

SIEMENS

SIMATIC NET

PG/PC - Industrial Ethernet SOFTNET-IE RNA

Operating Instructions

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Legal information

Warning notice system

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.

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

If more than one degree of danger is present, the warning notice representing the highest degree of danger will be used. A notice warning of injury to persons with a safety alert symbol may also include a warning relating to property damage.

Qualified Personnel

The product/system described in this documentation may be operated only by **personnel qualified** for the specific task in accordance with the relevant documentation, in particular its warning notices and safety instructions. Qualified personnel are those who, based on their training and experience, are capable of identifying risks and avoiding potential hazards when working with these products/systems.

Proper use of Siemens products

Note the following:

⚠ WARNING
Siemens products may only be used for the applications described in the catalog and in the relevant technical documentation. If products and components from other manufacturers are used, these must be recommended or approved by Siemens. Proper transport, storage, installation, assembly, commissioning, operation and maintenance are required to ensure that the products operate safely and without any problems. The permissible ambient conditions must be complied with. The information in the relevant documentation must be observed.

Trademarks

All names identified by ® are registered trademarks of Siemens AG. The remaining trademarks in this publication may be trademarks whose use by third parties for their own purposes could violate the rights of the owner.

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.

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Introduction

SIMATIC NET SOFTNET-IE RNA (Redundant Network Access)

The "SOFTNET-IE RNA" software is part of the SIMATIC NET product family.

The SIMATIC NET family comprises various software and hardware components that complement each other and that are carefully tailored for specific automation tasks.

What is possible with SOFTNET-IE RNA?

The SOFTNET-IE RNA software allows the integration of PCs in redundant, parallel Ethernet structures based on the Parallel Redundancy Protocol (PRP) functionality.

Purpose of this document

This document supports you during installation and commissioning of the "SOFTNET-IE RNA" software on a PC system.

Path information in the document

Note

Path information is based on Windows 7

The path information described in this document is based on the Start menu of Windows 7.

Validity of this document

This document is valid for the following software of the SIMATIC NET product family:
SOFTNET-IE RNA

Standards and approvals

SOFTNET-IE RNA was developed based on the "IEC 62439-3 Edition 2.0 2012" standard taking into account the draft "IEC 62439-3:2011/FDIS" and with adaptation of the MIB.

Note

The "IEC 62439-3" standard is still in development and is expected to be finalized in 2016.

Industry Online Support

In addition to the product documentation, the comprehensive online information platform of Siemens Industry Online Support at the following Internet address:

(<http://support.automation.siemens.com/WW/llisapi.dll?func=cslib.csinfo2&aktprim=99&lang=en>)

Apart from news, there you will also find:

- Project information: Manuals, FAQs, downloads, application examples etc.
- Contacts, Technical Forum
- The option submitting a support query:
(<https://support.automation.siemens.com/WW/llisapi.dll?func=cslib.csinfo&lang=en&objid=38718979&caller=view>)
- Our service offer:

Right across our products and systems, we provide numerous services that support you in every phase of the life of your machine or system - from planning and implementation to commissioning, through to maintenance and modernization.

You will find contact data on the Internet at the following address:

(<http://www.automation.siemens.com/partner/guiwelcome.asp?lang=en>)

SITRAIN - Training for Industry

The training offer includes more than 300 courses on basic topics, extended knowledge and special knowledge as well as advanced training for individual sectors - available at more than 130 locations. Courses can also be organized individually and held locally at your location.

You will find detailed information on the training curriculum and how to contact our customer consultants at the following Internet address:

(www.siemens.com/sitrain)

Security information

Siemens provides products and solutions with industrial security functions that support the secure operation of plants, systems, machines and networks.

In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement – and continuously maintain – a holistic, state-of-the-art industrial security concept. Siemens' products and solutions constitute one element of such a concept.

Customers are responsible for preventing unauthorized access to their plants, systems, machines and networks. Such systems, machines and components should only be connected to an enterprise network or the internet if and to the extent such a connection is necessary and only when appropriate security measures (e.g. firewalls and/or network segmentation) are in place.

Additionally, Siemens' guidance on appropriate security measures should be taken into account. For additional information on industrial security measures that may be implemented, please visit

(<http://www.siemens.com/industrialsecurity>)

Siemens' products and solutions undergo continuous development to make them more secure. Siemens strongly recommends that product updates are applied as soon as they are available and that the latest product versions are used. Use of product versions that are no longer supported, and failure to apply the latest updates may increase customers' exposure to cyber threats.

To stay informed about product updates, subscribe to the Siemens Industrial Security RSS Feed under

(<https://support.industry.siemens.com/cs/ww/en/ps/15247/pm>)

SIMATIC NET glossary

Explanations of many of the specialist terms used in this documentation can be found in the SIMATIC NET glossary.

You will find the SIMATIC NET glossary on the Internet at the following address:

(<https://support.industry.siemens.com/cs/ww/en/view/50305045>)

Safety notes

Important notes on the use of SOFTNET-IE RNA

Note**Transmission speed**

The "SOFTNET-IE RNA" product is suitable for a transmission speed (T) of 100 Mbps with long packets. With short packets, the transmission speed is reduced by a factor corresponding to how much shorter the packets are than 1500 bytes.

$$T = 100 \text{ Mbps} * \text{packet length} / 1500 \text{ bytes}$$

At higher transmission speeds (T), the processor load of the PC can reach values at which the PC works only with certain restrictions.

Note

Redundancy mechanisms influence the performance of the system. You should therefore make sure that there are adequate resources for the processor, memory and network. If the PC is overloaded for a long time (more than 80 % processor or memory utilization), this may result in restrictions and functional disturbances.

Note

The quality of redundancy depends largely on the network adapters used. By updating the adapter drivers, the response can be significantly changed.

Note

The current standard prescribes that any redundant packet that arrives with a delay greater than 400 ms is treated as a new packet and not discarded.

Note

The Ethernet adapters used must not be used actively from the point in time when the virtual adapter is configured; in other words, for example, not configured or integrated in other software.

The "SOFTNET-IE RNA" product must not be used alongside other link aggregation variants (Server-, Intel-Teaming etc.).

After creating the virtual adapter, this is the only one to be used. If you use the real adapters assigned to the virtual adapter, this can lead to functional disturbances.

Before you make changes to the hardware (real Ethernet adapters), you need to remove corresponding virtual Ethernet adapters from the configuration.

Note

Depending on the components being used and the settings, "Wake on LAN" does not work with self-assigned MAC addresses. In this case, use the original MAC addresses.



WARNING

SCALANCE X204RNA products (PRP-RedBox)

Note the warnings and security notices in the "SIMATIC NET Industrial Ethernet Switches SCALANCE X204RNA / SCALANCE X204RNA EEC" operating instructions if you use products of the SCALANCE X204RNA product line.

Product description

The "SOFTNET-IE RNA" product allows the cost-effective connection of a PC station to a redundant network according to the PRP standard. Along with a brief introduction to this standard, this section describes the connection of PC stations with "SOFTNET-IE RNA" compared to the SCALANCE X204RNA product line based on examples.

What is the Parallel Redundancy Protocol?

The Parallel Redundancy Protocol is a redundancy protocol for Ethernet networks. It is defined in Part 3 of the IEC 62439 standard. In the remainder of the text, PRP always stands for the PRP-1 protocol. The areas of application of PRP are distributed applications with high reliability demands that depend on the high availability of the network. Compared with classic fault-tolerant networks, bumpless redundancy is possible with PRP. This redundancy procedure can maintain data communication without interruption if there are interruptions in the network. Other redundancy procedures have a reconfiguration time of the network of, for example 200 ms (MRP, 50 nodes in the ring) or 300 ms (HSR, 50 nodes in the ring).

PRP has the advantage that it uses parallel, separate networks made up of standard network components. End devices not capable of PRP can be connected to a PRP network via a device with PRP capability, for example a SCALANCE X204RNA or RuggedCom RS950G. This means that the frame of the end device can be transferred at the same time via both networks. If a transmission path is interrupted, the frame arrives at its destination via the second path.

Note

When using SOFTNET-IE RNA, you can only use Ethernet network adapters that support long Ethernet frames (Jumbo Frames) as the communications adapter.

Which network topologies can be implemented with SOFTNET-IE RNA?

With Gigabit Ethernet network adapters, PCs can be connected to a PRP network.

Note

Make sure that the maximum permitted cable lengths for the relevant devices are not exceeded. You will find the permitted cable lengths in the Operating Instructions of the relevant device.

What is possible with the PRP-Redbox SCALANCE X204RNA?

The devices of the SCALANCE X204RNA product line allow the cost-effective setup of Industrial Ethernet structures with PRP functionality.

The SCALANCE X200RNA product line provides you with the following products:

SCALANCE	Description	Article number
X204RNA	The SCALANCE X204RNA has two RJ-45 jacks for connection of end devices or network segments not capable of PRP (P1 and P2) and two RJ-45 jacks for connecting the PRP networks LAN A and LAN B (PRP A and PRP B).	6GK5204-0BA00-2KB2
X204RNA EEC	The SCALANCE X204RNA EEC has four RJ-45 jacks and two slots for SFP modules. The SFP modules can be used as an alternative to the two RJ-45 jacks P1 and P2 that are designed for connection of end devices or network segments that are not capable of PRP. The two RJ-45 jacks PRP A and PRP B are used to connect networks LAN A and LAN B.	6GK5204-0BS00-3LA3

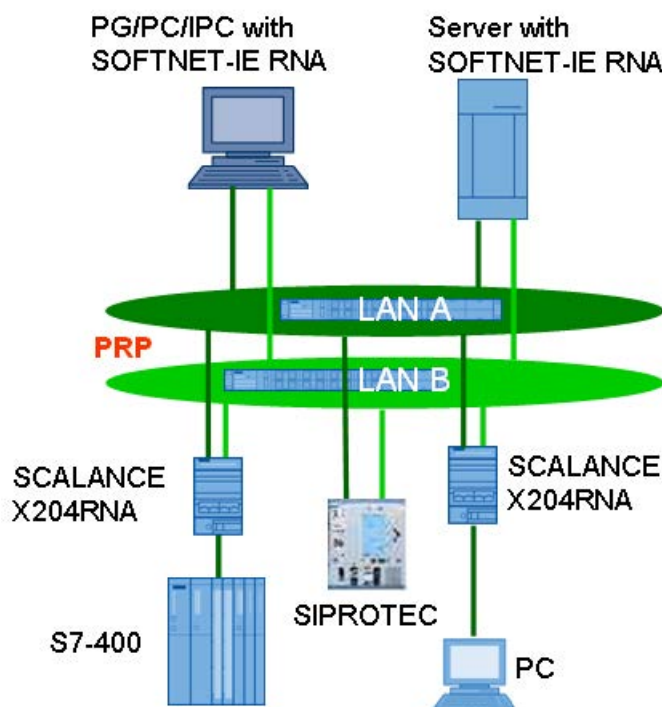
Note

You will find further information about the SCALANCE X204RNA / SCALANCE X204RNA EEC products in the "SIMATIC NET Industrial Ethernet Switches SCALANCE X204RNA / SCALANCE X204RNA EEC" operating instructions.

