Integrating HMI Operator Panels in TCP/IP Networks

HMI Operator Panels and WinCC (TIA Portal)

Warranty and Liability

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1 Structure

1.1 Overview

Introduction
The application describes how you can integrate an HMI operator panel to an existing office/automation network. In chapter 1.2, individual configurations are displayed and described graphically in detail. The settings for the individual configurations are described in chapter 4.

Note
For a better understanding of the solutions introduced in chapter 4, you should first of all get familiar with the basics in chapter 3.

General overview of the automation task
The figure below provides a general overview of the automation task.

Figure 1-1

Description of the automation task
SIMATIC HMI operator panels offer the option to archive process values and to generate protocols/reports. The aim is, to archive this production data centrally on one or several PCs and not locally on the individual panels. The protocols are furthermore to be printed out directly via a standard printer. The HMI operator panels and the PCs/printers are linked with each other via an Ethernet network. The application example shows you how can implement this and what settings are respectively required on the example of four typical configurations. For the individual setup of the networks, please refer to the following chapter.
1.2 Details on the individual configurations

General
The following table shows an example of the most important properties of the four configurations.
The table is divided into
1. Default network
All nodes are located in a joint network.
2. Separate networks
The PCs/printers and the HMI operator panels are each located separately in an "office network" and in a "factory network".

Overview
Table 1-1

<table>
<thead>
<tr>
<th>Properties</th>
<th>Default network</th>
<th>Separate network</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Configuration 1</td>
<td>Configuration 2</td>
</tr>
<tr>
<td>Number of PCs which the panel can access. The PCs are used as file storage for the archives created.</td>
<td>max. 2</td>
<td>max. 2</td>
</tr>
<tr>
<td>IP address assignment for the PCs.</td>
<td>Static (stored by default)</td>
<td>Static (stored by default)</td>
</tr>
<tr>
<td>Print on network printer</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Router required/present.</td>
<td>no</td>
<td>yes</td>
</tr>
<tr>
<td>Name resolution</td>
<td>no</td>
<td>No</td>
</tr>
<tr>
<td>Configuration table (WINS database)</td>
<td>No</td>
<td>no</td>
</tr>
</tbody>
</table>
There is one joint Ethernet network via which all nodes are linked with each other. Each node is assigned a fixed (static) IP address in the network. The production data can be stored on a max. of two PCs. The printing of protocols is done via the network on a network-capable standard printer.

The implementation of this configuration is described in chapter 4.1.

**Advantage**
- Simple structure.
- All nodes are located in the same network.
- Simple configuration of the nodes.

**Disadvantage**
- Restricted spatial distribution.
- Maximum access to 2 PCs.
1.2 Details on the individual configurations

1.2.2 Configuration 2 Separate networks

Figure 1-3

There are two Ethernet networks.
- Office Network (Ethernet network in the office environment).
- Factory Network (Ethernet network in the production plant).
Both networks are connected with each other via a router. Each node is assigned a fixed (static) IP address in the network. The production data can be stored on a max. of two PCs. The printing of protocols is done via the network on a network-capable standard printer.

The implementation of this configuration is described in chapter 4.2.

Advantage
- Networks separated by the router.
- Nodes separated between "office" and "production".
- Simple configuration of the nodes.
- Individual access protection possible (protection via sharing properties).

Disadvantage
- Maximum access to 2 PCs.
1 Structure

1.2 Details on the individual configurations

1.2.3 Configuration 3: WINS Server

Figure 1-4

The structure of "Configuration 3" is similar to "Configuration 2". The difference is that a "WINS server" is used in "Configuration 3". The WINS server is used for the name resolution of the PCs assigned to the WINS server. By selecting this functionality more than two PCs can be specified, e.g. for the archiving of the production data.

The implementation of this configuration is described in chapter 4.3.

Note

The WINS server in the "Office Network" makes it possible that the IP addresses of the PCs (apart from the WINS server) do not essentially have to be statically specified as long as the new IP addresses are adjusted in the WINS server.

Advantage

• Changing the IP address of PC has no effect on die panel settings.
• Access to the individual PCs via computer name is possible through the WINS server. (The panels can resolve the PC names via the WINS server.)
• Networks separated by the router.
• Nodes separated between "office" and "production".
• Individual access protection possible (protection via sharing properties).

Disadvantage

• Static IP address:
• Basic knowledge of configuring a WINS server is required.
1.2 Details on the individual configurations

1.2.4 Configuration 4: DNS server and WINS server

Figure 1-5

The structure of “Configuration 4” is similar to “Configuration 3”. The difference is that a "server operating system" which has an integrated “DNS server” and a “WINS server” is used in “configuration 4”.

The individual PCs are assigned the IP addresses automatically (dynamically) (not displayed in the figure) via a DHCP server in the “Office Network”.

The nodes (PCs) in the “Office Network” do not have static IP addresses. The IP addresses are assigned dynamically to the PCs. The name resolution is via the DNS or the WINS server.

The implementation of this configuration is described in chapter 4.4.

Advantage

- No static IP addresses for the PCs in “Office Network”.
- Central administration of the PCs possible.
- WINS servers support the name resolution for the communication between panel and PC.
- Networks separated by the router.
- Nodes separated between "office" and "production".
- Individual access protection possible (protection via sharing properties).
1 Structure

1.2 Details on the individual configurations

Disadvantage

- WINS server has to be used parallel to the DNS server. (The panels can only resolve the PC names via the WINS server.)
- Basic knowledge of configuring a DNS server and WINS server is required.
2 Solution

2.1 Overview

Schematic layout

The following figure schematically shows the most important components of the solution:

Figure 2-1

- (1) PC Windows 7 operating system or server operating system.
- (2) Printer Ethernet-capable network printer.
- (3) Router For coupling of the Ethernet networks.
- (4) Switch Network distributor for connecting the individual network nodes.
- (5) Panel HMI operator panel with Ethernet interface. For the implementation of the described configurations the panel has to support other functions such as e.g. archiving. Further information on the functional differences between the various SIMATIC panels can be found in entry ID: 40227286
- (6) Cable To connect the nodes, an Ethernet cable is used.

Delimitation

This application does not include a description of the components used. Only the required settings are described.

- on the topic "Security in Ethernet networks". This topic is very customer specific and would be beyond the scope of this application. For more detailed information on this topic refer to chapter 6.
- how to setup a DNS server, WINS server or domain controller. For more detailed information on this topic refer to chapter 6.

Assumed knowledge

Basic knowledge on the components used is assumed. Particularly on the topic "Security in Ethernet networks" further knowledge is required. For this purpose, please contact your network administrator.
2.2 Hardware and software components

2.2.1 Validity

To test the individual configurations, the components listed in chapter 2.2.2 were used. The WinCC (TIA Portal) version used does not matter in this context. It only has to be made sure, that the software and hardware used, supports the specified function.

Thus, other components than the ones listed here, such as, e.g. the ones for the network connection can also be used.

