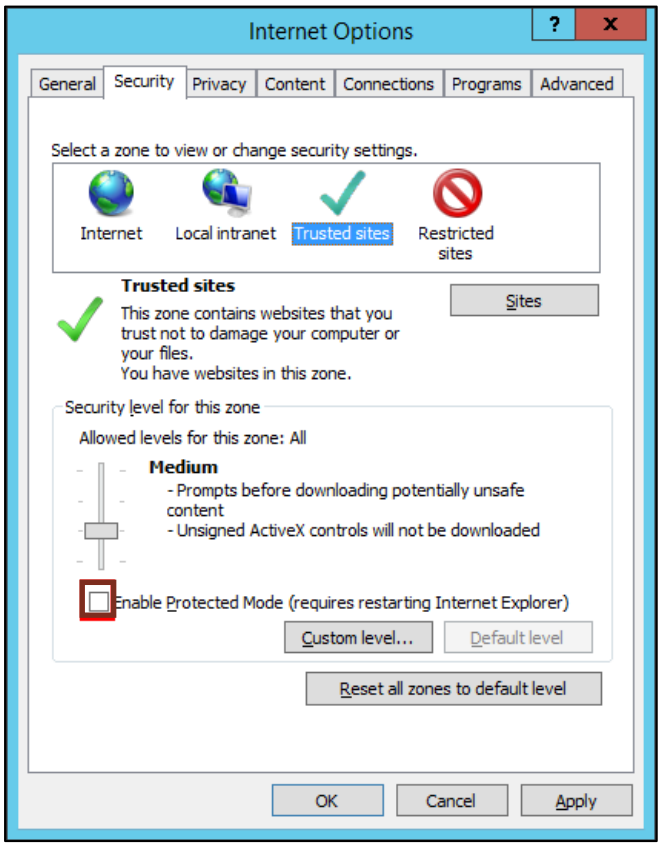


4. Open the “Security” tab. Deactivate the check box "Enable Protected Mode”.



5. Click on "Trusted sites" and the "Sites” button.

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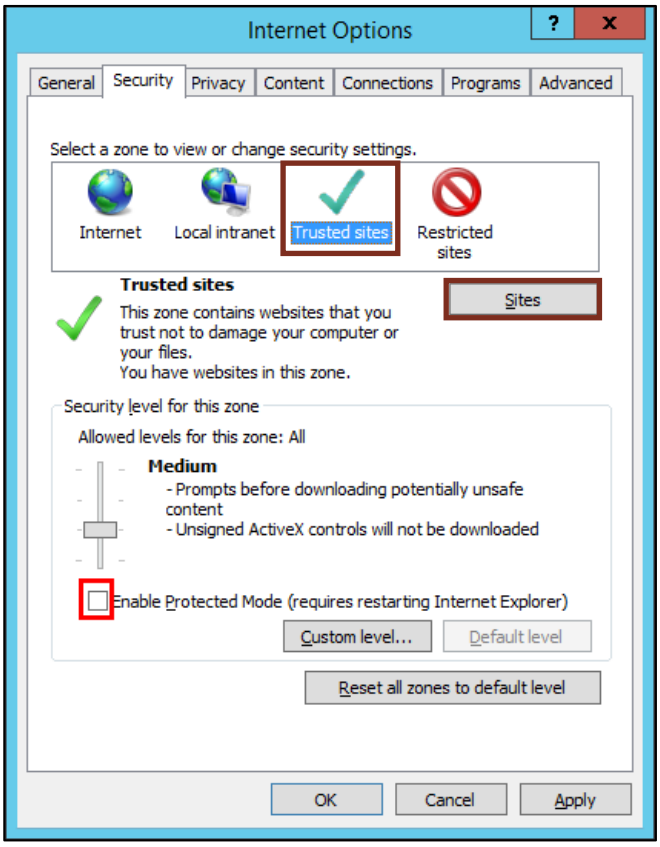
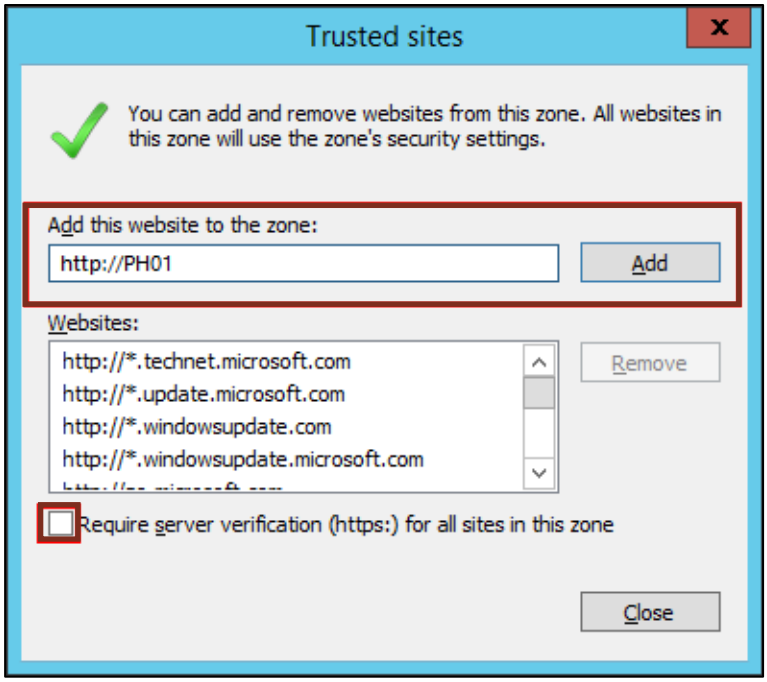


6. Add the website http://<Information Server Computername> to the trusted sites.

   To do this, click on the “Add” button.

   Deactivate the option "Require server verification…".



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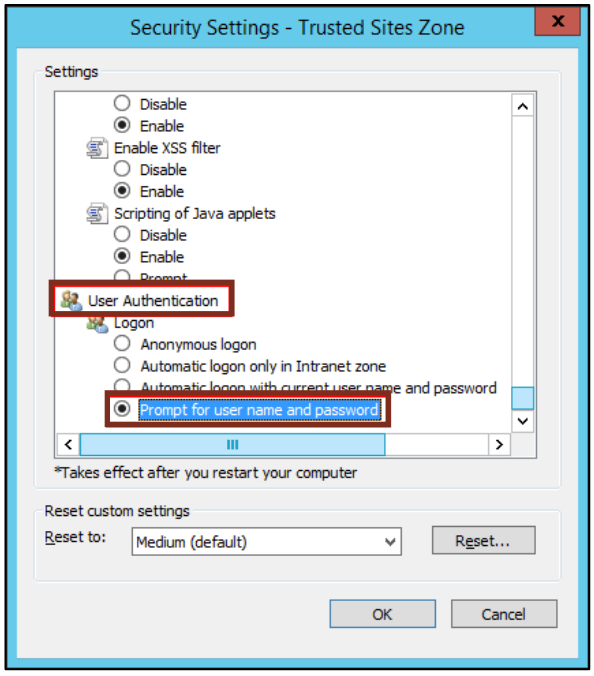
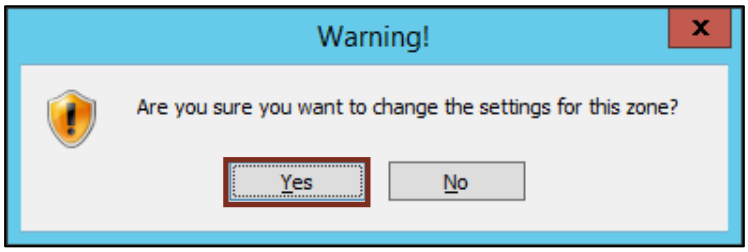
7. In the "Security" tab, click on the "Custom level" button. Activate the option "Prompt for user name and password" for the Trusted Sites.

Note For the initial commissioning, the "Automatic login with current user name and password" setting is required.



8. Then click on the "OK" button.
9. Click on the "Yes" button.



10. Go to the "Advanced" tab and activate the "Play animations in webpages" option.

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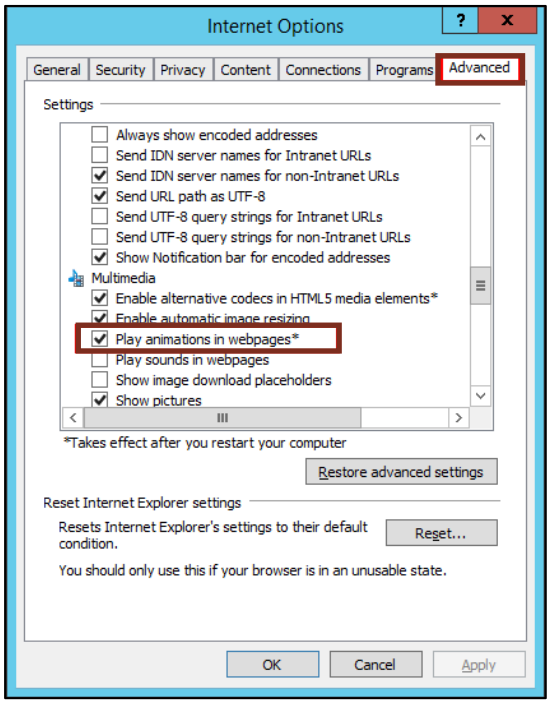
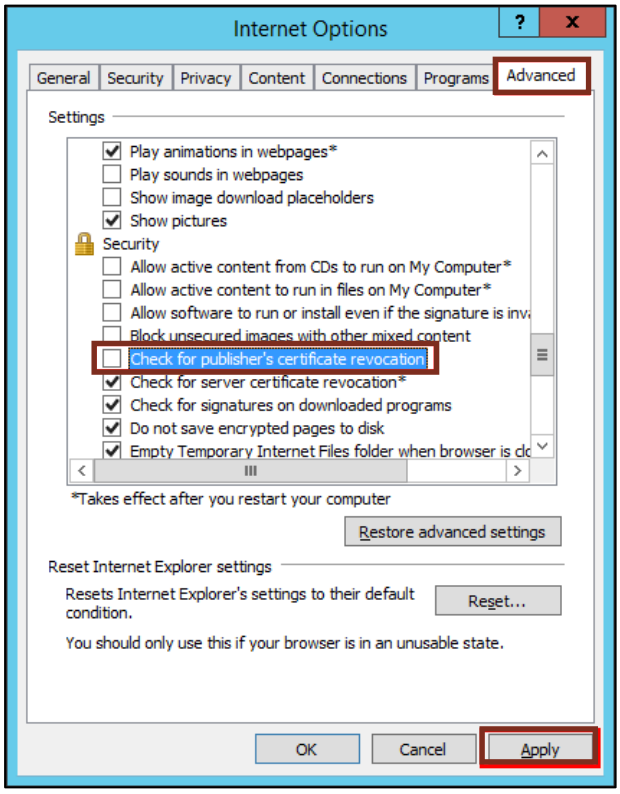


11. Open the "Advanced" tab and deactivate the "Check for publishers' certificate revocation" option.

    Click on the "Apply" button and then on "OK".



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Note

In Internet Explorer, go to the Process Historian and deactivate the option "Check for publisher's certificate revocation", under "Internet Options > Advanced > Security".

The option delays the opening of the Process Historian Management Console and leads to error messages.

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4.4 Creating a backup copy

After installation of the operating system, the necessary system components and configuration of the operating system, a backup copy of the operating system is recommended.

This way you can return as required to the operating system's original state.

The creation of an image of the operating system described here is carried out using the SIMATIC Image Creator 3.4 tool:

1. Place the “SIMATIC Image Creator 3.4” CD in the optical drive.
2. Restart the Server.
3. Press “F12” while the system is booting in order to access the boot menu.
4. Select the optical drive as the boot source.
5. After the tool has started, select the "Backup" option.
6. Start creating a backup copy.

4.5 Installation of the Process Historian and Information Server

NOTICE	Specify the name of the server's Windows computer before installation. You can change the name of the computer in the Windows System Control under "System”. The computer name can no longer be changed after the installation.

Note The installation is to be executed directly in the network environment / workgroup, in which the Process Historian is later operated.

If you use the Process Historian in a domain, join the domain with the Process Historian before the installation.

Note For instructions on how to retroactively change the workgroup / domain, see the "Installation, Operation and Maintenance of the Process Historian and the Information Server in the PCS 7 Environment" section under "Moving Workgroup A to Workgroup B (Workgroup Change)" and “Integration in a domain ": https://support.industry.siemens.com/cs/ww/en/view/66579062

Note In order to install the Process Historian, it is recommended the same administrator-user name and password be used as those employed for the installation of the PCS 7 operator station systems.

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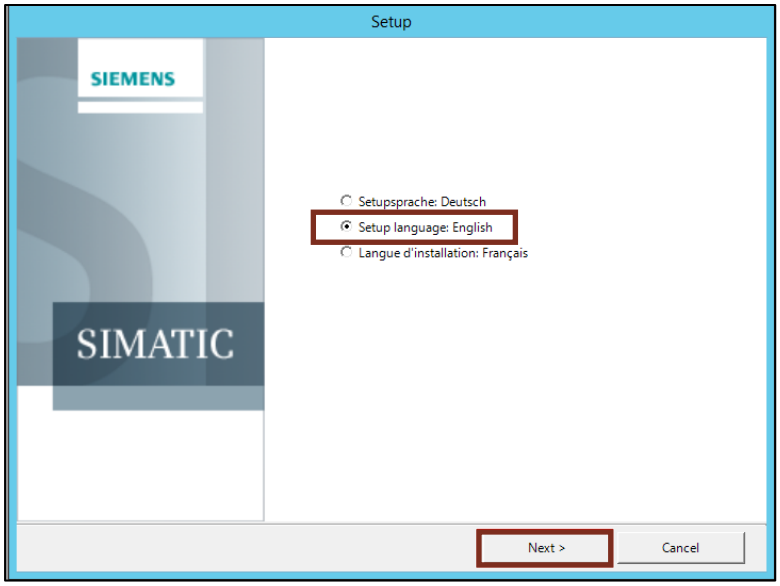
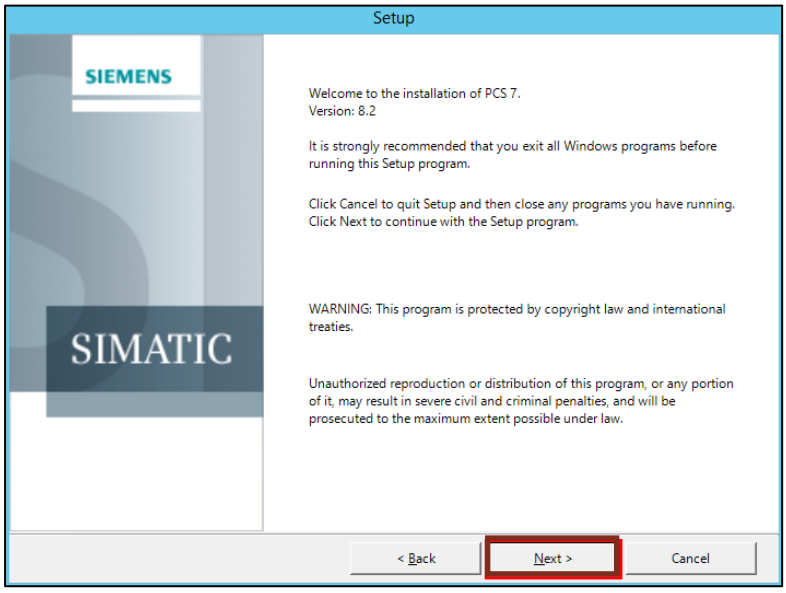
Procedure

1. Insert the PCS 7 V8.2 DVD 1/2 in the drive and start the setup program "Setup.exe".
2. Select the installation language and click "Next".



3. Click on the "Next" button.



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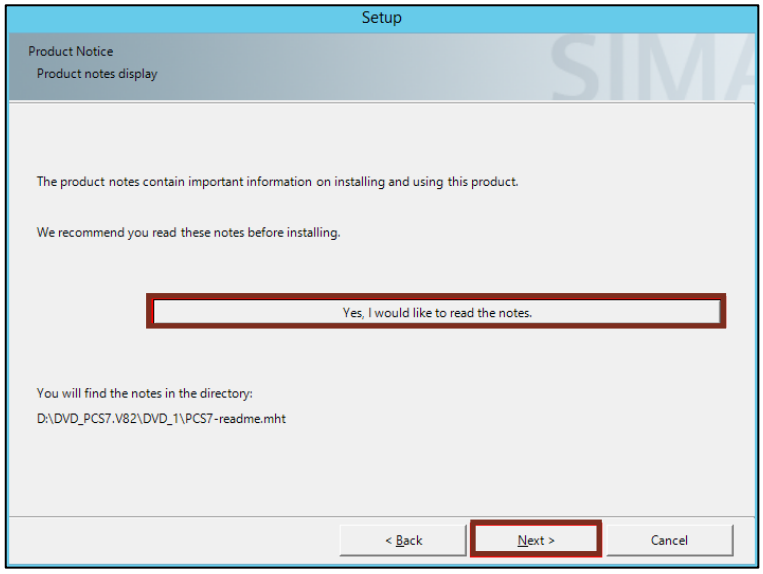
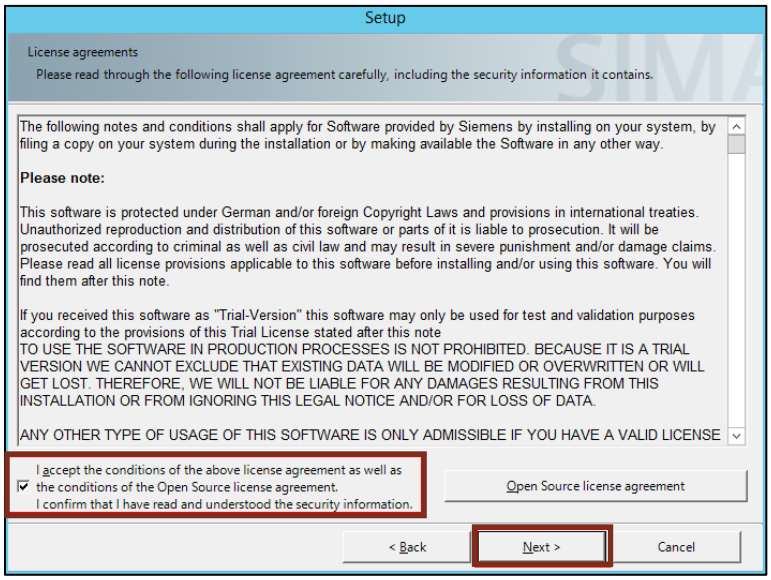
4. Read the PCS 7 readme information and then click on the "Next" button.



5. Accept the license conditions and click on the "Next" button.



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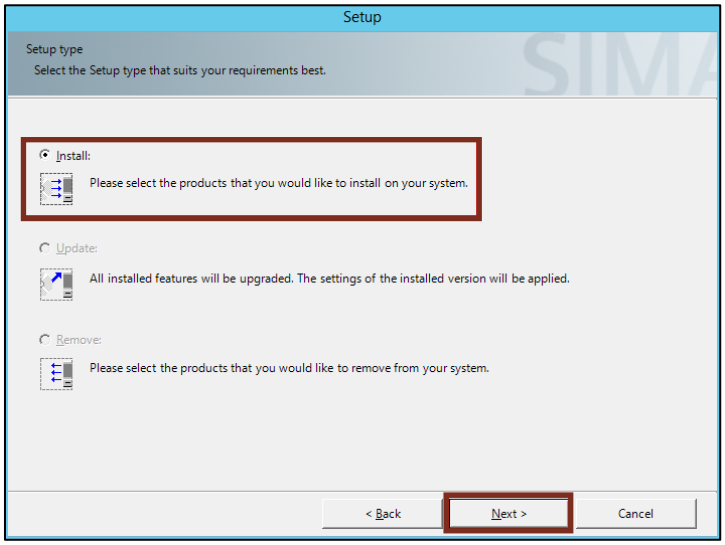
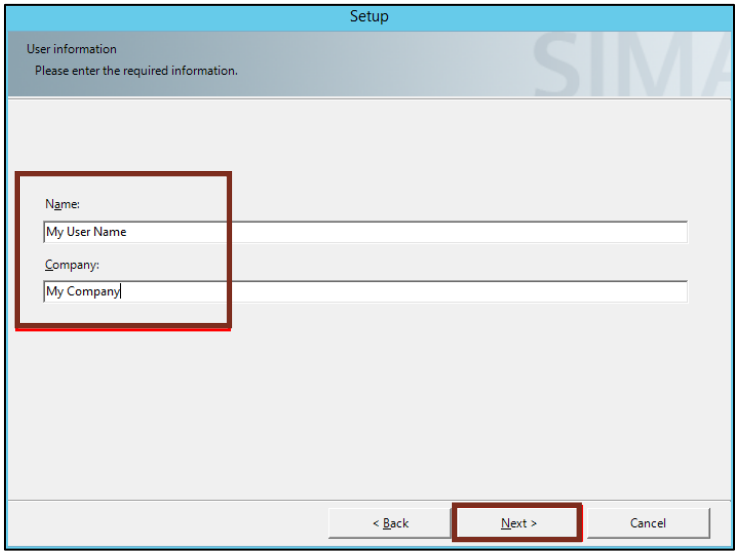
6. Activate the "Install" check box and click on the "Next” button.



7. Enter the name and company in the input fields "Name" and "Company".



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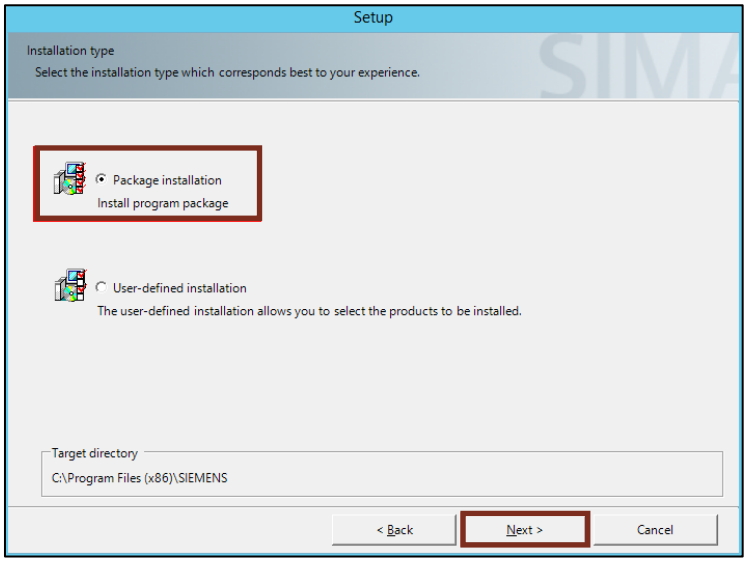
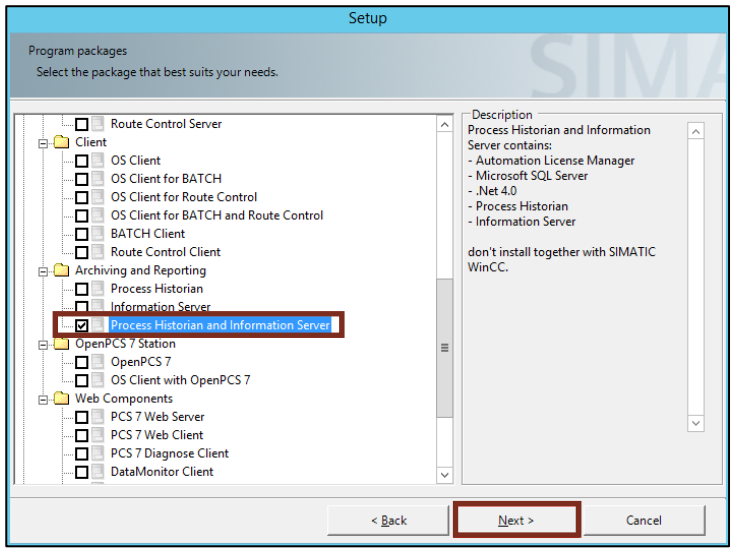
8. Activate the "Package installation" check box and click on the "Next” button.



9. Activate the "Process Historian and Information Server" option for the combined installation of a Process Historian and Information Server. Then click on the “Next” button.



Note If you want to install the PH and IS software on different computers, select the program packages "Process Historian V8.2" or "Information Server V8.2" separately.

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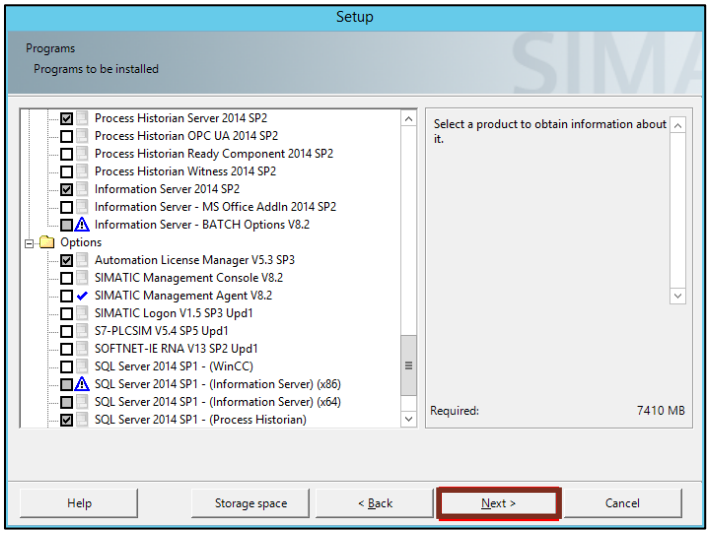
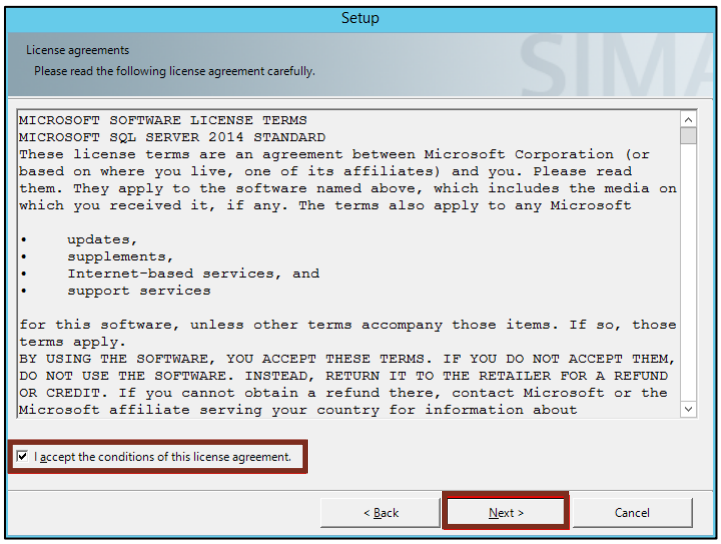
10. Click on the "Next” button.



11. Accept the license conditions and click on the "Next” button.



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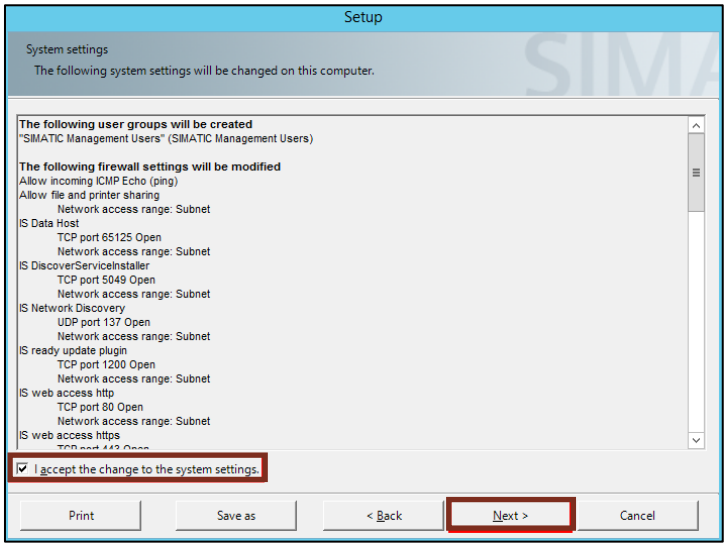
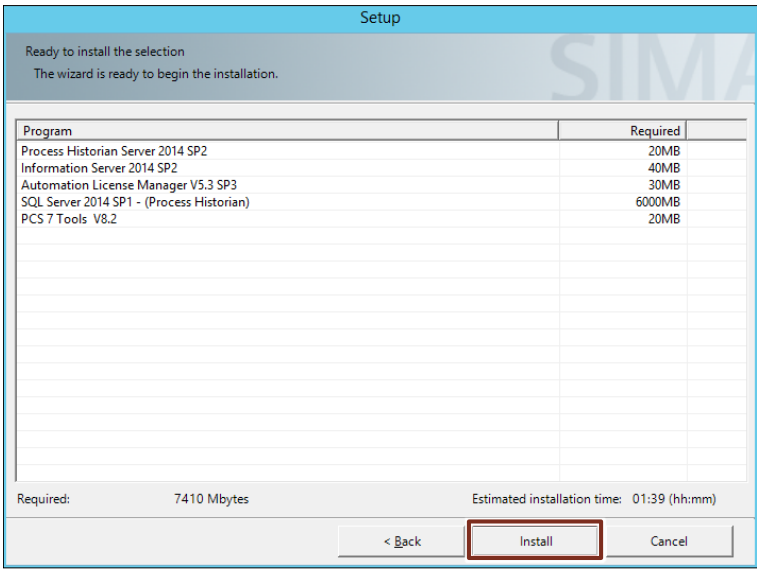
12. Accept the system modifications and click on the "Next” button.



13. Start the installation with the "Install" button.



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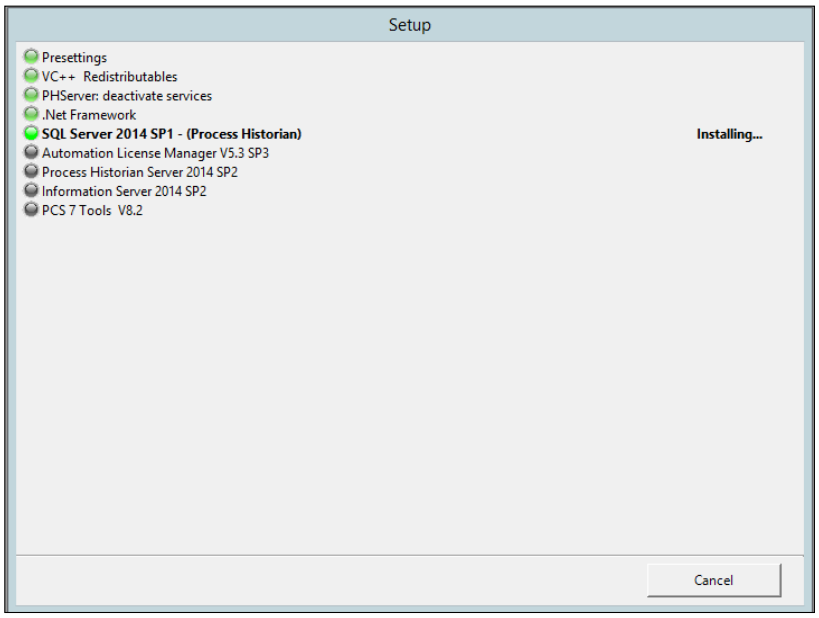
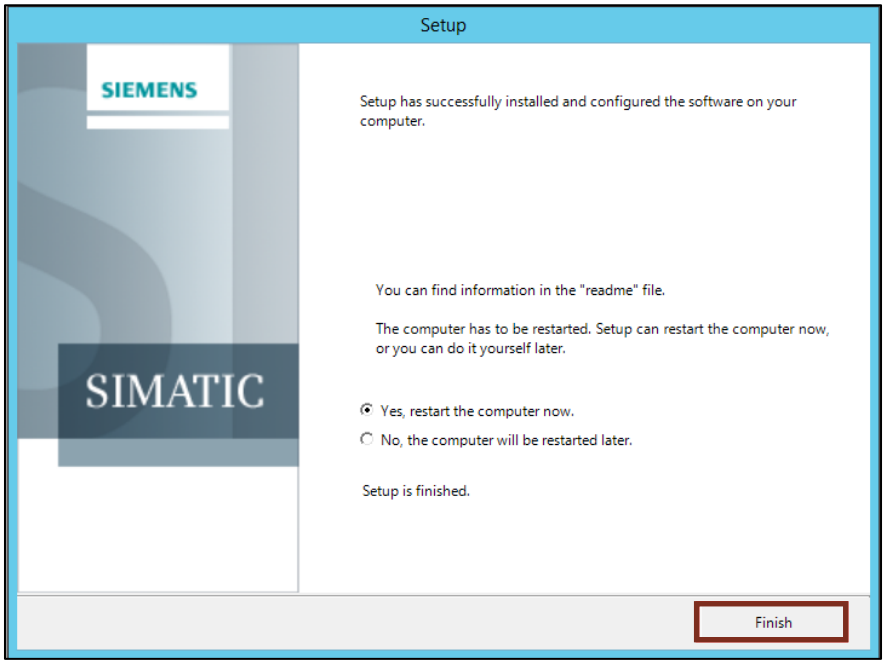
The installation is carried out. During the installation, the server is restarted repeatedly.



14. Click on the “Finish” button to complete the installation and to restart your Computer.

    After the last restart, the Database Installation Wizard and the SIMATIC Web Configurator will open automatically for the further installation steps.



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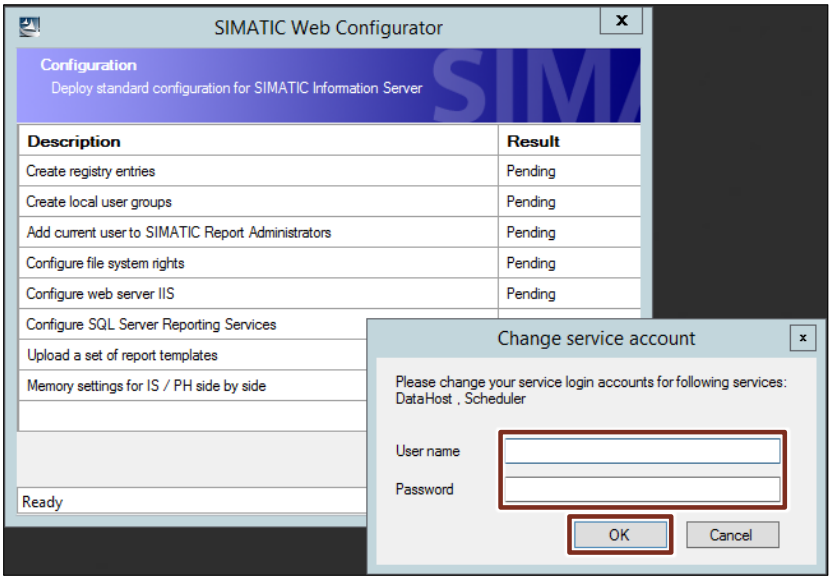
15. Change the service access. Enter an administrator user name and a password and confirm your input with the "OK" button.



Note

For the Data Host Scheduler, it is recommended the same administrator-user name and password be used as those employed for the installation of the Process Historian.

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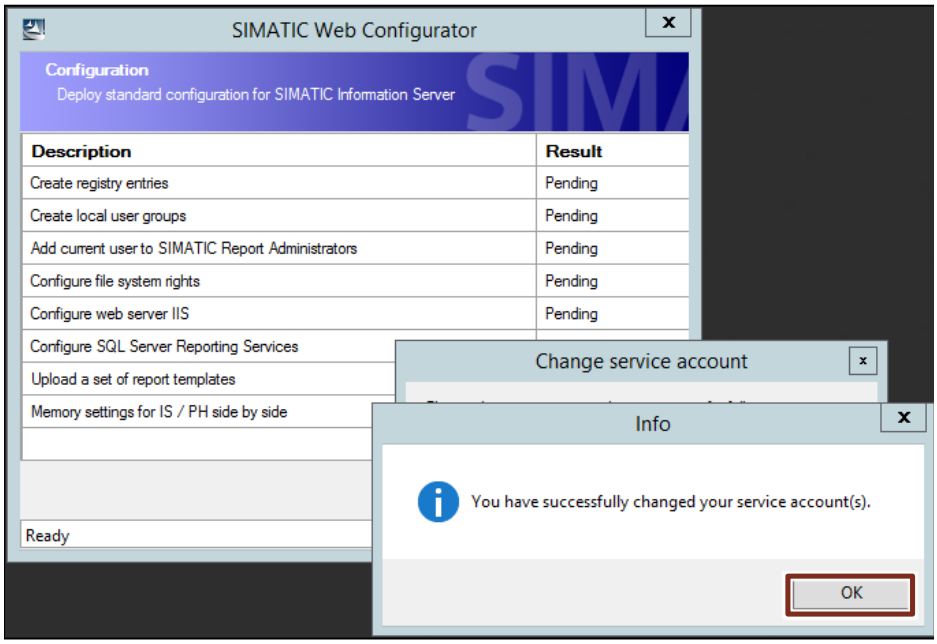
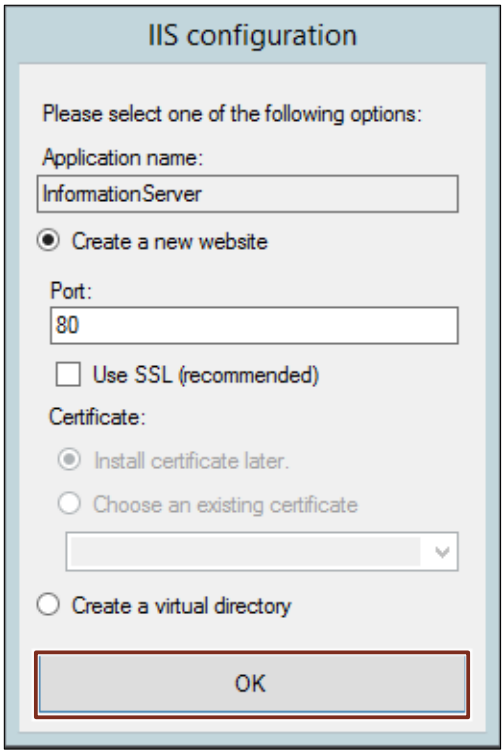
16. Click on the "OK" button.



17. The SIMATIC Web configurator for the information server starts. Confirm the default settings with the "OK" button.



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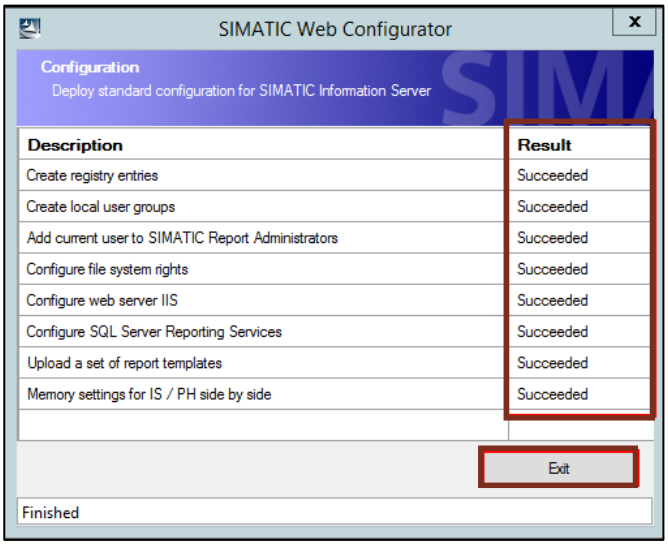
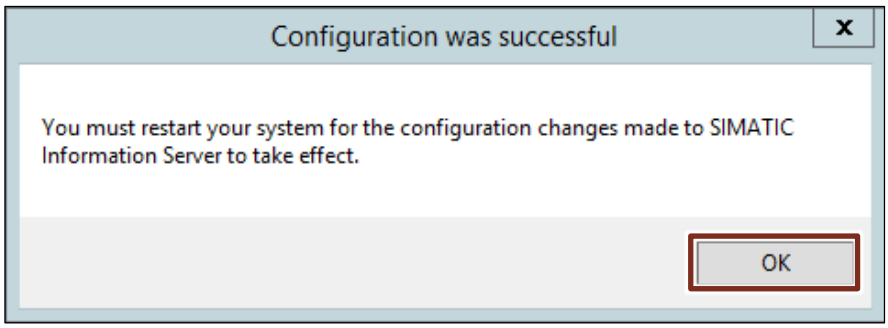
18. All steps must be completed with the result "Succeeded". After the configuration has been completed successfully, terminate the SIMATIC Web Configurator with the "Exit" button.