Note

For PCS7 plants in which the frame length should at no point exceed an MTU-Size of 1500 bytes, the cascading of SCALANCE X204RNA with SCALANCE S is not recommended because SCALANCE S forms frames with 1500 bytes of user data that are extended by SCALANCE X204RNA to 1506 bytes according to the PRP standard.

Example of use



With the Parallel Redundancy Protocol (PRP), each node must transmit frames on two independent, parallel networks (in the graphic LAN A and LAN B). These are two physically separate networks with a bus (linear), star or ring topology. The PRP destination device must also be connected to the two networks. This then receives each frame twice. The first frame is forwarded to the application. The second received frame is then detected and discarded if this reaction is configured. This achieves N-1 redundancy without reconfiguration (= bumpless switchover).

The so-called DANs (double attached nodes) that use this method are connected to both networks via two integrated device interfaces e.g. onboard network adapters of the SIMATIC IPC computers or additional plugged in network adapters or via a PRP-Redbox SCALANCE X204RNA or a SCALANCE X204RNA EEC. This means that the frame of the end device can be transferred at the same time via both networks. If a transmission path is interrupted, the frame arrives at its destination via the second path.

Generally, the two separate networks are known as LAN A and LAN B. Since the frames created for the particular LAN have an ID indicating the LAN, it is possible to identify frames sent via the wrong network.

Devices that are connected to only one network, such as switches are known as SANs (single attached nodes).

3.1 Example of communication with PRP

How is a redundant PRP network set up?

A network topology in which the Parallel Redundancy Protocol is used (PRP network) consists of two separate Ethernet subnets. The structure of the two subnets does not need to be identical.

A PRP network can be set up both with end devices with PRP capability as well as with standard components. The following devices can be used:

- End devices with PRP capability (Double Attached Nodes PRP, Double Attached Node implementing PRP, DANP), for example:
 - CP 443-1 RNA
 - PC with SOFTNET-IE RNA
 - SIPROTEC protective devices with PRP capability

- Standard components (Singly Attached Nodes, SAN)

Standard components without PRP functionality, for example, can be connected to a PRP network via SCALANCE X-204RNA or RuggedCom RS950G.

SANs can, also be connected to a PRP network without supporting the PRP functionality.

All devices that are intended to use the PRP function in redundant networks must be able to process frames with a length of up to 1532 bytes (Jumbo Frames). If this function is not supported, data may be lost.

Note

For PCS7 plants in which the frame length should at no point exceed an MTU-Size of 1500 bytes, the cascading of SCALANCE X204RNA with SCALANCE S is not recommended because SCALANCE S forms frames with 1500 bytes of user data that are extended by SCALANCE X204RNA to 1506 bytes according to the PRP standard.

Example of a configuration for a PRP network

The following figure shows the options for connecting devices in a network topology in which the Parallel Redundancy Protocol (PRP) is used.

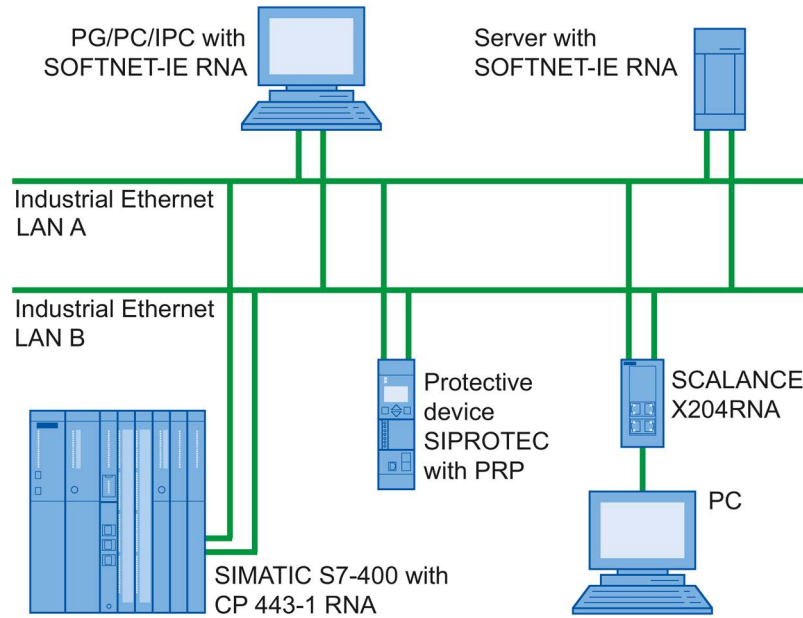


Figure 3-1 Example of the configuration of a network topology with PRP

Installing and uninstalling

4.1 Notes on setting up

Read the following notes before you start to set up your system:

1. Identify the networks clearly, for example by labeling them (LAN A / LAN B).
2. Use a uniform setup.
Example: Always assign the left / top adapter on a PC to the network of LAN A and the right / bottom adapter to the network of LAN B.
3. The assignment of the hardware to the corresponding entry in the system can be difficult. To simplify this, you can, for example, connect the adapter for LAN A to an active network, this is then noted in the network view and you can now assign this adapter to LAN A and rename it accordingly.
4. Do not connect to the network until after the installation. With the help of SOFTNET-IE-RNA diagnostics, you can then recognize whether an adapter was connected to the wrong network as long as an active redundancy partner exists.
5. Try to set up the network as symmetrically as possible. Due to differences in the number of received frames on the LAN as shown by RNA diagnostics (redundancy status), you can identify redundancy problems in the network more easily.
6. Use identical network adapters and make sure that these have the same driver version.

4.2 Installation

User experience

To install SIMATIC NET PC software products, you should have experience of installing software under the Windows version you are using.

To configure the communications modules, you should have experience and knowledge of the following:

- Structure of the plant involved
- Configuration of the plant

You should only undertake the installation and configuration described below if you have this knowledge.

Requirements and necessary permissions

To be able to operate "SOFTNET-IE RNA" on your PC, you require the following:

- 2 Ethernet network adapters (onboard network adapters of the PC or additional plugged-in INTEL network adapters) for connection to a PRP network.
- Administrator privileges for installation
- Per PC and product one software license

General information

Note

Screen savers

Using a screen saver during operation can cause system overload.

Some screen savers do not release parts of memory again. This leads to a continuous reduction in usable memory.

Note

Virus scanners

The use of a virus scanner during runtime can impair or severely slow down communication. Dynamic virus protection, in particular using gatekeeper mechanisms, is therefore not advisable. This is especially the case when trace files of the communication are written at the same time.

Procedure during installation

To install "SOFTNET-IE RNA" follow the steps below:

1. Insert the data medium in a DVD drive.

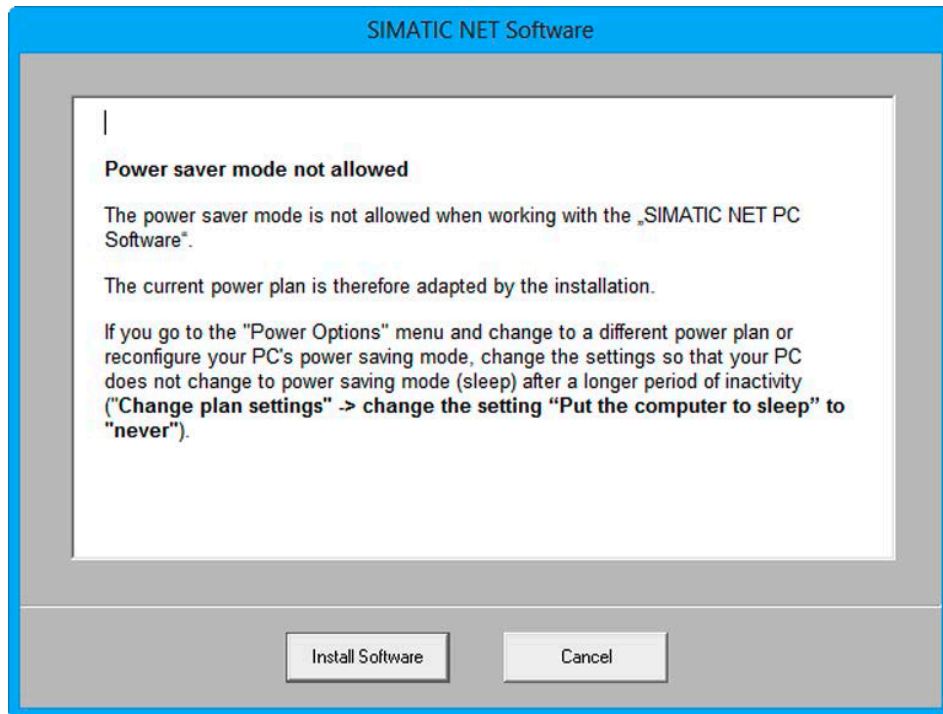
Note

If Setup is not started automatically, start it by double-clicking on the "Setup.exe" file in the main directory of the data medium.

