

A man in a light blue shirt is shown from the side, holding a tablet computer. He is looking at the screen, which displays a complex industrial interface with various charts and data points. The background is a blurred industrial factory floor with machinery and equipment.

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Application Example • 11/2015

# Decentralized Operation of WinCC with SIMATIC Industrial Thin Clients

WinCC V7.3 SE, Industrial Thin Client

<https://support.industry.siemens.com/cs/wwde/28309119>

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# 1 Task

## 1.1 Introduction

Thin Clients have several advantages for the operation and monitoring of systems and production machines.

In combination with a SCADA system they can reduce costs and increase the system availability.

The present document describes the possibility of setting up an infrastructure by using the control panels type SIMATIC Industrial Thin Client and the SCADA system SIMATIC WinCC V7.3.

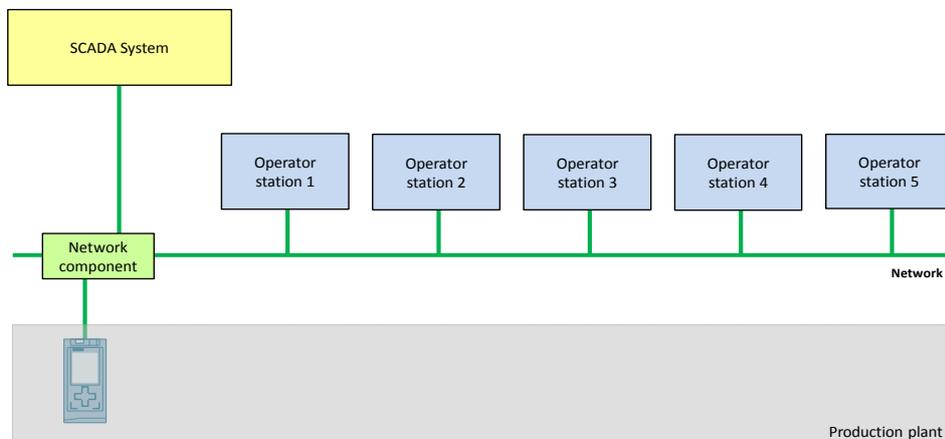
You will learn about the required hardware and software components and how to configure and set up these components. Afterwards, you will start a small example project.

You will be able to use the solutions presented here for the planning, configuration and commissioning of your own individual production plant, where you use SIMATIC Industrial Thin Clients and SIMATIC WinCC V7.3.

## 1.2 Problem description

To ensure a simple introduction into the topic the following figures describe the essential elements of a general automation solution.

Figure 1-1



### Requirements of the automation solution

- It must be possible to operate the production plant from various locations (operator stations).
- The operator stations are sometimes exposed to rough environmental conditions, therefore the devices need to be robust.
- The operator stations all access the same central data management.

## 2 Solution

### 2.1 Overview

#### Main topics of this application

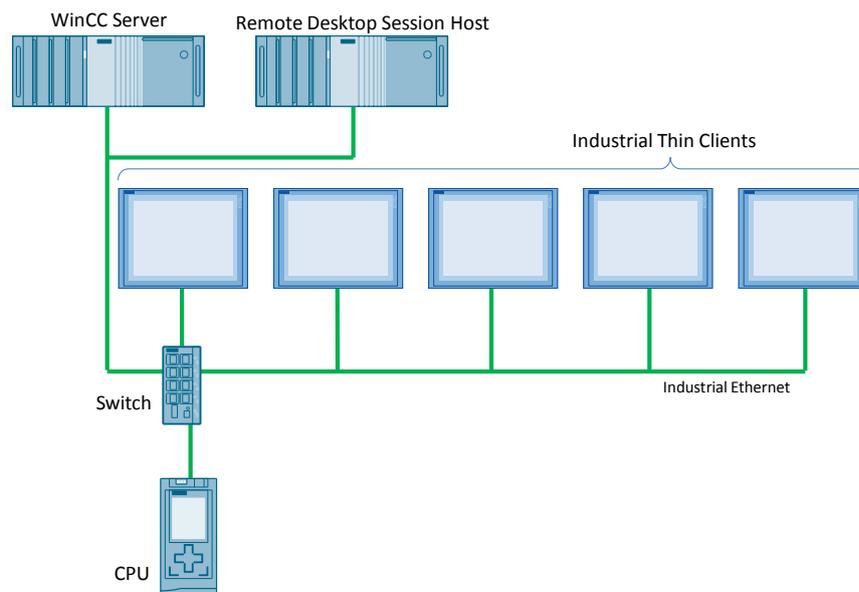
This document covers the following topics:

- Which hardware and software components are needed for a functioning solution?
- What licenses are needed?
- How do the various components work together?
- How must the individual components be configured and parameterized?

### 2.2 Setup

#### Schematic layout

Figure 2-1



#### Function

- A WinCC server assumes the central data management of the production plant. The connection of the process values from the controller (CPU) and their graphic processing for displaying them at the operator station are done here.
- The data provided by the WinCC server is supplied by the remote desktop session host within the individual remote desktop sessions and is thus made accessible for several terminal clients.
- The Industrial Thin Clients have the task of visualization, and enable the operation of the production plant.
- A switch connects all the Ethernet nodes with each other.

#### Advantages

The structure of this layout offers the following advantages:

- Investment security through:
  - the use of standardized interfaces and components
- Saving costs when SIMATIC Industrial Thin Clients are used as WinCC clients instead of classical PCs, due to
  - the use of low-cost hardware
  - the fact that no additional software licenses for the clients are needed.
- Additional costs saved in engineering and maintenance, due to the fact that
  - no user software needs to be installed on the Thin Clients
  - no additional configuration of the clients is needed
  - simple expansion options for additional operator stations
  - devices can be easily replaced
- Machine-level operating and monitoring is possible because of
  - the use of robust components for industrial use

#### Delimitation

The solution described here refers to WinCC V7.3. For WinCC Professional V13 a comparable application example does not exist.

On the internet page of this application example both alternatives are available.

<https://support.industry.siemens.com/cs/ww/en/28309119> \2\

#### Assumed knowledge

For the implementation of the solution described in this document, basic knowledge in the following topics is assumed:

- Basics of automation hierarchy (field level → SCADA)
- Automation technology
- Microsoft Windows operating systems
- Ethernet network with TCP/IPv4

## 2.3 Hardware and software components

### Validity

This application is valid for

- SIMATIC Industrial Thin Clients
- SIMATIC S7-1500 CPUs
- Windows Server 2012 R2
- WinCC V7.3

### Components used

The application was created with the following components:

### Software components

Table 2-1

Component	Qty	Article number	Note
Windows Server 2012 R2	1	Microsoft	
WinCC V7.3 SE	1	6AV63.1-....7-3...	
WinCC WebNavigator V7.3 3 clients	1	6AV6371-1DH07-3AX0	License for 3 clients
Terminal Server CAL (user)	3	Microsoft	License for 3 clients
CAL	1	Microsoft	

### Hardware components

Table 2-2

Component	Qty	Article number	Note
Industrial PC SIMATIC IPC647D	2	6AG4112-2.....-....	This IPC is used as an example, other IPCs can also be used when meeting the SW requirements.
POWER SUPPLY PS307 24 V/5 A	1	6ES7307-1EA01-0AA0	If more devices are connected, it can become necessary to connect a stronger power supply, e.g. with 10 A (order number: 6ES7307-1KA02-0AA0)
SCALANCE X208	1	6GK5208-0BA10-2AA3	Connects up to 8 Ethernet nodes.
SIMATIC ITC1200	1	6AV6646-1AA22-0AX0	
CPU 1516-3 PN/DP	1	6ES7516-3AN00-0AB0	
SIMATIC S7 MEMORY CARD, 24 MB	1	6ES7954-8LF01-0AA0	

## 2 Solution

---

### 2.3 Hardware and software components

#### Example files and projects

The following list includes all files and projects that are used in this example.

Table 2-2

Component	Note
28309119_Thin_Client_Doku_V7.3_de.pdf	This document.
28309119_Thin_Client_Code_V7.3.zip	This zip file contains the WinCC project.

# 3 Basics

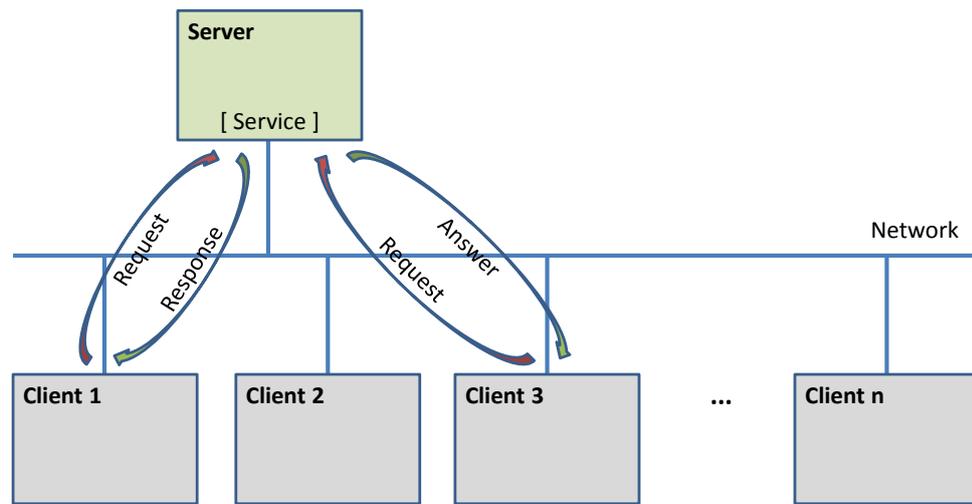
## 3.1 Client and server

In the client & server concept, a server provides information and service, which is requested by one or more clients.

The server passively waits for the requests, which are actively made by the client.

The client and the server communicate in a network.

Figure 3-1

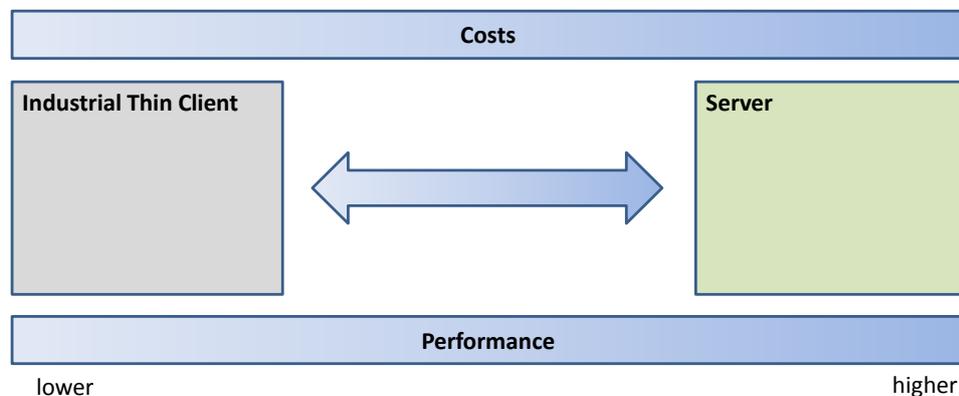


## 3.2 Industrial Thin Client

The idea of Thin Clients is that the clients only need little power from the data-processing hardware.

They are optimized for data input and output. Powerful and expensive hardware components for processing data are not necessary. The data is processed and the programs are run on a central server so that cost-optimized hardware can be used for the clients.

Figure 3-2



3.3 Remote desktop session host (terminal server)

The considerably lower requirements for the data-processing hardware as compared to the server are the reason for the name “Thin Client”.

Since the hardware is less complex, it is also less susceptible to errors as compared with the standard PC solutions. SIMATIC Industrial Thin Clients have been especially optimized for the use in a rough industrial environment and do not contain rotating parts, for example.

An additional advantage of Thin Clients is that installation, maintenance and software updates have to be performed only once on the server. No additional installations or updates of the software and licenses are necessary in the Thin Clients themselves.

### 3.3 Remote desktop session host (terminal server)

A remote desktop session host offers several remote desktop clients the possibility of joint access to applications provided by the remote desktop session host.

Each remote desktop client receives its own workspace on the remote desktop session host for executing the desired application. This workspace is referred to as remote desktop session.

In a remote desktop session, the available resources can be used by the applications executed there. This includes the main memory and the CPU of the remote desktop session host.

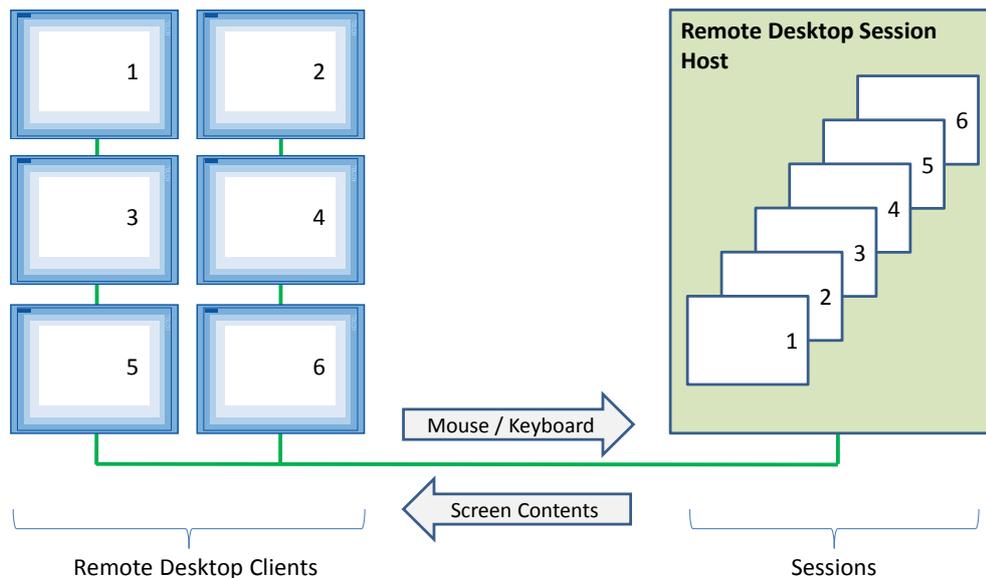
The operator entries by mouse, keyboard or touchscreen, etc. from the remote desktop client are transmitted to the remote desktop session host.

The application is run and the data processed completely on the remote desktop session host.

For the output of the visual data, the screen contents of the remote desktop session are transmitted back to the remote desktop client.

The remote desktop session host and the remote desktop client communicate via the TCP/IP and RDP protocols.

Figure 3-3



### 3.4 Multi-instance capability of applications

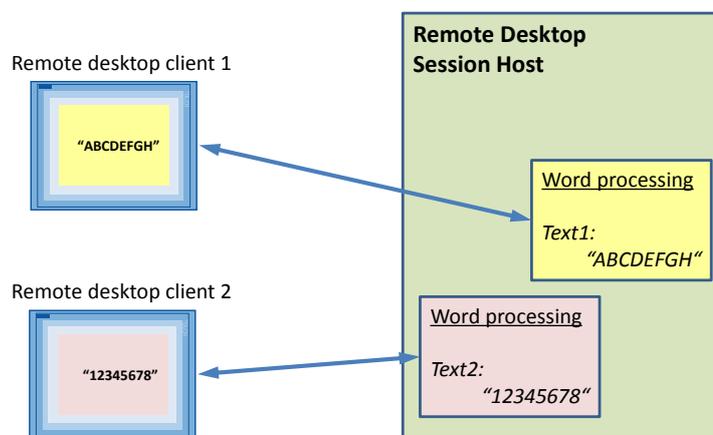
The capability of an application to be carried out several times simultaneously on a computer system is called multi-instance capability.

This feature of the application is a basic prerequisite for its use in the remote desktop session host.

Each client of the remote desktop session host uses its own instance of the application.

The following figure shows an application capable of multi-instances taking the example of a text processing program.

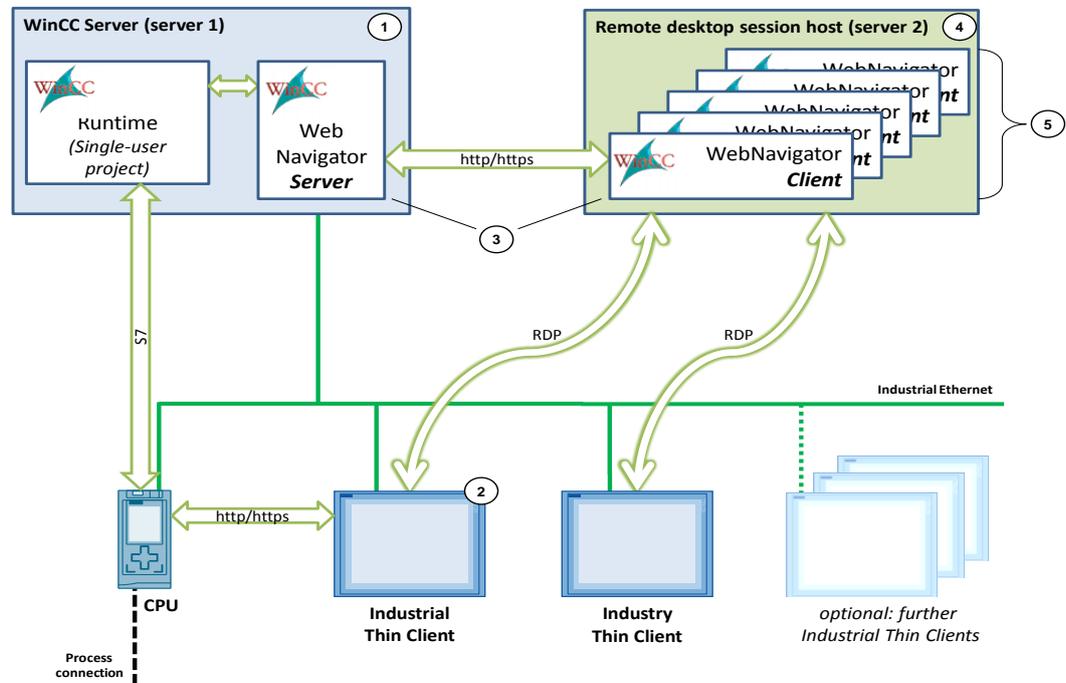
Figure 3-4



## 4 Mode of Operation

### 4.1 General overview

Figure 4-1



On the WinCC server (1), the operator control and monitoring system SIMATIC WinCC V7.3 runs.

Since no RDP connections are admitted for operating the WinCC V7.3 project from the Industrial Thin Clients (2) to the WinCC server, the option package SIMATIC WinCC WebNavigator (3) is used here. It consists of a server and a client component.

The WebNavigator server provides the WinCC Runtime project as a website via the Internet Information Service (IIS). It can be called from the WebNavigator client via the http/https protocol.

The WebNavigator client is installed on a separate computer, the remote desktop session host (4). There, the program can be simultaneously executed in several remote desktop sessions (5) thus enabling multiple access to the WinCC project.

From each Industrial Thin Client, a Remote Desktop Protocol (RDP) connection to the remote desktop session host is created to initiate a session on the remote desktop session host. In each of these sessions, an instance of the WebNavigator Client is carried out.

Additional connections can be set up from the Industrial Thin Clients, for example for a direct diagnostics of the CPU.

#### Note

Please find further information on the possibilities of a remote access to WinCC stations online at the following address:

<https://support.industry.siemens.com/cs/ww/en/view/78463889>

## 4.2 WinCC Server functionality

On the WinCC server the WinCC Runtime project runs in the WinCC runtime environment.

The following table lists the users, which are used in the later configuration of the user management of the WinCC server in this application.

Table 4-1

User name	Password	Remark
WinCC remote1	remote1	ITC 1
WinCC remote2	remote2	ITC 2

The users you work with in the WinCC server during plant operation need to be maintained in the Windows user management and in parallel also in the user management of the WinCC Runtime project.

Please keep this in mind, especially when you change the password, as it must be changed in the user management of the operating system and also in the user management of the WinCC project.

## 4.3 Remote desktop session host functionality

A client receives its own remote desktop session by logging a remote desktop client on at the remote desktop session host via RDP.

The users used in this application example, for example for logging on to the remote desktop session host, are listed in the following table.

Table 4-2

User name	Password	Remark
remote1	remote1	ITC 1
remote2	remote2	ITC 2

## 5 Installation and Configuration

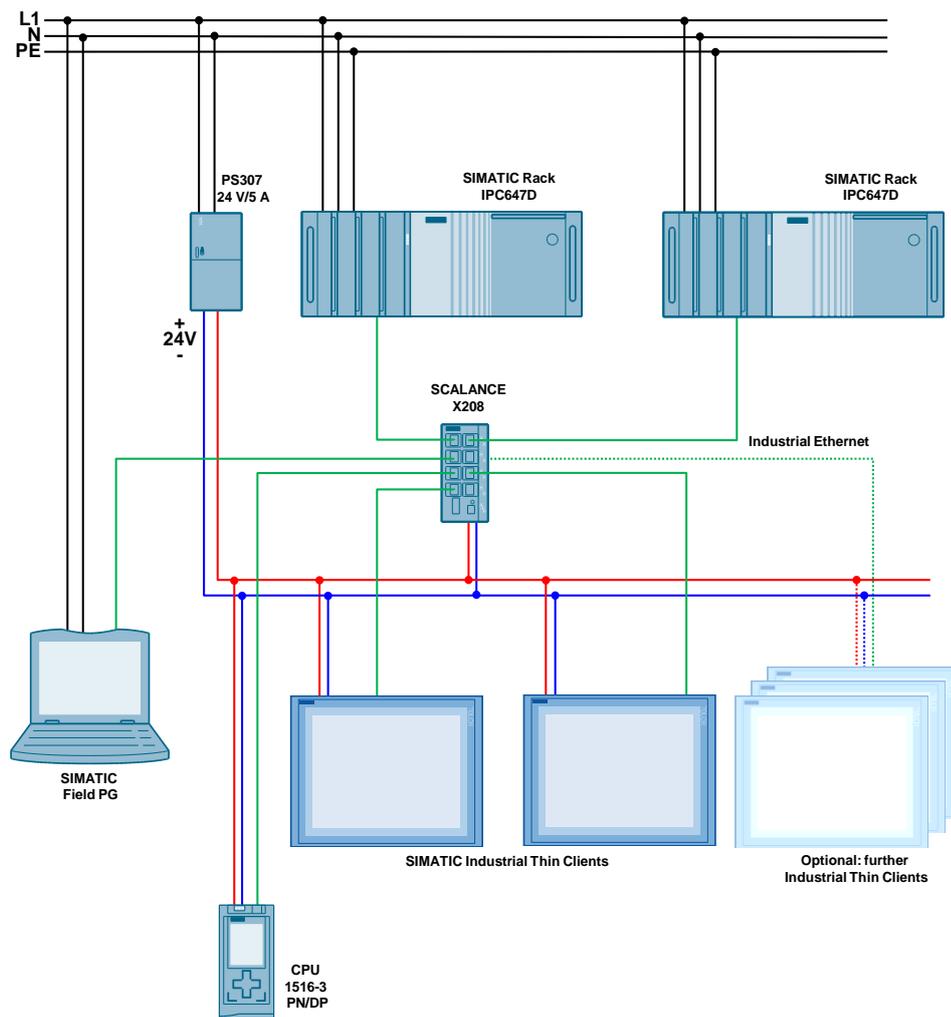
This chapter provides you with a step-by-step introduction into the installation of the hardware and software components

### 5.1 Hardware

#### Overview

The following picture gives an overview of the hardware structure of the application:

Figure 5-1



#### Note

Please follow the setup instructions of the components used above.

Please refer to the introduction into the SIMATIC S7-1500 controller family at the following address:

<https://support.industry.siemens.com/cs/ww/en/view/78027451>

## 5 Installation and Configuration

### 5.1 Hardware

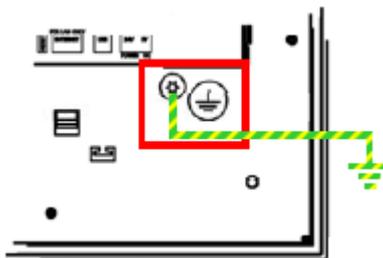
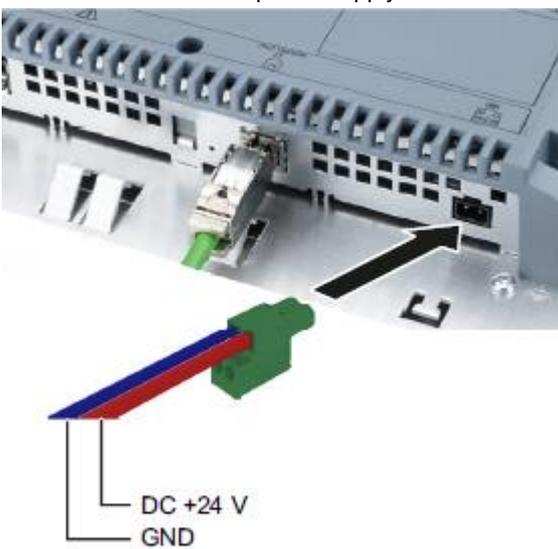
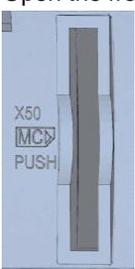


**WARNING**

The connection line of the power supply must not be connected to the mains during wiring.

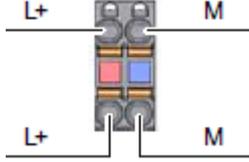
### Installation procedure

Table 5-1

No.	Action
1.	Install the hardware of both SIMATIC Rack PCs. Do not switch on the PCs yet.
2.	Connect the 24V of the power supply to the SCALANCE X208.
3.	Connect the SIMATIC Industrial Thin Client to the potential equalization. 
4.	Connect the 24V of the power supply to the SIMATIC Industrial Thin Client. 
5.	Open the front cover of the CPU and insert the SIMATIC memory card into the provided slot. 

## 5 Installation and Configuration

### 5.1 Hardware

No.	Action
6.	<p>Connect the 24V output voltage of the power supply PS307 24V/5 A to the 24V input voltage of the CPU 1516-3 PN/DP.</p> 
7.	<p>Connect the SCALANCE switch at one free Ethernet port to the following Ethernet nodes:</p> <ul style="list-style-type: none"><li>• SIMATIC Industrial Thin Client</li><li>• SIMATIC Industrial Thin Client</li><li>• SIMATIC Rack PC</li><li>• CPU 1516</li><li>• Programming unit</li></ul>
8.	<p>Connect the plug of the power supply PS307 24V/5 A to the mains.</p>
9.	<p>Switch on the PS307 24V/5 A power supply.</p>
10.	<p>Switch on the PCs.</p>

## 5.2 Software

The following installation order must be followed for operating the Industrial Thin Client at the server.

1. Assigning IP address/server name
2. Installing Internet Information Service (IIS)
3. Installation WinCC V7.3 and WebNavigator
4. Installing remote desktop services
5. Installing WebNavigator Client
6. Creating Windows user accounts
7. WebNavigator configuration
8. Configuring the Thin Client

The following steps describe the installation of additional software components in detail.

Starting points are two preinstalled operating systems Microsoft Windows Server 2012 R2 operating systems.

### Note

Please find a list of operating systems suitable for the use of WinCC with the WebNavigator Server option online in the system manual of WinCC Professional V7.3 in the chapter "Software and Hardware Requirements" at the following address:

<https://support.industry.siemens.com/cs/ww/en/view/102768445/69924901771.\3>

Further information about WinCC is available online in the system manual of WinCC V7.3 at the following address:

<https://support.industry.siemens.com/cs/ww/en/view/102754925/68754597131.\4>

### 5.2.1 Assign IP address

The following chapter describes assigning the IP addresses in the network and explains how to assign the IP addresses of the servers.

### Note

The IP addresses are only examples and can be replaced by your own IP addresses.

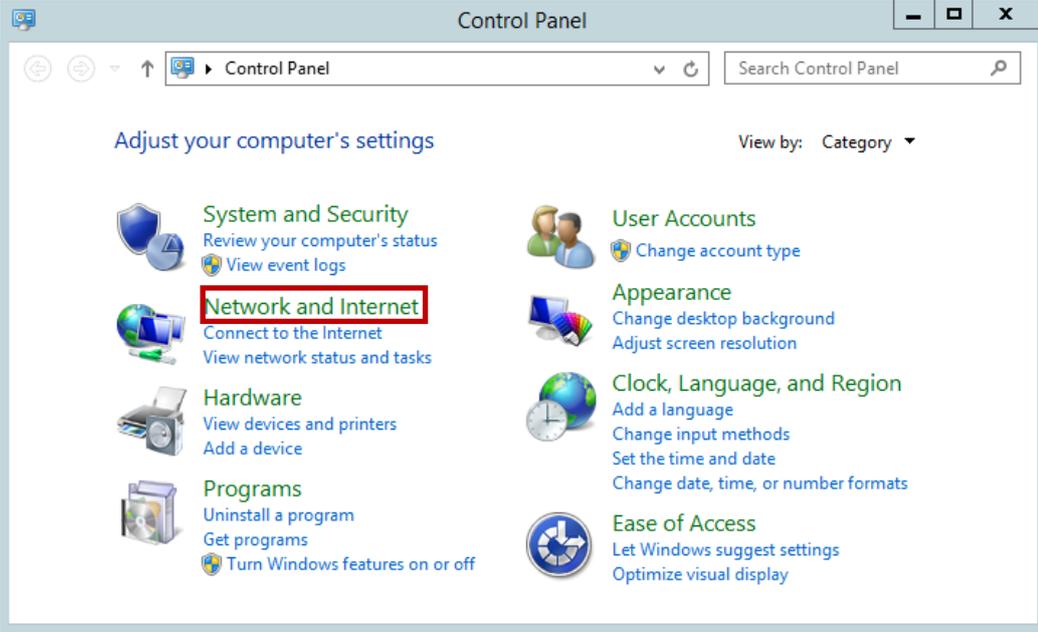
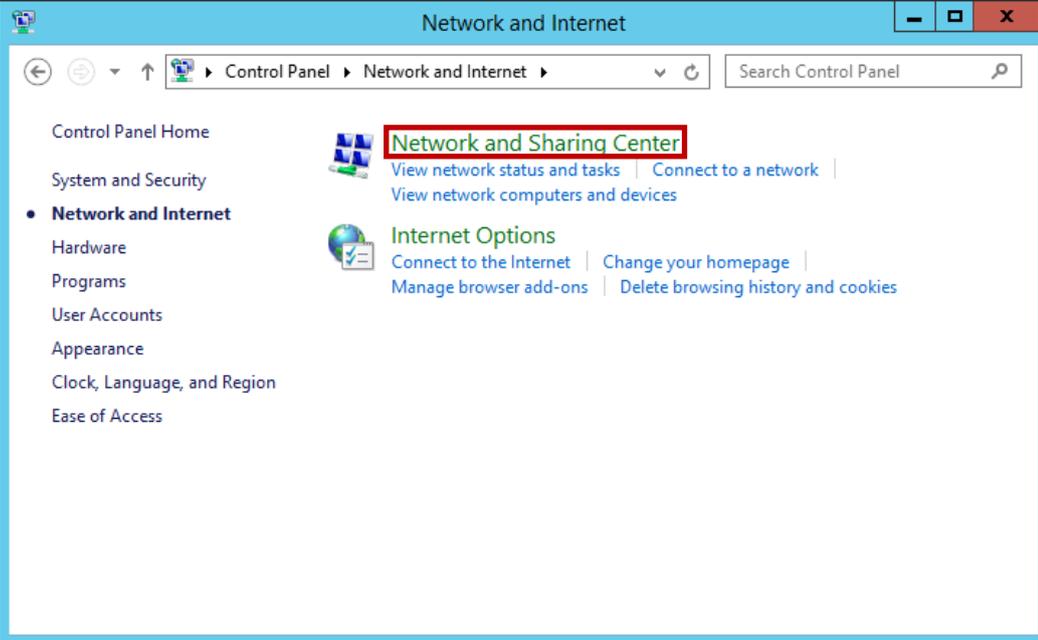
The following table contains an overview of the network devices and their respective IP addresses.