2.2.2 Components used

The application was created with the following components:

**Hardware components**

Table 2-1

<table>
<thead>
<tr>
<th>Component</th>
<th>No.</th>
<th>Article number</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>TP1200 Comfort Panel</td>
<td>1</td>
<td>6AV2124-0MC01-0AX0</td>
<td></td>
</tr>
<tr>
<td>MP 277 Touch</td>
<td>1</td>
<td>6AV6643-0CD01-1AX0</td>
<td></td>
</tr>
<tr>
<td>CPU315-2PN/DP</td>
<td>1</td>
<td>6ES7315-2EH114-0AB0</td>
<td></td>
</tr>
<tr>
<td>SCALANCE X8008</td>
<td>2</td>
<td>6GK5008-0BA00-1AB2</td>
<td></td>
</tr>
<tr>
<td>SCALANCE S602</td>
<td>1</td>
<td>6GK5602-0BA10-2AA3</td>
<td>See 2.2.1</td>
</tr>
<tr>
<td>Network printer</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HP Color Laser Jet 3800</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Office PC</td>
<td>1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Software components**

Table 2-2

<table>
<thead>
<tr>
<th>Component</th>
<th>No.</th>
<th>Article number</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>WinCC Advanced V12</td>
<td>1</td>
<td>6AV2102-0AA03-0AA5</td>
<td>See 2.2.1</td>
</tr>
<tr>
<td>Security Configuration Tool</td>
<td>1</td>
<td>Download</td>
<td>Optional. Required for SCALANCE S602</td>
</tr>
<tr>
<td>PC operating system</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MS Windows 7 Professional</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PC operating system</td>
<td>1</td>
<td></td>
<td>Depending on the configuration</td>
</tr>
<tr>
<td>Server operating system</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
3 Basics

3.1 Setting up a network connection

3.1.1 Assigning a static IP address on the PC

Table 3-1

<table>
<thead>
<tr>
<th>No.</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>- Open the control panel via &quot;Start &gt; Control Panel&quot;.</td>
</tr>
</tbody>
</table>
| 2.  | - Open the "Network and Sharing Center" in the control panel.  
    - Select the "Change adapter settings" in the left half of the window.  
    - A window opens in which all available network adapters are displayed.  
    - Select the network adapter via which the communication to the network nodes is to take place (e.g. LAN) with the right mouse button.  
    - Open the properties of the network adapter via the dialog window. |
| 3.  | - Select the "Internet Protocol Version 4 (TCP/IPv4)" and open the properties of this protocol via the "Properties" button.  
    - Select the "Use the following IP address" radio button. You can now assign the PC an individual IP address. |
| 4.  | The required settings for implementing individual configurations regarding "IP address, subnet mask, default gateway etc." are described in chapter 4. |
3 Basics

3.1 Setting up a network connection

3.1.2 Network configuration on the operator panel

Setting computer name for the operator panel

The operator panel identifies itself on the communication network with the computer name. The name in the network has to be unique.

Table 3-2

<table>
<thead>
<tr>
<th>No.</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Open the “Control Panel” on the operator panel.</td>
</tr>
<tr>
<td>2.</td>
<td>Open the “System Properties” dialog with the “System” icon.</td>
</tr>
<tr>
<td></td>
<td>- “Device Name”. Enter the computer name of the operator panel.</td>
</tr>
<tr>
<td></td>
<td>- “Device description”. If required, enter a description of the operator panel.</td>
</tr>
<tr>
<td></td>
<td>- Confirm the entries with “OK”.</td>
</tr>
</tbody>
</table>

Changing network settings

Change the network settings of the LAN connection in the control panel in “Network and Dial-up Connections”. In addition, configure the properties of the Ethernet interfaces. The IP address in the network has to be unique.

Table 3-3

<table>
<thead>
<tr>
<th>No.</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Open the display of the network adapter via the “Network and Dial-up Connections” icon. The existing network adapters are displayed.</td>
</tr>
<tr>
<td>2.</td>
<td>Open the “PN_X1” entry.</td>
</tr>
<tr>
<td>3.</td>
<td>Go to the “IP Address” tab.</td>
</tr>
<tr>
<td></td>
<td>- Enable the “Specify an IP address” radio button.</td>
</tr>
<tr>
<td></td>
<td>- Enter the appropriate addresses in &quot;IP Address, Subnet Mask address and Default Gateway&quot;.</td>
</tr>
<tr>
<td></td>
<td>Go to the “Name Servers” tab (1)</td>
</tr>
<tr>
<td></td>
<td>- If necessary, enter the appropriate addresses.</td>
</tr>
<tr>
<td>4.</td>
<td>Confirm the entries with “OK”.</td>
</tr>
<tr>
<td>5.</td>
<td>The required settings for implementing the configurations regarding &quot;IP address, subnet mask, standard gateway etc.&quot; are described in chapter 4.</td>
</tr>
</tbody>
</table>
### 3.1.3 Checking a network connection

To check the physical network connection, execute the "ping" command on the PC.

<table>
<thead>
<tr>
<th>No.</th>
<th>Action</th>
</tr>
</thead>
</table>
| 1.  | - Left click on the "Windows Start Button" and enter the "cmd" command in the search field.  
     - Confirm the entry using the "Enter" button. The DOS input windows opens. |
| 2.  | - Enter the following command in the DOS command line.  
     - `ping "IP address network node"`  
     - Close the command with the "ENTER" button.  
     - **Example**  
       IP address of the network node: 182.168.10.100  
       => ping 182.168.10.100  
       1. If the node is reached, the message "Reply from..." appears.  
       2. If the node is not reached, the message, e.g. "Request timed out" appears. |
3.2 Creating PC network sharing

Sharing file folder or drive on a PC

To be able to save e.g. archives from an operator panel via an Ethernet network on a PC, a file folder or a drive has to be shared on the PC. For this purpose, perform the following points:

In this example, a file folder will be shared.

Note

Please observe the notes for the "Windows 10, version 1709" operating system (see chapter 3.7, Notes for Windows 10 operating system).

Table 3-5

<table>
<thead>
<tr>
<th>No.</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>• Open the Windows Explorer.</td>
</tr>
<tr>
<td>2.</td>
<td>• Select a folder in a drive that is to be shared for the data exchange between the operator panel and the PC. Alternatively, you can also share the complete drive.</td>
</tr>
<tr>
<td>3.</td>
<td>• Open the properties of the folder.</td>
</tr>
<tr>
<td>4.</td>
<td>• Go to the “Sharing” tab and click the “Advanced Sharing” button there.</td>
</tr>
</tbody>
</table>

Note

Alternatively, you can also use the functionality in “Network File and Folder Sharing”.

![Image of Windows Explorer with Advanced Sharing settings]
### 3.2 Creating PC network sharing

<table>
<thead>
<tr>
<th>No.</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.</td>
<td><strong>Create share name</strong></td>
</tr>
</tbody>
</table>

- “Advanced sharing” window
  - (1) Enable the “Share this folder” radio button.
  - (2) Select a name in the “Share name” field or add a new share name with the “Add” button.
  - (3) Call the specific permissions for the folder using the “Permissions” folder.
  - (4) Define the permissions via the checkboxes. In this case “Full Control”.
- Confirm the entries with “OK”.

**Note:**
You can adjust the assignment of permissions to your circumstances.
3 Basics

3.2 Creating PC network sharing

<table>
<thead>
<tr>
<th>No.</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.</td>
<td><strong>Create user-based share</strong></td>
</tr>
<tr>
<td></td>
<td>Click the &quot;Share...&quot; button in the &quot;Sharing&quot; menu.</td>
</tr>
</tbody>
</table>

![Diagram of DataExchange Properties window]

7.  
- Select a user in the "File sharing" window via the dropdown menu. In this example a specific user with the name "Comfort_Panel" was selected.
- Confirm the selection by pressing the "Add..." (1) button.

![Diagram of File Sharing window]
### 3 Basics

#### 3.2 Creating PC network sharing

<table>
<thead>
<tr>
<th>No.</th>
<th>Action</th>
</tr>
</thead>
</table>
| 8.  | • Select the "Comfort_Panel" user and the "Read/Write" option via the "Permission Level" dropdown menu (1).  
     | • Click the "Share" button (2). |
| 9.  | • Complete the settings with the "Done" button.  
     | Thus the settings for the file share are completed. |
| 10. | **Note**  
     | If you are changing the user rights for the folder during runtime (the runtime of the panels is running and is accessing the folder), you have to subsequently execute a "reboot" of the panel for the changes on the panel to have an effect.  
     | After booting, the panel will detect the changes and the logon screen will appear after starting the panel runtime. Alternatively, store the changed settings in the control panel beforehand. For this purpose, refer to chapter 3.5. |
3 Basics

3.3 Archive path

3.3 Archive path

WinCC (TIA Portal)

When configuring the archives, the following syntax is to be observed when specifying the path.

