



SIEMENS

Application Description • 11/2016

Integration of Process Historian / Information Server in a Domain

SIMATIC PCS 7



<https://support.industry.siemens.com/cs/ww/de/view/66579062>

Warranty and liability

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Preface

Objectives

This document describes the steps that are to be carried out during the integration of a combined Process Historian (PH) and Information Server (IS) in a PCS 7 environment.

Core contents

The following topics will be discussed in detail:

- Including an ES/OS Single Station in a domain
- Including an OS server in a domain
- Including a combined Process Historian / Information Server in a domain

Validity

The instructions were generated using:

- SIMATIC PCS 7 V8.0 SP1
- Process Historian 2013
- Information Server 2013

The contents of this document also apply for Process Historian 2014.

Note

The configuration example for the ES/OS Single Station is carried out using the Windows 7 (64 bit) operating system. Windows Server 2008 R2 (64 bit) was used for the combined Process Historian / Information Servers.

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1 Introduction

In general, the recommendation to install a Process Historian (PH) in the environment provided, e.g. a workgroup or domain, should be followed. This procedure reduces the complexity of integration into the productive PCS 7 environment.

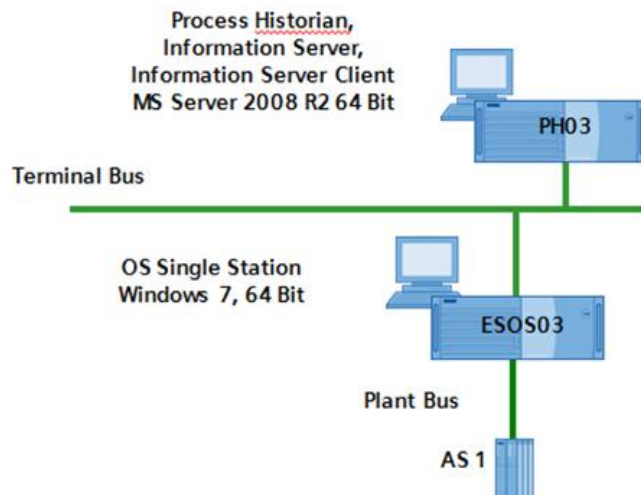
PCS 7 systems are frequently pre-installed in another environment or computer network and prepared as they are operated.

A typical example here is the installation and configuration of a PCS 7 system including Process Historian in a system integrator. Following a successful FAT (Factory Acceptance Test), the system is transported to the end customer and integrated into the customer environment.

The instructions below describe how a Process Historian installed in the workgroup is added to a domain and which configuration steps need to be carried out.

For a hands on approach, the following PCS 7 configuration is implemented as an example:

Figure 1-1



Note The operator stations and the Process Historian must be either operated together in a domain or together in a workgroup. It is not permitted to have a mixed configuration of domains and workgroups.

Note In case of a workgroup, the users of that particular workgroup should be used. In case of a domain, the domain users should be used.

2 Installation

Note In the description below, the term 'workgroup' will be used.

Carry out the installation in the environment provided.

Table 2-1

Environment	Note
Workgroup	Install the Process Historian with a user account with administrator rights
Domain	Install the Process Historian with a domain user that has local administrator rights

If you would like to operate a Process Historian within a workgroup, the simplest method is to install and operate the Process Historian in this workgroup together with the workgroup administrator.

Note The description "Installation and commissioning of Process Historian / Information Server in the PCS 7 environment" describes all the necessary steps for the installation and setup of Process Historian. You can find the description at the following link:

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

3 Inclusion in the domain

This section describes how an OS Single Station, an OS server and a combined Process Historian / Information Server are included in the domain.

The following names are predefined for the configuration:

- Domain name = **pcs7sv.local**
- Computer name OS = **ESOS03**
- Computer name PH / IS = **PH03**

The following users have been created for the domain:

- User login with local authorizations on the OS server and Process Historian = **pcs7sv\OSUserDom**
- CCCAPHServer login with local administrator authorizations on the OS server = **pcs7sv\PHReadyUserETest**

Note

Knowledge about managing and adding domain users (in the domain controller) is taken for granted and is therefore not described in this document.

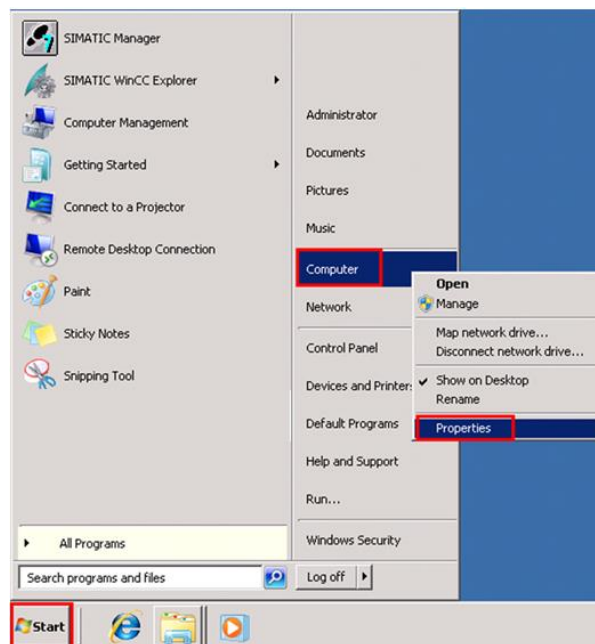
3.1 ES/OS Single Station

3.1.1 Including an ES/OS Single Station in the domain

Operating instruction

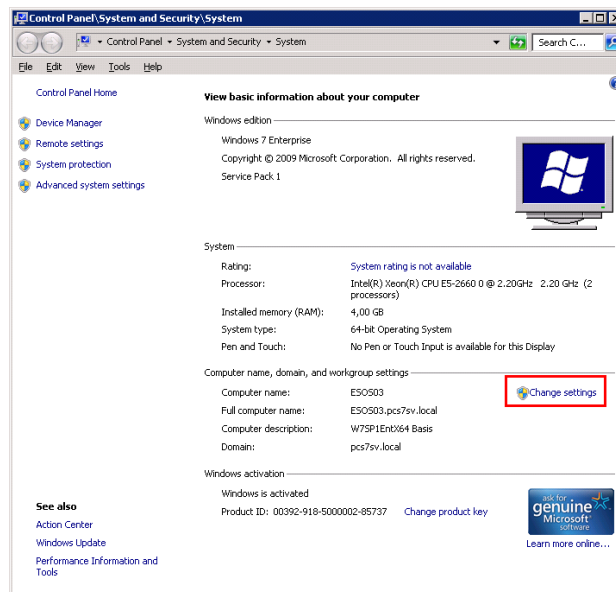
1. Open the Windows Start menu. Right-click on "Computer" and select "Properties" from the shortcut menu.