Table 5-2

No.	Device	IP address
1.	WinCC Server (server 1)	172.16.51.1
2.	Remote desktop session host (server 2)	172.16.51.2
3.	Industrial Thin Client 1	172.16.51.10
4.	Industrial Thin Client 2	172.16.51.11
5.	CPU	172.16.51.20
6.	SCALANCE	172.16.51.30

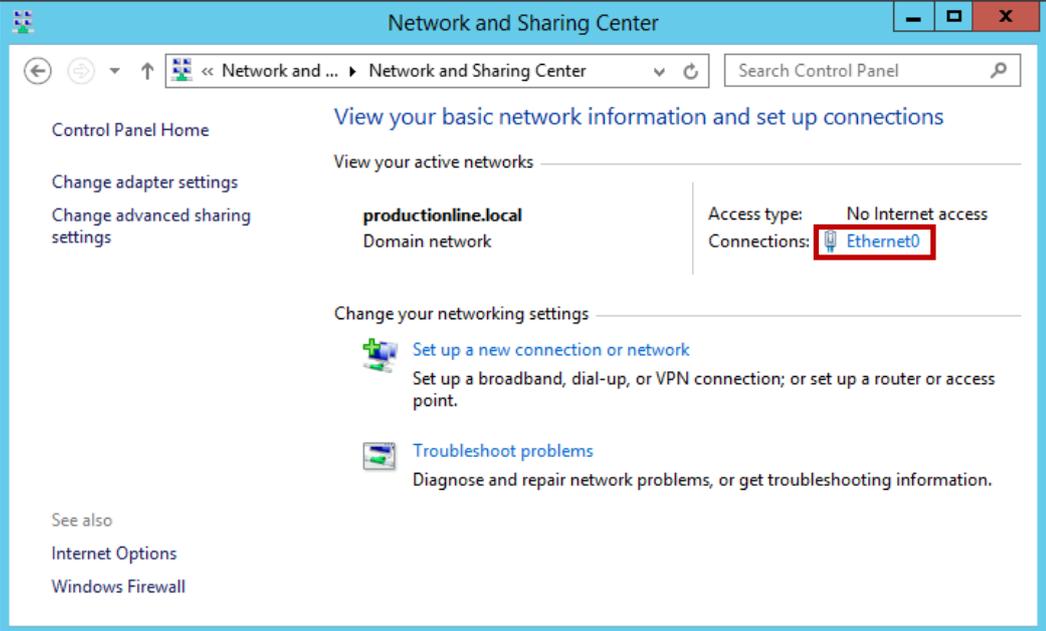
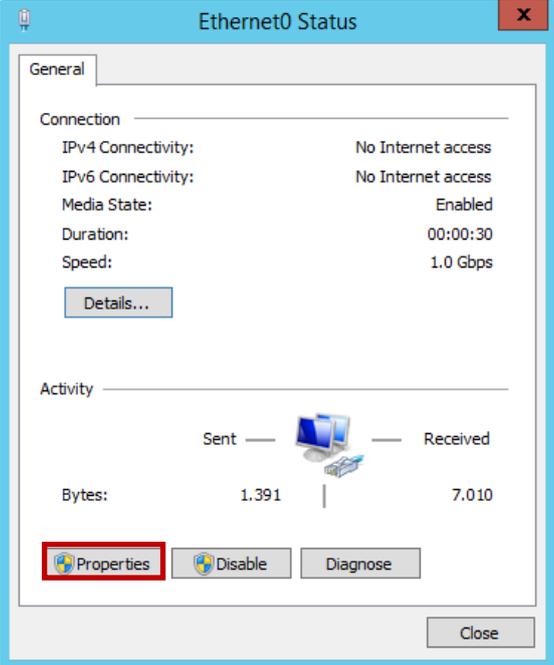
**Setting the IP address of the server**

Table 5-2

No.	Action
1.	Open the "Control Panel" of the WinCC server (server 1).
2.	<p>Open the "Network and Internet".</p>  <p>The screenshot shows the Windows Control Panel window. The title bar reads 'Control Panel'. The breadcrumb navigation shows 'Control Panel'. A search bar is present. Below the title bar, there is a heading 'Adjust your computer's settings' and a 'View by: Category' dropdown. The main area contains several categories: System and Security, User Accounts, Appearance, Clock, Language, and Region, and Ease of Access. The 'Network and Internet' category is highlighted with a red rectangular box. Its sub-items include 'Connect to the Internet' and 'View network status and tasks'.</p>
3.	<p>Open "Network and Sharing Center".</p>  <p>The screenshot shows the 'Network and Internet' settings window. The title bar reads 'Network and Internet'. The breadcrumb navigation shows 'Control Panel &gt; Network and Internet'. A search bar is present. On the left side, there is a list of categories: Control Panel Home, System and Security, Network and Internet (which is selected and highlighted with a blue dot), Hardware, Programs, User Accounts, Appearance, Clock, Language, and Region, and Ease of Access. The main area shows the 'Network and Sharing Center' link, which is highlighted with a red rectangular box. Below it, there are links for 'View network status and tasks' and 'Connect to a network'. Further down, there is an 'Internet Options' section with links for 'Connect to the Internet', 'Change your homepage', 'Manage browser add-ons', and 'Delete browsing history and cookies'.</p>

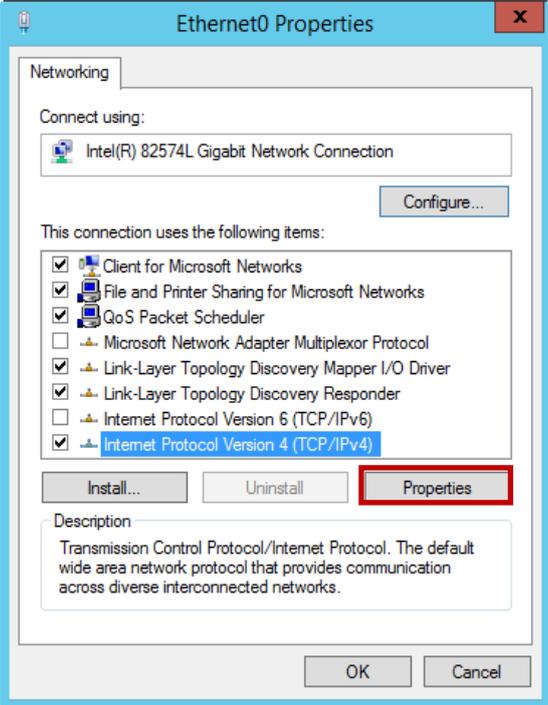
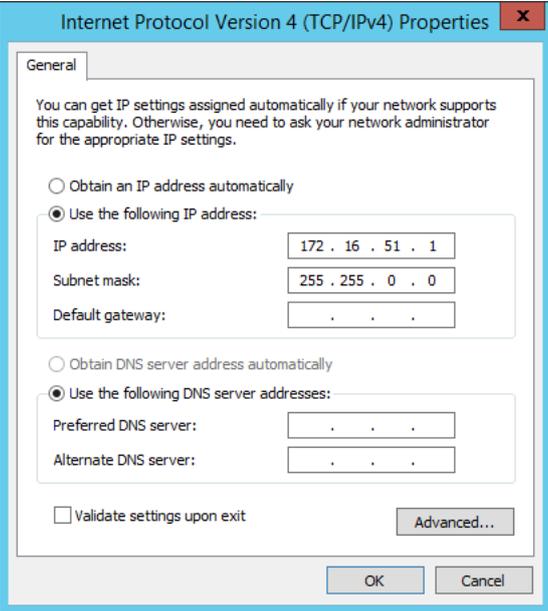
## 5 Installation and Configuration

### 5.2 Software

No.	Action
4.	<p>Select the LAN connection.</p>  <p>The screenshot shows the Windows Network and Sharing Center window. The title bar reads 'Network and Sharing Center'. Below the navigation pane, the main content area displays 'View your basic network information and set up connections'. Under 'View your active networks', there is a section for 'productionline.local Domain network'. To the right, the 'Access type' is 'No Internet access' and the 'Connections' list shows 'Ethernet0' highlighted with a red box.</p>
5.	<p>Open the "Properties" of the LAN connection.</p>  <p>The screenshot shows the 'Ethernet0 Status' window. The title bar reads 'Ethernet0 Status'. The 'General' tab is active. Under the 'Connection' section, it shows 'IPv4 Connectivity: No Internet access', 'IPv6 Connectivity: No Internet access', 'Media State: Enabled', 'Duration: 00:00:30', and 'Speed: 1.0 Gbps'. Below this is a 'Details...' button. The 'Activity' section shows a bar chart with 'Sent' at 1.391 bytes and 'Received' at 7.010 bytes. At the bottom, there are buttons for 'Properties', 'Disable', and 'Diagnose'. The 'Properties' button is highlighted with a red box.</p>

## 5 Installation and Configuration

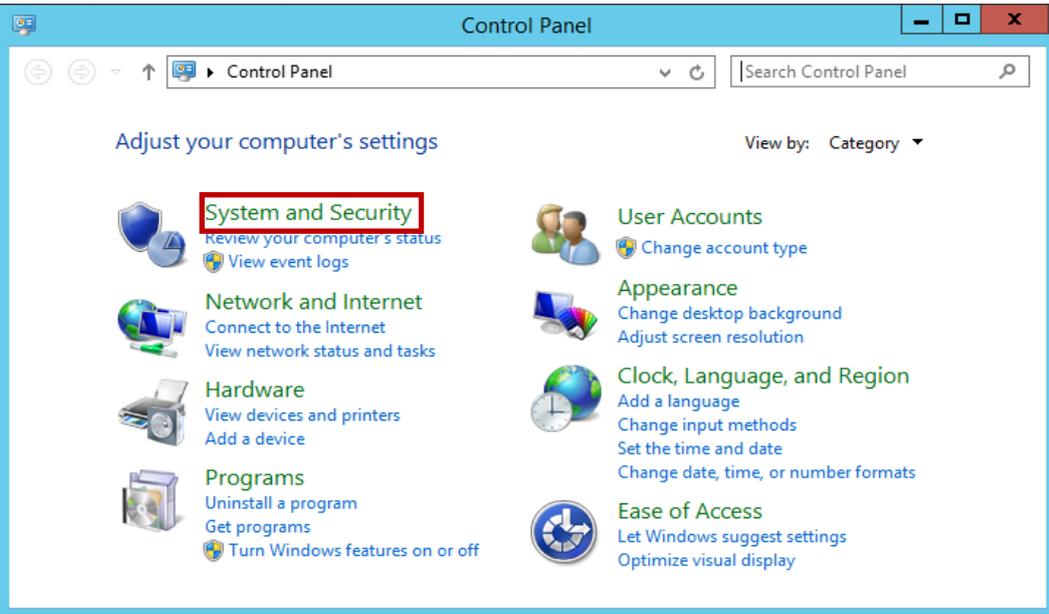
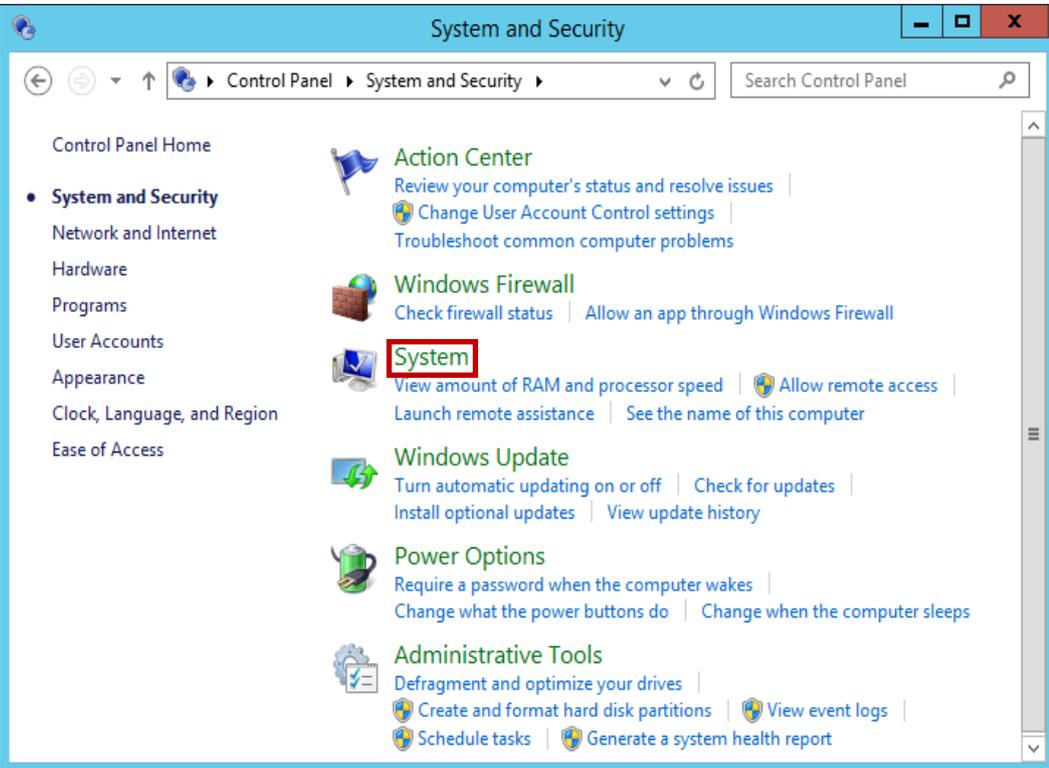
### 5.2 Software

No.	Action
6.	<p>Select "Internet Protocol Version 4 (TCP/IPv4)" and open the "Properties".</p> 
7.	<p>Configure the IP address of the server. Use the IP address from <a href="#">Table 5-2</a>.</p>  <p>If you are not communicating across network boundaries, the Standard Gateway field can be left empty. Otherwise, you enter the gateway of the network here. This is usually the router.</p>
8.	<p>Confirm the set IP address by clicking on the "OK" button and then close the dialog.</p>
9.	<p>Repeat steps 1-8 for the remote desktop session host (server 2). Configure the IP address of the server. Use the IP address from <a href="#">Table 5-2</a>.</p>

**5.2.2 Set server name**

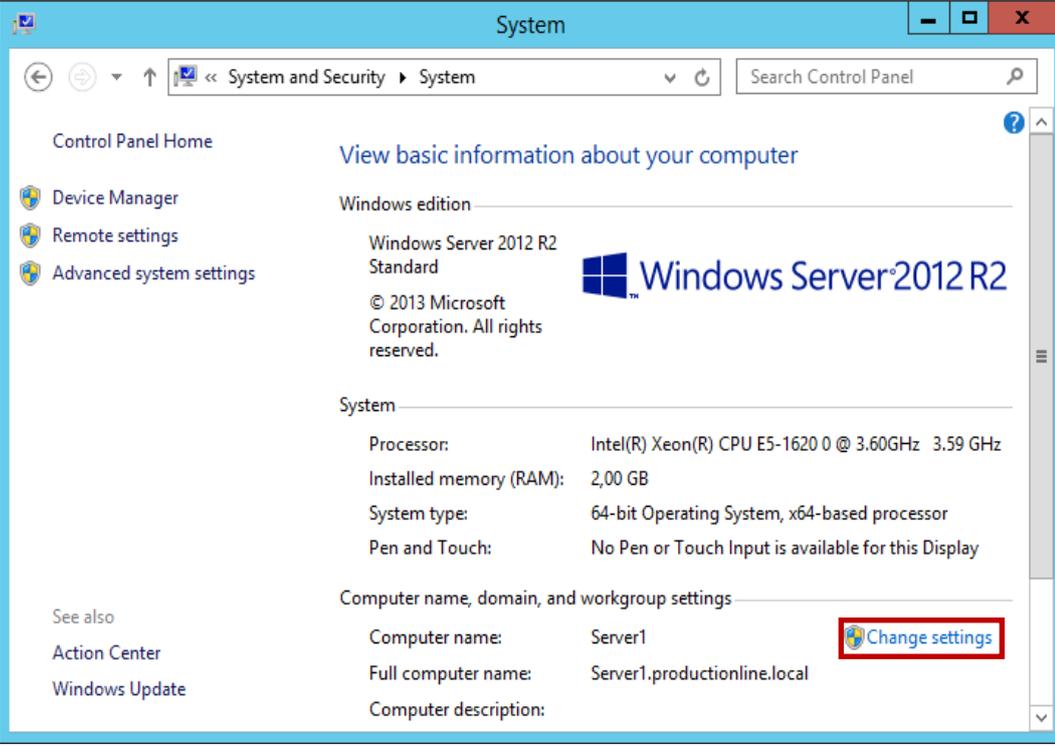
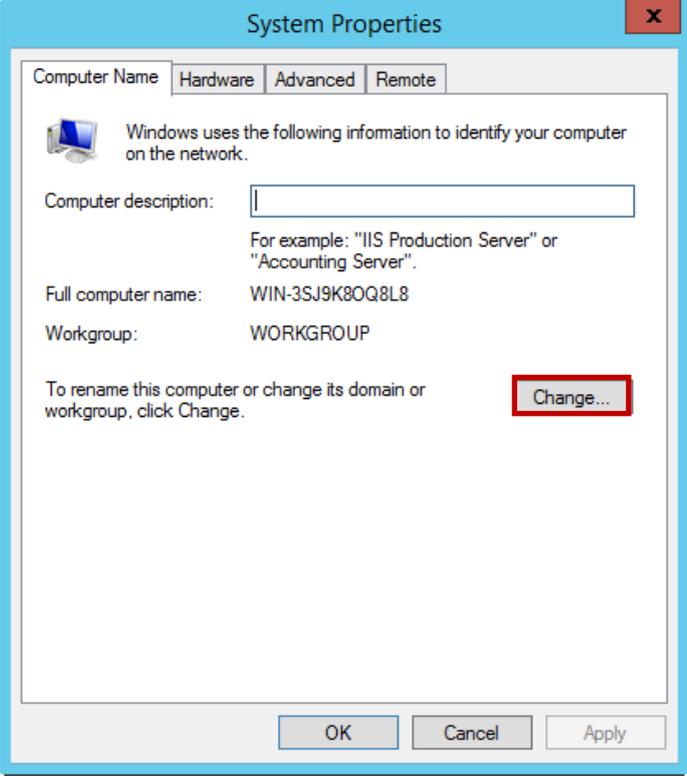
The following steps show how to configure the server name.

Table 5-3

No.	Action
1.	Open the "Control Panel".
2.	<p>Open "System and Security".</p>  <p>The screenshot shows the Windows Control Panel window. The title bar reads 'Control Panel'. The breadcrumb navigation shows 'Control Panel'. The main content area is titled 'Adjust your computer's settings' and lists several categories. The 'System and Security' category is highlighted with a red rectangular box. Other categories include User Accounts, Appearance, Clock, Language, and Region, Ease of Access, Hardware, Network and Internet, and Programs.</p>
3.	<p>Open "System".</p>  <p>The screenshot shows the Windows System and Security window. The title bar reads 'System and Security'. The breadcrumb navigation shows 'Control Panel &gt; System and Security'. The left sidebar lists various categories, with 'System and Security' selected. The main content area shows several system-related settings. The 'System' category is highlighted with a red rectangular box. Other categories include Action Center, Windows Firewall, Windows Update, Power Options, and Administrative Tools.</p>

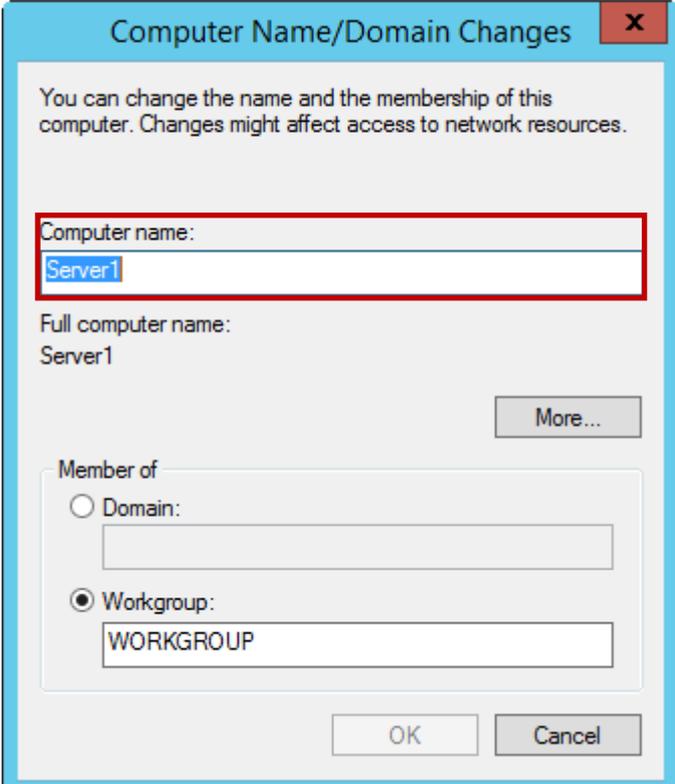
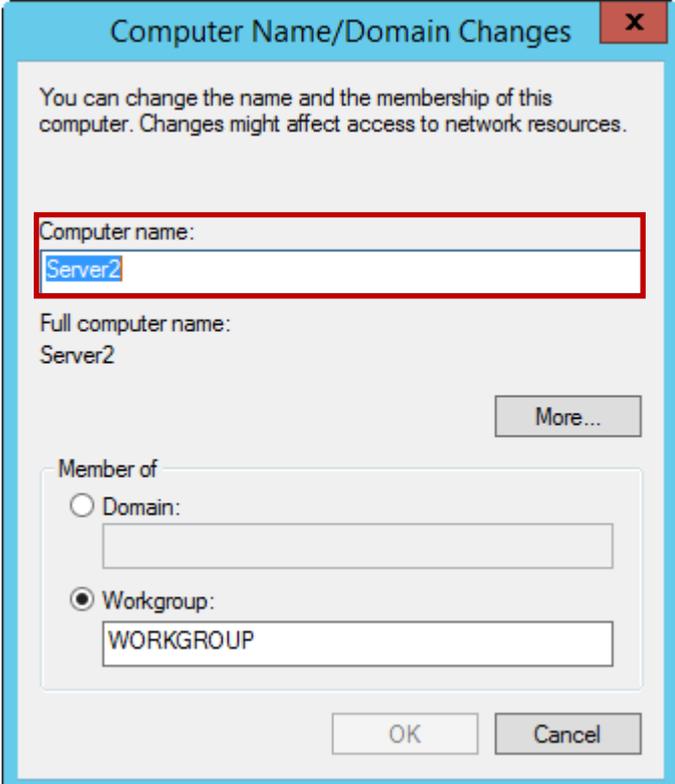
## 5 Installation and Configuration

### 5.2 Software

No.	Action
4.	<p>Open "Change settings".</p>  <p>The screenshot shows the Windows System control panel window. The title bar reads "System". The breadcrumb navigation shows "System and Security" &gt; "System". The main content area is titled "View basic information about your computer". It displays the following information:</p> <ul style="list-style-type: none"><li>Windows edition: Windows Server 2012 R2 Standard</li><li>Processor: Intel(R) Xeon(R) CPU E5-1620 0 @ 3.60GHz 3.59 GHz</li><li>Installed memory (RAM): 2,00 GB</li><li>System type: 64-bit Operating System, x64-based processor</li><li>Pen and Touch: No Pen or Touch Input is available for this Display</li><li>Computer name, domain, and workgroup settings:<ul style="list-style-type: none"><li>Computer name: Server1</li><li>Full computer name: Server1.productionline.local</li></ul></li></ul> <p>A "Change settings" button is highlighted with a red box in the bottom right corner of the window.</p>
5.	<p>Click on "Change..." to rename the computer.</p>  <p>The screenshot shows the "System Properties" dialog box with the "Computer Name" tab selected. It displays the following information:</p> <ul style="list-style-type: none"><li>Computer description: (empty text box)</li><li>Full computer name: WIN-3SJ9K8OQ8L8</li><li>Workgroup: WORKGROUP</li></ul> <p>A "Change..." button is highlighted with a red box in the bottom right corner of the dialog box.</p>

## 5 Installation and Configuration

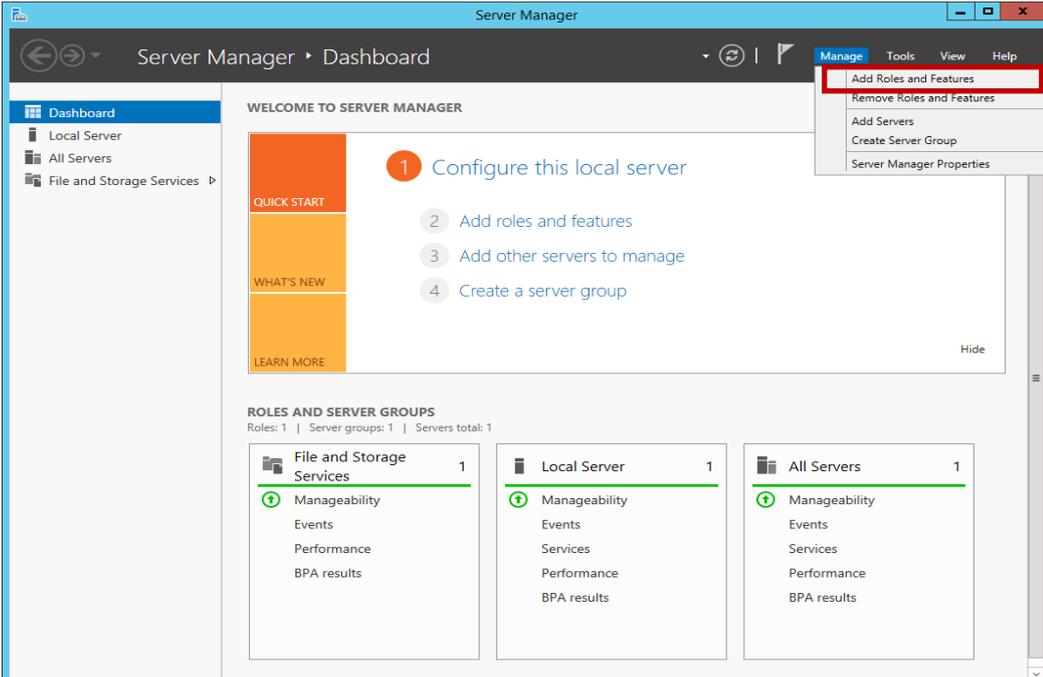
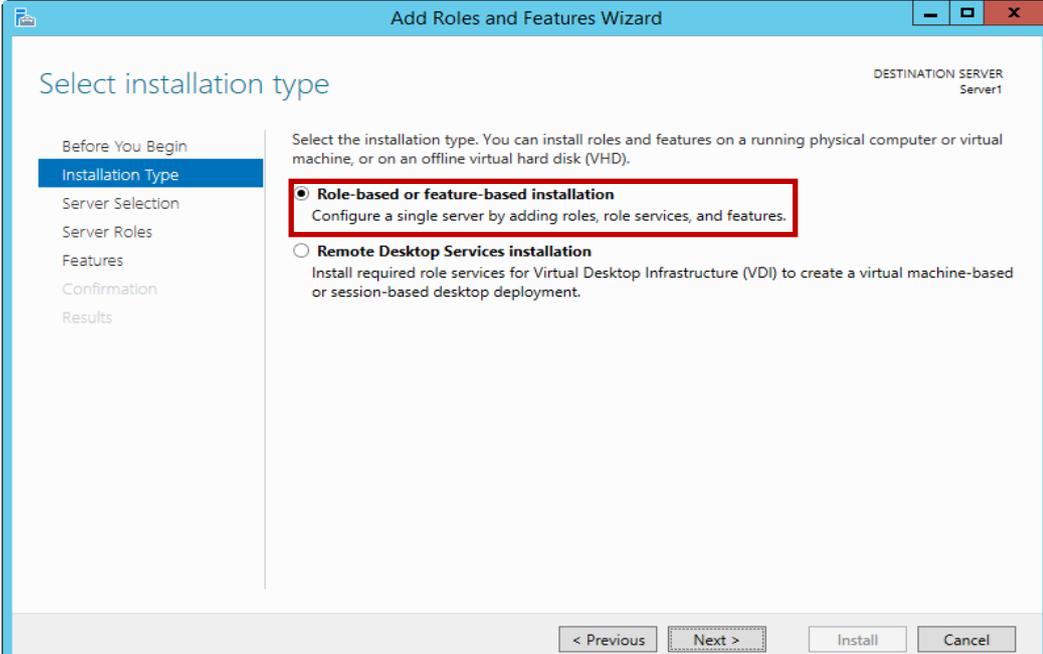
### 5.2 Software

No.	Action
6.	<p>Assign the computer name.</p>  <p>Computer Name/Domain Changes</p> <p>You can change the name and the membership of this computer. Changes might affect access to network resources.</p> <p>Computer name: Server1</p> <p>Full computer name: Server1</p> <p>More...</p> <p>Member of</p> <p><input type="radio"/> Domain:</p> <p><input checked="" type="radio"/> Workgroup: WORKGROUP</p> <p>OK Cancel</p>
7.	<p>Repeat steps 1 to 6 for the remote desktop session host (server 2).</p>  <p>Computer Name/Domain Changes</p> <p>You can change the name and the membership of this computer. Changes might affect access to network resources.</p> <p>Computer name: Server2</p> <p>Full computer name: Server2</p> <p>More...</p> <p>Member of</p> <p><input type="radio"/> Domain:</p> <p><input checked="" type="radio"/> Workgroup: WORKGROUP</p> <p>OK Cancel</p>

**5.2.3 Installation Internet Information Services (IIS)**

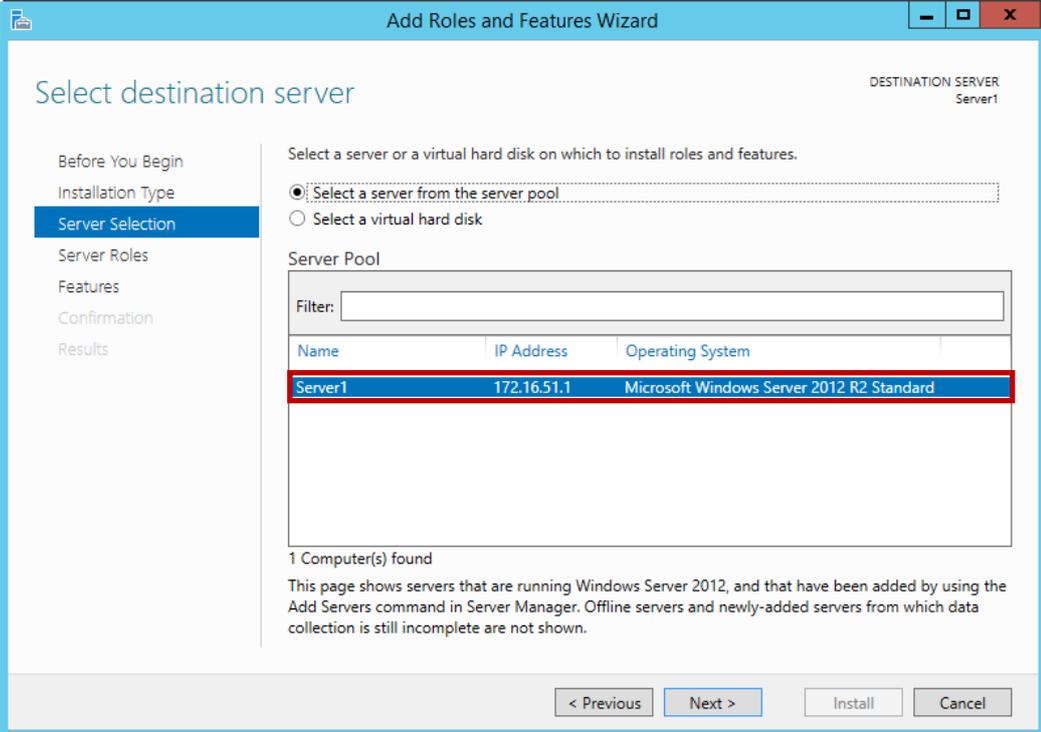
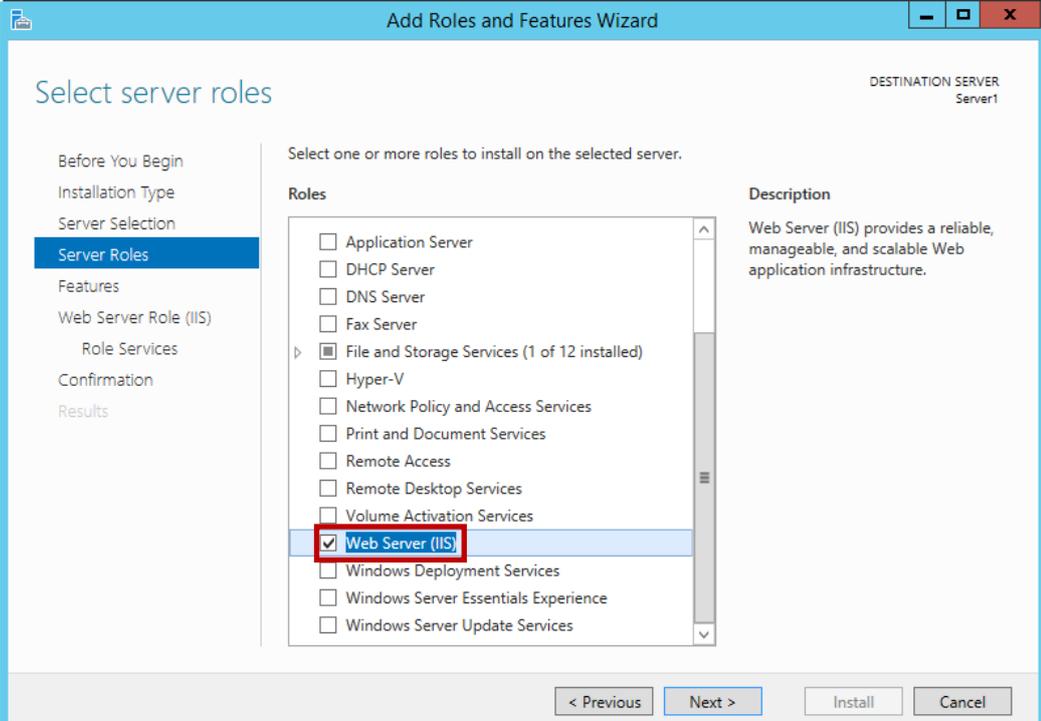
The following steps show how to install Internet Information Services (IIS) on the server.

