

SIMATIC NET

Industrial Ethernet Security SCALANCE S615 Getting Started

Getting Started

Preface

Connecting SCALANCE
S615 to the WAN

1

VPN tunnel between
SCALANCE S615 and
SINEMA RC Server

2

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.

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WARNING

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Trademarks

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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

Purpose

The configuration of the SCALANCE S615 is shown based on examples.

IP settings for the examples

Note

The IP settings used in the examples were freely chosen.

In a real network, you would need to adapt these IP settings to avoid possible address conflicts.

General naming conventions

The designation . . . stands for . . .	
SINEMA RC	SINEMA Remote Connect
SINEMA RC Server	SINEMA Remote Connect server
S615	SCALANCE S615

Further Information

Apart from the Configuration Manual you are currently reading, the following documentation is also available on the topic of Remote Network:

- "Industrial Remote Communication Remote Networks - SCALANCE S615 Web Based Management" configuration manual

This document is intended to provide you with the information you require to install, commission and operate the device. It provides you with the information you require to configure the devices.

- "Industrial Remote Communication - TeleControl SINEMA Remote Connect Client" operating instructions

This manual supports you when installing, configuring and operating the application SINEMA RC Client.

- "Industrial Remote Communication - TeleControl SINEMA Remote Connect Server" operating instructions

This manual supports you when installing, configuring and operating the application SINEMA RC Server.

- Getting Started Industrial Remote Communication - TeleControl - SINEMA Remote Connect"

Based on examples, this document explains the configuration of SINEMA RC.

- The "SIMATIC NET Industrial Ethernet Network Manual" contains information on other SIMATIC NET products that you can operate along with the devices of this product line in an Industrial Ethernet network. There, you will find among other things optical performance data of the communications partners that you require for the installation.

You will find this document on the Internet under the following entry ID: 27069465

(<http://support.automation.siemens.com/WW/view/en/27069465>)

SIMATIC NET manuals

You will find SIMATIC NET manuals on the Internet pages of Siemens Industry Online Support:

- Using the search function:

Link to Siemens Industry Online Support (<http://support.automation.siemens.com/>)

Enter the entry ID of the relevant manual as the search item.

- In the navigation panel on the left hand side in the area "Industrial Communication":

Link to the area "Industrial Communication"

(<http://support.automation.siemens.com/WW/view/en/10805878/133400>)

Go to the required product group and make the following settings:

"Entry list" tab, Entry type "Manuals"

Training, Service & Support

You will find information on Training, Service & Support in the multi--language document "DC_support_99.pdf" on the data medium supplied with the documentation.

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:

50305045 (<http://support.automation.siemens.com/WW/view/en/50305045>)

Security information

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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.

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To stay informed about product updates, subscribe to the Siemens Industrial Security RSS Feed under <https://www.siemens.com/industrialsecurity>

Firmware

The firmware is signed and encrypted. This ensures that only firmware created by Siemens can be downloaded to the device.

Trademarks

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SCALANCE, SINEMA, KEY-PLUG, C-PLUG

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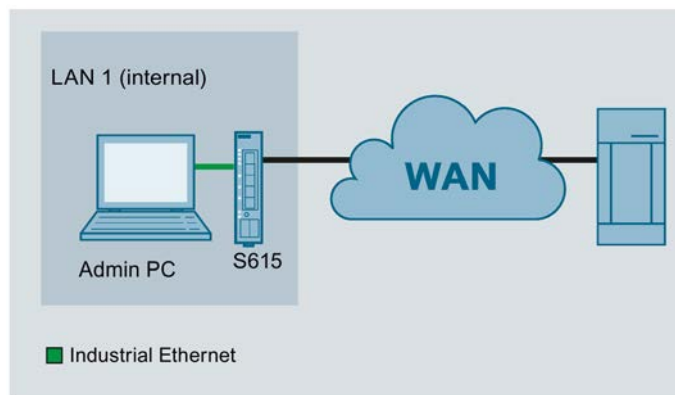
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Connecting SCALANCE S615 to the WAN

1.1 Procedure in principle

In this example the SCALANCE S615 that is in the factory settings status is assigned an IP address. Following this, the device will be configured using Web Based Management (WBM). Access to the WAN via the Ethernet interface P5 of the S615 will be connected.

Structure



Required devices/components

- 1 x S615 (additional option: a suitably installed standard rail with fittings)
- 1 x 24 V power supply with cable connector and terminal block plug
- 1 x PC for configuring the S615
- The required network cable, TP cable (twisted pair) complying with the IE FC RJ-45 standard for Industrial Ethernet

Settings used

For the configuration example, the devices are given the following IP address settings:

		Interface	IP address
LAN1	S615	LAN port P1 (vlan1)	192.168.100.1 255.255.255.0
		WAN port P5 (vlan2)	192.168.50.1 255.255.255.0
	PC1	LAN port	192.168.100.20 255.255.255.0 Gateway: IP address vlan1

Note

The IP settings used in the example were freely chosen.

In a real network, you would need to adapt these IP settings to avoid possible address conflicts.

Steps in configuration

1. Setting up SCALANCE S615 and network (Page 10)
2. Launching Web Based Management (Page 11)
3. Logging in to Web Based Management (Page 14)
4. Changing the IP settings of the SCALANCE S615 (Page 15)
5. Configuring SCALANCE S615
 - Specifying device information (Page 17)
 - Setting the time (Page 18)
 - Creating IP subnet (Page 19)

1.2 Setting up SCALANCE S615 and network

Note

Familiarize yourself with the security instructions before you commission the device. You will find the security instructions in the operating instructions.

Procedure

1. First unpack the S615 and check that it is undamaged.
2. Fit the power supply.

**WARNING****Use safety extra-low voltage only**

The SCALANCE S615 is designed for operation with safety extra-low voltage. This means that only safety extra-low voltages (SELV) complying with IEC950/EN60950/VDE0805 can be connected to the power supply terminals.

The power supply unit for the SCALANCE S615 power supply must meet NEC Class 2, according to the National Electrical Code(r) (ANSI / NFPA 70).

3. Wire up the S615, see Setup (Page 9).
4. Connect the device to the local network via the Ethernet ports.
5. Turn the device on. After connecting up, the fault LED (F) is lit red.
6. Now, turn on the PC.