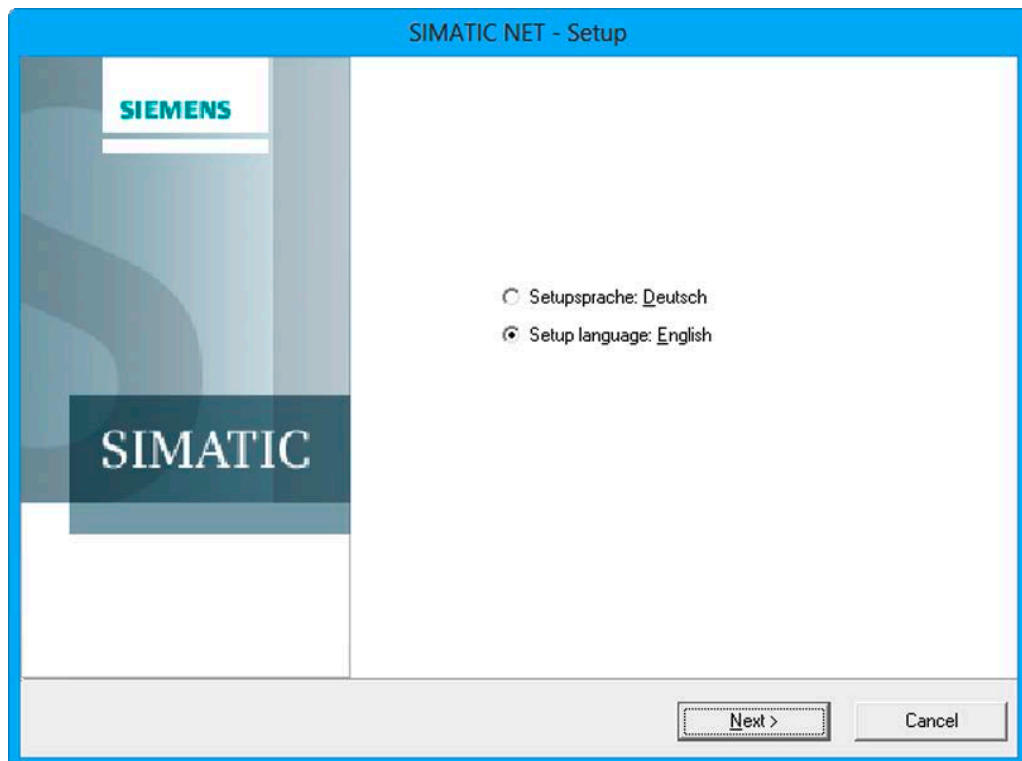
2. Click "Install software".



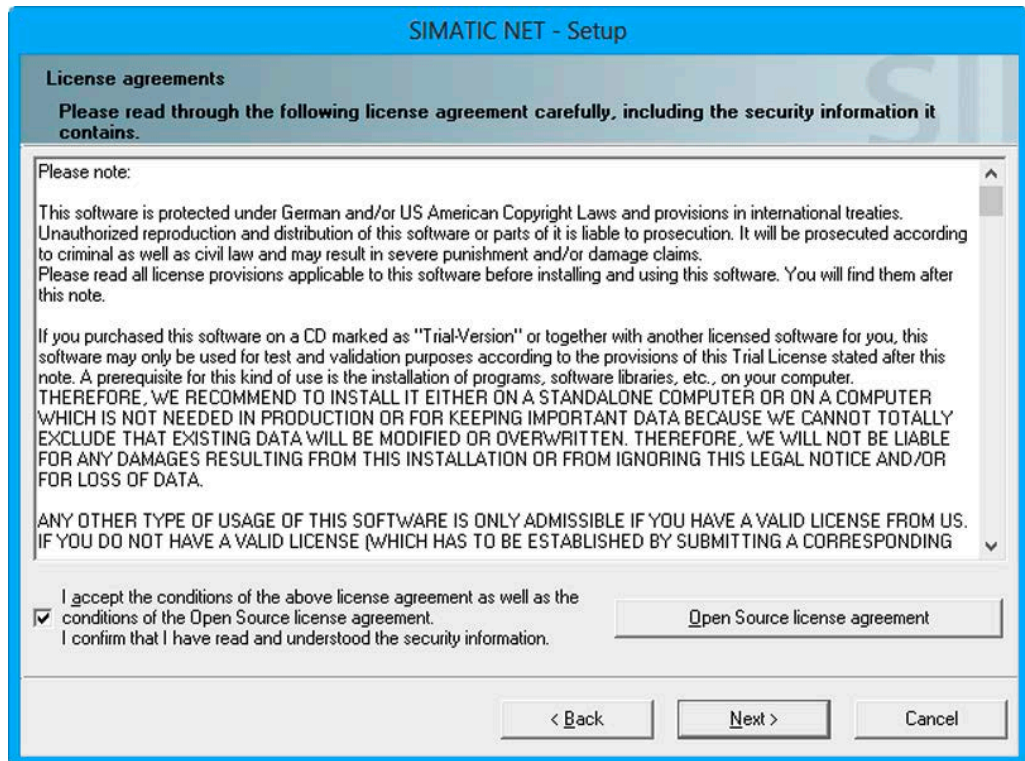
3. Read the message about turning off the power save mode and click "Install software".



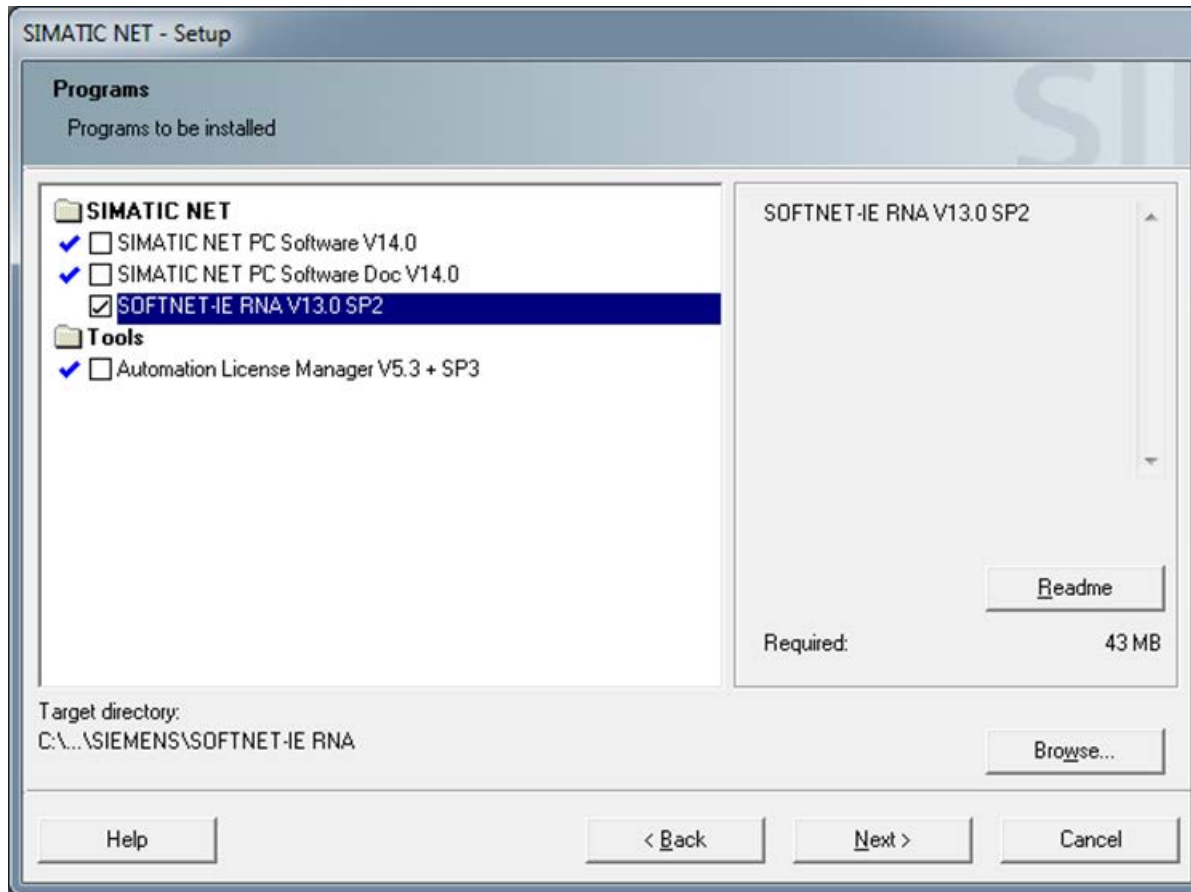
4. Select a Setup language and click "Next".



5. Read and accept the license conditions.
6. Click "Next".

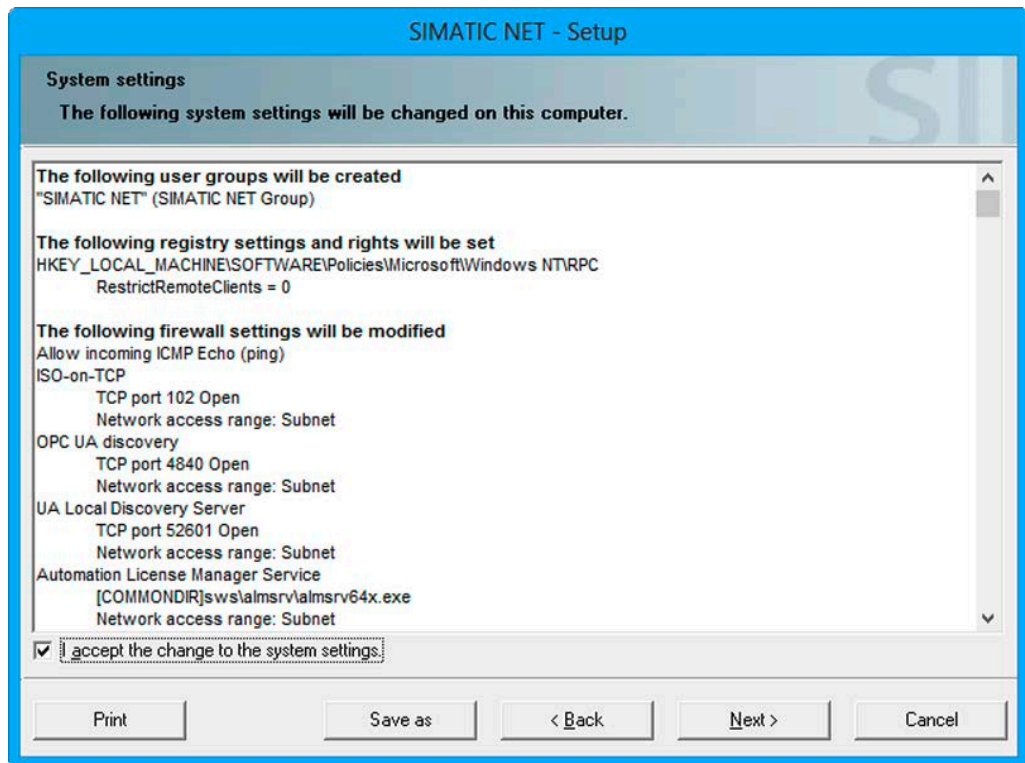


7. Select the entry "SOFTNET-IE RNA" and click "Next".



8. Read and accept the changes to the system settings.

9. Click "Next". Depending on the selected components, the content of the dialog box may differ.



10. Wait until all necessary components have been installed.

11. Depending on the installed software components, the "License Setup" dialog box opens. In this dialog box you have the option of transferring license keys during the installation.