Table 5-4

No.	Action
1.	Open the Server Manager of the WinCC server (server 1).
2.	<p>In the “Server Manager” in “Manage” you click on “Add Roles and Features”.</p>  <p>The screenshot shows the Server Manager interface. The 'Manage' menu is open, and 'Add Roles and Features' is highlighted with a red box. The main dashboard shows a 'QUICK START' section with four steps: 1. Configure this local server, 2. Add roles and features, 3. Add other servers to manage, and 4. Create a server group. Below this, there are three server groups: 'File and Storage Services', 'Local Server', and 'All Servers', each with a list of services and features.</p>
Roles and Features (Services) must be started manually when you restart the computer .	
3.	<p>Select “Role-based or feature-based installation” as the installation type</p>  <p>The screenshot shows the 'Add Roles and Features Wizard' window. The 'Select installation type' screen is displayed. The 'Role-based or feature-based installation' option is selected and highlighted with a red box. The 'Remote Desktop Services installation' option is also visible but not selected. The 'Next &gt;' button is highlighted.</p>

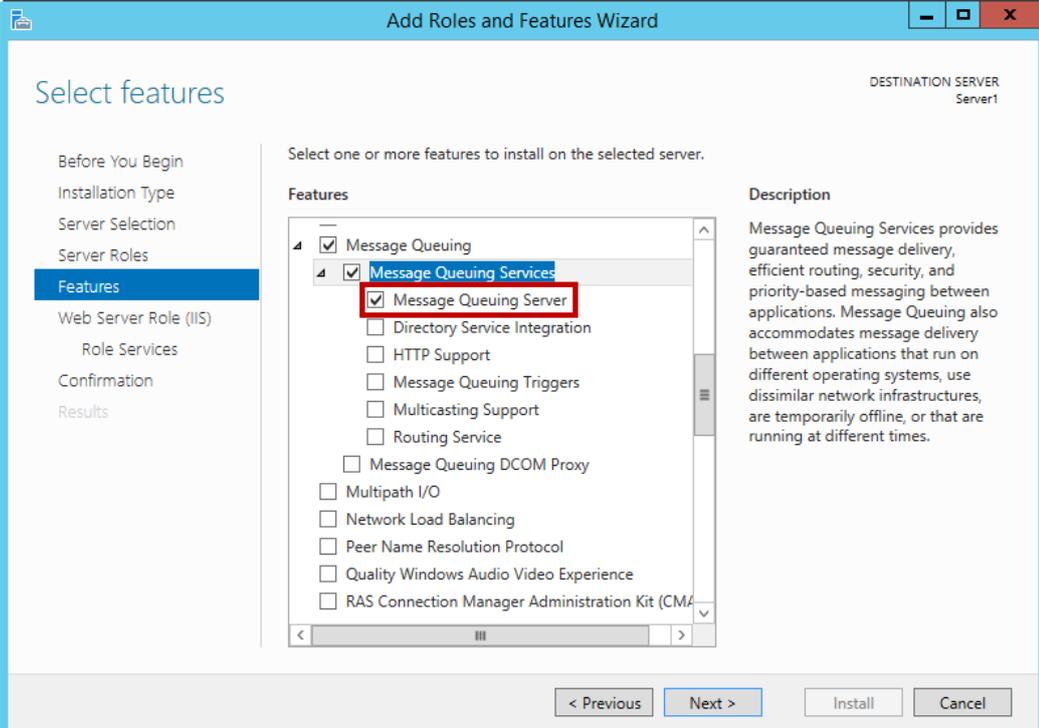
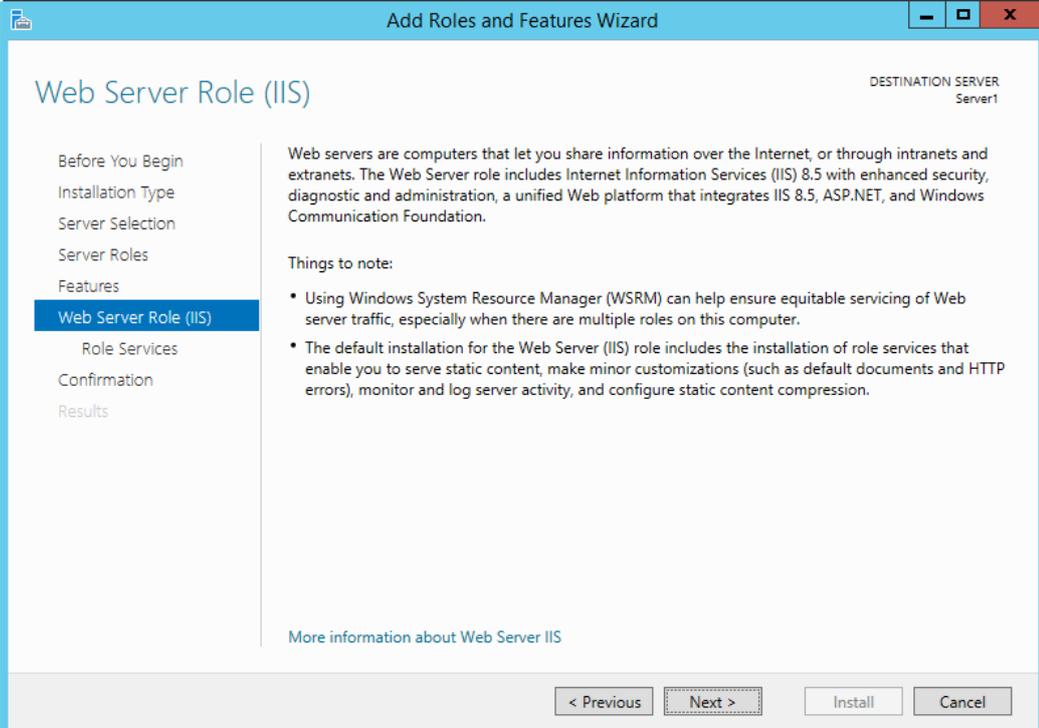
## 5 Installation and Configuration

### 5.2 Software

No.	Action						
4.	<p>Select your server on which you wish to install the Internet Information Services.</p>  <p>The screenshot shows the 'Add Roles and Features Wizard' window. The title bar reads 'Add Roles and Features Wizard'. The main heading is 'Select destination server'. On the left, there is a navigation pane with 'Server Selection' selected. The main area contains the following information:</p> <ul style="list-style-type: none"><li>Before You Begin</li><li>Installation Type</li><li>Server Selection (selected)</li><li>Server Roles</li><li>Features</li><li>Confirmation</li><li>Results</li></ul> <p>Instructions: Select a server or a virtual hard disk on which to install roles and features.</p> <p>Options: <input checked="" type="radio"/> Select a server from the server pool <input type="radio"/> Select a virtual hard disk</p> <p>Server Pool</p> <table border="1"><thead><tr><th>Name</th><th>IP Address</th><th>Operating System</th></tr></thead><tbody><tr><td>Server1</td><td>172.16.51.1</td><td>Microsoft Windows Server 2012 R2 Standard</td></tr></tbody></table> <p>1 Computer(s) found</p> <p>This page shows servers that are running Windows Server 2012, and that have been added by using the Add Servers command in Server Manager. Offline servers and newly-added servers from which data collection is still incomplete are not shown.</p> <p>Buttons: &lt; Previous, Next &gt;, Install, Cancel</p>	Name	IP Address	Operating System	Server1	172.16.51.1	Microsoft Windows Server 2012 R2 Standard
Name	IP Address	Operating System					
Server1	172.16.51.1	Microsoft Windows Server 2012 R2 Standard					
5.	<p>Select the "Web server (IIS)" entry under "Server Roles".</p>  <p>The screenshot shows the 'Add Roles and Features Wizard' window. The title bar reads 'Add Roles and Features Wizard'. The main heading is 'Select server roles'. On the left, there is a navigation pane with 'Server Roles' selected. The main area contains the following information:</p> <ul style="list-style-type: none"><li>Before You Begin</li><li>Installation Type</li><li>Server Selection</li><li>Server Roles (selected)</li><li>Features</li><li>Web Server Role (IIS)</li><li>Role Services</li><li>Confirmation</li><li>Results</li></ul> <p>Instructions: Select one or more roles to install on the selected server.</p> <p>Roles</p> <ul style="list-style-type: none"><li><input type="checkbox"/> Application Server</li><li><input type="checkbox"/> DHCP Server</li><li><input type="checkbox"/> DNS Server</li><li><input type="checkbox"/> Fax Server</li><li><input checked="" type="checkbox"/> File and Storage Services (1 of 12 installed)</li><li><input type="checkbox"/> Hyper-V</li><li><input type="checkbox"/> Network Policy and Access Services</li><li><input type="checkbox"/> Print and Document Services</li><li><input type="checkbox"/> Remote Access</li><li><input type="checkbox"/> Remote Desktop Services</li><li><input type="checkbox"/> Volume Activation Services</li><li><input checked="" type="checkbox"/> Web Server (IIS)</li><li><input type="checkbox"/> Windows Deployment Services</li><li><input type="checkbox"/> Windows Server Essentials Experience</li><li><input type="checkbox"/> Windows Server Update Services</li></ul> <p>Description</p> <p>Web Server (IIS) provides a reliable, manageable, and scalable Web application infrastructure.</p> <p>Buttons: &lt; Previous, Next &gt;, Install, Cancel</p>						

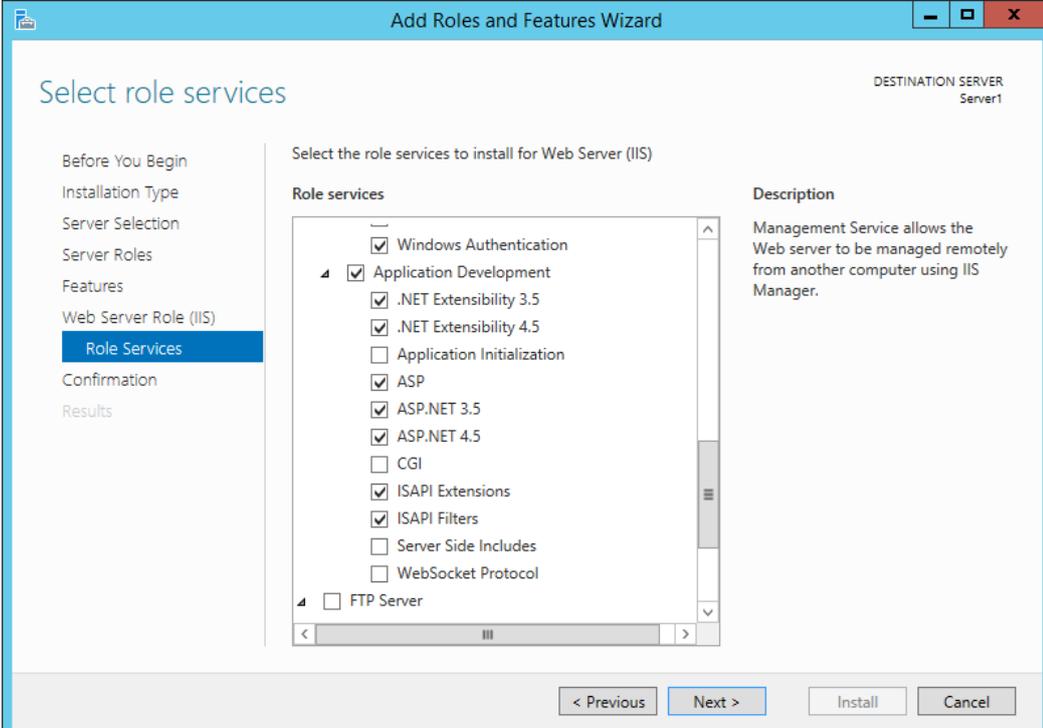
## 5 Installation and Configuration

### 5.2 Software

No.	Action
6.	<p>Select "Message Queuing Server" in "Features".</p>  <p>The screenshot shows the 'Add Roles and Features Wizard' window for 'DESTINATION SERVER Server1'. The 'Select features' step is active. In the 'Features' list, 'Message Queuing' is expanded, and 'Message Queuing Services' is also expanded. The 'Message Queuing Server' checkbox is checked and highlighted with a red box. Other features like 'Directory Service Integration', 'HTTP Support', etc., are unchecked. The 'Description' pane on the right explains that Message Queuing Services provides guaranteed message delivery and efficient routing.</p>
7.	<p>Complete and close the selection by clicking on the "Next" button.</p>  <p>The screenshot shows the 'Add Roles and Features Wizard' window for 'DESTINATION SERVER Server1' at the 'Web Server Role (IIS)' step. The 'Next &gt;' button is highlighted with a dashed border, indicating it should be clicked to proceed. The 'Description' pane on the right provides information about Web servers and lists 'Things to note' regarding WSRM and default role services.</p>

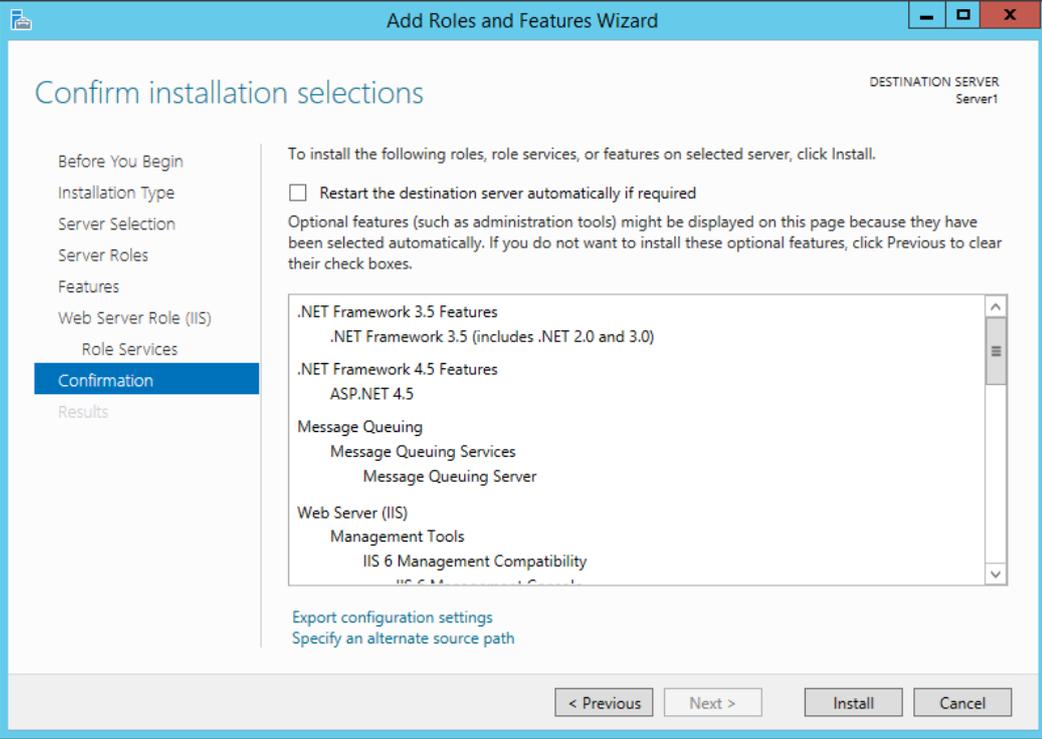
## 5 Installation and Configuration

### 5.2 Software

No.	Action
8.	<p>In “Role Services” you select the following role services for installation.</p> <p>WWW services &gt; Common HTTP features</p> <ul style="list-style-type: none"><li>- standard document</li><li>- static content</li></ul> <p>World Wide Web Services &gt; Security:</p> <ul style="list-style-type: none"><li>- Request Filtering</li><li>- Basic Authentication</li><li>- Windows Authentication</li></ul> <p>World Wide Web Services &gt; Application Development Features:</p> <ul style="list-style-type: none"><li>- .NET Extensibility 3.5 and 4.5</li><li>- ASP</li><li>- ASP.NET 3.5 and 4.5</li><li>- ISAPI Extensions</li><li>- ISAPI Filters</li></ul> <p>Web Management Tools:</p> <ul style="list-style-type: none"><li>- IIS Management Service</li><li>- IIS Management Console</li><li>- IIS Management Scripts and Tools</li><li>- IIS Metabase and IIS 6 Configuration Compatibility</li><li>- IIS 6 WMI Compatibility</li></ul> <p>Close the selection by clicking on the “Next” button.</p> 

## 5 Installation and Configuration

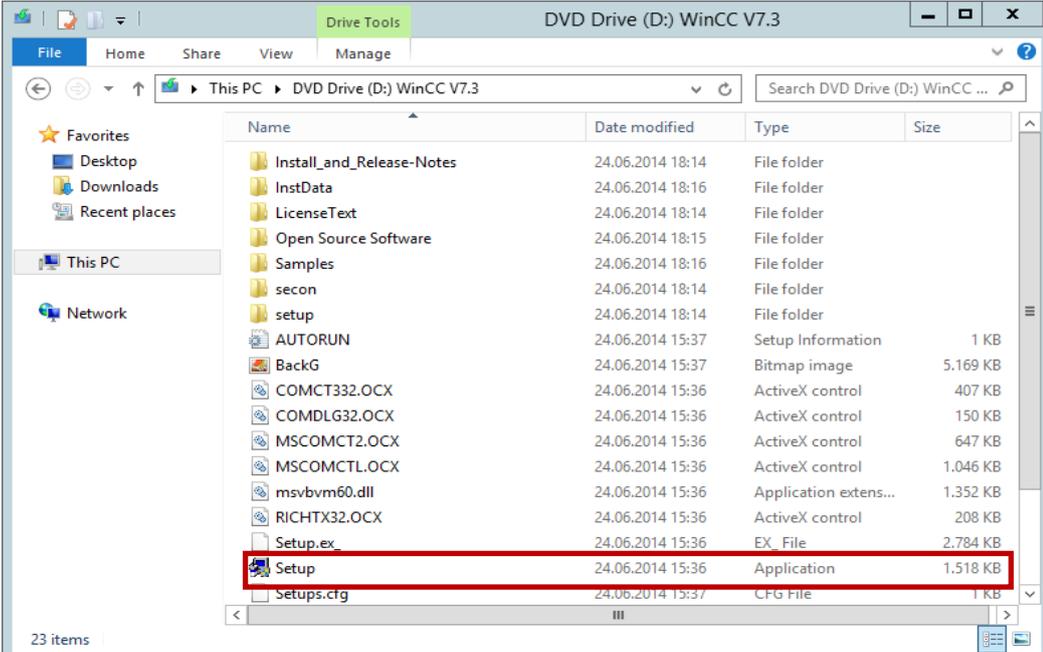
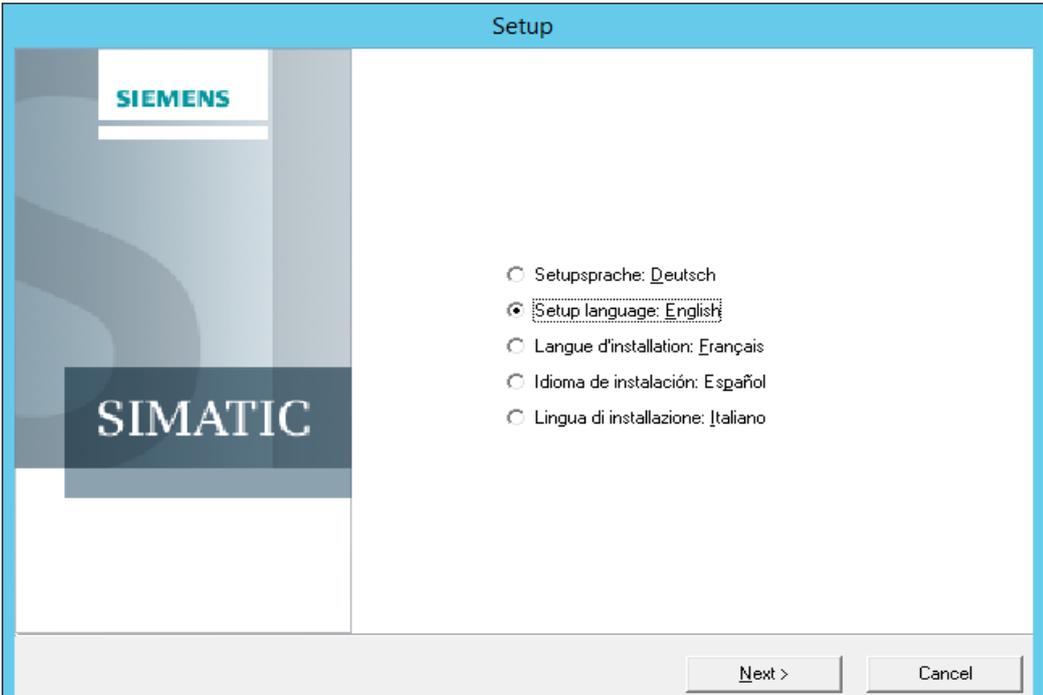
### 5.2 Software

No.	Action
9.	<p>Install the selected role services and close the wizard.</p>  <p>In case your computer can not download the necessary files from Windows , specify the alternate path to the installation CD of Windows Server 2012</p>

5.2.4 Installation WinCC V7.3 and WebNavigator

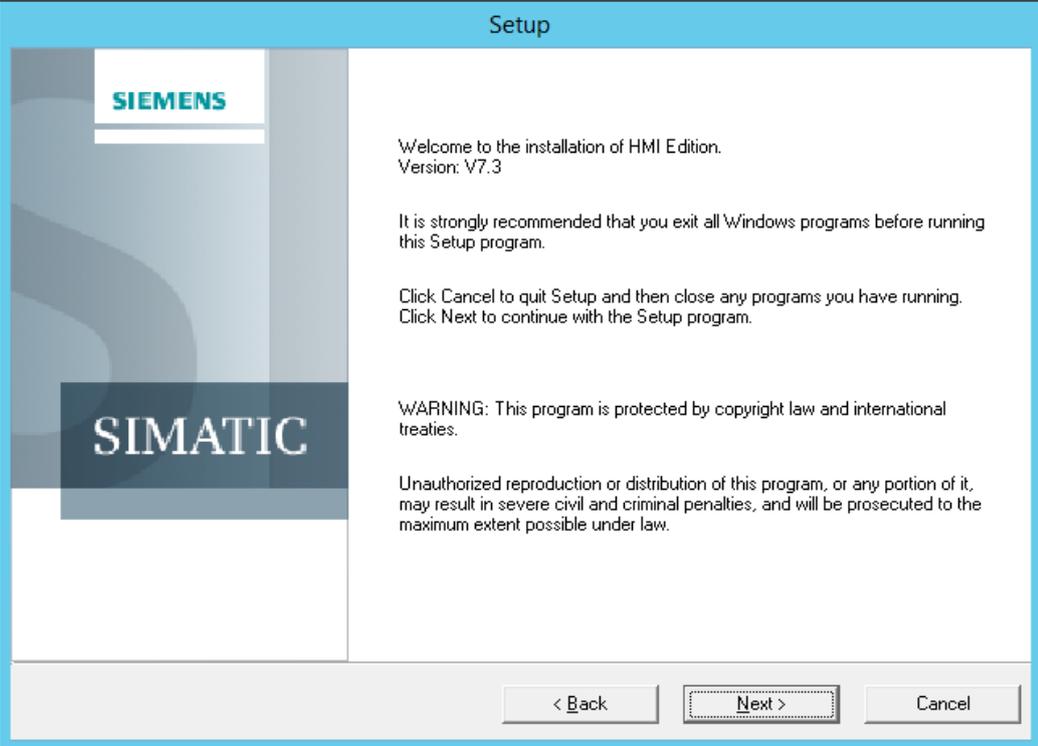
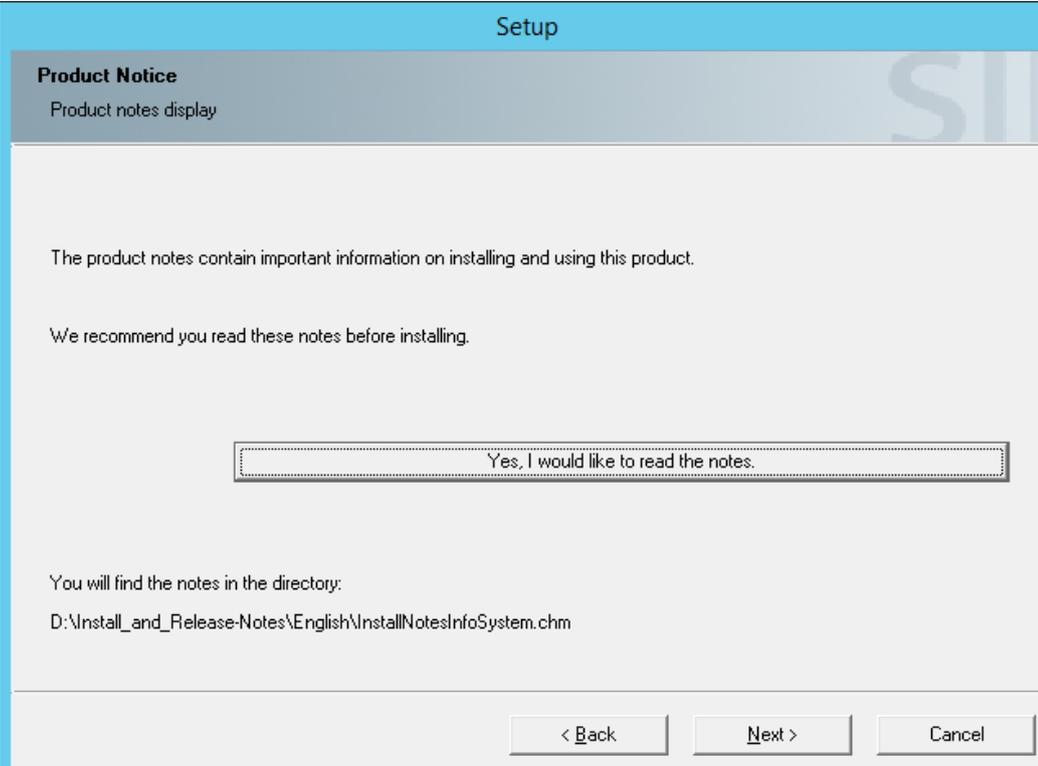
The following steps show how to install WinCC V7.3 and WebNavigator on the WinCC server (server 1).

Table 5-5

No.	Action
1.	<p>Start the WinCC V7.3 software by double-clicking on the “Setup” application of from the installation medium.</p>  <p>The screenshot shows a File Explorer window titled 'DVD Drive (D:) WinCC V7.3'. The left sidebar shows 'This PC' and 'Network'. The main pane displays a list of files and folders. The 'Setup' file is highlighted with a red box. The list includes folders like 'Install_and_Release-Notes', 'InstData', 'LicenseText', 'Open Source Software', 'Samples', 'secon', and 'setup'. It also includes files like 'AUTORUN', 'BackG', 'COMCT332.OCX', 'COMDLG32.OCX', 'MSCOMCT2.OCX', 'MSCOMCTL.OCX', 'msvbvm60.dll', 'RICHTX32.OCX', 'Setup.ex...', and 'Setups.crg'.</p>
2.	<p>Choose a setup language.</p>  <p>The screenshot shows the 'Setup' dialog box. On the left, there is a Siemens logo and a SIMATIC logo. On the right, there are radio button options for different languages: 'Setupsprache: Deutsch', 'Setup language: English' (which is selected), 'Langue d'installation: Français', 'Idioma de instalación: Español', and 'Lingua di installazione: Italiano'. At the bottom right, there are 'Next &gt;' and 'Cancel' buttons.</p>

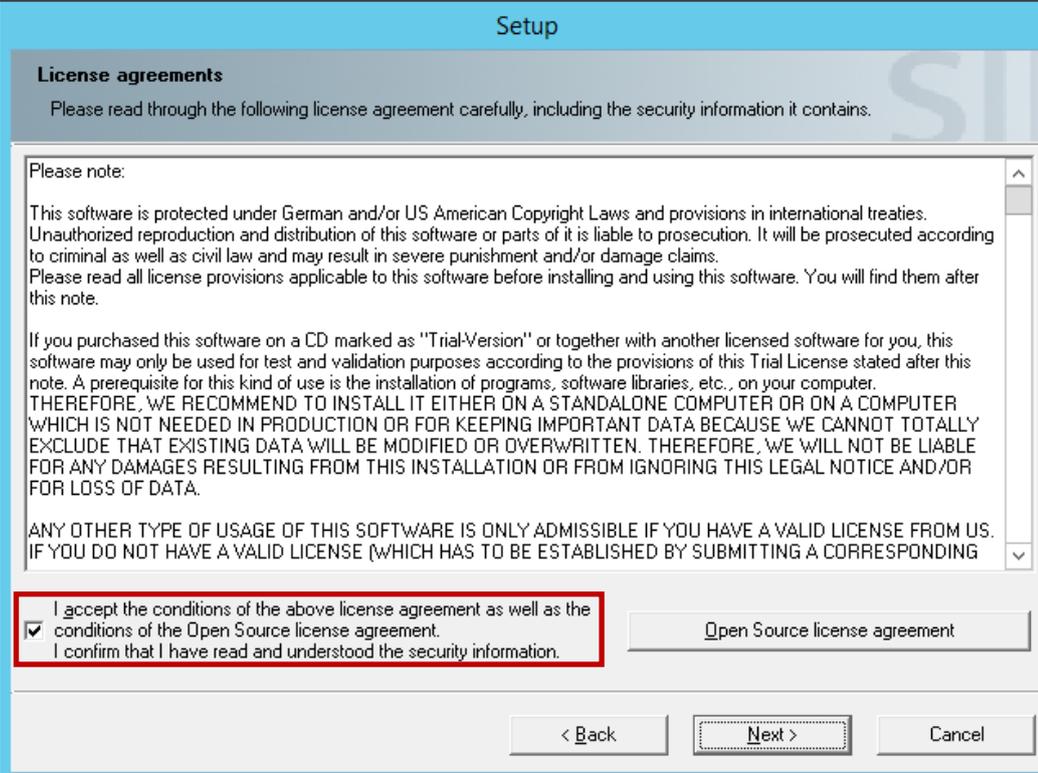
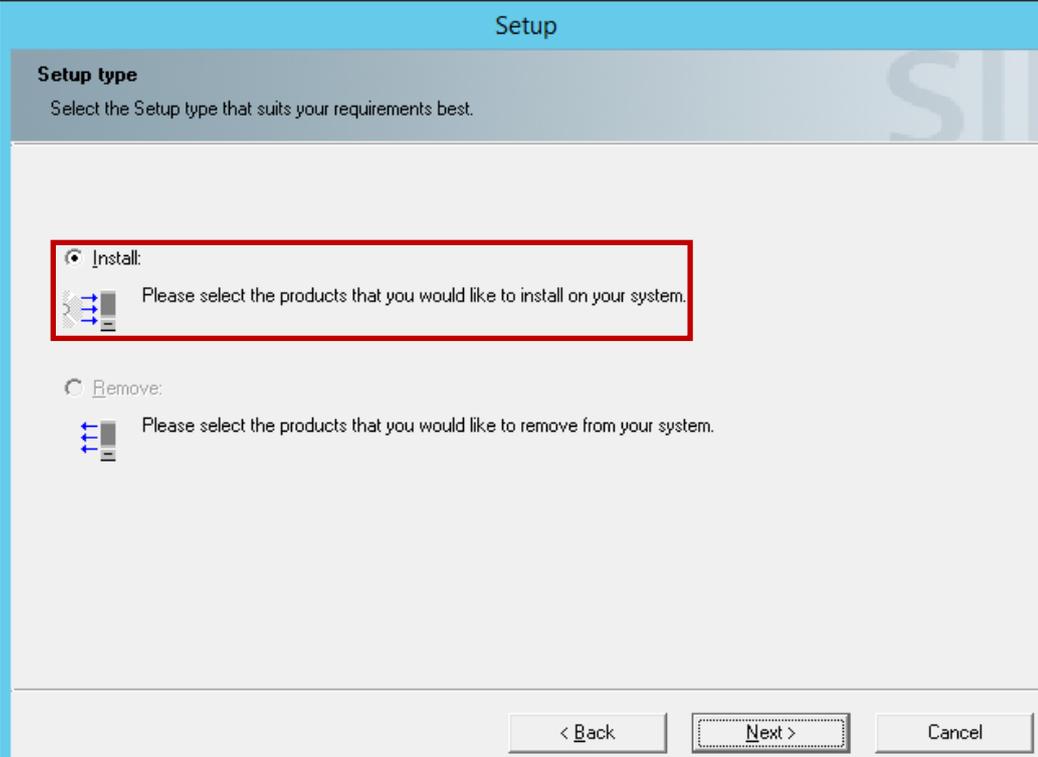
## 5 Installation and Configuration

### 5.2 Software

No.	Action
3.	<p>Terminate all Windows programs. Click on the "Next" button.</p> 
4.	<p>Read the Product Notice. Click on the "Next" button.</p> 

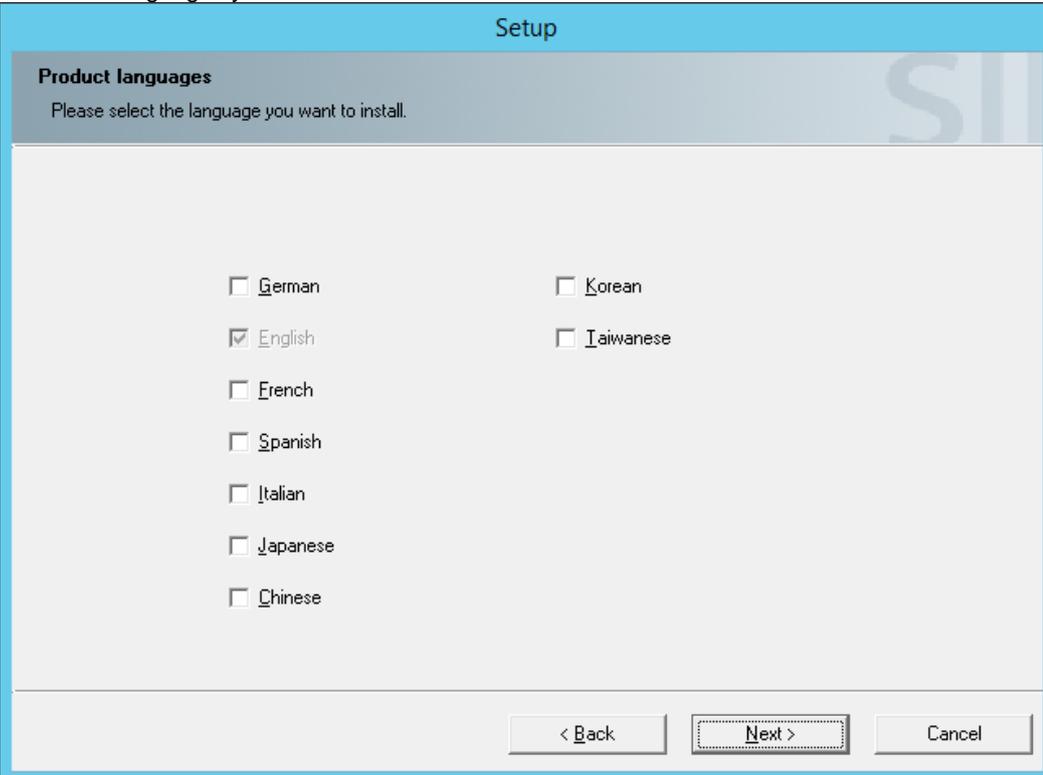
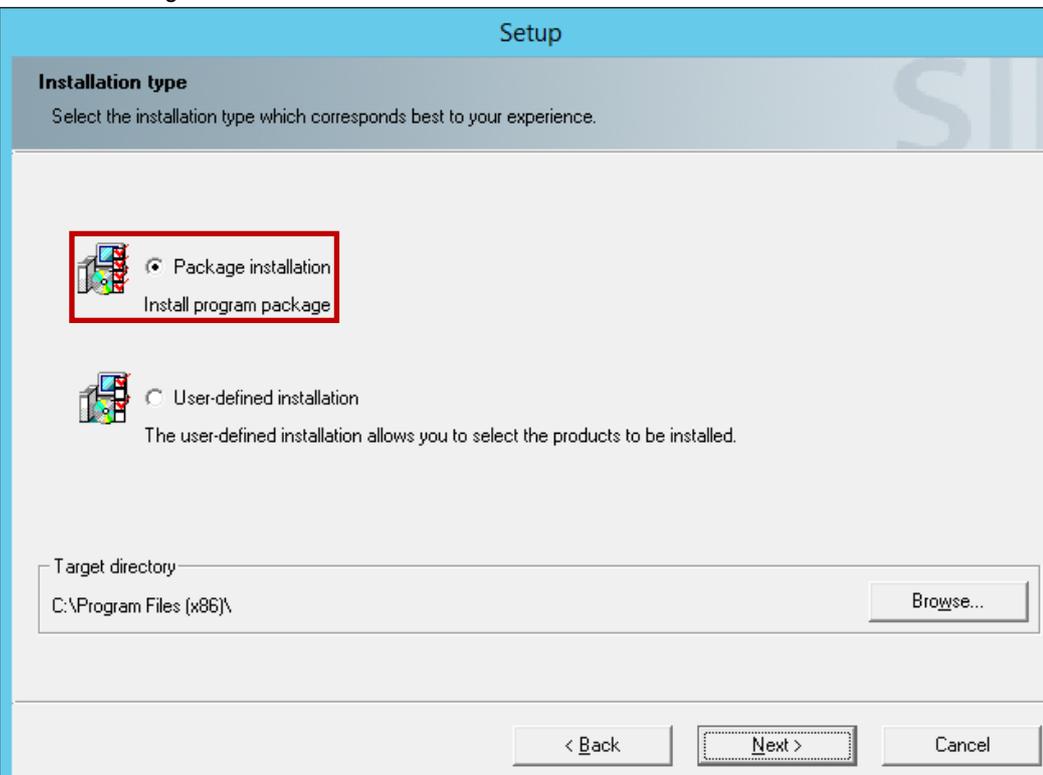
## 5 Installation and Configuration

### 5.2 Software

No.	Action
5.	<p>Accept the license agreement as well as the security information.</p> 
6.	<p>Select the Setup type "Install".</p> 