19. Activate the configuration by restarting the server. To do this actuate the “OK” button.



20. Perform the Database Installation Wizard as described in section 4.7.

4.6 Notes on Process Historian Database Segmentation

Note With regard to the segmentation, please also observe the Process Historian product documentation.

The Process Historian features database segments, runtime segments and archive segments.

Database segments

A database segment in the Process Historian is the quantity of all the data in a defined time range. If you choose a weekly segmentation, then a database segment will contain all the data recorded in one week.

The preset value for the segmentation is:

- Time range of a segment = 1 week
- Number of prepared segments = 1

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- Total number of Runtime segments = 5

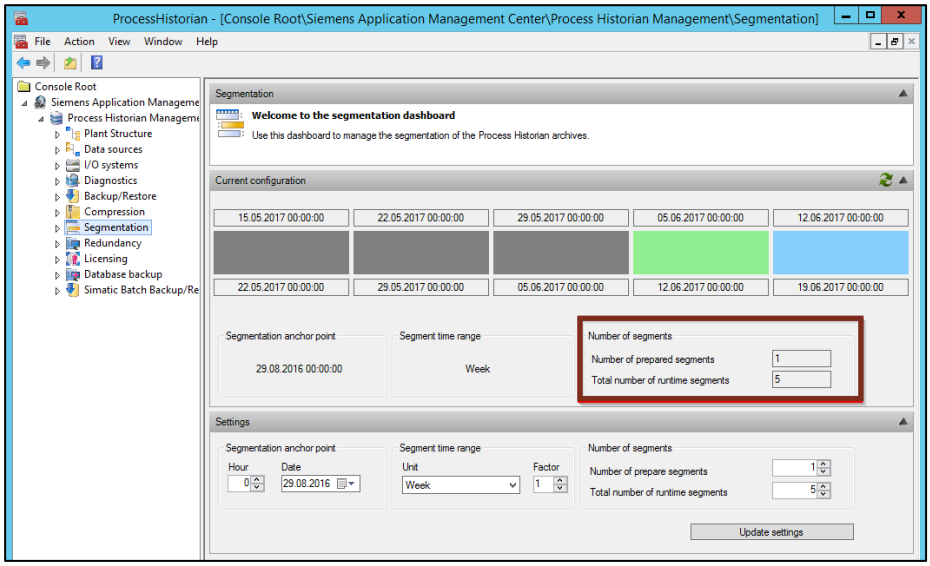
This is a meaningful preset value adequate for most applications.

Runtime segments

Runtime segments are uncompressed and therefore take up more space on the hard disk.

They are characterized by the fact that they are always in the "online" state and the PH can write the data into runtime segments.

The runtime segments are visible in the “Segmentation” menu of the PH Management Console (MMC).



The Process Historian creates segments continuously for a defined time range. To ensure that all data can be saved regardless of the time stamp, there is an upper and a lower "catch-all" segment.

The specific segments collect all incoming data that lie outside the current runtime segments. These segments are called "catch-all-upper" (CAU) and "catch-all-lower" (CAL).

The CAL and CAU segments are permanently available and cannot be erased, removed or set to offline.

Number of uncompressed segments = "Total number of runtime segments" + CAL segment + CAU segment = "**Total number of runtime segments" +2.**

In the above example:

Number of uncompressed database segments = 4+2 = 6.

This means that 6 segments will always remain uncompressed.

Archive segments

Archive segments can be found in the PH MMC menu "Backup/Restore". An archive segment can be in two states:

- Online
- Offline

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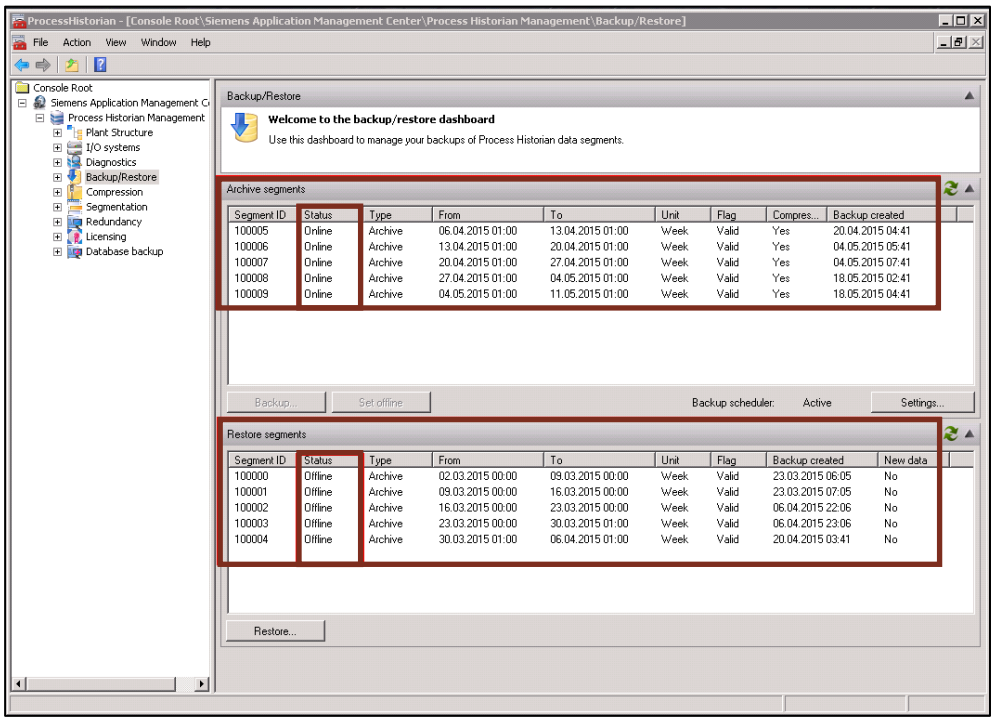
If an archive segment is in the online state, the PH can have read access to the data.

If an archive segment is offline, it means that the data have been successfully backed up in a backup file and the data have been deleted from the database.

The PH can only access the data again when the database segment is in the "Online" state.

In this sense

- "Set offline" means to delete data of a segment from the database.
- "Restore" means to restore data of a database segment



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4.7 Executing the Database Installation Wizard

After the installation of the Process Historian and the Information Server, run the "Process Historian Database Installation" wizard once. This is done automatically after the installation is restarted.

If the wizard does not start automatically, you can activate it by restarting the Process Historian Management Console. The Process Historian Management Console checks if a Historian database is present. If there is no Historian Database, the Database Installation Wizard is started.

Alternatively, you can start the Wizard directly in the following path: "C:\Program Files\SIEMENS\ProcessHistorian\bin\DatabaseInstallationWizard.exe”

NOTICE	**Note that a retroactive modification of the hard disk configurations of a database is only possible with considerable effort or possible data loss.**

Analysis of database hard disks

To configure the database, perform the following steps:

1. Start the “Process Historian Database Installation” wizard.
2. Activate all the hard disks using the option boxes that are used for data archiving.

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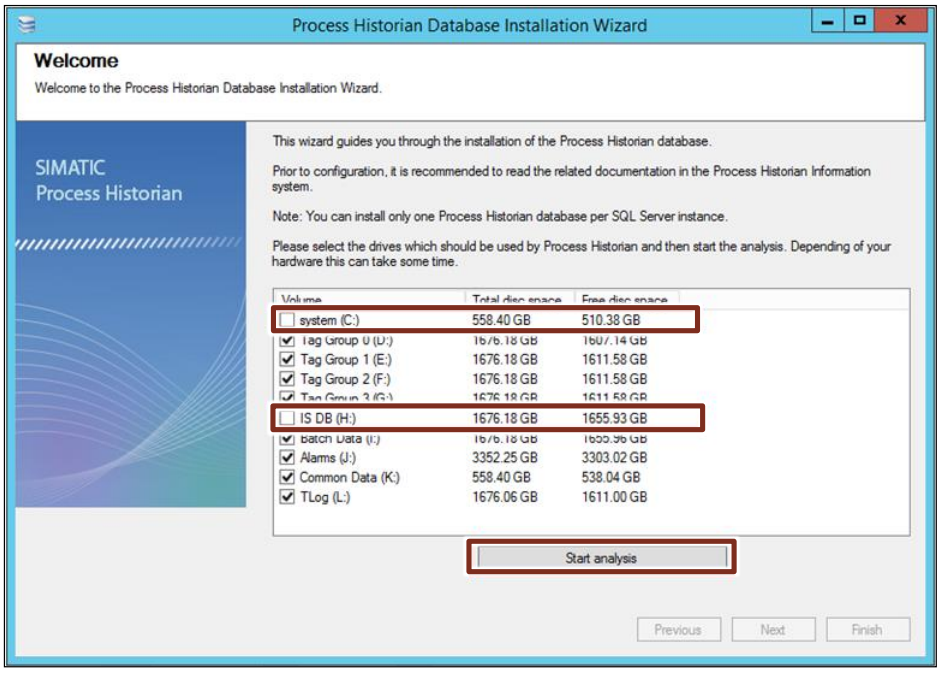
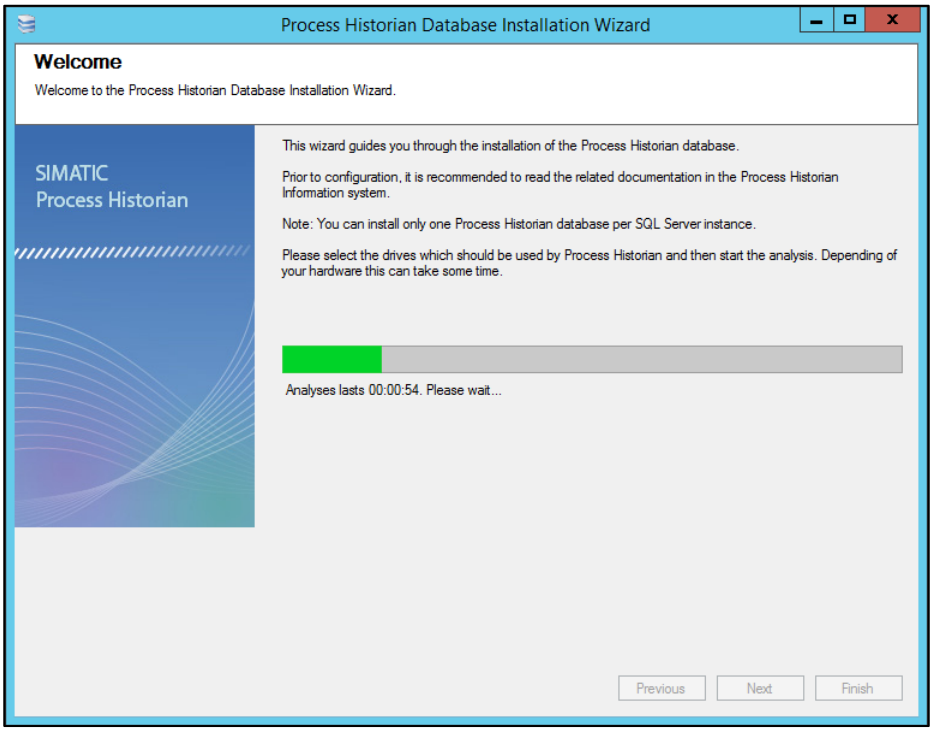
3. Deactivate the option box "System (C:)" (Hard drive with operating system (C:)) and "IS DB (H:)" (Hard drive: for the Information Server).



4. Start the data analysis by clicking on the "Start analysis" button.



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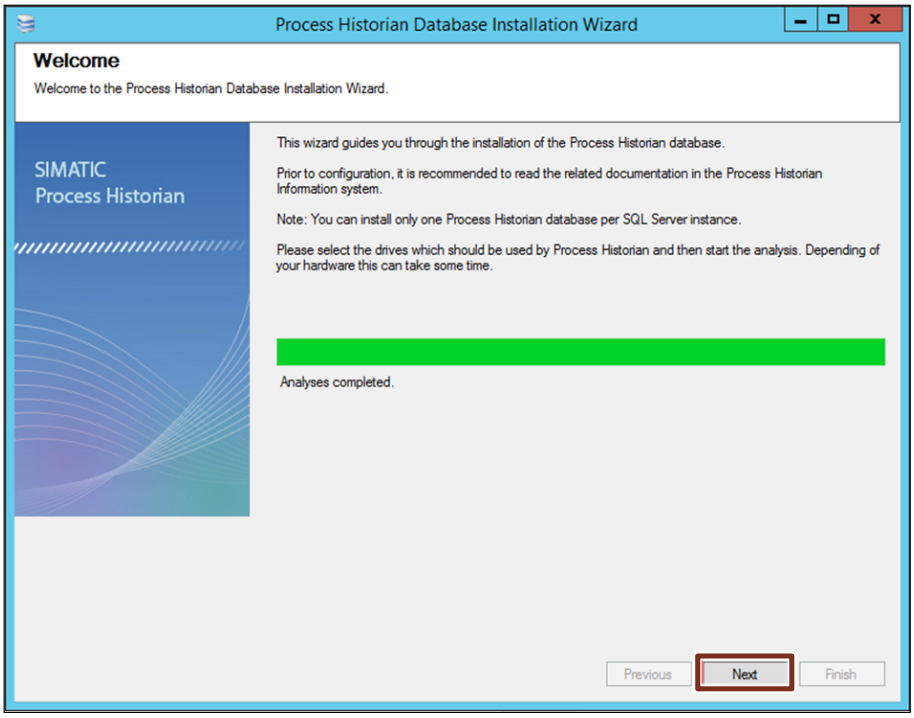
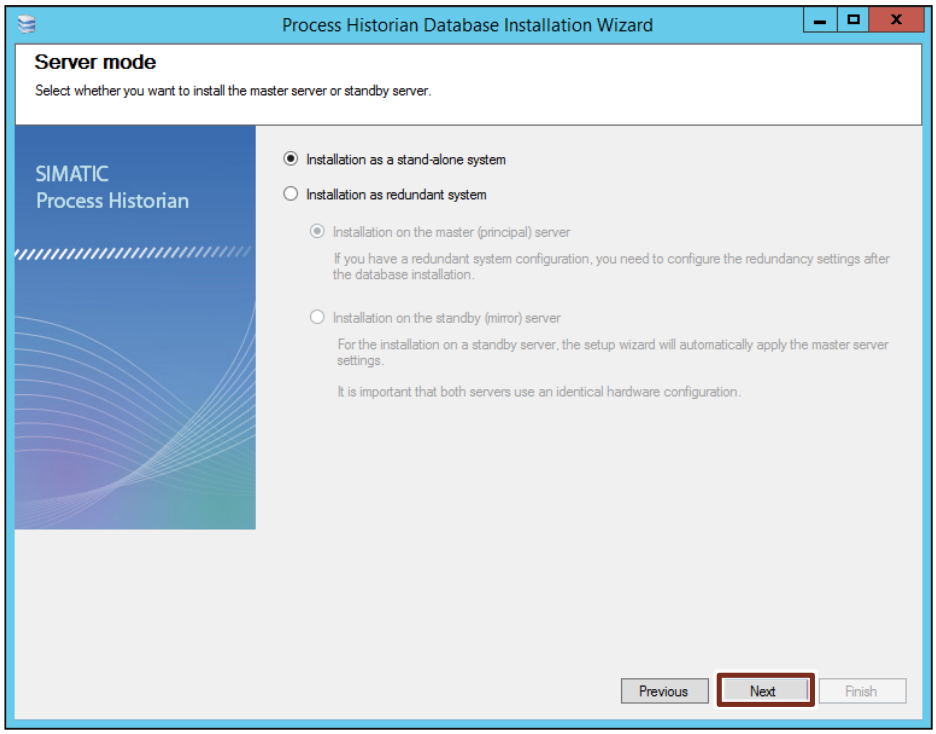
5. After the analysis has finished, click on “Next”.



6. Activate the "Installation as a stand-alone system" check box and click on the "Next” button.



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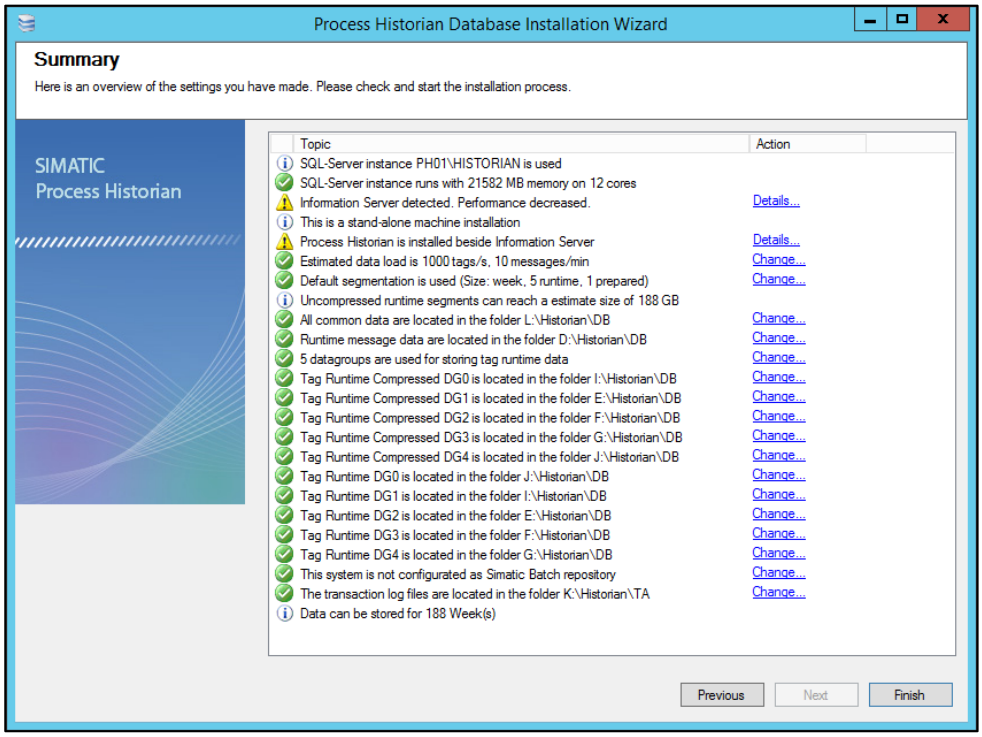
Result

A summary of your server's performance characteristics appears in an analysis overview. Leave this view open for further database hard disk settings.



Adaptation of the database hard disks

Determine the hard disks for archiving the data according to the RAID configuration (Section 3.2) in the analysis view of the "Process Historian Database Installation" wizard.

Note

For a better I/O performance of the Process Historian, the corresponding "Runtime" and "Runtime Compressed" sectors of a data group should be stored on different hard disks.

The target locations of the data according to the RAID allocation in Section 3.2:

Data	Path
Runtime Data Group 0, Compressed Data Group 3	D:\Historian\DB
Runtime Data Group 1, Compressed Data Group 0	E:\Historian\DB
Runtime Data Group 2, Compressed Data Group 1	F:\Historian\DB
Runtime Data Group 3, Compressed Data Group 2	G:\Historian\DB
Configuration data, General database data	I:\Historian\DB
Transaction logfile	J:\Historian\TA
SIMATIC BATCH data	K:\Historian\DB
Alarms and Operator Messages	L:\Historian\DB

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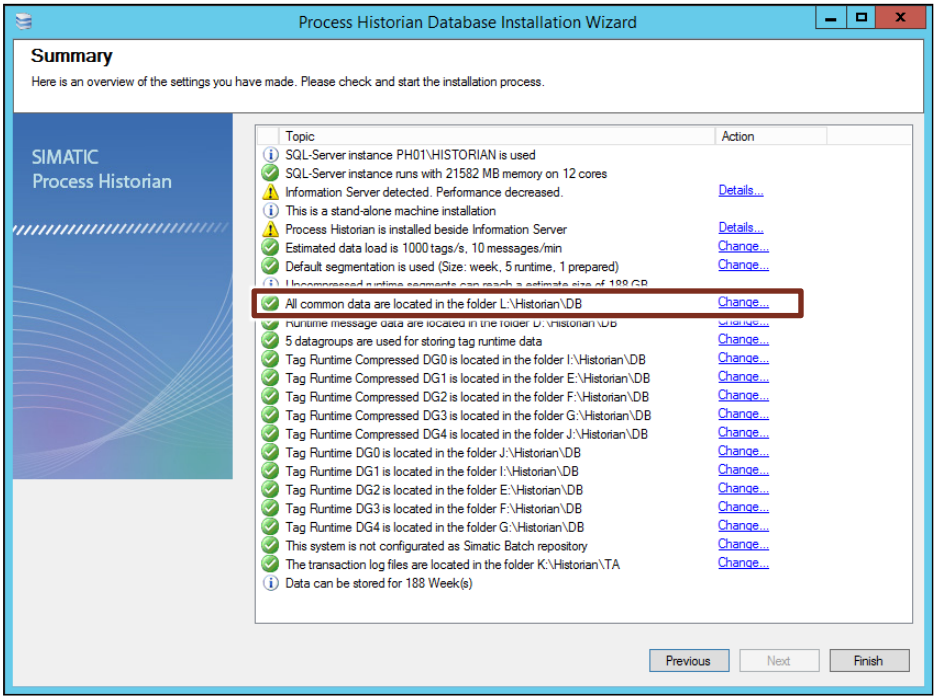
Specify the destination of the data as follows:

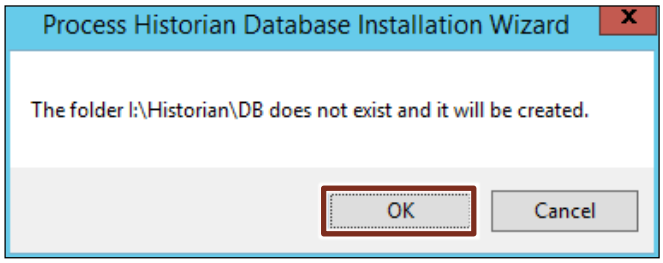
1. Open the settings menu of the respective data group via the "Change..." text button.



2. In the settings window, make the following configurations:

- Set the path for the transaction logfile according to the above table in the “Path for the transaction log file” text box.

  Confirm the prompt to create a new folder with the "OK" button.



- Activate the "Use server as Simatic Batch repository" option field.

  When the option field is activated, the data group quantity is reduced by one.

- Set the hard disks according to the above list for the different types of data.

  Select data types via the "Repository for" drop-down list:

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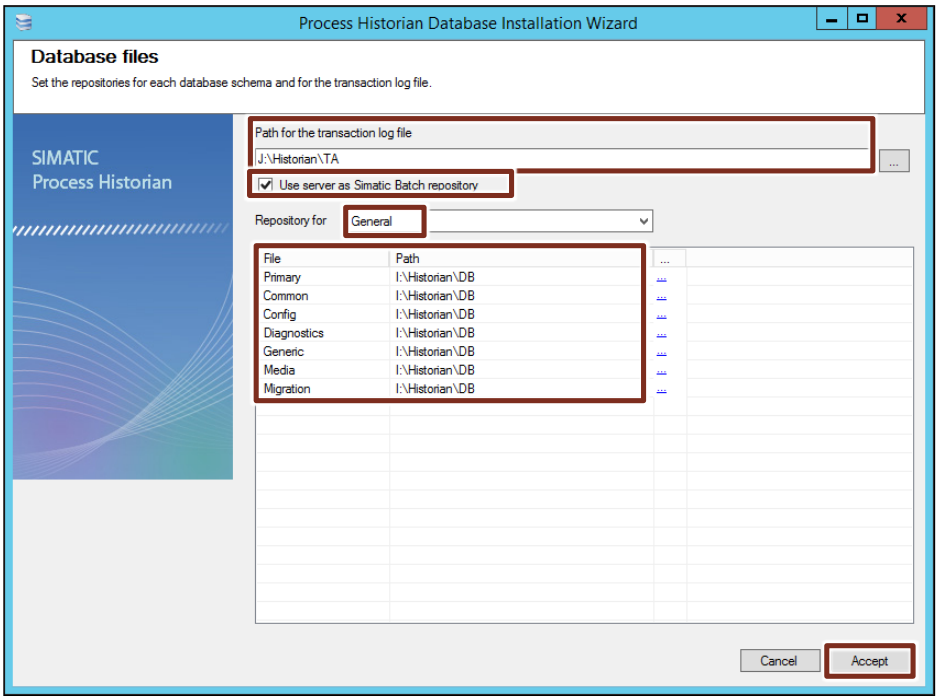
Values in the "Repository for" drop-down list	Data
"General"	Configuration data, General database data
"Process values"	Runtime Data Group 0 – 3, Runtime Compressed Data Group 0 – 3
"Messages"	Alarms and Operator Messages
"Batches"	SIMATIC BATCH data



3. Exit the settings window with "Accept". The "Summary" values are displayed.

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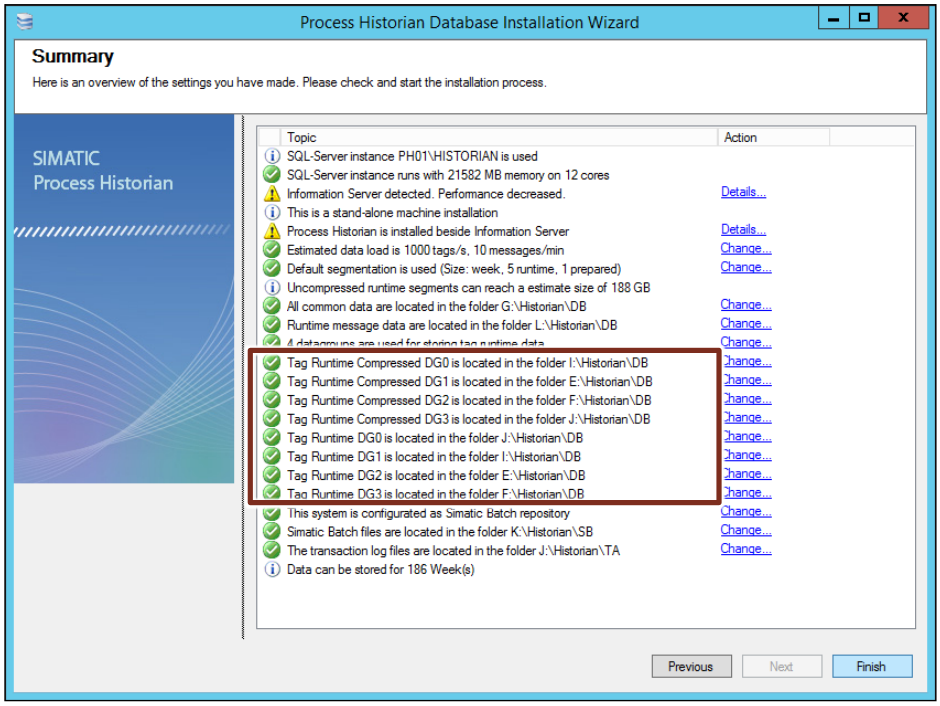

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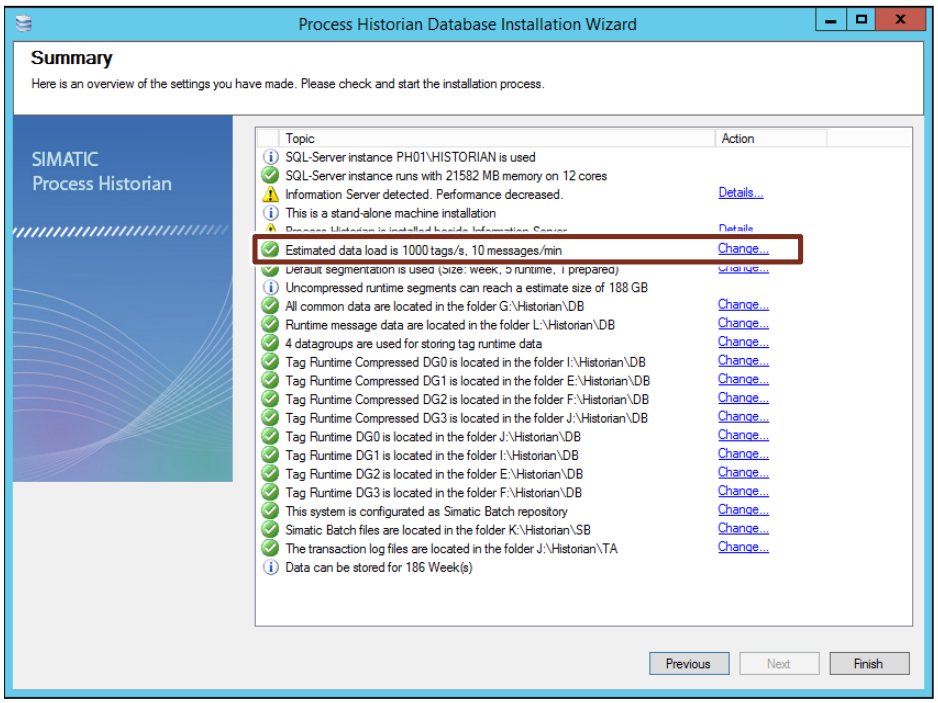
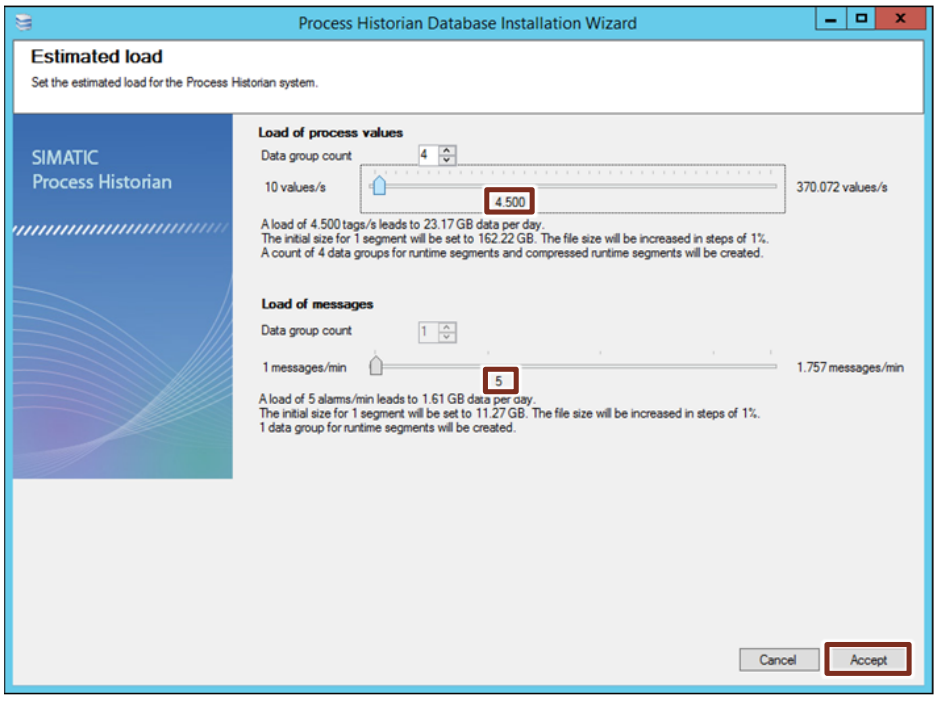
4. Open the settings menu "Estimated data load" by clicking on the "Change..." button.



5. Adjust the expected data volumes for process values and messages and confirm with "Accept".



Note If you have only one hard disk for storing the process values, you cannot actuate the "Data group counter" setting.

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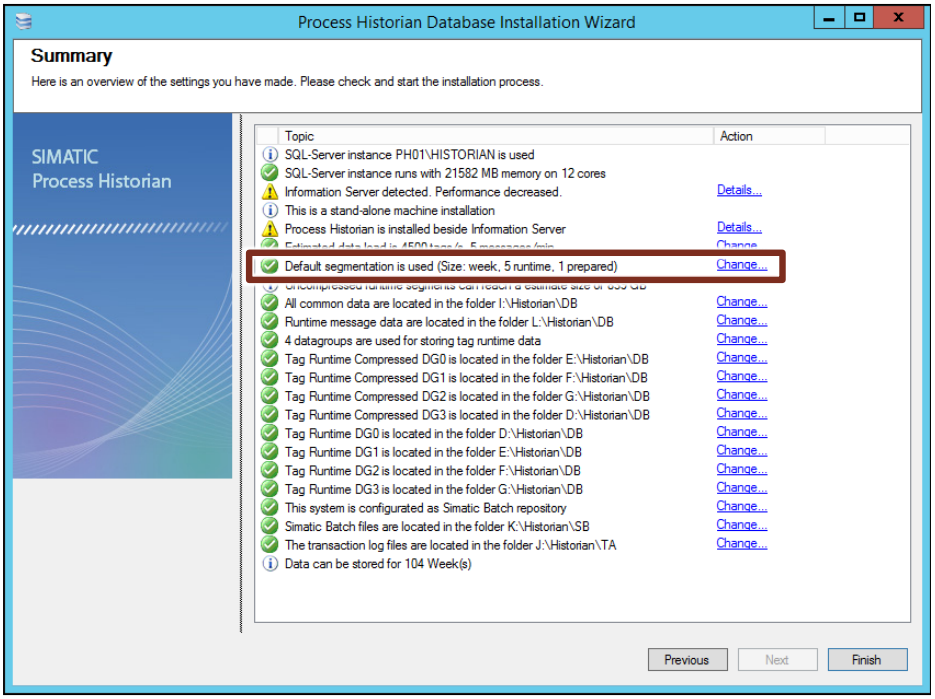
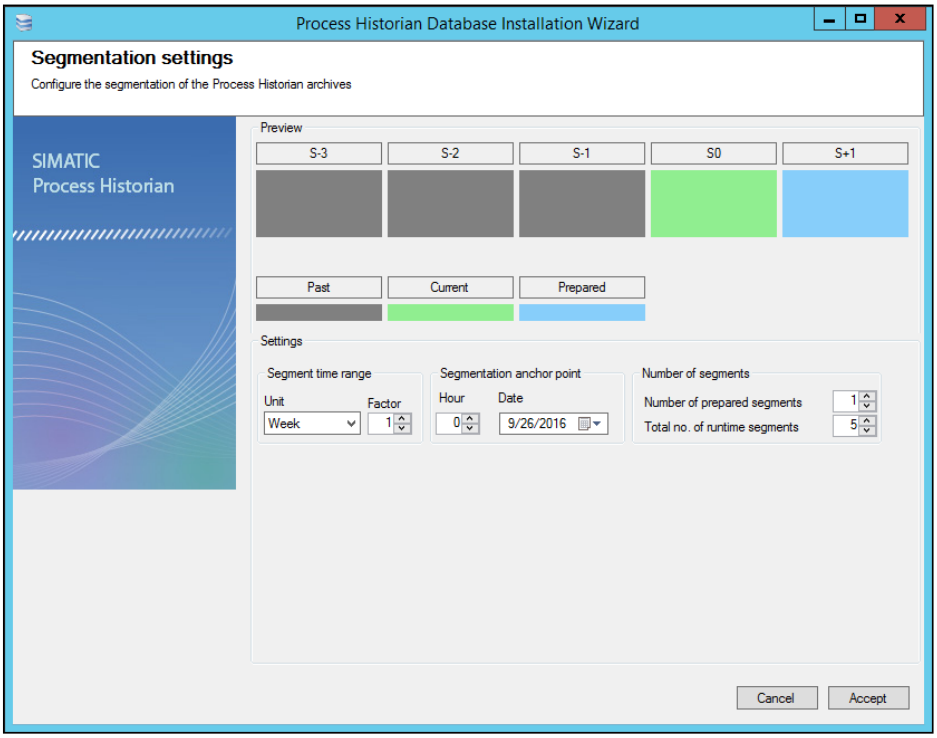
6. No changes to the segmentation settings are necessary. Use the segmentation default setting.





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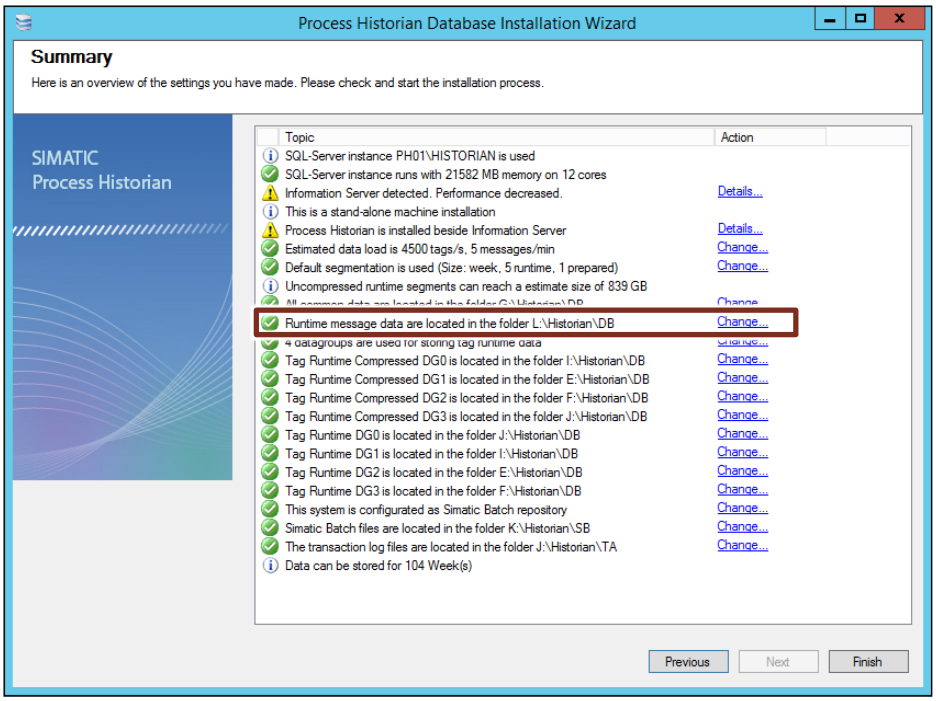
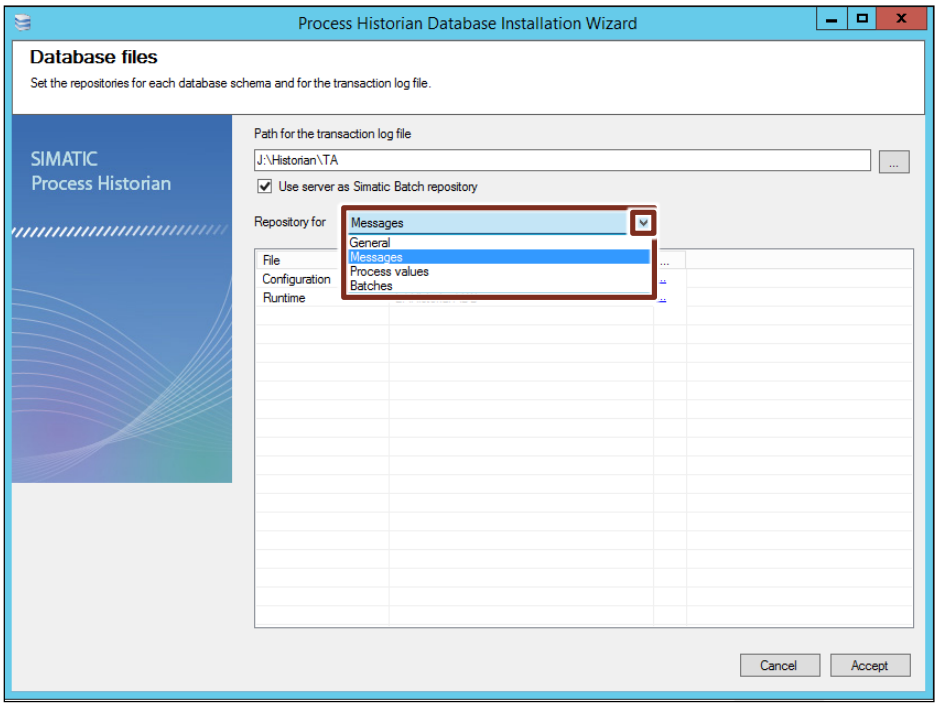
7. Define the repository for the messages, process values and batch data with the setting "All Runtime messages are located in the folder" by clicking on the "Change..." button.