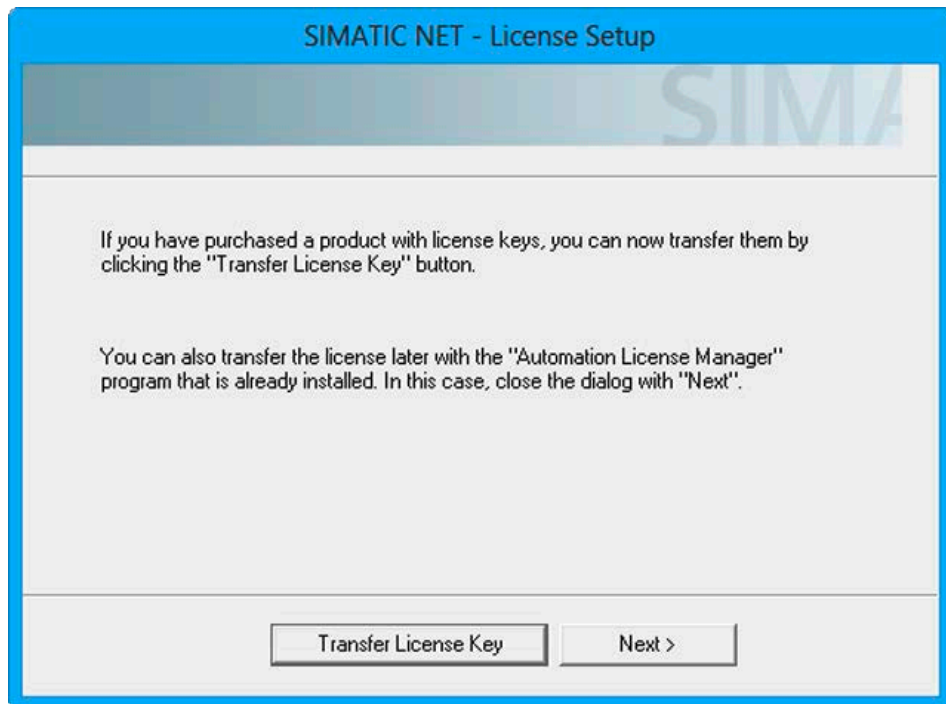
You have the following options for transferring the license key:

- To transfer the license key now during the installation, click on "Transfer license key".

The "Automation License Manager" is started. Enter the license key and return to the installation (License key (Page 30)).

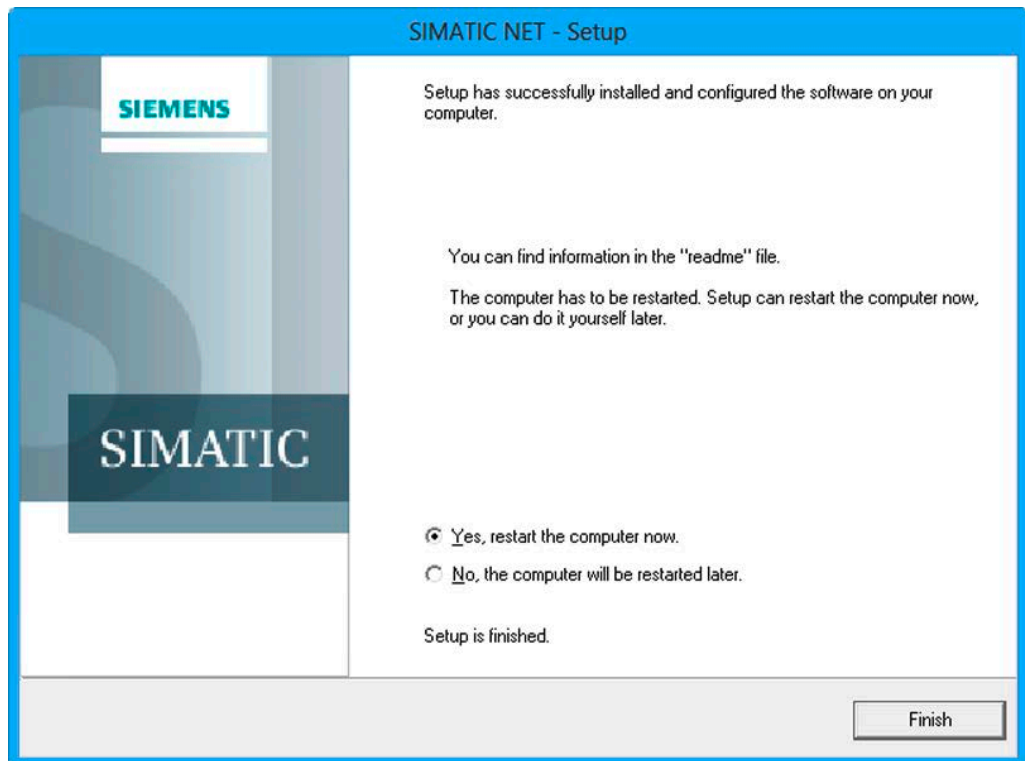
- To transfer the license key later, click "Next".

If the dialog box does not open, start the "Automation License Manager" when you have completed the installation and enter the license keys.



12. To complete the installation, select the option "Yes, restart the computer now." and click "Finish".

The computer is restarted.



Extension for the SNMP service

Note

Note that to be able to use this functionality, the Windows SNMP service must be installed (SNMP service (Page 31)).

The extension of the SNMP service, the "SNMP extension agent" software allows communication via SNMP (Simple Network Management Protocol). It supports the Community-based SNMP Version 2 (SNMPv2c). The "SNMP Extension Agent" software makes the defined PRP MIB of the standard available (OID=.1.0.62439.3). The MIB (IEC62439_120217.mib) is on the data medium (cd\sw\snmp\mibs) and contains descriptions of the individual objects.

Run "Installation SNMP extension agent"

1. Install the software from the Start menu:
"Start" > "All Programs" > "Siemens Automation" > "SIMATIC" > "SIMATIC NET" > "SOFTNET-IE RNA" > "Installation SNMP extension agent"
After installation, a dialog window is opened.
2. Close the dialog with "OK".

Run "Uninstall SNMP extension agent"

1. Uninstall the software from the Start menu:
"Start" > "All Programs" > "Siemens Automation" > "SIMATIC" > "SIMATIC NET" > "SOFTNET-IE RNA" > "Uninstall SNMP extension agent"
After it is uninstalled, a dialog window is opened.
2. Close the dialog with "OK".

4.3 Configuration

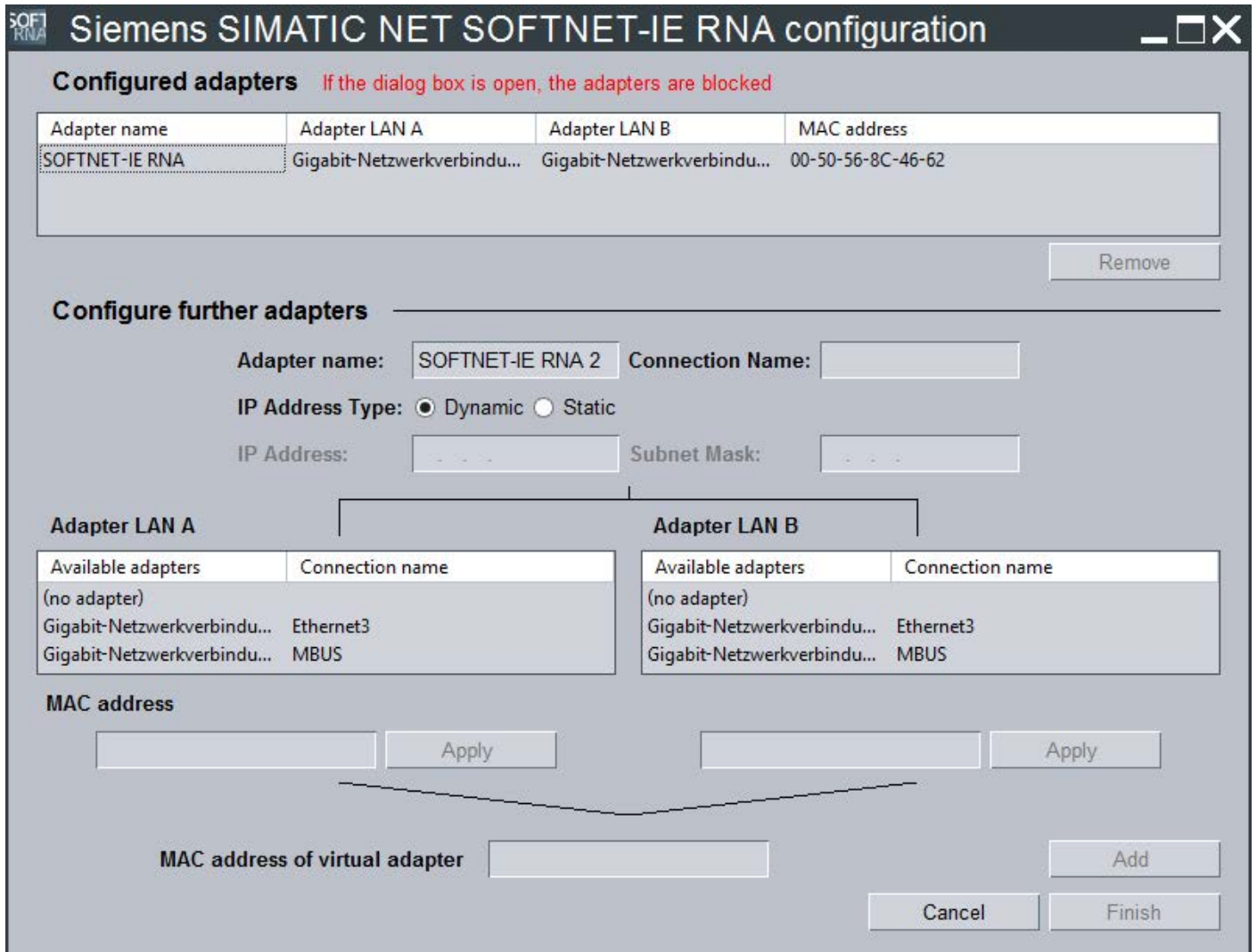
Procedure during configuration

Note

Configuring the software is only possible with administrator privileges.