1.3 Launching Web Based Management

In the factory settings, the SCALANCE S615 can be reached at the following IP address:

- IP address: 192.168.1.1
- Subnet mask: 255.255.255.0

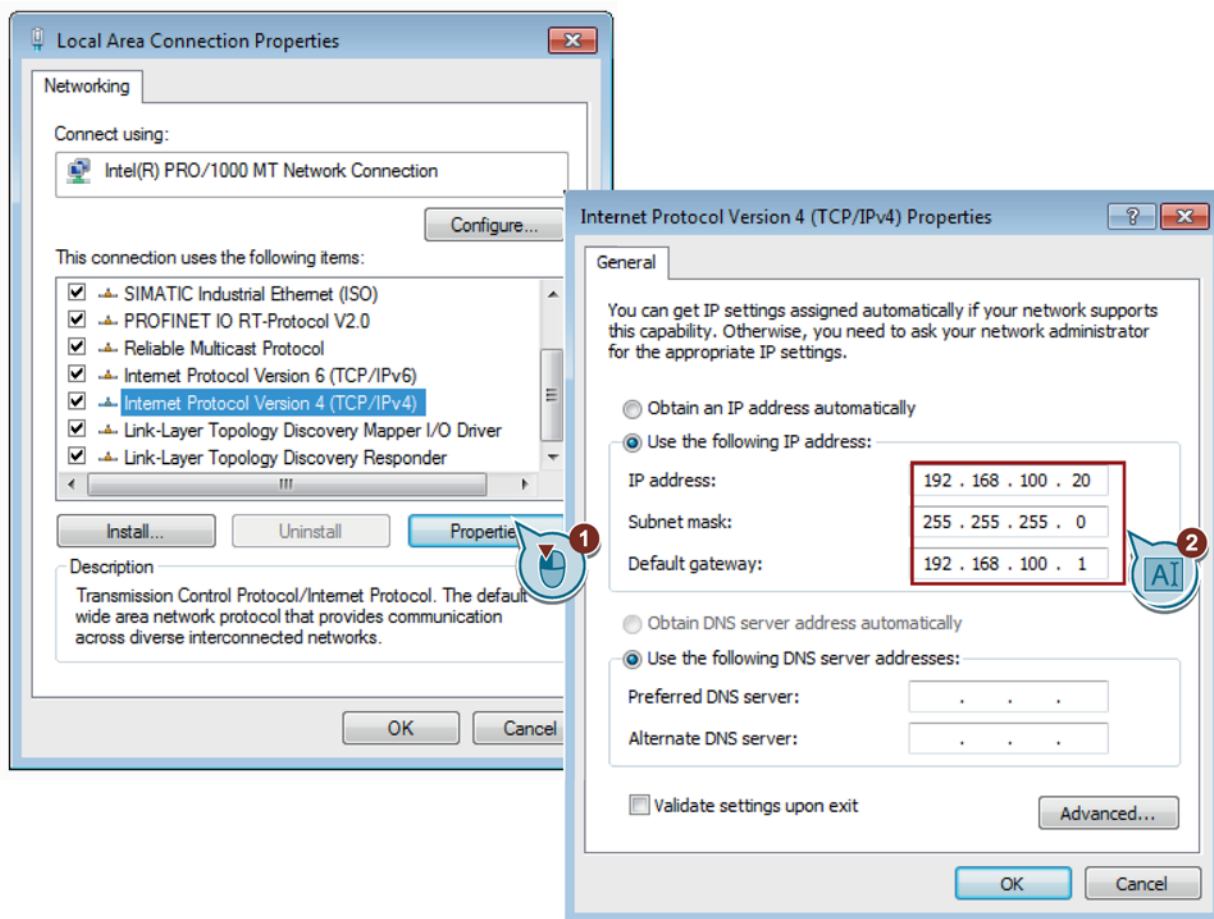
In this configuration example, the Admin PC has the following IP address setting to allow it to access the Web Based Management of the S615.

IP address	Subnet mask
192.168.1.20	255.255.255.0

Procedure

1. On the Admin PC, open the Control Panel with the menu command "Start" > "Control Panel".
2. Click "Network and Sharing Center" and select the "Change Adapter Settings" option in the navigation menu on the left.
3. Right-click on the "LAN Connection" symbol and select the "Properties" menu command.
4. In the "Local Area Connection Properties" dialog, enable the "Internet Protocol Version 4 (TCP/IPv4)" check box.

5. Enter the values in the table above.



6. Confirm the dialogs with "OK" and close the Control Panel.

7. Enter the IP address "192.168.1.1" in the address box of the Internet browser.

Access via HTTPS is enabled as default. If you access the device via HTTP, the address is automatically redirected to HTTPS.

A message relating to the security certificate appears. Acknowledge this message and continue loading the page.

Note**Information on the security certificate**

Because the device can only be administered using encrypted access, it is delivered with a self-signed certificate. If certificates with signatures that the operating system does not know are used, a security message is displayed. You can display the certificate.

8. If there is a problem-free connection to the device, the login page of Web Based Management (WBM) is displayed.

SIEMENS

English ▼ Go

Name:

Password:

[Login](#)

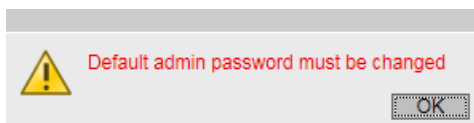
[Switch to insecure HTTP](#)

For information about browser compatibility please refer to the manual

1.4 Logging in to Web Based Management

Procedure

1. Log in with the user name "admin" and the password "admin". You will be prompted to change the password.



2. Confirm the dialog. The "Account Passwords" WBM page is opened automatically.

The "Account Passwords" form has a title bar. Below the title bar, there are several input fields: "Current User:" with the value "admin", "Current User Password:" (empty), "User Account:" with a dropdown menu showing "admin", "Password Policy:" with the value "high", "New Password:" (empty), and "Password Confirmation:" (empty). At the bottom, there are two buttons: "Set Values" and "Refresh".

3. Enter the default password "admin" in "Current User Password".
4. For "New Password", enter the new password. The new password must be at least 8 characters long and contain upper case letters, lower case letters, numbers and special characters.
5. Repeat the new password in "Password Confirmation" as confirmation. The entries must match.