8. To change the repository of messages, process values, and batch data, use the drop-down list.



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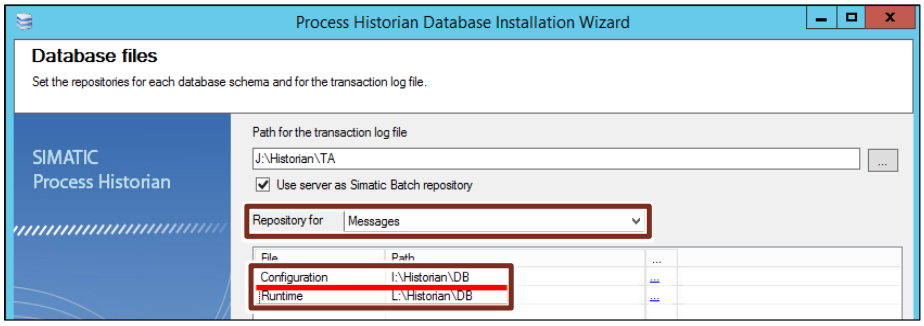
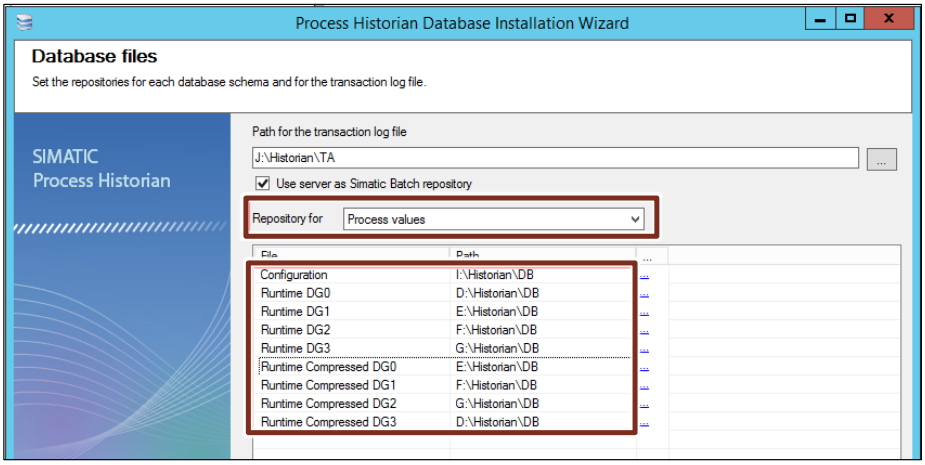
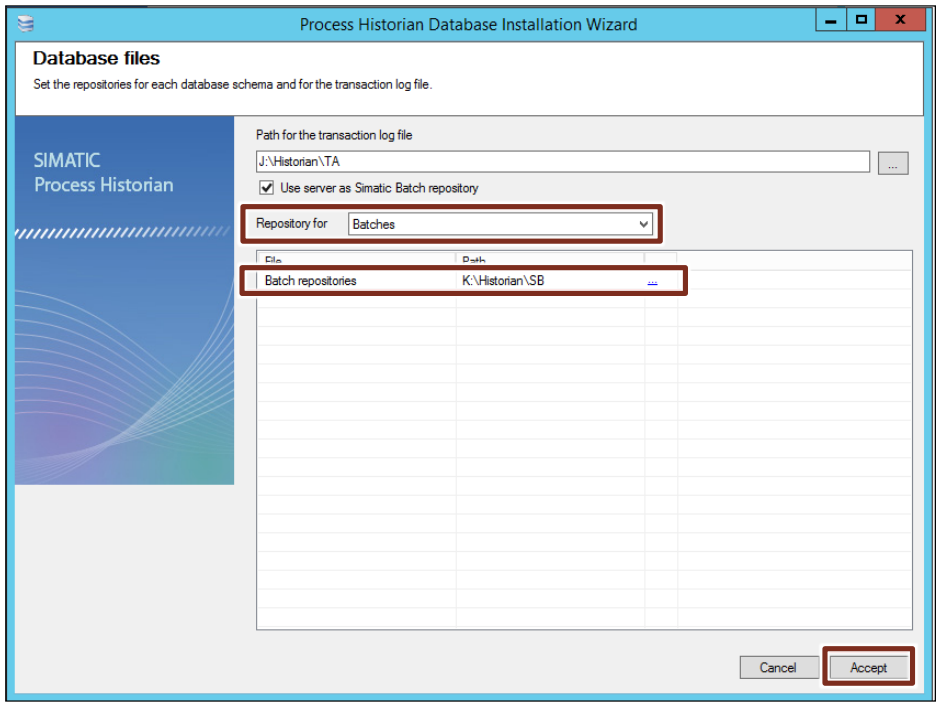
9. Define the repository for the messages.



10. Define the repository for the process values.



11. Define the repository for the batch data.



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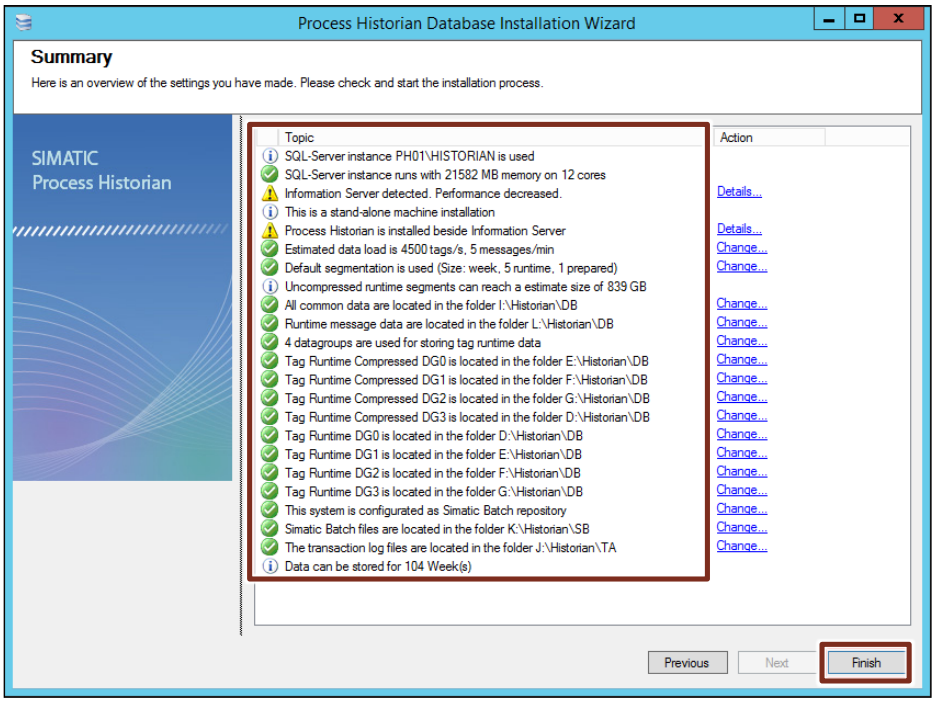
12. Verify that all settings are correct and create the database by clicking on the “Finish” button.



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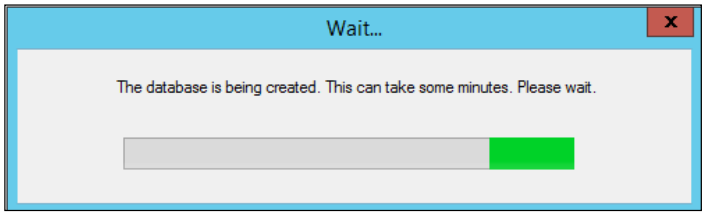
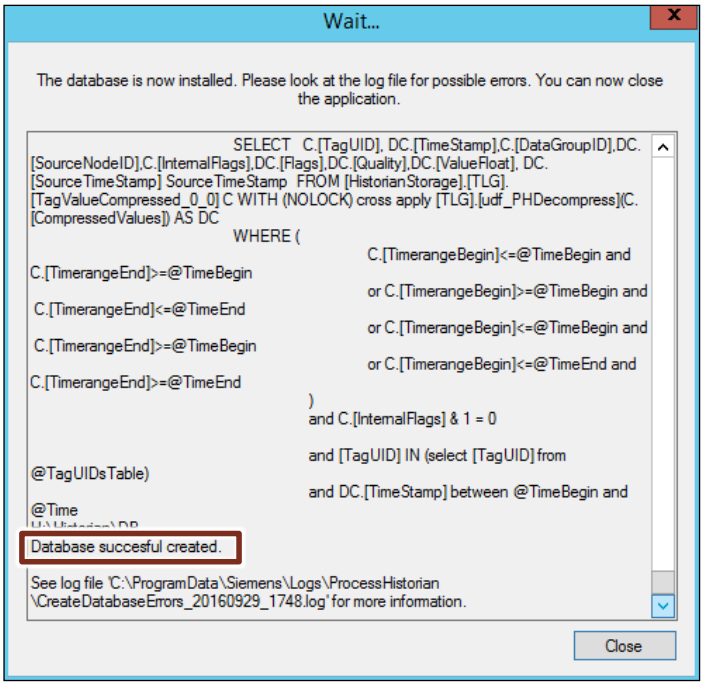
Result

The database is created. This can take several minutes.

When finished, restart the Process Historian.





Note After creating the database, you ought to check the file system and the repository to see if this has been done according to your settings.

Use of the classic database Installation Wizard

Note The classic database Installation Wizard should only be used by experienced system administrators and then, only in exceptional cases.

Since Process Historian 2014 SP2, the Database Installation Wizard examines the server's hardware and makes suggestions for data distribution.

These suggestions depend on the number of hard disks, free hard disk space, and other configuration settings.

In exceptional cases, a manual definition of the data distribution may be necessary, e.g. if more data groups are required than hard disks are present.

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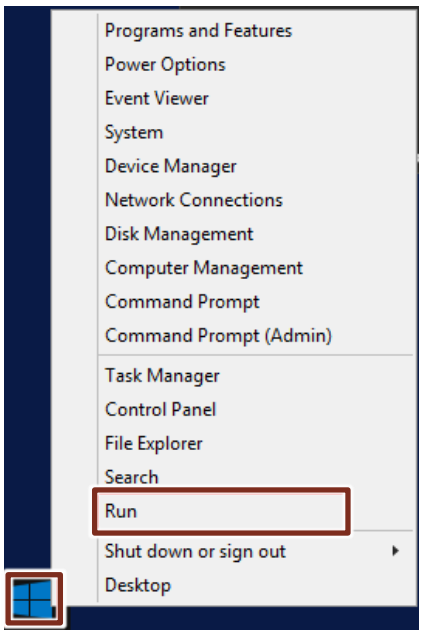
Procedure

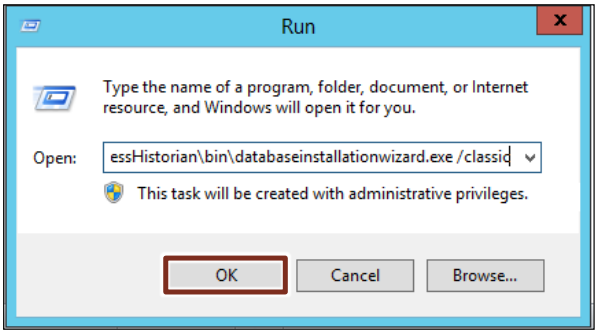
1. Start the Run box from the Windows Start menu



2. Start the classic mode of the Database Installation Wizard from the Run box. To do this, enter the following command:

   “C:\Program Files\SIEMENS\ProcessHistorian\bin\DatabaseInstallationWizard.exe/classic”

3. Confirm your entry with "OK".



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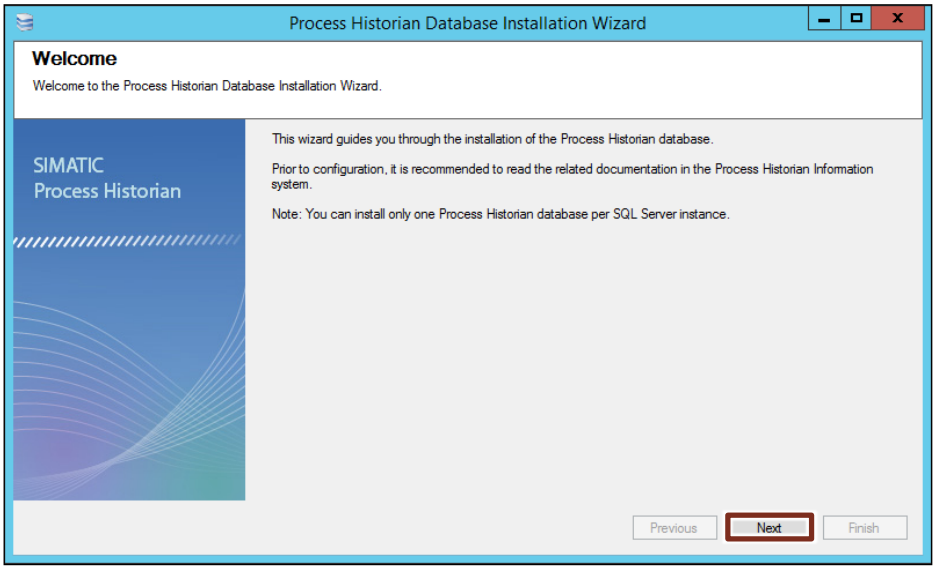
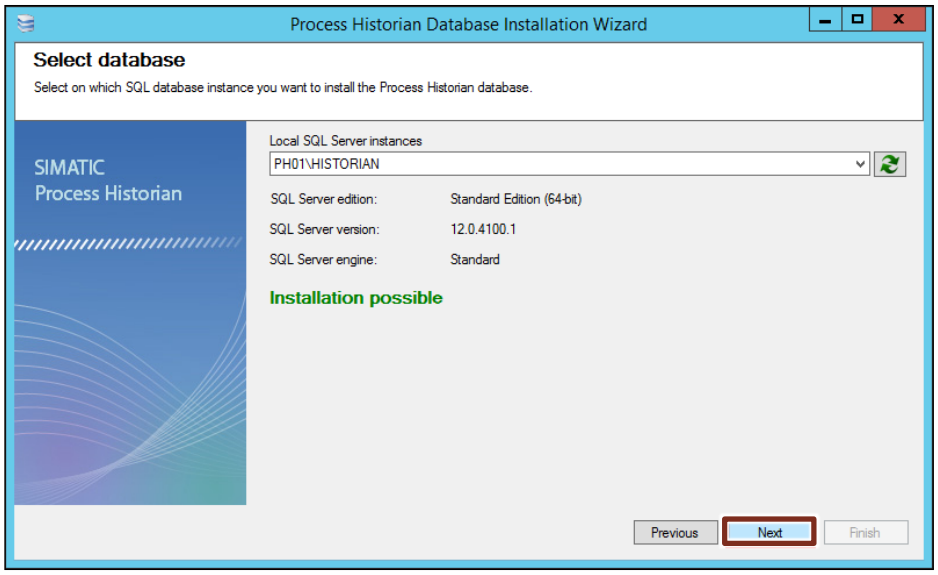
4. After starting the wizard, confirm with the "Next” button.



5. Click on the "Next” button.



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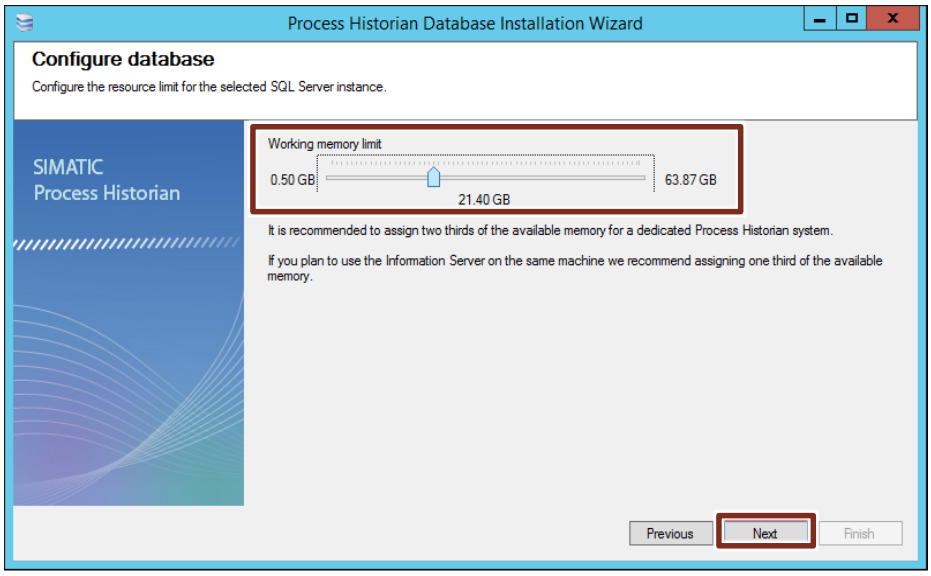
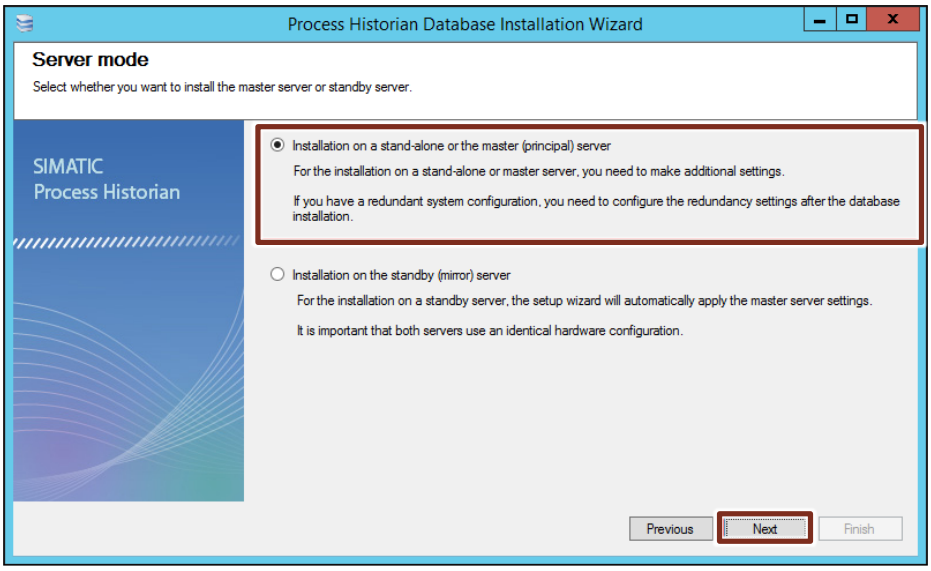
6. Specify the usable memory for the Process Historian.



Note For the SQL server, the amount of random access memory to be used can also be set in the SQL Management Console.

7. Activate the "Installation on a stand-alone or the master (principal) server" check box and click on the "Next" button.



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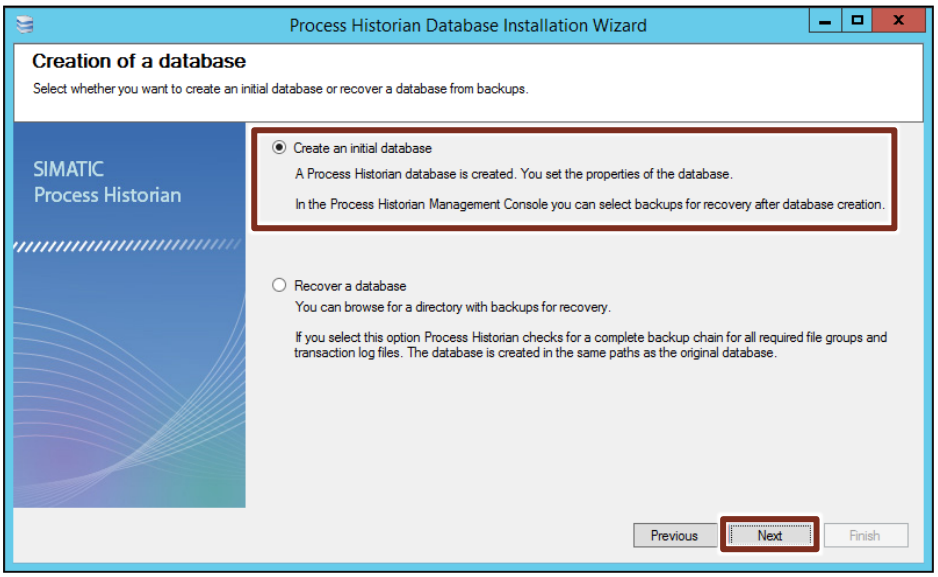
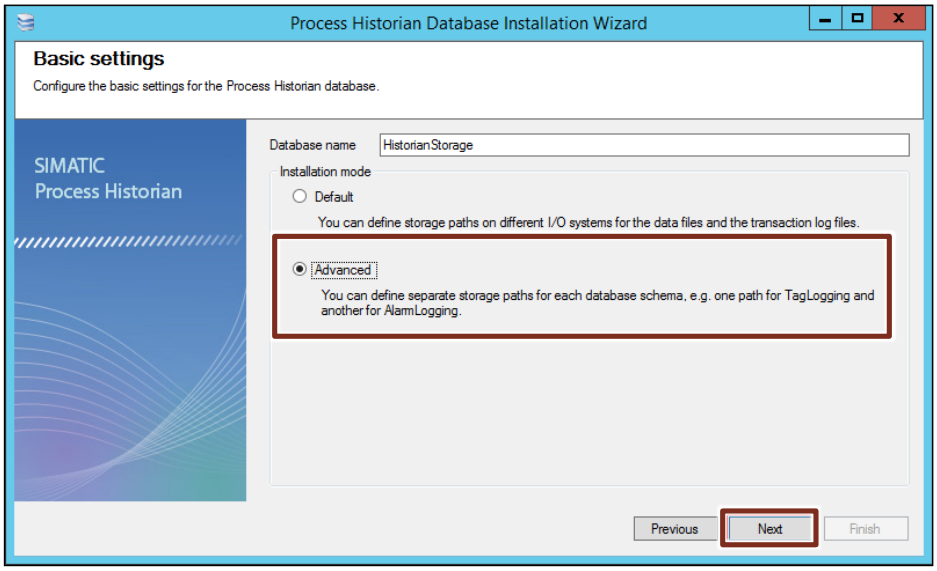
8. Activate the "Create an initial database" check box and click on the "Next" button.



9. Activate the "Advanced" check box and click on the "Next" button.



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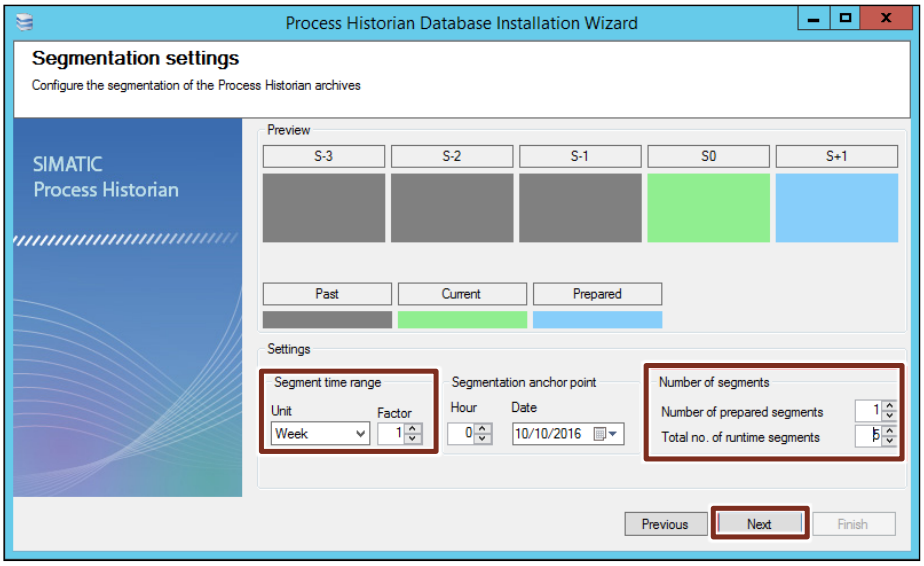
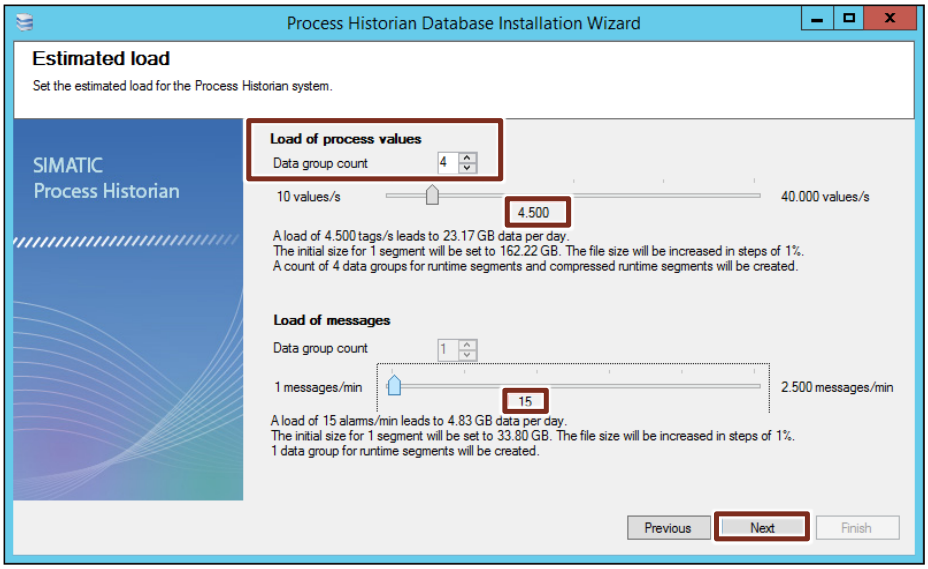
10. Define the segmentation settings and click on the "Next" button.



11. Specify the amount of data groups, process values and messages, and click on the "Next" button.



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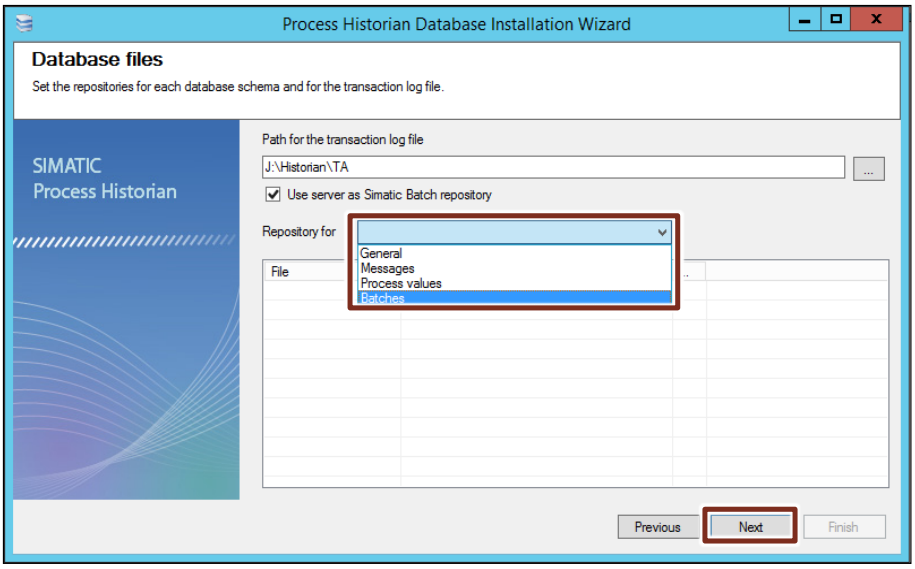
12. Determine the repository for process values, messages and batch data as described in Section 4.6



13. Create the database by clicking on the “Next” button.

Result

The database is created. This can take several minutes.

When finished, restart the Process Historian.

Note After database has been created, you ought to check the file system and the repository to see if this has been done according to your settings.

4.8 Configuring the PH redundancy service

For information on redundant Process Historian servers and the use of a Witness Service component, please refer to the manual "Process Historian: Administration".

Even if you do not use a redundant Process Historian, the PH Redundancy Service is installed.

If the Service Configuration Wizard appears after the PH restart, perform the following steps:

1. When the "Welcome" screen appears, click on the "Next" button.

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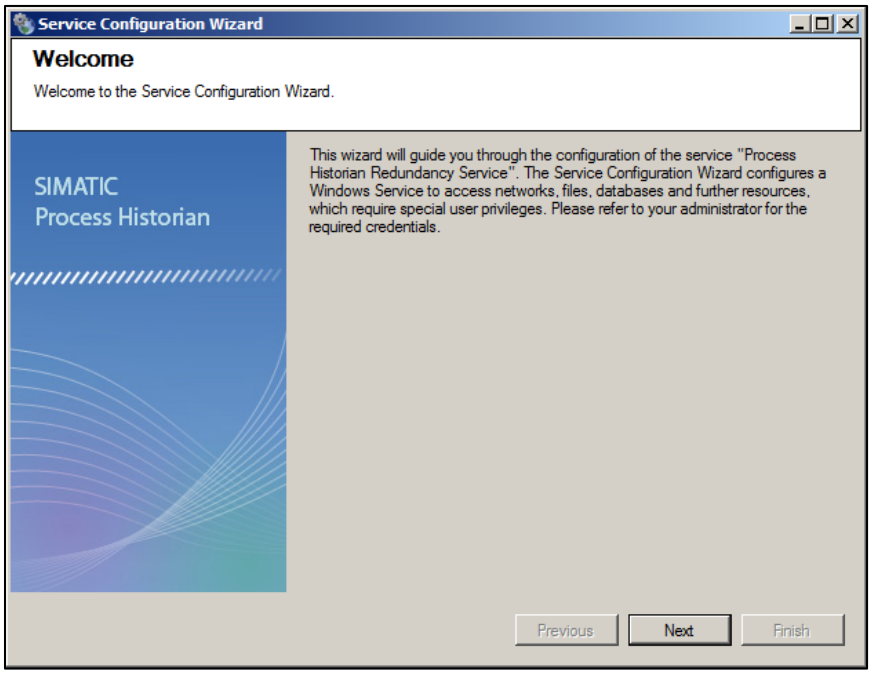

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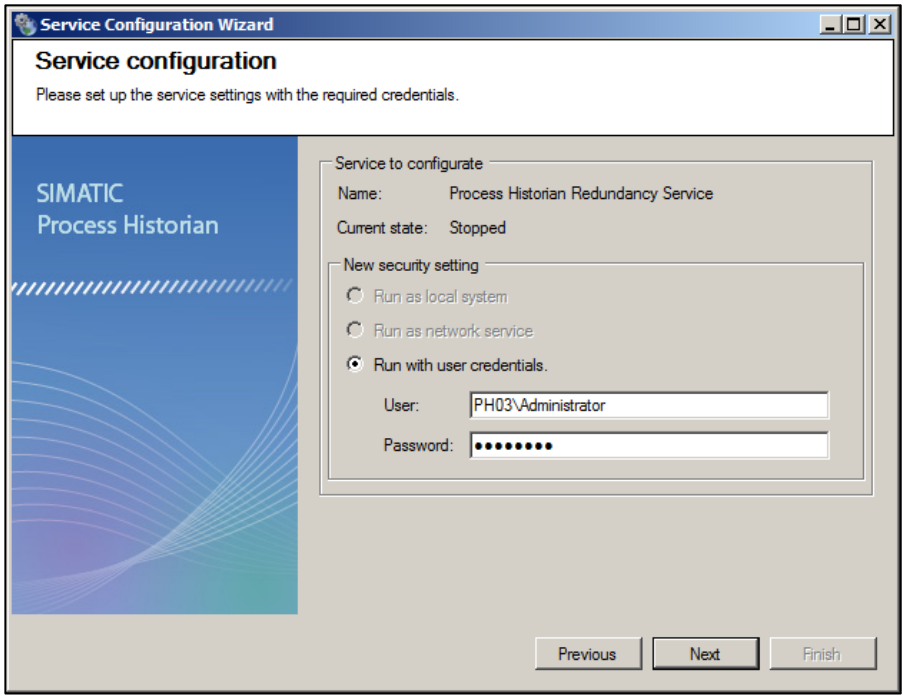
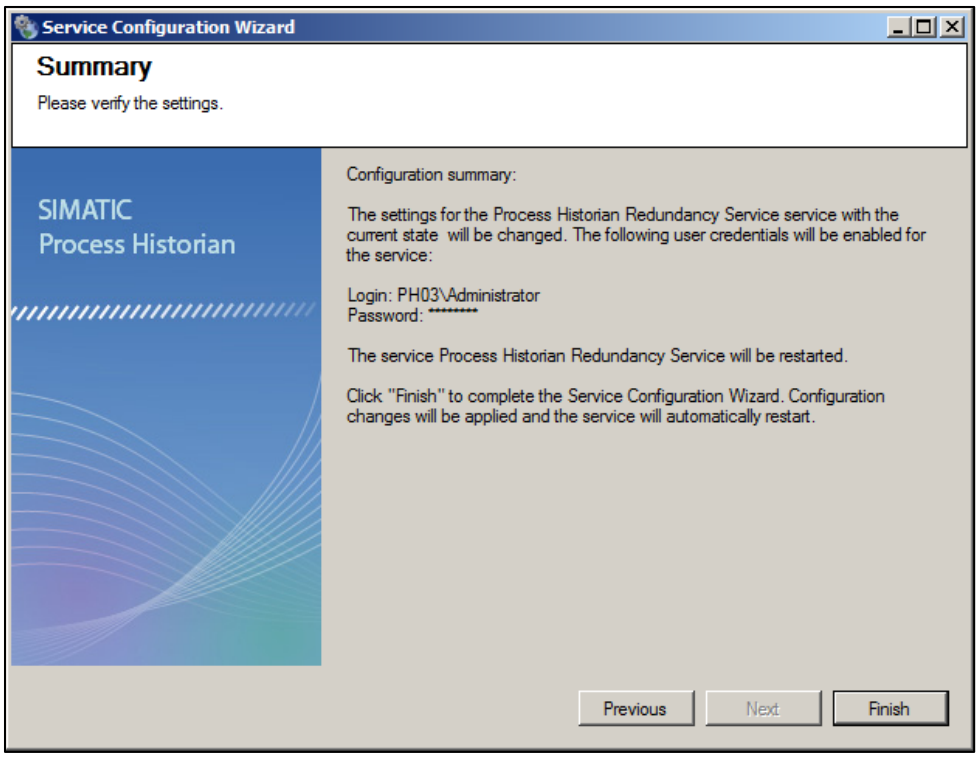
2. Enter the user name and password for the SIMATIC Process Historian Redundancy Service. It is recommended to use the same user name and password as for the installation of the PH and IS and the OS systems if possible. Click on the "Next" button.



3. Click on the "Finish" button.



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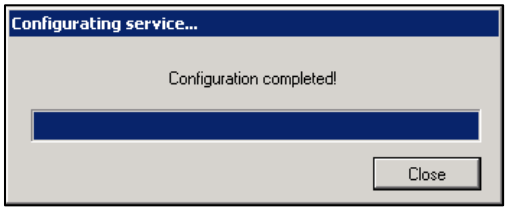
4. Click on the "Close" button to close the configuration window.



Result

The "PH Redundancy Service" service has been configured.

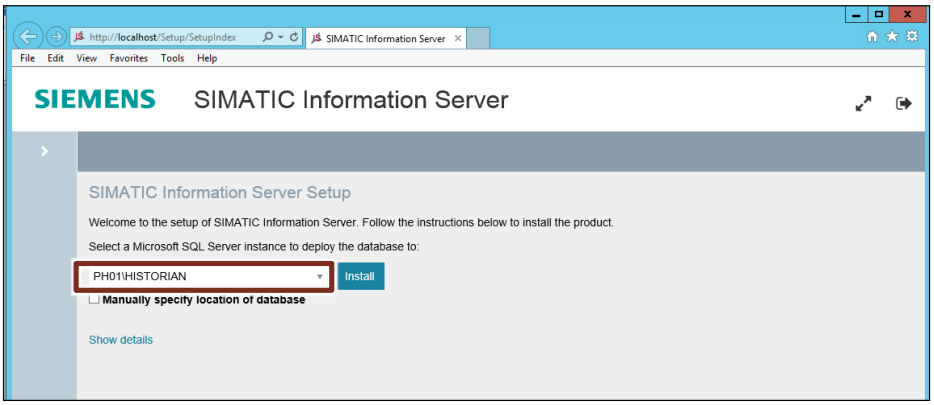
4.9 Installation of the Information Server within Internet Explorer

Note:

From information server version 2014 SP2 onwards, you have the option to run the information server database on a dedicated drive.

You can perform this setting after successful installation of the Information Server and the SIMATIC Web Configurator:

1. Open Internet Explorer 11 with Administrator rights.
2. Enter the URL: http://localhost
3. For the combined operation of Process Historian and Information Server, select the SQL Server instance "HISTORIAN".



Note For an information server installation without a Process Historian installation, select the server instance "INFSERVER".

4. Select option “Manually specify location of database”.
5. Specify the hard disk and the storage location of the information server database.

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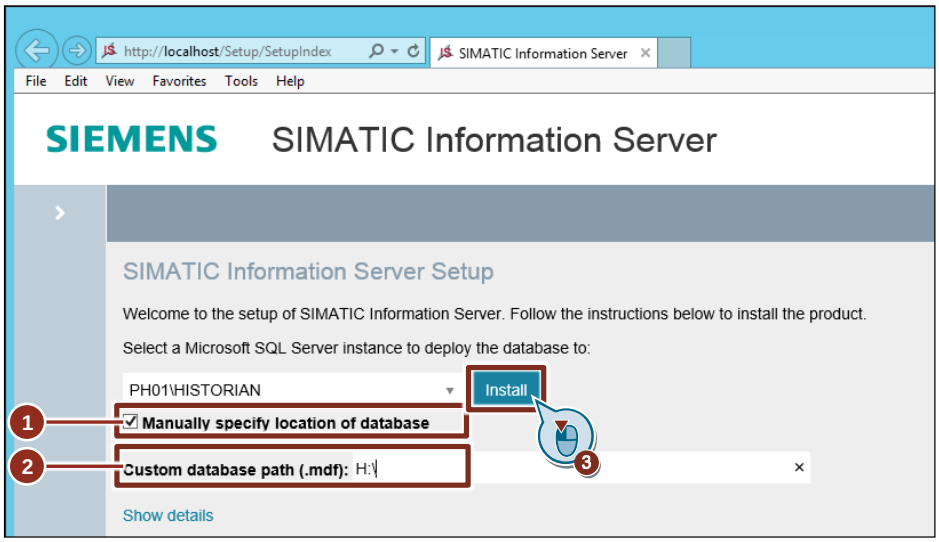

6. Start the installation with the “Install” button.

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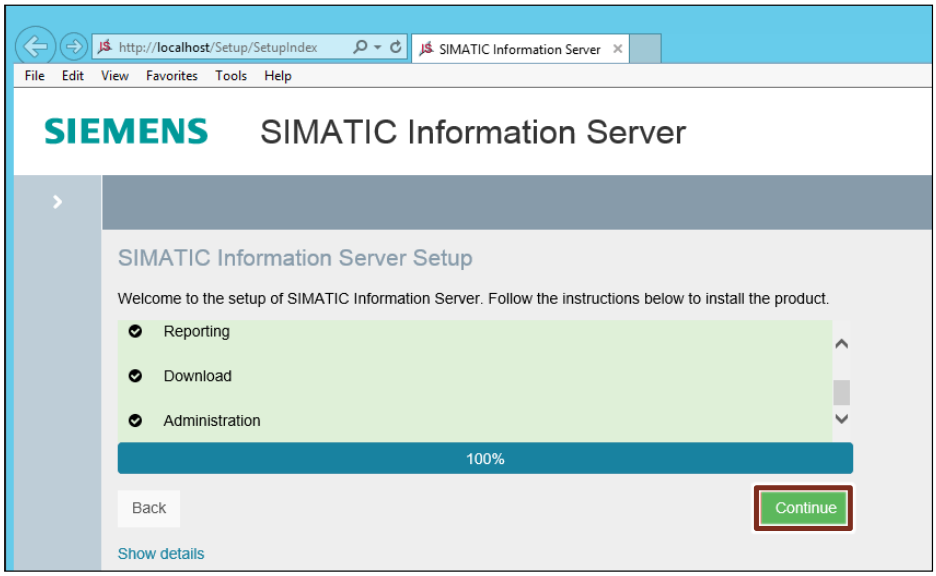
7. Wait until the installation is complete. Conclude installation with the “Continue” button.