Figure 3-1



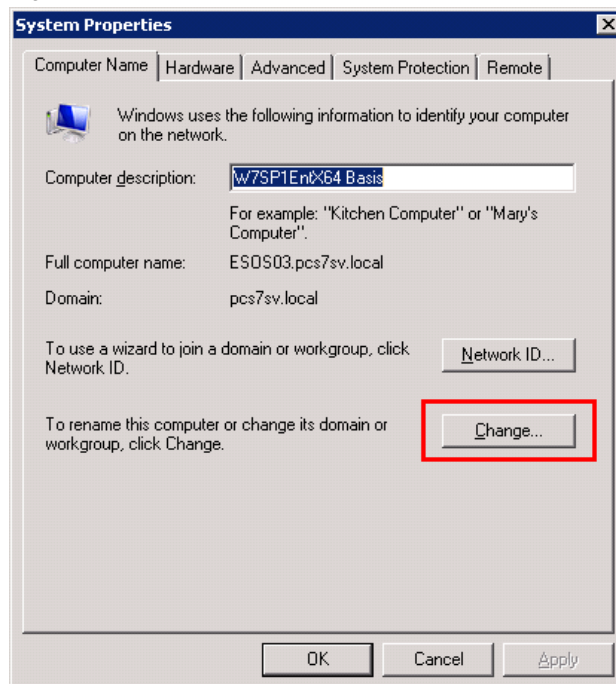
2. Click on "Change settings".

Figure 3-2



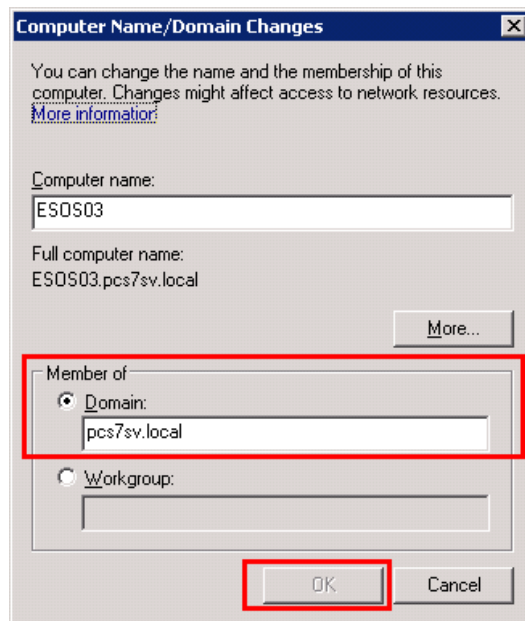
3. Click the "Change" button.

Figure 3-3



4. Enter the domain and click the "OK" button.

Figure 3-4



5. Restart the computer.

3.1.2 Extending the local user groups

In this chapter, the domain user "OSUserDom" is included into the following user groups:

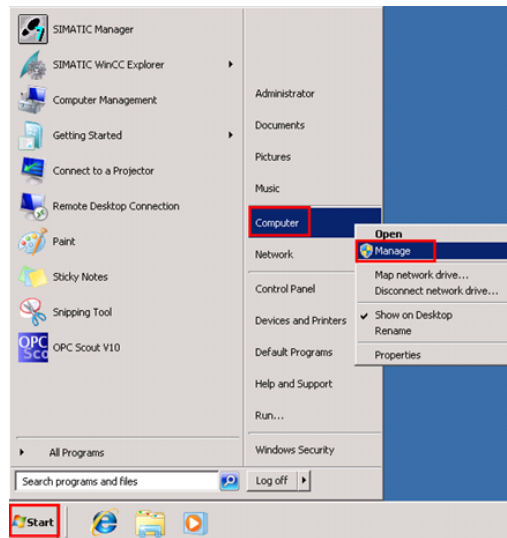
- SIMATIC HMI
- Users
- Siemens TIA Engineer
- SIMATIC NET

The instruction below describes the inclusion in the user group SIMATIC HMI. The procedure is identical for the other user groups.

Operating instruction

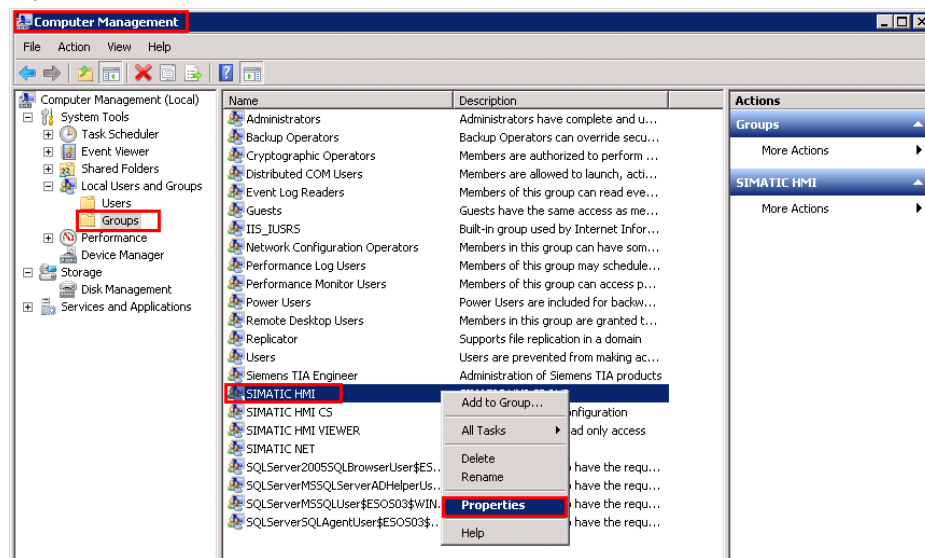
1. Open the Start menu. Right-click on "Computer" and select "Manage" from the shortcut menu.

