SIMATIC NET

Industrial Ethernet / PROFINET
Primary Setup Tool (PST)

Configuration Manual
Legal information

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This manual contains notices you have to observe in order to ensure your personal safety, as well as to prevent damage to property. The notices referring to your personal safety are highlighted in the manual by a safety alert symbol, notices referring only to property damage have no safety alert symbol. These notices shown below are graded according to the degree of danger.

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indicates that death or severe personal injury will result if proper precautions are not taken.

**WARNING**

indicates that death or severe personal injury may result if proper precautions are not taken.

**CAUTION**

indicates that minor personal injury can result if proper precautions are not taken.

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indicates that property damage can result if proper precautions are not taken.

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Disclaimer of Liability

We have reviewed the contents of this publication to ensure consistency with the hardware and software described. Since variance cannot be precluded entirely, we cannot guarantee full consistency. However, the information in this publication is reviewed regularly and any necessary corrections are included in subsequent editions.
Preface

Content of the documentation

Installation and operation
This document describes the installation and operation of the SIMATIC NET Primary Setup Tool (PST).

Validity of the documentation
This manual applies to the Primary Setup Tool version 4.2.

Primary Setup Tool (PST) on the Internet and on CD
The Primary Setup Tool is available from Siemens Automation and Drives Service & Support on the Internet under the following entry ID:
With some devices, the Primary Setup Tool is included on the data medium (CD / DVD) as part of the product.

SIMATIC NET glossary
Explanations of the specialist terms used in this documentation can be found in the SIMATIC NET glossary.
You will find the SIMATIC NET glossary here:
• SIMATIC NET Manual DVD
  The DVD ships with most SIMATIC NET products.
• On the Internet under the following entry ID:
  50305045 (http://support.automation.siemens.com/WW/view/en/50305045)
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Description

1.1 Properties and functions

Primary Setup Tool (PST) - meaning

With the Primary Setup Tool (PST), you can assign addresses and network parameters to SIMATIC NET network components, Ethernet CPs and gateways.

This allows you to establish basic communication capability of the components on the particular network without other configuration tools.

Functions

Depending on the properties of the addressed components and interfaces, the following functions are available in the PST:

- Basic functions:
  - Browsing for devices with an Ethernet interface
  - Calling up Web Based Management
  - Downloading configurations to the components
  - Using functions via the DOS command line

- Configuration for Ind. Ethernet / PROFINET
  - Settings for IP addresses

- Configuration for PROFIBUS (for devices with Ethernet and PROFIBUS interfaces)
  - Setting the PROFIBUS address
  - PROFIBUS bus parameters

PST provides these functions in a convenient user interface that is described below.

Requirements

- This is only possible if the devices have a preset ETHERNET (MAC) address or an IP address and can be reached online via the network.

- PROFIBUS interfaces can also be configured using PST for modules that also have a reachable Ethernet interface in addition to the PROFIBUS interface.
1.2 Availability and operating systems supported

Supported operating systems

The Primary Setup Tool can be installed and executed under the following operating systems:

- 32-bit operating systems
  - Windows 7 SP1
  - Windows 8.1
- 64-bit operating systems
  - Windows 7 SP1
  - Windows 8.1
  - Windows Server 2008 R2
  - Windows Server 2012 R2
Software installation

Installing PST

Follow the steps below to install the Primary Setup Tool on your computer:

1. In Windows Explorer, double click on the file name setup.exe in the PST_Vx.y directory, or start the program from the Windows Start > Run menu.
2. Then follow the instructions in the installation dialog.
3. The final dialog box informs you of successful installation.
4. After installing PST Vx.y, start PST under Start\SIMATIC\Primary Setup Tool.

Principle

The following components are installed on your PC/PNG:

- Primary Setup Tool
- S7DOS with additional components (VCRedist)
3. User interface and menu commands

3.1 User interface and menu commands

- **Menu bar**
- **Toolbar**
- **Detailed view**
- **Status bar**
  The following is displayed: Number of stations displayed in the tree view / number of stations found / set filter status
- **Tree view - display of the device list**

![User interface diagram](image)

Figure 3-1 User interface

If you select an object in the tree view, the detailed view displays further information on this object.
### Menu bar

Below you will find an overview of the available menu commands and their meaning.