The "Account Passwords" form is shown with data entered. The "Current User:" field contains "admin". The "Current User Password:" field contains five dots. The "User Account:" dropdown menu shows "admin". The "Password Policy:" field contains "high". The "New Password:" field contains eight dots. The "Password Confirmation:" field contains eight dots. The "Set Values" and "Refresh" buttons are at the bottom.

6. Click the "Set Values" button.
7. The Basic Wizard starts to support you when configuring the device parameters.

Result

The password for the "admin" user is changed. The changes take immediate effect.

1.5 Changing the IP settings of the S615

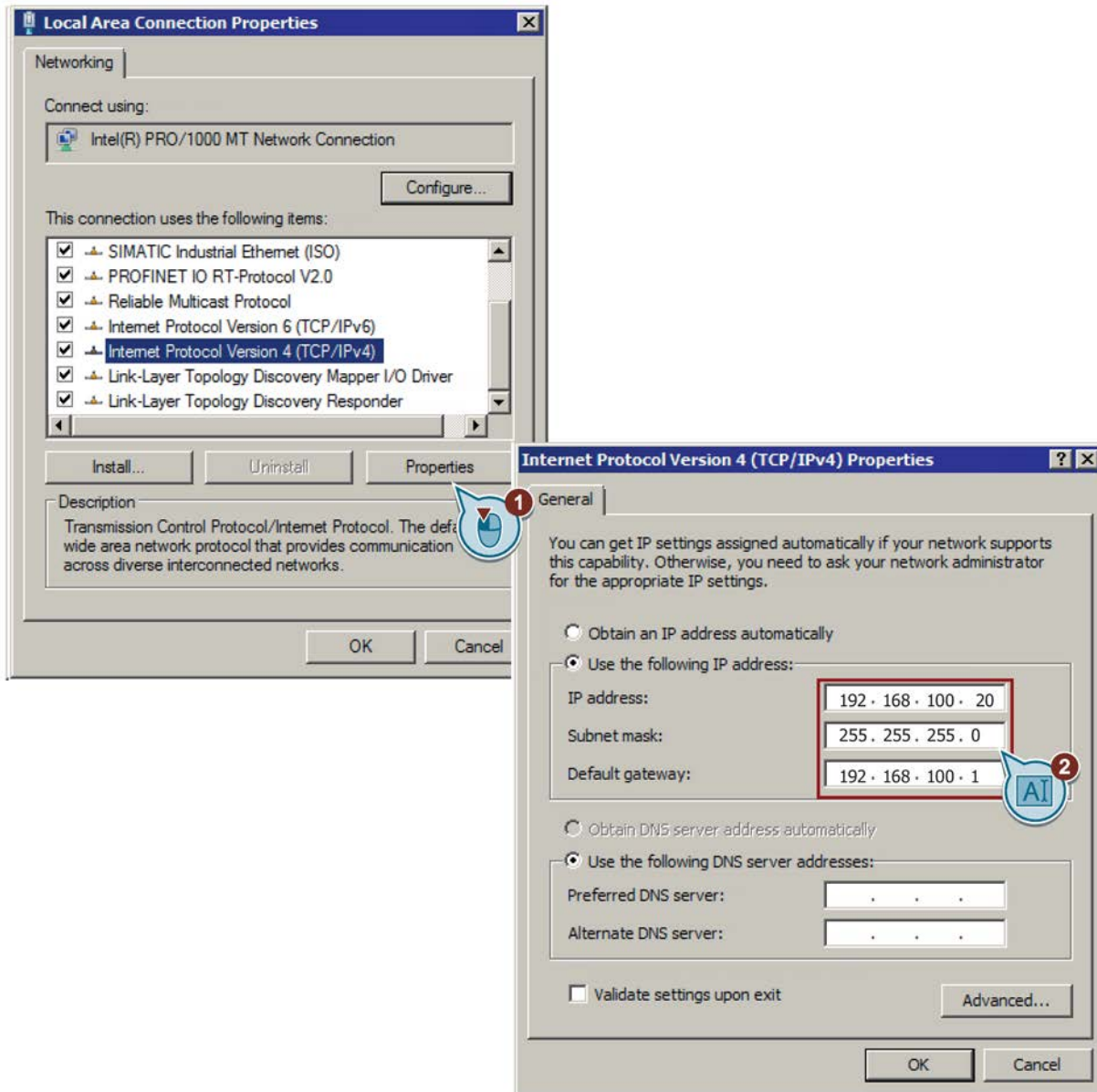
Procedure

1. Click on "Layer 3 > Subnets" in the navigation area and on the "Configuration" tab in the content area.
2. Enter the IP address for vlan1 according to the table "Settings used (Page 9)".
3. Click on "Set Values".

The IP address is adjusted automatically in the address bar of the Web browser. The Web browser on the Admin PC can no longer access Web Based Management because its IP settings no longer match.

4. On the Admin PC, open the Control Panel with the menu command "Start" > "Control Panel".
5. Click "Network and Sharing Center" and select the "Change Adapter Settings" option in the navigation menu on the left.
6. In the "Local Area Connection Properties" dialog, enable the "Internet Protocol Version 4 (TCP/IPv4)" check box.

7. Enter the values for the PC from the "Settings used (Page 9)" table.



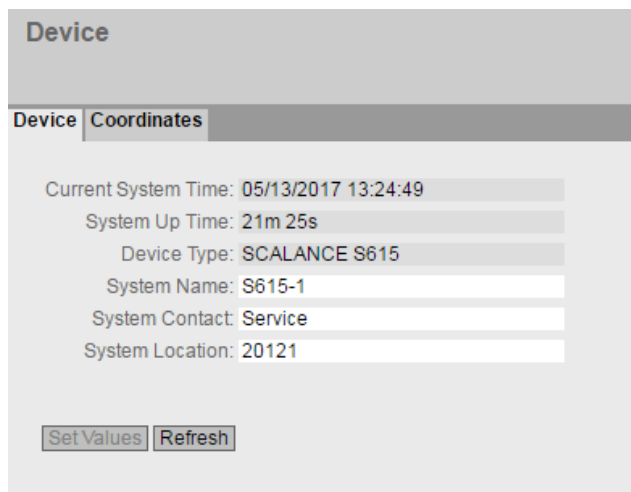
8. Confirm the dialogs with "OK" and close the Control Panel.
9. In the address box of the Web browser, enter the IP address for vlan1, see table "Settings used (Page 9)". If there is a problem-free connection to the device, the login page of Web Based Management (WBM) is displayed.
10. Log in with the user name "admin" and the modified password.