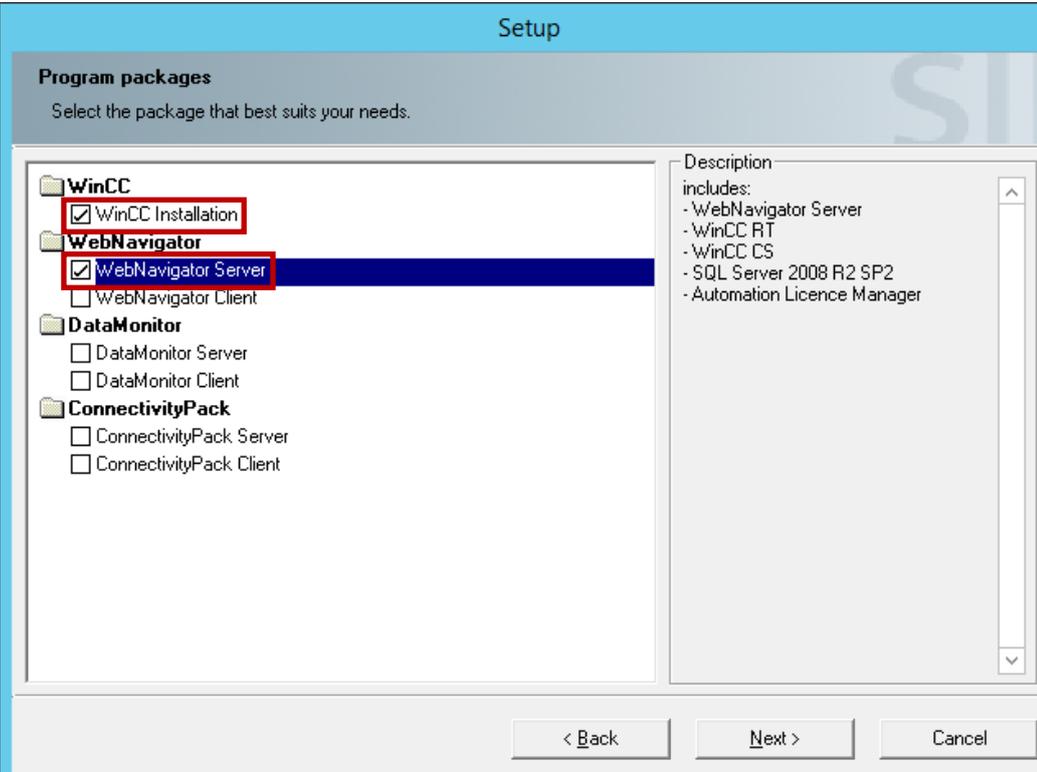
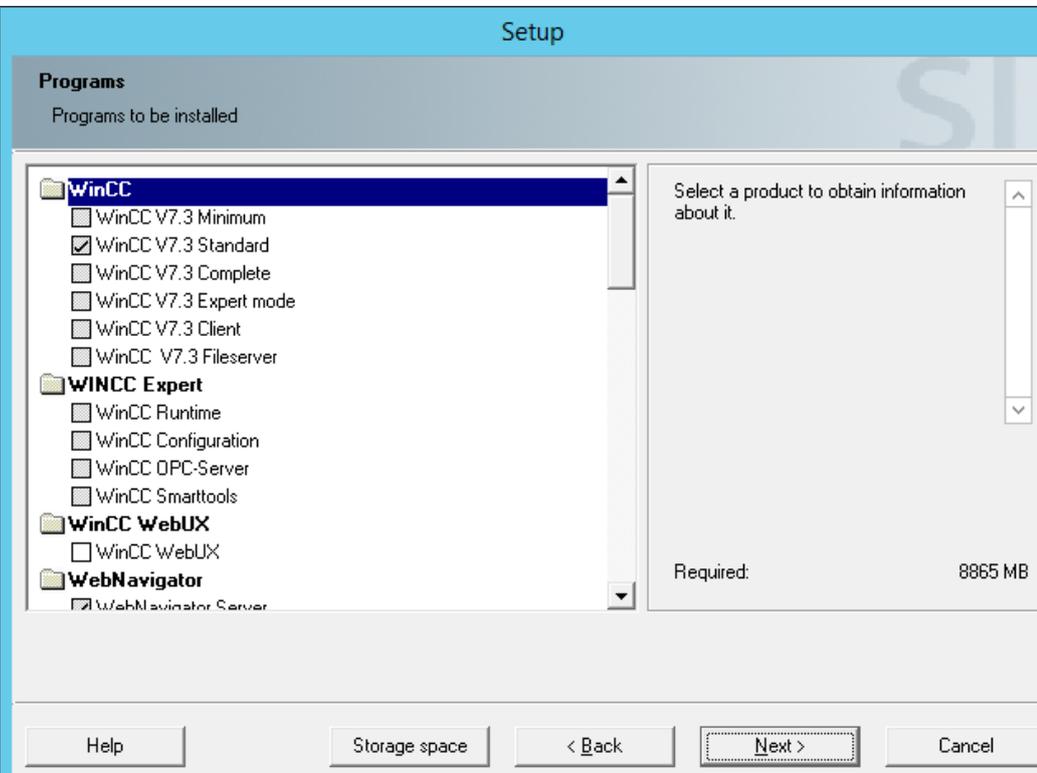
## 5 Installation and Configuration

### 5.2 Software

No.	Action
7.	<p>Select the languages you wish to install for WinCC V7.3.</p>  <p>Setup</p> <p><b>Product languages</b></p> <p>Please select the language you want to install.</p> <p><input type="checkbox"/> German</p> <p><input checked="" type="checkbox"/> English</p> <p><input type="checkbox"/> French</p> <p><input type="checkbox"/> Spanish</p> <p><input type="checkbox"/> Italian</p> <p><input type="checkbox"/> Japanese</p> <p><input type="checkbox"/> Chinese</p> <p><input type="checkbox"/> Korean</p> <p><input type="checkbox"/> Taiwanese</p> <p>&lt; Back    Next &gt;    Cancel</p>
8.	<p>Choose "Package installation"</p>  <p>Setup</p> <p><b>Installation type</b></p> <p>Select the installation type which corresponds best to your experience.</p> <p><input checked="" type="radio"/> Package installation Install program package</p> <p><input type="radio"/> User-defined installation The user-defined installation allows you to select the products to be installed.</p> <p>Target directory C:\Program Files (x86)\    Browse...</p> <p>&lt; Back    Next &gt;    Cancel</p>

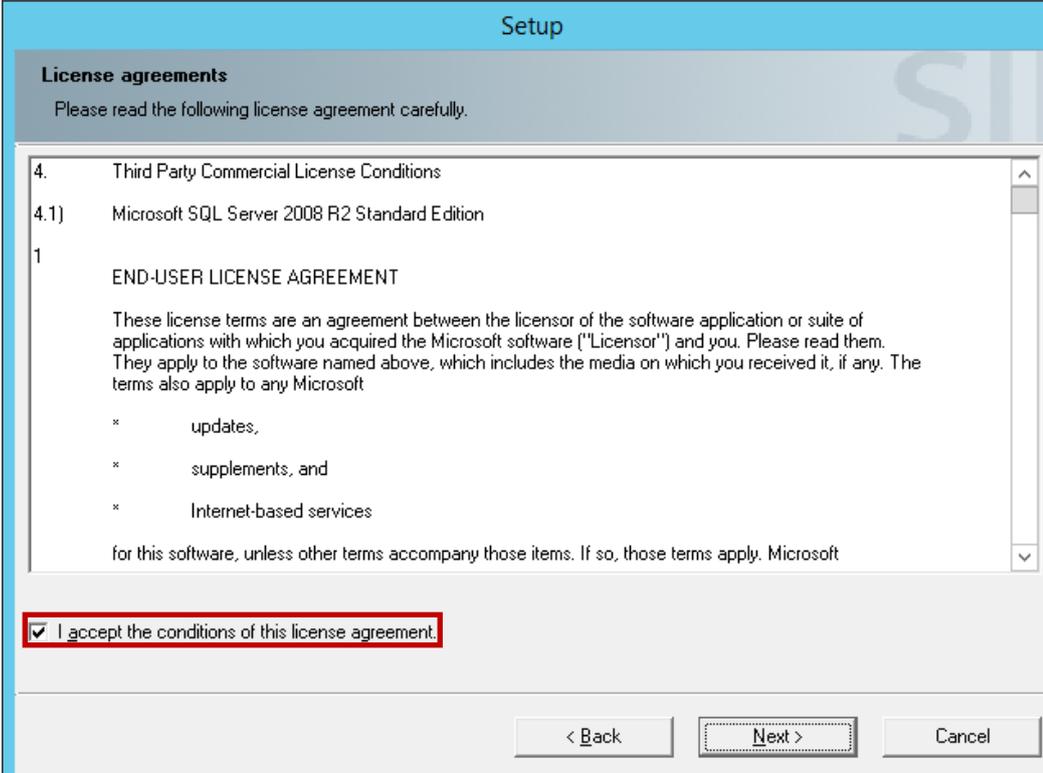
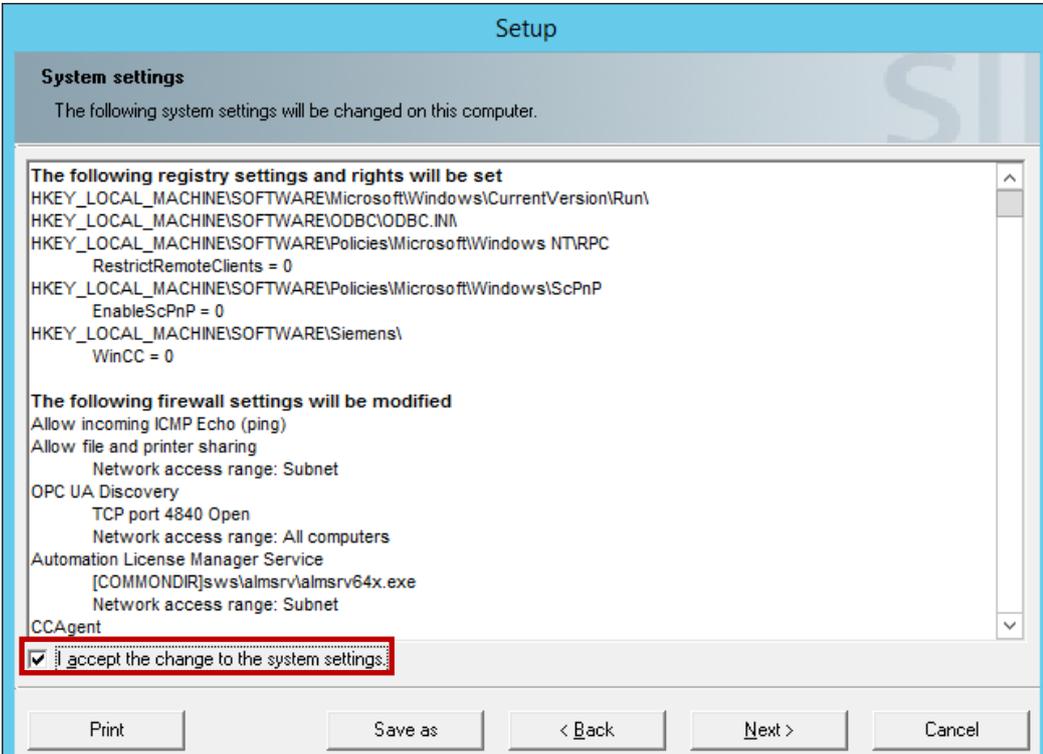
## 5 Installation and Configuration

### 5.2 Software

No.	Action
9.	<p>Select the packages "WinCC Installation" and "WebNavigator Server".</p>  <p>The screenshot shows the 'Setup' dialog box for WinCC. The 'Program packages' section is active, showing a tree view of installation options. Under 'WinCC', 'WinCC Installation' is checked. Under 'WebNavigator', 'WebNavigator Server' is checked. The 'Description' pane on the right lists the included components: WebNavigator Server, WinCC RT, WinCC CS, SQL Server 2008 R2 SP2, and Automation Licence Manager. The 'Next &gt;' button is highlighted.</p>
10.	<p>Click on the "Next" button.</p>  <p>The screenshot shows the 'Setup' dialog box for WinCC. The 'Programs' section is active, showing a tree view of installation options. Under 'WinCC', 'WinCC V7.3 Standard' is checked. Under 'WebNavigator', 'WebNavigator Server' is checked. The 'Required' space is 8865 MB. The 'Next &gt;' button is highlighted.</p>

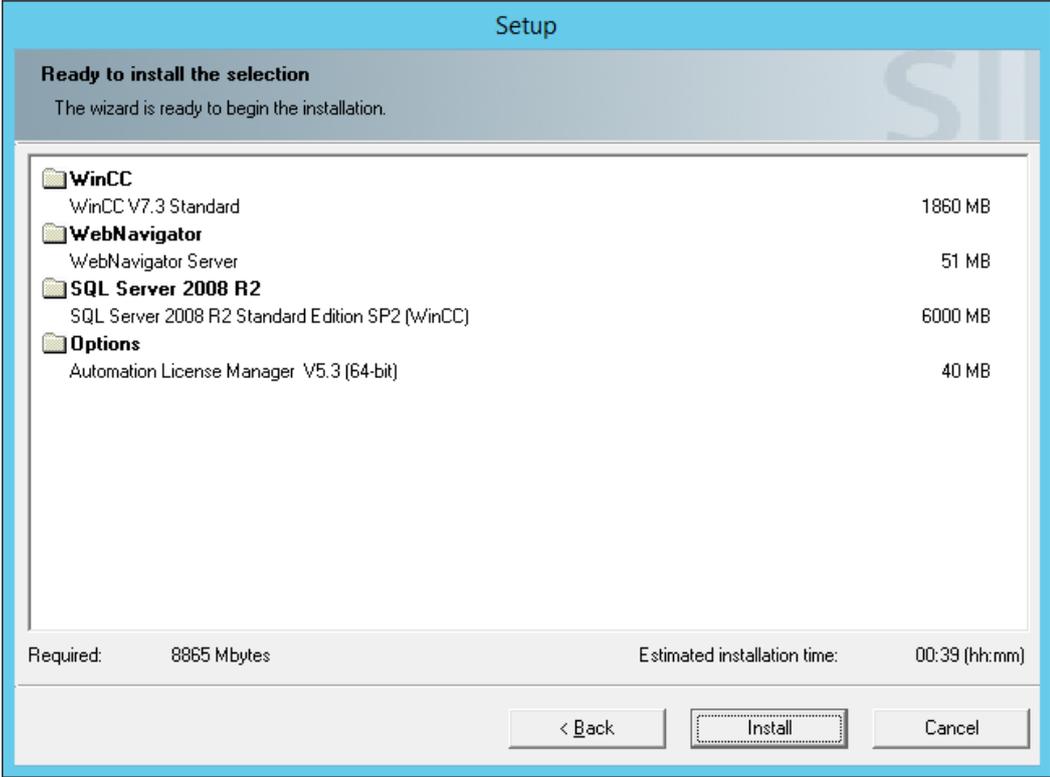
## 5 Installation and Configuration

### 5.2 Software

No.	Action
11.	<p>Read the terms of the license agreements and the security information and confirm.</p>  <p>Setup</p> <p><b>License agreements</b> Please read the following license agreement carefully.</p> <p>4. Third Party Commercial License Conditions 4.1) Microsoft SQL Server 2008 R2 Standard Edition 1 END-USER LICENSE AGREEMENT</p> <p>These license terms are an agreement between the licensor of the software application or suite of applications with which you acquired the Microsoft software ("Licensor") and you. Please read them. They apply to the software named above, which includes the media on which you received it, if any. The terms also apply to any Microsoft</p> <ul style="list-style-type: none"><li>* updates,</li><li>* supplements, and</li><li>* Internet-based services</li></ul> <p>for this software, unless other terms accompany those items. If so, those terms apply. Microsoft</p> <p><input checked="" type="checkbox"/> I accept the conditions of this license agreement.</p> <p>&lt; Back    Next &gt;    Cancel</p>
12.	<p>Accept the changes made to the system settings. Click on the "Next" button.</p>  <p>Setup</p> <p><b>System settings</b> The following system settings will be changed on this computer.</p> <p><b>The following registry settings and rights will be set</b> HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\Run HKEY_LOCAL_MACHINE\SOFTWARE\ODBC\ODBC.INI HKEY_LOCAL_MACHINE\SOFTWARE\Policies\Microsoft\Windows\NTRPC RestrictRemoteClients = 0 HKEY_LOCAL_MACHINE\SOFTWARE\Policies\Microsoft\Windows\ScnPn EnableScnPn = 0 HKEY_LOCAL_MACHINE\SOFTWARE\Siemens\ WinCC = 0</p> <p><b>The following firewall settings will be modified</b> Allow incoming ICMP Echo (ping) Allow file and printer sharing Network access range: Subnet OPC UA Discovery TCP port 4840 Open Network access range: All computers Automation License Manager Service [COMMONDIR]sw\almsrv\almsrv64x.exe Network access range: Subnet CCAgent</p> <p><input checked="" type="checkbox"/> I accept the change to the system settings.</p> <p>Print    Save as    &lt; Back    Next &gt;    Cancel</p>

## 5 Installation and Configuration

### 5.2 Software

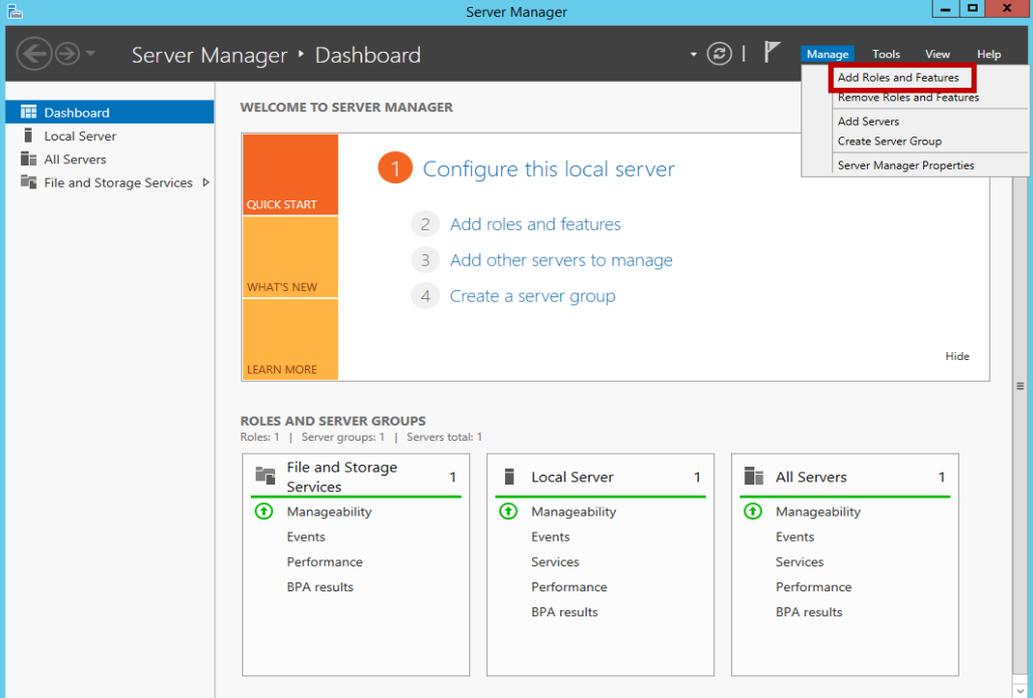
No.	Action										
13.	<p>Click on Install. WinCC V7.3 and WebNavigator are then installed.</p>  <p><b>Setup</b></p> <p><b>Ready to install the selection</b> The wizard is ready to begin the installation.</p> <table border="1"><thead><tr><th>Component</th><th>Size</th></tr></thead><tbody><tr><td><b>WinCC</b> WinCC V7.3 Standard</td><td>1860 MB</td></tr><tr><td><b>WebNavigator</b> WebNavigator Server</td><td>51 MB</td></tr><tr><td><b>SQL Server 2008 R2</b> SQL Server 2008 R2 Standard Edition SP2 (WinCC)</td><td>6000 MB</td></tr><tr><td><b>Options</b> Automation License Manager V5.3 (64-bit)</td><td>40 MB</td></tr></tbody></table> <p>Required: 8865 Mbytes      Estimated installation time: 00:39 (hh:mm)</p> <p>&lt; Back      Install      Cancel</p>	Component	Size	<b>WinCC</b> WinCC V7.3 Standard	1860 MB	<b>WebNavigator</b> WebNavigator Server	51 MB	<b>SQL Server 2008 R2</b> SQL Server 2008 R2 Standard Edition SP2 (WinCC)	6000 MB	<b>Options</b> Automation License Manager V5.3 (64-bit)	40 MB
Component	Size										
<b>WinCC</b> WinCC V7.3 Standard	1860 MB										
<b>WebNavigator</b> WebNavigator Server	51 MB										
<b>SQL Server 2008 R2</b> SQL Server 2008 R2 Standard Edition SP2 (WinCC)	6000 MB										
<b>Options</b> Automation License Manager V5.3 (64-bit)	40 MB										

**5.2.5 Installing of the remote desktop services**

The following steps describe the installation of the remote desktop session host (terminal server).

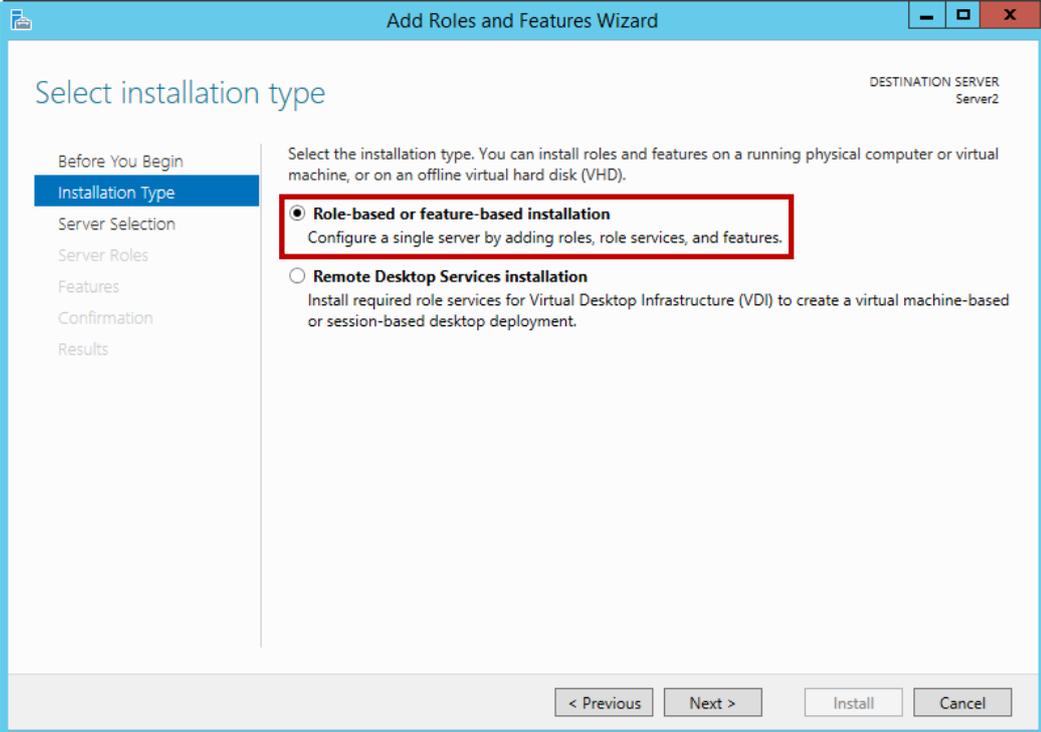
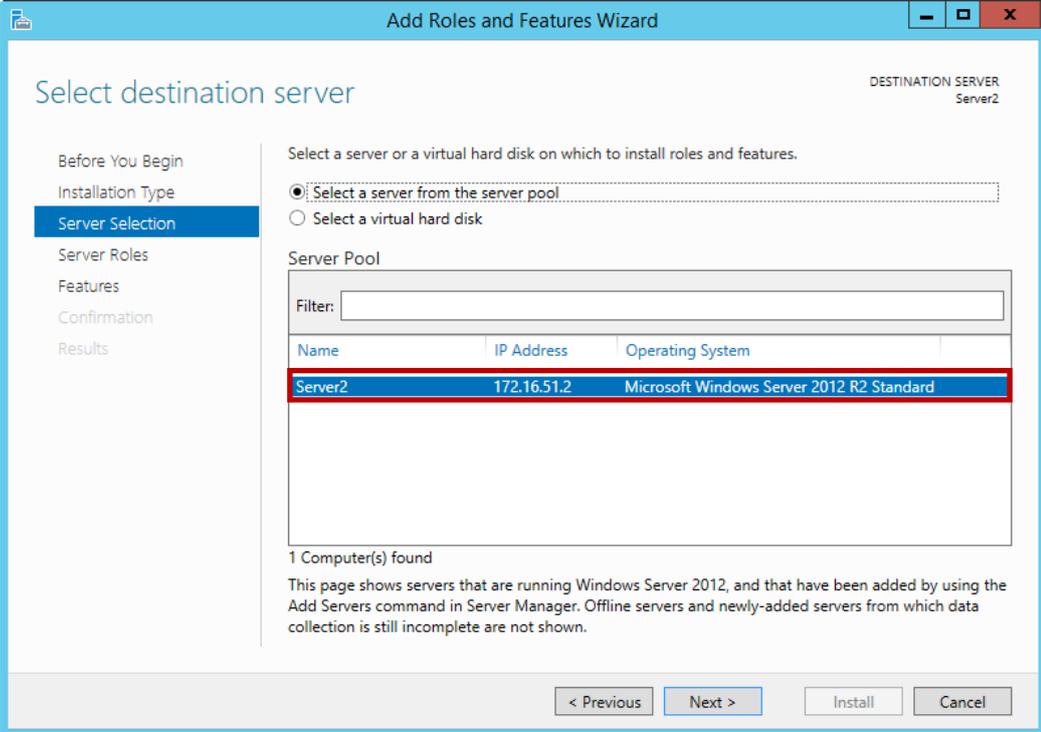
**Note** Install the remote desktop services on your computer before installing WinCC WebNavigator Client. Otherwise, the WinCC WebNavigator Client may not run correctly in a multi-user environment.

Table 5-6

No.	Action
1.	Open the Server Manager.
2.	<p>In the “Server Manager” in “Manage” you click on “Add Roles and Features”.</p>  <p>Roles and Features (Services) must be started manually when you restart the computer .</p>

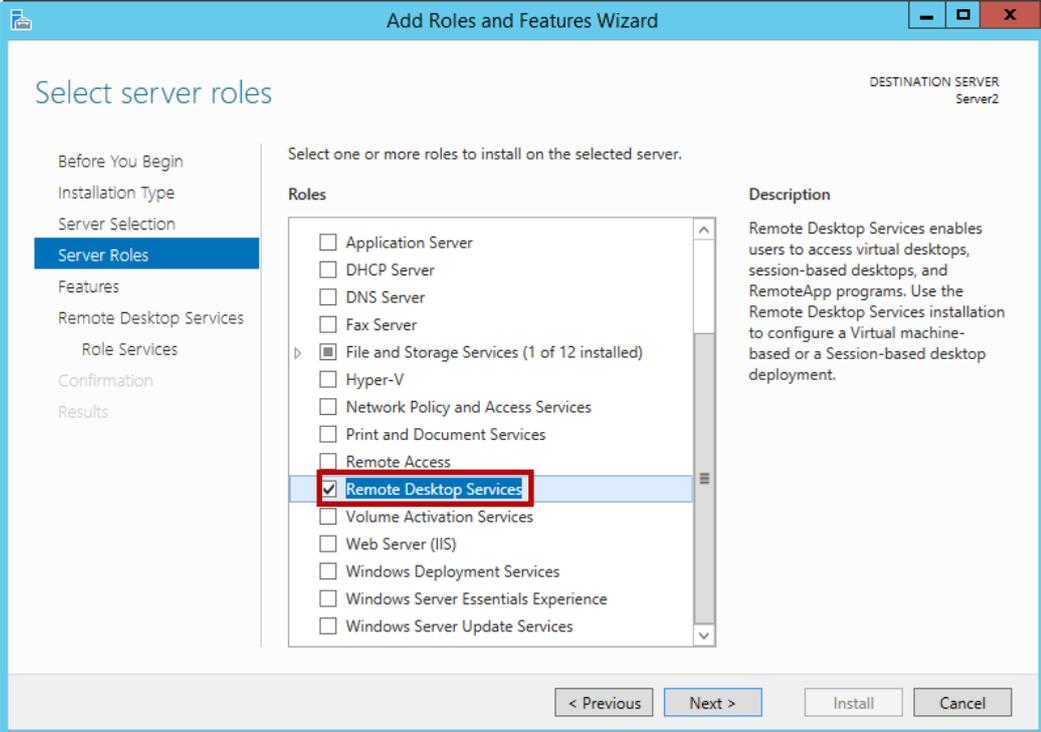
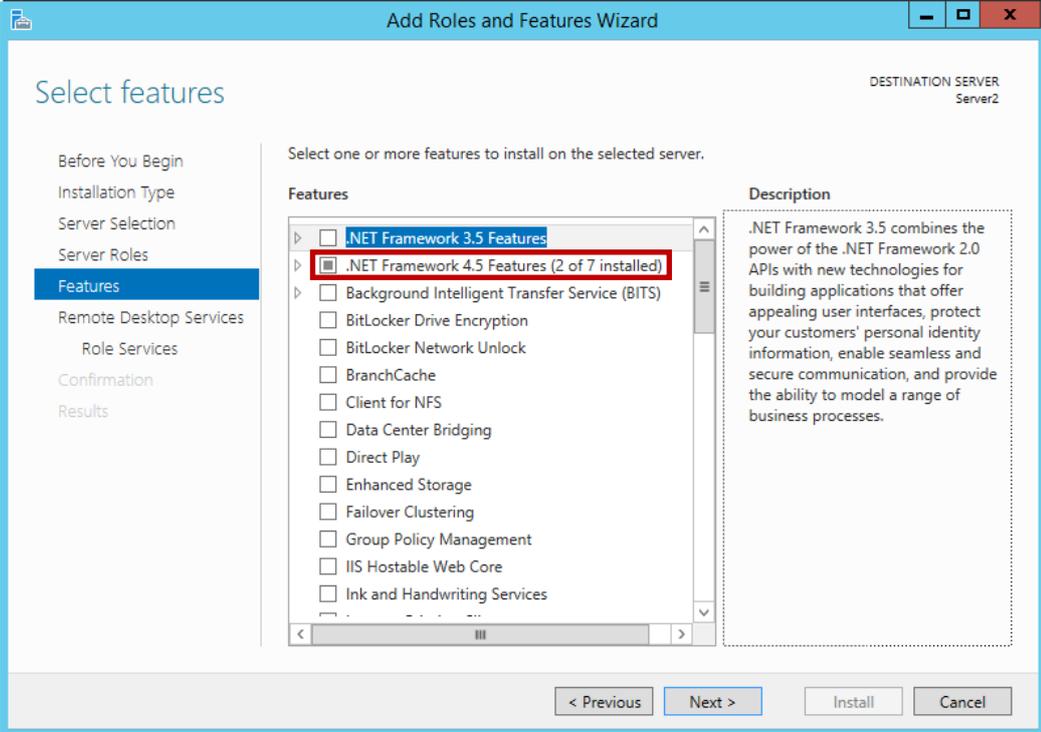
## 5 Installation and Configuration

### 5.2 Software

No.	Action
3.	<p>Select "Role-based or feature-based installation" as the installation type</p>  <p>The screenshot shows the 'Add Roles and Features Wizard' window. The title bar reads 'Add Roles and Features Wizard'. The main heading is 'Select installation type'. On the left, a navigation pane lists: 'Before You Begin', 'Installation Type' (selected), 'Server Selection', 'Server Roles', 'Features', 'Confirmation', and 'Results'. The main area contains the text: 'Select the installation type. You can install roles and features on a running physical computer or virtual machine, or on an offline virtual hard disk (VHD)'. There are two radio button options: 'Role-based or feature-based installation' (selected) and 'Remote Desktop Services installation'. The selected option is enclosed in a red rectangular box. Below the options are buttons for '&lt; Previous', 'Next &gt;', 'Install', and 'Cancel'. The top right corner of the window indicates 'DESTINATION SERVER Server2'.</p>
4.	<p>Select your server on which you wish to install the Remote desktop services.</p>  <p>The screenshot shows the 'Add Roles and Features Wizard' window. The title bar reads 'Add Roles and Features Wizard'. The main heading is 'Select destination server'. On the left, a navigation pane lists: 'Before You Begin', 'Installation Type', 'Server Selection' (selected), 'Server Roles', 'Features', 'Confirmation', and 'Results'. The main area contains the text: 'Select a server or a virtual hard disk on which to install roles and features.' There are two radio button options: 'Select a server from the server pool' (selected) and 'Select a virtual hard disk'. Below the options is a 'Server Pool' section with a 'Filter:' input field and a table. The table has columns for 'Name', 'IP Address', and 'Operating System'. The first row is highlighted with a red box and contains: 'Server2', '172.16.51.2', and 'Microsoft Windows Server 2012 R2 Standard'. Below the table, it says '1 Computer(s) found'. At the bottom, there is explanatory text: 'This page shows servers that are running Windows Server 2012, and that have been added by using the Add Servers command in Server Manager. Offline servers and newly-added servers from which data collection is still incomplete are not shown.' Buttons for '&lt; Previous', 'Next &gt;', 'Install', and 'Cancel' are at the bottom. The top right corner of the window indicates 'DESTINATION SERVER Server2'.</p>

