SIEMENS

SIMATIC NET

Primary Setup Tool (PST)

Configuration Manual

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Preface

Content of the documentation

Installation and operation

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

It also covers the installation of the DLC protocol that the Primary Setup Tool uses for communication with the modules.

Validity of the documentation

This manual applies to the Primary Setup Tool version 4.1.

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:

19440762 (http://support.automation.siemens.com/WW/view/en/19440762)

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)

Table of contents

Description

1

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 XP Professional SP2 and SP3
  - Windows 7 Professional / Ultimate
- 64-bit operating systems
  - Windows 7 Professional / Ultimate SP1
  - Windows Server 2008 Standard Server R2

DCP protocol and DLC protocol

The Primary Setup Tool uses the protocols DCP (Discovery and basic Configuration Protocol) and DLC (Data Link Control) for communication with the modules. The DLC protocol is necessary for devices with older firmware versions.

This includes the following devices:

- CP 443-1 (6GK7 443-1EX10 and 6GK7 443-1EX11)
- Optical/Electrical Switch Module OSM/ESM (6GK1 105…)

The DLC protocol is not supported in 64-bit operating systems. The DLC protocol is not available either in the setup or during operation of the Primary Setup Tool.

Depending of the operating system you are using, remember the following if you want to use the DLC protocol:

- Windows 7 Professional / Ultimate

  The DLC protocol is not included in Windows, but it can be installed and enabled during installation of the PST.
  Hardware requirements: Clock frequency 1 GHz / 1 GB RAM / screen resolution 1024 x 768 / color quality 16 bit

- Windows XP Professional

  The DLC protocol is not included in Windows XP, but it can be installed and enabled during installation of the PST.
  Hardware requirements: Clock frequency 600 MHz / 512 MB RAM / screen resolution 1024 x 768 / color quality 16 bit

Software installation

2

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. If the DLC protocol is not yet installed on the computer, information to this effect is displayed.
   If you confirm this dialog, the DLC protocol is installed on your computer.
   This makes it unnecessary to install the DLC protocol manually.

Note

DLC protocol (optional)

The DLC protocol is only required to access certain older modules. This means it not always necessary to install it.

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4. The final dialog box informs you of successful installation.

5. After installing PST Vx.y, start PST under *Start\SIMATIC\Primary Setup Tool*.

Result

The following components are installed on your PC/PG:

- Primary Setup Tool
- DLC protocol, if you selected this option during installation
- S7DOS with additional components (VCRedist)

Installing the DLC protocol (only with 32-bit operating systems)

Note

If you did not install the DLC protocol when you installed the Primary Setup Tool and want to install it now, double-click on the entry "DLC protocol not installed" in the status bar and follow the instructions.

Functions

3.1 User interface and menu commands
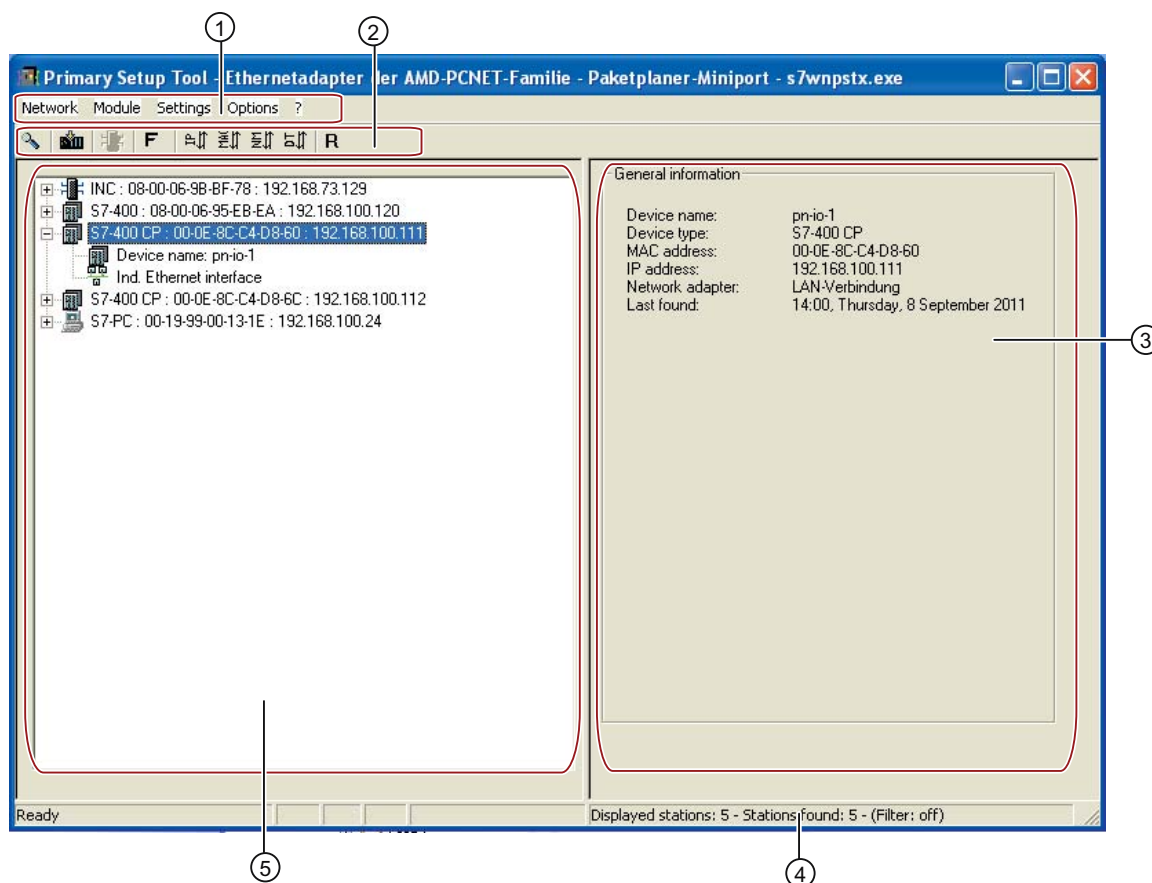
① Menu bar
② Toolbar
③ Detailed view
④ Status bar
   The following is displayed: Number of stations displayed in the tree view / number of stations found / set filter status
⑤ Tree view - display of the device list