Result

Setup has completed successfully.

To use the information server, you must connect it to the Process Historian as a data source:

1. Open the “Administration” menu in the information server.
2. Activate the option "Process Historian".
3. Enter the server name of your Process Historian.
4. After entering the server name, select the project. To do this, click on the “Select projects” button.

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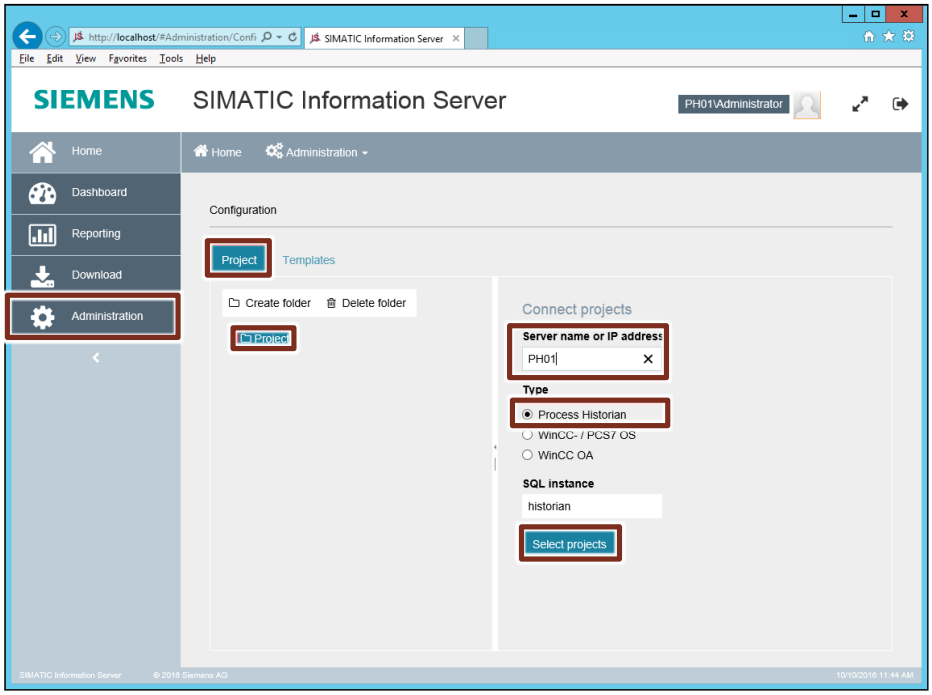
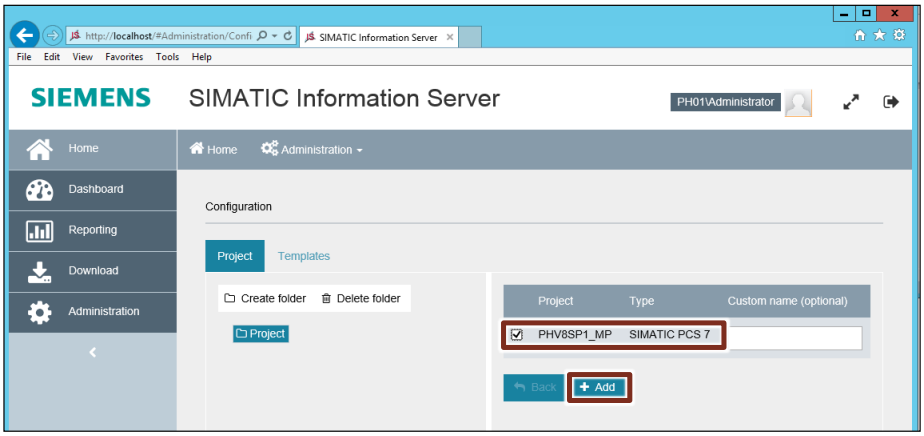


5. Highlight your project and add it to the project list. To do this, click on the “Add” button.



Result

The Information Server is now connected with the Process Historian.

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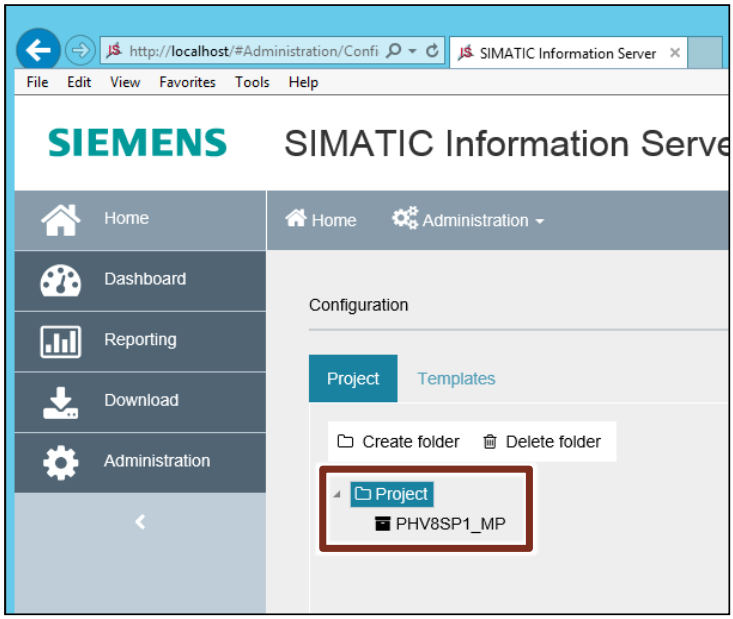
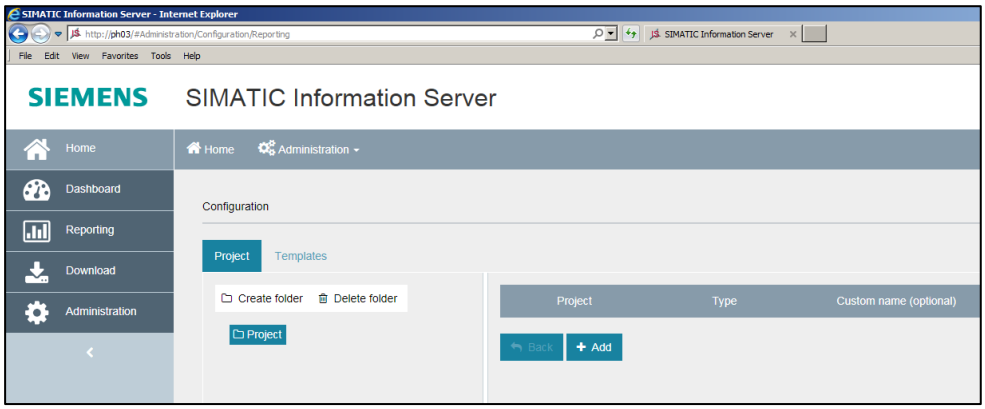


Note:

To connect a Process Historian project to the Information Server, the Process Historian must have received data from an OS system. Otherwise, the project list is empty.



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4.10 Installing an Information Server client

4.10.1 Web Information Server Client installation

When using an Internet Explorer-based IS client, no further installations are required. Internet Explorer 11 is a system requirement and the necessary IE settings have to be made.

4.10.2 Installing an MS Office IS client

Requirements

The following software must already have been installed:

- A suitable version of Microsoft Office containing the applications Word, PowerPoint and/or Excel must be installed.
- Microsoft.NET Framework 4.0
- VSTO (Visual Studio Tools for Office)

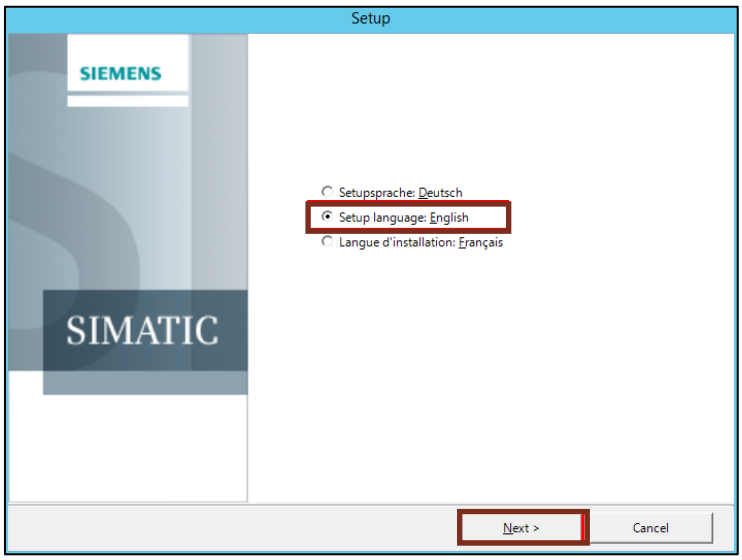
The IS 2014 supports the following Office versions:

Table 4-1

Product	Remarks
Microsoft Office 2007 SP3	32-bit
Microsoft Office 2010 SP1	32-bit
Microsoft Office 2013	32-bit

Installation with the help of the PCS 7 DVD setup

1. Insert the PCS 7 V8.2 DVD 1/2.
2. Start the "Setup.exe" setup program.
3. Select the setup language and click on the "Next" button.



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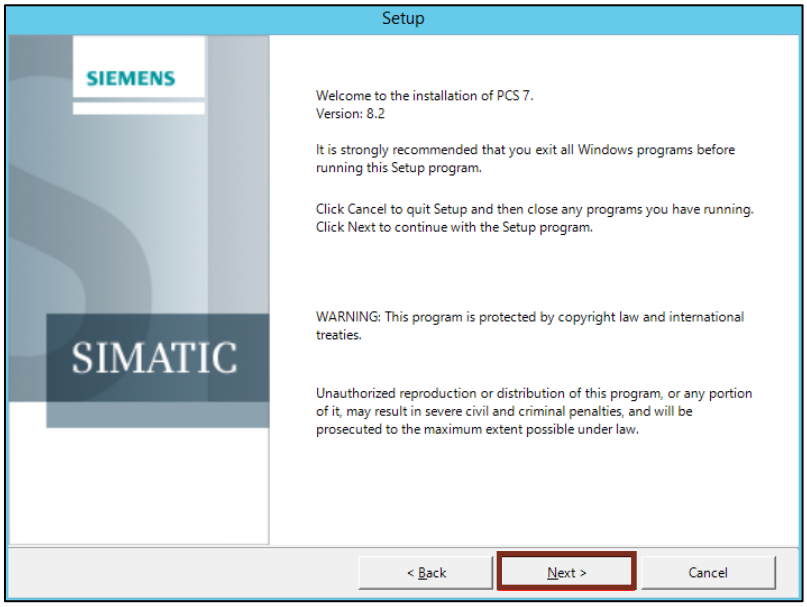
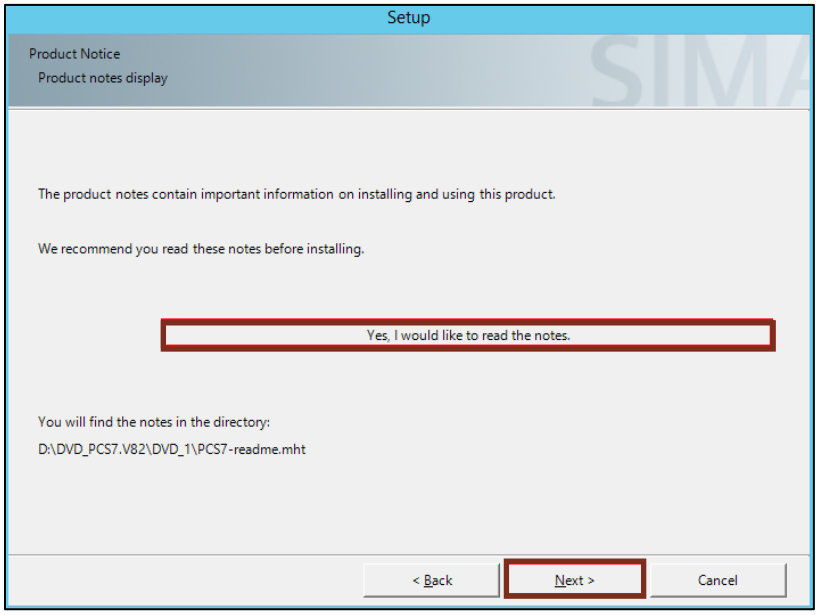
4. Click on the "Next" button.



5. Read the PCS 7 readme information and then click on the "Next" button.



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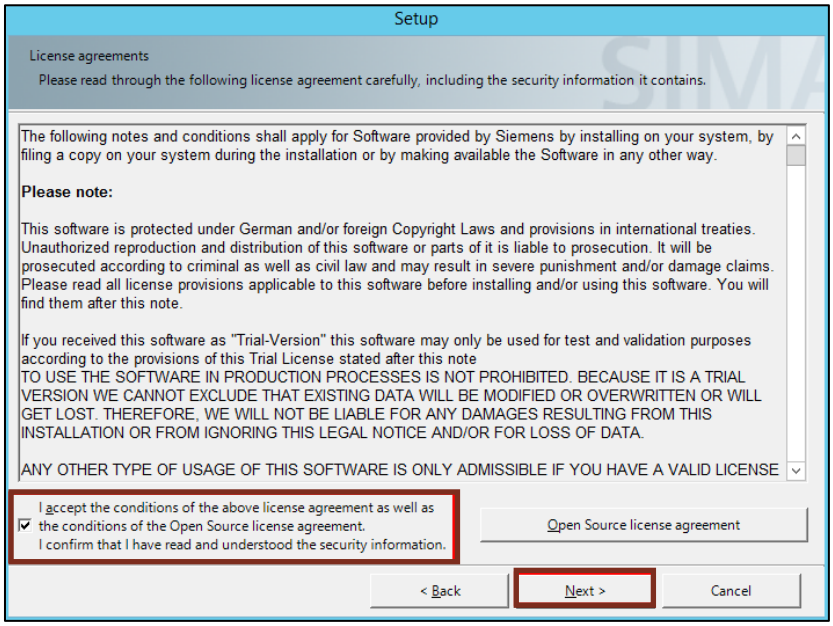
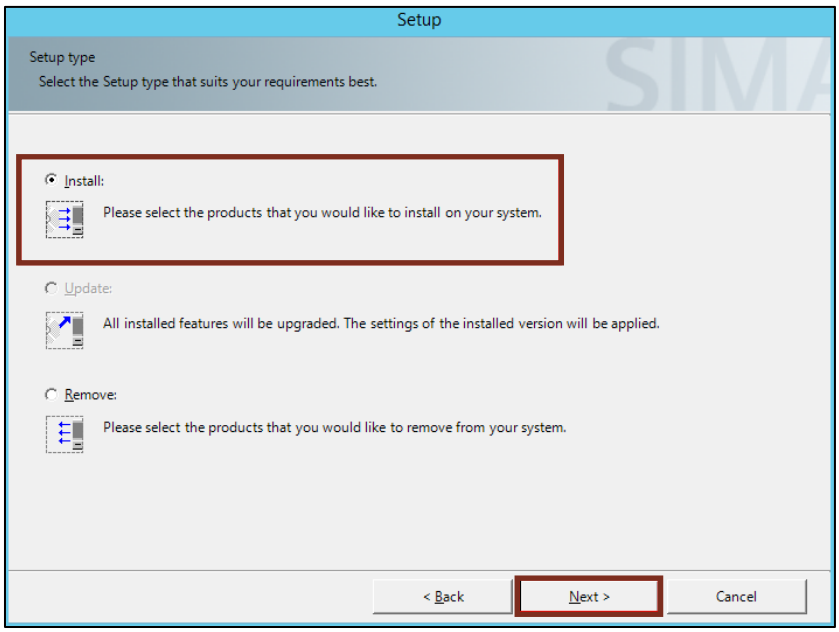
6. Accept the license conditions and click on the "Next" button.



7. Select "Install" and click on the "Next" button.



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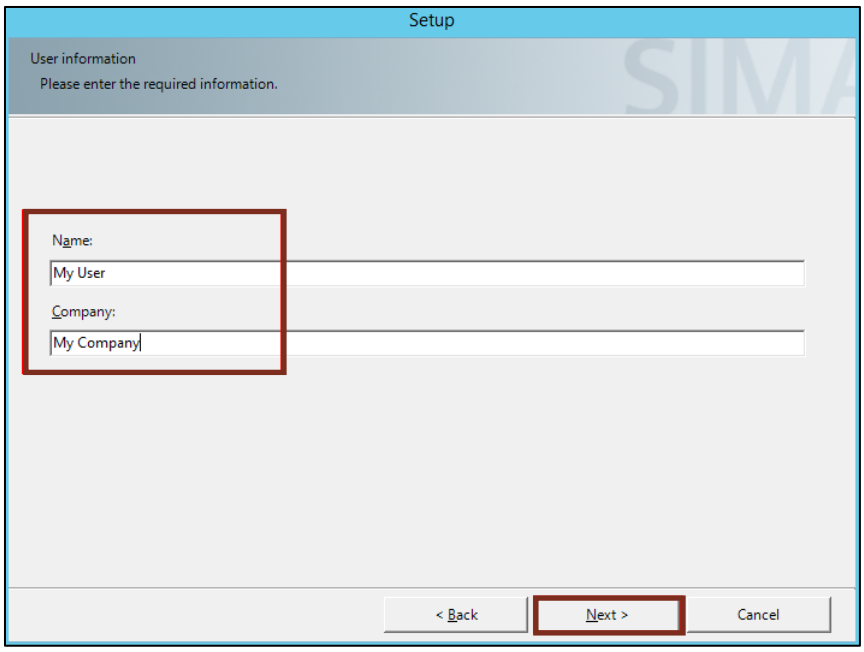
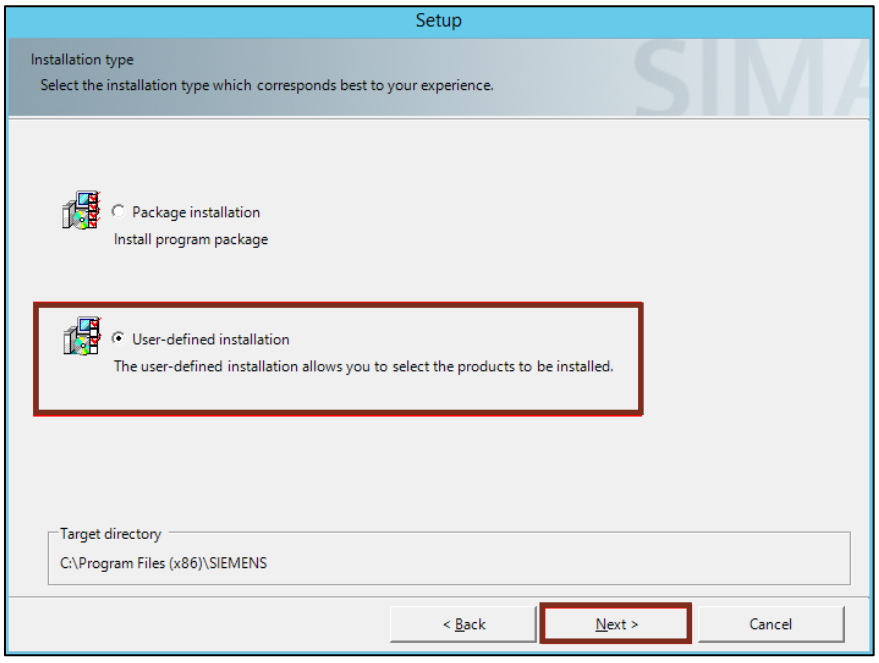
8. Enter the name and company in the input fields "Name" and "Company" and click on the “Next” button.



9. Activate the "User-defined installation" check box and click on the "Next” button.



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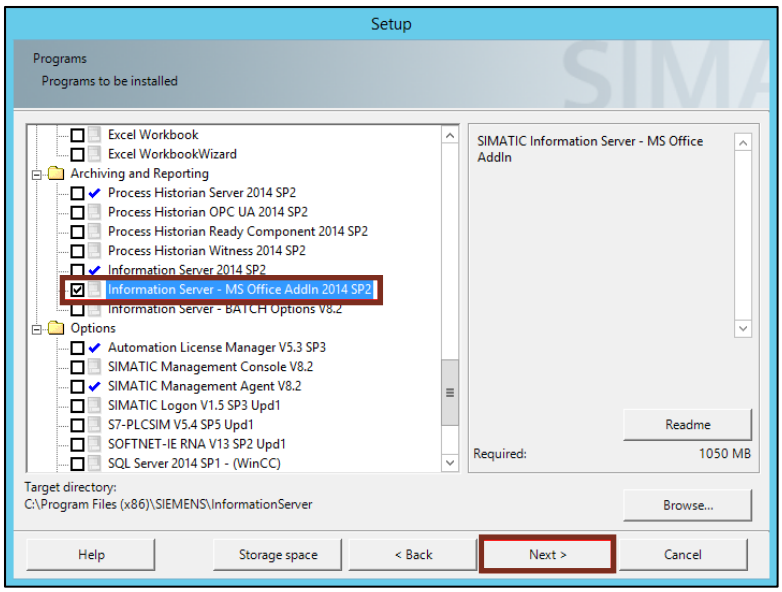
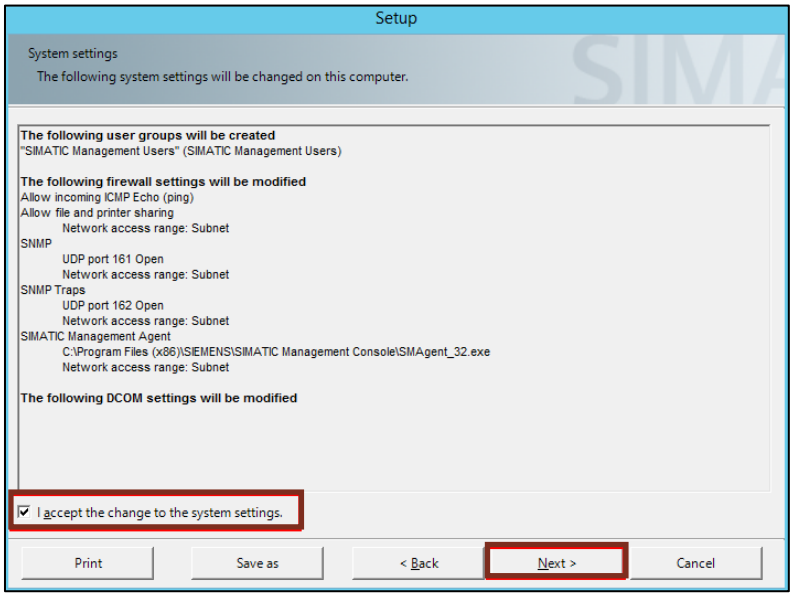
10. Activate the "Information Server – MS Office Add-In 2014" check box and click on the "Next" button.



11. Accept the system modifications and click on the "Next" button.



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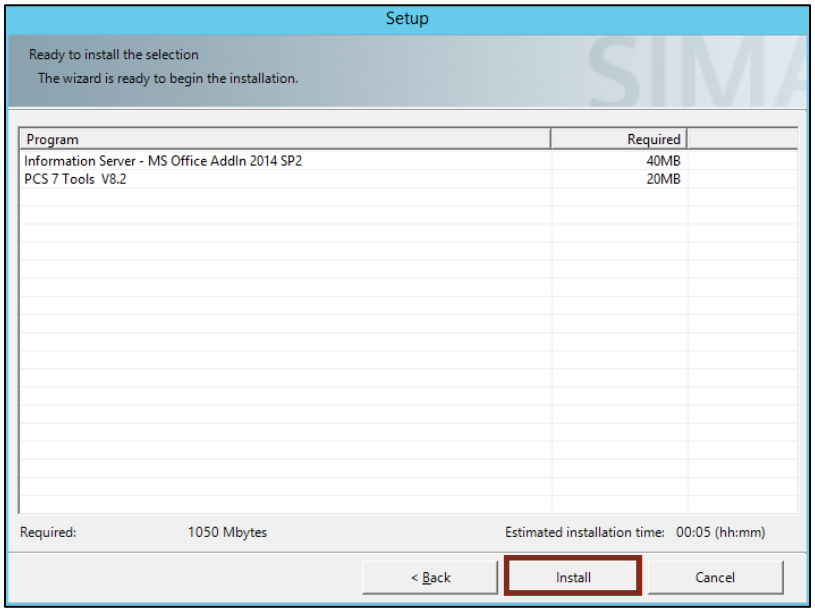
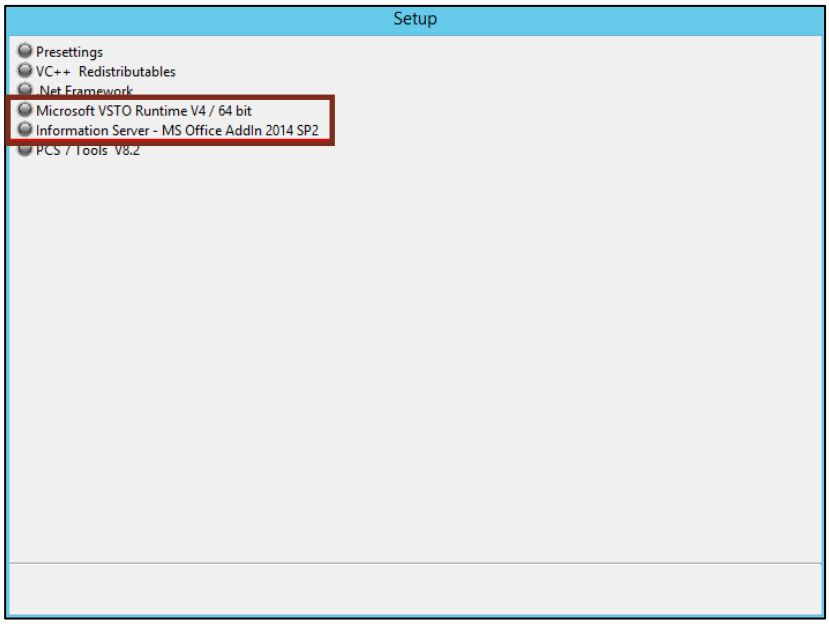
12. Start the installation by clicking on the “Install” button.



The IS Office Add In and VSTO Runtime are installed.



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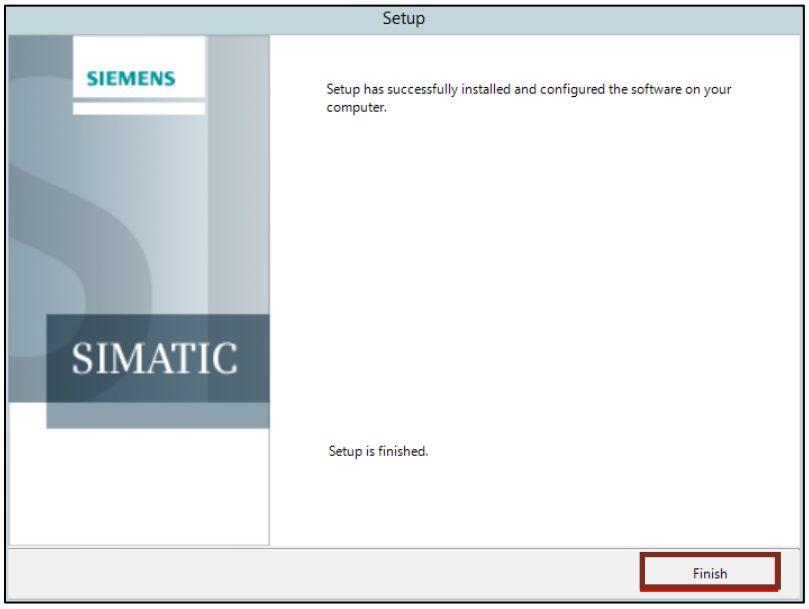
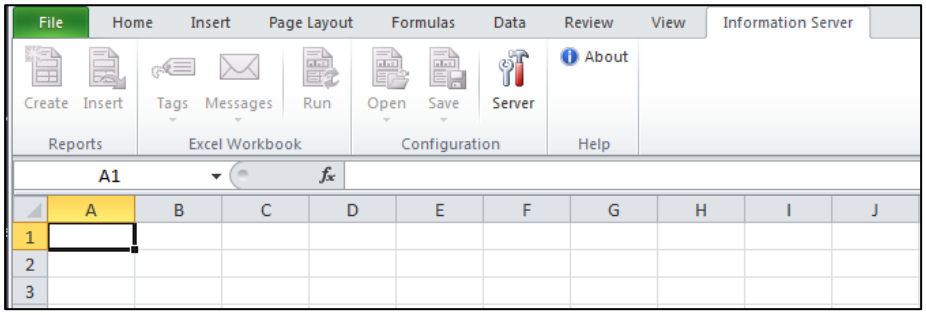
13. Insert - if necessary - the PCS 7 V8.2 DVD 2/2 and click on the "OK" button.
14. Click on the "Finish" button.



The Information Server menu is now available e.g. in MS Excel.



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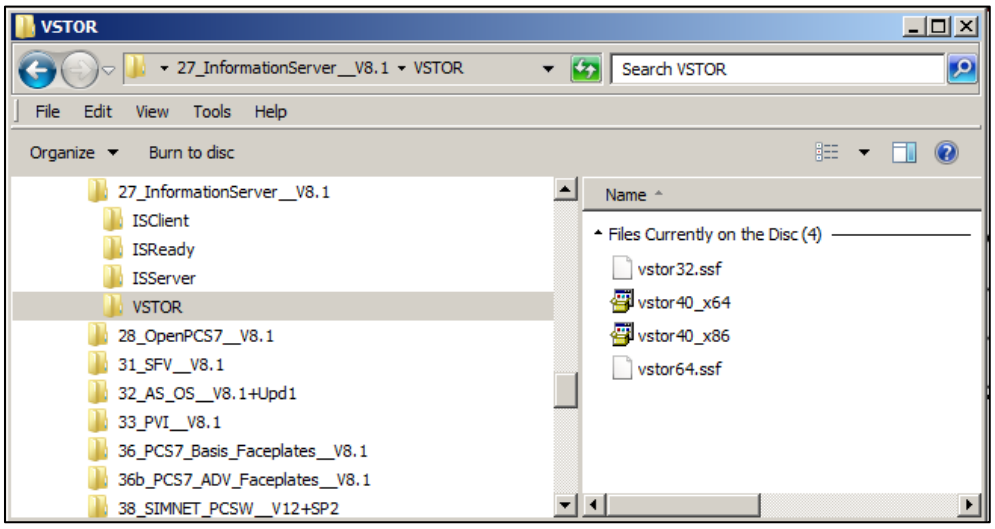
Installing using the IS

- Installation of MS Office
- VSTO installation from the PCS 7 DVD

  Two installation versions are available:
  - vstor40_x86.exe -> for 32-bit operating systems
  - vstor40_x64.exe -> for 64-bit operating systems

  You can find the setup program in the folder "<DVD 2/2>:\27_InformationServer__V8.2\VSTOR" on the PCS 7 DVD 2/2.

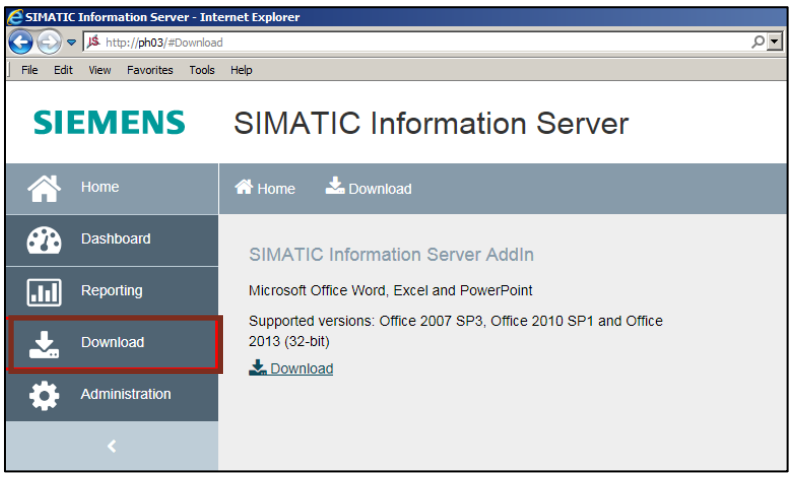


  If necessary, install Microsoft.NET Framework 4.0.
  You will find Microsoft.NET Framework 4.0 on the PCS 7 DVD 1/2 under the path: "08_DotNetFramework\ NDP451-KB2858728-x86-x64-AllOS-ENU.exe".
  See also section 2.3.2: Requirements for the Office IS client.

  Start installation by double-clicking on the file and follow the installation instructions.

Installation of the MS Office Add-in using the Information Server

1. Open the "Download" menu in the IS. Click on the "Download" link.



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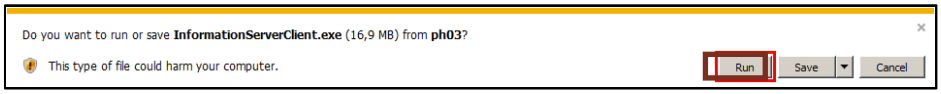
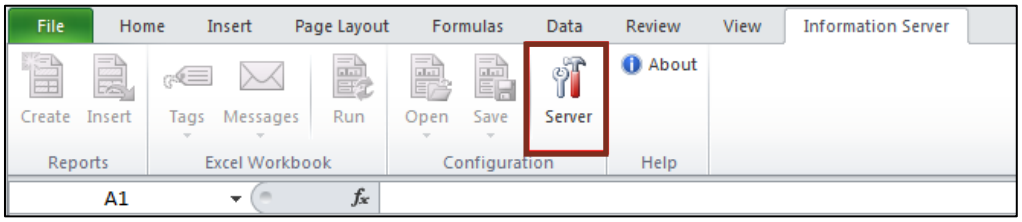
2. Click on the "Run" button and follow the installation instructions.

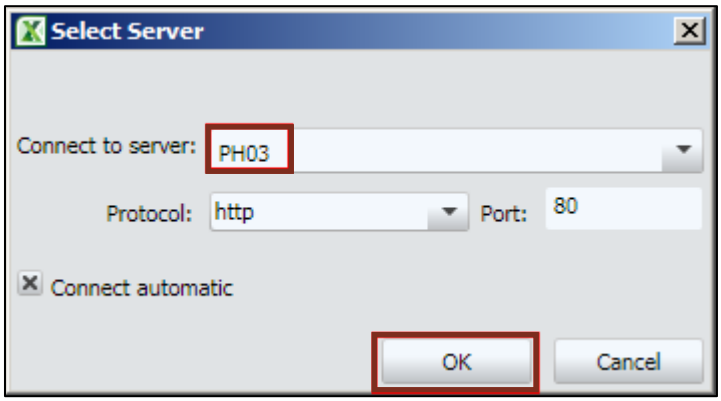


Testing the Office add-in

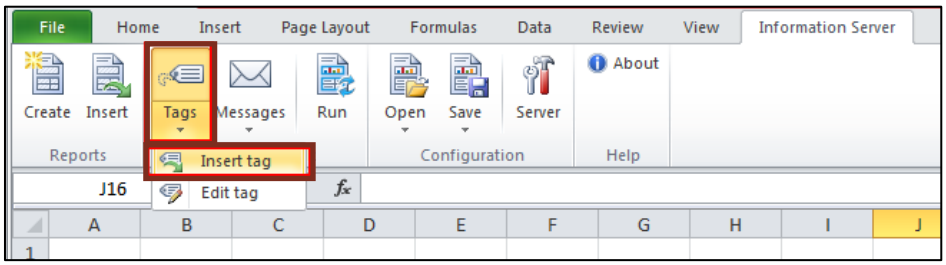
1. Open Microsoft Excel.
2. Click on the "Information Server > Server" menu.



3. Enter the computer name of the Information Server, and then click on "OK".



4. Select the menu sequence “Tags > Insert tag".



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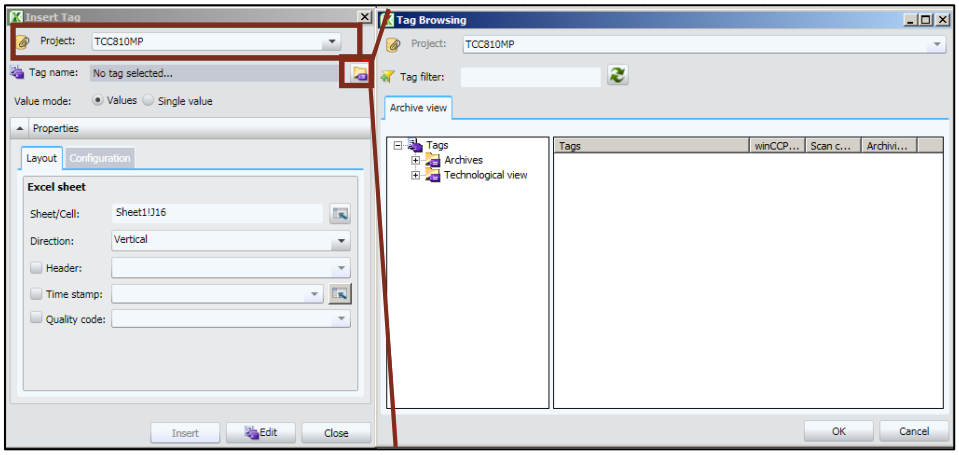
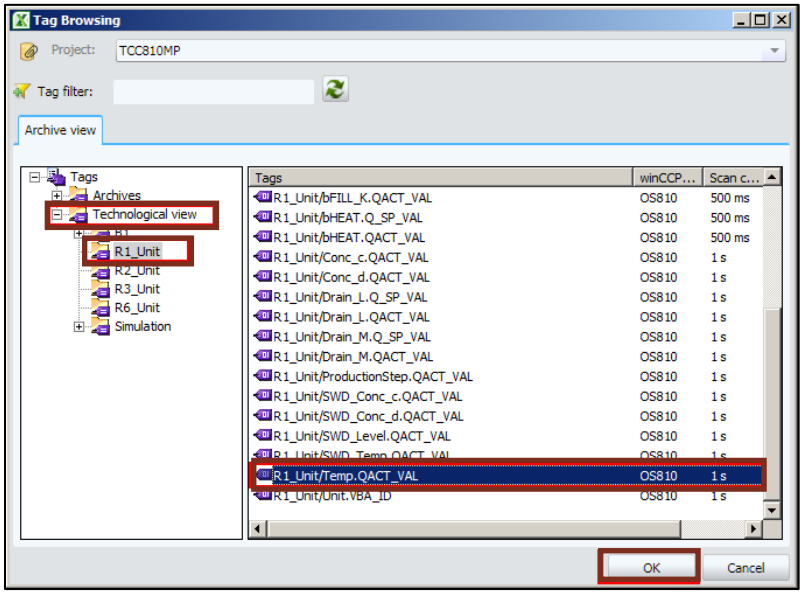
5. Select your project and open the "Tag Browsing" dialog.



6. Select a tag and click on the "OK" button.



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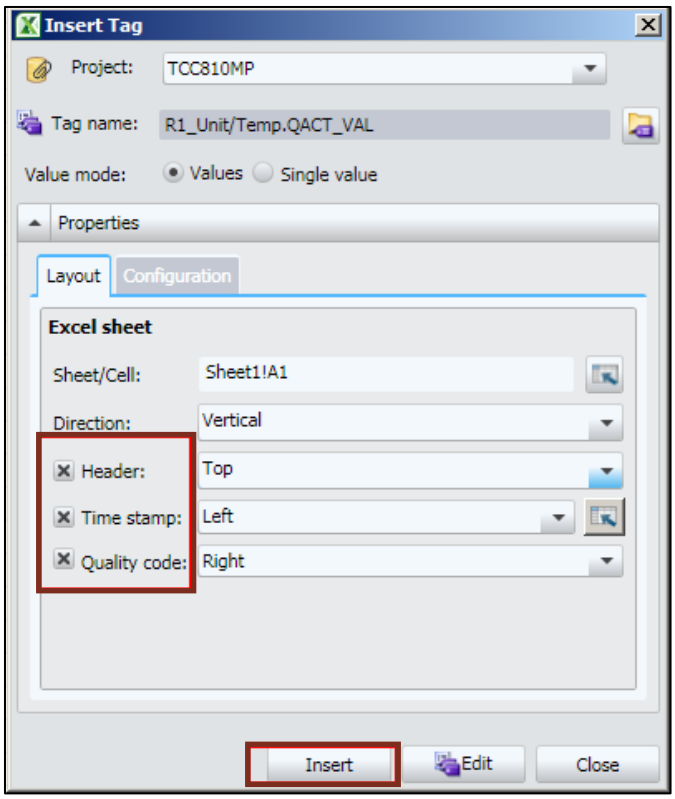
7. Select "Header", "Time stamp" and "Quality code" and click on the "Insert" button.