The name of the path name consists of \\
"\Computer name\Share name\File folder".

Example

Computer name: HHPC
Share name: ArchiveData
File folder: DataFiles

Complete path specification
\\HHPC\ArchiveData\DataFiles

Note

The "DataFiles" file folder has to be available on the PC.

3.4 Setting up network printer

The settings described in this chapter mainly refer to the settings required for the application.

The printer is not directly connected to the operator panel. Printing is done from the operator panel via the printer integrated in the Ethernet network.

Please note the information and settings described in chapter 3.4.3.

If you would like to connect a printer directly to the operator panel, you find the shared and tested printers for SIMATIC panels under entry ID: 11376409.

3.4.1 Settings on the printer

The most basic settings have to be made on the printer first, in order to configure the printer via the PC. Depending on the application case other default settings are required.

Enter the addresses for the following parameters.

• IP address
• Subnet mask
• Default gateway (if required)

To find out how to make these settings, please refer to the operating instructions of the printer manufacturer.
3 Basics
3.4 Setting up network printer

3.4.2 Settings on the PC

Note: It is assumed that a network-capable printer has already been installed and can be reached via the network.

Instruction
Table 3-6

<table>
<thead>
<tr>
<th>No.</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>• Left click the &quot;Windows Start Button&quot; and select the &quot;Devices and Printers&quot; function. A window is opened in which all installed printers are listed.</td>
</tr>
</tbody>
</table>
| 2.  | • Select the network printer with the right mouse button.  
• Select the "Printer properties" in the dialog field. |
### 3 Basics

#### 3.4 Setting up network printer

<table>
<thead>
<tr>
<th>No.</th>
<th>Action</th>
</tr>
</thead>
</table>
| 3.  | • Click “Ports” in the menu bar.  
• Create a new printer connection via the “Add Port…” button. |

![Image of HP Universal Printing PS Properties window](image)

4. • Select the “Standard TCP/IP Port” option in the window.  
• Press the “New Port…” button. The wizard for adding a printer port is started.  
• Click “Next” to start the wizard.

![Image of Add Standard TCP/IP Printer Port Wizard](image)
3 Basics

3.4 Setting up network printer

<table>
<thead>
<tr>
<th>No.</th>
<th>Action</th>
</tr>
</thead>
</table>
| 5.  | • Enter the IP address of the printer in the first field.  
• Enter a name in the second field. In reference to the example enter "OperatorPanel_Printer".  
The name serves for the identification of the port (not to be confused with the "Share name" of the printer).  
The name you enter here cannot be changed by you later on. If necessary, you may have to create another port via the "wizard".  
• Click "Next".  

**Note:**  
The network printer has to be integrated in the network and reachable via the PC. To check the connection, please refer to chapter 3.1.3. |

| 6.  | • Close the wizard with "Finish". |

[Image of Add Standard TCP/IP Printer Port Wizard with IP address and port name entered.]


[Image of Add Standard TCP/IP Printer Port Wizard with Finish button highlighted.]
3 Basics

3.4 Setting up network printer

<table>
<thead>
<tr>
<th>No.</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.</td>
<td>Enable the checkbox of the previously configured &quot;Printer port&quot;.</td>
</tr>
</tbody>
</table>

![Image of HP Universal Printing PS Properties window]

8. Subsequent editing (optional) of the configured settings

- Select the printer port to be edited.
- Click the "Configure Port..." button.
- Make the required changes.
  (The "Port Name" cannot be changed).

**Note:**
The default port number "9100" is also displayed in the window.

![Image of Configure Standard TCP/IP Port Monitor window]
3 Basics

3.4 Setting up network printer

<table>
<thead>
<tr>
<th>No.</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.</td>
<td>Create printer share</td>
</tr>
</tbody>
</table>

With the printer settings on the panel you can specify whether the data is to be printed via a "Network" or a "Printserver". If printing is done via the "Network" parameter, the PC has to be shared in the printer properties.

- Select the "Sharing" menu in the printer properties.
- Enable the "Share this printer" checkbox.
- Enter a name the "Share name" field.
- The other checkbox is optional.
- Complete the entries with "OK".

![HP Universal Printing PS Properties](image)
3 Basics
3.4 Setting up network printer

3.4.3 Settings on the panel

Instruction: Printing via the network.

Table 3-7

<table>
<thead>
<tr>
<th>No.</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>• Call the control panel.</td>
</tr>
</tbody>
</table>
| 2. | • Open the "Printer Properties" dialog with the "Printer" icon.  
- Select the "PCL Laser" printer type in "Printer Language".  
- Select the "Network" interface in "Port".  
- Enter the network address of the printer in "Network".  
Note: Please note that here you cannot use the "IP address" of the printer.  
The address is made up as follows "\Computer name\share name of the printer"  
Example: HHPC\HP_Printer  
- Select the paper size from the "Paper Size" menu.  
- Specify the orientation from the "Orientation" menu.  
"Portrait" for an upright format  
"Landscape" for a horizontal format.  
- Set the printing quality.  
Enable the "Draft Mode" in order to print in draft quality.  
In order to print in color enable "Color".  
- Confirm the entries with "OK". |

![Printer Properties](image)

© Siemens AG 2019 All rights reserved
Instruction: Printing via the print server

Table 3-8

<table>
<thead>
<tr>
<th>No.</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>• Call the control panel.</td>
</tr>
</tbody>
</table>
| 2.  | • Open the "Printer Properties" dialog with the "Printer" icon.  
  - Select the "PCL Laser" printer type in "Printer Language".  
  - Select the "PrintServer" interface in "Port".  
  - Enter the network address of the printer server in "IP:Port:".  
  **Note:**  
  Many printers have an integrated "print server". This enables you to directly specify the address of the printer.  
  Observe the correct spelling -> "IP address:Port number".  
  (Colon between IP address and port number ([Link]))  
  **Example** 172.16.34.30:9100  
  - Select the paper size from the "Paper Size" menu.  
  - Specify the orientation from the "Orientation" menu.  
    "Portrait" for an upright format  
    "Landscape" for a horizontal format.  
  - Set the printing quality.  
    Enable the "Draft Mode" in order to print in draft quality.  
    In order to print in color enable "Color".  
  - Confirm the entries with "OK". |

When using the "PrintServer" setting, you can address a printer\(^1\) with integrated print server directly via the IP address of the printer. This printer type can therefore be directly connected to the panel. No additional PC is required.

\(^1\) It cannot be guaranteed that every network printer is supported.
3.5 Adjusting logon data

Storing PC logon data on the panel

In order to be able to, e.g. store tag archives from a panel directly on a PC, a drive or a folder has to be shared on this PC. How to share a drive/folder is explained in chapter 3.2.

If a user logon is stored on the PC (user/password), the following logon dialog appears after starting panel runtime.

Figure 3-1

You can store the logon data on the operator panel by default to avoid having to enter the user data after each "reboot" of the panel (panel was switched on and off again).

Procedure

Table 3-9

<table>
<thead>
<tr>
<th>No.</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>• On the control panel on the operator panel.</td>
</tr>
</tbody>
</table>
| 2. | • Open the "Network ID" dialog with the "Network ID" icon.  
  - Enter the user name of the PC in the "User name".  
  - Enter the password of the PC in the "Password" as well as, if required, the "Domain".  
  - Confirm the entries with "OK". |

Note

The length of the domain name is limited to 14 characters by the operating system of the panels.
3.6 Router configuration

<table>
<thead>
<tr>
<th>No.</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.</td>
<td><strong>Storing other users</strong></td>
</tr>
</tbody>
</table>

If you want to store data on more than one PC, also enter the logon data for these other PCs in the previously described menu.
- Repeat the steps under (2).

**Note**
If there is a name in the "User name" field from the previous entry, delete it and subsequently enter the new user name, the password as well as, if required, the "Domain".