<table>
<thead>
<tr>
<th>Menu command</th>
<th>Meaning / remark</th>
<th>Shortcut</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Network ➤…</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Browse</td>
<td>Browses the network for devices with an Ethernet interface. The first time it is called up, the device list is created in the tree view. If you use the menu command again, the behavior set with the menu command Options &gt; Retain Found Stations takes effect.</td>
<td>F5</td>
</tr>
<tr>
<td>Exit</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Module ➤…</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Download</td>
<td>Downloads the configuration data to the module</td>
<td></td>
</tr>
<tr>
<td>Start INC Browser</td>
<td>Starts Web Based Management of a selected station / module</td>
<td></td>
</tr>
<tr>
<td>Remove Module</td>
<td>Removes a device from the tree view</td>
<td></td>
</tr>
<tr>
<td>Assign Device Name</td>
<td>Assigns/changes the name of a device (assuming that the selected device supports this function)</td>
<td></td>
</tr>
<tr>
<td>Flash</td>
<td>Makes the port LEDs of a selected module flash (to localize the module)</td>
<td></td>
</tr>
<tr>
<td>Update (R)</td>
<td>Queries the device data in the tree view again only for the currently selected station.</td>
<td></td>
</tr>
<tr>
<td>Reset</td>
<td>Resets a selected device to the factory settings</td>
<td></td>
</tr>
<tr>
<td><strong>Settings ➤…</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Set PG/PC Interface...</td>
<td>Selects the network adapter for access</td>
<td></td>
</tr>
<tr>
<td>Language</td>
<td>Selects the user interface language of the Primary Setup Tool (this requires the Primary Setup Tool to be restarted)</td>
<td></td>
</tr>
<tr>
<td>Select Filter... (F)</td>
<td>Selects a filter for displaying the stations found</td>
<td></td>
</tr>
<tr>
<td><strong>Options ➤…</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retain Found Stations</td>
<td>Configures the display mode for the menu command Network &gt; Browse</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Option is disabled (default)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• The device list in the tree view always recreated.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Option enabled</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Newly found stations are added to the device list in the tree view; newly found stations are highlighted. Less stations are then found in later browse actions.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Stations that are no longer found during the search remain in the device list</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Note the status bar with both settings:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• &quot;Displayed stations&quot; specifies the number of stations in the tree view.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• &quot;Stations found&quot; relates to the number of stations found the last time the network was browsed.</td>
<td></td>
</tr>
</tbody>
</table>
3.2 Settings for the Primary Setup Tool

Selecting the language

After you start the PST for the first time, a dialog box appears in which you can make the language setting for the program.

You can, however, also set the language later in the Settings > Languages menu.

Selecting the network adapter

If you have installed more than one network adapter in your computer, you can use the Settings > PG/PC Interface menu command to select the adapter that will be used by the PST to access the network. Select an interface parameter assignment for the ISO protocol (recognizable by the name "ISO Ind. Ethernet ..." or "...ISO.x").
3.3 Configuring Ethernet interfaces with the PST

Browsing the network

Before you assign an IP address or a device name with the Primary Setup Tool, you first identify the configurable devices in the network. Follow the steps below to start browsing:

- Select the Network > Browse menu command.
- Press the F5 key.
- Click on the magnifier button in the toolbar below the menu bar.

While the Primary Setup Tool browses the network, the Browse network dialog appears with a progress bar. When it has completed browsing, the Primary Setup Tool displays a list of all the devices it has found in the left-hand window.

Retain Found Stations

Set this option to retain found stations regardless of the availability of the found station in the list of found stations.

These stations are removed when you restart the PST Tool or remove the used network adapter. You can also set a filter to remove found stations which do not match the filter criteria.

Configuring the Ethernet interface of a module

If you click on an entry in the device list, the Primary Setup Tool displays information about the selected device in the detailed view.

You can open the display of the interfaces by clicking on the plus sign or on the device icon. Follow the steps below to configure the Ethernet interface:
1. Click on the interface you want to configure. In the right-hand half of its program window, the Primary Setup Tool opens the dialog in which you set the configuration data. Text boxes or check boxes may be disabled depending on the selections you make. The MAC address box is always disabled, because this address cannot be changed by the Primary Setup Tool.