Figure 3-5



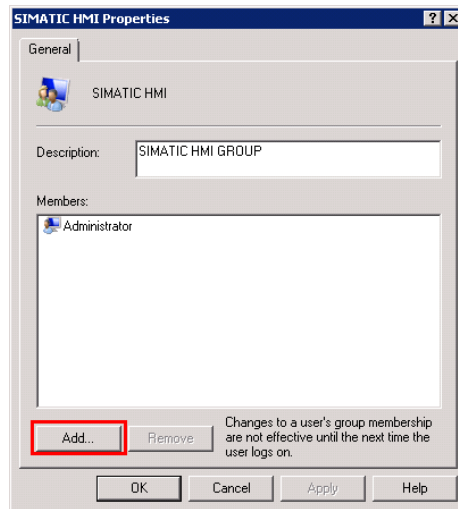
2. Navigate to "Local Users and Groups > Groups". In the central area, select the group "SIMATIC HMI" and select "Properties" from the shortcut menu.

Figure 3-6



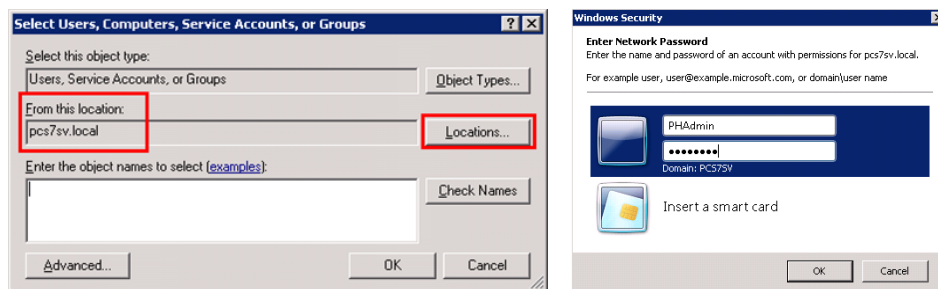
3. Click the "Add..." button to add.

Figure 3-7



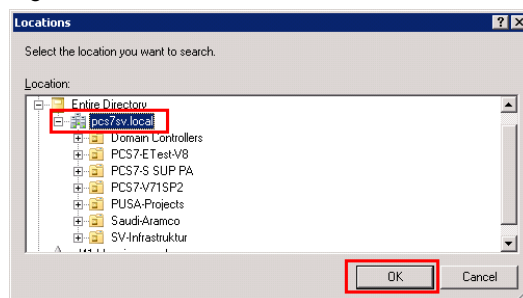
4. Click the "Locations..." button. You will need to be logged on to the domain for authentication.

Figure 3-8



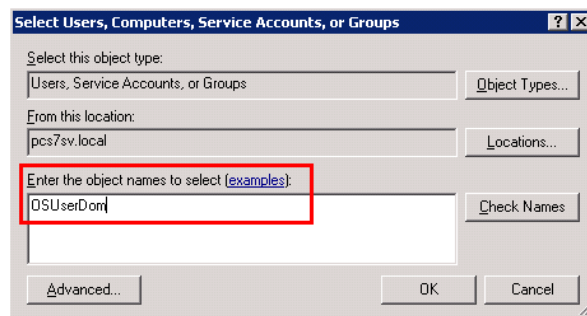
5. Select a domain location and click "OK" to confirm.

Figure 3-9



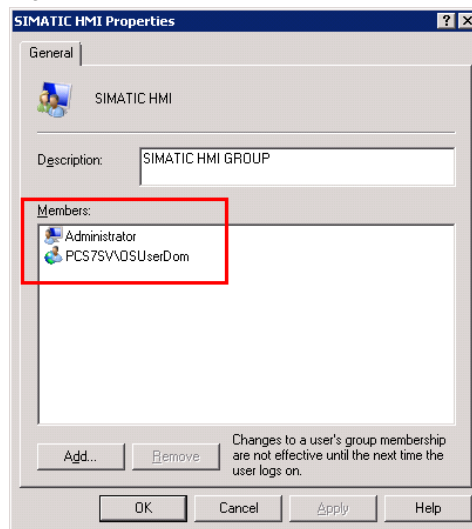
6. Enter the domain user ("OSUserDom" in the example) that will be logged on to the PC at the execution time and click the "OK" button.

Figure 3-10



7. To extend the user group click "Apply" followed by the "OK" button.

Figure 3-11



8. Repeat steps 2 to 7 for the remaining user groups and, once finished, restart the ES/OS Single Station.

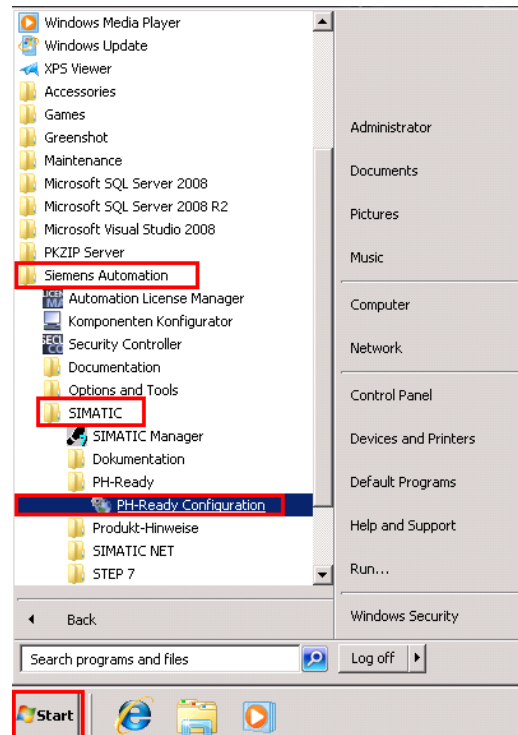
3.1.3 Configuring the "CCCAPHServer" service

The "CCCAPHServer" service required for Process Historian is started with a domain user. Follow the configuration steps in the following operating instruction.