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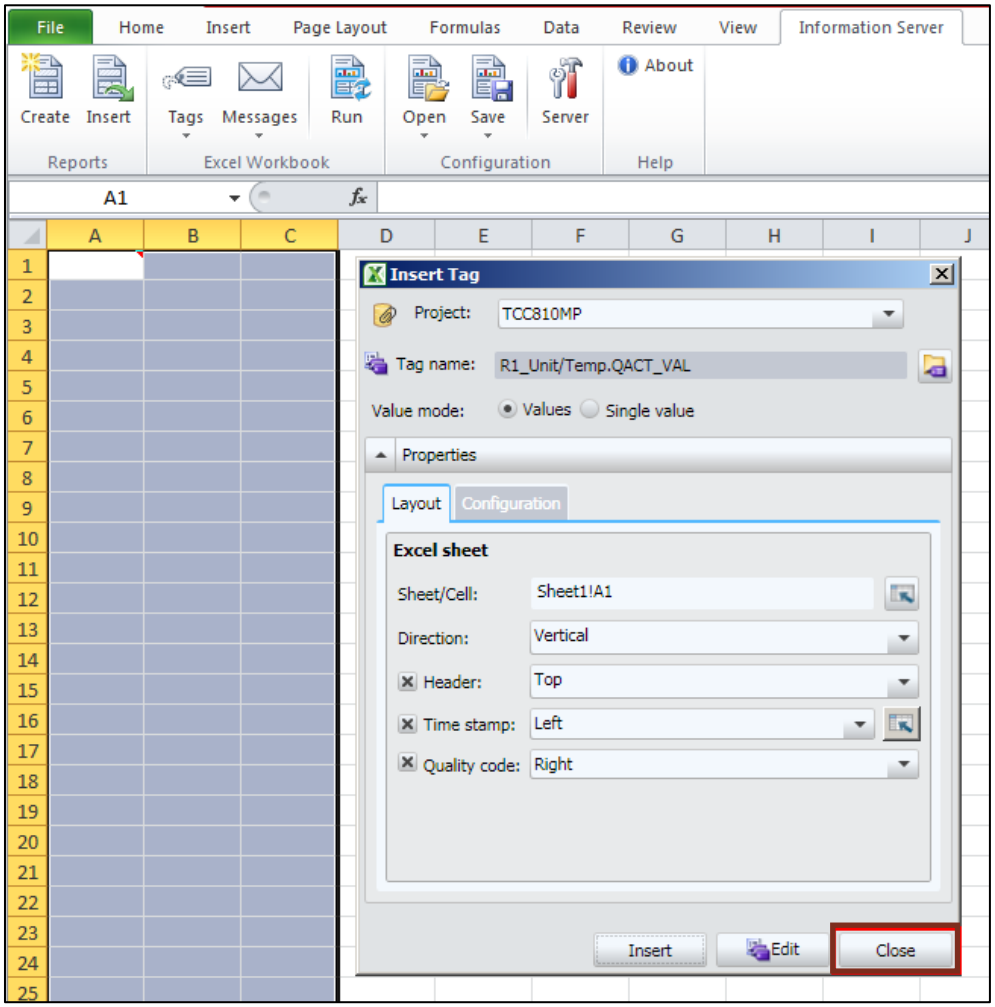
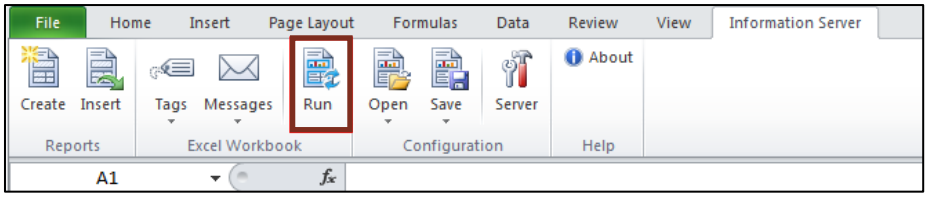
8. Click on the "Close" button



9. Change to the “Run" menu.



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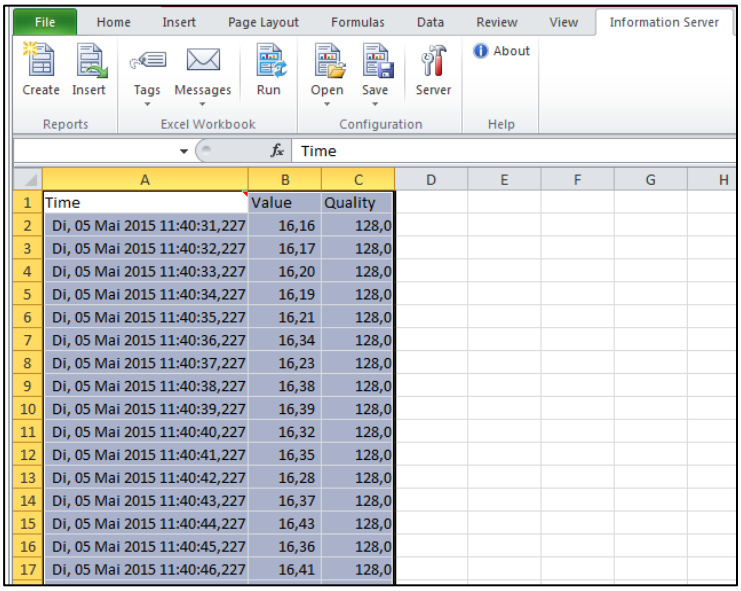
Result

The pH values are read into the Excel cells.



	A	B	C
1	Time	Value	Quality
2	Di, 05 Mai 2015 11:40:31,227	16,16	128,0
3	Di, 05 Mai 2015 11:40:32,227	16,17	128,0
4	Di, 05 Mai 2015 11:40:33,227	16,20	128,0
5	Di, 05 Mai 2015 11:40:34,227	16,19	128,0
6	Di, 05 Mai 2015 11:40:35,227	16,21	128,0
7	Di, 05 Mai 2015 11:40:36,227	16,34	128,0
8	Di, 05 Mai 2015 11:40:37,227	16,23	128,0
9	Di, 05 Mai 2015 11:40:38,227	16,38	128,0
10	Di, 05 Mai 2015 11:40:39,227	16,39	128,0
11	Di, 05 Mai 2015 11:40:40,227	16,32	128,0
12	Di, 05 Mai 2015 11:40:41,227	16,35	128,0
13	Di, 05 Mai 2015 11:40:42,227	16,28	128,0
14	Di, 05 Mai 2015 11:40:43,227	16,37	128,0
15	Di, 05 Mai 2015 11:40:44,227	16,43	128,0
16	Di, 05 Mai 2015 11:40:45,227	16,36	128,0
17	Di, 05 Mai 2015 11:40:46,227	16,41	128,0

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5 Installation of the Operator Station

Note	The requirements for installing the operating system on an OS server or OS single station must be met.

NOTICE	**The computer SID is a unique security identifier. The Process Historian identifies the OS systems from their computer SID.** **Computers that have the same computer SID and swap data onto the PH, cannot be clearly identified by the PH. This may cause malfunctions on the PH.** **If computers are cloned, the computer SID is not adjusted automatically.** **In the PCS 7 environment, unique computer SIDs are a requirement for error-free functionality.**

Installation requirements

Check whether the installation requirements described in the Manual "PC Configuration and Authorization" have been met.

In addition, the current information of the PCS 7 readme file must be observed.

The Installation Notes for the "PHReady" component are also to be observed.

You can find these in the product DVD 1, in the path "<DVD drive>:\27b_PH+IS_Install_and_Release-Notes\German\InstallNotesPRHIdeDE.pdf", in the section "Installing Process Historian Ready on a PCS 7 Operator Station".

Introduction

PCS 7 OS server and OS single stations for PCS 7 V8.0 are used for the long-term storage of data using the Process Historian. The "PH-Ready" component must be additionally installed for communication between the OS and the PH.

Here, you have two options:

- Installation of an OS server for the Process Historian
- Retroactive installation of the "ProcessHistorian Ready" component on an existing OS server / single station

After completing the installation of the PH-Ready component on the OS, the "CCCAPHServer" service is installed to aid communication with the PH.

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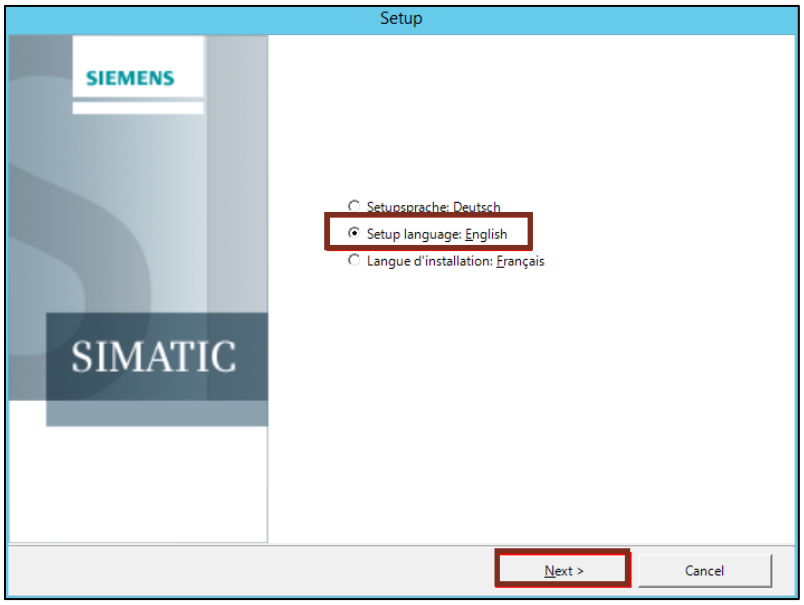
5.1 Installation procedure for the "OS Server for Process Historian"

1. Insert the PCS 7 DVD 1/2 in your DVD drive.

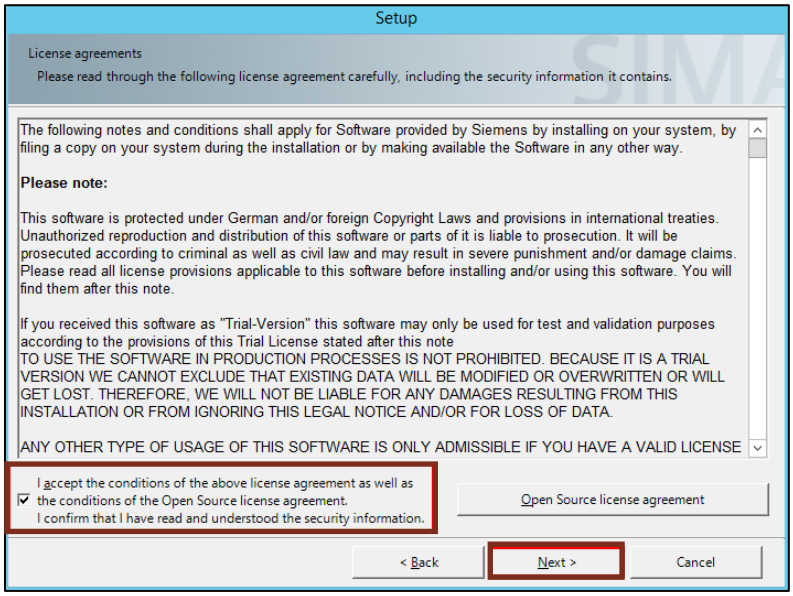
   The PCS 7 setup starts automatically.
   You can also start the installation directly from the PCS 7 DVD 1/2 by double-clicking on the “Setup” application. The setup file is located in the root directory of the DVD.

   The name of the setup program is "PCS 7 Frame Setup". It allows all PCS 7 components to be selected.

2. Select the desired setup language. Click on the "Next” button.



3. Click on the "Next” button.
4. Read the product notes and click on the "Next” button.
5. Accept the setup conditions. Click on the "Next” button.



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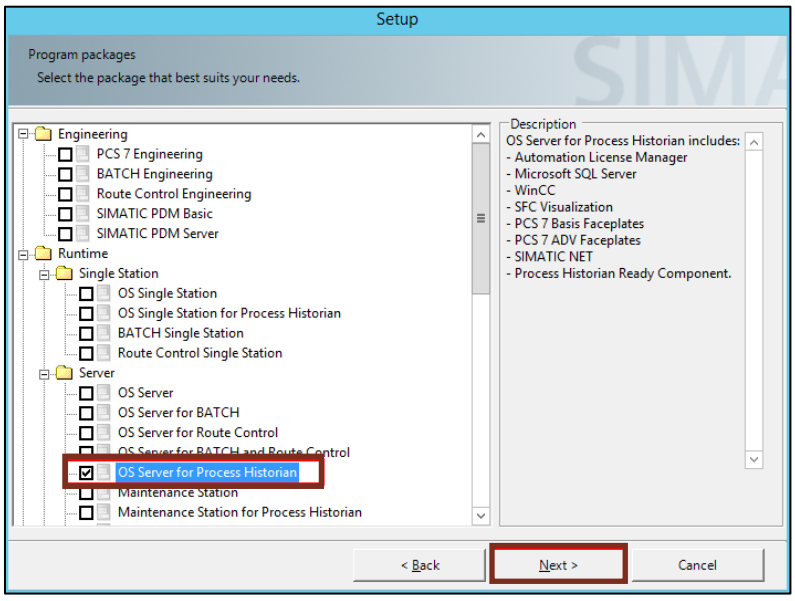
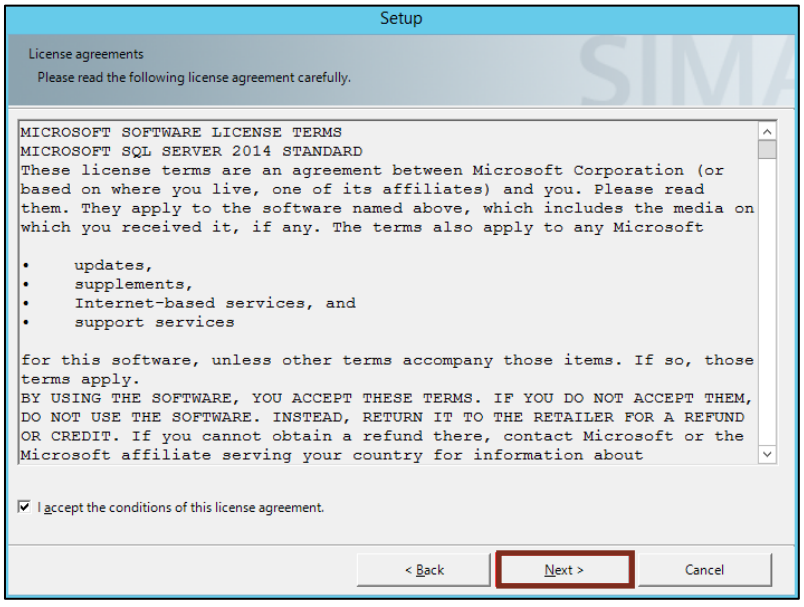
6. Select the "Install" setup type if you want to install the OS station from scratch. Click on the "Next" button.
7. Enter the user name and company name. Click on the "Next" button.
8. Select "Package installation". Click on the "Next" button.
9. Select the "OS Server for Process Historian" program package and click on the "Next" button.



10. Agree to the license agreement and then click on the "Next" button



11. Confirm the changes to the system settings and click on the "Next" button.
12. Click on the "Install" button.

Note During installation, you will need to change the PCS 7 DVD and the computer will need to be restarted.

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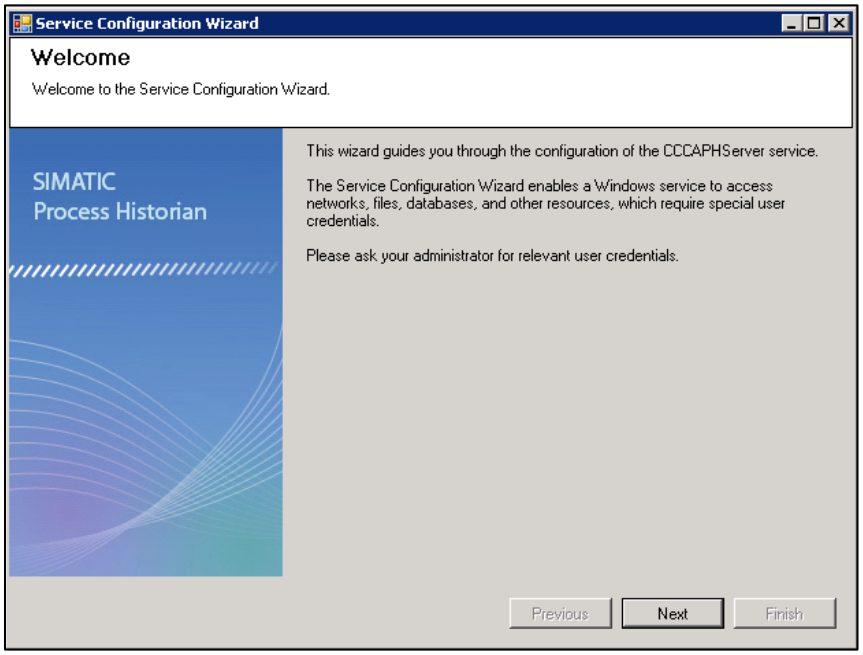
The OS server software and the "ProcessHistorian Ready" software component have been installed.
The installed PCS 7 software is displayed in a side window.

13. Restart your computer.
14. After the computer restarts, the "Service Configuration Wizard" for the "CCCAPHServer" starts automatically.

    Click on the "Next" button.



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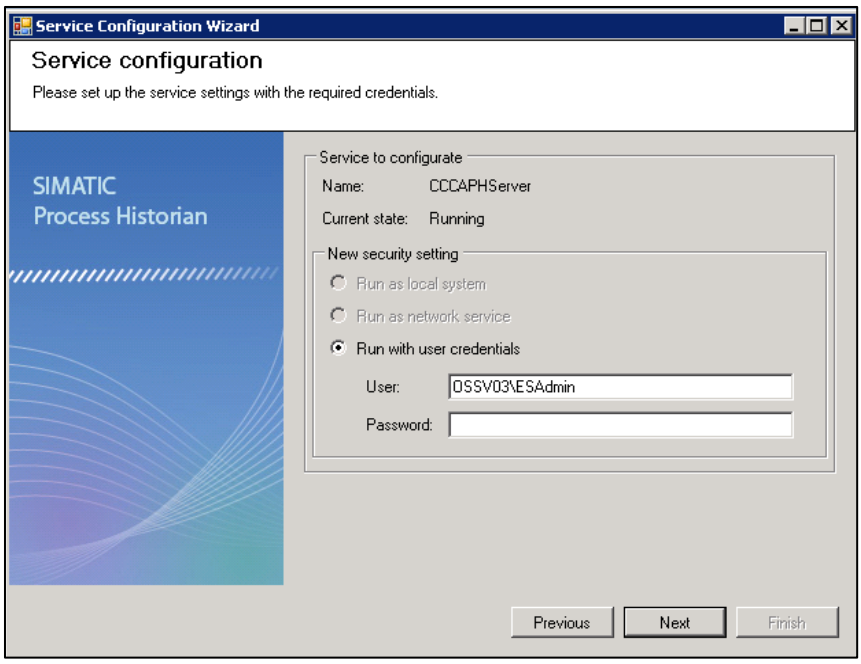
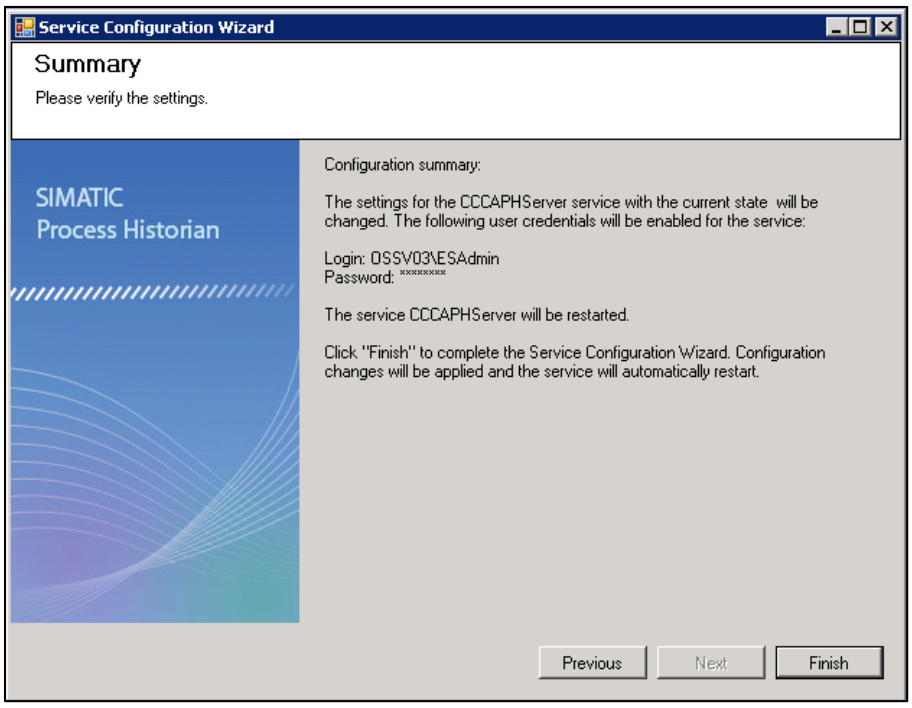
15. Use the same user name and password here as the ones used for the PH installation and then click on the "Next" button.



16. Click on the "Finish" button.



17. Click on the "Close" button

Result

The "CCCAPHServer" service has been installed in the OS including the necessary licenses.

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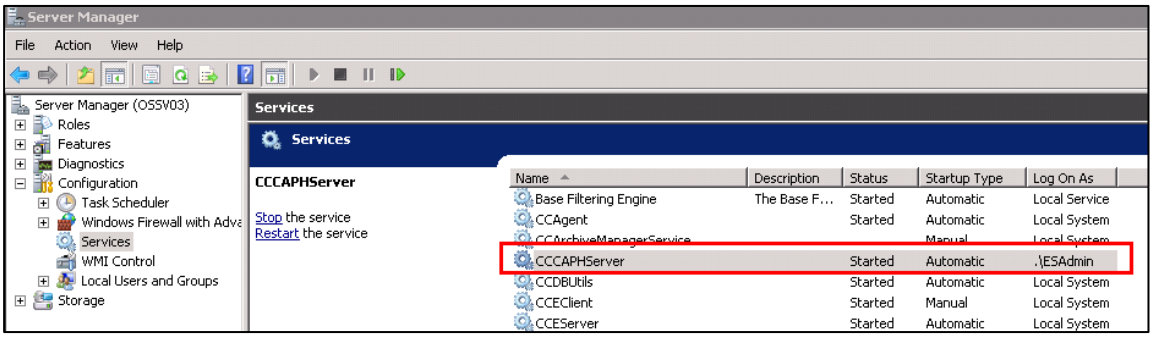

Note If the Service Configuration Wizard does not start automatically, you can start the wizard manually at any time from "Start > All Programs > SIMATIC> PH-Ready> PH-Ready Configuration".

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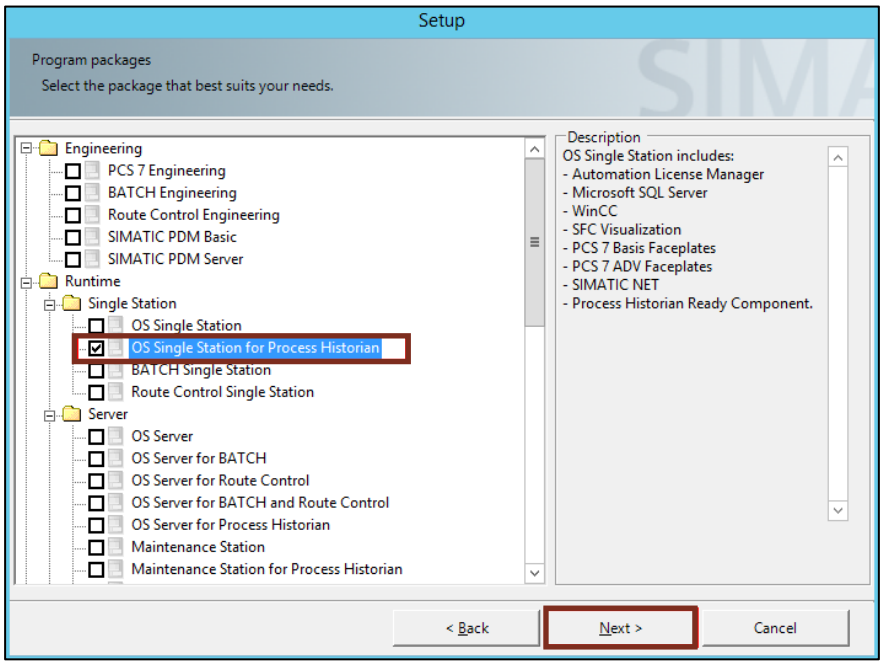
5.2 Installation procedure for the "OS Single Station for Process Historian"

The installation procedure corresponds to the "OS Server for Process Historian" installation. In the "Program Packages" dialog box, select the option "OS single station for Process Historian".



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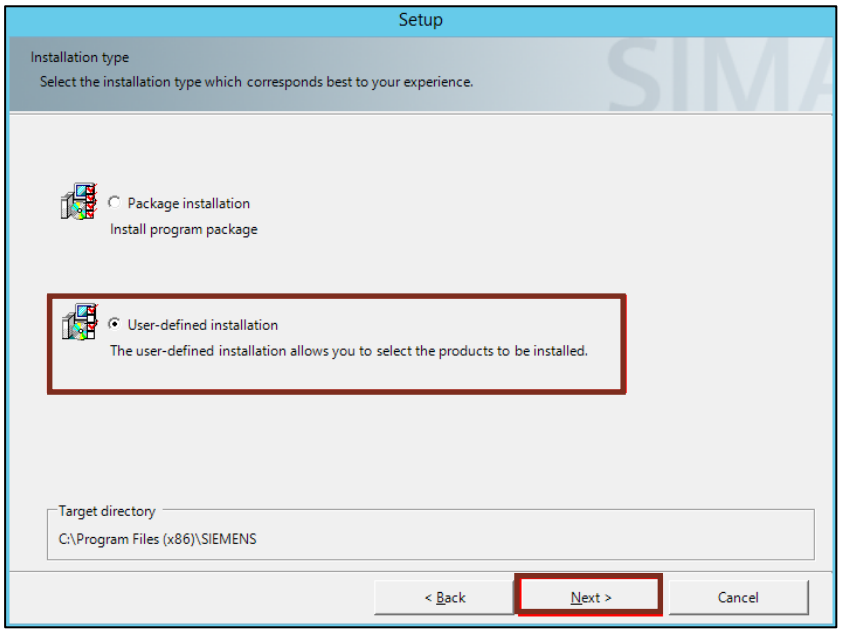
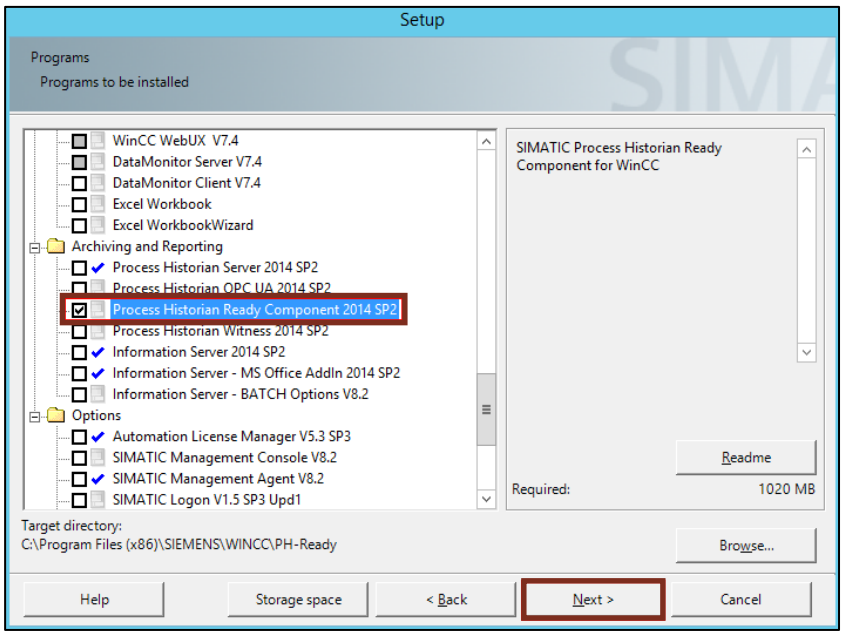
5.3 Installing the "ProcessHistorian Ready" component

The installation procedure corresponds to the "OS Server for Process Historian" installation. However, the installation must made as user-defined.



Activate the "ProcessHistorian Ready Component" check box.



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6 Software update installation

Process Historian / Information Server is permanently further developed and optimized.

We recommend that you install the latest update for PH, PH-Ready and IS available at the time of installation.

Typically, the update is installed after PH / IS 2014 SP2 is installed.

You will find the software updates in SIEMENS Online Support:

https://support.industry.siemens.com/cs/document/20780602?dti=-1&lc=de-WW

Search for "Process Historian 2014 SP2 Update" or "Information Server 2014 SP2 Update".

NOTICE	Always read and observe the readme file and the installation notes of the corresponding software updates. You will find the information in the Online Support.

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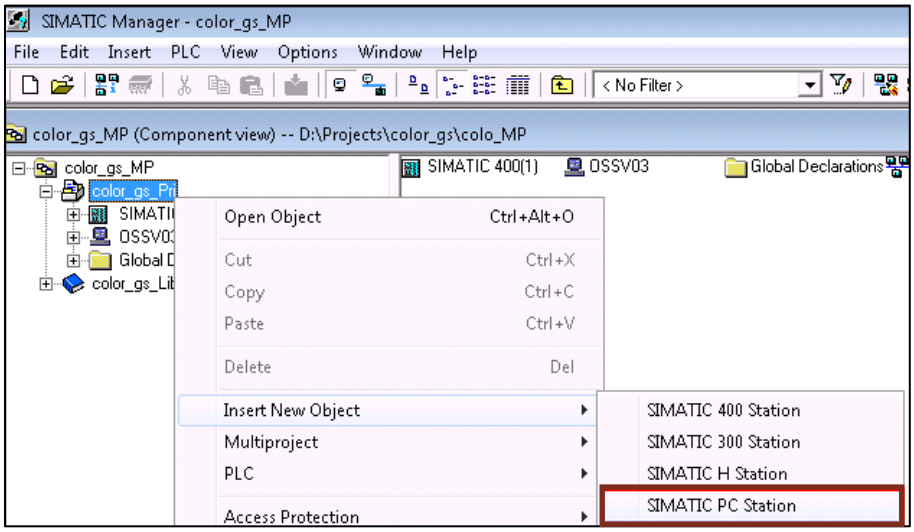
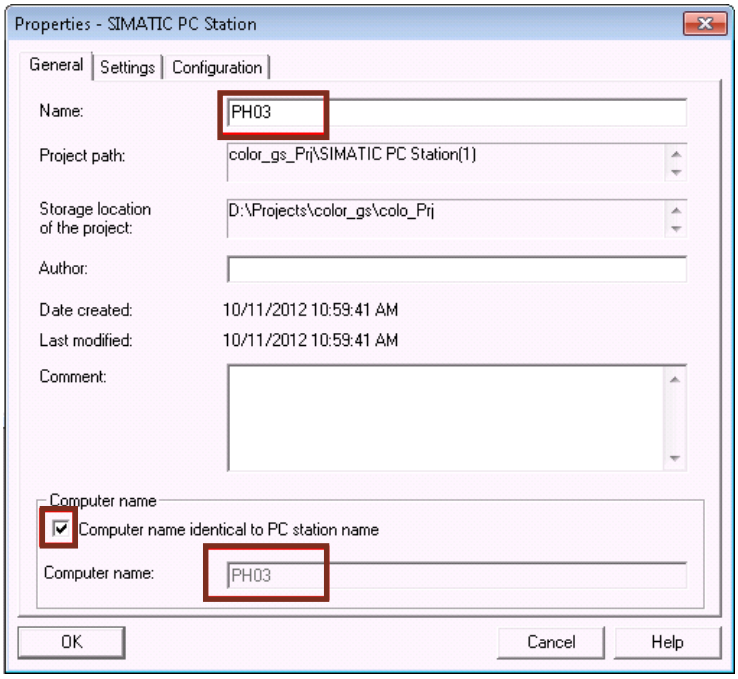
7 PH engineering in a PCS 7 project

As an example for the use of the Process Historian, we use the "getting-started" project "color_gs" for PCS 7.

1. Call up the project from the Engineering System.
2. Adjust the hardware configuration of the "color_gs" project to your local situation in accordance with the usual PCS 7 process.
3. Insert a new SIMATIC PC station.



4. Open the object properties of the new PC station and enter the same computer name as for the PH device.



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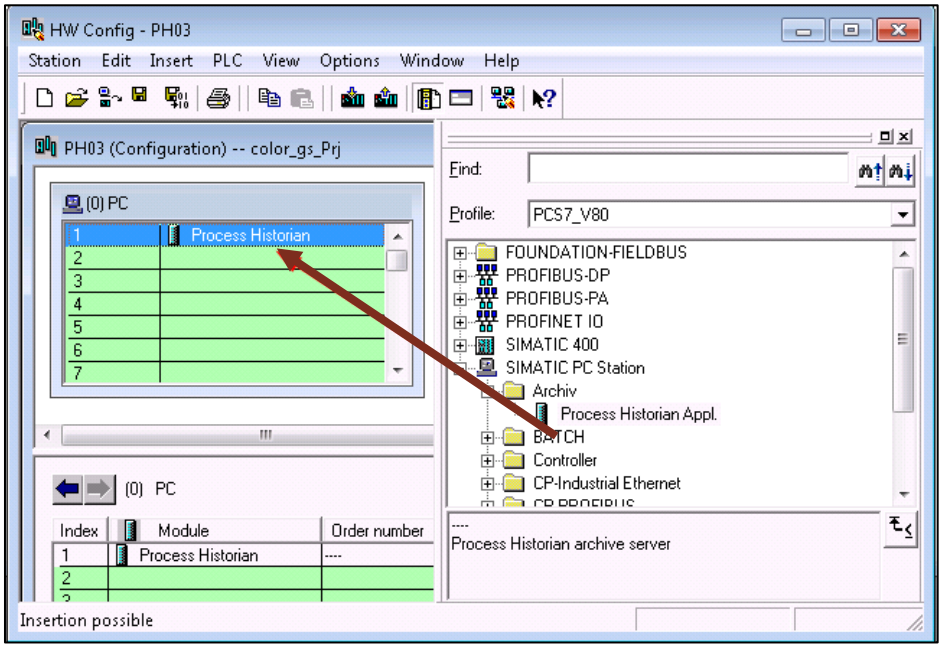
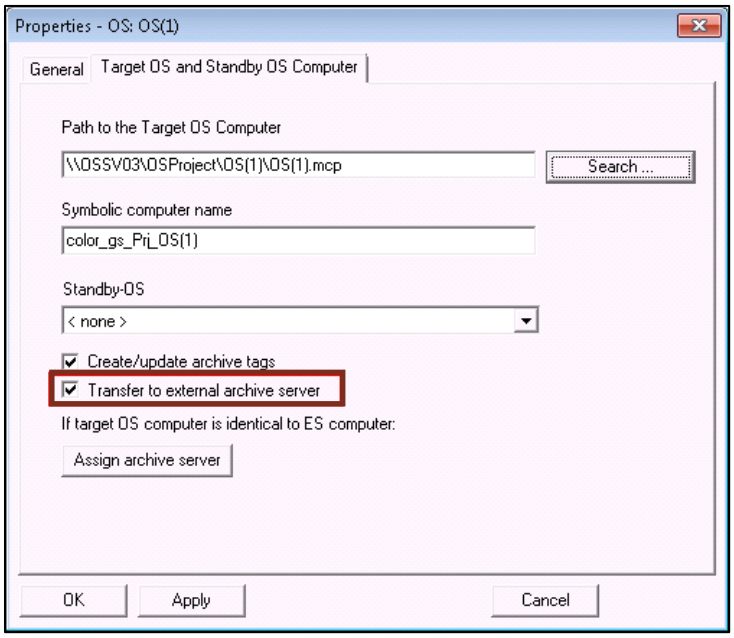
5. Open the PH hardware configuration and insert a "Process Historian" object.



6. Save the PH hardware configuration.
7. Open the object properties of the OS server and activate the check box "Transfer to external archive server".



Note If you are using an ES / OS single station, you must specify the PH for the OS Single Station using the "Assign archive server" button.

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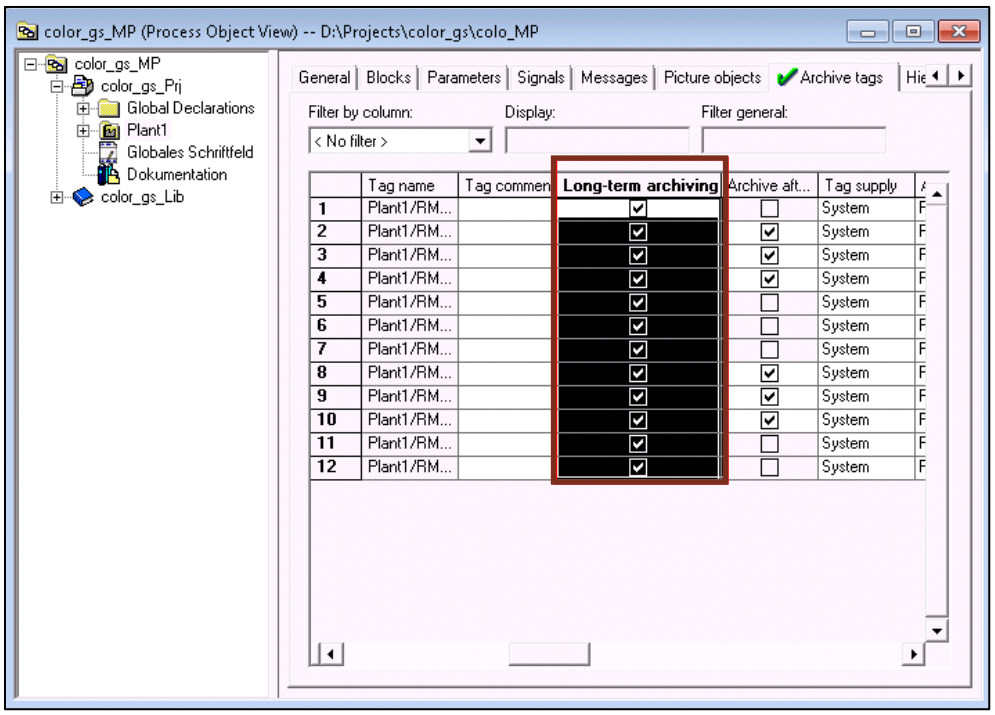
8. Open the “Process Object View” and select the “Long-term archiving” property for all available archive tags.



Note All long-term relevant OS archive tags of an OS station are stored in the PH, provided that a PH has been configured.

9. Compile and download the OS.

Result

The OS is now configured in such way that all long-term relevant archive tags are stored in the PH system.

PH configuration for several multiprojects

If you want to save the long-term relevant data from several PCS 7 multiprojects (MP) on one PH system, you need to configure this PH in every MP. In each MP, the computer name of the PC station must always match to the name of the PH computer.

In each OS from which archive data is stored in the PH, the name of the PH computer is written to the "ProcessHistorian.cfg" file. The "ProcessHistorian.cfg" file is located in the root directory of the OS project.

Note The folder "C:\Users\Public\Public Documents\Siemens\WinCC" contains a further file called "ProcessHistorian.cfg". This file is just a template. Do not write the name of PH computer in this file.

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8 Commissioning

This section describes the commissioning of the Process Historian (PH) and Information Server (IS). It is not necessary to download the Process Historian and Information Server from the Engineering Station.