1.6 Specifying device information

To allow better identification of the SCALANCE S615, specify general device information.

Procedure

1. In the navigation area click on "System > General" and in the content area on the "Device" tab.
2. In "System Name", enter a name for the device.
3. Enter the contact person responsible for the device in "System Contact".
4. Enter the identifier for the location at which the device is installed in "System Location", for example the room number.



The screenshot shows a web-based configuration interface for a SCALANCE S615 device. At the top, there is a header bar with the word "Device" in a light gray box. Below this, there are two tabs: "Device" (which is active and highlighted in a darker gray) and "Coordinates". The main content area displays several fields with their current values: "Current System Time: 05/13/2017 13:24:49", "System Up Time: 21m 25s", "Device Type: SCALANCE S615", "System Name: S615-1", "System Contact: Service", and "System Location: 20121". Each field is represented by a light gray rectangular box. At the bottom of the form, there are two buttons: "Set Values" and "Refresh", both in a light gray box.

5. Click the "Set Values" button.

Result

The general device information for the SCALANCE S615 has been specified.

1.7 Setting the time

The date and time are kept on the SCALANCE S615 to check the validity (time) of certificates and for the time stamps of log entries. You can set the system time yourself manually or have it synchronized automatically with a time server. For this example, the time server is configured using NTP.

Note

Manual time setting - reaction after interrupting the power supply

Note that the time is reset to the factory setting if the power supply is interrupted. On return of the power, you need to set the system time again. As result, certificates can lose their validity.

Synchronization using a time server

Synchronization of the system time using a public time server creates additional data traffic on the connection. This may result in additional costs, depending on your subscriber contract.

Requirement

- An NTP server can be reached in the local network.
- The IP address of the NTP server is known.
For this example, a local time server with the IP address 192.168.100.87 is used.

Procedure

1. In the navigation area click on "System > System Time" and in the content area on the "NTP Client" tab.

Network Time Protocol (NTP) Client

Manual Setting | **SNTP Client** | NTP Client | SIMATIC Time Client | NTP Server

☐ NTP Client
☐ Secure NTP Client only

Current System Time: 02/23/2017 09:21:57
 Last Synchronization Time: 02/23/2017 08:06:57
 Last Synchronization Mechanism: Manual
 Time Zone: +00:00

NTP Server Index: 1

Select	NTP Server Index	NTP Server Address	NTP Server Port	Poll Interval	Key ID	Hash Algorithm	Key
☐	1	0.0.0.0	123	64	1	DES	

1 entry.

Create Delete Set Values Refresh

2. In "Time zone", enter the local time difference to world time (UTC). For Central European Summer time (CEST) +02:00.
3. Click "Create". A new entry is created in the table.

4. In "NTP Server Address", enter the IP address 192.53.103.108.
5. If necessary, change the port in "NTP Server Port". As default, 123 is set.
6. In "Poll Interval", enter the interval for synchronization. As default, 64 is set.
7. Enable "NTP Client".
8. Click on "Set Values".

Result

System time using NTP is set. Click "Refresh" to refresh the WBM page.

Network Time Protocol (NTP) Client

Manual Setting | **SNTP Client** | NTP Client | SIMATIC Time Client | NTP Server

☒ NTP Client
☐ Secure NTP Client only

Current System Time: 02/23/2017 09:12:24
 Last Synchronization Time: 02/23/2017 08:06:57
 Last Synchronization Mechanism: Manual
 Time Zone: +00:00

NTP Server Index: 1 ▼

Select	NTP Server Index	NTP Server Address	NTP Server Port	Poll Interval	Key ID	Hash Algorithm	Key
☐	1	192.53.103.108	123	64	1	DES	

1 entry.

Create Delete **Set Values** Refresh

1.8 Creating IP subnet

The interfaces are handled differently.

- Ethernet interface P1 (vlan1): Connection to LAN
- Ethernet interface P5 (vlan2): Connection to WAN

For this configuration example, only the IP subnet for the Ethernet interface P5 needs to be configured. The IP subnet for the Ethernet interface P1 is already configured.

Procedure

1. Click on "Layer 3 > Subnets" in the navigation area and on the "Configuration" tab in the content area.
2. For "Interfaces" select "vlan2".
3. For "Interface Name" you can enter a name.

4. Enter the IP address for vlan2, see table "Settings used (Page 9)"
5. Click on "Set Values".

Connected Subnets Configuration

Overview | **Configuration**

Interface (Name): vlan2 (EXT)

Interface Name: EXT

MAC Address: 00-1b-1b-b6-32-79

☐ DHCP

IP Address: 192.168.50.1

Subnet Mask: 255.255.255.0

Broadcast IP Address: 192.168.50.255

Address Type: Primary

☐ TIA Interface

MTU: 1500

Set Values
Refresh

Result

The IP subnets have been created. The IP subnets are displayed in the "Overview" tab.

Connected Subnets Overview										
Overview Configuration										
Interface: VLAN1										
Select	Interface	TIA Interface	Interface Name	MAC Address	IP Address	Subnet Mask	Address Type	IP Assgn. Method	Address Collision Detection Status	MTU
☐	vlan1	yes	INT	00-1b-1b-b6-32-79	192.168.16.42	255.255.255.0	Primary	Static	Not supported	1500
☐	vlan2	-	EXT	00-1b-1b-b6-32-79	192.168.50.1	255.255.255.0	Primary	Static	Not supported	1500
☐	ppp2	-	ppp2	00-00-00-00-00-00	192.168.2.20	0.0.0.0	Primary	Static	Not supported	1500

3 entries.