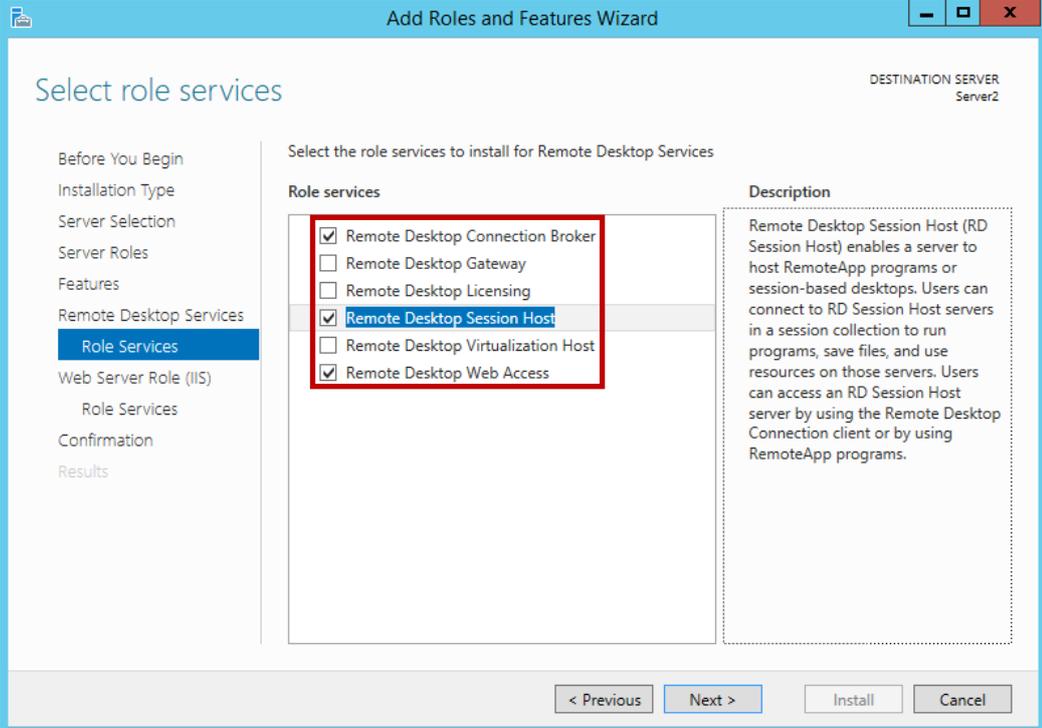
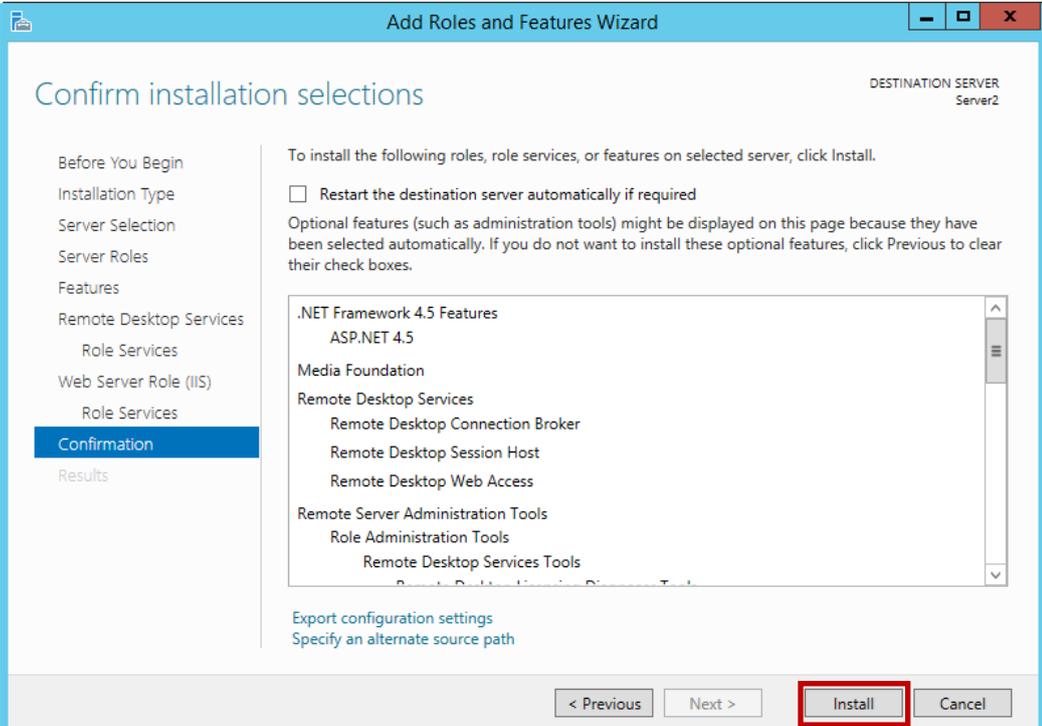
## 5 Installation and Configuration

### 5.2 Software

No.	Action
5.	<p>Select the role "Remote Desktop Services".</p>  <p>The screenshot shows the 'Add Roles and Features Wizard' window for 'Server2'. The 'Server Roles' tab is active. In the 'Roles' list, 'Remote Desktop Services' is selected with a red box around its checkbox. The description on the right states: 'Remote Desktop Services enables users to access virtual desktops, session-based desktops, and RemoteApp programs. Use the Remote Desktop Services installation to configure a Virtual machine-based or a Session-based desktop deployment.'</p>
6.	<p>The NET Framework 4.5 is then installed as well.</p>  <p>The screenshot shows the 'Add Roles and Features Wizard' window for 'Server2'. The 'Features' tab is active. In the 'Features' list, '.NET Framework 4.5 Features (2 of 7 installed)' is selected with a red box around its checkbox. The description on the right states: '.NET Framework 3.5 combines the power of the .NET Framework 2.0 APIs with new technologies for building applications that offer appealing user interfaces, protect your customers' personal identity information, enable seamless and secure communication, and provide the ability to model a range of business processes.'</p>

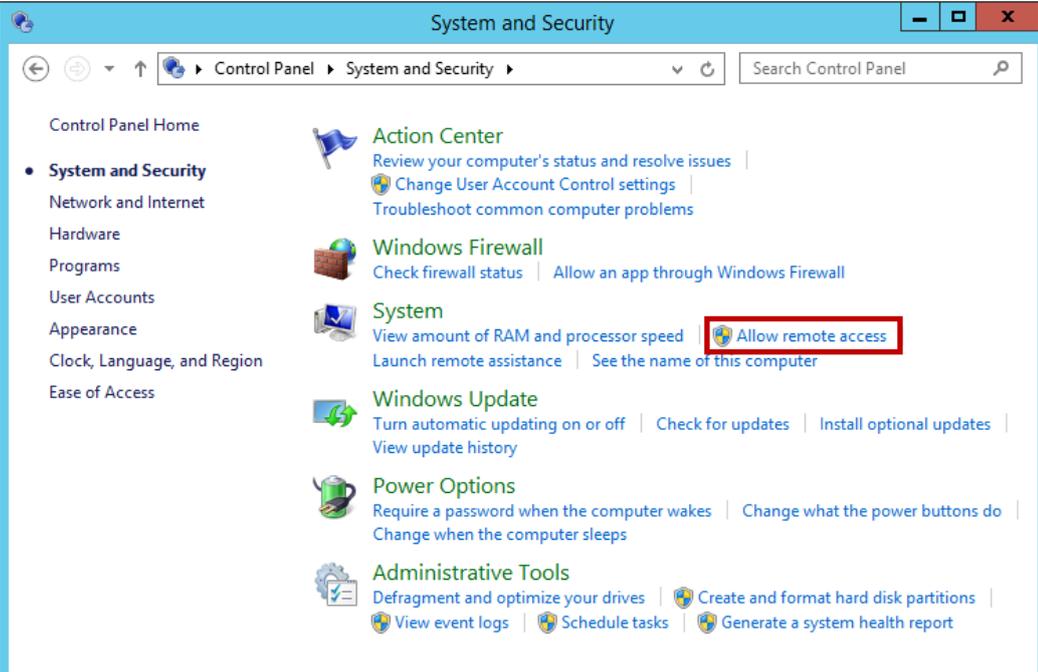
## 5 Installation and Configuration

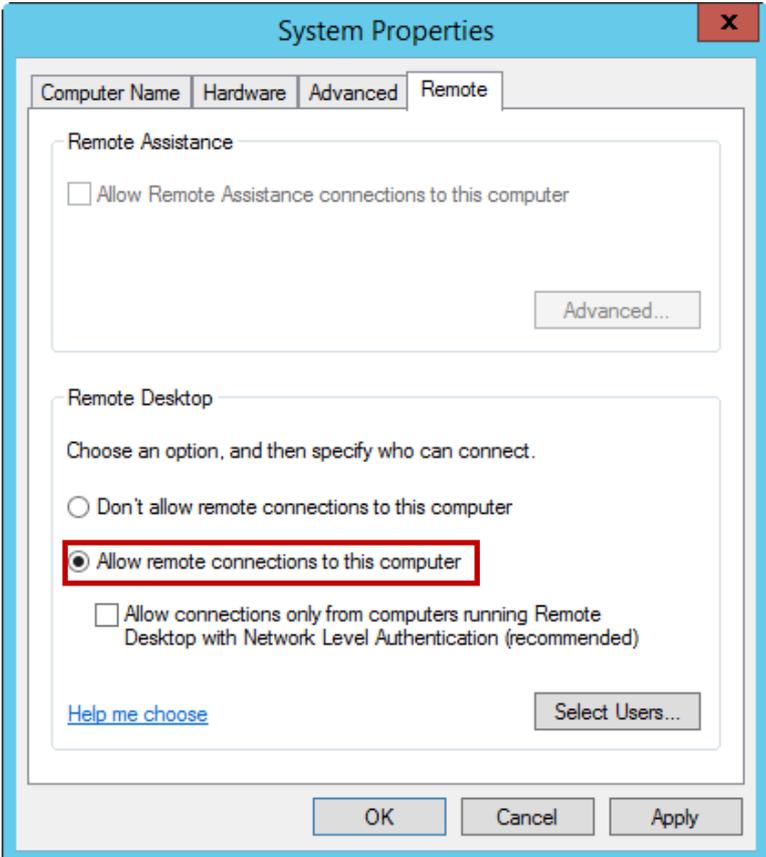
### 5.2 Software

No.	Action
7.	<p>Select the following role services:</p> <ul style="list-style-type: none"><li>- Remote Desktop Connection Broker</li><li>- Remote Desktop WebAccess</li><li>- Remote Desktop Session Host</li></ul> 
8.	<p>Click the "Install" button.</p> 

## 5 Installation and Configuration

### 5.2 Software

No.	Action
9.	Open the "Control Panel".
10.	<p>Open "System and Security".</p>  <p>The screenshot shows the Windows Control Panel window. The title bar reads "Control Panel". The address bar shows "Control Panel". Below the address bar, there is a search box labeled "Search Control Panel". The main content area is titled "Adjust your computer's settings" and lists several categories. The "System and Security" category is highlighted with a red rectangular box. Other categories include User Accounts, Appearance, Clock, Language, and Region, and Ease of Access.</p>
11.	<p>Open "Allow remote access".</p>  <p>The screenshot shows the Windows System and Security window. The title bar reads "System and Security". The address bar shows "Control Panel &gt; System and Security". On the left side, there is a navigation pane with "System and Security" selected. The main content area lists several settings: Action Center, Windows Firewall, System, Windows Update, Power Options, and Administrative Tools. The "Allow remote access" link under the System section is highlighted with a red rectangular box.</p>

No.	Action
12.	<p>Select "Allow remote connection to this computer" so clients can connect to the server.</p>  <p>The screenshot shows the 'System Properties' dialog box with the 'Remote' tab selected. Under the 'Remote Desktop' section, the radio button for 'Allow remote connections to this computer' is selected and highlighted with a red rectangular box. Other options include 'Don't allow remote connections to this computer' and 'Allow connections only from computers running Remote Desktop with Network Level Authentication (recommended)'. There are also buttons for 'Advanced...', 'Help me choose', and 'Select Users...'. At the bottom are 'OK', 'Cancel', and 'Apply' buttons.</p>

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**Note**

Microsoft permits the provisional setup of a remote desktop session host without installing a license server for the duration of 120 days. Then the installation of a license server is required, on which Client Access Licenses (CAL) are required.

<https://www.microsoft.com/en-us/licensing/product-licensing/client-access-license.aspx>

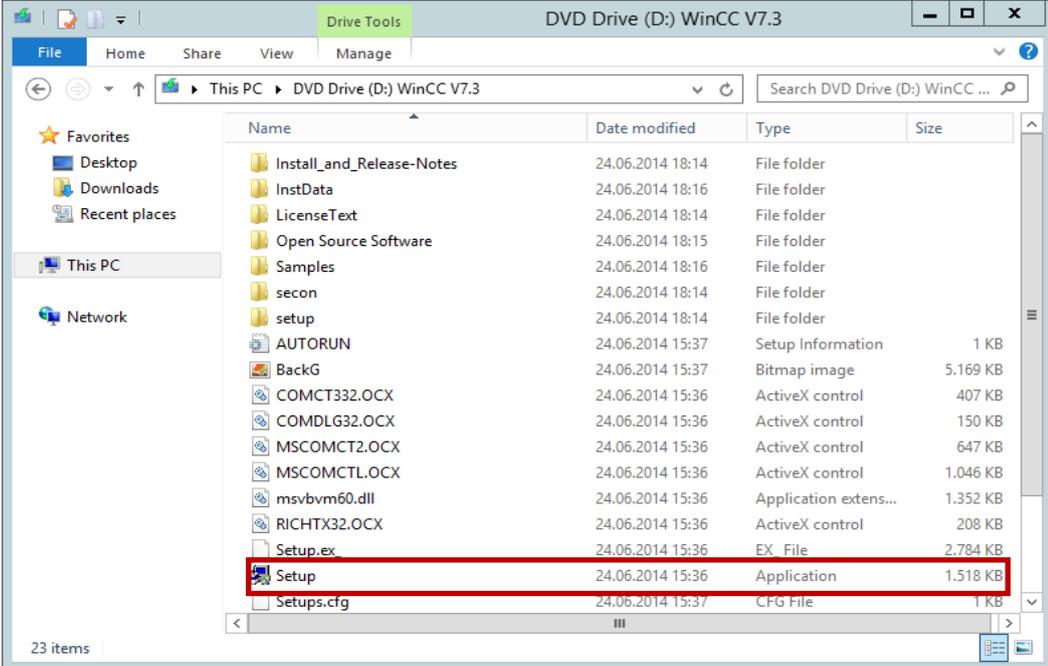
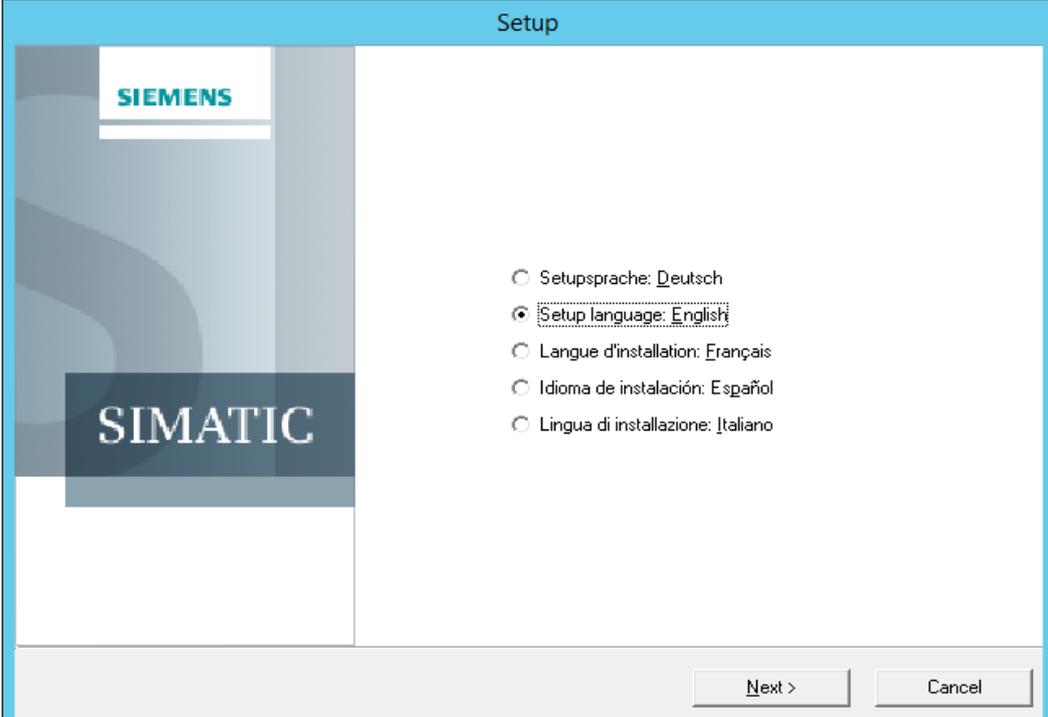
Windows Server 2012 CALs are available in two versions:

- User CAL: A user can access the server software from any device by means of a user CAL.
- Device CAL: Any user can access the server software from the licensed device by means of a device CAL.

**5.2.6 Installing Web Navigator Client**

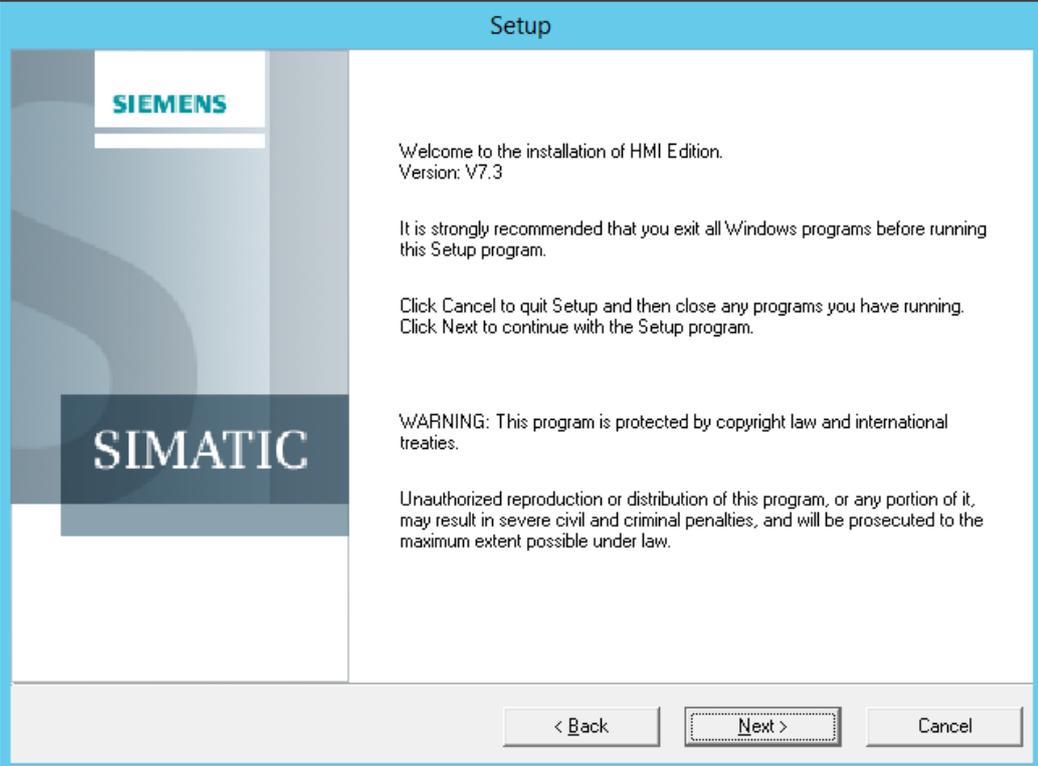
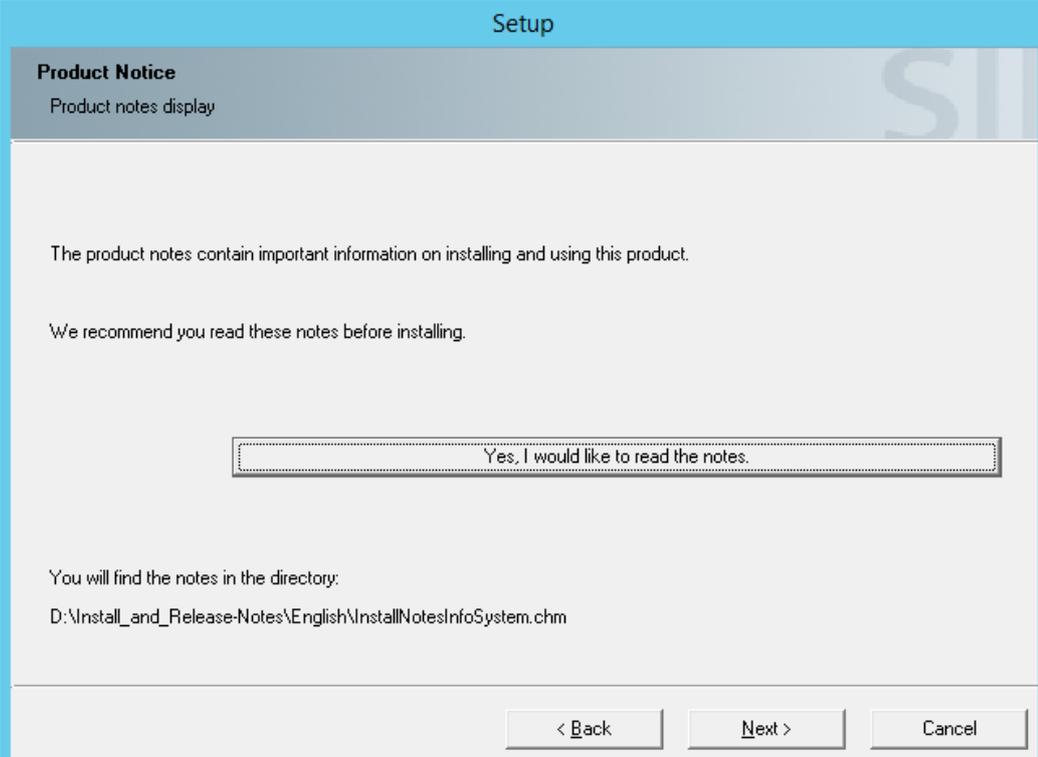
The following steps describe the installation of the Web Navigator Client on the remote desktop session host (server 2).

Table 5-7

No.	Action
1.	<p>Start the WinCC V7.3 software by double-clicking on the “Setup” application of from the installation medium.</p>  <p>The screenshot shows a Windows File Explorer window titled "DVD Drive (D:) WinCC V7.3". The address bar shows "This PC &gt; DVD Drive (D:) WinCC V7.3". The left sidebar shows "Favorites" and "This PC". The main pane displays a list of files and folders. The "Setup" file is highlighted with a red rectangle. The list includes folders like "Install_and_Release-Notes", "InstData", "LicenseText", "Open Source Software", "Samples", "secon", "setup", and files like "AUTORUN", "BackG", "COMCT332.OCX", "COMDLG32.OCX", "MSCOMCT2.OCX", "MSCOMCTL.OCX", "msvbvm60.dll", "RICHTX32.OCX", "Setup.ex", and "Setups.cfg".</p>
2.	<p>Choose a setup language.</p>  <p>The screenshot shows the "Setup" window with the Siemens logo and SIMATIC branding. On the right side, there are radio button options for different languages: "Setupsprache: Deutsch", "Setup language: English" (which is selected), "Langue d'installation: Français", "Idioma de instalación: Español", and "Lingua di installazione: Italiano". At the bottom right, there are "Next &gt;" and "Cancel" buttons.</p>

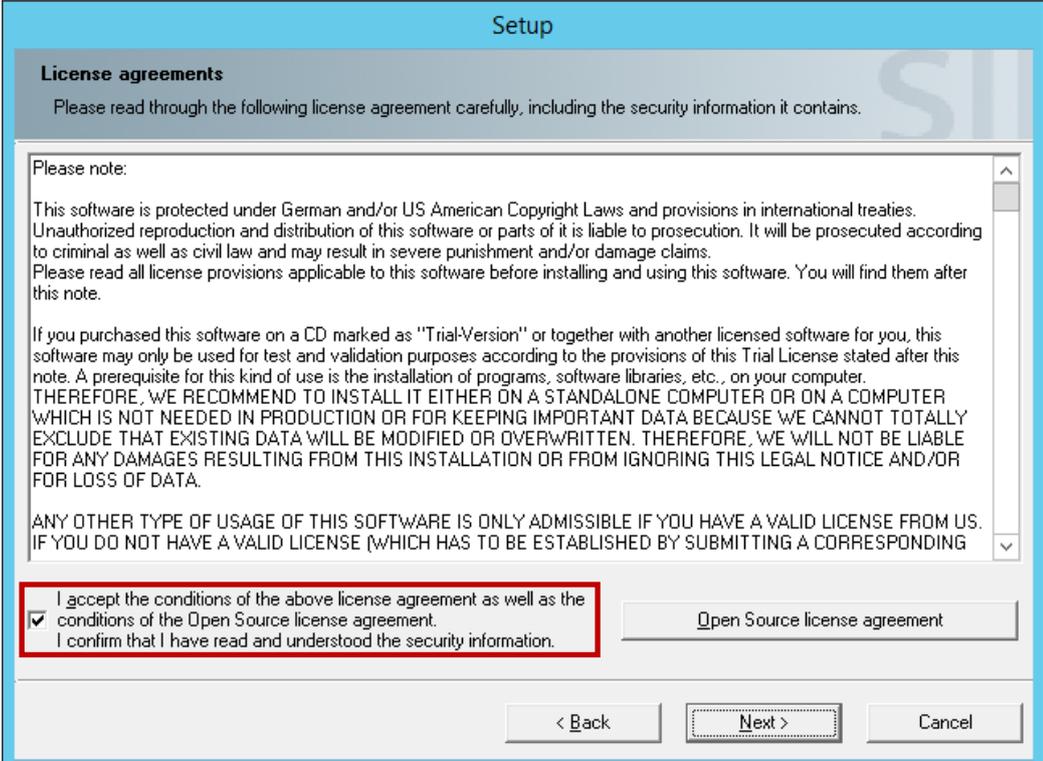
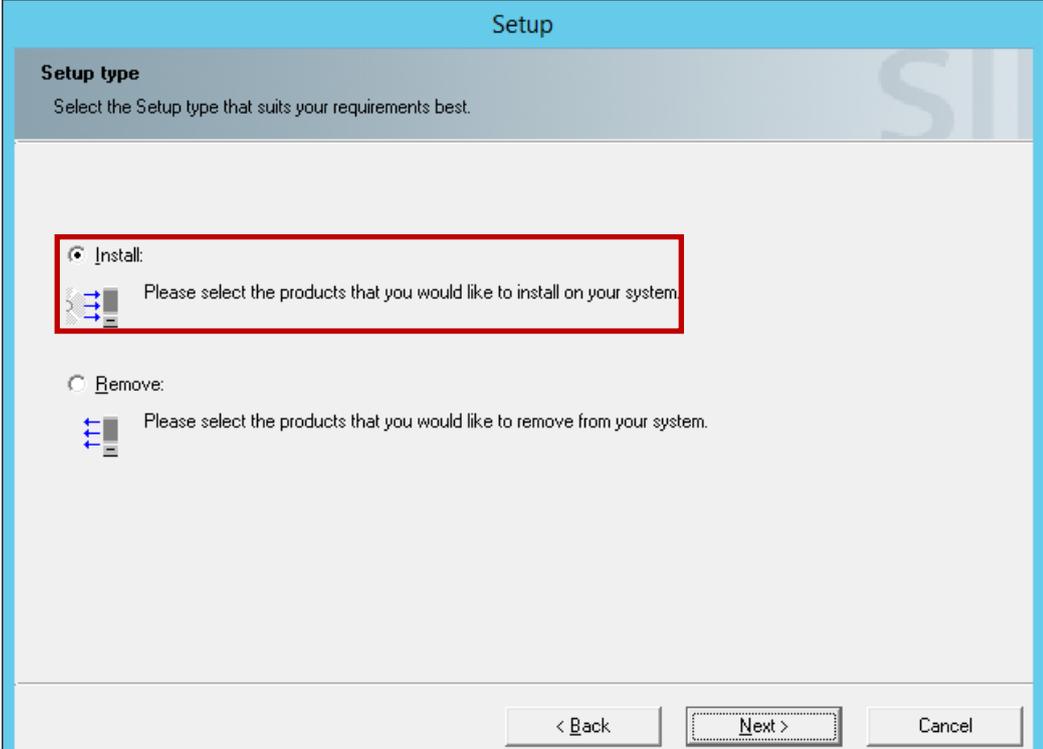
## 5 Installation and Configuration

### 5.2 Software

No.	Action
3.	<p>Terminate all Windows programs. Click on the "Next" button.</p> 
4.	<p>Read the Product Notice. Click on the "Next" button.</p> 

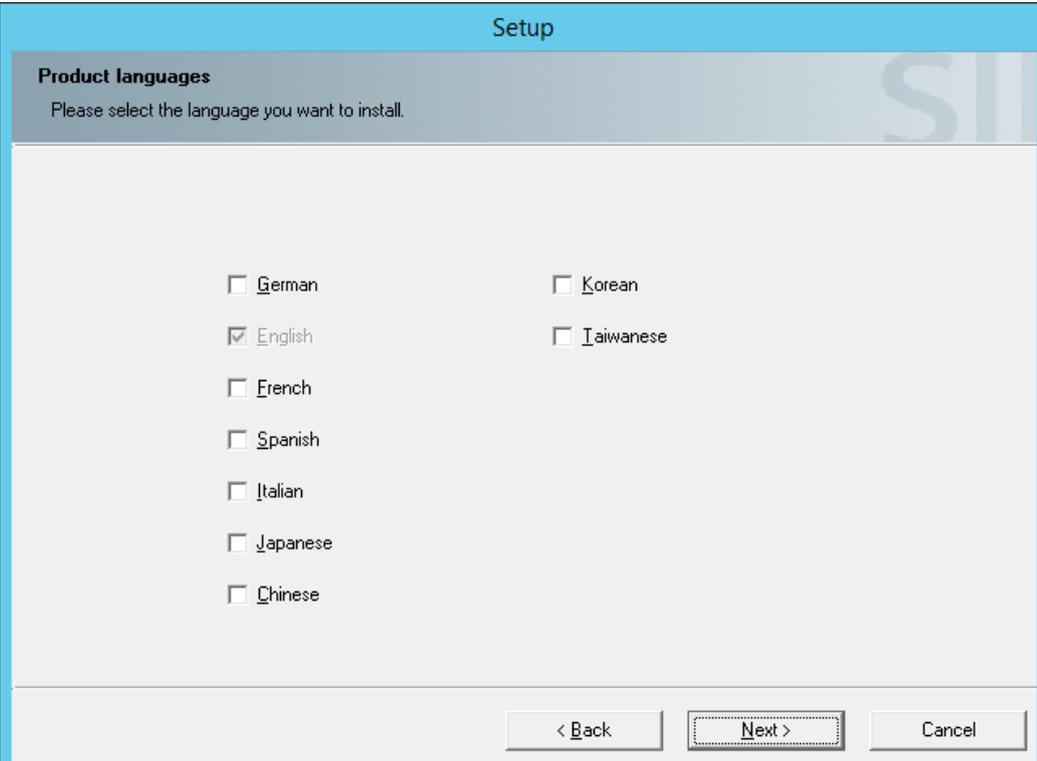
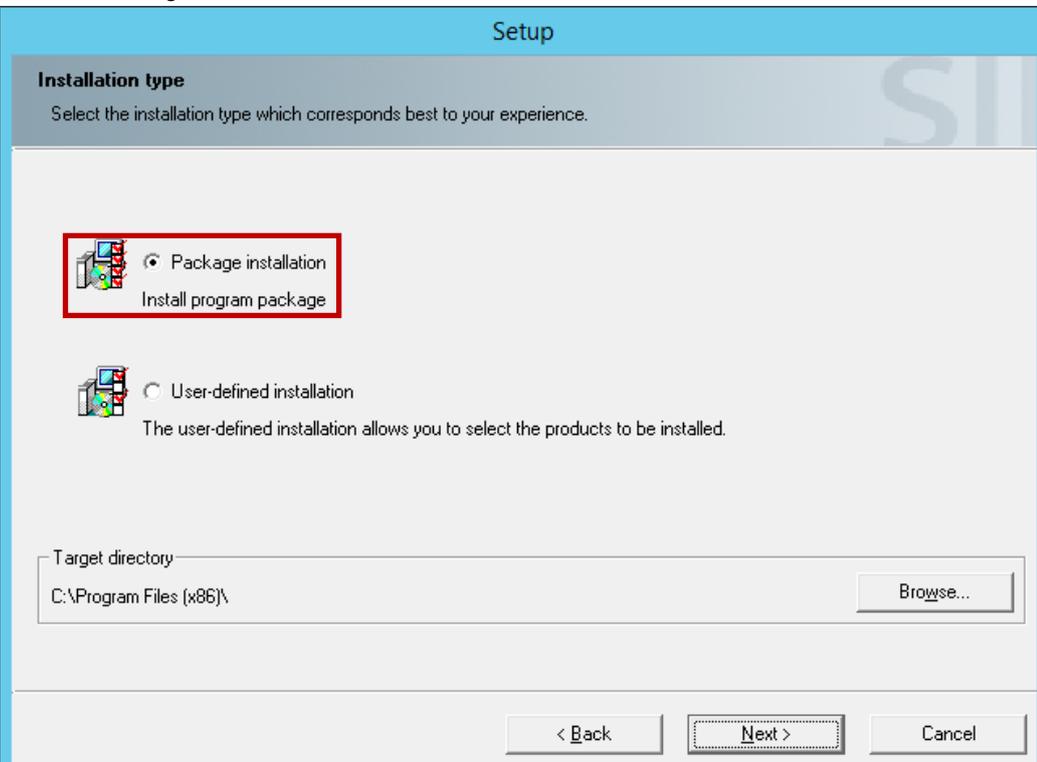
## 5 Installation and Configuration

### 5.2 Software

No.	Action
5.	<p>Accept the license agreement as well as the security information.</p>  <p><b>Setup</b></p> <p><b>License agreements</b></p> <p>Please read through the following license agreement carefully, including the security information it contains.</p> <p>Please note:</p> <p>This software is protected under German and/or US American Copyright Laws and provisions in international treaties. Unauthorized reproduction and distribution of this software or parts of it is liable to prosecution. It will be prosecuted according to criminal as well as civil law and may result in severe punishment and/or damage claims. Please read all license provisions applicable to this software before installing and using this software. You will find them after this note.</p> <p>If you purchased this software on a CD marked as "Trial-Version" or together with another licensed software for you, this software may only be used for test and validation purposes according to the provisions of this Trial License stated after this note. A prerequisite for this kind of use is the installation of programs, software libraries, etc., on your computer. THEREFORE, WE RECOMMEND TO INSTALL IT EITHER ON A STANDALONE COMPUTER OR ON A COMPUTER WHICH IS NOT NEEDED IN PRODUCTION OR FOR KEEPING IMPORTANT DATA BECAUSE WE CANNOT TOTALLY EXCLUDE THAT EXISTING DATA WILL BE MODIFIED OR OVERWRITTEN. THEREFORE, WE WILL NOT BE LIABLE FOR ANY DAMAGES RESULTING FROM THIS INSTALLATION OR FROM IGNORING THIS LEGAL NOTICE AND/OR FOR LOSS OF DATA.</p> <p>ANY OTHER TYPE OF USAGE OF THIS SOFTWARE IS ONLY ADMISSIBLE IF YOU HAVE A VALID LICENSE FROM US. IF YOU DO NOT HAVE A VALID LICENSE (WHICH HAS TO BE ESTABLISHED BY SUBMITTING A CORRESPONDING</p> <p><input checked="" type="checkbox"/> I accept the conditions of the above license agreement as well as the conditions of the Open Source license agreement. I confirm that I have read and understood the security information.</p> <p>Open Source license agreement</p> <p>&lt; Back    Next &gt;    Cancel</p>
6.	<p>Select the Setup type "Install".</p>  <p><b>Setup</b></p> <p><b>Setup type</b></p> <p>Select the Setup type that suits your requirements best.</p> <p><input checked="" type="radio"/> <b>Install:</b> Please select the products that you would like to install on your system.</p> <p><input type="radio"/> <b>Remove:</b> Please select the products that you would like to remove from your system.</p> <p>&lt; Back    Next &gt;    Cancel</p>