To configure the software, follow the steps below:

1. Open the properties page of the SOFTNET-IE RNA configuration via the Start menu:
 "Start" > "All Programs" > "Siemens Automation" > "SIMATIC" > "SIMATIC NET" > "SOFTNET-IE RNA" > "SOFTNET-IE RNA Configuration"
2. Wait until the dialog for configuration opens and then make the required settings.



You can select from the following settings:

– **Display configured adapters**

The "Configured adapters" area shows the existing virtual adapters.

– **Delete configured adapters**

To delete a virtual adapter, select it in the list in the "Configured adapters" area and click "Remove".

– **Configure further adapters**

To create a new virtual adapter, enter a name for the adapter in the "Adapter name" box in the "Configure further adapters" area.

Then assign real network adapters for LAN A and LAN B of the virtual adapter.

Available adapters are displayed in the list boxes. If an adapter is selected on one side, it is no longer available on the other.

Set the MAC address of the virtual adapter in the "MAC address of virtual adapter" box. To do this, use the MAC address of one of the two real network adapters or enter a valid MAC address. No multicast/broadcast address and no address that already exists in the network may be entered. The character set for permitted adapter names is as follows: 0-9; a-z; A-Z; - (hyphen); _ (underscore); ' ' (space); # (hash)

– **Add a configured adapter**

With the "Add" button, you enter the configured adapter in the list in the "Configured adapters" area.

– **Apply changes**

With the "Finish" button, you exit the configuration screen and the changes are adopted in the system.

– **Discard changes**

With the "Cancel" button, you close the dialog without adopting the changes.

– **When the dialog is open, the adapters are locked**

When the dialog is open, the functionality of the SOFTNET-IE RNA module is not affected. However, when the dialog is open, the SOFTNET-IE RNA module cannot be changed with other configuration tools, e.g. VMWare ESXi. If you wish to configure the SOFTNET-IE RNA module, you need to close the dialog first.

Note

Not all applications recognize changes to the running system. To retain full performance, restart the system after making changes to network adapters.

Note that the configuration of the adapters can take several minutes (maximum 5 min) depending on the number of adapters involved and the system. The progress can be followed in the Device Manager or in the Network and Sharing Center.

4.4 License key

Transferring the license key

A suitable license key is required for SOFTNET-IE RNA.

You can manage the license keys for running SIMATIC NET programs with the "Automation License Manager".

Note

For more detailed information on the "Automation License Manager", refer to the online help for the program.

Follow the steps below to transfer a license key:

1. Start the "Automation License Manager".
2. Select the data medium containing the required license key in the left-hand list (navigation area).
3. In the right-hand list (object area), select the license key you want to transfer.
4. Click on the menu command "License Key" > "Transfer..." > "Transfer License Key" dialog box.
5. Select the local drive of your PC to which you want to transfer the license key and confirm with "OK".

Releasing licenses in use

Note

To release a license that is in use, remove all virtual adapters from the system. Enabling the license can take some time (maximum 5 minutes).

4.5 SNMP service

Installing the SNMP service

The SNMP functionality of SOFTNET-IE RNA requires the SNMP service in the operating system.

Following standard installation of Windows, the full SNMP service is not yet available in the operating system.

To be able to use the full SNMP functionality of SOFTNET-IE, work through the following steps in order:

- Installing the SNMP service
- Adapting the network security settings to your own security needs

To do this follow the same steps as described in the installation instructions for the "SIMATIC NET PC Software". This is in the "doc" subdirectory of the "SIMATIC NET PC Software" DVD.

SNMP - MIB file for SOFTNET-IE RNA

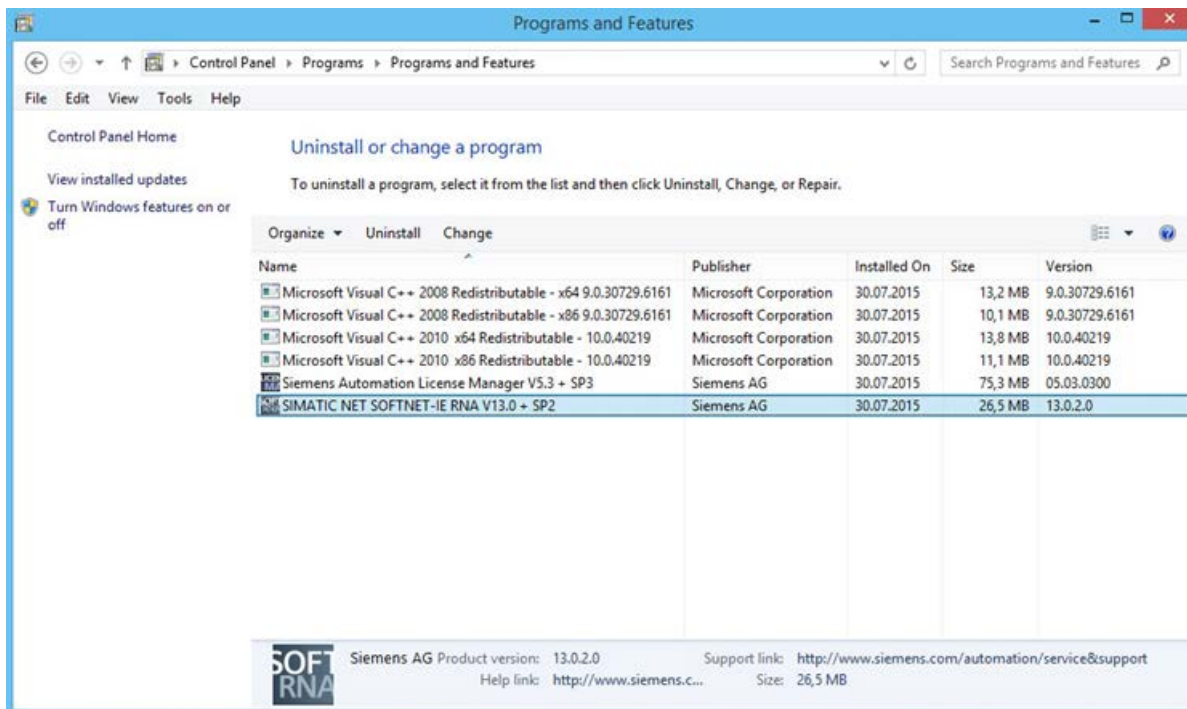
The MIB file to be used for SOFTNET-IE RNA is on the "SIMATIC NET PC Software" DVD in the folder "\\sw\snmp\mibs" > "IEC62439_120217.mib"

4.6 Uninstalling

Procedure for uninstalling

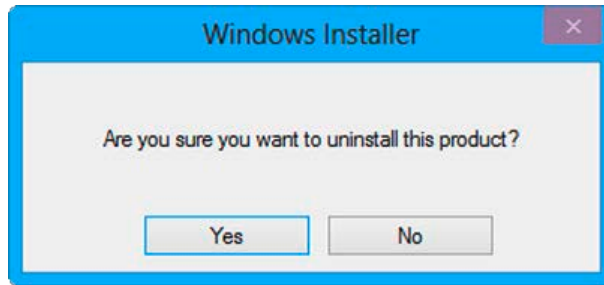
To uninstall the "SOFTNET-IE RNA" software, follow these steps:

1. Close all open programs.
2. Open the list of installed programs from the Start menu:
"Start" > "Control Panel" > "Programs" > "Programs and Features"



3. Right-click on the component "SIMATIC NET SOFTNET-IE RNA".
4. Select the "Uninstall" entry in the shortcut menu.

5. Confirm the prompt with "Yes".



6. Restart the PC to complete the uninstall procedure.

Note

If you have not used any other Siemens products, you can then also uninstall the "Siemens Automation License Manager". To save your licenses prior to uninstalling the "Siemens Automation License Manager", follow the steps below:

1. Use the "Siemens Automation License Manager" to back up the licenses.
 2. Uninstall the "Siemens Automation License Manager" if you no longer require it.
-

4.7 Updating network adapters

If you operate Ethernet network adapters via SOFTNET-IE RNA, and want to update them, follow the steps below:

1. Remove the Ethernet network adapter from SOFTNET-IE RNA operation using the configuration (refer to the section "Configuration (Page 27)").
2. Update the drivers of the Ethernet network adapter.
3. Configure the SOFTNET-IE RNA mode of the Ethernet network adapter again, see section "Configuration (Page 27)".

Diagnostics and troubleshooting

5.1 Diagnostics

Start "SOFTNET-IE RNA diagnostics" from the Start menu:

"Start" > "All Programs" > "Siemens Automation" > "SIMATIC" > "SIMATIC NET" > "SOFTNET-IE RNA" > "SOFTNET-IE RNA Diagnostics".

Note

If you start diagnostics with administrator privileges, you can make additional settings.

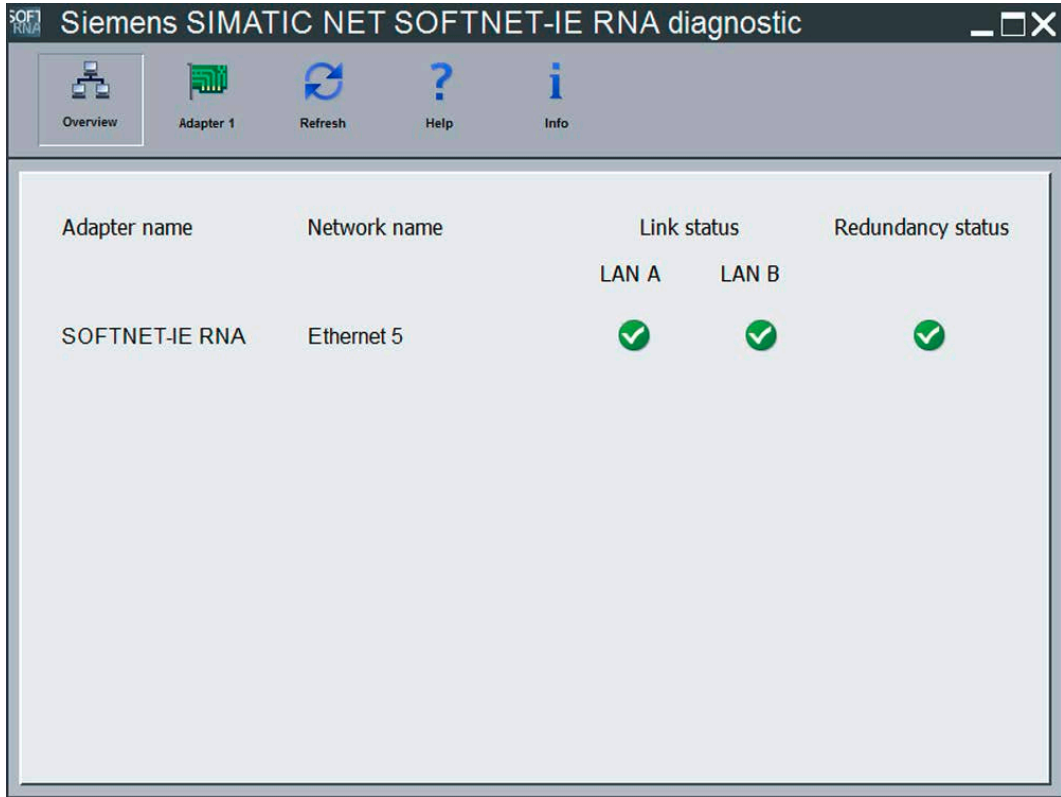
With "SOFTNET-IE RNA diagnostic", you can setup the system and monitor it to obtain pointers to disruptions in the redundant network. If you require more information, you can use a "diagnostics" SAN to perform more precise diagnostics on a LAN with conventional network tools.