Operating instruction

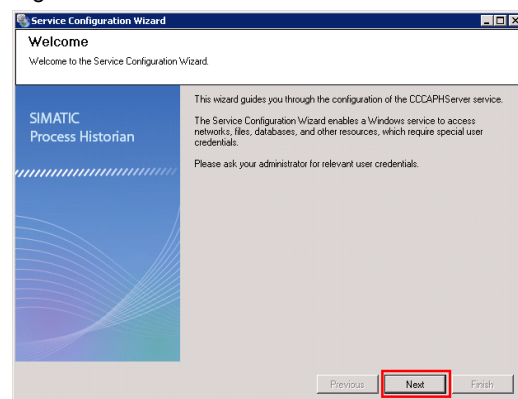
9. Open the configuration wizard from the Start menu "Siemens Automation > SIMATIC > PH-Ready > PH-Ready Configuration".

Figure 3-12



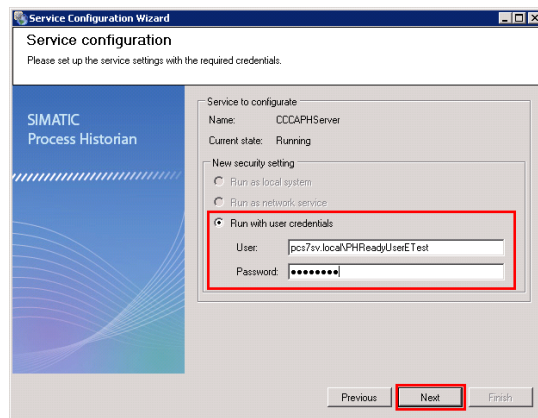
10. Click the "Next" button.

Figure 3-13



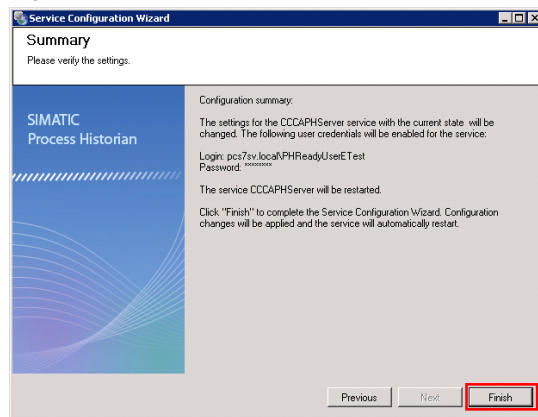
11. Use the "CCCAPHServer" user (local administrator) in the form "domain\user name" and click the "Next" button.

Figure 3-14



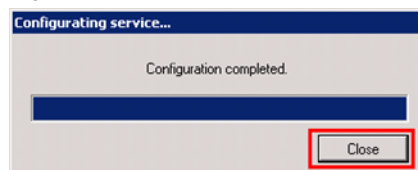
12. To finish, click the "Finish" button.

Figure 3-15



13. After completing the configuration, click the "Close" button.

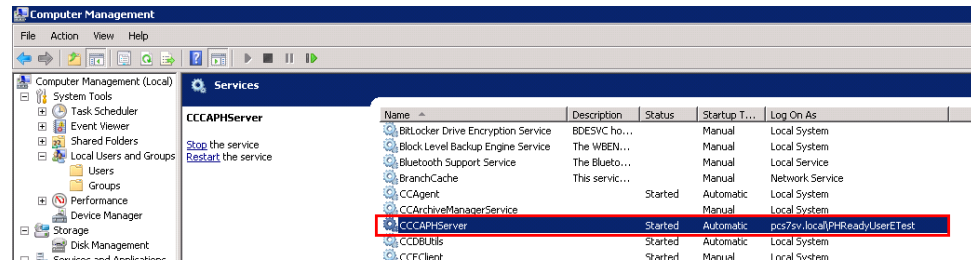
Figure 3-16



Result

The domain user "PHReadyUserETest" has been configured as logon user for the "CCCAPHServer" service.

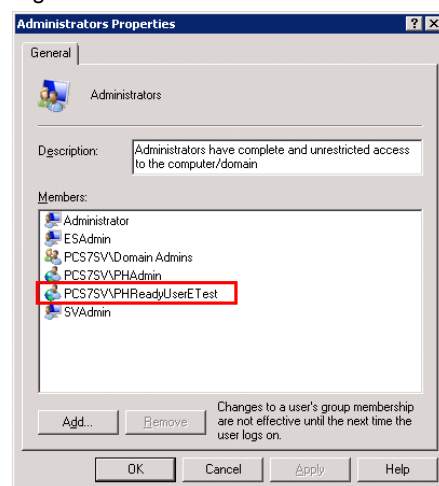
Figure 3-17



3.1.4 Extending the administrator group to include the "CCCAPHServer" user

1. Open Computer Management.
2. Navigate to the "Local Users and Groups > Groups" folder.
3. In the central area, select the group "Administrators" and select "Properties" from the shortcut menu.
4. Add the "CCCAPHServer" user (in this example, "PHReadyUserETest") to the local administrators group.

Figure 3-18



Note

The "CCCAPHServer" user must not be logged on when the visualization is propagated to the OS system.

3.1.5 Extending the local user group "SIMATIC HMI" to include the "CCCAPHServer" user

1. Open Computer Management.
2. Navigate to the "Local Users and Groups > Groups" folder.
3. In the central area, select the group "SIMATIC HMI" and select "Properties" from the shortcut menu.
4. Add the "CCCAPHServer" user (in this example, "PHReadyUserETest") to the local "SIMATIC HMI" group.