<table>
<thead>
<tr>
<th>4.</th>
<th><strong>General information on logon data</strong></th>
</tr>
</thead>
</table>
- The default names and passwords cannot be subsequently edited.
- The stored logon data cannot be called.
- To delete the stored logon data, the panel has to be reset to factory settings. For more information, please refer to entry ID: 19701610

3.6 **Router configuration**

In the application a SCALACE S602 is used as router. The SCALANCE S602 offers extensive security settings.

To test the application, possible security settings were not considered.

**Configuration SCALANCE S602**

**Note**
The following configuration does not include a description of how to configure a secure connection. This configuration is used to quickly test the communication via two networks.

<table>
<thead>
<tr>
<th>No.</th>
<th>Action</th>
</tr>
</thead>
</table>
| 1.  | - Start the "Security Configuration Tool".  
- Select the "Project > New project" menu command  
- A logon screen opens up. Enter a user name and password. |
3 Basics

3.6 Router configuration

<table>
<thead>
<tr>
<th>No.</th>
<th>Action</th>
</tr>
</thead>
</table>
| 2.  | • In the window select the SCALANCE S602 used.  
     • Select the "Routing mode" from the dropdown list (1).  
     • Enter the IP address, subnet mask and the MAC address.  
     • Confirm the entries with "OK".  
     
     **Note**  
     Confirm the router version used. Depending on the version, the following settings may differ. |

![Diagram of router configuration](image)

<table>
<thead>
<tr>
<th>No.</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.</td>
<td>• Select the &quot;View &gt; Advanced mode&quot; menu command.</td>
</tr>
</tbody>
</table>

![Diagram of advanced mode](image)
3 Basics

3.6 Router configuration

<table>
<thead>
<tr>
<th>No.</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.</td>
<td>• Select the “Block” and open the block properties.</td>
</tr>
</tbody>
</table>

![Block properties screenshot](image1)

| 5.  | • In the “Interface” tab you can adjust various addresses. If the MAC address of the module is not yet specified, enter it for the channel (P1) (1). |
|     | • Open the “Firewall” tab (2). |

![Interface properties screenshot](image2)
3.6 Router configuration

<table>
<thead>
<tr>
<th>No.</th>
<th>Action</th>
</tr>
</thead>
</table>
| 6.  | • Enter two new rules with the “Add rule” button (2).  
     | • For the 1st rule select the following with the dropdown lists (1):  
     | - Action: “Allow”  
     | - From: “External”  
     | - To: “Internal”  
     | • For the 2nd rule select the following with the dropdown lists (1):  
     | - Action: “Allow”  
     | - From: “Internal”  
     | - To: “External”  

- Subsequently, select the “Default rules for IP services” subfolder (3).

**Note**  
The “Add rule” button is only displayed when you have selected the “Advanced mode” view.

7.  • Enable the checkboxes that you can see in the following figure.  
    • Confirm the entry with “OK”.

![Image of router configuration](image_url)
3 Basics

3.6 Router configuration

<table>
<thead>
<tr>
<th>No.</th>
<th>Action</th>
</tr>
</thead>
</table>
| 8.  | • Save the configuration.  
     | • Connect the router with a network cable with the configuration PC. 
     | • Use the “P1” interface on the router.  
     | • Click the “Transfer to module” icon in the menu bar (1).  
     | • A connection to the SCALANCE S602 is established. Start the download with the “Start” button. |

9. Thus, the configuration of the router is completed.

**Note**
Please note that a “secure communication” does **not** exist for this configuration. Once you have established a connection between the individual nodes you should implement a “secure communication”. For this purpose, refer to the respective manuals or the existing applications on this topic.
3.7 Notes for Windows 10 operating system

With Windows 10, version 1709, the sharing of folders has changed.

SIMATIC operator panels with Windows CE operating system use the "SMB protocol" for file access to shared folders.

As of Windows 10, version 1709, the "SMB protocol" was disabled by default on the PCs.

As a result of this measure, operator panels that use the "SMB protocol" can no longer access shared folders.

Please refer to the Microsoft support pages for detailed information on this action.

Remedy

By disabling the SMB protocol, Microsoft has, among other things, fixed a vulnerability for the Windows 10 operating system.

You can undo this action manually.

---

CAUTION

Before you reenable the "SMB protocol", check the Microsoft support pages to find out what effects enabling the "SMB protocol" may have on your system.

---

Enabling SMP protocol (Windows 10 operating system)

- Open the "Settings".
- Open the "Apps" (1). The "Apps & features" page opens (2).
- Via the "Program & Features" page, open the "Apps & features" function (3). The "Uninstall or change a program" window opens.

Figure 3-2

- On the "Uninstall or change a program" page, select the "Enable or disable Windows feature" function (4). The "Windows Feature" window opens up.

- In the "Windows Features" window enable the option (5).
  - "SMB Direct".
3 Basics

3.7 Notes for Windows 10 operating system

- "SMB 1.0/CIFS File sharing Support".
  - Click on "OK" to confirm your entry.

Thus, the settings regarding "SMB protocol" are completed. Access to a shared folder is possible again.

**Figure 3.3**

![Image showing the Windows Features settings with SMB 1.0/CIFS File sharing Support checked and the option to turn it on or off marked with arrows and numbers 4 and 5.]
4 Configuration and Settings

The individual configurations are listed and described in chapter 1.2.

To understand this chapter, it is necessary that you are familiar with the functions described in chapter 3 "Basics".

4.1 Configuration 1

**Note**
Please observe that all nodes are located in the same subnet.

**Overview picture**

The overview picture shows the most important settings and the addresses used.

Figure 4-1

```
IP address: 172.16.34.10
Subnet: 255.255.0.0
IP address: 172.16.34.20
Subnet: 255.255.0.0
IP address: 172.16.34.30
Subnet: 255.255.0.0
```

- **PC 1**
  - Enable static IP address
  - NetBIOS enabled via TCP/IP
  - File storage: Archive 1 \H:\HHPC\ArchiveData\DataFiles
  - Logon: User Name: HH, Password: 123
  - Control Panel > Network ID
  - Logon data for the PC is stored by default in the panel

- **PC 2**
  - Static IP address
  - NetBIOS enabled via TCP/IP
  - File storage: Archive 2 \TEST-PC\ArchiveData\DataFiles
  - Logon: User Name: AA, Password: 456

- **Printer**
  - Printer setting on the panel
  - Printer Language: PCL Laser
  - Port: PrintServer
  - IP Port: 172.16.34.30:9100

- **Network**
  - IP address: 172.16.34.100
  - Subnet: 255.255.0.0
WinCC (TIA Portal), settings in the HMI configuration

Only settings that are necessary for implementing the configuration are described.

Table 4-1

<table>
<thead>
<tr>
<th>No.</th>
<th>Network settings</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Action</td>
</tr>
<tr>
<td></td>
<td>Open the device configuration of the comfort panel and go to the &quot;Device view&quot;.</td>
</tr>
<tr>
<td></td>
<td>Select the Ethernet interface of the operator panel.</td>
</tr>
<tr>
<td></td>
<td>Enter the &quot;IP address&quot; provided for the operator panel and the &quot;Subnet mask&quot;.</td>
</tr>
</tbody>
</table>

In reference to the example:
- IP address: 172.16.34.100
- Subnet mask: 255.255.0.0

2. Storage path of archives

- Open the "Data logs" folder via the project navigation.
- Enter the storage location of the archive in "Path". The name of the path name consists of "\Computer name\share name\file folder".