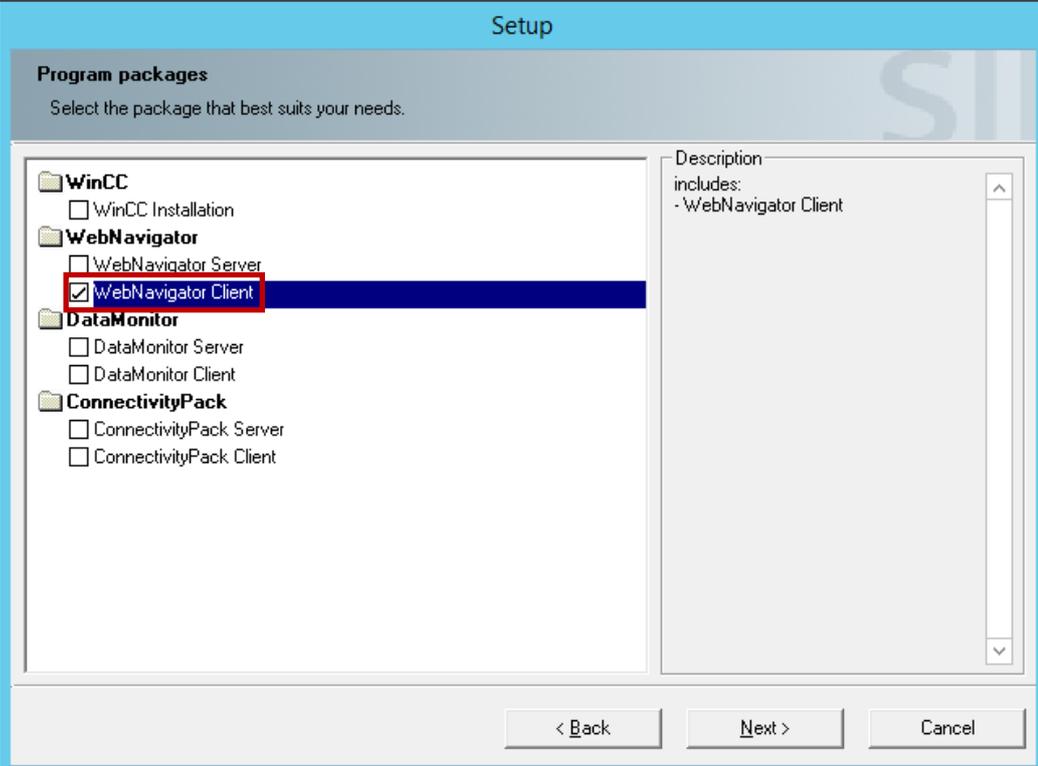
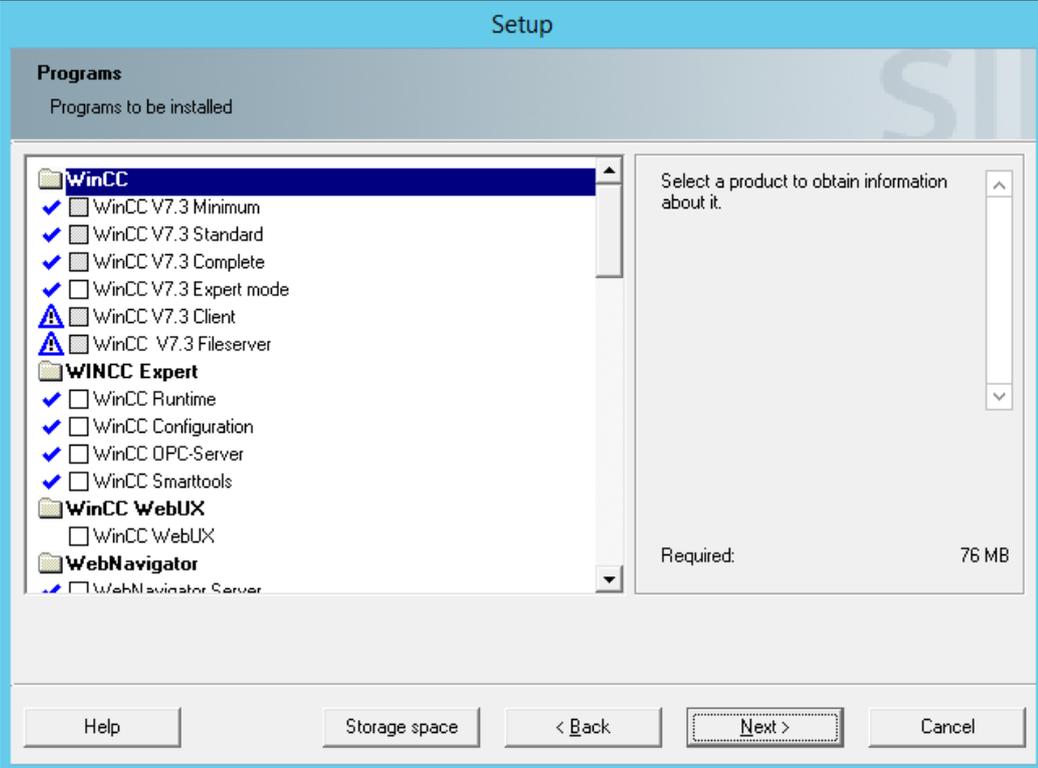
## 5 Installation and Configuration

### 5.2 Software

No.	Action
7.	<p>Select the languages you wish to install for WinCC V7.3.</p>  <p>Setup</p> <p><b>Product languages</b> Please select the language you want to install.</p> <p><input type="checkbox"/> German <input type="checkbox"/> Korean</p> <p><input checked="" type="checkbox"/> English <input type="checkbox"/> Taiwanese</p> <p><input type="checkbox"/> French</p> <p><input type="checkbox"/> Spanish</p> <p><input type="checkbox"/> Italian</p> <p><input type="checkbox"/> Japanese</p> <p><input type="checkbox"/> Chinese</p> <p>&lt; Back   Next &gt;   Cancel</p>
8.	<p>Choose "Package installation"</p>  <p>Setup</p> <p><b>Installation type</b> Select the installation type which corresponds best to your experience.</p> <p><input checked="" type="radio"/> Package installation Install program package</p> <p><input type="radio"/> User-defined installation The user-defined installation allows you to select the products to be installed.</p> <p>Target directory C:\Program Files (x86)\   Browse...</p> <p>&lt; Back   Next &gt;   Cancel</p>

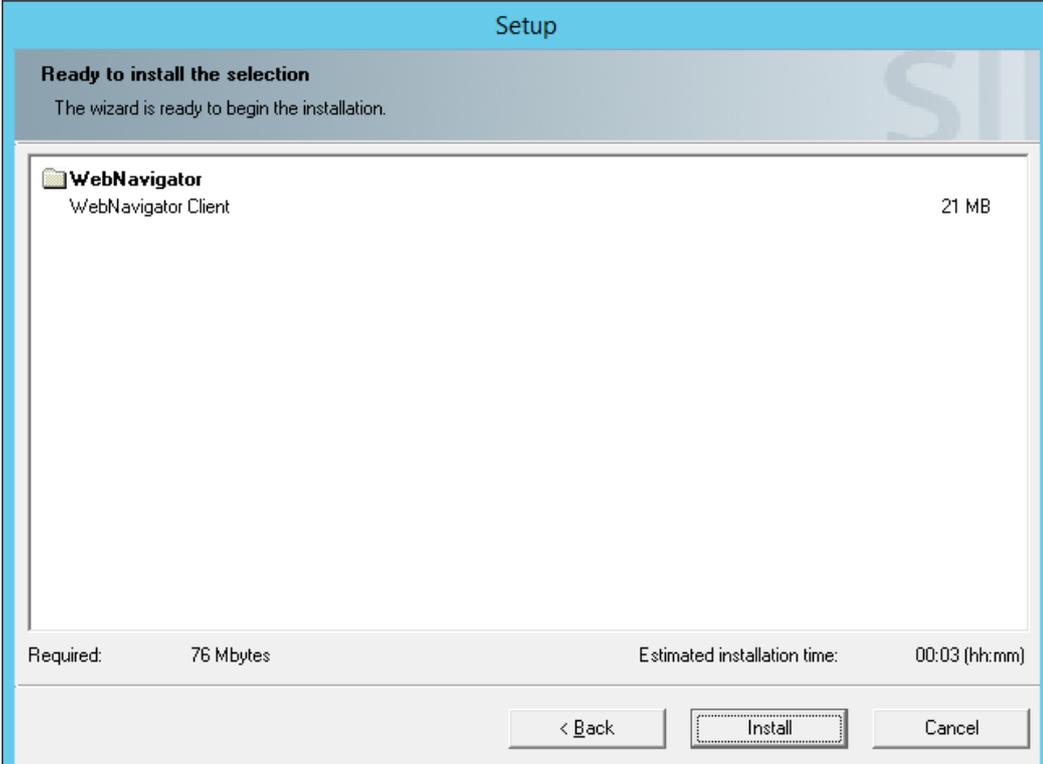
## 5 Installation and Configuration

### 5.2 Software

No.	Action
9.	<p>Select the "WebNavigator Client" package.</p>  <p>The screenshot shows a 'Setup' window with a 'Program packages' section. It lists several categories: WinCC, WebNavigator, DataMonitor, and ConnectivityPack. Under 'WebNavigator', the 'WebNavigator Client' package is selected, indicated by a red box around its checkbox. The 'Description' pane on the right shows 'includes: - WebNavigator Client'. Navigation buttons '&lt; Back', 'Next &gt;', and 'Cancel' are at the bottom.</p>
10.	<p>Click on the "Next" button.</p>  <p>The screenshot shows a 'Setup' window with a 'Programs' section. It lists various WinCC and WebNavigator components. The 'Next &gt;' button at the bottom is highlighted with a dashed border, indicating it should be clicked. The 'Required' space is shown as 76 MB. Navigation buttons 'Help', 'Storage space', '&lt; Back', 'Next &gt;', and 'Cancel' are at the bottom.</p>

## 5 Installation and Configuration

### 5.2 Software

No.	Action
11.	<p>Click on Install. WebNavigatorClient will then be installed.</p>  <p>The screenshot shows a Windows-style installation wizard window titled "Setup". The main area displays "Ready to install the selection" and "The wizard is ready to begin the installation." Below this, a list shows the selected item "WebNavigator" (WebNavigator Client) with a size of 21 MB. At the bottom, it indicates "Required: 76 Mbytes" and "Estimated installation time: 00:03 (hh:mm)". There are three buttons: "&lt; Back", "Install", and "Cancel".</p>

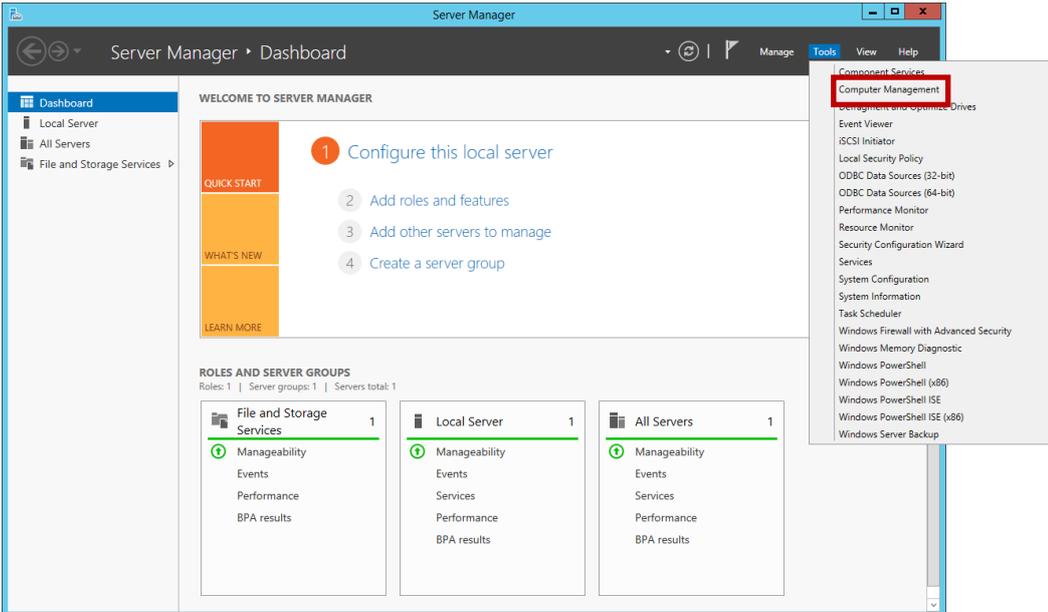
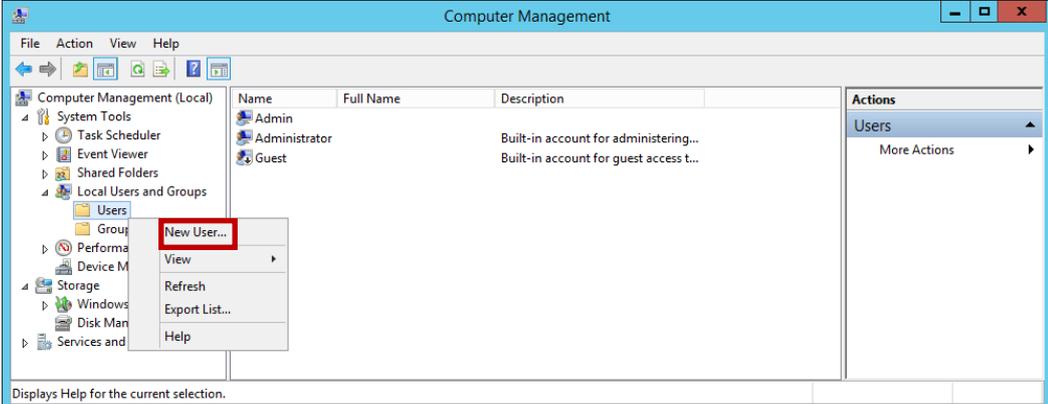
## 5 Installation and Configuration

### 5.2 Software

#### 5.2.7 Creating a Windows user

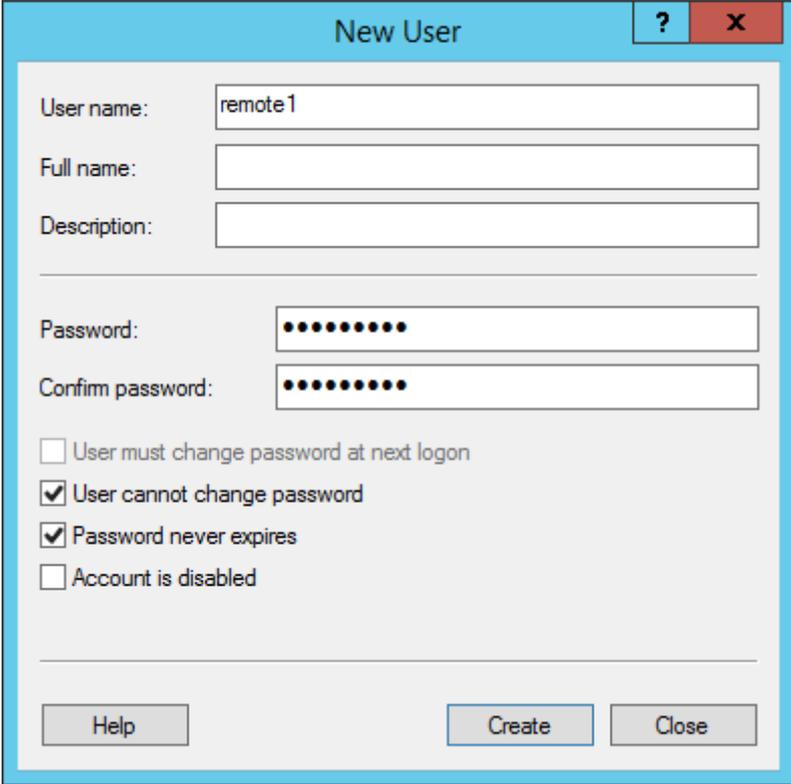
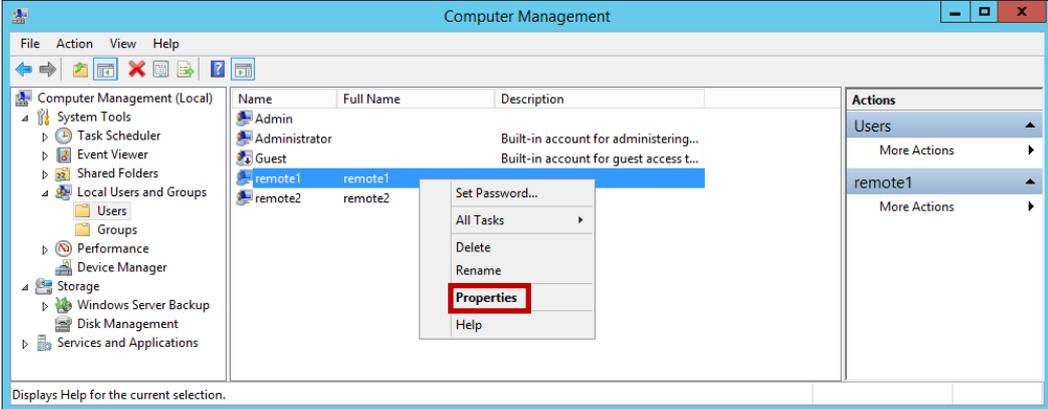
The following steps describe how to create user accounts in the remote desktop session host (server 2).

Table 5-8

No.	Action												
1.	Open the Server Manager.												
2.	<p>Open the “Computer Management” in Tools.</p>  <p>The screenshot shows the Server Manager dashboard. On the left, there is a navigation pane with 'Dashboard', 'Local Server', 'All Servers', and 'File and Storage Services'. The main area displays 'WELCOME TO SERVER MANAGER' with a 'QUICK START' section containing four numbered steps: 1. Configure this local server, 2. Add roles and features, 3. Add other servers to manage, and 4. Create a server group. Below this is a 'ROLES AND SERVER GROUPS' section with three columns: 'File and Storage Services', 'Local Server', and 'All Servers', each showing a count of 1 and a list of associated roles like 'Manageability', 'Events', 'Performance', and 'BPA results'. On the right, a 'Tools' menu is open, and 'Computer Management' is highlighted with a red box.</p>												
3.	<p>Open the “Local Users and Groups” dialog. Right-click on “Users” and select “New Users...”.</p>  <p>The screenshot shows the Computer Management console. The left-hand tree view is expanded to 'Local Users and Groups', and the 'Users' folder is selected. The main pane displays a table of users:</p> <table border="1" data-bbox="542 1299 1157 1590"> <thead> <tr> <th>Name</th> <th>Full Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>Admin</td> <td></td> <td></td> </tr> <tr> <td>Administrator</td> <td></td> <td>Built-in account for administering...</td> </tr> <tr> <td>Guest</td> <td></td> <td>Built-in account for guest access t...</td> </tr> </tbody> </table> <p>A context menu is open over the 'Users' folder, and 'New User...' is highlighted with a red box. Other menu items include 'View', 'Refresh', 'Export List...', and 'Help'. The bottom status bar reads 'Displays Help for the current selection.'</p>	Name	Full Name	Description	Admin			Administrator		Built-in account for administering...	Guest		Built-in account for guest access t...
Name	Full Name	Description											
Admin													
Administrator		Built-in account for administering...											
Guest		Built-in account for guest access t...											

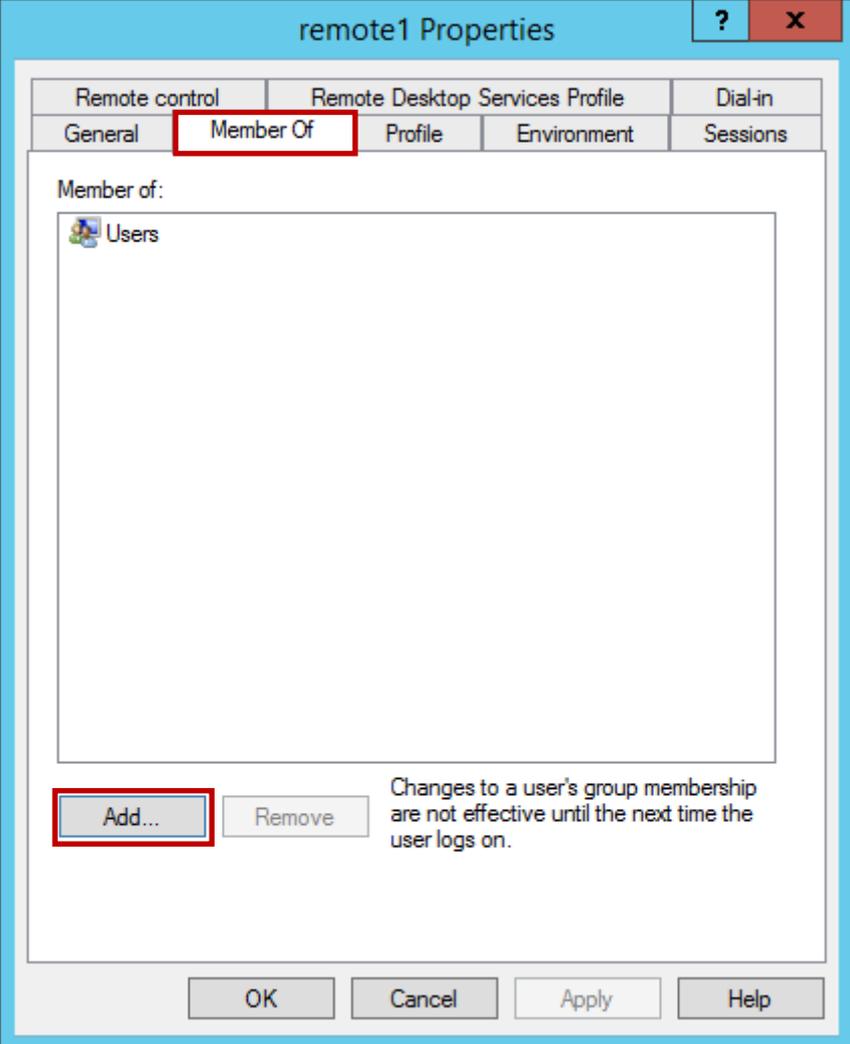
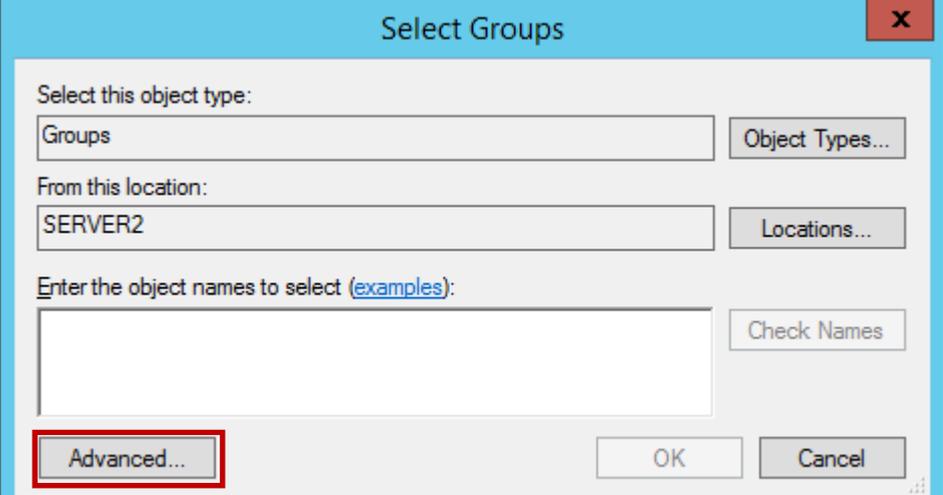
## 5 Installation and Configuration

### 5.2 Software

No.	Action
4.	<p>Enter user name and password <a href="#">Table 4-2</a>.</p> 
5.	<p>Open the Properties of the created user "remote1".</p> 

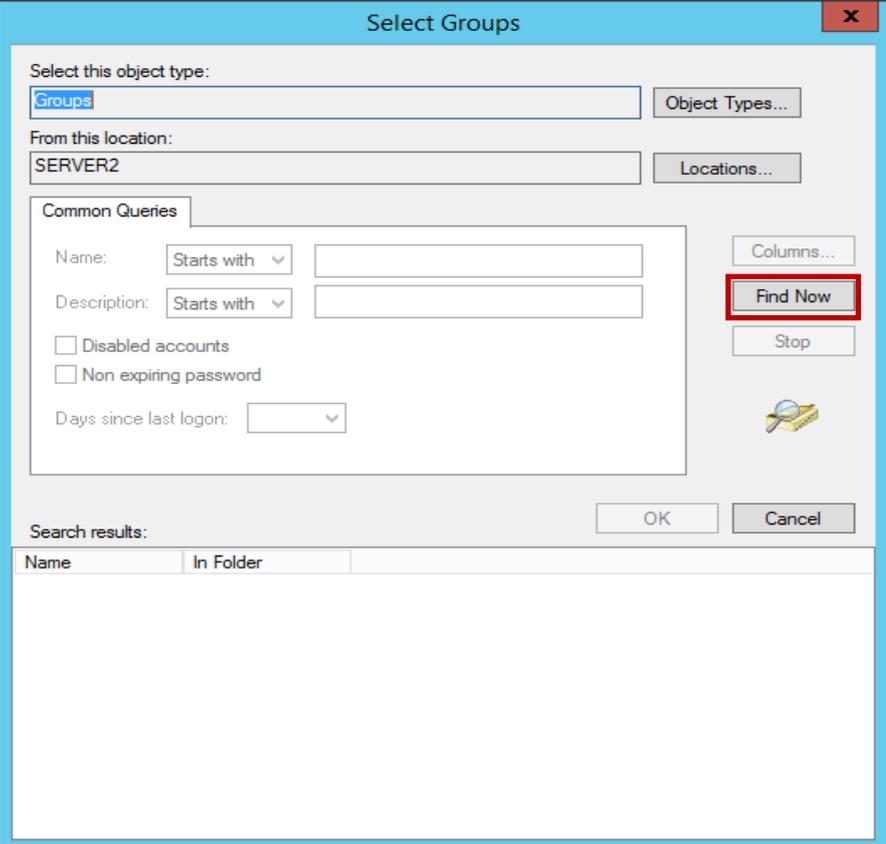
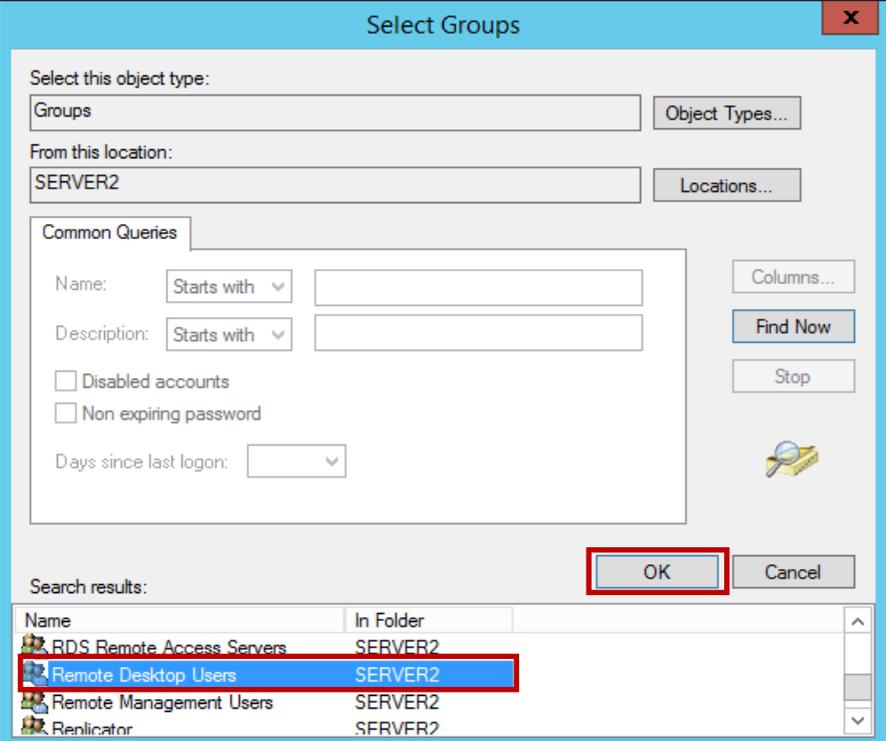
## 5 Installation and Configuration

### 5.2 Software

No.	Action
6.	<p data-bbox="316 309 774 338">Open the “Member Of” tab. Click on “Add”.</p> 
7.	<p data-bbox="316 1406 678 1435">Then click the “Advanced” button.</p> 

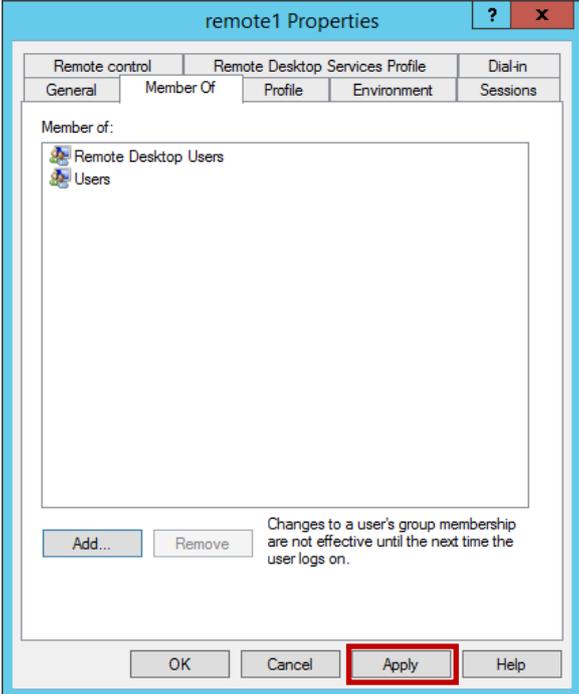
## 5 Installation and Configuration

### 5.2 Software

No.	Action										
8.	<p>Click the “Find Now” button.</p>  <p>The screenshot shows the 'Select Groups' dialog box. The 'Object Types...' button is set to 'Groups' and the 'Locations...' button is set to 'SERVER2'. Under 'Common Queries', there are fields for 'Name' and 'Description', both set to 'Starts with'. There are also checkboxes for 'Disabled accounts' and 'Non expiring password', and a 'Days since last logon' dropdown. The 'Find Now' button is highlighted with a red rectangle. Other buttons include 'Object Types...', 'Locations...', 'Columns...', 'Stop', 'OK', and 'Cancel'.</p>										
9.	<p>Select the Remote Desktop Users group. Click on the “OK” button.</p>  <p>The screenshot shows the 'Select Groups' dialog box. The 'Object Types...' button is set to 'Groups' and the 'Locations...' button is set to 'SERVER2'. Under 'Common Queries', there are fields for 'Name' and 'Description', both set to 'Starts with'. There are also checkboxes for 'Disabled accounts' and 'Non expiring password', and a 'Days since last logon' dropdown. The 'Find Now' button is highlighted with a red rectangle. The 'Search results' table is visible, showing a list of groups. The 'Remote Desktop Users' group is selected and highlighted with a blue background. The 'OK' button is highlighted with a red rectangle. Other buttons include 'Object Types...', 'Locations...', 'Columns...', 'Stop', 'Cancel'.</p> <table border="1" data-bbox="336 1839 1190 1975"><thead><tr><th>Name</th><th>In Folder</th></tr></thead><tbody><tr><td>BDS Remote Access Servers</td><td>SERVER2</td></tr><tr><td>Remote Desktop Users</td><td>SERVER2</td></tr><tr><td>Remote Management Users</td><td>SERVER2</td></tr><tr><td>Replicator</td><td>SFRVFR2</td></tr></tbody></table>	Name	In Folder	BDS Remote Access Servers	SERVER2	Remote Desktop Users	SERVER2	Remote Management Users	SERVER2	Replicator	SFRVFR2
Name	In Folder										
BDS Remote Access Servers	SERVER2										
Remote Desktop Users	SERVER2										
Remote Management Users	SERVER2										
Replicator	SFRVFR2										

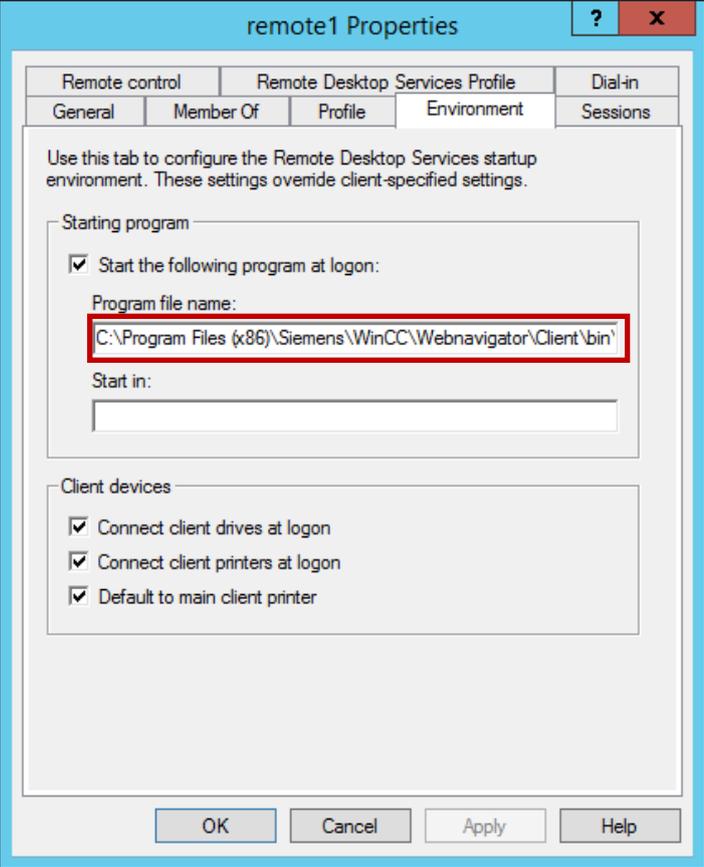
## 5 Installation and Configuration

### 5.2 Software

No.	Action
10.	<p>Click on the “Apply” button to save the changes made.</p>  <p>The screenshot shows the 'remote1 Properties' dialog box with the 'Member Of' tab selected. The 'Member of:' list contains two entries: 'Remote Desktop Users' and 'Users'. Below the list are 'Add...' and 'Remove' buttons. A note states: 'Changes to a user's group membership are not effective until the next time the user logs on.' At the bottom, the 'Apply' button is highlighted with a red box.</p>

## 5 Installation and Configuration

### 5.2 Software

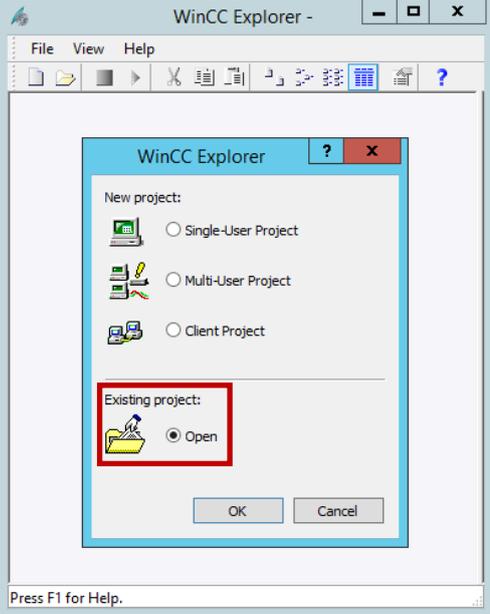
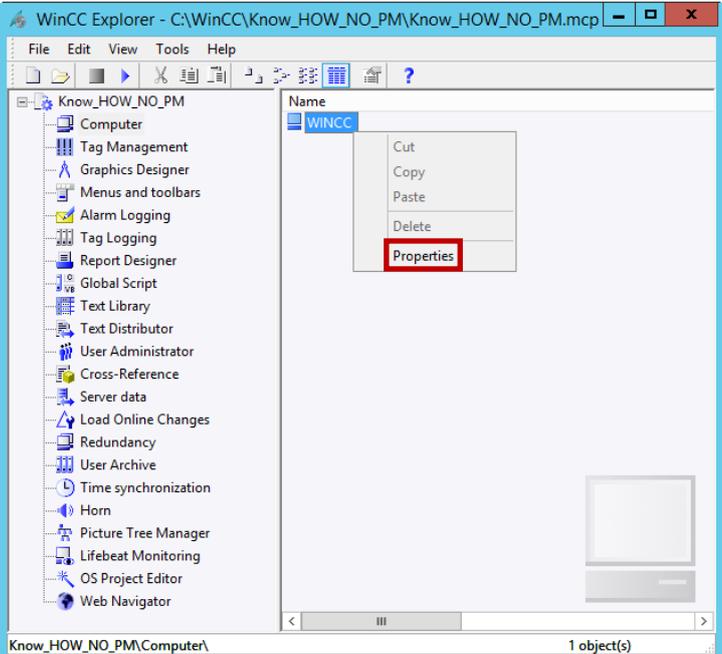
No.	Action
11.	<p>Open the “Environment” tab. For starting the WebNavigator Client automatically when you log on, enter the path and the program file name of the WebNavigator Client.</p> <p>For example:            C:\Program Files (x86)\Siemens\WinCC\Webnavigator\Client\bin\WinCCViewerRT.exe</p> 
12.	Confirm the changes by clicking on the “OK” button.
13.	Repeat steps 3 to 12 with different users for the respective number of Industrial Thin Clients which connect to the terminal server via the RDP.