3.2 OS server

The procedure for including an OS server in a domain is identical to the procedure for the ES/OS Single Station. In contrast to the ES/OS Single Station, the domain user for the OS server is inserted into the following user groups:

- Users
- SIMATIC HMI
- SIMATIC NET

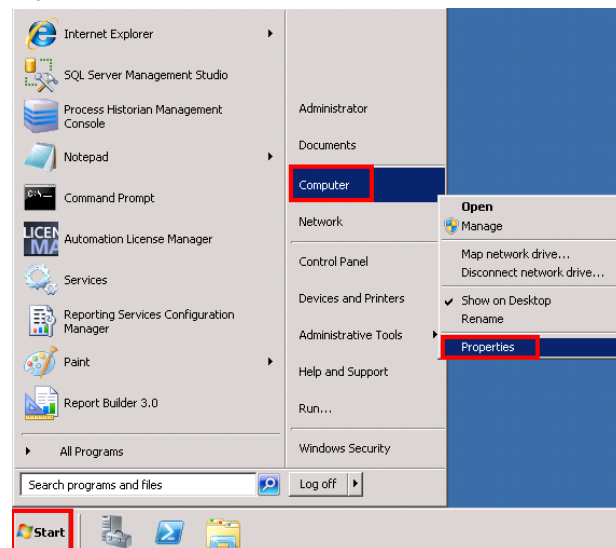
3.3 Combined Process Historian / Information Server

3.3.1 Configuration as a domain user

Operating instruction

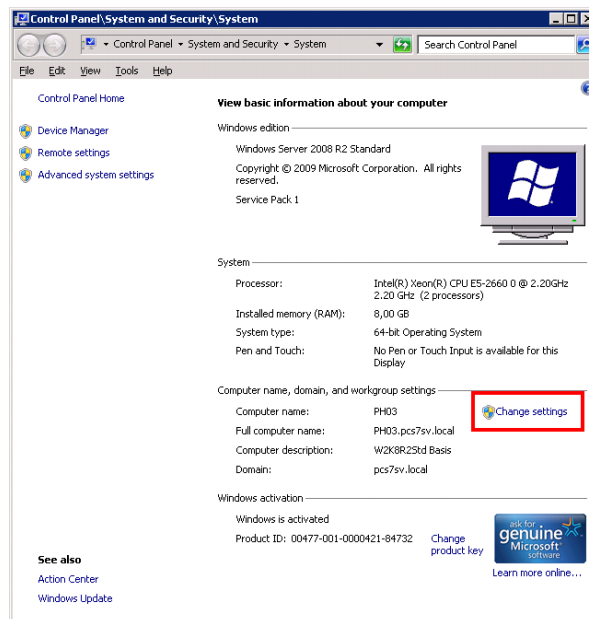
1. Open the Windows Start menu. Right-click on "Computer" and select "Properties" from the shortcut menu.

Figure 3-19



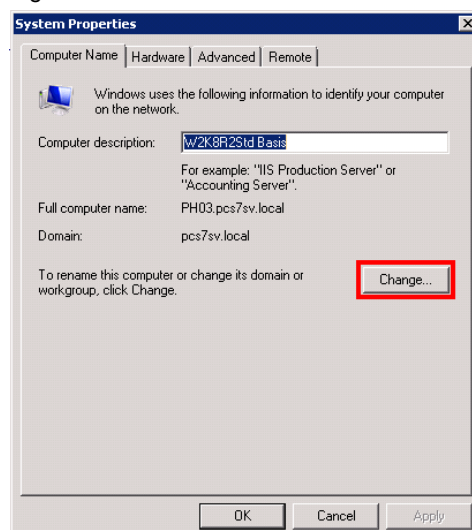
2. Click on "Change settings".

Figure 3-20



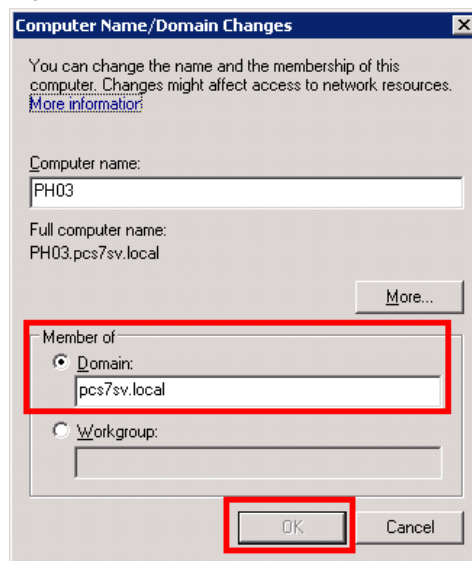
3. Click the "Change" button.

Figure 3-21



4. Enter the domain and click the "OK" button.

Figure 3-22



5. Restart the computer.

3.3.2 Creating an SQL server login with authorizations

In the following section, the domain user "PHReadyUserETest" will be added to the SQL server. The domain user starts the "CCCAPHServer" service on the OS.

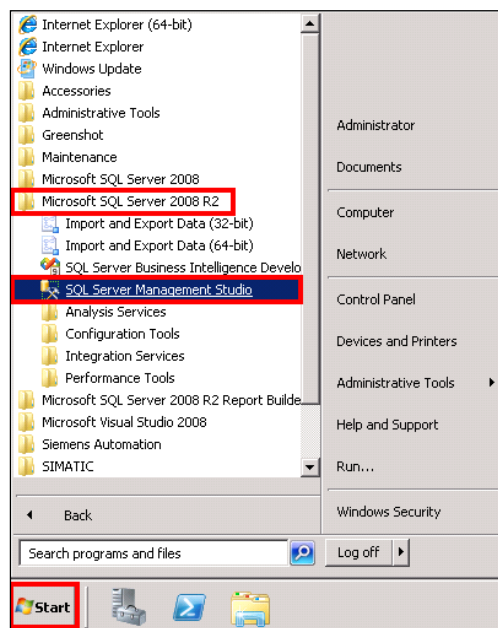
Note

The domain user that is added to the OS server for the "CCCAPHServer" service does not need sysadmin / DB_Owner authorization in the SQL database.

Creating a user ID

1. Open the Windows Start menu and start the application via "Microsoft SQL Server 2008 R2 > SQL Server Management Studio".

Figure 3-23



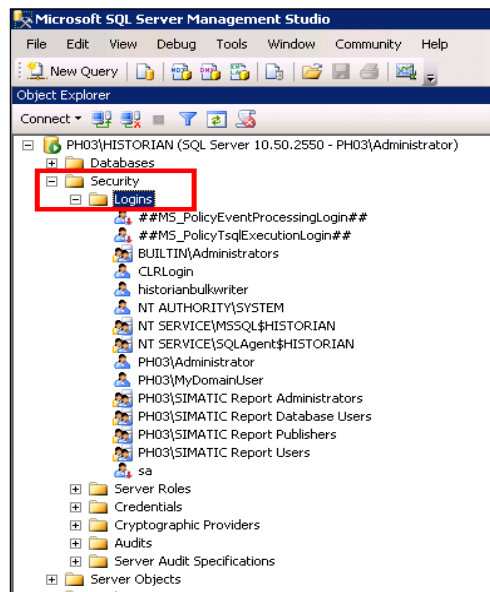
2. Connect to the SQL instance "HISTORIAN" by clicking the "Connect" button.