In reference to the example
- \HHPC\ArchiveData\DataFiles => File storage on PC1
- \TEST-PC\ArchiveData\DataFiles => File storage on PC2

The screenshot below shows the configured logs with the specified path.
4 Configuration and Settings

4.1 Configuration 1

**Settings on the PC**

Table 4-2

<table>
<thead>
<tr>
<th>No.</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td><strong>Network and Sharing center</strong> (details see chapter 3.1.1)</td>
</tr>
</tbody>
</table>
|     | • Open the adapter settings.  
|     | • Enter the "IP address" provided for the PC and the "Subnet mask".  
|     | • Then click on the "Advanced…" button. |

**In reference to the example:**  
IP address 172.16.34.10  
Subnet mask 255.255.0.0

2. • Open the "WINS" tab (1).  
• Enable the "Default: Use NetBIOS setting from the DHCP server…" radio button (2).  
• To close the window, confirm the entry with "OK".

3. • Perform the settings on each PC onto which the panel is to archive (log) the panel data.
4 Configuration and Settings

4.1 Configuration 1

<table>
<thead>
<tr>
<th>No.</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.</td>
<td>Share drive (details see Basics chapter 3.2)</td>
</tr>
<tr>
<td></td>
<td>• Share a drive or folder on each PC onto which the log data is to be archived by the panel. The share name used incl. the computer name makes up the path in which the configuration is stored by the panel.</td>
</tr>
</tbody>
</table>

The screen shot below shows the configured archive with the specified path. 
\(\backslash\)Computer name\Share name\File folder

In reference to the example
\(\backslash\)HHPC\ArchiveData\DataFiles

View of the generated CSV file in the Windows Explorer.

Note
The folder with the name "DataExchange" has the share name "ArchiveData" (the share name has nothing to do with the actual name of the folder).

5. Setting up printer (details see Basics chapter 3.3) |
|     | • Setup your network printer. |
Settings on the panel

Table 4-3

<table>
<thead>
<tr>
<th>No.</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td><strong>Network configuration</strong> (details see Basics chapter 3.1.2)</td>
</tr>
<tr>
<td></td>
<td>• Enter the &quot;IP address&quot; provided for the panel and the &quot;Subnet mask&quot;.</td>
</tr>
<tr>
<td></td>
<td>• Confirm the entries with &quot;OK&quot;.</td>
</tr>
<tr>
<td></td>
<td><strong>In reference to the example:</strong></td>
</tr>
<tr>
<td></td>
<td>IP address 172.16.34.100</td>
</tr>
<tr>
<td></td>
<td>Subnet mask 255.255.0.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Owner Properties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Network ID</td>
</tr>
<tr>
<td>User name</td>
</tr>
<tr>
<td>HH</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>No.</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.</td>
<td><strong>PC logon data</strong> (details see Basics chapter 3.5)</td>
</tr>
<tr>
<td></td>
<td>Store the PC logon data (optional).</td>
</tr>
<tr>
<td></td>
<td>• Open the &quot;Network ID&quot; dialog with the &quot;Network ID&quot; icon and enter the logon data for the appropriate PCs.</td>
</tr>
<tr>
<td></td>
<td><strong>In reference to the example:</strong></td>
</tr>
<tr>
<td></td>
<td>PC1: User name: HH</td>
</tr>
<tr>
<td></td>
<td>Password: 123</td>
</tr>
<tr>
<td></td>
<td>PC2: User name: AA</td>
</tr>
<tr>
<td></td>
<td>Password: 456</td>
</tr>
</tbody>
</table>
4 Configuration and Settings

4.1 Configuration 1

<table>
<thead>
<tr>
<th>No.</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.</td>
<td><strong>Printer settings</strong> (details see Basics chapter 3.4.3)</td>
</tr>
</tbody>
</table>

- Open the printer settings via the "Printer" icon and make the respective settings.

With regard to the example, a printer with integrated printer server was used.

![Printer settings configuration](image)
4.2 Configuration 2

Note
Please observe that all nodes are each located in the same subnet.
- Office Network: PC/Printer
- Factory Network: Panels

Overview picture
The overview picture shows the most important settings and the addresses used.

Figure 4-2

<table>
<thead>
<tr>
<th>Node</th>
<th>IP Address</th>
<th>Subnet</th>
<th>Gateway</th>
</tr>
</thead>
<tbody>
<tr>
<td>PC 1</td>
<td>172.16.34.10</td>
<td>255.255.0.0</td>
<td>172.16.34.80</td>
</tr>
<tr>
<td>PC 2</td>
<td>172.16.34.20</td>
<td>255.255.0.0</td>
<td>172.16.34.80</td>
</tr>
<tr>
<td>Panel 1</td>
<td>182.168.10.10</td>
<td>255.255.255.0</td>
<td>182.168.10.10</td>
</tr>
<tr>
<td>Panel 2</td>
<td>182.168.10.140</td>
<td>255.255.255.0</td>
<td>182.168.10.10</td>
</tr>
</tbody>
</table>

Logon
User Name: HH
Password: 123

Printer setting on Panel
Printer Language: PCL Laser
Port: PrintServer
IP Port: 172.16.34.30:9100

Gateway settings:
- Router, channel 1 (Gateway address 1)
  IP address: 172.16.34.80
  Subnet: 255.255.0.0
- Router, channel 2 (Gateway address 2)
  IP address: 182.168.10.10
  Subnet: 255.255.255.0
Settings in the HMI configuration

Only settings that are necessary for implementing the configuration are described.

Table 4-4

<table>
<thead>
<tr>
<th>No.</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.</td>
<td>Network settings</td>
</tr>
</tbody>
</table>

- Open the device configuration of the comfort panel and go to the “Device view”.
- Select the Ethernet interface of the operator panel.
- Enter the provided “IP address”, “Subnet mask” and the 2nd gateway address of the router for the operator panel (1).

**Note**
Details on the router configuration see Link

**In reference to the example:**
- IP address: 182.168.10.100
- Subnet mask: 255.255.255.0
- Router Address: 182.168.10.10 (channel 2)
5. **Storage path of archives**

- Open the "Data logs" folder via the project navigation.
- Enter the storage location of the archive in "Path". The name of the path name consists of 
  \"Computer name\share name\file folder\".

**In reference to the example**

\"HHPC\ArchiveData\DataFiles\" => File storage on PC1

The screen shot below shows the configured logs with the specified path.

**Note**

File storage on a second PC (PC2) is also possible. For this purpose, see the description under the following [link](#).
Settings on the PC

Table 4-5

<table>
<thead>
<tr>
<th>No.</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.</td>
<td><strong>Network and Sharing center</strong> (details see chapter 3.1.1)</td>
</tr>
<tr>
<td></td>
<td>• Open the adapter settings.</td>
</tr>
<tr>
<td></td>
<td>• Enter the provided “IP address”, “Subnet mask” and the 1st gateway address of the router for the operator panel (1).</td>
</tr>
<tr>
<td></td>
<td>• Then click on the “Advanced…” button.</td>
</tr>
</tbody>
</table>

**Note**
Details on the router configuration see Link

In reference to the example:
- IP address 172.16.34.10
- Subnet mask 255.255.0.0
- Default gateway 172.16.34.80 (channel 1)

[Diagram of Network and Sharing center properties]

7.  • Open the "WINS" tab (1).
    • Enable the "Default: Use NetBIOS setting from the DHCP server…” radio button (2).
    • To close the window, confirm the entry with "OK".

[Diagram of Advanced TCP/IP settings]
4 Configuration and Settings

4.2 Configuration 2

<table>
<thead>
<tr>
<th>No.</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.</td>
<td>Share drive (details see Basics chapter 3.2)</td>
</tr>
</tbody>
</table>

- Share a drive or folder on the PC. The share name used incl. the computer name makes up the path in which the HMI configuration is stored with the archives.

**Note**
The folder with the name “DataExchange” (1) has the share name “ArchiveData” (the share name has nothing to do with the actual name of the folder).