Create
Delete
Refresh

VPN tunnel between SCALANCE S615 and SINEMA RC Server

2

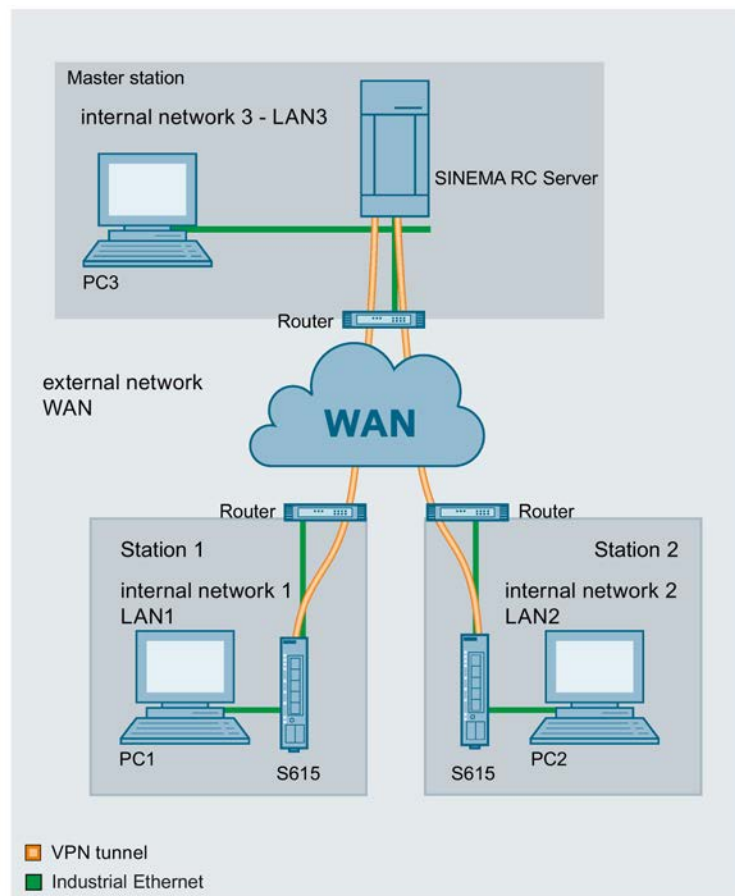
2.1 Procedure in principle

In this sample configuration two distributed stations are connected using a SCALANCE S615. The devices communicate via the SINEMA RC Server located in the master station.

A KEY-PLUG SINEMA Remote Connect is required for each SCALANCE S615 device. The KEY-PLUG enables the connection from SCALANCE S615 to SINEMA RC.

To do this, the devices need to logon to the SINEMA RC Server. The VPN tunnel between the device and the SINEMA RC Server is established only after successful authentication. Depending on the configured communication relations and the security settings, the SINEMA RC server connects the individual VPN tunnels.

Structure



2.1 Procedure in principle

Master station - connection to SINEMA RC Server

- In the test setup in the internal network, a network node is implemented by a PC connected to the LAN port of the SINEMA RC Server.
 - PC: represents a participant in internal network 3
 - SINEMA RC Server
- Connection to the external network via a router
Access to the external network is via a router connected to the WAN port of the SINEMA RC Server.

Station 1 / 2 - Connection to SCALANCE S615

- In the test setup in the internal network, a network node is implemented by a PC connected to the Ethernet interface P1 of the S615.
 - PC: represents a participant in internal network 1/2
 - S615: SCALANCE S module for protection of the internal network 1/2
- Connection to the external network via a router
Access to the external network is via a router connected to the Ethernet interface P5 of the S615.

Required devices/components

Use the following components for setup:

- 2 x S615 (additional option: a suitably installed standard rail with fittings)
- 2 x KEY-PLUG SINEMA RC
- 2 x 24 V power supply with cable connector and terminal block plug
- 2 x PC each connected to a SCALANCE S615.
- 1 x PC on which the SINEMA RC Server is installed.
- 1 x PC that is connected to the SINEMA RC Server.
- 3 x router
- The required network cable, TP cable (twisted pair) complying with the IE FC RJ-45 standard for Industrial Ethernet

Settings used

For the configuration example, the devices are given the following IP address settings:

	Name	Interface	IP address
Station1 LAN1	S615_1	LAN port P1 (vlan1)	192.168.100.1 255.255.255.0
		WAN port P5 (vlan2)	192.168.50.1 255.255.255.0 Default gateway is the LAN IP address of the router 192.168.50.2
	PC1	LAN port	192.168.100.20 255.255.255.0
	Router1	LAN port	192.168.50.2 255.255.255.0
Station2 LAN2	S615_2	LAN port P1 (vlan1)	192.168.10.1 255.255.255.0
		WAN port P5 (vlan2)	192.168.40.1 255.255.255.0 Default gateway is the LAN IP address of the router 192.168.40.2
	PC2	Ethernet (LAN 2)	192.168.10.20 255.255.255.0
	Router 2	LAN port	192.168.40.2 255.255.255.0
Master station LAN3	SINEMA RC Server	WAN port	192.168.20.250 255.255.255.0 The WAN IP address via which the SINEMA RC Server can be reached is the WAN IP address of the router in this example. 192.168.184.20 Default gateway is the LAN IP address of the router 192.168.20.2
		PC3	Ethernet (LAN3)
	Router 3	LAN port	192.168.20.2 255.255.255.0
		WAN port	192.168.184.20

Note

The IP settings used in the configuration example were freely chosen.

In a real network, you would need to adapt these IP settings to avoid possible address conflicts.

2.1 Procedure in principle

Requirement

SINEMA RC Server

- The SINEMA RC Server is connected to the WAN. You will find the configuration steps in the Getting Started "SINEMA Remote Connect".

SCALANCE S615

- The S615 is connected to the WAN , refer to "Connecting SCALANCE S615 to the WAN (Page 9)".
The steps in configuration are the same for all devices, the only difference being the settings, see table "Settings used (Page 21)".
- The S615 can be reached via PC1 or PC2 and you are logged in to the WBM as "admin".
- A valid KEY-PLUG SINEMA Remote Connect is inserted in the SCALANCE S.

Steps in configuration

Configuring access to the SINEMA RC Server

To allow a VPN connection to the SINEMA RC Server, a route must be created on the S615:

1. Configuring a route (Page 25)

For the PC to be able to access the WBM of the SINEMA RC Server via S615 as well, the following steps are necessary on the S615:

1. Activate Basic NAT (Page 26)
2. Allow access (Page 26)

Configure a remote connection on the SINEMA RC Server

1. Creating participant groups (Page 27)
2. Create devices (Page 28)
3. Configure communication relations (Page 31)

Configure a remote connection on the S615

- Secure VPN connection with fingerprint (Page 33)
- Secure OpenVPN connection with CA certificate
 - Loading a certificate (Page 36)
 - Configuring a VPN connection to the SINEMA RC Server (Page 37)

2.2 Configuring access to the SINEMA RC Server

2.2.1 Configuring a route

The stations and master station are in different IP subnets. So that the stations can communicate with the master station, the appropriate default route is created on the S615.