The next section describes the menus of "SOFTNET-IE RNA diagnostic".

The following general elements exist in every menu:

- Overview
With this button, you open the "Overview" menu.
- Adapters 1-4
With these buttons, you select the adapter via which the information will be displayed. A separate button appears for each adapter you create.
- Update
With this button, you update the values.
- Help
With this button, you open the online help.
- info
With this button, you open a window with information about the product (article number, version etc).

"Overview" menu






The overview page lists all the existing virtual adapters with the following information:

- Adapter name
Name of the virtual Ethernet adapter
- Network name
Network name of the virtual Ethernet adapter
- Link status

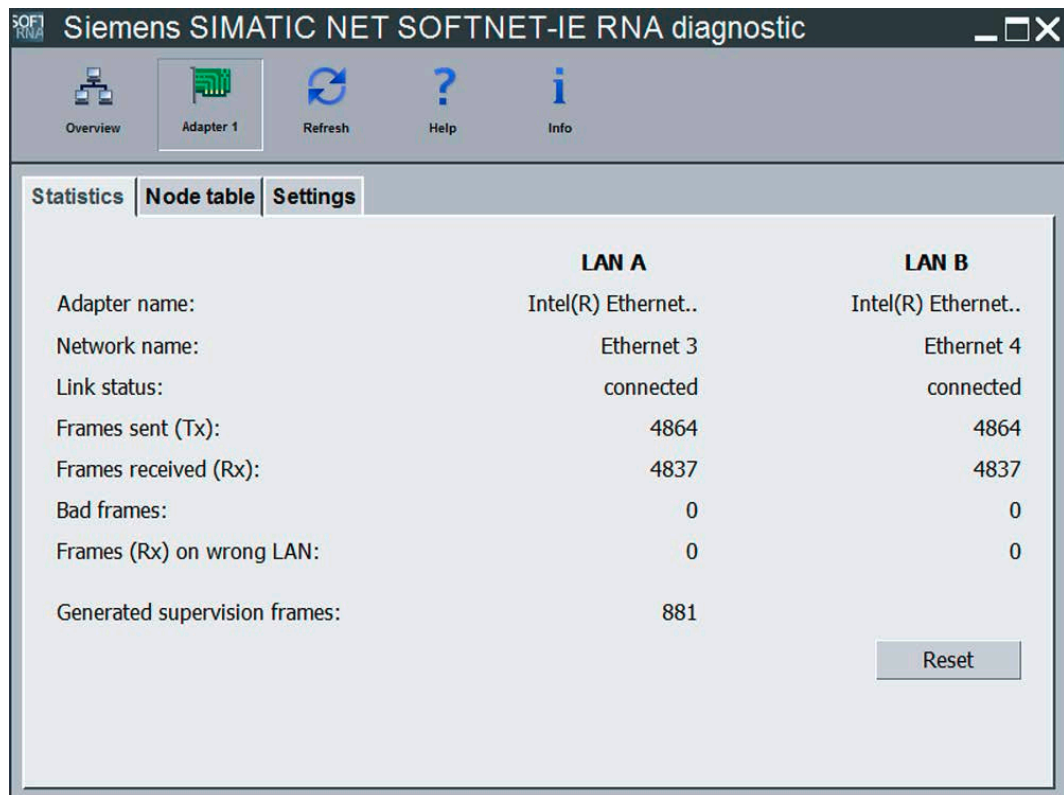
The link status of the relevant adapter is displayed for each interface.

Symbols	Cause	Remedy
	There is a network connection.	-
	There is no network connection.	Check the network connectors.

- Redundancy status
The redundancy status monitors the communication

Symbols	Cause	Remedy
	PRP frames are transferred via the intended LAN. Both LANs are working.	-
	Redundancy problem, redundant communication is currently not guaranteed: <ul style="list-style-type: none"> • PRP frames on the wrong LAN • There are more PRP frames being received via one LAN A than via the other LAN B (can also occur due to a heavy data load). • A network connection is disrupted. 	<ul style="list-style-type: none"> • Check the link status of both physical adapters. • Check whether PRP frames are being received via the wrong LAN (in the "Statistics" tab and in the "Node table"). • Check whether PRP frames are being received via both LANs from all DANs (in the "Node table" tab). • Reduce the communication load
	No PRP frames are transferred. Connection disruption on both LANs.	Check the network connectors and make sure that the computer is connected to an active LAN.

"Statistics" tab



The screenshot shows the Siemens SIMATIC NET SOFTNET-IE RNA diagnostic window. The window title is "Siemens SIMATIC NET SOFTNET-IE RNA diagnostic". The interface includes a toolbar with icons for Overview, Adapter 1, Refresh, Help, and Info. Below the toolbar, there are three tabs: Statistics, Node table, and Settings. The Statistics tab is active, displaying a table with the following data:

	LAN A	LAN B
Adapter name:	Intel(R) Ethernet..	Intel(R) Ethernet..
Network name:	Ethernet 3	Ethernet 4
Link status:	connected	connected
Frames sent (Tx):	4864	4864
Frames received (Rx):	4837	4837
Bad frames:	0	0
Frames (Rx) on wrong LAN:	0	0
Generated supervision frames:	881	

A "Reset" button is located at the bottom right of the statistics table.

After selecting the virtual adapter, the "Statistics" tab shows several counters that are important for diagnostics broken down according to the real Ethernet adapters being used.

These are the following:

- Adapter name
Name of the real Ethernet adapter
- Network name
Network name of the real Ethernet adapter
- Link status
Display of the connection status (up/down)
- Frames sent (Tx)
PRP frames sent over this LAN
(range of values: 0 to 4,294,967,295)
- Frames received (Rx)
PRP frames received from this LAN
(range of values: 0 to 4,294,967,295)
- Bad frames
Number of bad PRP frames received on the LAN. Errors occur either due to an incorrect or missing RCT (Redundancy Check Tag) or due to a bad supervision frame.
- Frames (Rx) on wrong LAN
PRP frames that according to their identifiers were received on the wrong LAN
- Generated supervision frames
Number of generated supervision frames
- "Reset" button
Resets the values of the statistics

"Node table" tab

No.	MAC address	Type	D filter	Seq no.	SF seq. no.	RX frames	TX frames	Last frame	Last SF	Rx red. frames	Tx red. frames
1	90:e2:ba:33:39:61	DAN P	1	5644	1044	5790	3770	39	139	5559	3770
						5560	3770	39	139	5559	3770

Number of nodes: 1
Maximum number of nodes: 1024

Reset Export

Each node in the table consists of two rows. Each row stands for a LAN. The first row stands for LAN A and the second row for LAN B. General information is shown only in the first row of a node (MAC address, type etc).

In addition to the information in the table, the "Node table" tab contains the following information and buttons:

- Number of nodes
Number of nodes with which there was no contact during a specific period.
This period is set in the "Settings" tab with "Forget node after".
- Maximum number of nodes
Maximum number of stored nodes in the node table
- "Reset" button
Removes all entries from the node table
- "Export" button
Exports the table to a CSV file

The following table describes the parameters of the node table:

Parameter	Description
MAC address	Shows the MAC addresses of the connected nodes in the network
Type	Shows how a node is connected: <ul style="list-style-type: none"> • "SAN" (Single Attached Node) <p>Extra parameter that shows the LAN via which the node is connected:</p> <ul style="list-style-type: none"> - "A" - "B" - "A+B" • "DAN" (Double Attached Node) <p>Extra parameter that shows the standard of redundancy:</p> <ul style="list-style-type: none"> - "P" for Parallel Redundancy Protocol (PRP) - "H" for High-availability Seamless Redundancy (HSR) • "REDBOX" for red boxes, such as the SCALANCE X204RNA • "VDAN" for nodes connected via a red box
D filter	Shows whether or not a node discards duplicate frames (1 - discard, 0 - forward) and whether outgoing frames have an RCT frame.
Seq no.	Contains the (RCT) sequence number of the last received frame of the node
SF seq. no.	Contains the sequence number of the last received supervision frame of the node
Received frames	Contains the sum of all frames received on a LAN
Sent frames	Contains the sum of all frames sent on a LAN
Last frame	Time of the last frame received from a node
Last SF	Time that has elapsed since the last supervision frame received from a node
Received red.	Number of received PRP frames
Sent red.	Number of PRP frames sent
Received SF	Number of supervision frames received
Wrong LAN	Shows how many frames were received on the wrong LAN

"Settings" tab

Parameter	Value
IP address	192.168.1.11
Subnet mask	255.255.255.0
MAC address	90:e2:ba:33:43:ed
Multicast address	01:15:4e:00:01:00
Monitoring interval [ms]	2000
Forget node after [s]	60
Transparent reception	off
Duplicates buffer	512
Statistics refresh rate [ms]	5000
Language	English

Note**Administrator rights required to make settings**

Settings can only be made if diagnostics was started with administrator privileges.

Remember that changes to the settings can impair the general functionality and communication.

The parameters IP address, Subnet mask and MAC address cannot be changed.

The "Settings" tab contains the following information or setting options:

- IP address
IP address used for the virtual adapter
- Subnet mask
Subnet mask used for the virtual adapter
- MAC address
MAC address used for the virtual adapter
- Multicast address
Multicast address of the protocol

5.1 Diagnostics

- Monitoring interval [ms]
Interval in milliseconds at which supervision frames are sent.
- Forget node after [s]
Time after which a node is removed from the node table.
- Transparent reception
If this is enabled, the RCT frame of frames is not removed before they are forwarded to the application.