2. Decide how the device will obtain its IP address:
   - Dynamically from a DHCP server: Select the Obtain IP address from DHCP server option button.
   - Manual assignment by the user: Select the Assign IP parameters option button.

3. Make the remaining settings depending on how the IP address is assigned:
   **IP address from a DHCP server**
   - Specify how the device will be identified by selecting one of the option buttons: MAC address, Device name or Client ID.
   - If you have selected a device name, you can assign or change the device name of a PROFINET device. You can open the relevant dialog box by clicking on the Assign Name button. If devices do not support this function, you will receive a message to this effect if you click the button.
   **Manual assignment of the IP address**
   - Enter a valid IP address for the device in the IP address box.
   - Enter a valid subnet mask in the Subnet mask box.
   - If necessary, put a check mark in the Use router box and enter the IP address for the router the module will use in the input box beside it.
Functions

3.3 Configuring Ethernet interfaces with the PST

Downloading configuration data to the module

To transfer the configuration data to the device, follow the steps below:

1. Select the module to which you want to download the configuration in the tree view. If an interface is selected and the input screen for the configuration data is displayed, it is not possible to download the configuration data.

2. To start the download, follow the steps below:
   - Select the Module > Download menu command.
   - Click the highlighted button in the toolbar.

![Figure 3-2 Button for downloading the configuration data to the module]

Launching Web Based Management

INC (Industrial Network Component) devices, such as a SCALANCE X or SCALANCE W7xx, have Web Based Management. Select the device you want to configure with Web Based Management and follow the steps below to launch Web Based Management:

- Select the Module > Start INC Browser menu command.
- Click the highlighted button in the toolbar (module with four blue wires).

![Figure 3-3 Button for starting Web Based Management]

If the Module > Start INC Browser menu and the module button are disabled, there is no Web Based Management for the selected module.
3.3 Configuring Ethernet interfaces with the PST

Remove Module

You can remove a module from the list in the left part of the program window by selecting the Module > Remove Module menu command. This command has no effect on the existence of a module in the network. The next time you browse the network, all the modules will be shown again.

Changing a device name

If the device supports this function, you can assign a new PROFINET IO device name to the device with the Module > Assign Device Name menu command. The new name is subject to the following constraints:

- The device name must meet the requirements of the Domain Name System (DNS)
- Maximum length 255 characters; minimum length 2 characters (letters, numbers, hyphen, or period).
- A section within the device name, in other words, a string between two periods, must not exceed 63 characters.
- The device name must not start or end with a hyphen.
- The device name must not have the format n.n.n.n (n = 0 to 999).
- The device name must not begin with the string port-xyz-(x,y,z = 0 to 9).
- Umlauts (ä, ö etc.) are not allowed.

Detecting a device

With the Module > Buzz menu command, you can make the port LEDs of the relevant device flash. After selecting this menu command, a dialog opens in which you can start and stop signaling.

The flashing LEDs indicate which device is assigned to a particular list entry in the program window.

Resetting to factory settings

If the device supports this function, you can reset the device to its factory defaults using the Module > Reset menu command.

After the reset, the devices can only be reached using the factory-set MAC address.

Refer to the documentation of the module in question to find out what effect the command will have.
3.4 Configuring PROFIBUS interfaces with the PST

Status displays

The following status displays are available in the PST tool:

- **Yellow question mark in the device list.**
  Appears if no icon is stored for this device.

- **Red exclamation point over the device icon.**
  Appears if an IP address is assigned twice. Both devices are marked in the same way.

See also

User interface and menu commands (Page 11)

3.4 Configuring PROFIBUS interfaces with the PST

PROFIBUS interfaces can also be configured using PST for modules that also have a reachable Ethernet interface in addition to the PROFIBUS interface.

Configuring the PROFIBUS interface of a module

If you click on an entry in the device list, the Primary Setup Tool displays information about the selected device in the detailed view.

You can open the display of the interfaces by clicking on the plus sign or double-clicking on the device icon.

Follow the steps below to configure the PROFIBUS interface:

1. **Browse the network as described in the section Configuring Ethernet interfaces with the PST (Page 14).**

2. **Click on the interface you want to configure.** In the right-hand half of its program window, the Primary Setup Tool opens the dialog in which you set the configuration data. Text boxes or check boxes may be disabled depending on the selections you make.
3. If necessary, set the PROFIBUS parameters:
   - PROFIBUS address
   - Highest (station) PROFIBUS address
   - PROFIBUS bus parameters
   - Bus profile

4. If necessary, set bus parameters; you can open the dialog with the "Bus Parameters..." button.
   Note the selected bus profile; only the setting "User-defined" allows the entry of other settings in addition to the Ttr parameter.