Figure 3-24



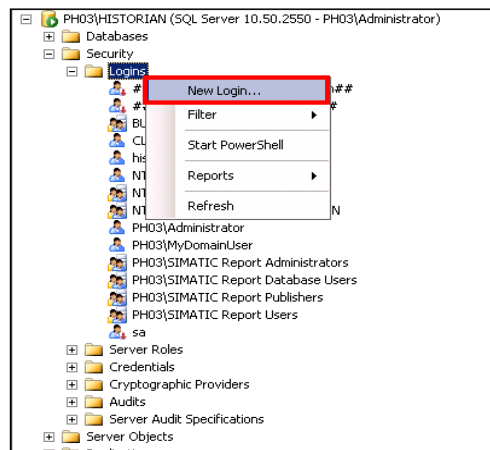
3. Within the SQL server, navigate to the "Security > Logins" folder.

Figure 3-25



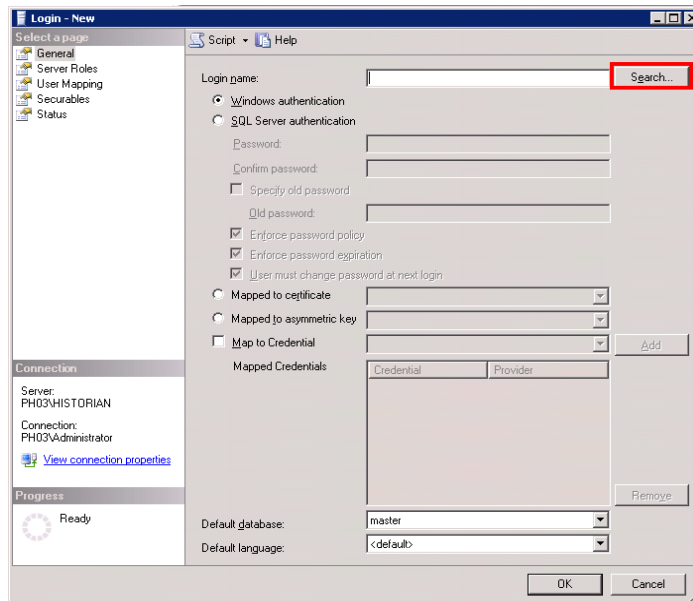
4. To create a new user ID (login) select "New Login..." from the shortcut menu.

Figure 3-26



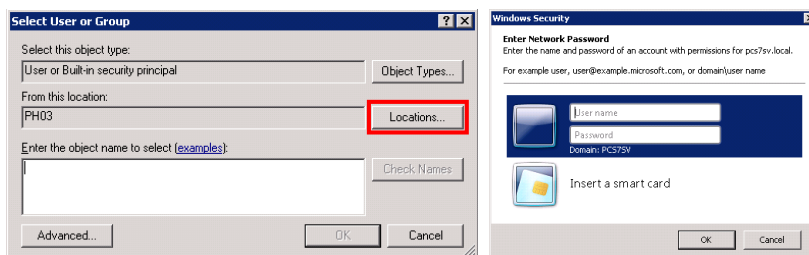
5. Click the "Search..." button.

Figure 3-27



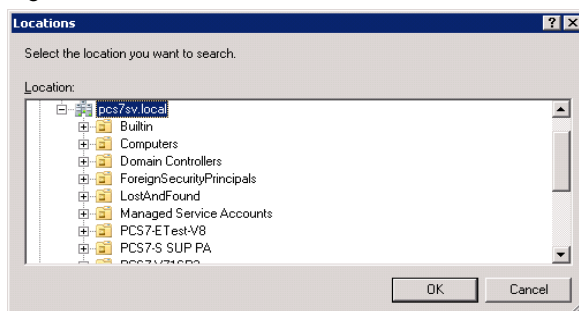
6. Click the "Locations..." button. You will need to be logged on to the domain for authentication.

Figure 3-28



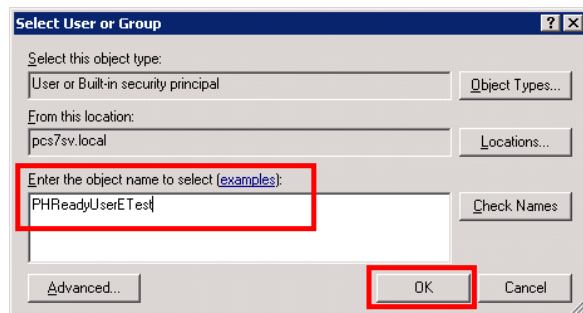
7. Select the appropriate domain.

Figure 3-29



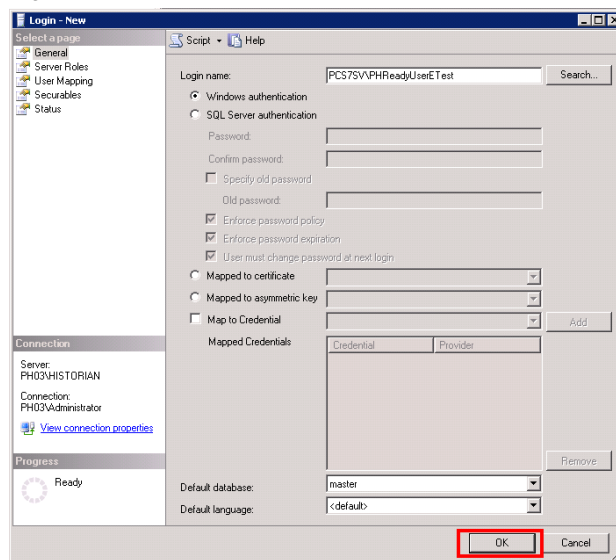
8. Enter the user and accept the changes with "OK".