### 5.2.8 Configuring Web Navigator

#### Opening the WinCC demo project

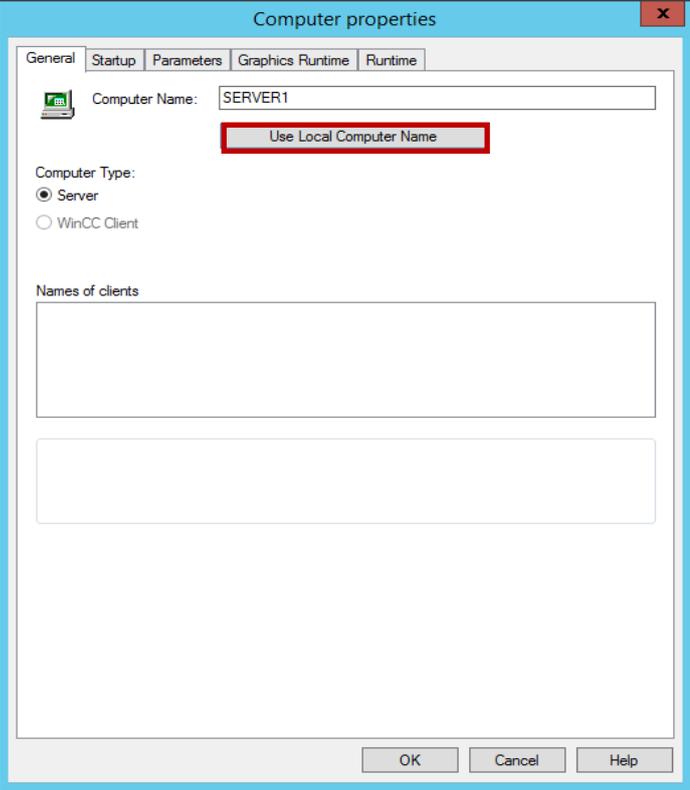
The following steps describe how to open the demo project in WinCC.

Table 5-9

No.	Action
1.	Unzip the file "28309119_Thin_Client_Code.zip" in the WinCC server (server 1).
2.	<p>Start WinCC Explorer and open the demo project.</p> 
3.	<p>Select "Computer" in the WinCC Explorer. Now right-click the entry shown in the right window and select "Properties".</p> 

## 5 Installation and Configuration

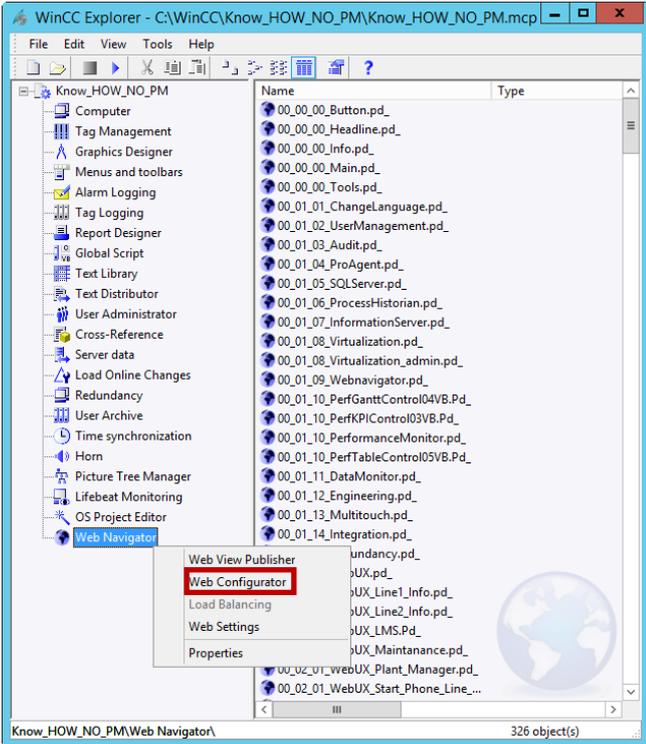
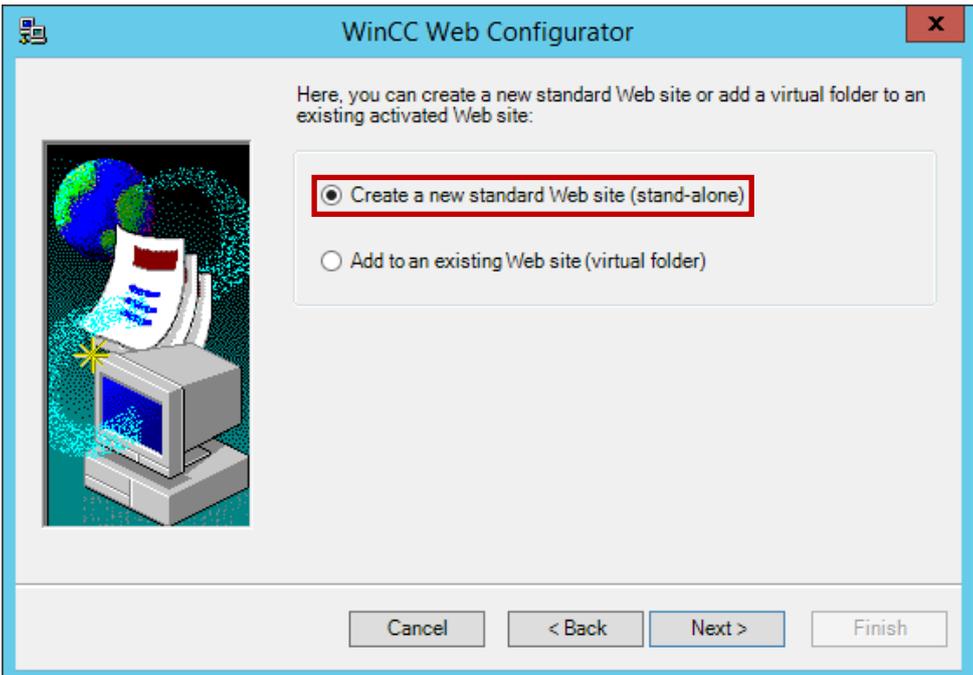
### 5.2 Software

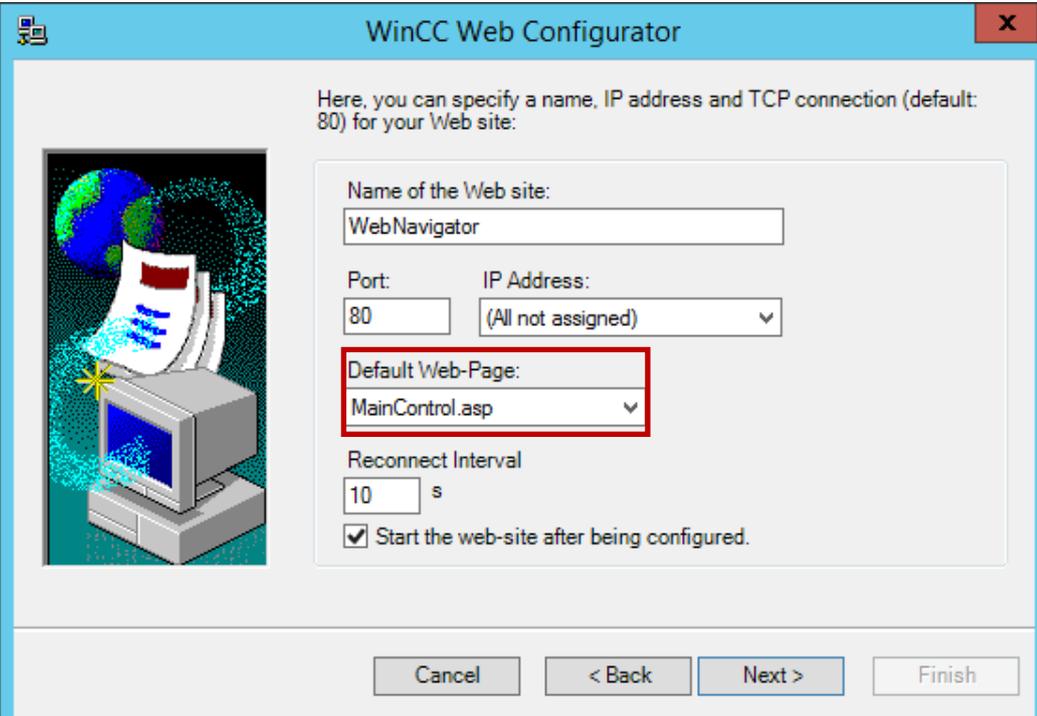
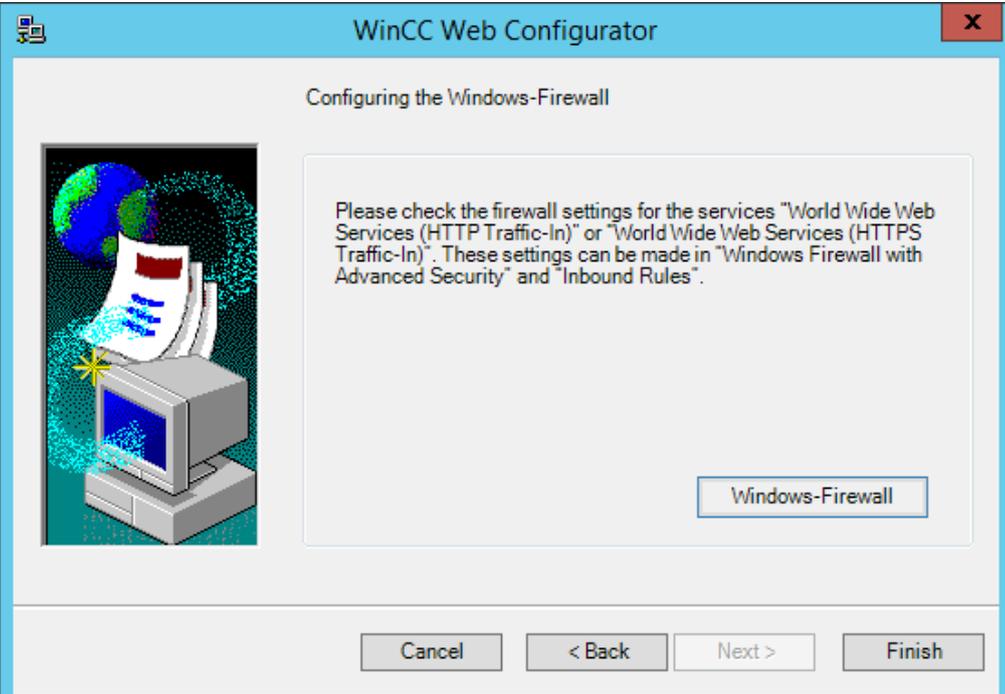
No.	Action
4.	<p>Open the “General” tab. Click on “Use Local Computer Name”.</p>  <p>The screenshot shows the 'Computer properties' dialog box with the 'General' tab selected. The 'Computer Name' field is set to 'SERVER1'. Below it, the 'Use Local Computer Name' button is highlighted with a red rectangle. Under 'Computer Type', the 'Server' radio button is selected. There are two empty text boxes for 'Names of clients' and 'OK', 'Cancel', and 'Help' buttons at the bottom.</p>
5.	Next you will be notified that WinCC has to be restarted.

**Setting the Web Configurator**

The following steps describe how to set the Web Configurator in the WinCC server (server 1).

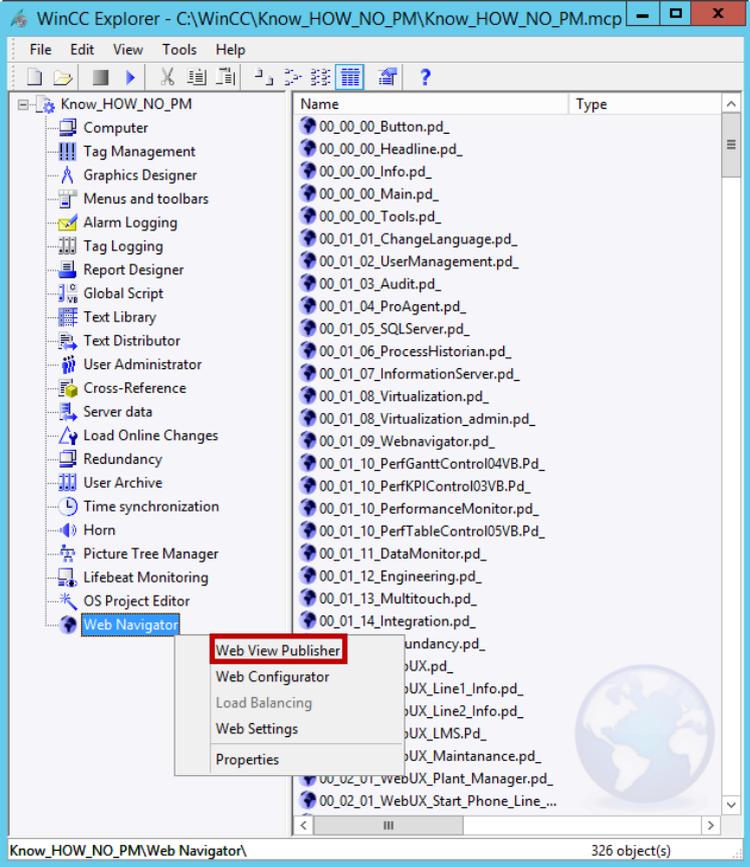
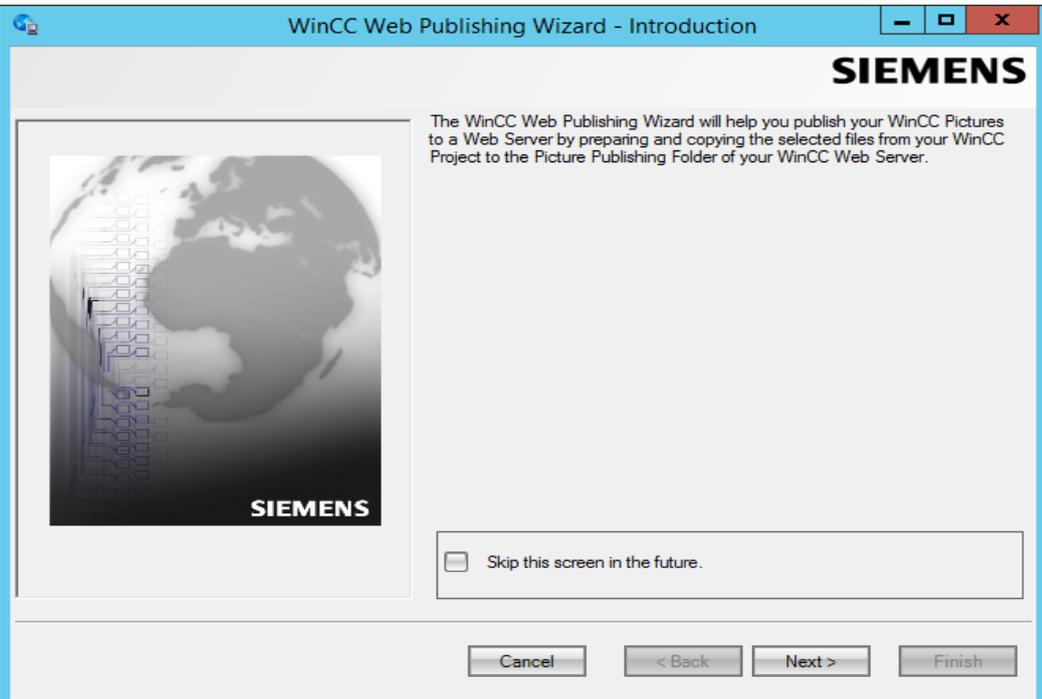
Table 5-100

No.	Action
1.	<p>Open the “Web Configurator” in the WinCC Explorer. Right-click on “Web Navigator”. Now open the “Web Configurator”.</p> 
2.	<p>Select the “Create a new standard Web site (stand-alone)” option.</p> 

No.	Action
3.	<p>Select "MainControl.asp" as the default web-page.</p> 
4.	<p>Restart the computer after completing the WinCC Web Configurator.</p> 

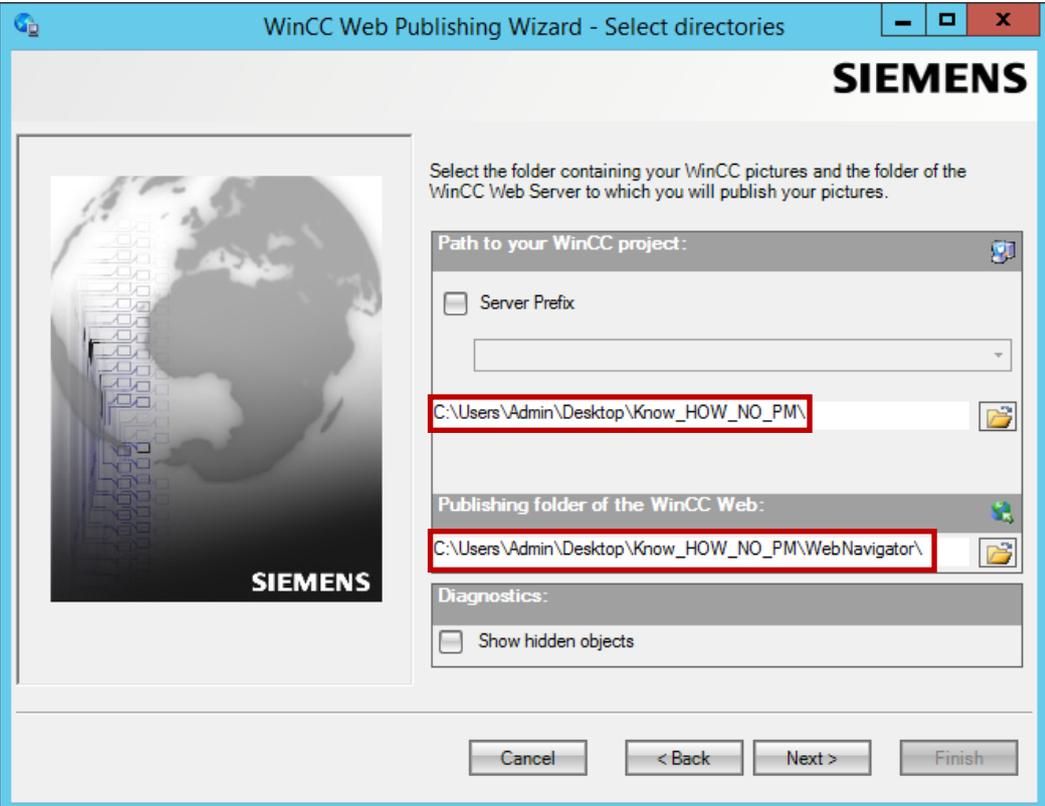
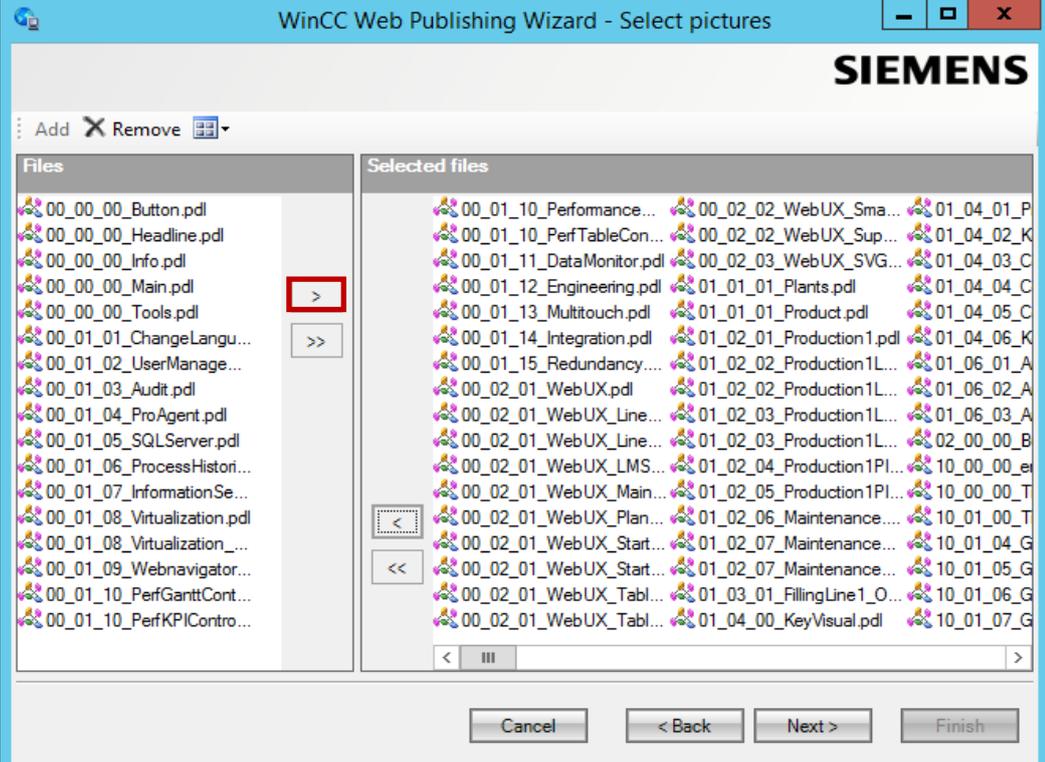
## 5 Installation and Configuration

### 5.2 Software

No.	Action
5.	<p>After the restart, open WinCC Explorer again and open the “Web View Publisher”.</p>  <p>The screenshot shows the WinCC Explorer interface. The left pane displays a tree view of project components, with 'Web Navigator' selected. The right pane shows a list of objects. A context menu is open over the 'Web Navigator' component, and 'Web View Publisher' is highlighted with a red box. The status bar at the bottom indicates '326 object(s)'.</p>
6.	<p>Click “Next” on the start screen.</p>  <p>The screenshot shows the 'WinCC Web Publishing Wizard - Introduction' dialog box. It features the Siemens logo at the top right. On the left, there is a graphic of a globe with a keyboard overlay. On the right, the text reads: 'The WinCC Web Publishing Wizard will help you publish your WinCC Pictures to a Web Server by preparing and copying the selected files from your WinCC Project to the Picture Publishing Folder of your WinCC Web Server.' Below this text is a checkbox labeled 'Skip this screen in the future.' At the bottom, there are four buttons: 'Cancel', '&lt; Back', 'Next &gt;', and 'Finish'.</p>

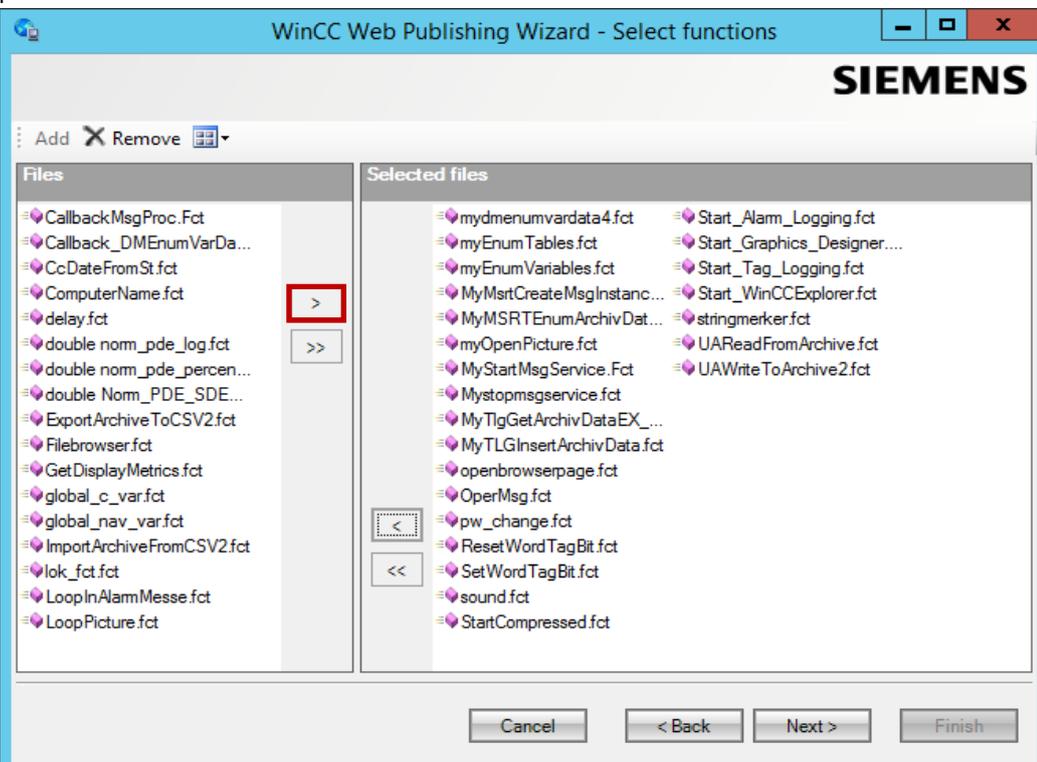
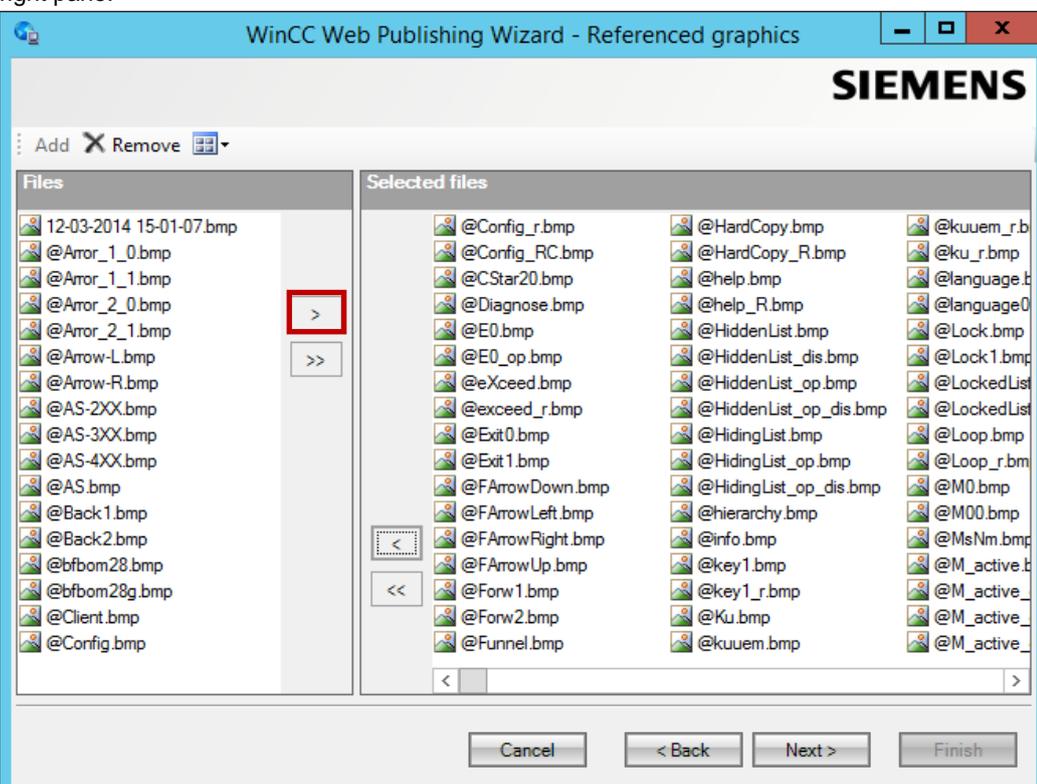
## 5 Installation and Configuration

### 5.2 Software

No.	Action
7.	<p>Make sure that the project paths are correct.</p>  <p>The screenshot shows the 'WinCC Web Publishing Wizard - Select directories' dialog box. It features the SIEMENS logo and a globe image. The text reads: 'Select the folder containing your WinCC pictures and the folder of the WinCC Web Server to which you will publish your pictures.' There are two main input fields: 'Path to your WinCC project:' and 'Publishing folder of the WinCC Web:'. The first field contains the path 'C:\Users\Admin\Desktop\Know_HOW_NO_PM\' and the second contains 'C:\Users\Admin\Desktop\Know_HOW_NO_PM\WebNavigator\'. Below these fields is a 'Diagnostics' section with a 'Show hidden objects' checkbox. At the bottom are 'Cancel', '&lt; Back', 'Next &gt;', and 'Finish' buttons.</p>
8.	<p>Select all pictures you wish to see in the WebNavigator client and move them into the right pane.</p>  <p>The screenshot shows the 'WinCC Web Publishing Wizard - Select pictures' dialog box. It features the SIEMENS logo and a toolbar with 'Add', 'Remove', and a grid icon. The dialog is split into two panes: 'Files' on the left and 'Selected files' on the right. The 'Files' pane contains a list of files with icons, and a red box highlights the right arrow button (&gt;). The 'Selected files' pane contains a list of files that have been moved. At the bottom are 'Cancel', '&lt; Back', 'Next &gt;', and 'Finish' buttons.</p>

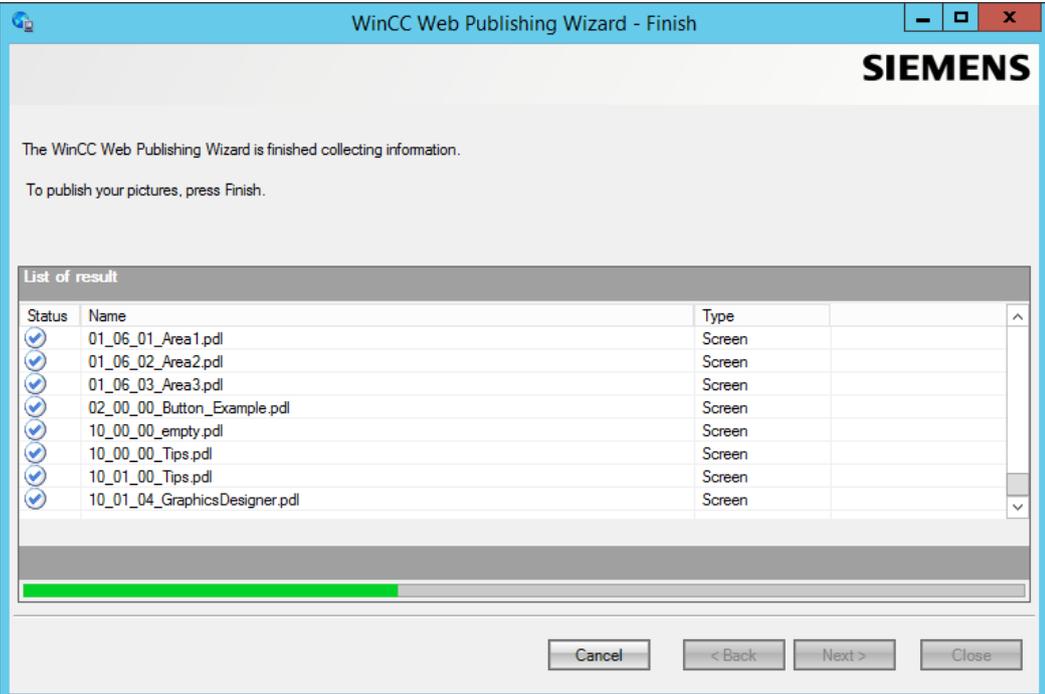
## 5 Installation and Configuration

### 5.2 Software

No.	Action
9.	<p>Select all functions you wish to operate in the WebNavigator client and move them into the right pane.</p> 
10.	<p>Select all referenced graphics you wish to see in the WebNavigator client and move them into the right pane.</p> 

## 5 Installation and Configuration

### 5.2 Software

No.	Action
11	Click on "Finish" to close the dialog box. 