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.

Menu command	Meaning / remark	Shortcut
Network ▸…		
Browse	Browses the network for devices with an Ethernet interface	F5
	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 > Retain Found Stations* takes effect.	
Exit		
Module ▸…		
Download	Downloads the configuration data to the module	
Start INC Browser	Starts Web Based Management of a selected station / module	
Remove Module	Removes a device from the tree view	
Assign Device Name	Assigns/changes the name of a device (assuming that the selected device supports this function)	
Flash	Makes the port LEDs of a selected module flash (to localize the module)	
Update (R)	Queries the device data in the tree view again only for the currently selected station.	
Reset	Resets a selected device to the factory settings	
Settings ▸…		
Network adapter	Selects the network adapter for access	
Language	Selects the user interface language of the Primary Setup Tool (this requires the Primary Setup Tool to be restarted)	
Select Filter... (F)	Selects a filter for displaying the stations found	
Options ▸…		
Retain Found Stations	Configures the display mode for the menu command *Network > Browse* • Option is disabled (default) The device list in the tree view always recreated. • Option enabled 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. Stations that are no longer found during the search remain in the device list. Note the status bar with both settings: • "Displayed stations" specifies the number of stations in the tree view. • "Stations found" relates to the number of stations found the last time the network was browsed.	

Menu command		Meaning / remark	Shortcut
	Fast Search	Configures the search mode for the menu command*Network > Browse*	
		• Option enabled (default)	
		The query is limited to obtaining station information.	
		– Advantage: The recreation of the device list is faster.	
		– Disadvantage: Interface information is obtained only after selecting the station.	
		• Option disabled	
		The query obtains station and Interface information.	
		– Advantage: Interface information is available immediately after the station is selected.	
		– Disadvantage: The recreation of the device list takes longer.	
? ►...			
	About...	Information on the Primary Setup Tool	
	Tips...	Opens the "Readme" of the Primary Setup Tool	
	Manual	Opens the manual (PDF file)	

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 > Network Adapter* menu command to select the adapter that will be used by the PST to access the network.

This menu command displays a maximum of 10 network adapters.

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 Tools displays a list of all the devices it has found in the left-hand window.

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.

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.

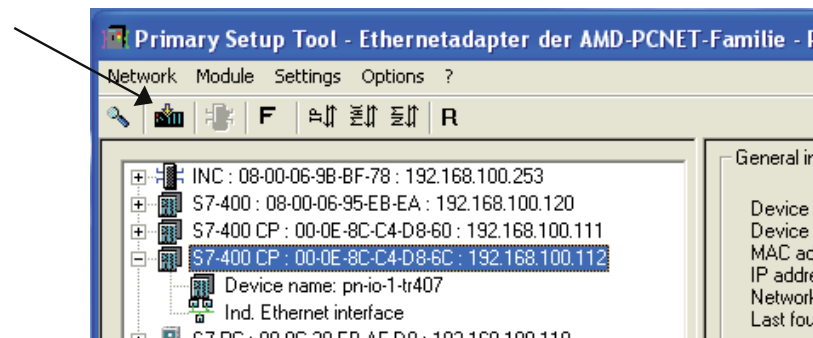   – Click the highlighted button in the toolbar.

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

Launching Web Based Management

INC (**I**ndustrial **N**etwork **C**omponent) 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).
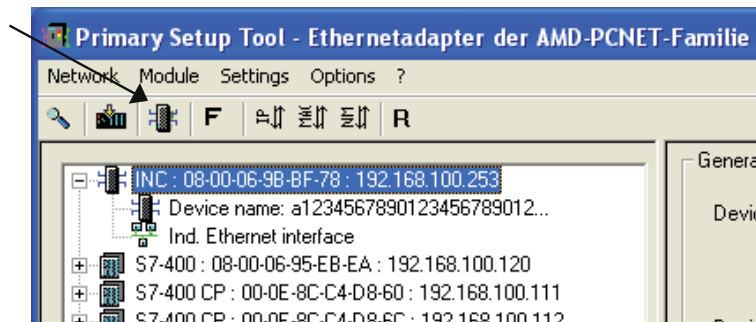

Figure 3-3   Button for starting Web Based Management

If the *Module > Start INC Browser* menu and the module button are disabled, there is no Web Based Management for the selected module.