Figure 3-30



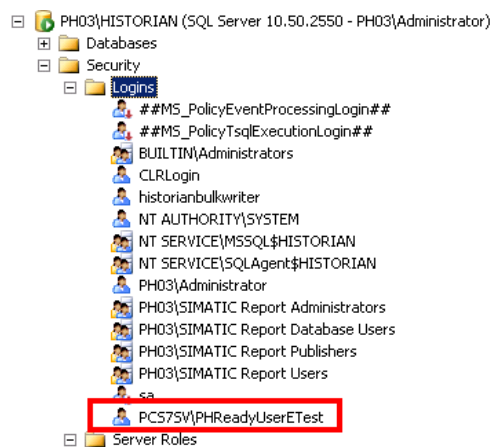
9. Click "OK" to create a new login.

Figure 3-31



Result

A new SQL server login (user ID) has been created.

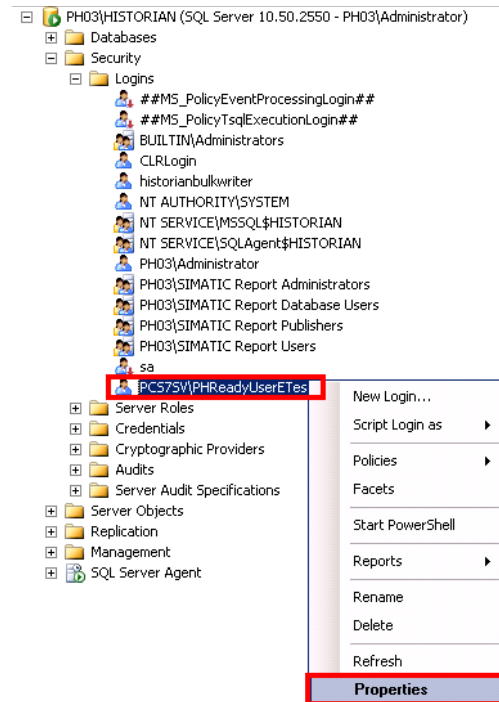


Assigning authorizations

The following section includes the necessary steps for assigning the necessary authorizations to the SQL server login (user ID).

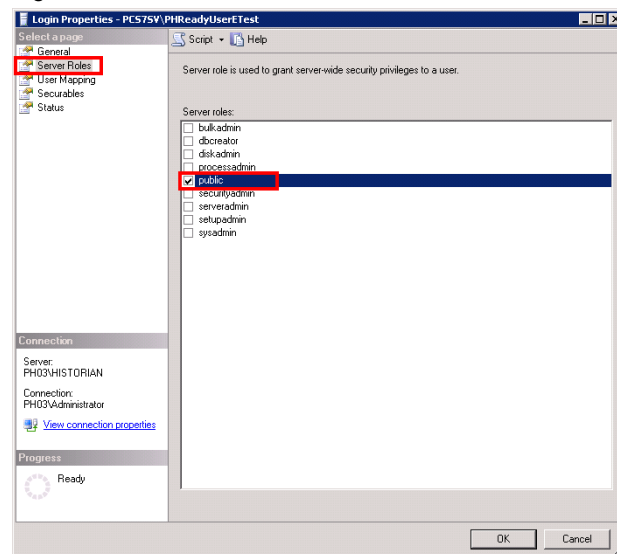
10. In "Microsoft SQL Server Management Studio" select the new login and select "Properties" from the shortcut menu.

Figure 3-32



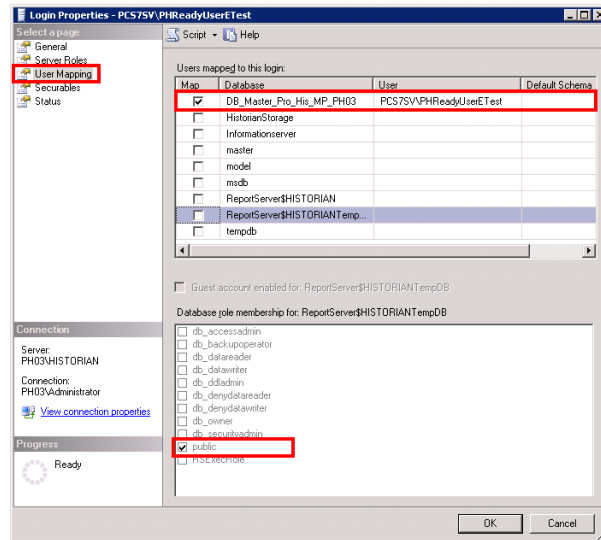
11. Select "Server Roles" from the index and check "Server roles:" "public".

Figure 3-33



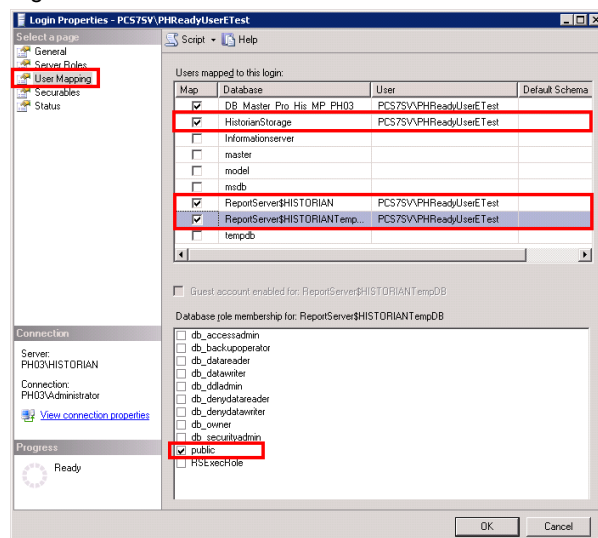
12. Select "User Mapping" from the index. Map all project databases (typical structure is DB_Master_XY) to the new login. Additionally, in the field "Database role membership for: ReportServer\$HISTORIANTempDB", check "public".