Note

Enabling the "Transparent reception" option can cause problems with the communication capability with various applications. These applications need to remove the RCT frame.

- Duplicates buffer
Setting of the input and output buffer.

Note

Changes to the "Duplicates buffer" cause a brief interruption of the connection. With certain protocols, this interruption can lead to a connection abort.

- Statistics refresh rate [ms]
Time in milliseconds after which the statistics are updated.
- Language
Sets the language of the Diagnostic dialog box
- "Save" button
Applies the changes made

The following table shows the parameters you can set in the "Settings" menu:

Name	Value
Multicast address	01:15:4E:00:01:00 - 01:15:4E:00:01:FF Only the last two characters can be changed. The default value is set to 01:15:4E:00:01:00.
Monitoring interval	500 ... 3 600 000 [ms] (= 0.5 s ... 1 h) The default value is set to 2000 ms.
Forget node after	10 ... 3 600 [s] (= 10 s ... 1h) The default value is set to 60 m.
Duplicates buffer	32 ... 1024 frames The default value is set to 512 frames.
Statistic Update Time	100 ... 3 600 000 [ms] (= 0.1 s ... 1 h) The default value is set to 5000 ms.
Language	German or English

"Info" menu



The "Info" menu opens a dialog box in which all important information about the product is shown.

Function check

You can use "SOFTNET-IE RNA Diagnostic" or the SNMP functionality to check the functionality. The following properties provide you with a general overview:

- LAN A and LAN B are connected.
- The counters for "Frames sent (Tx)" and "Frames received (Rx)" increase when data is transferred. The counters are not generally identical.
- The error counter for LAN A and LAN B should both be 0. Bad frames occur, in particular, following restarts and reconfiguration of SOFTNET-IE RNA. If the error counters rise continuously, you should check your network for errors/faults.
- The counter for "Frames (Rx) on wrong LAN" must be 0 for LAN A and LAN B. If not, check and correct your network configuration.
- The " Number of nodes" counter shows the number of redundant devices.

5.2 Troubleshooting

Remedy if errors occur

Errors	Cause	Troubleshooting
Media status = down	<ul style="list-style-type: none"> No connection to network Software not correctly installed 	<ul style="list-style-type: none"> Check the connection to the network (cable correctly plugged in, partner exists and active, change the cable of the receiving port or the partner) Check the Link LED on the Ethernet adapters Reinstall the software
Frames are received on the wrong LAN.	At least one node in the network is incorrectly connected.	The check and adapt the cabling and assignment of the Ethernet adapters of the redundant nodes. The MAC address of the incorrectly connected node can be obtained from the node table.
LAN A or LAN B is up but no frames are being received (Rx).	No communication	Check the firewall settings of the devices involved
More frames are being received on one LAN than on the other.	<ul style="list-style-type: none"> More SAN devices on one LAN There is an interruption in one of the networks Overload of a LAN, for example when one LAN has 100 Mbps and the other LAN 1 Gbps and large data volumes (> 100 Mbps) are being transported Differences due to a high communication load 	<p>Check the availability of the devices in the network with less frames (for example, run ping tests using a SAN)</p> <p>Transport lower data volumes or adjust the slower LAN so that the same data rates can be achieved</p>
Error in a LAN (damaged redundant frames are being received).	<ul style="list-style-type: none"> A node is sending damaged redundant frames Redundant frames are being corrupted in the network The receiving adapter is damaging the redundant frames Different standard implementations are being used A former DAN does not send any further PRP frames because it was reconfigured to become a SAN. 	<ul style="list-style-type: none"> Identification of the source of the problem (for example by disconnecting nodes in the network affected and monitoring the number of errors) Replacement of devices (switches, adapters) Make sure that all devices communicate according to the same version of the standard Before reconfiguring, disconnect nodes from the LANs. (for longer than the setting for "forget node after") and reset the statistics and the node table

Errors	Cause	Troubleshooting
The SNMP service is not supplying any values.	<ul style="list-style-type: none"> The SNMP service is not installed. Security settings were forgotten or incorrectly set. Firewall is blocking the SNMP port 	<ul style="list-style-type: none"> Check whether the SNMP service and SNMP Extension Agent were installed. Check the security settings for the SNMP service and the configuration of the firewall.
No communication is possible.	<ul style="list-style-type: none"> LAN is not active 	<ul style="list-style-type: none"> Check the cabling and the network settings (IP, subnet mask etc.). Run a ping test Installing the software again
The node is not indicated as a redundant device on other nodes.	<ul style="list-style-type: none"> The node uses an incorrect PRP address. The monitoring interval is greater than the "Forget node after" time of the other node. 	<ul style="list-style-type: none"> Check the PRP address Match up the time settings
The node table contains less stations than actually exist.	<ul style="list-style-type: none"> The monitoring interval of some nodes is greater than the "Forget node after" time of this node. 	<ul style="list-style-type: none"> Match up the time settings
Duplicate frames are being received.	<ul style="list-style-type: none"> The delay between LAN A and LAN B is greater than 400 ms or the communications buffer is full and the later redundant frame is treated as a new frame. 	<ul style="list-style-type: none"> Reduce network load Comparison of the network speeds of LAN A and LAN B
Only duplicate frames are being received.	<ul style="list-style-type: none"> The "Discard duplicates" function is disabled so that both redundant frames are forwarded. 	<ul style="list-style-type: none"> Enable the "Discard duplicates" function with SNMP.
License message appears permanently.	<ul style="list-style-type: none"> No license found. 	<ul style="list-style-type: none"> Check whether a license was installed and used.
The Ethernet adapters can no longer be activated.	<ul style="list-style-type: none"> The Ethernet adapters are disabled. 	<ul style="list-style-type: none"> Restart the system.
Problems in communication	<ul style="list-style-type: none"> The duplicate filter was disabled. 	<ul style="list-style-type: none"> Set the duplicate filter to active again using SNMP (IreDuplicateDiscard)
An application is receiving frames with an RCT frame.	<ul style="list-style-type: none"> The "Transparent reception" function is enabled so that frames with an RCT frame (trailer) are forwarded to the application. 	<ul style="list-style-type: none"> Disable the "Transparent reception" function under Settings in the diagnostics.
Created adapters are not present.	<ul style="list-style-type: none"> The configuration is not yet finished. 	<ul style="list-style-type: none"> Wait until the adapters are fully configured (5 minutes). Reconfigure the adapters and follow the progress in the Device Manager (network adapter).

Errors	Cause	Troubleshooting
	<ul style="list-style-type: none">• The adapters being used are not compatible.	<ul style="list-style-type: none">• Use compatible adapters.
During adapter configuration, several adapters disappear in the list of available adapters.	<ul style="list-style-type: none">• Several adapters have the same name and were not indexed by Windows.	<ul style="list-style-type: none">• Uninstall the affected adapters and reinstall them with the same driver.
The configured adapters do not exist in some user interfaces.	<ul style="list-style-type: none">• Applications do not register the changes to the running system.	<ul style="list-style-type: none">• Restart the system.

Further Information

Readme file

All important information on SOFTNET-IE RNA can be found in the readme file (main folder on the product DVD).

Additional Information on the Internet

Along with a wide range of other information, you can also obtain documentation on the product from the Internet:

(<http://support.automation.siemens.com/WW/view/de/>)

(<https://support.industry.siemens.com/cs/ww/en/ps>) → Technical Info (see "More on Product Information" box) → Manuals/Operating Instructions

Other product-related Internet addresses include:

SIMATIC NET product catalog "IK PI"

(<http://www.automation.siemens.com/infocenter>

(http://w3app.siemens.com/mcms/infocenter/dokumentcenter/sc/ic/Documentsu20Catalogs/SIMATIC_NET_IKPI_chap02_PROFINET_IE_English_2015.pdf))

Technical support, contacts and training

You will find information on this in the file "TechnicalSupport.pdf" in the "\doc" folder of the "SIMATIC NET PC Software" DVD.

See also

Industrial communication with SIMATIC NET: (www.siemens.de/net)

PRP-compatible devices

Note

When using SOFTNET-IE RNA you may only use gigabit Ethernet network adapters that support frames up to 1532 bytes (Jumbo Frames) as the communications adapter.

PRP-compatible devices

The devices listed below are compatible for use in PRP networks. You can process frames with excess length of up to 1532 bytes (Jumbo Frames).

Table 7- 1 PRP-compatible devices

Product	Article number	As of version *
SCALANCE XB004-1, unmanaged IE switch for 10/100 Mbps	6GK5004-1BD00-1AB2	ES: 01
SCALANCE XB004-1LD, unmanaged IE switch for 10/100 Mbps	6GK5004-1BF00-1AB2	ES: 01
SCALANCE XB004-1G, unmanaged IE switch for 10/100/1000 Mbps	6GK5004-1GL00-1AB2	ES: 01
SCALANCE XB004-1LDG, unmanaged IE switch for 10/100/1000 Mbps	6GK5004-1GM00-1AB2	ES: 01
SCALANCE X005, IE Entry Level-Switch unmanaged	6GK5005-0BA00-1AA3	ES:07
SCALANCE XB005, unmanaged IE switch for 10/100 Mbps	6GK5005-0BA00-1AB2	ES: 01
SCALANCE X005-TS, IE Entry Level-Switch unmanaged, -40 °C +75 °C	6GK5005-0BA00-1CA3	ES:07
SCALANCE XB005G, unmanaged IE switch for 10/100/1000 Mbps	6GK5005-0GA00-1AB2	ES: 01
SCALANCE XB008, unmanaged IE switch for 10/100 Mbps	6GK5008-0BA00-1AB2	ES: 01
SCALANCE XB008G, unmanaged IE switch for 10/100/1000 Mbps	6GK5008-0GA00-1AB2	ES: 01
SCALANCE X104-2, unmanaged IE switch	6GK5104-2BB00-2AA3	ES: 01
SCALANCE X106-1, unmanaged IE switch	6GK5106-1BB00-2AA3	ES: 01
SCALANCE X108, unmanaged IE switch	6GK5108-0BA00-2AA3	ES: 01
SCALANCE X108POE, unmanaged IE switch	6GK5108-0PA00-2AA3	ES: 01
SCALANCE X112-2, unmanaged IE switch	6GK5112-2BB00-2AA3	ES: 01
SCALANCE X116, unmanaged IE switch	6GK5116-0BA00-2AA3	ES: 01
SCALANCE X124, unmanaged IE switch	6GK5124-0BA00-2AA3	ES: 01
SCALANCE X200-4P IRT, managed IE switch	6GK5200-4AH00-2BA3	V1.0
SCALANCE X201-3P IRT, managed IE switch	6GK5201-3BH00-2BA3	V1.0
SCALANCE X201-3P IRT PRO, managed IE switch	6GK5201-3JR00-2BA6	V1.0
SCALANCE X202-2IRT, managed IE switch	6GK5202-2BB00-2BA3	V1.0
SCALANCE X202-2P IRT, managed IE switch	6GK5202-2BH00-2BA3	V1.0