Procedure

1. In the address box of the Web browser, enter the LAN IP address of the S615, see table "Settings used (Page 9)".
2. Log in as the "admin" user and the corresponding password.
3. Click "Layer 3 > Static Routes" in the navigation area.
4. Configure the route to the router with the following settings:

Destination Network	0.0.0.0 (all IP addresses)
Subnet Mask	0.0.0.0
Gateway	LAN IP address of the router according to the table "Settings used (Page 9)"
Administrative Distance	-1

5. When you have entered the values, click "Create".
6. To update the display, click "Refresh".

Result

The route is created.

Statische Routen

Zielnetzwerk:

Subnetzmaske:

Gateway:

Schnittstelle:

Administrative Distanz:

Selektieren	Zielnetzwerk	Subnetzmaske	Gateway	Schnittstelle	Administrative Distanz	Status
☐	192.168.1.0	255.255.255.0	192.168.1.2	vlan3	Nicht verwendet	Inaktiv

1 Eintrag.

2.2.2 Activating IP masquerading

IP masquerading is used so that the internal IP addresses are not forwarded to external. In addition to this, no further routing settings are necessary on the router.

Procedure

1. Click on "Layer 3 > NAT" in the navigation area and on the "Masquerading" tab in the content area.
2. Activate "Enable Masquerading" for vlan2.
3. Click on "Set Values".

Result

Masquerading is activated on the WAN port vlan2. When a packet is sent via this interface, the source address is translated to the IP address assigned to vlan2.

2.2.3 Allow access

So that the PC can access the SINEMA RC Server, access from vlan1 to vlan2 is enabled on the device.

Procedure

1. Click on "Security" > "Firewall" in the navigation area and on the "IP Rules" tab in the content area.
2. Click "Create". A new entry is created in the table.
3. Configure the firewall rule with the following settings:

Action	Accept
From	vlan1 (internal)
To	vlan2 (external)
Source (Range)	0.0.0.0 (all IP addresses)
Destination (Range)	0.0.0.0 (all IP addresses)
Service	all As default, the service is always available

4. Click on "Set Values".

Result

Due to this firewall rule, all services between vlan1 and vlan2 are possible without restrictions, e.g. HTTPS

Internet Protocol (IP) Rules

General | Predefined IPv4 | IP Services | ICMP Services | IP Protocols | **IP Rules**

IP Version: IPv4 ▼

Select	Protocol	Action	From	To	Source (Range)	Destination (Range)	Service	Log	Precedence
☐	IPv4	Accept ▼	vlan1 (INT) ▼	vlan2 (EXT) ▼	0.0.0.0/0	0.0.0.0/0	all ▼	none ▼	0

1 entry.

Create Delete Set Values Refresh

2.3 Configure a remote connection on the SINEMA RC Server

2.3.1 Creating node groups

Users and devices can be put together in participant groups. You can also specify whether the communication between the participants of an individual group is permitted or forbidden.

For this sample configuration, the following groups are created.

- Station1
- Station2
- Service

The Service group is required for the configuration example "OpenVPN tunnel between SINEMA RC Client and SINEMA RC Server". You will find this example in the Getting Started SINEMA RC Server.

Requirement

- The SINEMA RC Server is connected to the WAN.

Procedure

1. In the address box of the Web browser, enter the WAN IP address of the SINEMA RC Server "https://<WAN IP address>", see table "Settings used (Page 21)".
2. Log in as the "admin" user and with the corresponding password.
3. In the navigation area, click "Remote connections" > "Participant groups". The participant groups that have already been created are listed in the content area.
4. Click "Create". The page "New participant group" is opened.

2.3 Configure a remote connection on the SINEMA RC Server

5. For group name enter "Station1". Enable the setting "Members may communicate" and click "Save".
6. Repeat steps 1 - 3 for the groups "Station2" and "Service"

Result

The participant groups have been created.

Participant groups

i no filter active

☐ Precise match

☐	Group name	Members may communicate	Reachable ethernet interfaces	Number of users	Number of devices	Actions
☐	Service	Yes	No	0	0	
☐	Station1	Yes	No	0	<u>1</u>	
☐	Station2	Yes	No	0	<u>1</u>	

2.3.2 Create devices

Procedure

1. In the navigation area, click "Remote connections" > "Devices". The devices that have already been created are listed in the content area.
2. Click "Create" button to create a new device.
3. Enter the device name for the device e.g. "S623" for station 1 and "S615_2" for station 2.
4. Click "Continue".
5. For "VPN connection mode", select "OpenVPN". Click "Continue".
6. Enable the parameter "Connected local subnets".
7. Enable the parameter "Device is a network gateway".
8. Configure the devices with the following settings and click "Add":

Local LAN IP address	IP address for vlan1 according to the table "Settings used".
Network mask	255.255.255.0

9. Click "Continue". The "Group memberships" tab is displayed.
10. Enable the appropriate group.
For the device "S615_1" the group "Station1"
For the device "S615_2" the group "Station2"
11. Click "Continue". The "Password" tab is displayed.
12. Specify the password for the access e.g. An:t_010 for S615_1 and An:t_020 for S615_2.
The password must be made up of uppercase and lowercase letters, numbers and special characters.
13. Click "Complete".

Result

The devices are listed with the devices that have already been created.

- Device password
- Device ID
- Fingerprint

You will find the device ID and the fingerprint in the device information. Click on the  symbol to open the device information.

2.3 Configure a remote connection on the SINEMA RC Server

Devices / S615_1

Device	VPN connection mode	Network settings	Group memberships	Change password	Device overview
--------	---------------------	------------------	-------------------	-----------------	-----------------

Device information:

Device ID: 5

IP address of the VPN server: 192.168.184.20

IP address of the Web server: 192.168.184.20

Web server port: 443

Fingerprint: 66:9C:57:9D:E3:50:BE:D8:D0:4A:EF:94:75:23:11:A5:47:EC:49:D7

Download CA:

Name of the device: S615_1

Local LAN IP address:

Local subnet	Network gateway
192.168.100.1/24	Yes

Virtual local LAN IP address:

Virtual local LAN	Local subnet	Network gateway
-------------------	--------------	-----------------

Device-specific virtual LAN:

Virtual local LAN	Local host	Network gateway
-------------------	------------	-----------------

Type:

Vendor:

Location:

Type of connection: Permanent

SMS gateway provider:

Comment:

Groups: Station1

VPN connection mode: OpenVPN

IPsec profile:

Request virtual IP: Yes

Fixed IP address: 172.29.0.5

IPsec certificate:

Local ID:

Remote ID:

2.3.3 Configure communications relations

So that participant groups can communicate with each other, communication relations are necessary. A communication relation can be created for every direction.