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 240 characters; minimum length 1 character (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.

Status displays

The following status displays are available in the PST tool:

- "DLC protocol not installed" in the status bar.
  This appears if the DLC protocol is not installed.

  (refer to Auto-Hotspot)

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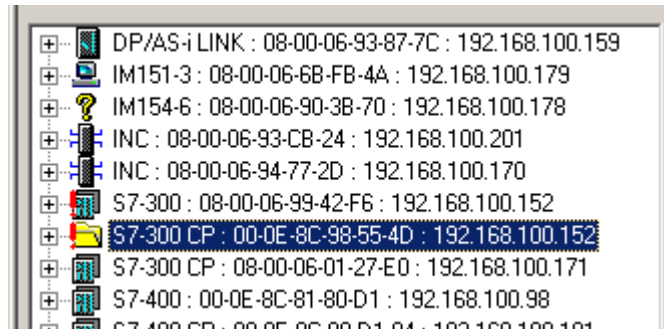 Appears if no icon is stored for this device.

Figure 3-4   Missing device icon and duplicate IP address

- 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 Auto-Hotspot.

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 Auto-Hotspot.

See also

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

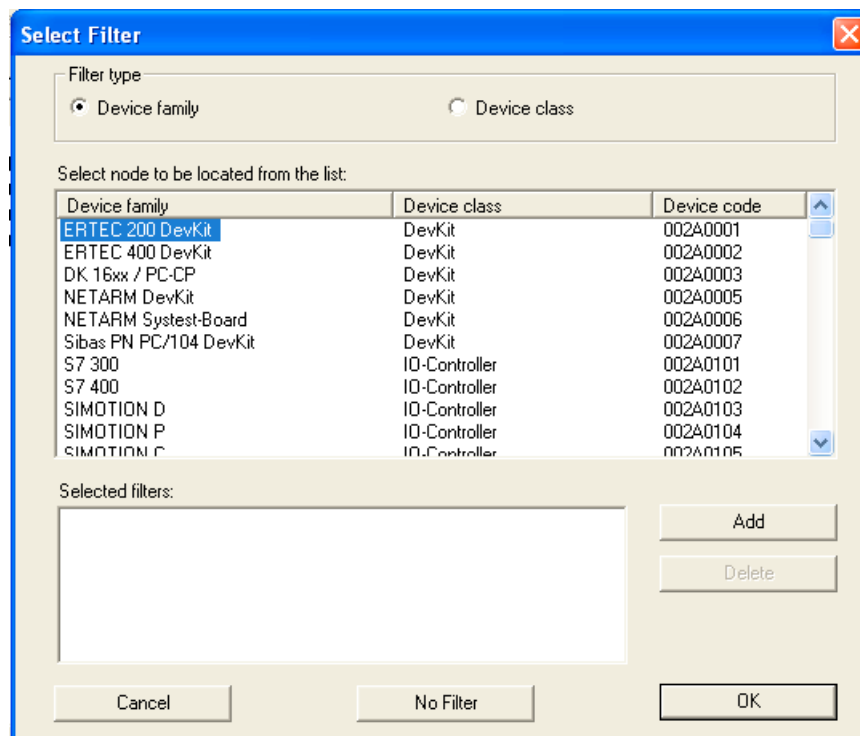You can set the filter type and one or more filters in the *Select Filter* dialog box.

Figure 3-5   Filter selection

The filtered list 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).

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]
```

NOTICE
Notation
Note that entries in the command line are case-sensitive.

Table 3- 1   Command line parameters for the Primary Setup Tool

Parameter	Description	Comment
MAC address	The MAC address of the module. The individual parts of the MAC address are separated either by a colon or a hyphen.	
-DHCP	Specifies that the IP address should be obtained from a DHCP server.	
-DHCPn	Specifies that the IP address should be obtained from a DHCP server. The DHCP server is informed of the device name.	
client-ID	A unique identifier for the device. If this parameter is not specified, the Primary Setup Tool uses the MAC address as the ID.	Optional
-RESET	Resetting to factory settings Resets the IP address to 0.0.0.0.	
IP address	The new IP address of the module being configured.	
Subnet mask	The new subnet mask of the module being configured.	
Router address	The new IP address of the default router.	Optional

Parameter	Description	Comment
`-NAME`	Parameter for setting a device name.	
`Device name`	The device name that is assigned to the module. Maximum length 240 characters; minimum length 1 character (letters, numbers, hyphen, or period).	
`Index network adapter`	The index of the network adapter. The default value is "0".	Optional
`INC`	Identifier for a network component.	Optional
`-BROWSE`	Browses the network for devices with an Ethernet interface. The found devices are output in a list.	

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*.

Example 2

```
s7wnpstx 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*.

Index