Product	Article number	As of version *
SCALANCE X202-2P IRT PRO	6GK5202-2JR00-2BA6	V1.0
SCALANCE XF204 managed IE switch	6GK5204-0BA00-2AF2	V4.4
SCALANCE X204IRT, managed IE switch	6GK5204-0BA00-2BA3	V1.0
SCALANCE XF204IRT, managed IE switch	6GK5204-0BA00-2BF2	V1.0
SCALANCE X204IRT PRO	6GK5204-0JA00-2BA6	V1.0
SCALANCE X204-2, managed IE switch	6GK5204-2BB10-2AA3	V4.4
SCALANCE X204-2TS, managed IE switch	6GK5204-2BB10-2CA2	V4.4
SCALANCE X204RNA	6GK5204-0BA00-2KB2	V1.0
SCALANCE X204RNA EEC	6GK5204-0BS00-3LA3 / 6GK5204-0BS00-3PA3	V1.0
RUGGEDCOM RS950G, managed PRP Redundancy Box	6GK6095-0GS1-... ("..." means, depending on combination) 6GK6095-0GS2-...("..." means, depending on combination)	V3.11.1
RUGGEDCOM RNA Module, managed PRP Redundancy Box	6GK60302EM200AA0 / 6GK60302EM200AA1 / 6GK60302EM100AA0 / 6GK60302EM100AA1	V1.0
SCALANCE XF204-2, managed IE switch	6GK5204-2BC00-2AF2	V4.4
SCALANCE X204-2LD, managed IE switch	6GK5204-2BC10-2AA3	V4.4
SCALANCE X206-1, managed IE switch	6GK5206-1BB10-2AA3	V4.4
SCALANCE X206-2LD, managed IE switch	6GK5206-1BC00-2AA3	V4.4
SCALANCE XF206-1, managed IE switch	6GK5206-1BC00-2AF2	V4.4
SCALANCE X206-2LD, managed IE switch	6GK5206-1BC10-2AA3	V4.4
SCALANCE XF208, managed IE switch	6GK5208-0BA00-2AF2	V4.4
SCALANCE X208, managed IE switch	6GK5208-0BA10-2AA3	V4.4
SCALANCE X208PRO, managed IE switch	6GK5208-0HA10-2AA6	V4.5
SCALANCE X212, managed IE switch	6GK5212-2BB00-2AA3	V4.4
SCALANCE X212-LD, managed IE switch	6GK5212-2BC00-2AA3	V4.4
SCALANCE X216, managed IE switch	6GK5216-0BA00-2AA3	V4.4
SCALANCE X224, managed IE switch	6GK5224-0BA00-2AA3	V4.4
SCALANCE X302-7EEC, 24 VDC	6GK5302-7GD00-1EA3	V3.7.0
SCALANCE X302-7EEC, 24 VDC redundant power supply unit	6GK5302-7GD00-2EA3	V3.7.0
SCALANCE X302-7EEC, 24 VDC power supply unit; CONFORMAL COATING	6GK5302-7GD00-1GA3	V3.7.0
SCALANCE X302-7EEC, 24 VDC redundant power supply unit; CONFORMAL COATING	6GK5302-7GD00-2GA3	V3.7.0
SCALANCE X302-7EEC, 100 ... 240 VAC/VDC power supply unit	6GK5302-7GD00-3EA3	V3.7.0
SCALANCE X302-7EEC, 100 ... 240 VAC/VDC redundant power supply unit	6GK5302-7GD00-4EA3	V3.7.0
SCALANCE X302-7EEC, 100 ... 240 VAC/VDC power supply unit; CONFORMAL COATING	6GK5302-7GD00-3GA3	V3.7.0
SCALANCE X302-7EEC, 100 ... 240 VAC/VDC redundant power supply unit; CONFORMAL COATING	6GK5302-7GD00-4GA3	V3.7.0

Product	Article number	As of version *
SCALANCE X307-2EEC, 24 VDC power supply unit	6GK5307-2FD00-1EA3	V3.7.0
SCALANCE X307-2EEC, 24 VDC redundant power supply unit	6GK5307-2FD00-2EA3	V3.7.0
SCALANCE X307-2EEC, 24 VDC power supply unit; CONFORMAL COATING	6GK5307-2FD00-1GA3	V3.7.0
SCALANCE X307-2EEC, 24 VDC redundant power supply unit; CONFORMAL COATING	6GK5307-2FD00-2GA3	V3.7.0
SCALANCE X307-2EEC, 100 ... 240 VAC/VDC power supply unit	6GK5307-2FD00-3EA3	V3.7.0
SCALANCE X307-2EEC, 100 ... 240 VAC/VDC power supply unit; CONFORMAL COATING	6GK5307-2FD00-3GA3	V3.7.0
SCALANCE X307-2EEC, 100 ... 240 VAC/VDC redundant power supply unit	6GK5307-2FD00-4EA3	V3.7.0
SCALANCE X307-2EEC, 100 ... 240 VAC/VDC redundant power supply unit; CONFORMAL COATING	6GK5307-2FD00-4GA3	V3.7.0
SCALANCE X304-2FE, managed IE switch	6GK5304-2BD00-2AA3	V3.7.0
SCALANCE X306-1LD FE , managed IE switch	6GK5306-1BF00-2AA3	V3.7.0
SCALANCE X307-3, managed PLUS IE switch	6GK5307-3BL00-2AA3	V3.7.0
SCALANCE X307-3LD, managed PLUS IE switch	6GK5307-3BM00-2AA3	V3.7.0
SCALANCE X308-2, managed PLUS IE switch	6GK5308-2FL00-2AA3	V3.7.0
SCALANCE X308-2LD, managed PLUS IE switch	6GK5308-2FM00-2AA3	V3.7.0
SCALANCE X308-2LH, managed PLUS IE switch	6GK5308-2FN00-2AA3	V3.7.0
SCALANCE X308-2LH+, managed PLUS IE switch	6GK5308-2FP00-2AA3	V3.7.0
SCALANCE X310-FE, managed PLUS IE switch	6GK5310-0BA00-2AA3	V3.7.0
SCALANCE X310, managed PLUS IE switch	6GK5310-0FA00-2AA3	V3.7.0
SCALANCE X320-1FE, managed IE switch	6GK5320-1BD00-2AA3	V3.7.0
SCALANCE X320-3LD FE, managed IE switch	6GK5320-3BF00-2AA3	V3.7.0
SCALANCE X308-2M , managed IE switch	6GK5308-2GG00-2AA2	V3.7.0
SCALANCE X308-2M TS, managed IE switch	6GK5308-2GG00-2CA2	V3.7.0
SCALANCE X308-2M POE, managed IE switch	6GK5308-2QG00-2AA2	V3.7.0
SCALANCE XR324-12M, managed IE switch, 24 VDC, cable outlet front	6GK5324-0GG00-1AR2	V3.7.0
SCALANCE XR324-12M, managed IE switch, 24 VDC, cable outlet rear	6GK5324-0GG00-1HR2	V3.7.0
SCALANCE XR324-12M, managed IE switch, 230 VAC, cable outlet front	6GK5324-0GG00-3AR2	V3.7.0
SCALANCE XR324-12M, managed IE switch, 230 VAC, cable outlet rear	6GK5324-0GG00-3HR2	V3.7.0
SCALANCE XR324-4M EEC, managed IE switch, 1 X 24 VDC, cable outlet front	6GK5324-4GG00-1ER2	V3.7.0
SCALANCE XR324-4M EEC, managed IE switch, 2 X 24 VDC, cable outlet front	6GK5324-4GG00-2ER2	V3.7.0
SCALANCE XR324-4M EEC, managed IE switch, 1 X 24 VDC, cable outlet rear	6GK5324-4GG00-1JR2	V3.7.0
SCALANCE XR324-4M EEC, managed IE switch, 2 X 24 VDC, cable outlet rear	6GK5324-4GG00-2JR2	V3.7.0

Product	Article number	As of version *
SCALANCE XR324-4M POE, managed IE switch, 24 VDC, cable outlet front	6GK5324-4QG00-1AR2	V3.7.0
SCALANCE XR324-4M POE, managed IE switch, 24 VDC, cable outlet rear	6GK5324-4QG00-1HR2	V3.7.0
SCALANCE XR324-4M POE TS, managed IE switch, 24 VDC	6GK5324-4QG00-1CR2	V3.7.x
SCALANCE XR324-12M TS, managed IE switch, 24 VDC, cable outlet front	6GK5324-0GG00-1CR2	V3.7.2
SCALANCE X408-2, modular IE switch	6GK5408-2FD00-2AA2	V3.7.0
SCALANCE X414-3E, modular IE switch	6GK5414-3FC00-2AA2	V3.7.0
COMPACT SWITCH MODULE CSM 1277	6GK7277-1AA10-0AA0	ES: 01
COMPACT SWITCH MODULE CSM 377	6GK7377-1AA00-0AA0	ES: 01
SCALANCE XR552-12M, managed IE-Switch	6GK5552-0AA00-2AR2	ES: 1.0
SCALANCE XR528-6M, managed IE-Switch	6GK5528-0AA00-2AR2	ES: 1.0
CP 343-1 Lean	6GK7343-1CX10-0XE0	V2.4
CP 343-1 Bacnet	6FL4 343-1CX10-0XE0	V1.1
CP 343-1	6GK7343-1EX30-0XE0	V2.4
CP 343-1 Advanced	6GK7343-1GX30-0XE0	V1.2
CP 343-1 Advanced	6GK7343-1GX31-0XE0	V3.0
CP 443-1 Advanced	6GK7443-1GX20-0XE0	V2.1
CP 443-1 Advanced	6GK7443-1GX30-0XE0	V3.0
CP 443-1	6GK7443-1EX20-0XE0	V2.1
CP 443-1	6GK7443-1EX30-0XE0	V3.0
CP 443-1 RNA	6GK7443-1RX00-0XE0	V1.0
CP 442-1 RNA	6GK7442-1RX00-0XE0	V1.0

* Information about the product version (ES) or the firmware version (V) as of which PRP is supported.