For this sample configuration, the following communication relations are created:

from group	to the destination group
Service	Station1
	Station2
Station1	Station2

In this configuration example, communication is only from the group "Station 1" to the group "Station 2". In the opposite direction, no communication is possible. For the communication from the group "Station2" to the group "Station1" another communication relation is necessary.

The group "Service" can also communicate with the groups "Station1" and "Station2" but they cannot communicate with "Service".

Procedure

1. In the navigation area, click "Remote connections" > "Participant groups". The participant groups that have already been created are listed in the content area.
2. For "Station1" in the "Actions" column click on the icon . The page "Destination group" is opened.
3. Enable "Station2" and click on "Save".
4. Click "Exit dialog".
5. For "Service", click the symbol  in the "Actions" column. The page "Destination group" is opened.
6. Enable "Station1" and "Station2". Click "Save".
7. Click "Exit dialog".

Result

The communication relations have been created.

Click "Remote connections" > "Communication relations" in the navigation area. The created relations are listed in the content area.

2.3 Configure a remote connection on the SINEMA RC Server

Communication relations

no filter active

Search filter:

Source group

☐ Precise match

Apply filter

Show all

Source group	Destination group	Actions
Service	Station1 Station2 Service	
Station1	Station1	
Station2	Station1 Station2	

2.4 Configure a remote connection on the S615

2.4.1 Secure VPN connection with fingerprint

Requirement

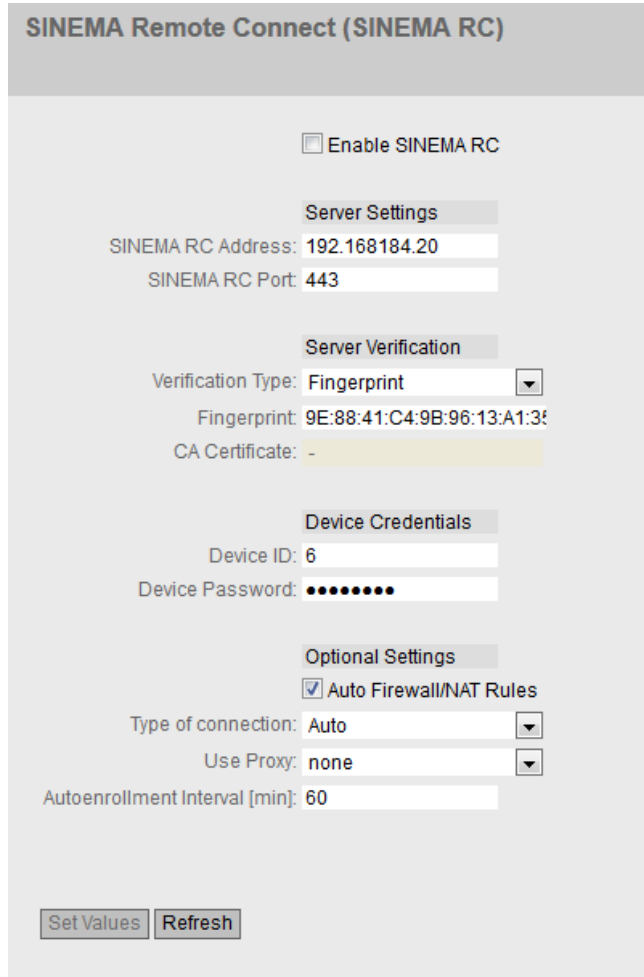
- On PC1/2 there are two Web browser windows open.
- Web browser 1 for access to Web Based Management of the SCALANCE S615.
- Web browser 2 for access to SINEMA RC.
- A valid KEY-PLUG is inserted in the S615.

Procedure

1. Change to the Web browser for access to Web Based Management of the SCALANCE S615.
 - In the address box of the Web browser, enter the LAN IP address of the S615, see table "Settings used (Page 21)".
 - Log in as the "admin" user and with the corresponding password.
 - Click "System" > "SINEMA RC" in the navigation area.
 - For "Sinema RC Address", enter the WAN IP address of the SINEMA RC Server, see table "Settings used (Page 21)".
2. Change to the Web browser for access to SINEMA RC.
 - In the address box of the Web browser, enter the WAN IP address of the SINEMA RC Server, see table "Settings used (Page 21)".
 - Log in as the "admin" user and the corresponding password.
 - In the navigation area, click "Remote connections" > "Devices".
 - Click on the symbol  in "Actions" to open the device information.
 - Holding down the left mouse button, select the entry for device ID.
 - Right-click on the selection and in the shortcut menu, select the copy command.
3. Change to the Web browser for access to Web Based Management of the SCALANCE S615.
 - Right click in the input box of "Device ID".
 - In the shortcut menu, select the menu command for inserting.
 - For "Device Password" enter the password that you configured for access, An:t_010 for S615_1 and An:t_020 for S615_2
 - Enable "Auto Firewall/NAT Rules"
When enabled, the suitable NAT and firewall rules are created automatically.
For "Verification Type", select "Fingerprint".

2.4 Configure a remote connection on the S615

4. Change to the Web browser for access to SINEMA RC.
 - For "Fingerprint" click on the icon .
5. Change to the Web browser for access to Web Based Management of the SCALANCE S615.
 - Right click in the input box of "Fingerprint".
 - In the shortcut menu, select the menu command for inserting.
 - Activate "Enable SINEMA RC" and click on "Set Values".



SINEMA Remote Connect (SINEMA RC)

☐ Enable SINEMA RC

Server Settings

SINEMA RC Address: 192.168.184.20

SINEMA RC Port: 443

Server Verification

Verification Type: Fingerprint

Fingerprint: 9E:88:41:C4:9B:96:13:A1:3!