The screenshot below shows the HMI configuration with the configured archive and the path. \Computer name\Share name\File folder

In reference to the example

\HHPC\ArchiveData\DataFiles

**Note**
File storage on several PCs (PC2, PCx) is possible.
4 Configuration and Settings

4.2 Configuration 2

<table>
<thead>
<tr>
<th>No.</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.</td>
<td>Setting up printer (details see Basics chapter 3.3)</td>
</tr>
<tr>
<td></td>
<td>• Setup your network printer.</td>
</tr>
</tbody>
</table>

Settings on the panel

Table 4-6

<table>
<thead>
<tr>
<th>No.</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Network configuration (details see Basics chapter 3.1.2)</td>
</tr>
<tr>
<td></td>
<td>• Enter the provided &quot;IP address&quot;, &quot;Subnet mask&quot; as well as the 2nd gateway address of the router for the panel (1).</td>
</tr>
<tr>
<td></td>
<td>• Then click on the “Name Servers” button.</td>
</tr>
</tbody>
</table>

Note
Details on the router configuration see Link

In reference to the example:
IP address 182.168.10.100
Subnet mask 255.255.255.0
Default Gateway 182.168.10.10 (channel 2)
### 4.2 Configuration 2

#### No. | Action
--- | ---
2. | • Enter the IP address of the PC in "Primary WINS:" in which the archives are to be saved.
   • Confirm the entries with "OK".

**Note**
You can enter the IP address of a "2nd PC" in "Secondary WINS" (1). You can therefore use two different "locations" for the data to be archived (Link).

![Configuration and Settings](image)

3. | **PC logon data** (details see Basics chapter 3.5)

Store the PC logon data (optional).

- Open the "Network ID" dialog with the "Network ID" icon and enter the logon data for the PC.

**In reference to the example:**
PC1: User name: HH  
Password: 123

![Owner Properties](image)

**Note**
If you have stored the address for a 2nd PC in the Network configuration in "Secondary WINS", you can also enter this logon data here.
### 4 Configuration and Settings

#### 4.2 Configuration 2

<table>
<thead>
<tr>
<th>No.</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.</td>
<td><strong>Printer settings</strong> (details see Basics chapter 3.4.3)</td>
</tr>
<tr>
<td></td>
<td>- Open the printer settings via the “Printer” icon and make the respective settings.</td>
</tr>
<tr>
<td></td>
<td>With regard to the example, a printer with integrated printer server was used.</td>
</tr>
</tbody>
</table>

**Printer Properties**

<table>
<thead>
<tr>
<th>Printer Language</th>
<th>Port</th>
<th>IP:Port</th>
<th>Paper Size</th>
<th>Orientation</th>
<th>Draft Mode</th>
<th>Color</th>
<th>CMY</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCL Laser</td>
<td>PrintServer:</td>
<td>172.16.34.9100</td>
<td>A4</td>
<td>Portrait</td>
<td>✔️</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

**Other hardware**

#### Table 4-7

<table>
<thead>
<tr>
<th>No.</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.</td>
<td><strong>Router</strong> (details see Basics chapter 3.6)</td>
</tr>
<tr>
<td></td>
<td>Two channels are configured on the router used.</td>
</tr>
<tr>
<td></td>
<td>- Channel 1: Connection to the “Office Network”</td>
</tr>
<tr>
<td></td>
<td>- Channel 2: Connection to the “Factory Network”</td>
</tr>
</tbody>
</table>

**In reference to the example:**

**Channel 1**

<table>
<thead>
<tr>
<th>IP address</th>
<th>Subnet mask</th>
</tr>
</thead>
<tbody>
<tr>
<td>172.16.34.80</td>
<td>255.255.0.0</td>
</tr>
</tbody>
</table>

**Channel 2**

<table>
<thead>
<tr>
<th>IP address</th>
<th>Subnet mask</th>
</tr>
</thead>
<tbody>
<tr>
<td>182.168.10.10</td>
<td>255.255.255.0</td>
</tr>
</tbody>
</table>

**Note**

For all nodes that exchange data between the two networks, the following address has to be specified apart from the IP address and the subnet mask in the “Default gateway” item.

- Node in “**Office Network**”.
  - The IP address of **Channel 1** of the router.
- Node in “**Factory Network**”.
  - The IP address of **Channel 2** of the router.
4.3 Configuration 3

Short description

For configuration 3 a **WINS Server** is used that has a static IP address.

**Note**

How to configure a WINS server is not part of this documentation. For information on this topic, please refer to technical literature.

When a "WINS Client" is started (e.g. PC1), this PC sends its IP address and its computer name to the WINS server. The WINS server enters this information in a database.

The figure shows an extract from the database of the WINS server configuration.

Figure 4-3

With the start of panel runtime, the panel sends a "request" to the WINS server. The WINS server checks the requested "computer name" in its database and passes the "request" on to the IP address which is stored next to the computer name.

In the HMI configuration, e.g. for the path details for the archives, it is not the IP address that is specified but the **computer name**.

=> \**Computer name*:\Share name...
Overview picture

The overview picture shows the most important settings and the addresses used.

Note

Please observe that all nodes are each located in the same subnet.
- Office Network: PC/Printer
- Factory Network: Panels

Figure 4-4

- **IP address**: 172.16.34.1
  - **Subnet**: 255.255.0.0
  - **Gateway**: 172.16.34.80

- **PC 1**
  - **Gateway**: Router IP address channel 1
    - Default: Use NetBIOS settings…

- **PC 2**
  - **Gateway**: Router IP address channel 1
    - Default: Use NetBIOS settings…

- **WINS Server** (Office Network)
- **Panel 1**
  - **Primary WINS**: IP address of WINS Server
    - **IP address**: 182.168.10.100
    - **Subnet**: 255.255.255.0
    - **Gateway**: 182.168.10.10

- **Panel 2**
  - **Primary WINS**: IP address of WINS Server
    - **IP address**: 182.168.10.140
    - **Subnet**: 255.255.255.0
    - **Gateway**: 182.168.10.10

- **Printer setting on Panel**
  - **Printer Language**: PCL Laser
  - **Port**: PrintServer
  - **IP Port**: 172.16.34.30:9100

- **Gateway, channel 1** (Gateway address 1)
  - **IP address**: 172.16.34.80
  - **Subnet**: 255.255.0.0

- **Gateway, channel 2** (Gateway address 2)
  - **IP address**: 182.168.10.10
  - **Subnet**: 255.255.0.0

- **Logon**
  - **User Name**: HH
  - **Password**: 123

- **File storage: Archive 1**
  - \HP\ArchiveData\DataFiles

- **File storage: Archive 2**
  - \TESTPC\ArchiveData\DataFiles

- **Router**
  - **Port Number**: 9100

- **Factory Network**
Settings in the HMI configuration

Only settings that are necessary for implementing the configuration are described.

Table 4-8

<table>
<thead>
<tr>
<th>No.</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td><strong>Network settings</strong></td>
</tr>
</tbody>
</table>

- Open the device configuration of the comfort panel and go to the "Device view".
- Select the Ethernet interface of the operator panel.
- Enter the provided "IP address", "Subnet mask" and the 2nd gateway address of the router for the operator panel (1).

**Note**
Details on the router configuration see [Link](#)

**In reference to the example:**

<table>
<thead>
<tr>
<th>IP address</th>
<th>Subnet mask</th>
<th>Router Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>182.168.10.100</td>
<td>255.255.255.0</td>
<td>182.168.10.10 (channel 2)</td>
</tr>
</tbody>
</table>
### 4.3 Configuration 3

<table>
<thead>
<tr>
<th>No.</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.</td>
<td><strong>Storage path of archives</strong></td>
</tr>
</tbody>
</table>

- Open the "Data logs" folder via the project navigation.
- Enter the storage location of the archive in "Path". The name of the path name consists of 
  `\Computer name\share name\file folder`.

**In reference to the example**

`\HHPC\ArchiveData\DataFiles` => File storage on PC1

The screen shot below shows the configured logs with the specified path.

![Data logs screenshot]

**Note**

File storage on several PCs (PC2, PCx) is also possible.