8.1 Sequence for initial commissioning

When commissioning, start the PH before the OS servers. The PH must also be in the "Active" operating state before the OS systems are started. If the PH is started after the OS server, it may be the case that the OS system does not build up the necessary message queues correctly.

8.2 Redundant OS server

When using redundant OS systems, the OS servers may not be started simultaneously during the first commissioning. Start the master OS server first and then, a few minutes later, the standby OS server.

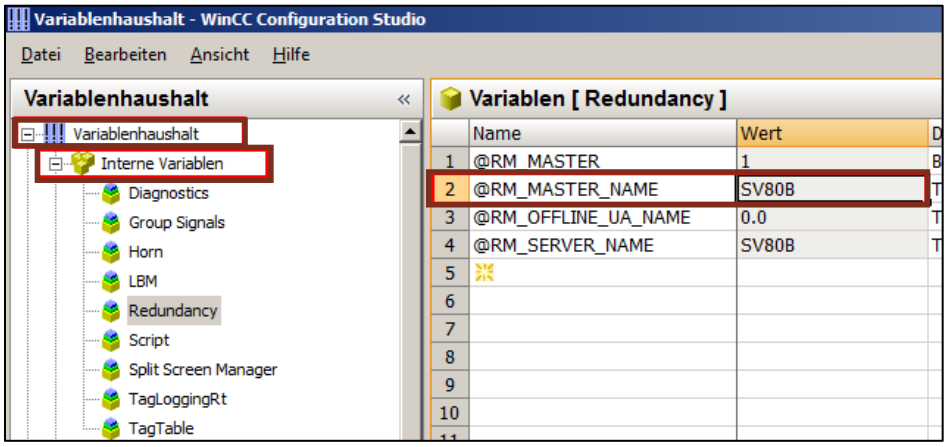
If you start the OS systems simultaneously, the pH might fail to recognize the systems as a redundant OS system.

When using redundant OS servers, only the master OS server sends data to the PH. The standby OS server also builds message queues for the PH, but it sends no data.

After initial commissioning, the master OS server sends data to the PH when the Store And Forward Buffer (S & F Buffer) is matched. After first commissioning, the Master also sends data if the store and forward buffer is not synchronized.

If the master of a redundant WinCC server sends no data after the initial commissioning, you must the store and forward buffer synchronization.

1. Determine the current OS master. The redundancy status can be checked using, for example, the WinCC tag management.



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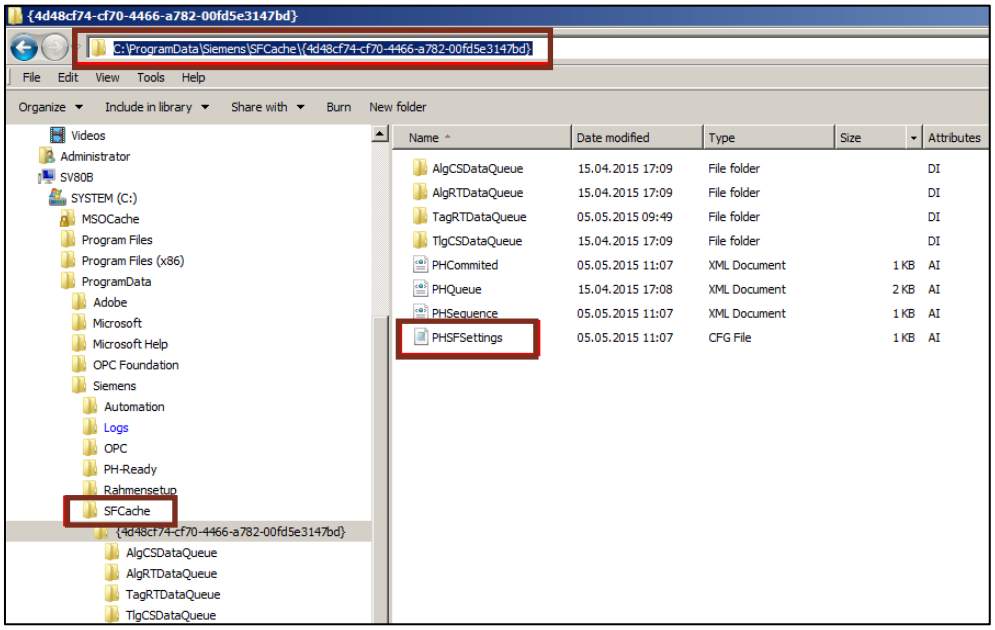
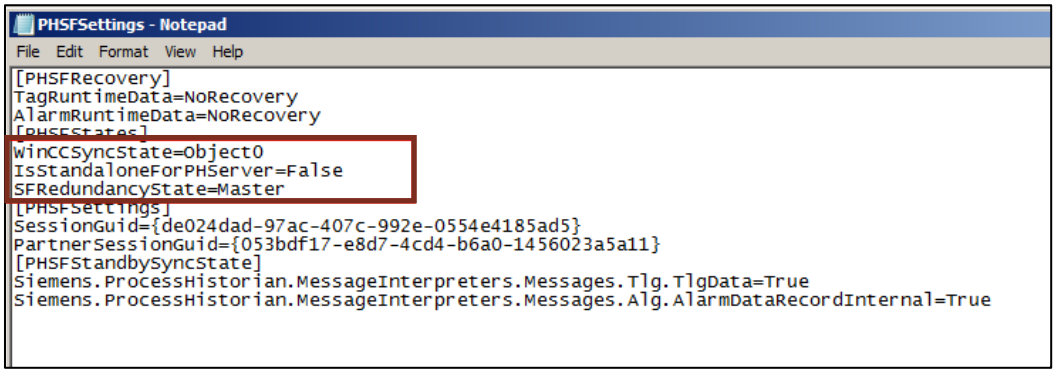
2. Open the PHSFSettings file on the Master OS server.
   The file is saved under "C:\ProgramData\Siemens\SFCache".



3. Determine the synchronization state.



If "WinCCSyncState = Error" occurs, the master does not send any data to the PH after initial commissioning.

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8.3 Process Historian

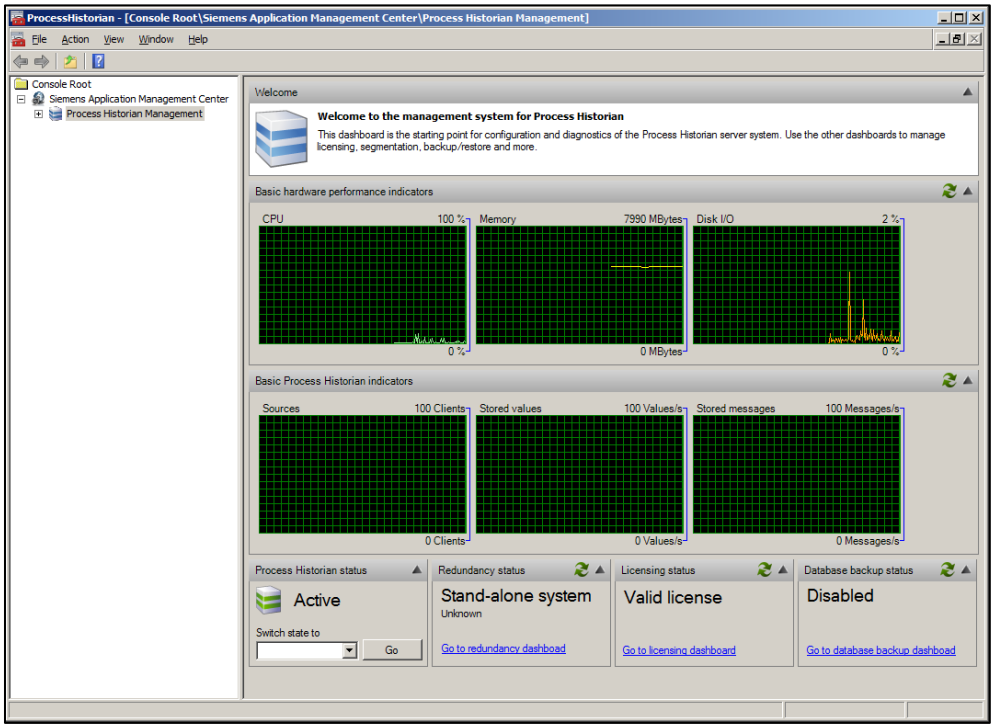
Requirements

- The Process Historian must be installed.
- The "HistorianStorage" database was created with the installation wizard.
- The PH database segmentation has been predefined.
- A server license for the Process Historian must be present

  If the license does not exist, the PH does not switch to the "Active" state after the computer starts.
- The necessary PH services are running:
  - SIMATIC Process Historian Service
  - Process Historian Maintenance Service
  - Process Historian Discovery Service
- The PH is activated.
- PH-Ready (CCCAPHServer Service) is installed on the OS server and has started.
- The pH has been configured in the PCS 7 project
- The OS project has been loaded on the target OS server.

Procedure

1. Open the management console of the Process Historian in the PH/IS system.
   In the list, select select "Process Historian Management".



There is no connection to a physical data source and there are no tags or alarm messages saved. Every OS system with data stored on it serves as a source. The PH receives the configuration data from each configured OS system.

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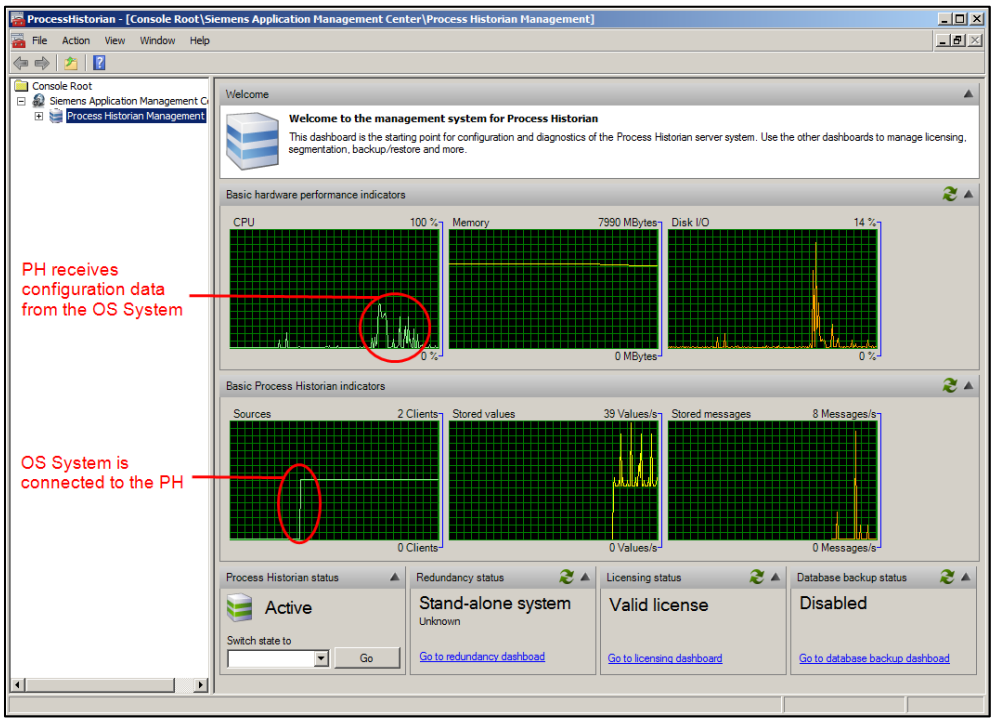
When using a redundant OS, the two physical devices act as source system and the archive configuration data are transmitted from both devices. In a redundant OS, runtime data is only sent from the current Master OS to the PH.

2. Open the WinCC Explorer on the OS server and start the loaded OS project.

   The OS server sends the configuration data to the PH. You can see that a source device (OS server) is connected to the PH.



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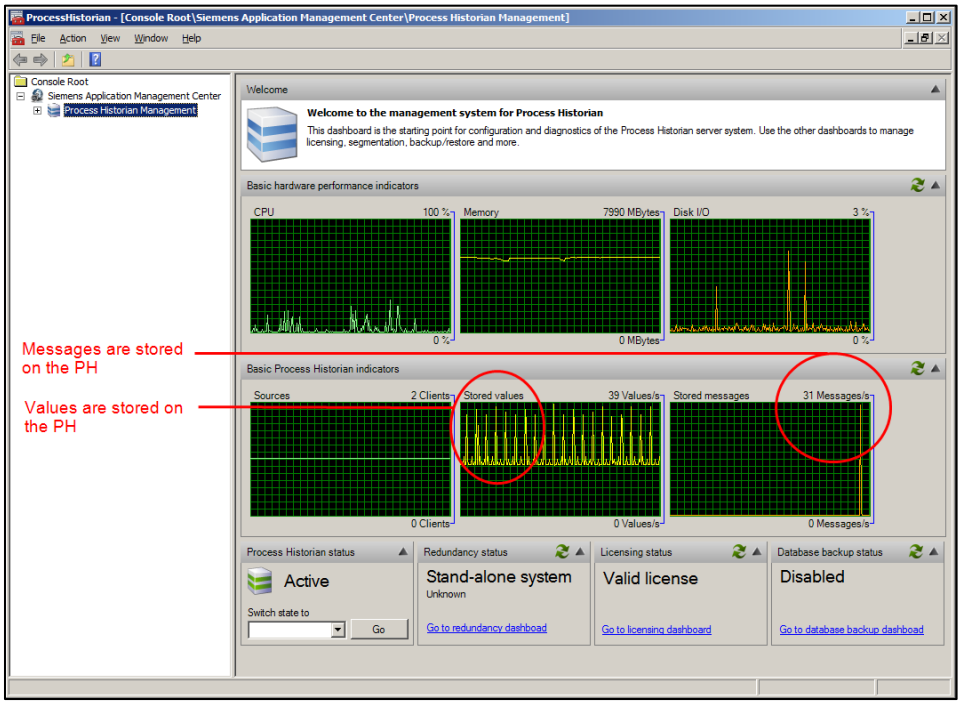
3. Start the OS runtime.
   After starting the OS runtime, long-term relevant archive tags and OS messages are stored in the PH.



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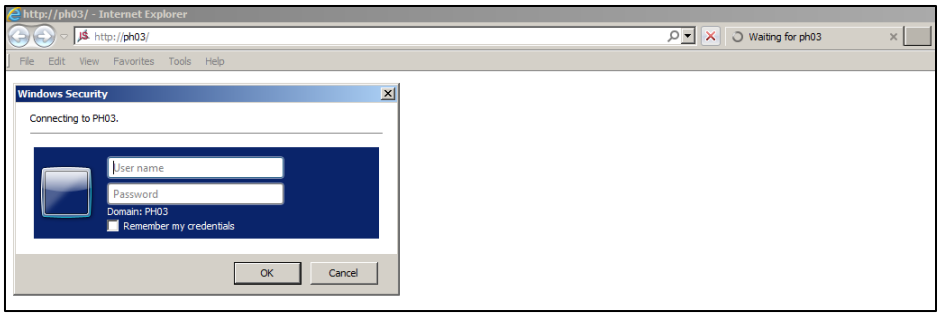
8.4 Information server

Requirements

- The Process Historian must be running.
- The Information Server must be installed.
- A website has been created with the configuration manager.
- Internet Explorer has been set up correspondingly.
- The following licenses must be available:
  - License for the Information Server
  - Client access license for the Information Server

Procedure

1. Open Internet Explorer. Enter http://<Computer name> in order to establish a connection.



2. Enter the same username and the same password that were set during the installation process.

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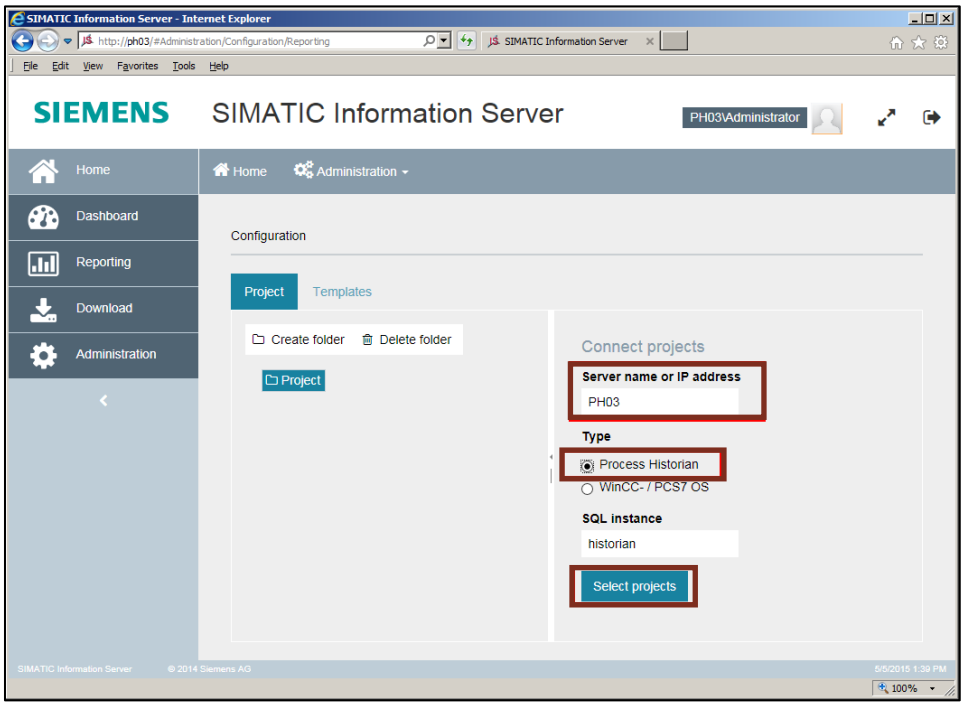
3. Click on the menu item "Administration".
4. Click on the menu item "Configuration".
5. Click on the menu item "Reporting".
6. Click on the "Project" menu.
7. Enter the PH computer name in the "Server Name or IP Address" field.
   Select the "Process Historian" radio button.
   Click on the "Select projects" button.



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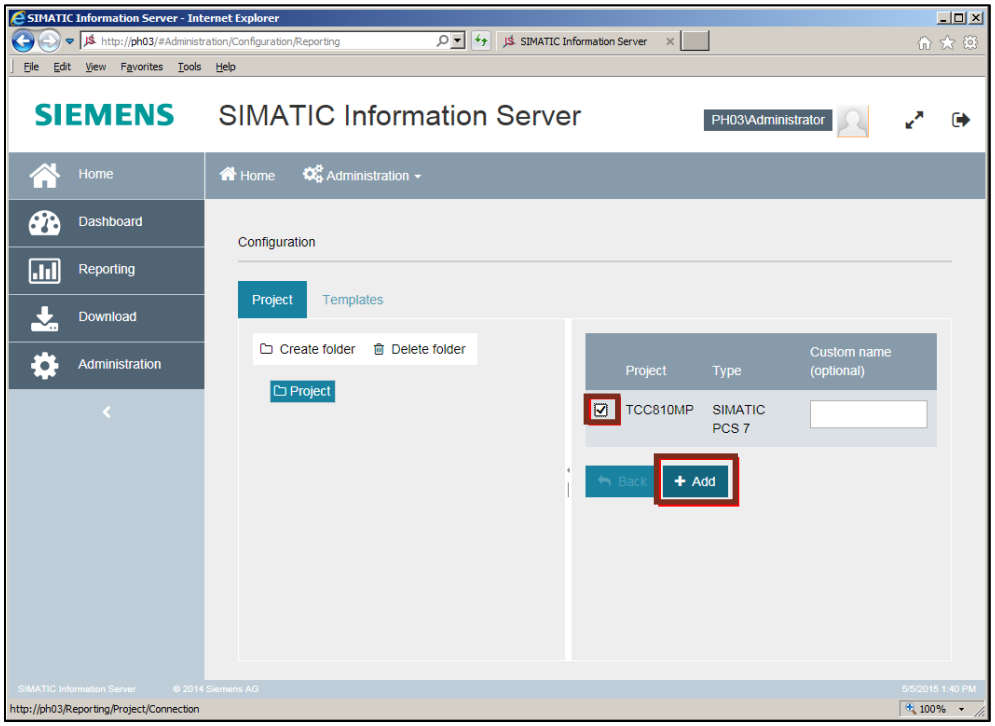
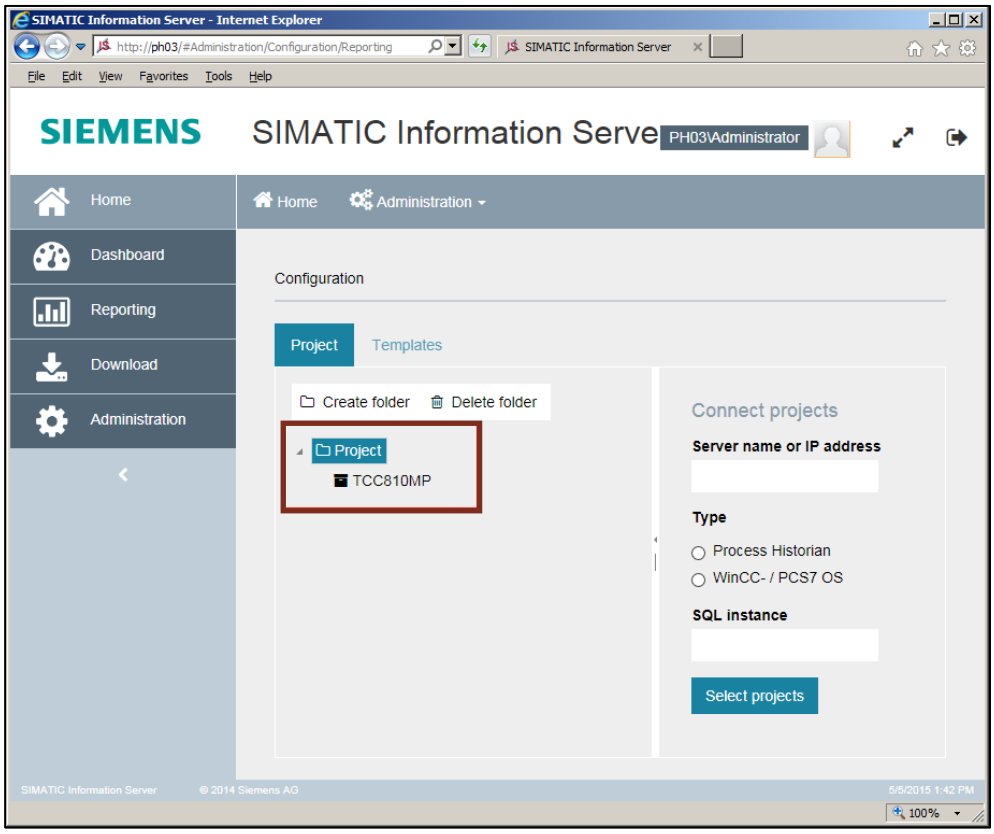
8. Select your project and click on the "Add" button.



You have connected a PH-data source to the IS.



9. Switch to the "Reporting" dialog box.

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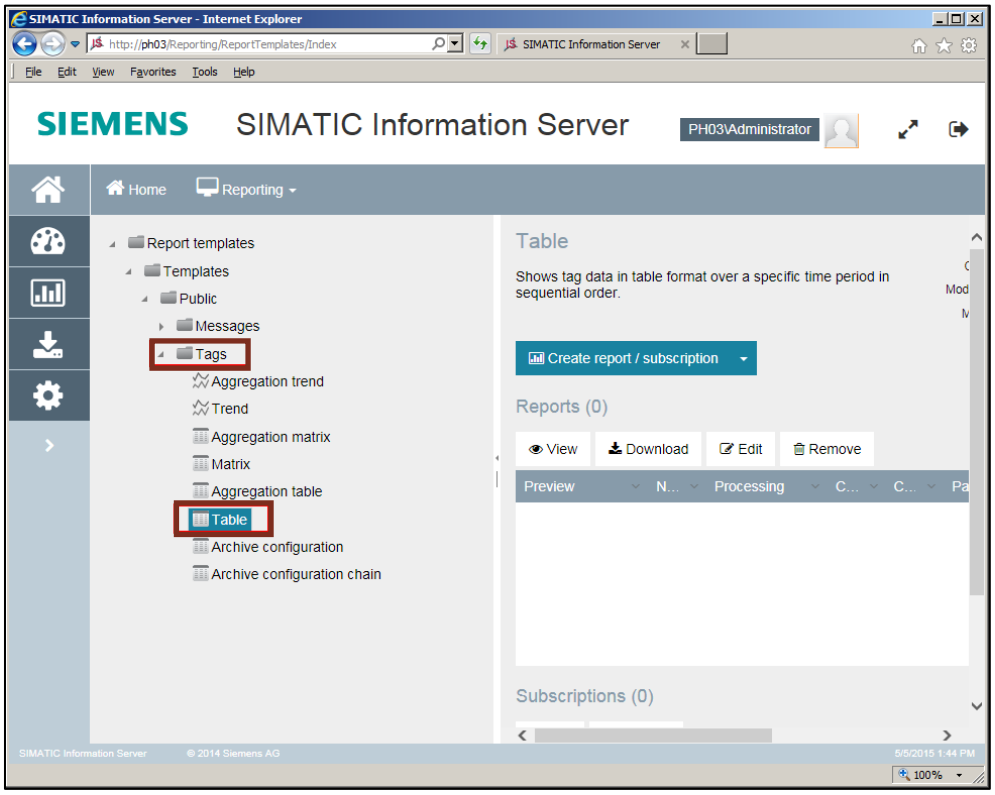
10. To access the data stored in PH, use a standard report template.
    In the "tags" folder, select the "Table" template.



11. Click on the "Create Report/subscription" button

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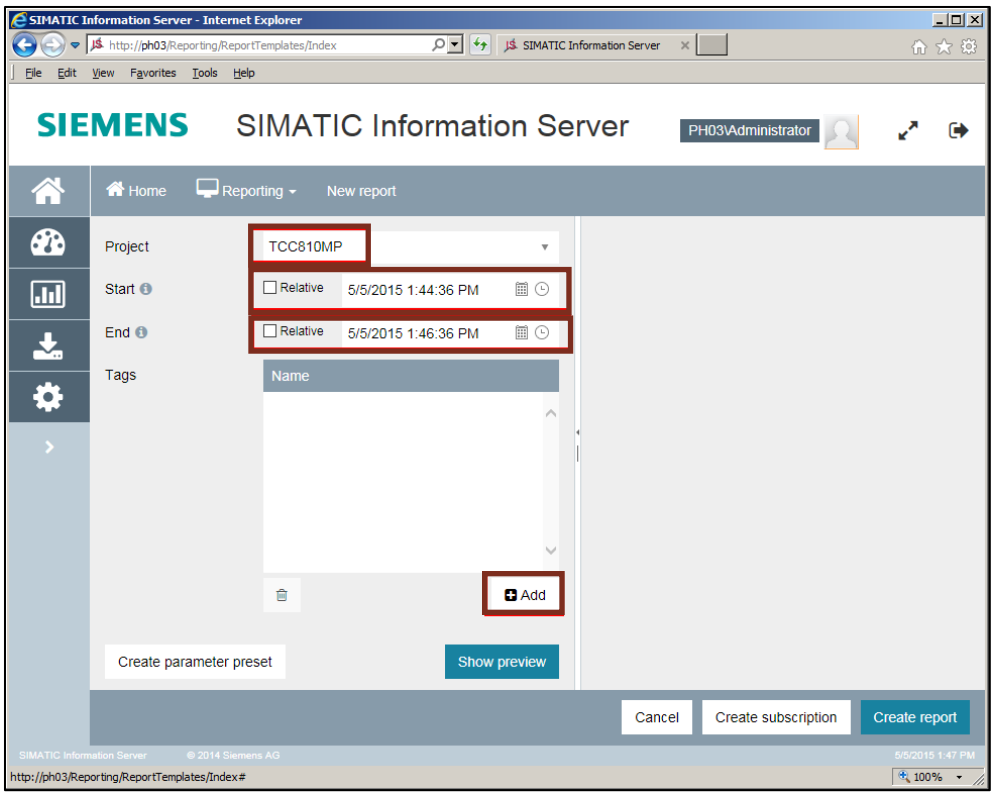
12. Specify a project, a start and end time, and then click on the "Add" button to select a tag.



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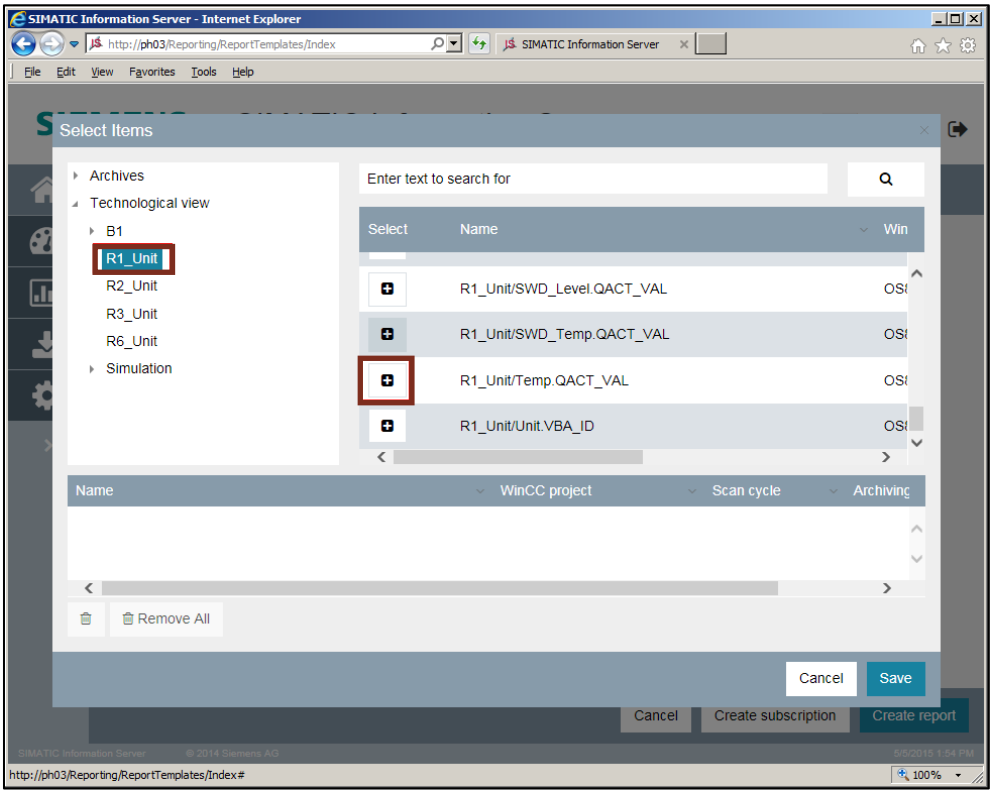
13. Click on the "+" button to select a tag you want to see in the report.



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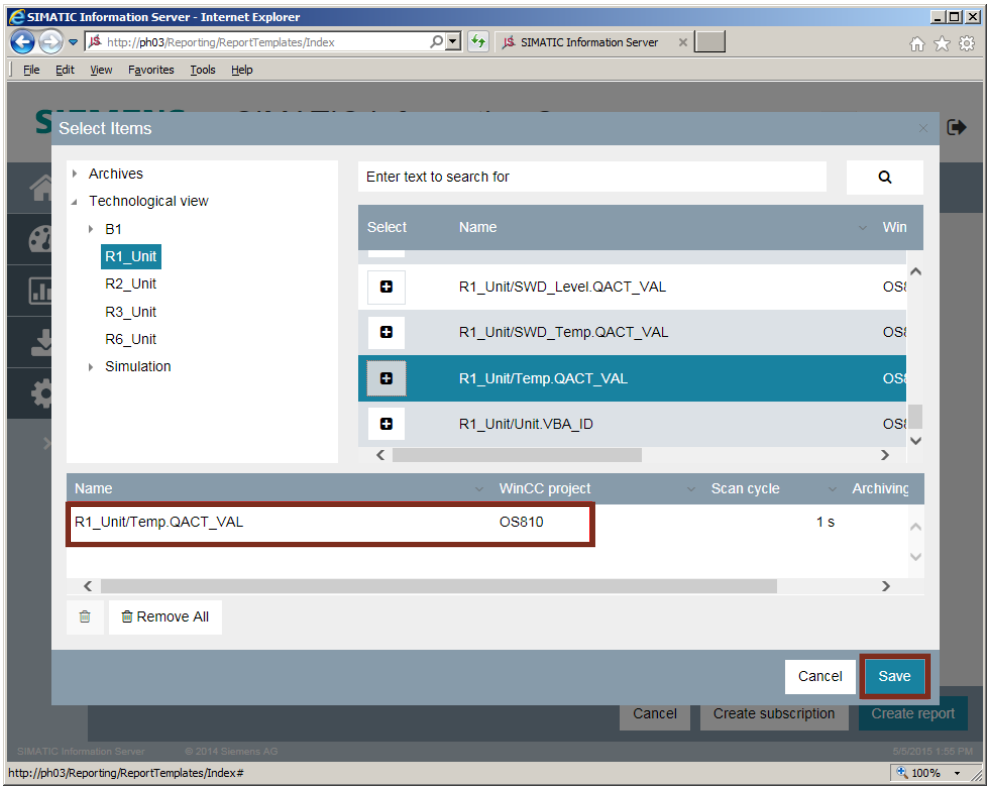
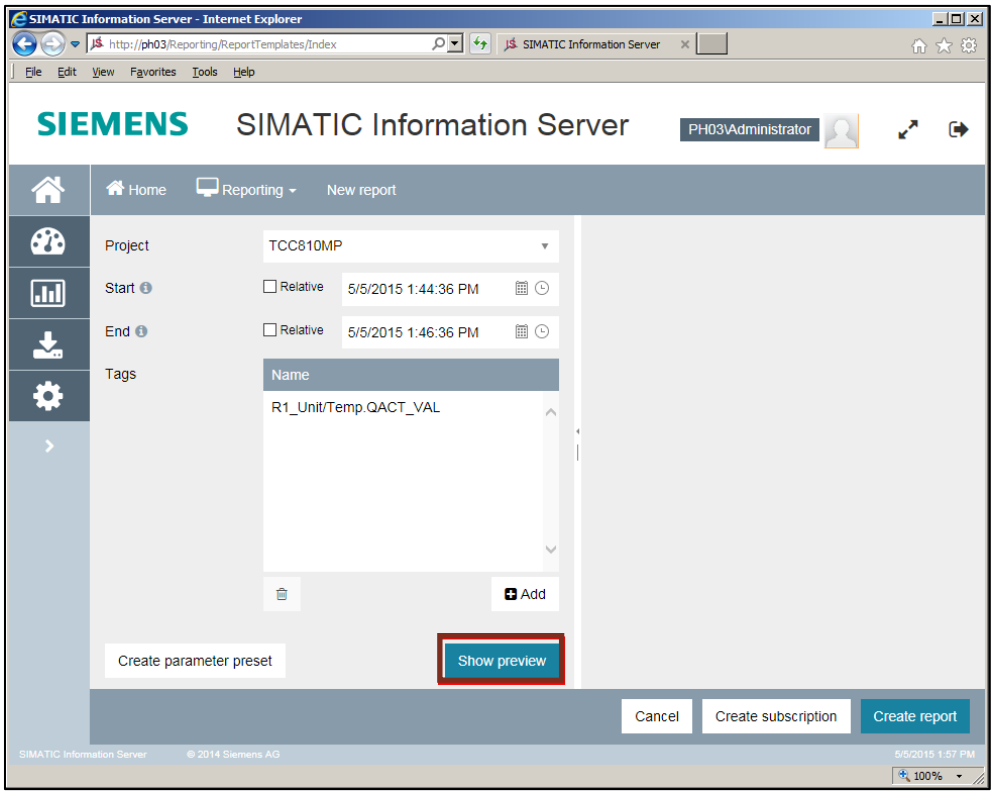
14. Click on the "Save" button.



15. Click on the "Show preview" button.



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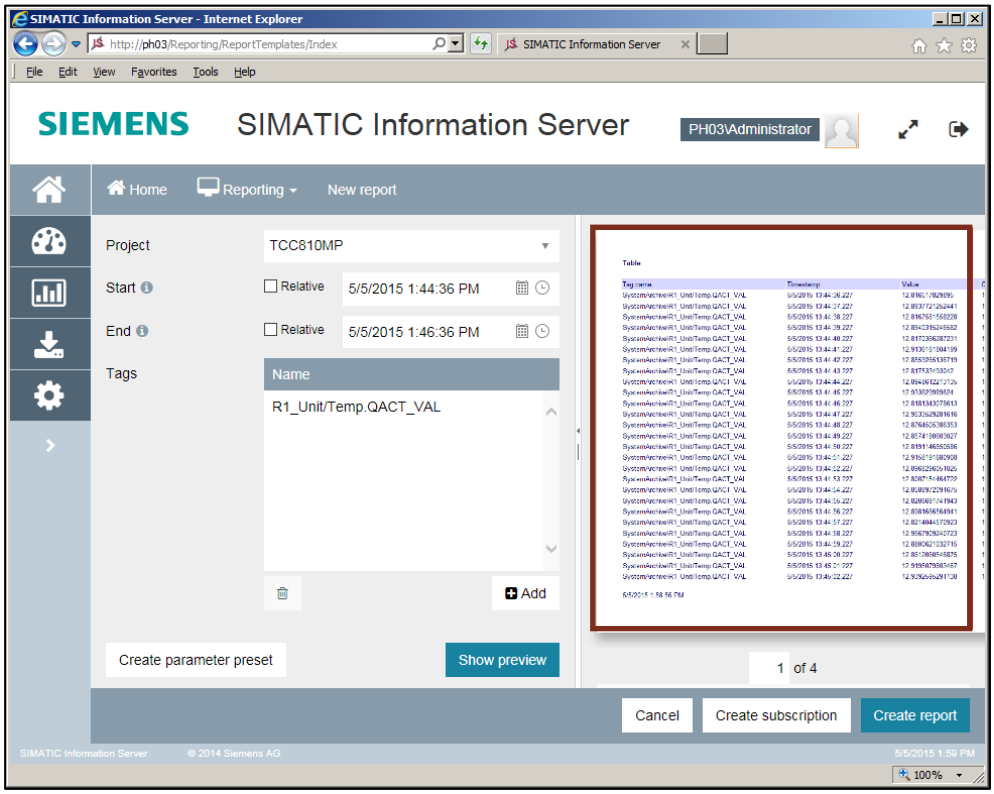
Result

The report is displayed as a preview.



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9 Troubleshooting / System checking

In this section, different scenarios are used to describe the possibilities of checking and mode of procedure in different situations. This requires advanced computer skills.

9.1 Manually call up the installation wizard for the PH database

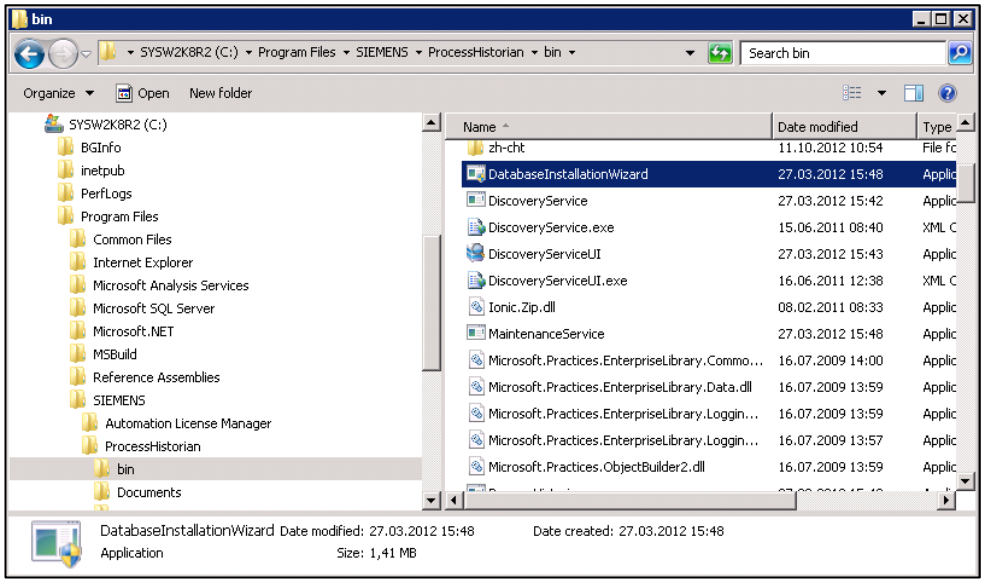
If errors occurred when creating the "HistorianStorage" database, the database installation wizard can also be started manually.