Figure 3-34






13. Do the same for the databases "HistorianStorage", "ReportServer\$HISTORIAN" and "ReportServer\$HISTORIANTempDB".

Figure 3-35



14. The PH Services will be started as "Local System".

Figure 3-36

	Process Historian Discovery Service	Provides services...	Started	Automatic	Local System
	Process Historian Maintenance Service	Provides services...	Started	Automatic	Local System
	SIMATIC Process Historian	Provides Central ...	Started	Automatic	Local System

Note

Carry out the following actions if you require a domain user with full access rights to the databases:


- In the "Server Roles" index (step 11) check "Server roles:" "sysadmin"
- In the "User Mapping" index (step 12), in the field "Database role membership for: ReportServers\$HISTORIANTempDB", check "db_owner"

3.3.3 Redundant Process Historian

For a redundant installation, PH Master (Principal), PH Standby (Mirror) and, to control availability, the Information Server (Witness) are required. The necessary actions are set out below.

1. The Process Historian Redundancy Service must be started with the new domain user on the redundant PH. This service implements functions that are necessary for data exchange between two redundant server systems.

Figure 3-37

	Process Historian Redundancy Service	Provides services...	Started	Automatic	PHReadyUserETest@pcs7sv,local
-------------------------------------------------------------------------------------	--------------------------------------	----------------------	---------	-----------	-------------------------------

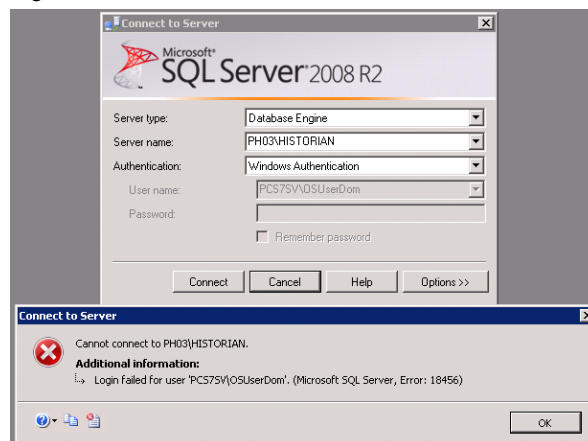
2. An SQL server login with the necessary user mapping should be applied to all systems (PH and IS/Witness).

3.3.4 Authorizations on the Process Historian

The domain user "OSUserDom" only has local user rights on the PH, which do not allow it to open SQL Server Management Studio. This prevents the local user from accessing SQL Server Management Studio and protects the database from tampering.

The figure below shows the message that appears if login is attempted using local user rights.

Figure 3-38

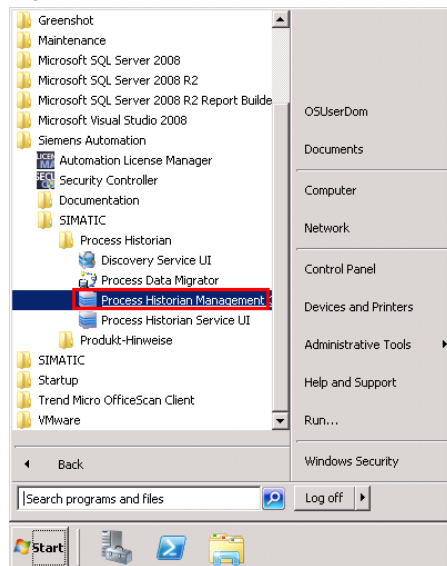


If the domain user logs in to the PH with local user rights after a restart (operating system login), the Process Historian Management Console (PH MMC) does not start automatically. In this case, the application must be executed with administrator authorization. The operating instruction below describes the necessary steps.

Operating instruction

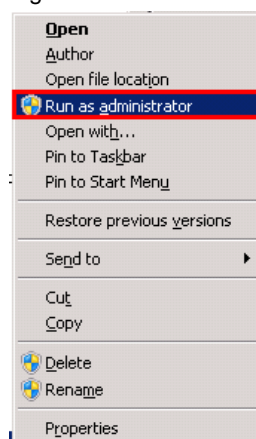
1. Open the Windows Start menu and open the path to the application "Siemens Automation > SIMATIC > Process Historian > Process Historian Management Console".

Figure 3-39



2. Right-click on "Process Historian Management Console" and select "Run as administrator" from the shortcut menu. For authentication, you have to be logged in as an administrator.

Figure 3-40



Note

If you want PH MMC to start automatically after restarting the PC, the domain user must be included in the local group "Administrators".

4 Further notes, tips and tricks, etc.

Domain users and passwords

Passwords of domain users which are used to execute the "CCCAPHServer" service should not be changed. In the event of a change, the logon information for the "CCCAPHServer" service on the OS servers must be updated after changing the password. The systems must also be restarted.

The same applies for the "Process Historian Redundancy Service" on the redundant Process Historian and the Information Server (Witness).

Domain users and authorizations

For security reasons, the operating system login for the OS server and the Process Historian should only have local user authorizations.

If an OS system is operated in a domain, the user who is entered for the "CCCAPHServer" service must be a domain user. This domain user must also be included in the local user group "SIMATIC HMI" on the OS system.

If an OS system is included in a domain, the domain user should be included in different local user groups.

Domain users and services

The logged-in domain user may differ from the domain user with which the "CCCAPHServer" service is started.

The domain user which starts the "CCCAPHServer" service must have corresponding authorizations in the SQL Server for the Process Historian and must be a member of the local group "Administrators".

For the purpose of administration and installation, a domain user should be applied to the OS and PH as local administrator.

5 Appendix

5.1 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.

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You send queries to Technical Support via Web form:

www.siemens.com/industry/supportrequest.

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

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

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<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>

5.2 Links and Literature

Table 5-1

	Topic	Title
\1\	Siemens Industry Online Support	https://support.industry.siemens.com
\2\	Download page of the item with: "Installation, Operation and Maintenance of Process Historian/Information Server in a PCS 7 Environment" "Setup a new Process Historian with an existing Historian Storage Database" "Configuring access protection for a Process Historian database"	https://support.industry.siemens.com/cs/ww/de/view/66579062
\3\	Process Historian 2013 - Administration	https://support.industry.siemens.com/cs/ww/en/view/68099510
\4\	Information Server 2013 - Administration	https://support.industry.siemens.com/cs/ww/en/view/68099525
\5\	Information Server 2014: Operating Instructions	https://support.industry.siemens.com/cs/ww/en/view/68099543

5.3 Change documentation

Table 5-2

Version	Date	Modifications
V1.0	01/2014	First version
V1.1	10/2016	notes on user rights administration, chapter 3.1.5