![Data logs screenshot with multiple paths]
4 Configuration and Settings

4.3 Configuration 3

Settings on the PC

Table 4-9

<table>
<thead>
<tr>
<th>No.</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td><strong>Network and Sharing center</strong> (details see chapter 3.1.1)</td>
</tr>
</tbody>
</table>

- Open the adapter settings.
- Enter the provided "IP address", "Subnet mask" and the 1st gateway address of the router for the operator panel (1).
- Then click on the "Advanced..." button.

**Note**
Details on the router configuration see Link

**In reference to the example:**
- IP address: 172.16.34.10
- Subnet mask: 255.255.0.0
- Default gateway: 172.16.34.80 (channel 1)
### 4 Configuration and Settings

#### 4.3 Configuration 3

<table>
<thead>
<tr>
<th>No.</th>
<th>Action</th>
</tr>
</thead>
</table>
| 2.  | • Open the "WINS" tab (1).  
• Then click on the "Add…" button (2).  
• Enter the IP address of the WINS server. Confirm the entry via the "Add" button (3).  
• Enable the "Default: NetBIOS from the DHCP server…" radio button (4). |

![Diagram showing steps 1 to 4 for configuring WINS server]

| 3.  | • Open the "WINS" tab (1).  
• Then click on the "Add…" button (2).  
• Enter the IP address of the WINS server. Confirm the entry via the "Add" button (3).  
• To close the window, confirm the entry with "OK". |

![Diagram showing steps 1 to 3 for configuring DNS server]
4.3 Configuration 3

<table>
<thead>
<tr>
<th>No.</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.</td>
<td><strong>Share drive</strong> <em>(details see Basics chapter 3.2)</em></td>
</tr>
</tbody>
</table>

- Share a drive or folder on the PC. The share name used incl. the computer name makes up the path in which the HMI configuration is stored with the archives.

**Note**
The folder with the name "DataExchange" (1) has the share name "ArchiveData" (the share name has nothing to do with the actual name of the folder).

```
\Computer name\Share name\File folder
```

**In reference to the example**
```
\HHPC\ArchiveData\DataFiles
```

**Note**
File storage on several PCs *(PC2, PCx)* is possible.
4 Configuration and Settings

4.3 Configuration 3

Settings on the panel

Table 4-10

<table>
<thead>
<tr>
<th>No.</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.</td>
<td><strong>Setting up printer</strong> (details see Basics chapter 3.3)</td>
</tr>
<tr>
<td></td>
<td>• Setup your network printer.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>No.</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.</td>
<td><strong>Network configuration</strong> (details see Basics chapter 3.1.2)</td>
</tr>
<tr>
<td></td>
<td>• Enter the provided &quot;IP address&quot;, &quot;Subnet mask&quot; as well as the 2nd gateway address of the router for the panel (1).</td>
</tr>
<tr>
<td></td>
<td>• Then click on the “Name Servers” button.</td>
</tr>
</tbody>
</table>

**Note**
Details on the router configuration see [Link](#)

**In reference to the example:**
- IP address 182.168.10.100
- Subnet mask 255.255.255.0
- Default Gateway 182.168.10.10 (channel 2)
## 4 Configuration and Settings
### 4.3 Configuration 3

<table>
<thead>
<tr>
<th>No.</th>
<th>Action</th>
</tr>
</thead>
</table>
| 7.  | • Enter the IP address of the **WINS server** in "Primary WINS:".  
• Confirm the entries with "OK".  

**Note**  
The panel connects through the stored IP address in "Primary WINS" with the "WINS Server". By selecting the definition of the path specification with the archives `\Computer name\Share name\File folder`, the "WINS Server" knows to which PC the archives have to be forwarded (link). |
| 8.  | **PC logon data** (details see Basics chapter 3.5)  
Store the PC logon data (optional).  

• Open the "Network ID" dialog with the "Network ID" icon and enter the logon data for the PC.  

**In reference to the example:**  
PC1: User name: HH  
Password: 123  

**Note**  
Here, you can enter the logon data of several PCs. |
4 Configuration and Settings

4.3 Configuration 3

9. **Printer settings** (details see Basics chapter 3.4.3)
   - Open the printer settings via the “Printer” icon and make the respective settings.

With regard to the example, a printer with integrated printer server was used.

![Printer Properties](image)

**Other hardware**

Table 4-11

<table>
<thead>
<tr>
<th>No.</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td><strong>Router</strong> (details see Basics chapter 3.6)</td>
</tr>
</tbody>
</table>

Two channels are configured on the router used.
- Channel 1: Connection to the “Office Network”
- Channel 2: Connection to the “Factory Network”

**In reference to the example:**
Channel 1
- IP address: 172.16.34.80
- Subnet mask: 255.255.0.0

Channel 2
- IP address: 182.168.10.10
- Subnet mask: 255.255.255.0

**Note**
For all nodes that exchange data between the two networks, the following address has to be specified apart from the IP address and the subnet mask in the “Default gateway” item.
- Node in “Office Network”.
  - The IP address of Channel 1 of the router.
- Node in “Factory Network”.
  - The IP address of Channel 2 of the router.
4.4 Configuration 4

Short description

For configuration 4 an IP address is automatically assigned to the individual PCs via a DHCP server.

The following figure shows the adapter settings of "PC2" as an example.

Figure 4-5

On another PC a MS Windows 2008 Server operating system is used on which a WINS server and a DNS server are additionally installed.

The WINS server supports the "name resolution" for the communication between PCs and operator panels.

Note

More information regarding the topic "DNS server" can be found under entry ID 78346833

The figure below shows an extract from the database of the WINS server configuration.

⇒ Computer name of "PC2" (TESTPC) with assigned IP address (172.16.82.10) and the address of the DHCP server (172.16.34.200).

Figure 4-6
**Overview picture**

The overview picture shows the most important settings and the addresses used. Due to lack of space the "DHCP server" is not displayed in the picture.
Settings in the HMI configuration

Only settings that are necessary for the configuration are described.

Table 4-12

<table>
<thead>
<tr>
<th>No.</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Network settings</td>
</tr>
<tr>
<td></td>
<td>• Open the device configuration of the comfort panel and go to the “Device view”.</td>
</tr>
<tr>
<td></td>
<td>• Select the Ethernet interface of the operator panel.</td>
</tr>
<tr>
<td></td>
<td>• Enter the provided “IP address”, “Subnet mask” and the 2nd gateway address of the router for the operator panel (1).</td>
</tr>
</tbody>
</table>

**Note**
Details on the router configuration see Link

In reference to the example:
- IP address: 182.168.10.100
- Subnet mask: 255.255.255.0
- Router Address: 182.168.10.10 (channel 2)
## 4.4 Configuration 4

### Storage path of archives

- Open the "Data logs" folder via the project navigation.
- Enter the storage location of the archive in "Path". The name of the path name consists of 
  `\Computer name\share name\file folder`.

**In reference to the example**

\HHPC\ArchiveData\DataFiles => File storage on PC1

The screenshot below shows the configured logs with the specified path.

<table>
<thead>
<tr>
<th>No.</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.</td>
<td>Storage path of archives</td>
</tr>
</tbody>
</table>

#### Note

File storage on several PCs (PC2, PCx) is also possible.

![Screenshot of configured logs with specified path](image-url)
## Settings on the PC

### Table 4-13

<table>
<thead>
<tr>
<th>No.</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td><strong>Network and Sharing center</strong> <em>(details see chapter 3.1.1)</em></td>
</tr>
</tbody>
</table>

- Open the adapter settings.
- Select the "Obtain an IP address automatically" radio button (1).
- Click on "OK" to acknowledge the selection.

**Note**

All necessary settings are managed via the DHCP server and are automatically transferred to the PCs during restart. Amongst others, these include IP address, subnet mask and the default gateway.

![Network and Sharing center settings](image)

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2. **Share drive** (details see Basics chapter 3.2)

- Share a drive or folder on the PC.
  The share name used incl. the computer name makes up the path in which the HMI configuration is stored with the archives.