#### Note

Using the CMD command "netstat -ano" enables checking whether ports are assigned or connections exist with your server and a remote computer. For existing connections, the address of the peer can be read.



```
Windows PowerShell
Copyright (C) 2013 Microsoft Corporation. All rights reserved.

PS C:\Users\Admin> netstat -ano

Active Connections
Proto Local Address           Foreign Address         State           PID
TCP   172.16.51.1:3389        172.16.51.10:39142     ESTABLISHED    3084
TCP   172.16.51.1:49220      172.16.51.1:389       ESTABLISHED    1568
TCP   [::]:80                [::]:0                 LISTENING      4
```

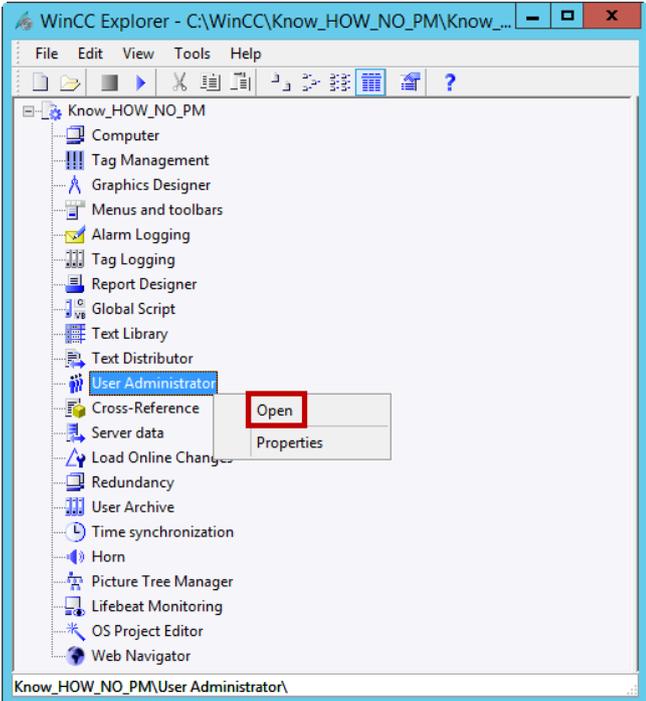
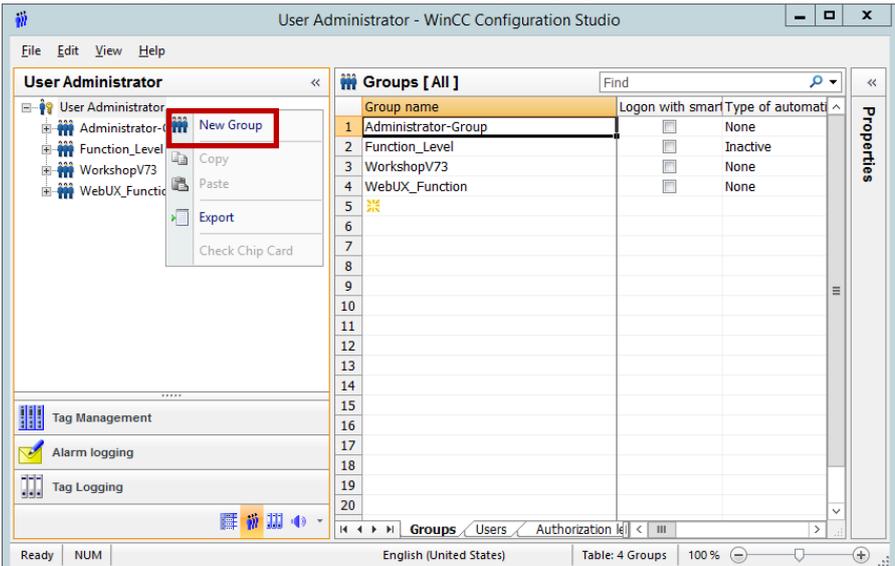
## 5 Installation and Configuration

### 5.2 Software

#### Creating Web Navigator users

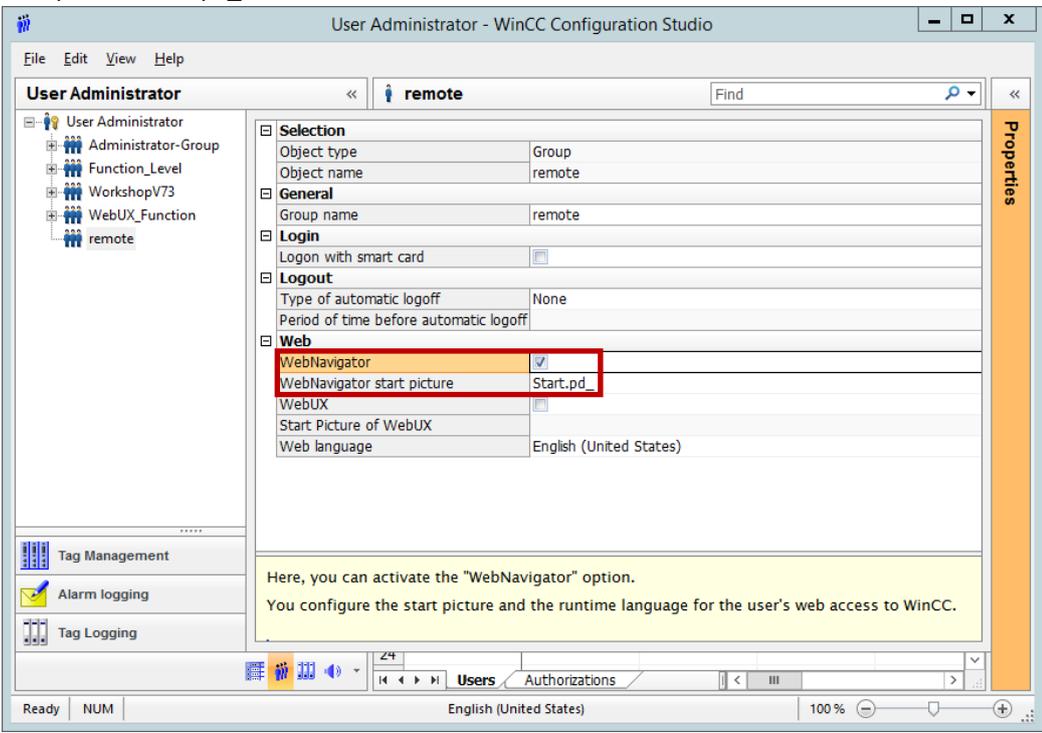
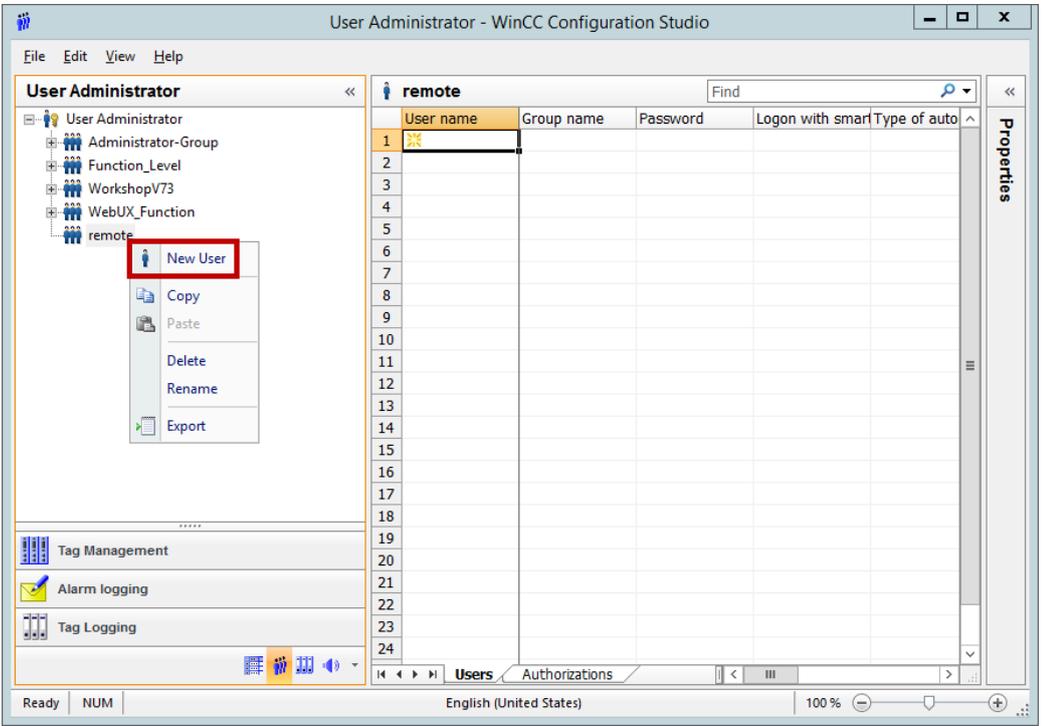
In order to use WebNavigator you have to create users with the corresponding authorization (Server 1). This is described below.

Table -5-11

No.	Action
1.	<p>Open the “User Administrator” in WinCC Explorer.</p> 
2.	<p>Create a new group named “Remote”.</p> <p>Note: The group name can be changed to suit your project.</p> 

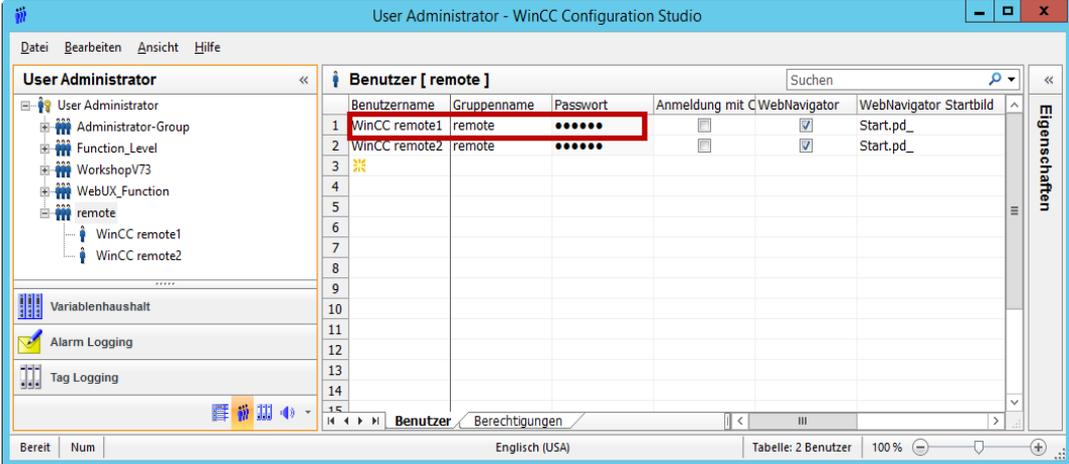
## 5 Installation and Configuration

### 5.2 Software

No.	Action
3.	<p>Select the “Remote” group and activate the authorization for the WebNavigator. Then select the start picture “Start.pd_”.</p>  <p>The screenshot shows the 'User Administrator - WinCC Configuration Studio' window. The 'remote' group is selected in the left tree. The 'Web' section in the properties pane has 'WebNavigator' checked and 'WebNavigator start picture' set to 'Start.pd_'. A yellow tooltip at the bottom of the properties pane reads: 'Here, you can activate the "WebNavigator" option. You configure the start picture and the runtime language for the user's web access to WinCC.'</p>
4.	<p>Select the “Remote” group. Select the menu item “New User”.</p>  <p>The screenshot shows the 'User Administrator - WinCC Configuration Studio' window. The 'remote' group is selected in the left tree. A context menu is open over the 'remote' group, with 'New User' highlighted. The main area shows a table with columns: 'User name', 'Group name', 'Password', and 'Logon with smart Type of auto'. The table is currently empty.</p>

## 5 Installation and Configuration

### 5.2 Software

No.	Action															
5.	<p>Enter the username and password below: User: "WinCC remote1" Password: "remote1"</p>  <table border="1" data-bbox="316 405 1385 869"><thead><tr><th>Benutzername</th><th>Gruppenname</th><th>Passwort</th><th>Anmeldung mit C WebNavigator</th><th>WebNavigator Startbild</th></tr></thead><tbody><tr><td>WinCC remote1</td><td>remote</td><td>remote1</td><td><input type="checkbox"/></td><td>Start.pd_</td></tr><tr><td>WinCC remote2</td><td>remote</td><td>remote2</td><td><input type="checkbox"/></td><td>Start.pd_</td></tr></tbody></table>	Benutzername	Gruppenname	Passwort	Anmeldung mit C WebNavigator	WebNavigator Startbild	WinCC remote1	remote	remote1	<input type="checkbox"/>	Start.pd_	WinCC remote2	remote	remote2	<input type="checkbox"/>	Start.pd_
Benutzername	Gruppenname	Passwort	Anmeldung mit C WebNavigator	WebNavigator Startbild												
WinCC remote1	remote	remote1	<input type="checkbox"/>	Start.pd_												
WinCC remote2	remote	remote2	<input type="checkbox"/>	Start.pd_												
6.	<p>Repeat the steps for the following users: "WinCC remote2" (PW:remote2)</p>															

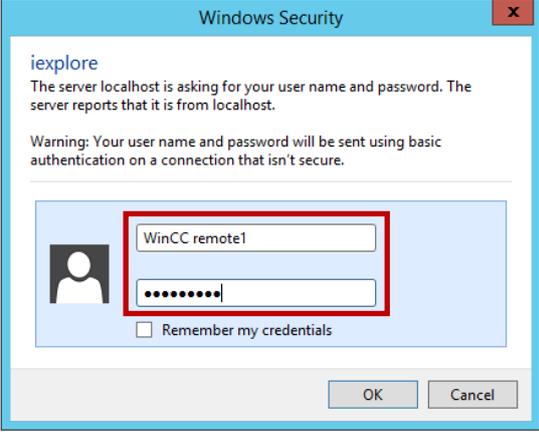
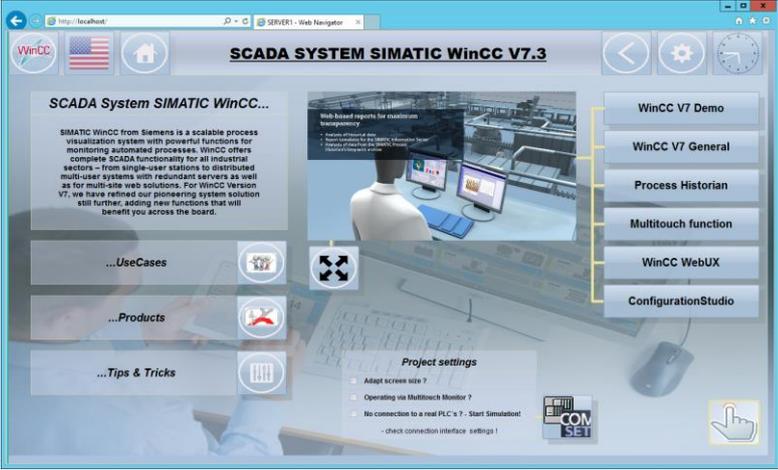
Testing WebNavigator locally at the server (Server 1)

**Note**

The following requirements must be met:

- WebNavigator is configured correctly.
- WinCC Runtime has been started.

Table 5-12

No.	Action
1.	Start the Microsoft "Internet Explorer" locally. Enter <a href="http://localhost/">http://localhost/</a> in the address bar.
2.	<p>Then a password prompt appears. Assign a user name and the respective password here (see <a href="#">Table 4-1</a>).</p> 
3.	<p>If the user name and the password are correct, the WinCC operator displays are displayed in Microsoft Internet Explorer.</p> 

**Note**

In the Internet Explorer, the server must have been rated as trusted.

For further information, refer to the following entry ID: [16957049](#).

### 5.2 Software

**Note** In order to be able to use certain controls of extension packages, such as the Performance Monitor, plugins need to be installed.

For further information, refer to the following entry ID: [88195784](#).

**Note** When using a process picture with ActiveX controls in WebNavigator, you need to activate the “Permit ActiveX Controls” checkbox in the “Security” tab in the Internet Options of the Internet Explorer.

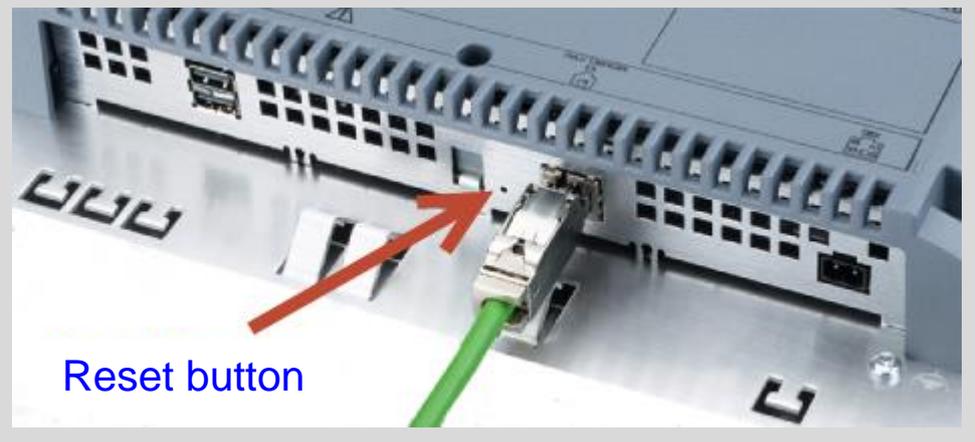
For further information, refer to the following entry ID: [102768445](#)

### 5.2.9 Industrial Thin Client

**Note**

To delete the set IP address of the device and to **restore the default settings**, keep the reset button pressed for at least 3 seconds after switching on the power supply.

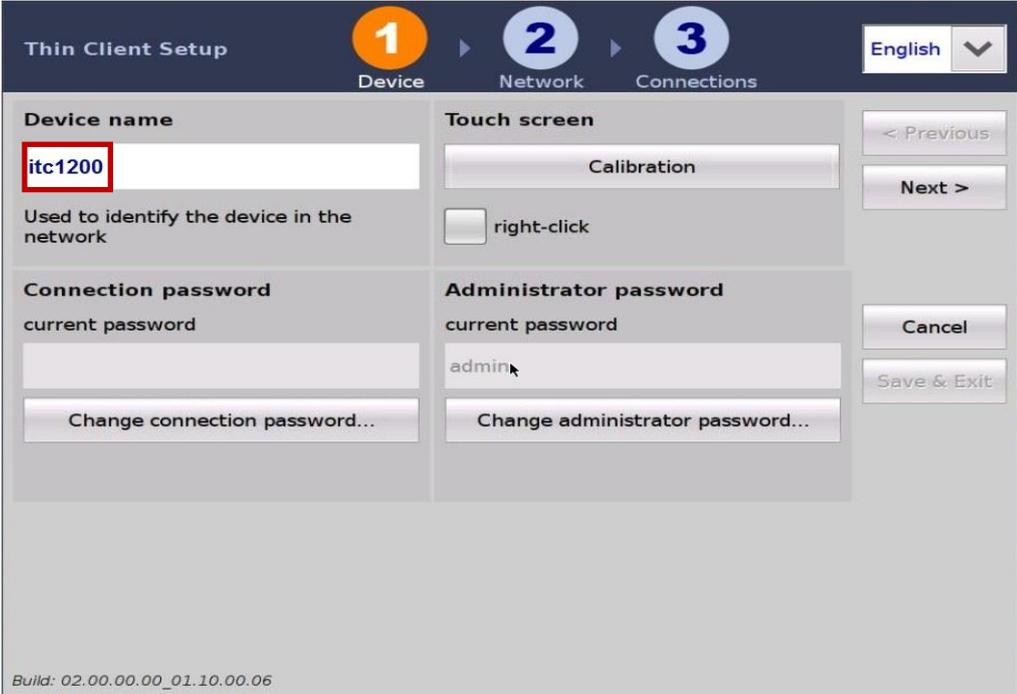
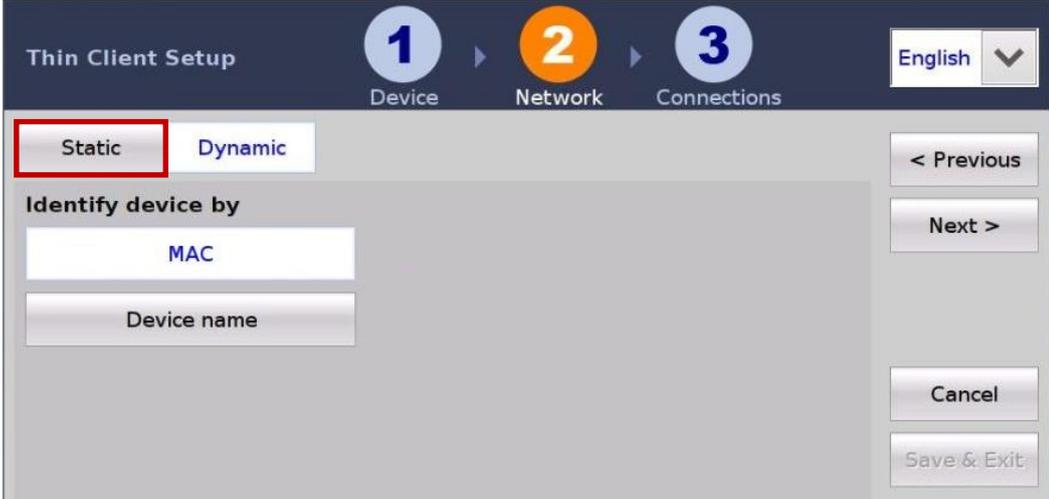
The button is at the back of the device, next to the Ethernet interface. Please use a pointed object such as a paper clip to press the button.



**Setting up the Industrial Thin Client for the first time**

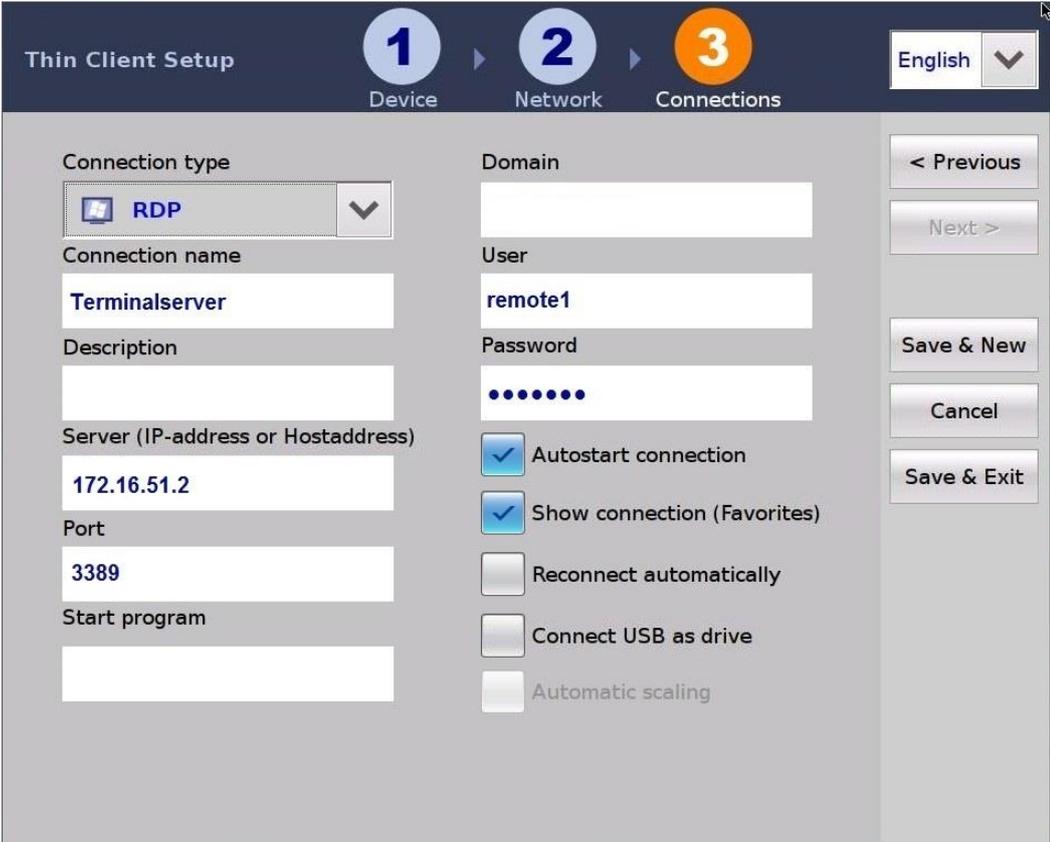
The following steps describe how to set up a RDP connection from the Industrial Thin Client to the remote desktop session host.

Table 5-13

No.	Action
1.	<p>When you switch on the Industrial Thin Client for the very first time or when you have reset the factory settings at the back of the device, the setup menu will open up. In the first step you enter a unique name for the device such as "itc-1200" and confirm by pressing the "Next &gt;" button.</p> 
2.	<p>In the second step, enter the network configuration of the device. Click on the "Static" button and then enter the IP address from <a href="#">Table 5-2</a>.</p> 

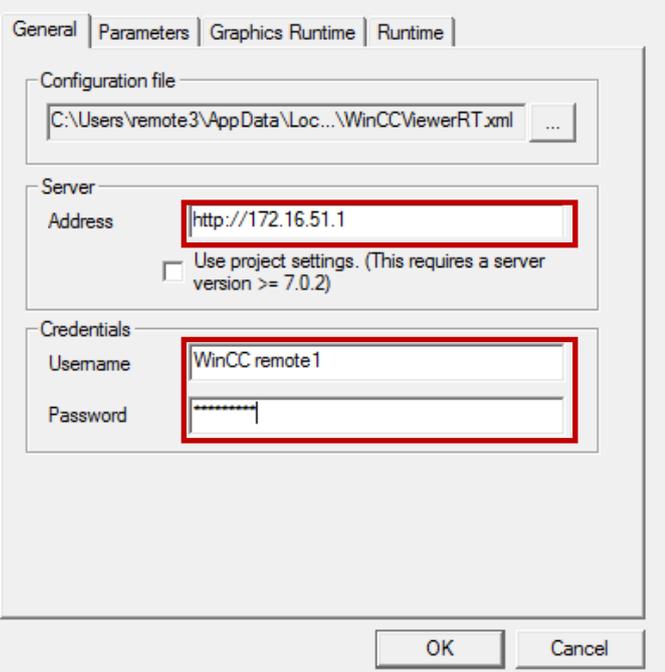
## 5 Installation and Configuration

### 5.2 Software

No.	Action
3.	<p>In the third step, create a Remote Desktop Protocol connection. Use the following settings:</p> <p>Connection type: RDP            Connection name: Terminalserver            Server (IP address or Hostname): (→ see IP Terminal server from <a href="#">Table 5-2</a>)            Port: 3389            User: (→ see user from <a href="#">Table 4-2</a>)            Password: (→ see password from <a href="#">Table 4-2</a>)            Show connection (favorites): (activated)</p> <p>Then click on the “Save &amp; Exit” button.</p> 
4.	<p>Open the connection you created from the favorites bar in the Industrial Thin Client. Press on the “Favorites” button and select the connection “Terminalserver”.</p> 

## 5 Installation and Configuration

### 5.2 Software

No.	Action
5	<p>When the RDP connection to the remote desktop session host has been built up for the first time, the application “WinCCViewerRT” is started automatically according to the user configuration in chapter 5.2.7 of the remote desktop session host.</p> <p>A dialog box for the configuration of the connection from the WinCC WebNavigator client to the WinCC WebNavigator server appears.</p> <p>Enter the address of the WebNavigator server in this dialog box. Use the host name or the IP address of the WinCC server from Table 5-2.</p> <p>In the example project, the users from Table 4-1 have already been created with their respective passwords.</p> <p>Take a user from the plant operation phase from Table 4-1 for the identification of the WinCC WebNavigator client at the WinCC WebNavigator server.</p> 

**Note** For further information on setting up WinCCViewerRT, please refer to the following entry ID: [102768445](#).

## 6 Operating the Application

### 6.1 Overview

It is now possible to access the WinCC server and the WinCC Runtime project running on the server via the Industrial Thin Clients.

For diagnostics, the web server of the CPU can also be displayed on the Industrial Thin Clients.

The connections created in chapter 5.2.9 "Industrial Thin Client" are used to access the respective device.

For opening a connection, you simply have to select it in the favorites bar in the Industrial Thin Client.

**Note**

Please find the operating instructions for Industrial Thin Client at the following address:

<https://support.industry.siemens.com/cs/ww/en/view/61187980/79267000203>. \5\

### 6.2 Connecting to the remote desktop session host

When the connection to the remote desktop session host is built up, an instance of the WebNavigator client is started for the logged in user.

This instance connects to the WebNavigator server automatically, enabling the operation of the WinCC Runtime project on the WinCC server of the Industrial Thin Client.

Please find a detailed description of the functionality of the example project online at the following link:

<https://support.industry.siemens.com/cs/ww/en/view/93148272>

## 7 Further Notes, Tips & Tricks, etc.

### 7.1 Expansion options

#### Remote access to the WinCC server

The remote access on the WinCC server via the RDP is not allowed for active server services such as the WebNavigator server.

As an alternative, the Remote Framebuffer Protocol (RFB) with VNC software is suitable for remote maintenance of the WinCC server.

This protocol is supported by the Industrial Thin Clients and can be used for the access on the WinCC server via the connection created accordingly.

For this purpose, an additional VNC server is installed on the WinCC server. Via the VNC connection it is then possible to operate the WinCC server from the Industrial Thin Clients, for example to carry out maintenance such as starting and stopping runtime.

A video on how to create a VNC connection is available online at the following address: <https://support.industry.siemens.com/cs/ww/en/view/63348591>.

#### Sm@rtServer

Another possibility of operating remote devices with Industrial Thin Clients is the Sm@rtServer. Remote access to Comfort Panels is then possible, for example.

For this, the function Sm@rtServer is to be activated on the Comfort Panel. In this way the connection to the Comfort Panel can be created from the Industrial Thin Client.

A video on how to create a Sm@rtServer connection is available online at the following address: <https://support.industry.siemens.com/cs/ww/en/view/63445531>.

### 7.2 Alternative configurations

#### SIMATIC WinCC Runtime Professional V13

In addition to WinCC Runtime V7.3, the solution presented in this application can also be implemented with SIMATIC WinCC Runtime Professional V13.

For this SIMATIC WinCC Runtime Professional V13, the option WebNavigator is also available and can be set in the same way as described here.

The necessary steps can be generally transferred.

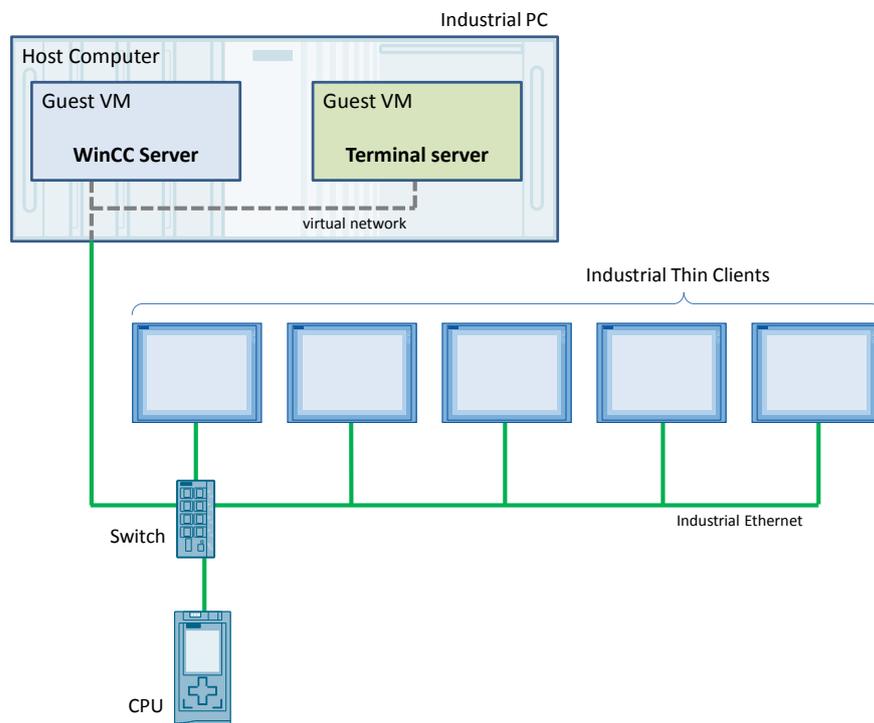
### Virtualization of the server systems

Virtualization techniques available today allow for the parallel operation of several virtual computer systems on a single hardware platform. Sufficiently powerful computer configurations are needed.

Several virtual machines (VM), called guests, are connected to one host device. They use the same resources of the real hardware, i.e. those of the host.

In the present solution, two server systems, a WinCC server, and a remote desktop session host are used. All those could be run as guests on a virtual machine on the host computer.

Figure 7-1



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#### Note

Please find more information on virtualization of servers online at the following address:

<https://support.industry.siemens.com/cs/ww/en/view/49368181>

### 7.3 Performance data

For a remote access to the WinCC server, the speed of the image build-up and the reaction speed of the Runtime project are very important.

This depends on the server hardware used and also on the speed of the network connection and the number of Industrial Thin Clients used at the same time.

For estimating the power to be expected, measured data with various connection types for various numbers of clients are available online.

Please find the respective measured data at the following address:

<https://support.industry.siemens.com/cs/ww/en/view/25576569>.

## 8 Links & Literature

Table 1-2

	Topic	Title
\1\	Siemens Industry Online Support	<a href="https://support.industry.siemens.com">https://support.industry.siemens.com</a>
\2\	Download page of the entry	<a href="https://support.industry.siemens.com/cs/wwde/28309119">https://support.industry.siemens.com/cs/wwde/28309119</a>
\3\	WinCC/WebNavigator manual	<a href="https://support.industry.siemens.com/cs/ww/en/view/102768445/69924901771">https://support.industry.siemens.com/cs/ww/en/view/102768445/69924901771</a>
\4\	Manual WinCC V7.3	<a href="https://support.industry.siemens.com/cs/ww/en/view/102754925/68754597131">https://support.industry.siemens.com/cs/ww/en/view/102754925/68754597131</a>
\5\	Industrial Thin Client manual	<a href="https://support.industry.siemens.com/cs/ww/en/view/61187980/79267000203">https://support.industry.siemens.com/cs/ww/en/view/61187980/79267000203</a>

## 9 History

Table 9-1

Version	Date	Modifications
V3.0	11/2015	Complete revision: WinCC 6.2 → WinCC 7.3 Windows Server 2008 → Windows Server 2012 R2
V2.0	09/2013	Complete revision: WinCC 6.2 → WinCC Professional V12 Thin Client → Industrial Thin Clients Windows Server 2003 → Windows Server 2008
V1.1	05/2008	Installation sequence optimized and notes supplemented
V1.0	02/2008	First version