If a HistorianStorage database is already attached to the SQL Server, it will be deleted the next time the installation wizard will run. All data will be lost!

Note If an existing HistorianStorage database is not be deleted when re-running the installation wizard, the existing HistorianStorage must be detached from SQL Server beforehand. The new HistorianStorage database must be created in another directory.

After installing the PH, the database installation wizard can be found in the following directory:

"C:\Program Files\SIEMENS\ProcessHistorian\bin\DatabaseInstallationWizard.exe"



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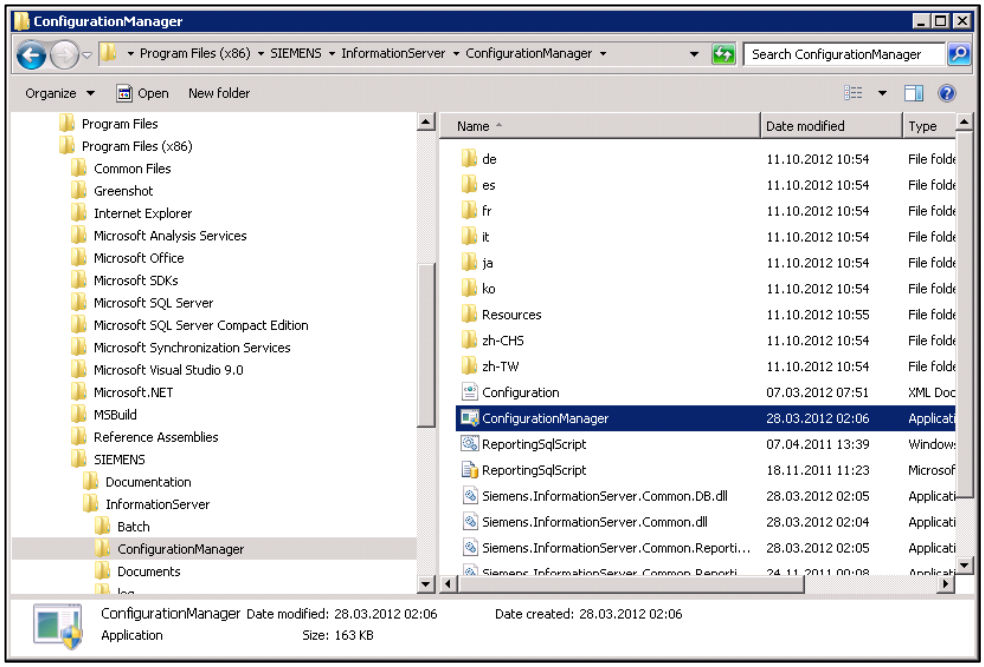
9.2 Invoking the Configuration Wizard manually for the IS

NOTICE	**If the IS configuration assistant has already run successfully, you may run this a second time from PCS 7 V8.1 SP1 = IS 2014 SP1 only.** **You may, for example, need to re-run the configuration wizard to switch the website to a "virtual directory".**

The Configuration Wizard serves to create the website for the Information Server. If the Configuration Wizard still hasn't been executed successfully after installing the IS, the wizard can be started retroactively.

Double-click on the "ConfigurationManager.exe" file. The website is created anew.

The Configuration Manager is available in the following directory: "C:\Program Files (X86)\SIEMENS\InformationServer\ConfigurationManager".



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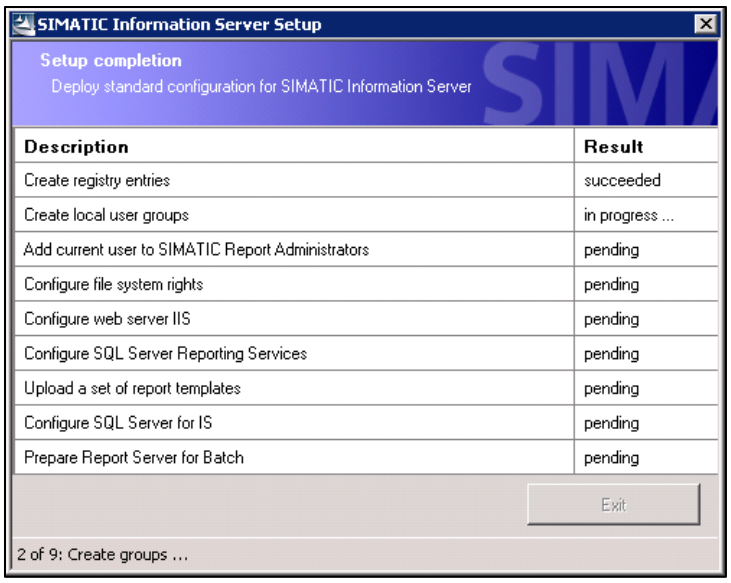
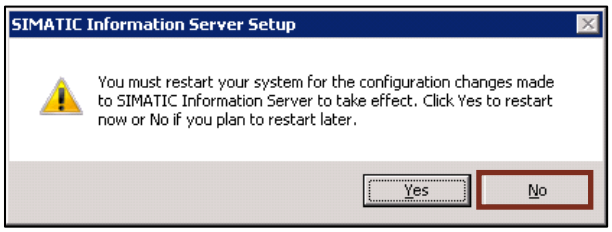
1. Start the Configuration Wizard by double clicking the file "C:\Program Files (x86)\SIEMENS\InformationServer\ConfigurationManager\ConfigurationManager.exe".

   The program starts creating the IS website without further prompts.



2. Answer "No" to the question whether you want to restart the system.



3. Before you restart the PH/IS system, you must shut down the PH from the PH Management Console ("Shutdown").
4. Then restart the system.

Note If you re-run the configuration wizard, any manual changes to settings will be reset to their default setting.

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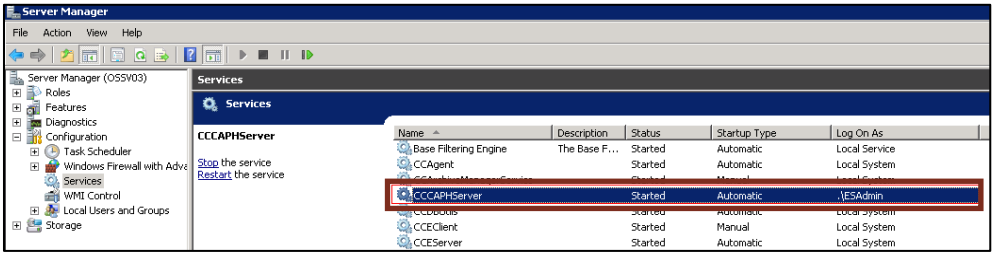
9.3 Checking the OS installation for PH Ready

Scenario

The operator station is configured for storing long-term relevant archive tags on the PH-computer. The OS has been loaded and is in runtime mode. The PH is also in runtime mode, but no tags and alarm messages are saved.

Recommended system tests and measures

1. Use the PH computer name to ping the PH-computer from the OS. The reply to the ping should be received within a few ms. If the ping does not work, there is a network problem.
2. Use the OS computer name to ping the OS computer from the PH. The reply to the ping should be received within a few ms. If the ping does not work, there is a network problem.
3. Use the PH computer name to ping the PH computer from the PH itself. The reply to the ping should be received within a few ms. If the ping does not work, there is a network problem.
4. If you have network problems, check if the "hosts" file is being used and if all registered IP addresses and their computer names are correct. You can find the "hosts" file in the directory "C:\Windows\System32\drivers\etc".
5. Check whether the "CCCAPHServer" service has started on the OS.



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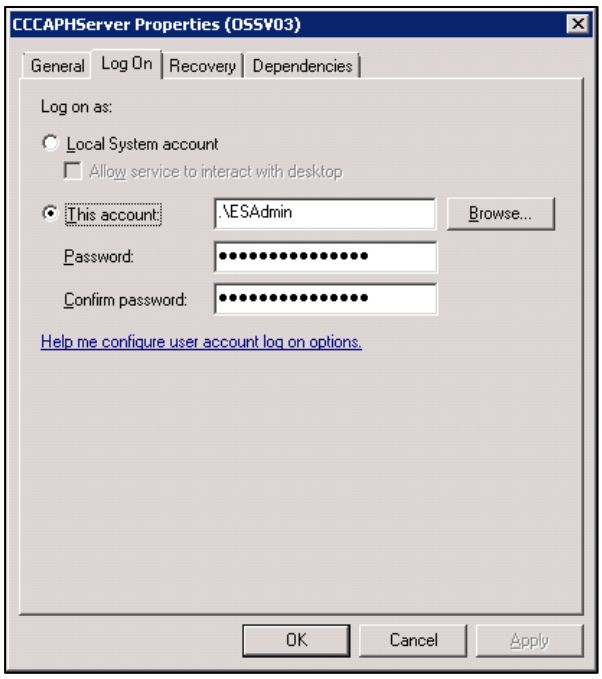
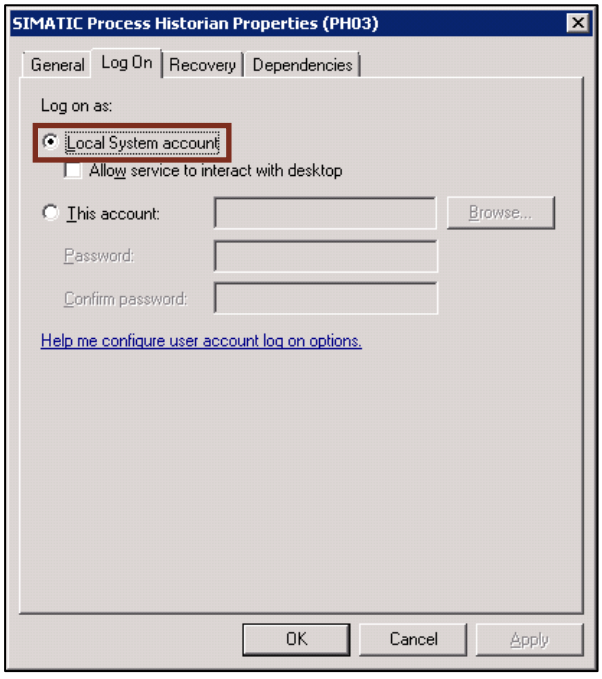
The "CCCAPHServer" service must be running / started using the same account name and password as the Process Historian Computer.



The "SIMATIC Process Historian" service on the PH is started via the local system account.



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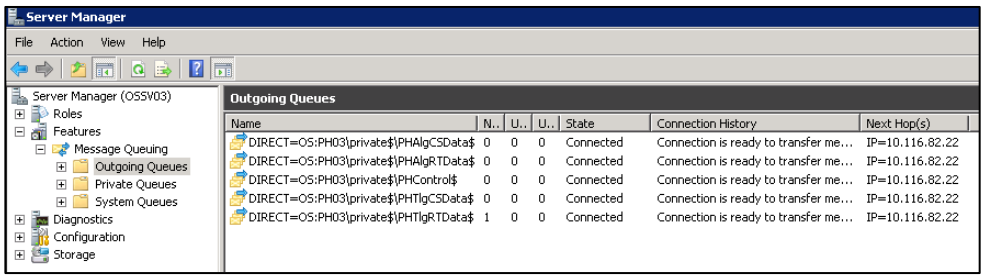
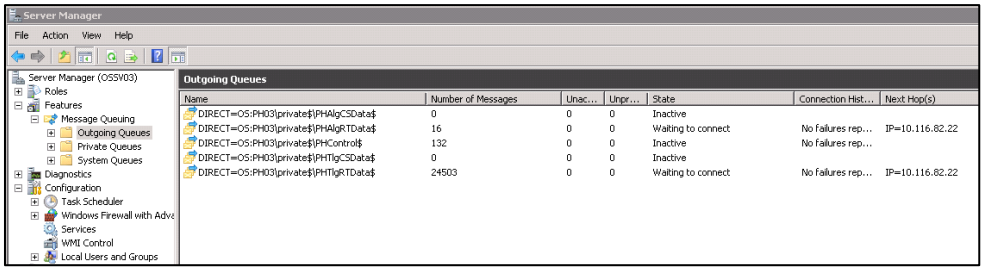
6. Check the queues for outgoing messages on the OS. The queues must be created and shown as "Connected".



7. Problems in the connection of queues can be identified from the "Waiting to connect" status, by going to "Server Manager > Features > Message Queues".



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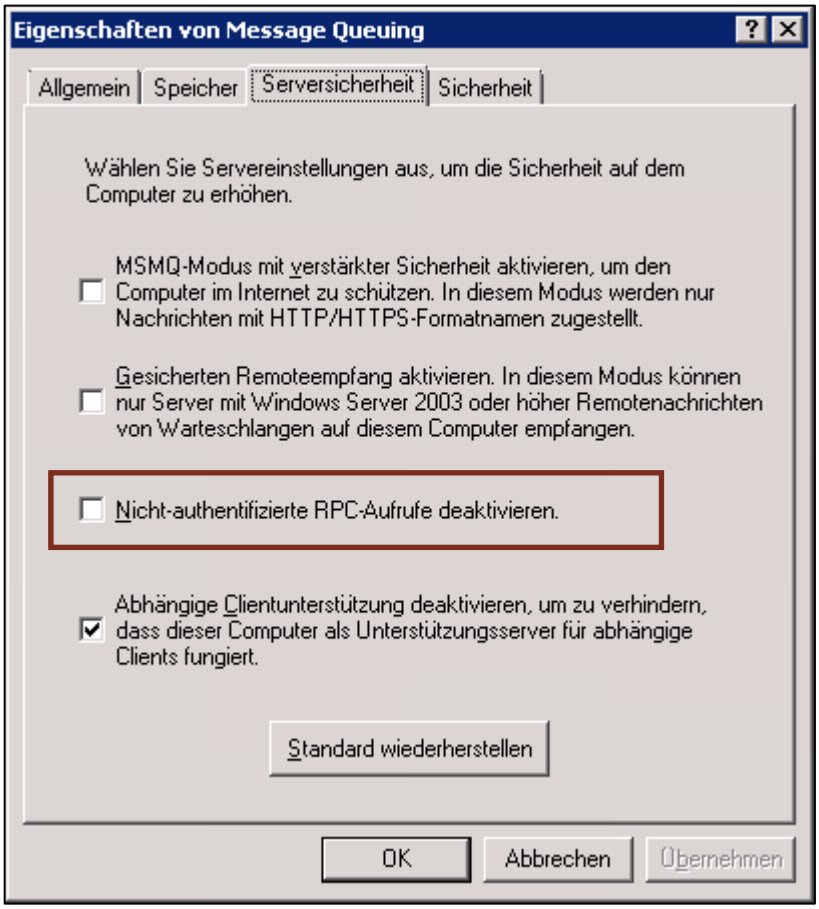
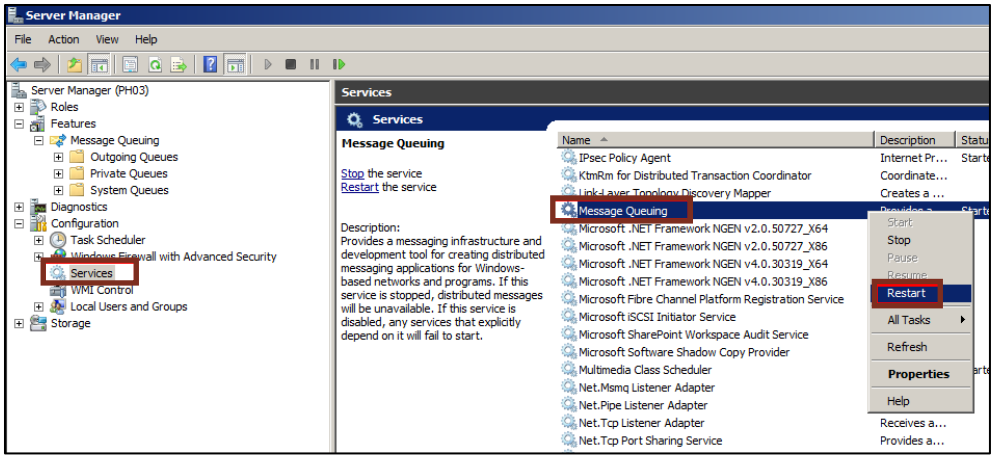
Possible causes

1. Unauthenticated RPC calls are blocked on the PH and must be first enabled.
   - This setting can be done via the Server Manager, in "Server Manager > Features > Message Queues > Properties > Server Security".
   - Deactivate the "Disable unauthenticated RPC calls" checkbox.



2. If the message queues on the OS system are in the "Waiting to connect" state, restart the Message Queuing service on the PH.



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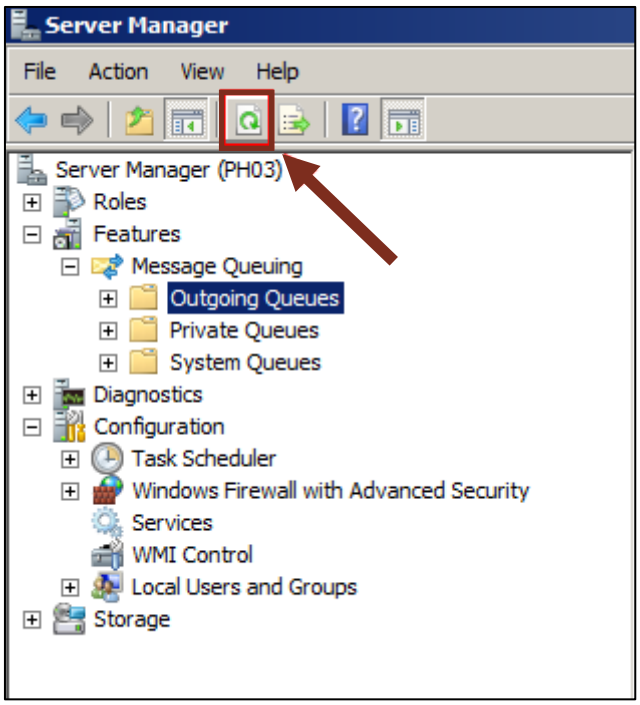
3. The state of the Message Queues in the Server Manager is not updated cyclically. Click the "Refresh" button to display status changes.



4. Check whether the "ProcessHistorian.cfg" file was created and if the PH computer name is correct.
5. The engineering system creates a "ProcessHistorian.cfg" file for each OS project, whose data is stored on the PH. This file is present in each OS and includes the PH computer name and the names of the MS message queues used. The "ProcessHistorian.cfg" file is located in the root directory of the OS project.

   If the "ProcessHistorian.cfg" file has not been created, check the PCS 7 project in terms of PH configuration and compile the OS.

Note If the OS single station is running on the ES, you have to use the "Assign Archive Server" button, located in the object properties of the OS.

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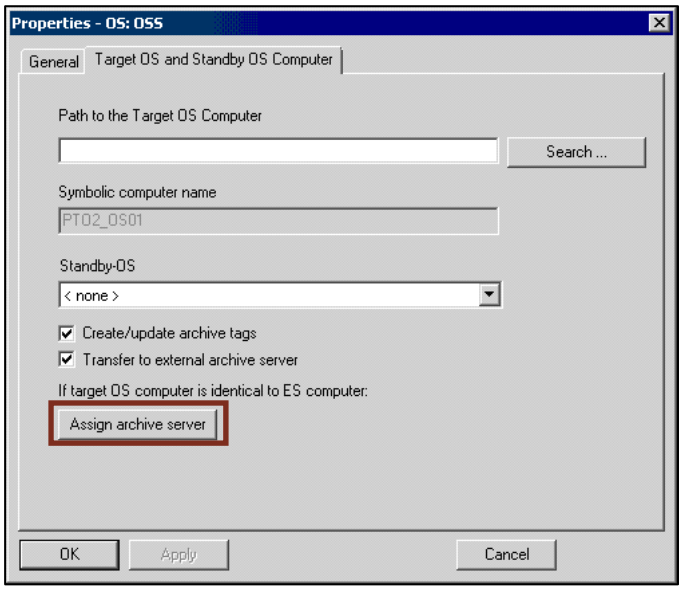

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9.4 Checking the PH installation

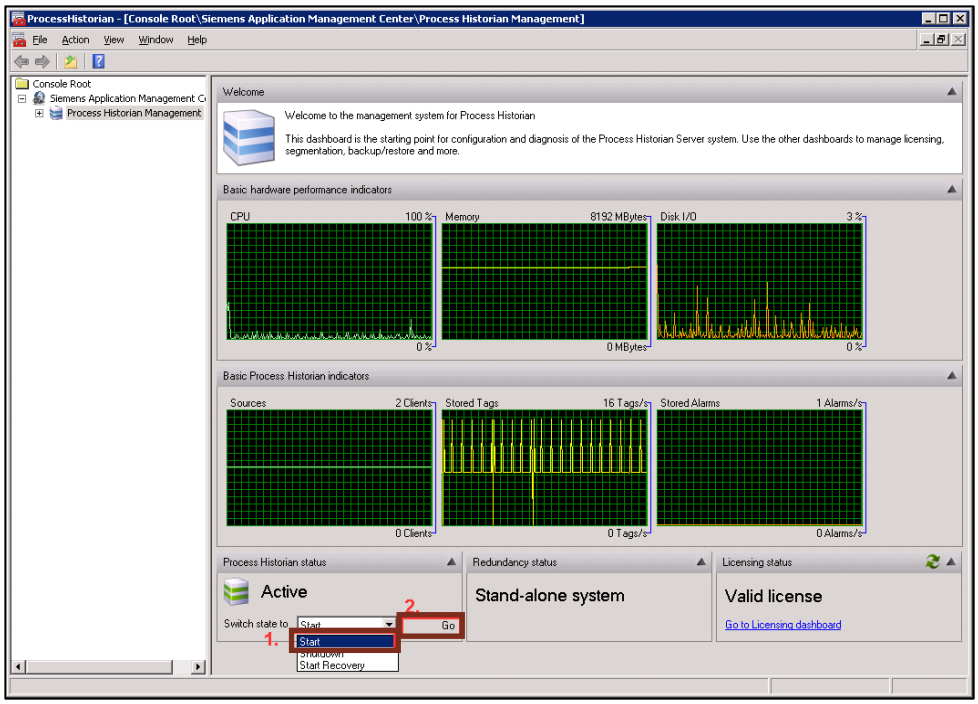
Scenario:

The operator station is configured for storing long-term relevant archive tags on the PH-computer. The OS has been loaded and is in runtime mode. The PH-Ready configuration on the OS has been checked but no tags and alarm messages are stored on the PH.

Recommended system tests and measures

1. Use the OS computer name to ping the OS computer from the PH and vice versa. The reply to the ping should be received within a few ms. If the ping does not work, there is a network problem.
2. Check whether the status of the PH is set to "Active". If the PH-Status is not "Active", set it to "Active" from the PH management console.

   Select "Start" and then click on "Go".



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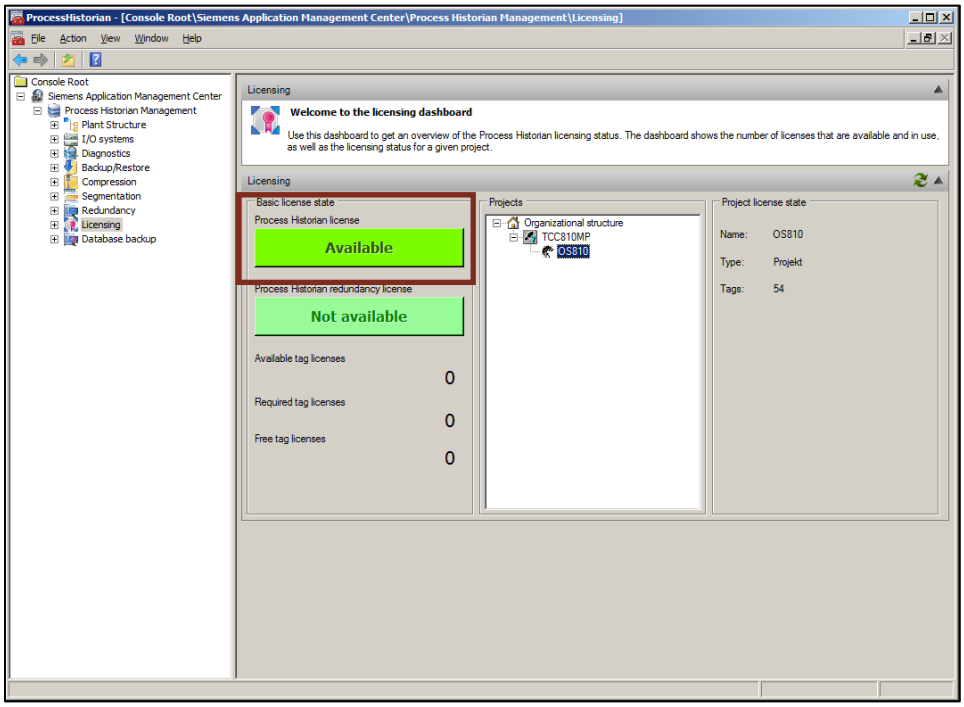
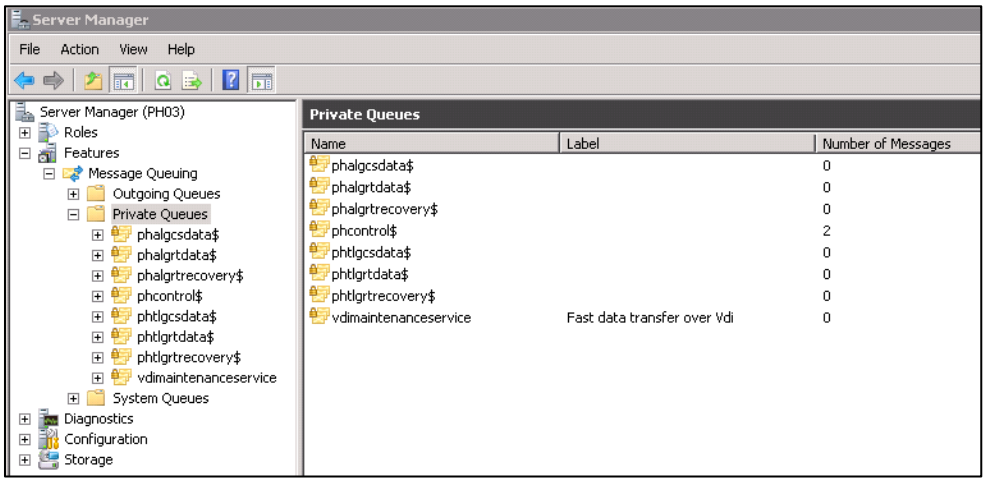
3. Use the Automation License Manager and the PH MMC to check whether all necessary licenses are available. The PH does not function without a valid license.



4. Check if PH errors are shown in the PH MMC "Diagnosis" menu and remedy any problems.
5. Check whether queues have been generated on the PH.

   To do this, open Server Manager and choose "Features > Message Queuing > Private Queues".



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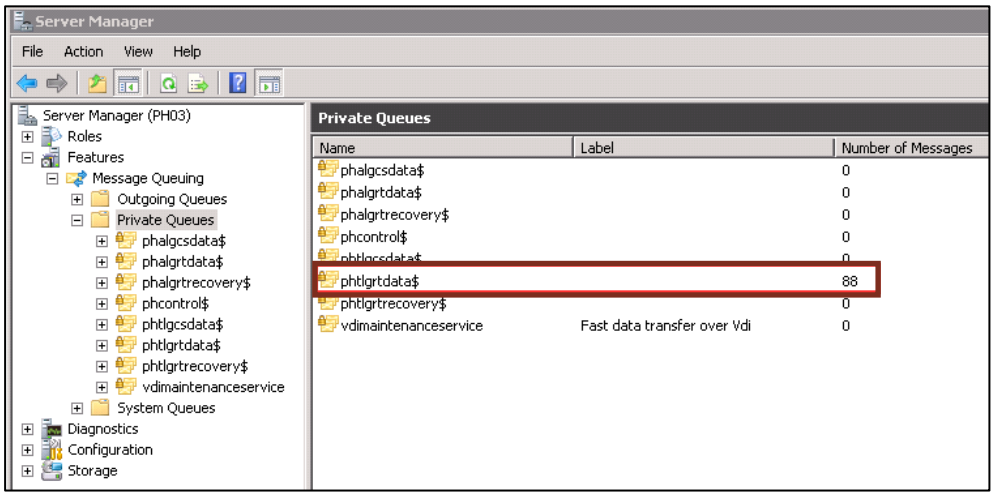
Example

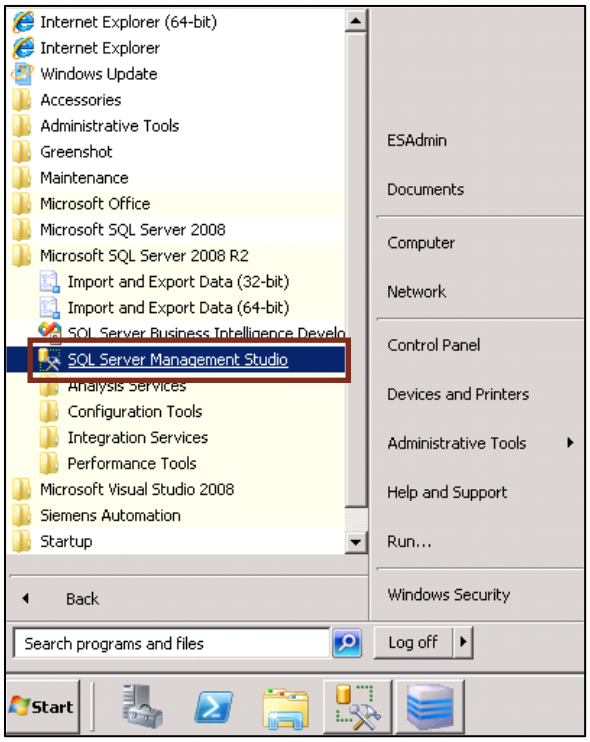
If queues have been generated on the PH-computer for tags and messages, but the data cannot be written to the PH database, the number of queued messages increases. For tags such as the "phtlgrtdata" queue.

In this case, the PH must be activated.



6. Check whether the "HistorianStorage" database has been created.

   Open the SQL Server Management Studio via "Start > All Programs > Microsoft SQL Server 2008 R2 > SQL Server Management Studio".



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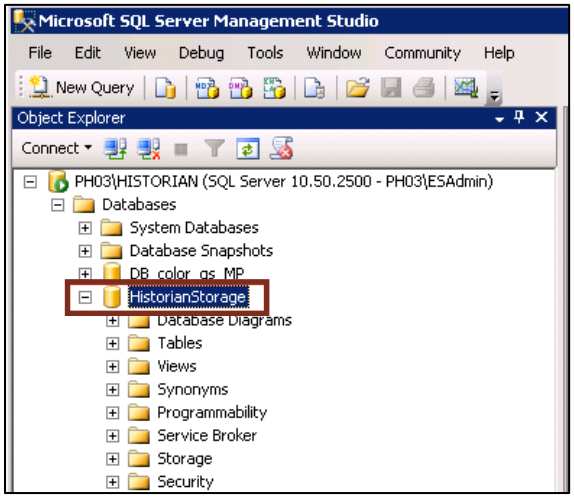
7. Establish a connection to the SQL Server instance "<computer name>\ HISTORIAN".

8. Check whether the "HistorianStorage" database exists.

   If this database does not exist, start the "Database Installation Wizard".



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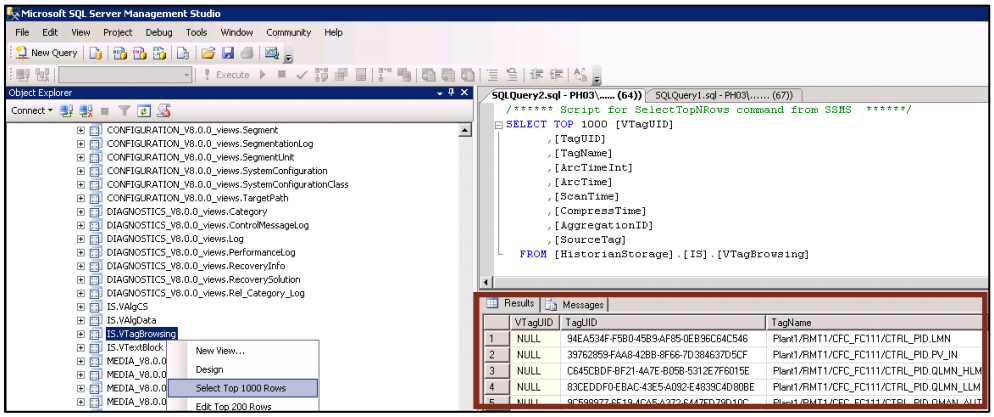
9. Check whether the PH has already received configuration data from the OS. Navigate via the SQL Server MMS to the view "HistorianStorage> Views> IS.VtagBrowsing" and select the shortcut menu "Select Top 1000 Rows".



If you then receive data results, the PH has received the configuration data from the OS.

If you get no results after this SQL query, yet the PH seems to be fine, check the OS. Restart the PH. If possible, restart the OS, and check again to see if the PH now receives configuration data from the OS.

10. If it is a redundant OS system, check whether the store and forward buffer on the OS is synchronized.

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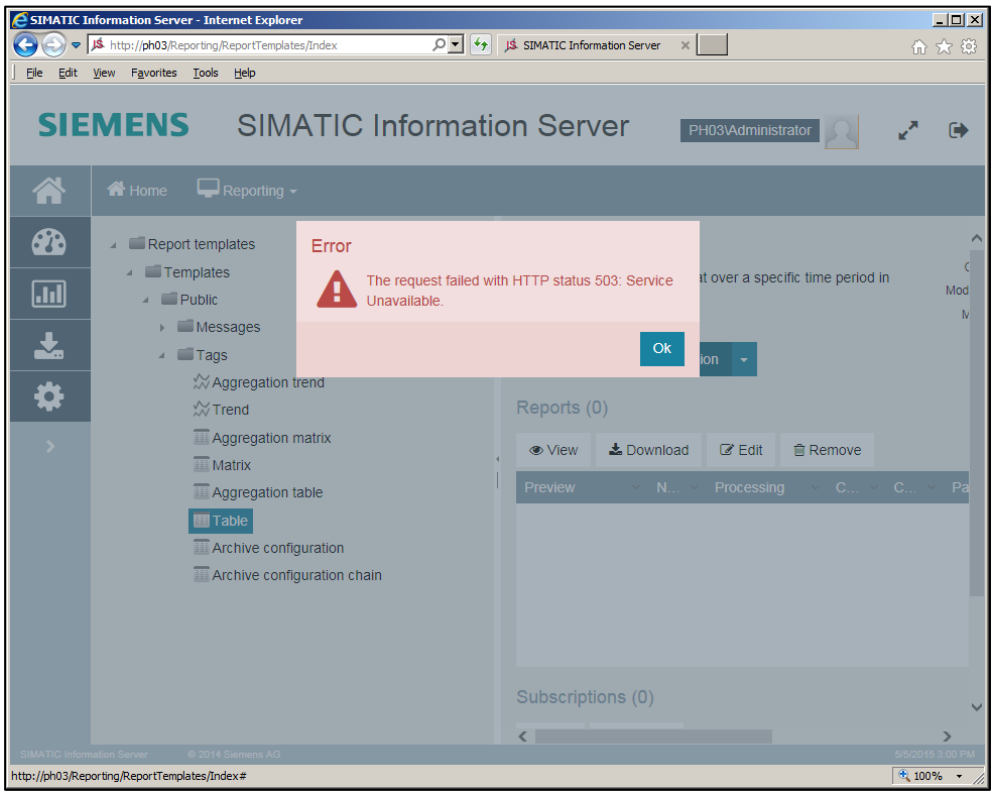
9.5 Checking the MS Reporting Services

Scenario

PH and IS are installed. The OS server stores data on the PH computer. When you connect the IE IS client to the IS, no logs can be created.



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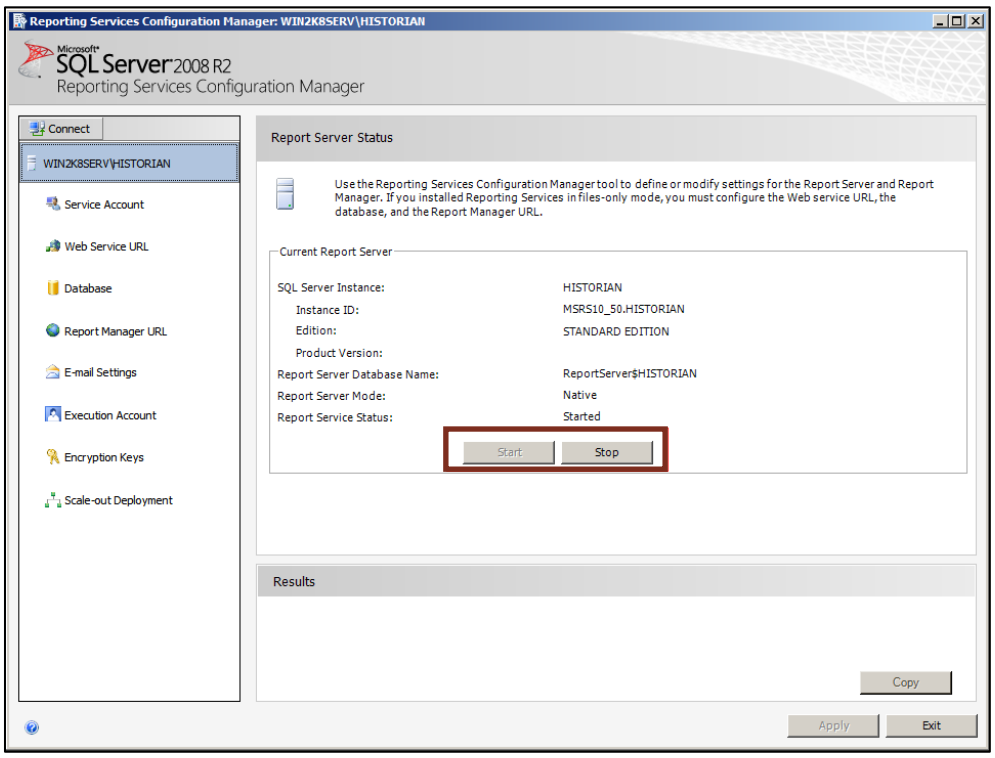
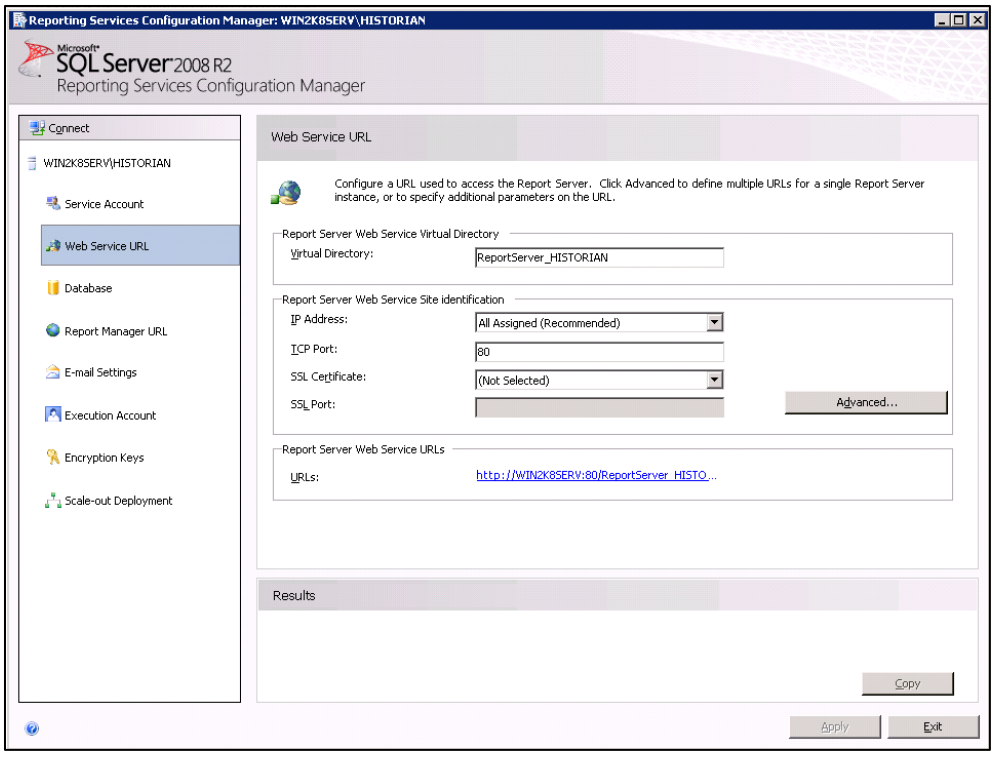
Recommended system tests and measures

1. Check whether the IS Report Server has started. If the "Stop" button can be operated, then the report server has started.