5. To download the configuration data, follow the steps described in the section Configuring Ethernet interfaces with the PST (Page 14).

3.5 Working with filters

The display in the list of found modules can be made clearer using filters.

You can open the Select Filter dialog as follows:

- Menu command Settings > Select Filter.
- Filter icon "F" in the toolbar

You can set the filter type and one or more filters in the Select Filter dialog box.
The list of filters is sorted alphanumerically and the order can be reversed by clicking on one of the column headers.

Procedure

1. Select the required check boxes in the Filter type group box.
2. Select the required entry in the list and click the Add button.
   The selected filter is included in the filter list.
   You can select further filters and enter them in the filter in the same way.
   Example: S7-400
3. Click the OK button.
   The filter(s) is/are now active and the list of "stations found" is displayed according to the filters you selected (check the display in the status bar).
   Note that a default filter takes precedence over the option "Retain Found Stations" (see section Configuring Ethernet interfaces with the PST (Page 14)). Stations which do not meet the set filter criteria are removed from the list of stations found.

3.6 Primary Setup Tool using the command line

Syntax

You can also use the Primary Setup Tool over the command line of a DOS command prompt. The following syntax applies (optional parameters are shown in square brackets):

```
s7wnpstx MAC-Address -DHCP[=client-ID]
s7wnpstx MAC address -RESET
s7wnpstx MAC address IP address [subnet mask router address]
s7wnpstx MAC address -NAME=devicename [Index networkadapter][INC]
```

Note

Notation

Note that entries in the command line are case-sensitive.
Table 3- 1 Command line parameters for the Primary Setup Tool

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAC address</td>
<td>The MAC address of the module. The individual parts of the MAC address are separated either by a colon or a hyphen.</td>
<td></td>
</tr>
<tr>
<td>-DHCP</td>
<td>Specifies that the IP address should be obtained from a DHCP server.</td>
<td></td>
</tr>
<tr>
<td>-DHCPn</td>
<td>Specifies that the IP address should be obtained from a DHCP server.</td>
<td></td>
</tr>
<tr>
<td>client-ID</td>
<td>A unique identifier for the device. If this parameter is not specified, the Primary Setup Tool uses the MAC address as the ID.</td>
<td>Optional</td>
</tr>
<tr>
<td>-RESET</td>
<td>Resetting to factory settings Resets the IP address to 0.0.0.0.</td>
<td></td>
</tr>
<tr>
<td>IP address</td>
<td>The new IP address of the module being configured.</td>
<td></td>
</tr>
<tr>
<td>Subnet mask</td>
<td>The new subnet mask of the module being configured.</td>
<td></td>
</tr>
<tr>
<td>Router address</td>
<td>The new IP address of the default router.</td>
<td>Optional</td>
</tr>
<tr>
<td>-NAME</td>
<td>Parameter for setting a device name.</td>
<td></td>
</tr>
<tr>
<td>Device name</td>
<td>The device name that is assigned to the module. Maximum length 240 characters; minimum length 2 characters (letters, numbers, hyphen, or period).</td>
<td></td>
</tr>
<tr>
<td>INC</td>
<td>Identifier for a network component.</td>
<td>Optional</td>
</tr>
<tr>
<td>-BROWSE</td>
<td>Browses the network for devices with an Ethernet interface. The found devices are output in a list.</td>
<td></td>
</tr>
</tbody>
</table>

Example 1

```
  s7wnpstx 08-00-06-af-e1-43 192.200.100.55 255.255.255.0 192.200.100.02
```

The module with MAC address 08-00-06-af-e1-43 is assigned IP address 192.200.100.55. The subnet mask is 255.255.255.0, the IP address of the router 192.200.100.02.
3.6 Primary Setup Tool using the command line

**Example 2**

```
s7wpstx 08-00-06-af-e1-43 -DHCP=Device1
```

The module with MAC address *08-00-06-af-e1-43* obtains the IP address from a DHCP server. The module is also given the client ID *Device1*. 
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