**Note**
The folder with the name “DataExchange” (1) has the share name “ArchiveData” (the share name has nothing to do with the actual name of the folder).

The screen shot below shows the HMI configuration with the configured archive and the path.

In reference to the example

\HHPC\ArchiveData\DataFiles

**Note**
File storage on several PCs (PC2, PCx) is possible.
4 Configuration and Settings

4.4 Configuration 4

### Settings on the panel

<table>
<thead>
<tr>
<th>No.</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.</td>
<td><strong>Setting up printer</strong> (details see Basics chapter 3.3)</td>
</tr>
<tr>
<td></td>
<td>• Setup your network printer.</td>
</tr>
</tbody>
</table>

**Note**
The printer is always assigned static IP address.

#### Table 4-14

<table>
<thead>
<tr>
<th>No.</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td><strong>Network configuration</strong> (details see Basics chapter 3.1.2)</td>
</tr>
<tr>
<td></td>
<td>• Enter the provided &quot;IP address&quot;, “Subnet mask” as well as the 2nd gateway address of the router for the panel (1).</td>
</tr>
<tr>
<td></td>
<td>• Then click on the &quot;Name Servers&quot; button.</td>
</tr>
</tbody>
</table>

**Note**
Details on the router configuration see Link

**In reference to the example:**

- **IP address**: 182.168.10.100
- **Subnet mask**: 255.255.255.0
- **Default Gateway**: 182.168.10.10 (channel 2)
2. • Enter the IP address of the **DNS/WINS server** in "Primary WINS:.".
• Confirm the entries with "OK".

**Note**
The panel connects with the "DNS/WINS Server" through the stored IP address in "Primary WINS". By selecting the definition of the path specification with the archives \**Computer name*|**Share name**|**File folder**), the "DNS/WINS Server" knows to which PC the archives have to be forwarded (link).

![Network ID settings](image)

3. **PC logon data** (details see Basics chapter 3.5)

Store the PC logon data (optional).

- Open the "Network ID" dialog with the "Network ID" icon and enter the logon data for the "PCs" on which the panel is to archive the data.

**In reference to the example:**

PC1: User name: HH
   Password: 123

PC2: User name: AA
   Password: 456

![Owner properties](image)

**Note**
Here, you can enter the logon data of several PCs.
4.4 Configuration 4

<table>
<thead>
<tr>
<th>No.</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.</td>
<td><strong>Printer settings</strong> (details see Basics chapter 3.4.3)</td>
</tr>
</tbody>
</table>

- Open the printer settings via the “Printer” icon and make the respective settings.

With regard to the example, a printer with integrated printer server was used.

![Printer Properties](image)

**Note**

The printer is always assigned a static address.
Other hardware

Table 4-15

<table>
<thead>
<tr>
<th>No.</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.</td>
<td><strong>Router</strong> <em>(details see Basics chapter 3.6)</em></td>
</tr>
</tbody>
</table>

Two channels are configured on the router used.
- Channel 1: Connection to the "Office Network"
- Channel 2: Connection to the "Factory Network"

**In reference to the example:**

**Channel 1**
- IP address: 172.16.34.80
- Subnet mask: 255.255.0.0

**Channel 2**
- IP address: 182.168.10.10
- Subnet mask: 255.255.255.0

**Notes**
- The printer is always assigned a static address.
- For all nodes that exchange data between the two networks, the following address has to be specified apart from the IP address and the subnet mask in the "Default gateway" item.
  - Node in "Office Network".
    - The IP address of **Channel 1** of the router.
  - Node in "Factory Network".
    - The IP address of **Channel 2** of the router.
5 Tips and Help for Error Detection

5.1 Network connection

- Are all network nodes correctly networked?
- Are all network nodes correctly switched on?
- Check the network configuration. Depending on the set configuration, the settings regarding the network configuration may differ greatly.
- When using the router, make sure that you are using the respectively correct "default gateway address" for network nodes.
- Check the individual connections whether you can reach them via "ping".
- Check the stored path in the archives in the HMI configuration.
  - Is the computer name correct?
  - Is the share name correct?
- Settings on the PC
  - Check the computer name used.
  - Is a drive/folder shared?
  - Check the computer name used.
- Open the Windows explorer on the panel. Enter the path in the address line that you have also stored for the archives. The selected PC has to be accessible through it.
- Check whether the PCs can contact each other.

5.2 Archives

- Check the stored path in the HMI configuration.
  - \Computer name\Share name\File folder

  Note
  The file folder must exist.
- Is the computer on which the archives are stored switched on?
- Make sure that the computer on which the archives are stored is switched on and has booted before starting the panel runtime.
- Check the network configuration on the panel.
  - Settings in "Default Gateway".
  - Settings in "Primary WINS".
  - Settings in "Secondary WINS".
- Check the system messages on the panel.
5.3 Miscellaneous

Switch
If a router is used as well as a configurable switch, make sure that the respective router address is also specified for the switch in the network configuration → gateway address.

Printer
If there is a router between the network connection of the panel and the printer, make sure that the respective router address is also specified in the network configuration of the router → gateway address.

Logon dialog (panel)
Depending on the network constellation, you can save the archives on different PCs.
When starting the panel runtime, a logon dialog will always appear.
The time between the individual logon dialogs may have different lengths.

Logon dialog does not appear (panel)
If you are frequently adjusting logon data, it may happen that the logon dialog or the automatic logon no longer works (the new logon data is not recognized). In this case you have to update the operating system (a reset to factory setting is not required).

Curve archive
If you are using a curve archive, you have to consider that initializing the archives may take several seconds.

DHCP server
If the IP addresses are assigned via a DHCP server to the PCs, these addresses only come to effect on the respective PC after a restart.
Please note that by restarting the PC, an existing connection to an operator panel (archiving) will be interrupted. This has to be considered, especially when you want to archive data over a period larger than 24 hours.
Starting the archives

Configure a button each in a picture with the following system function.

- Button 1: Press > StopLogging
- Button 2: Press > OpenAllLogs
- Release > StartLogging

Background

For archiving the data it is important that the PC on which the data is to be saved has completely booted before starting the panel runtime.

If panel runtime was started beforehand, the archiving has to be started manually on the panel.

The same is the case if the network connection between the panel and the PC was interrupted. Once the network connection was reestablished, the archiving on the panel has to be started manually on the panel.

Procedure

- First of all click the "Button 1".
- Then click on the "Button 2".

Temporary loss/failure of the network resource

If the panel archive tries to write to a non-existing network resource, a "CloseAllLogs" and "OpenAllLogs" of the archives has to be performed once the network resource is available again (reinitialization).

6 References

Table 6-1

<table>
<thead>
<tr>
<th>Topic</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>\1\</td>
<td>Siemens Industry Online Support</td>
</tr>
<tr>
<td>\2\</td>
<td>Internet page of the entry</td>
</tr>
<tr>
<td>\3\</td>
<td>FAQ</td>
</tr>
<tr>
<td>\4\</td>
<td>FAQ</td>
</tr>
<tr>
<td>\5\</td>
<td>FAQ</td>
</tr>
<tr>
<td>\6\</td>
<td>FAQ</td>
</tr>
<tr>
<td>\7\</td>
<td>Application</td>
</tr>
<tr>
<td>\8\</td>
<td></td>
</tr>
<tr>
<td>\9\</td>
<td>Application</td>
</tr>
</tbody>
</table>

7 History

Table 7-1

<table>
<thead>
<tr>
<th>Version</th>
<th>Date</th>
<th>Modifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>V1.0</td>
<td>07/2014</td>
<td>First version</td>
</tr>
<tr>
<td>V1.1</td>
<td>01/2015</td>
<td>Note to limited characters for domain name on panel operating system added.</td>
</tr>
<tr>
<td>V1.2</td>
<td>01/2019</td>
<td>Notes about Windows 10</td>
</tr>
</tbody>
</table>