2. Check the Web Service URL settings.



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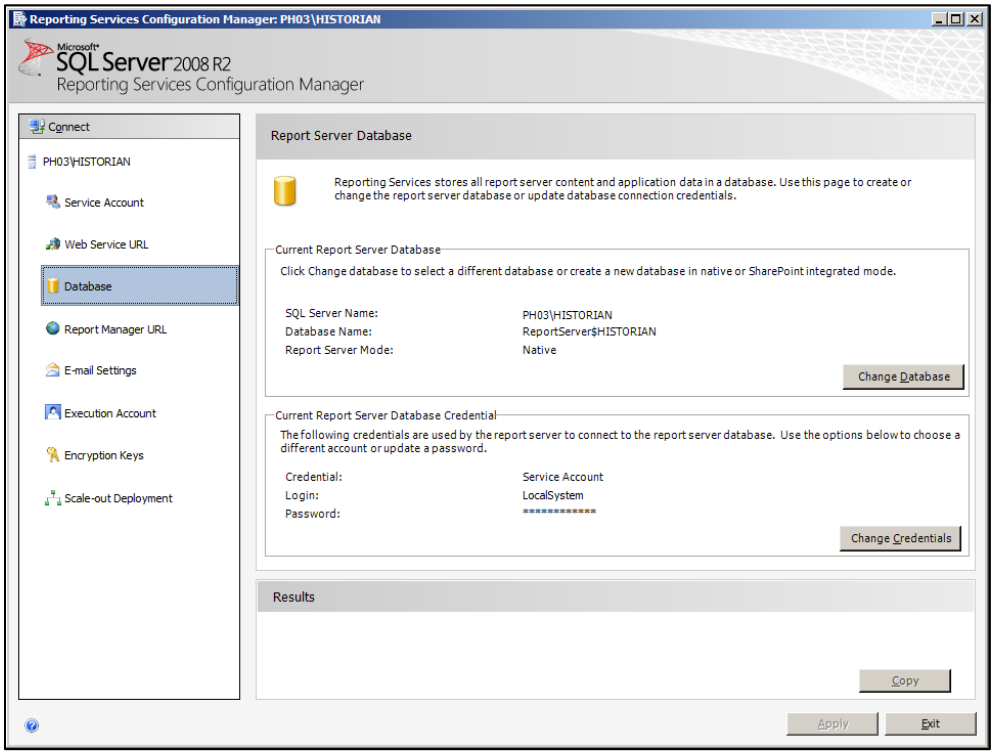
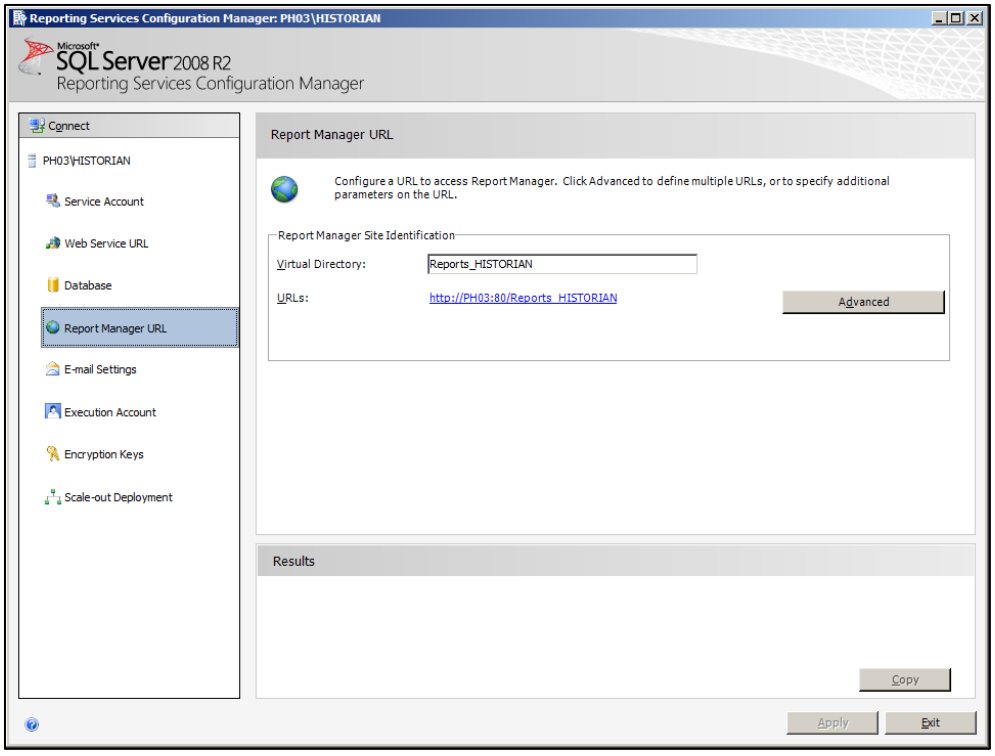
3. Check the settings in the Report Server Database.



4. Check the Report Manager URL.



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9.6 Log files

The following log files are available for the diagnosis of PH, IS and PH-Ready. Some of these log files are located in the "ProgramData" folder. This directory path must be displayed in Windows Explorer.

Process Historian

C:\ProgramData\Siemens\Logs\ProcessHistorianUI.diagnostic.log

C:\ProgramData\Siemens\Logs\Processhistorian.diagnostic.log

C:\ProgramData\Siemens\Logs\MaintenanceServer.diagnostic.log

C:\ProgramData\Siemens\Logs\DiscoveryService.diagnostic.log

Information server

The IS log files are located on the IS, in the directory path:

C:\ProgramData\Siemens\Automation\Logfiles

C:\Program Files (x86)\SIEMENS\InformationServer\log

PH-Ready on the OS

The log files for the PH-Ready log are on the OS, in the directory path:

C:\ProgramData\Siemens\Logs\ProcessHistorian

PH-SQL Server

C:\Programme\Microsoft SQL Server\MSSQL10_50.HISTORIAN\MSSQL\Log

PH-SQL Server

C:\Programme\Microsoft SQL Server\MSSQL10_50.HISTORIAN\MSSQL\Log

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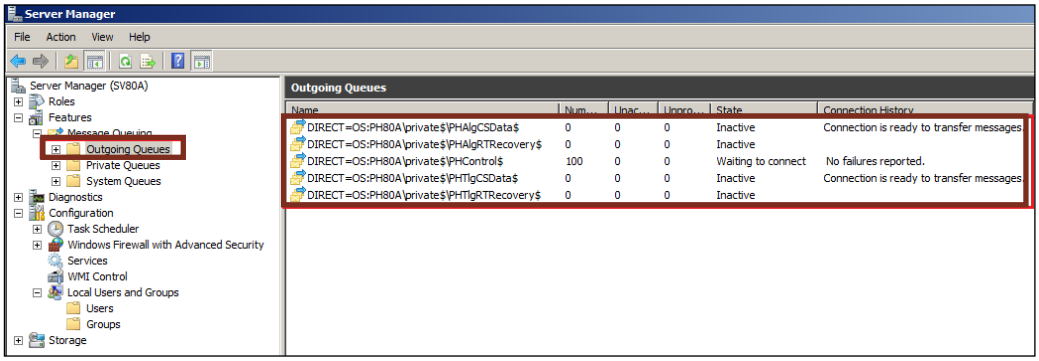
9.7 Starting the PHControl Message Queue

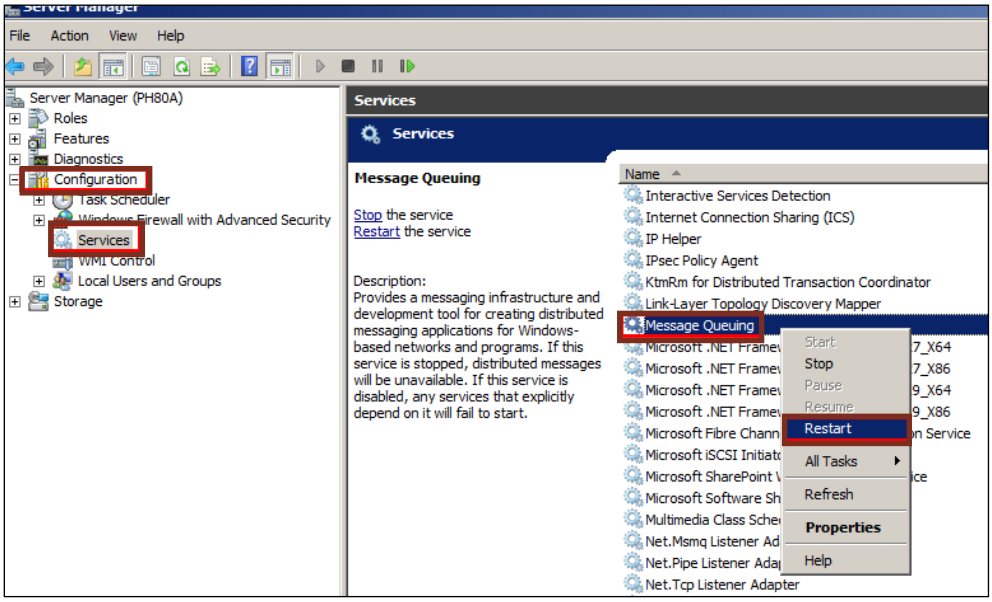
In rare cases it can occur that after starting the OS runtime or restarting the Process Historian, the PHControl Message Queue remains in a "Waiting to connect" state.

In this case, the Message Queuing service of the Process Historian has to be restarted.



Procedure

1. Start the Server Manager.
2. Navigate to the "Configuration\Services\Message Queuing" service.
3. Open the context menu for the "Message Queuing" service and run the "Restart" function.



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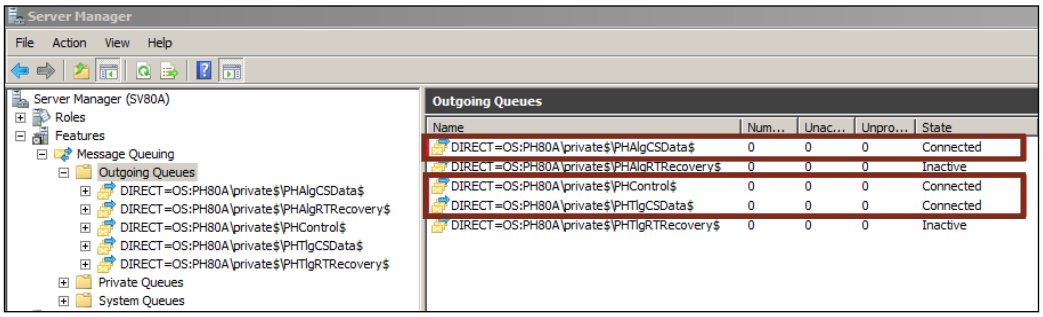
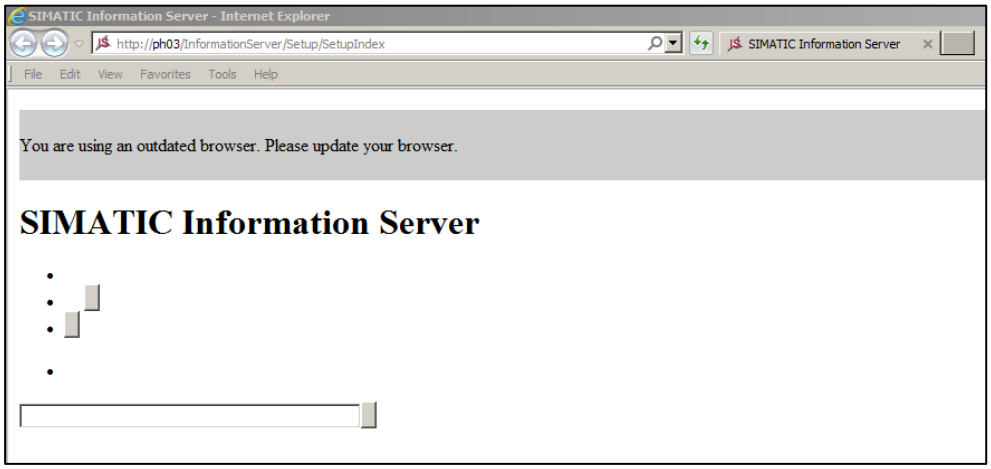
Result

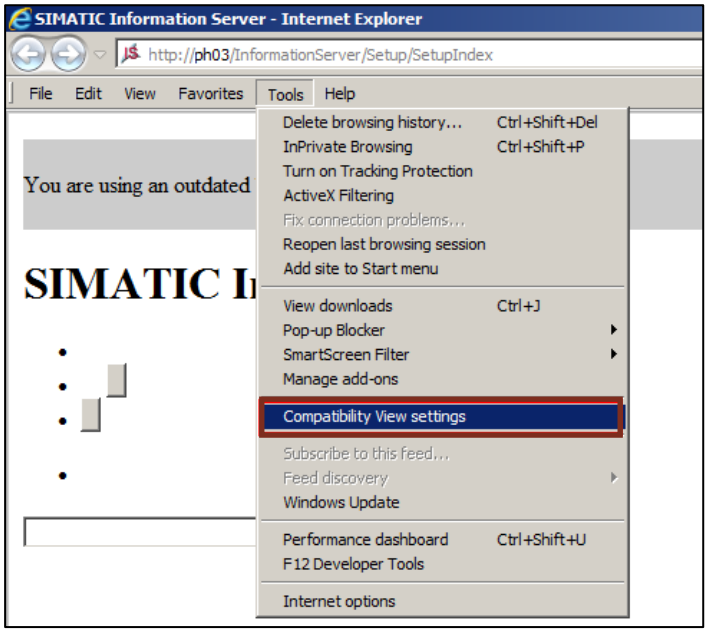
The PHControl Message Queue connects successfully after restarting.



9.8 IS client message "You are using outdated browser. Please update your browser"



This message is caused by wrong “Compatibility view settings”.



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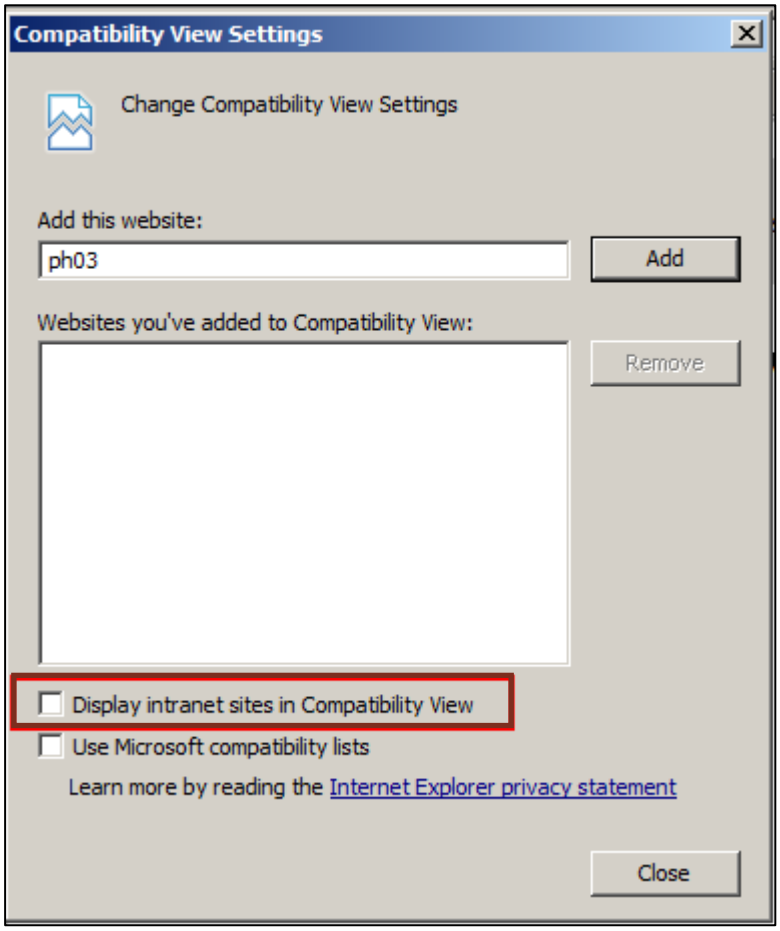
Remove the "Display intranet sites in Compatibility View" setting.



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9.9 Microsoft.NET Framework 4.0

Scenario

After establishing the connection with an Internet Explorer IS client, the website of the Information Server does not work.

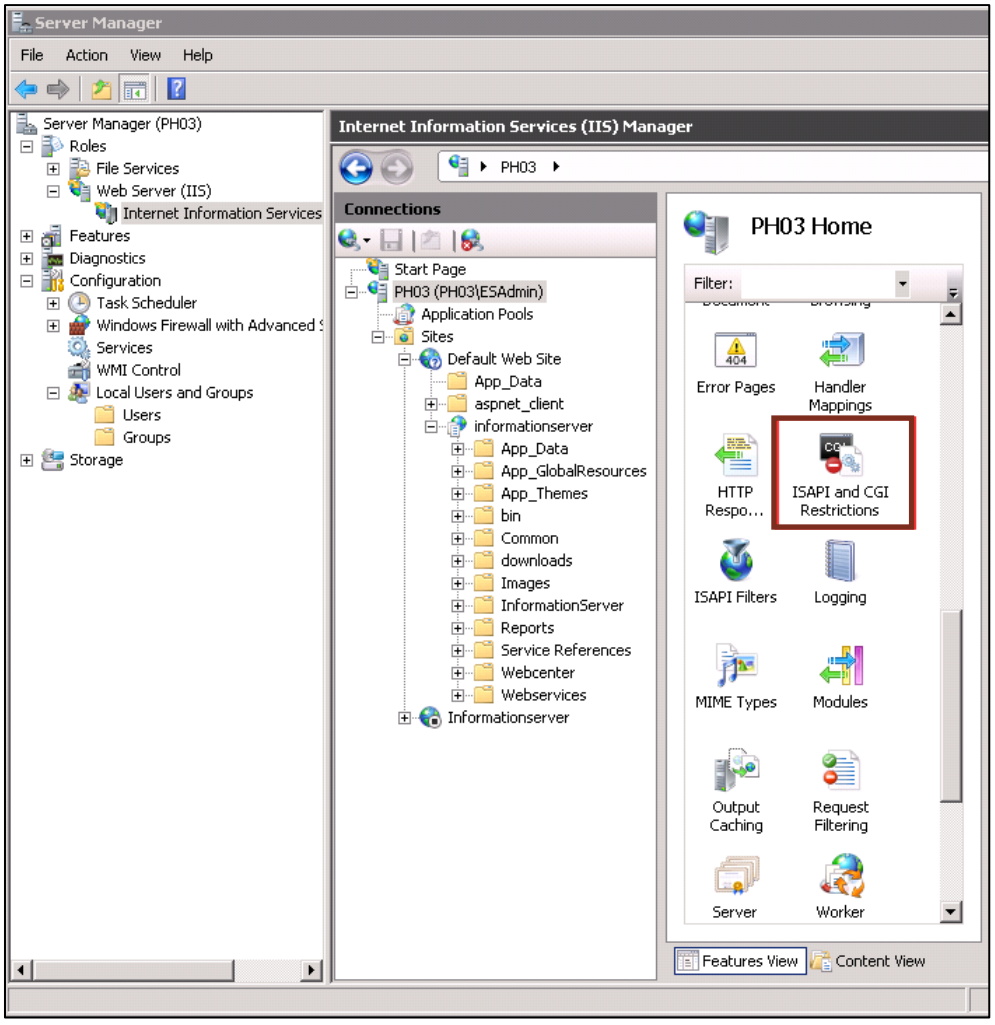
Possible cause

Unregistered Microsoft.NET Framework 4.0.

9.9.1 Checking the registration of Microsoft.NET Framework 4.0

1. Open the Server Manager on the IS.

   Select "Roles > Web Service (IIS) >Internet Information Services > ISAPI and CGI Restrictions".



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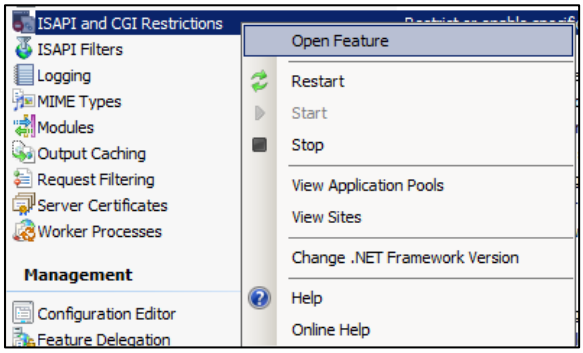
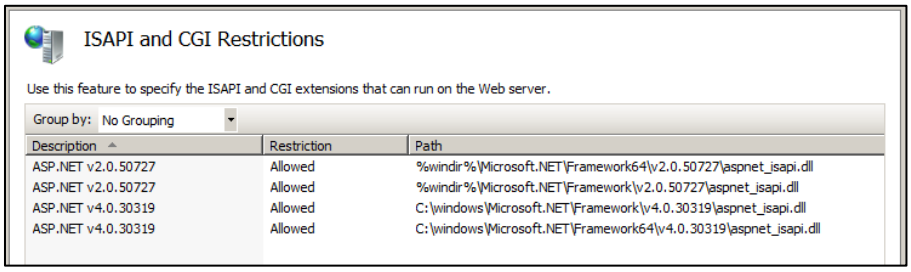
2. Select the "Open Feature" menu item.



3. Check whether Microsoft.NET Framework 4.0 is registered.

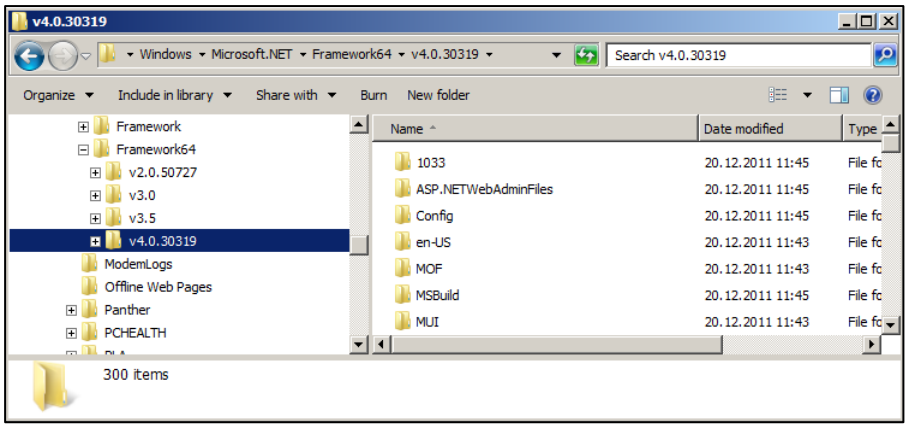


9.9.2 Registering Microsoft.NET Framework manually

After the installation of Microsoft.NET Framework, this is indicated in the following installation directory:

<WindowsDir\Microsoft.NET\Framework64\<version number>\.

Example



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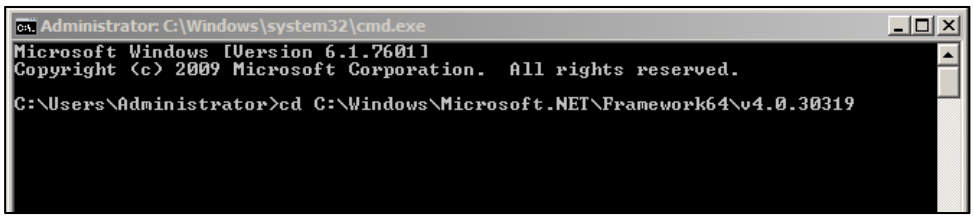
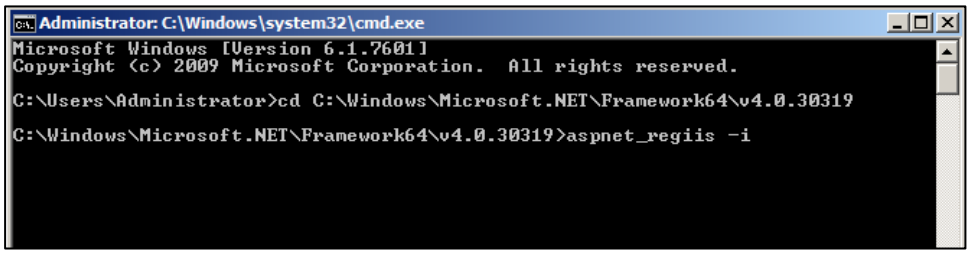
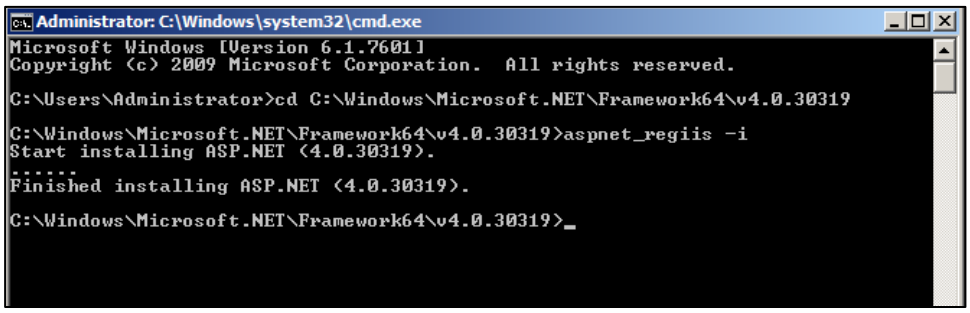
For manual registration, you must call the DOS command prompt and open the folder "DotNetFramework".



Type in the command "aspnet_regiis.exe -i" and press the Enter key.



The registration completes within a few seconds.



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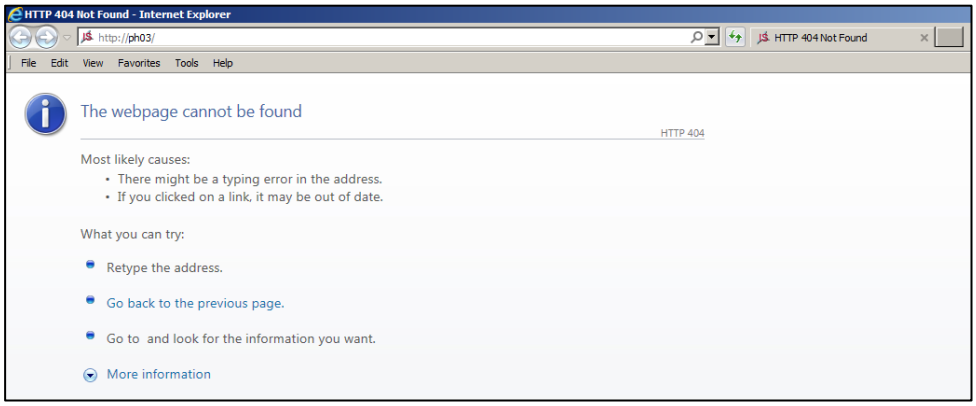
9.10 Checking the Internet settings of the IS server

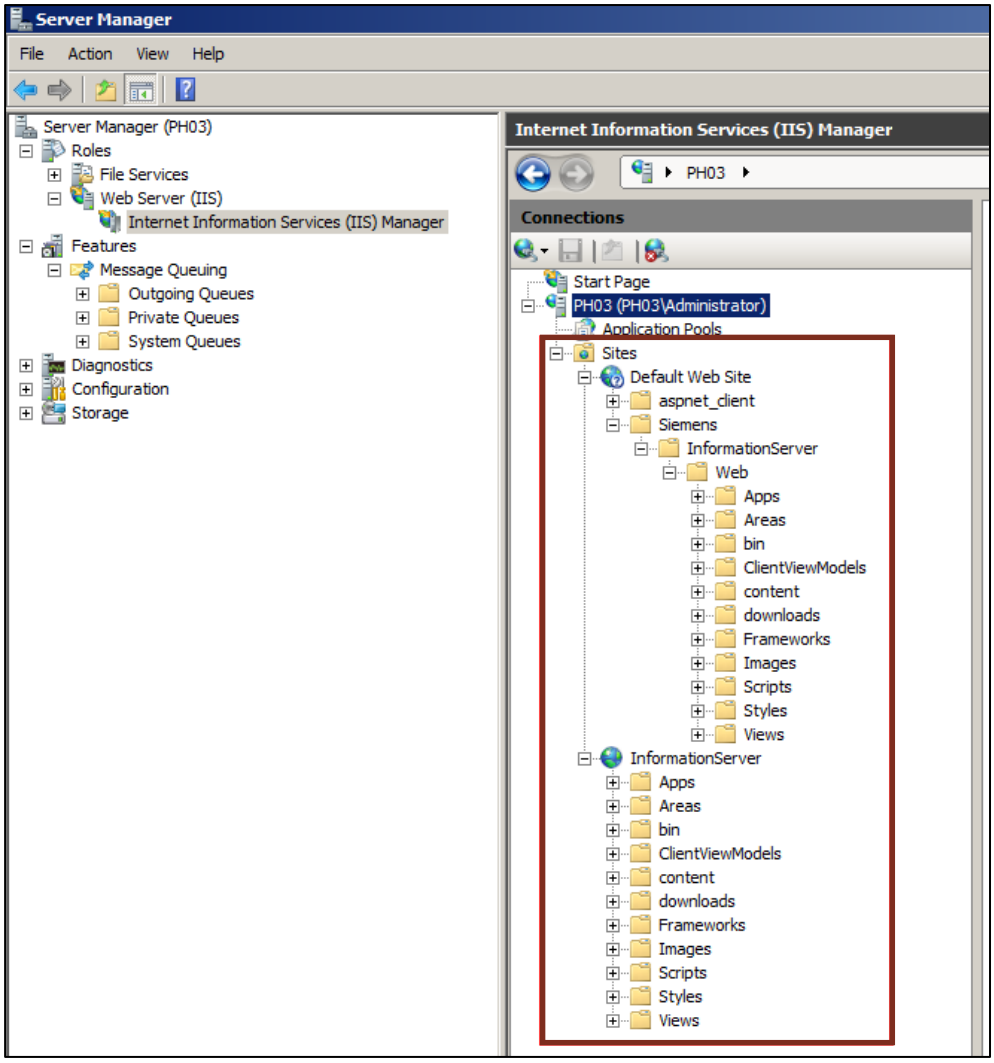
Scenario

PH and IS are installed. The OS server stores data on the PH computer. When you connect the IE IS client to the IS, no logs can be created.



Recommended system tests and measures

1. Check whether the website was created for the Information Server. To do this, open the Server Manager and select "Roles > Web Server (IIS) > Internet Information Service (IIS) Manager" to see if an Information Server website exists.
2. If no website exists, start the "IS Configuration Wizard" manually to generate the website.



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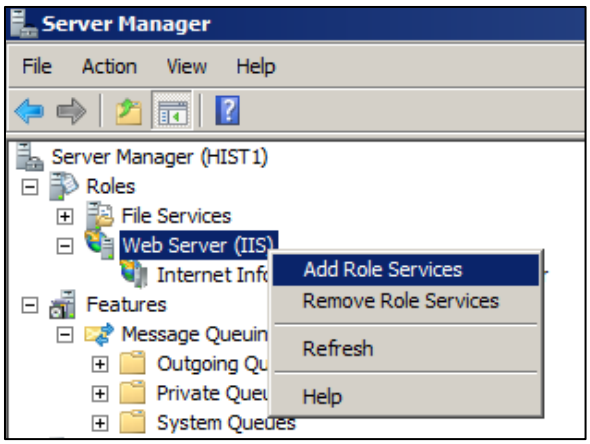
3. Check the IIS settings.

   To do this, open the Server Manager, select "Roles > Web Server (IIS)". Open the "Web Server (IIS)" shortcut menu (right-click) and select "Add Role Services".



4. Compare the settings with the following screenshots.

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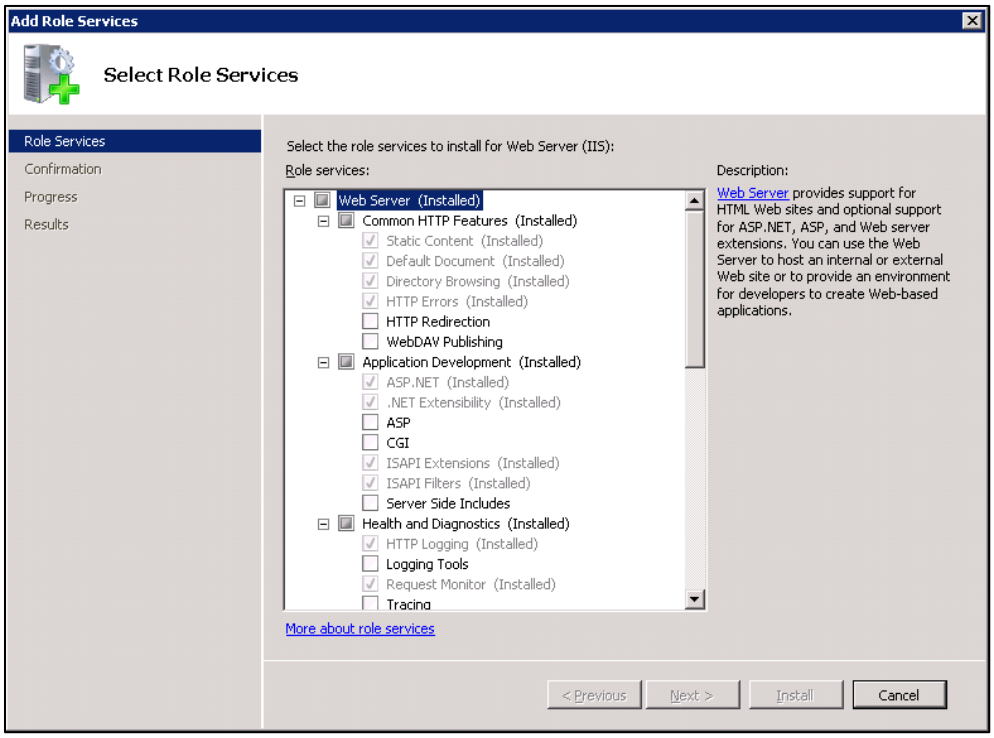

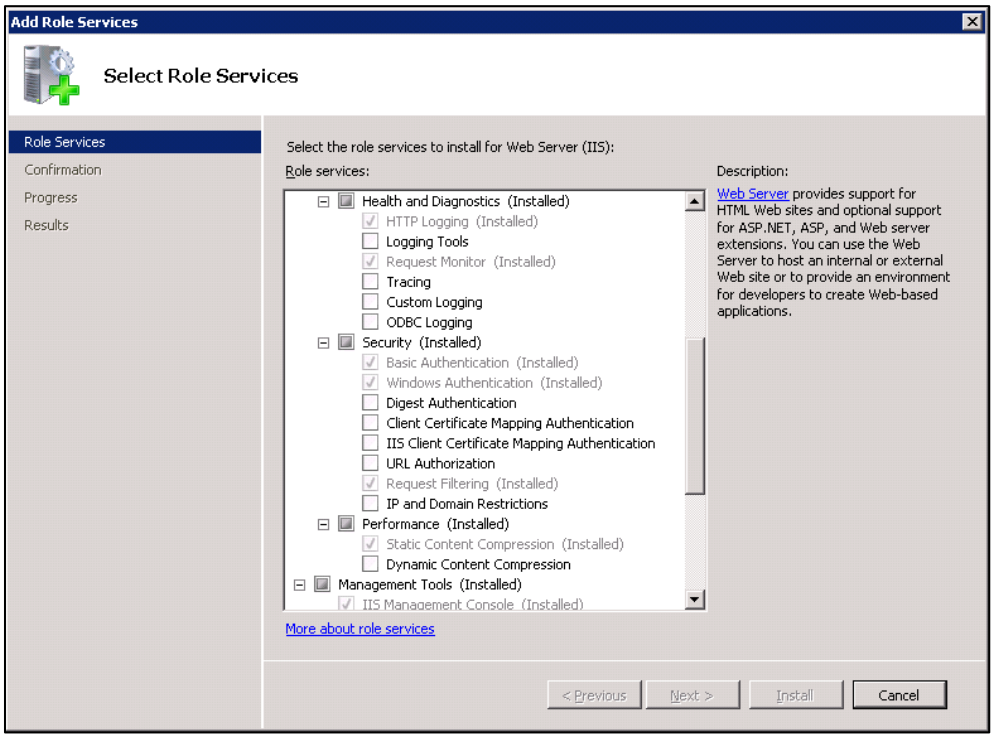

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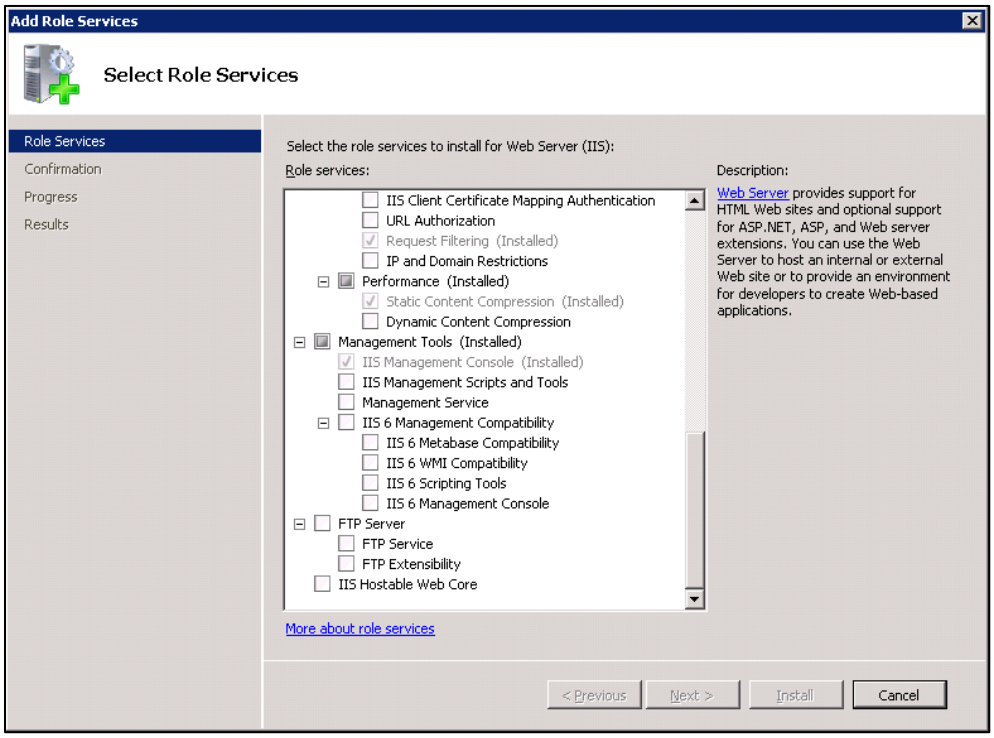

5. The IS Configuration Wizard creates two websites.
   Check which website is active and whether the correct URL is being used.

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10 Appendix

10.1 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, and application examples – all the information you need is accessible with just a few mouse clicks at: https://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.

You send queries to Technical Support via Web form: www.siemens.en/industry/supportrequest .

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Service offer

Our range of services includes, inter alia, the following:

6. Product trainings
7. Plant data services
8. Spare parts services
9. Repair services
10. On-site and maintenance services
11. Retrofitting and modernization services
12. Service programs and contracts

You can find detailed information on our range of services in the service catalog: https://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 Apple iOS, Android and Windows Phone: https://support.industry.siemens.com/cs/ww/en/sc/2067

10.2 Links and Literature

Table 10-1

No.	Topic
\1\	Siemens Industry Online Support https://support.industry.siemens.com
\2\	https://support.industry.siemens.com/cs/ww/en/view/66579062

10.3 History

Table 10-2

Version	Date	Change
V1.0	03/2017	First version
V 2.0	07/2017	Contents in respect of installation requirements, software installation, commissioning and troubleshooting expanded

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