CA Certificate: -

Device Credentials

Device ID: 6

Device Password: ••••••••

Optional Settings

☒ Auto Firewall/NAT Rules

Type of connection: Auto

Use Proxy: none

Autoenrollment Interval [min]: 60

Result

The device establishes an OpenVPN tunnel to the SINEMA RC Server.

You can check in the WBM to see whether the connection was successful.

In the Web browser for access to Web Based Management of SCALANCE S615: In the navigation area, click "Information" > "SINEMA RC".

SINEMA Remote Connect (SINEMA RC)

☐ Enable SINEMA RC

Server Settings

SINEMA RC Address: 192.168.184.20

SINEMA RC Port: 443

Server Verification

Verification Type: Fingerprint

Fingerprint: 9E:88:41:C4:9B:96:13:A1:3F

CA Certificate: -

Device Credentials

Device ID: 6

Device Password: ••••••••

Optional Settings

☒ Auto Firewall/NAT Rules

Type of connection: Auto

Use Proxy: none

Autoenrollment Interval [min]: 60

Web browser for access to SINEMA RC: Click "Remote connections" > "Devices" in the navigation area.

Devices									
no filter active									
Search filter: All Precise match Apply filter Show all									
☐	Name of the device	VPN address	Remote subnet	Virtual local LAN	Status	Location	Type of connection	VPN connection mode	Actions
☐	S615_1	None	192.168.100.0/24	None	online		Permanent	OpenVPN	
☐	S615_2	None	192.168.10.0/24	None	online		Permanent	OpenVPN	
Create Import Copy Delete									

2.4.2 Secure VPN connection with CA certificate

2.4.2.1 Loading a certificate

Requirement

- The correct time is set on the S615 and the SINEMA RC Server.
- On PC1/2 there are two Web browser windows open.

Procedure

1. Change to the Web browser for access to SINEMA RC.
 - In the address box of the Web browser, enter the WAN IP address of the SINEMA RC Server, see table "Settings used (Page 21)".
 - Log in as the "admin" user and the corresponding password.
 - Click "Security" > "Certificates" in the navigation area.
 - Click on the  symbol in "Actions" to export the certificate.
2. Change to the Web browser for access to Web Based Management of the SCALANCE S615.
 - In the address box of the Web browser, enter the LAN IP address of the S615, see table "Settings used (Page 21)".
 - Log in as the "admin" user and with the corresponding password.
 - Click on "System" > "Load&Save" in the navigation area and on the "Passwords"" tab in the content area.
 - Enter the device password in "X509Cert". Enable the entry and click on "Set Values".
 - Click on the "HTTP" tab in the content area.
 - Click the "Load" button next to "X509Cert". The dialog for loading a file is opened.
 - Navigate to the exported server certificate. Click the "Open" button in the dialog.

The file is now loaded on the device. After loading successfully, confirm the next dialog with "OK".

Result

The certificates are loaded. Certificates are displayed in "Security" > "Certificates". The loaded certificates must have the status "Valid".

Certificates Overview								
Overview		Certificates						
Select	Type	Filename	State	Subject DN	Issuer DN	Issue Date	Expiry Date	Used
☐	Machine Cert	M874_1_Cert.pem	valid	CN=M874_1@3.1	CN=CA 000001 SINEMA RC	01/31/2017 15:55:08	02/02/2018 15:55:08	-
☐	CA Cert	M874_1_CACert.pem	valid	CN=CA 000001 SINEMA RC	CN=CA 000001 SINEMA RC	02/01/2017 08:07:12	02/01/2027 08:07:12	Sinema RC
☐	Key File	M874_1_Key.pem	valid	CN=M874_1@3.1	CN=CA 000001 SINEMA RC	01/31/2017 15:55:08	02/02/2018 15:55:08	-
3 entries.								
Delete Refresh								

2.4.2.2 Configuring a VPN connection to the SINEMA RC Server

Requirement

- A valid KEY-PLUG is inserted in the S615.

Procedure

1. Change to the Web browser for access to Web Based Management of the SCALANCE S615.
 - Click "System > SINEMA RC" in the navigation area.
 - For "Sinema RC Address", enter the WAN IP address of the SINEMA RC Server, see table "Settings used (Page 21)".
2. Change to the Web browser for access to SINEMA RC.
 - In the navigation area, click "Remote connections" > "Devices".
 - Click on the symbol  in "Actions" to open the device information.
 - Holding down the left mouse button, select the entry for device ID.
 - Right-click on the selection and in the shortcut menu, select the copy command.

2.4 Configure a remote connection on the S615

3. Change to the Web browser for access to Web Based Management of the SCALANCE S615.

- Right click in the input box of "Device ID".
- In the shortcut menu, select the menu command for inserting.
- For "Device Password" enter the password that you configured for access, An:t_010 for S615-1 and An:t_020 for S615-2.
- Enable "Auto Firewall / NAT Rules".

When enabled, the suitable NAT and firewall rules are created automatically.

For "Verification Type" select "CA Certificate".

- In "CA Certificate" select the server certificate. Only loaded certificates can be selected.

SINEMA Remote Connect (SINEMA RC)

☐ Enable SINEMA RC

Server Settings

SINEMA RC Address: 192.168.184.20

SINEMA RC Port: 443

Server Verification

Verification Type: CA Certificate

Fingerprint:

CA Certificate: M874_1_CACert.pem

Device Credentials

Device ID: 6

Device Password: *****

Optional Settings

☒ Auto Firewall/NAT Rules

Type of connection: Auto

Use Proxy: none

Autoenrollment Interval [min]: 60

- Activate "Enable SINEMA RC" and click on "Set Values".

Result

The device establishes an OpenVPN tunnel to the SINEMA RC Server.

You can check in the WBM to see whether the connection was successful.

Web browser 1: In the navigation area, click "Information" > "SINEMA RC".

Web browser 2: Click "Remote connections" > "Devices" in the navigation area.

Devices									
no filter active									
Search filter: All ☐ Precise match Apply filter Show all									
☐	Name of the device	VPN address	Remote subnet	Virtual local LAN	Status	Location	Type of connection	VPN connection mode	Actions
☐	S615_1	None	192.168.100.0/24	None	online		Permanent	OpenVPN	
☐	S615_2	None	192.168.10.0/24	None	online		Permanent	OpenVPN	
Create Import Copy Delete									

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