

SIEMENS

SIMATIC NET

Industrial Remote Communication SINEMA Remote Connect

Getting Started

Preface

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Legal information

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 DANGER
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 WARNING
indicates that death or severe personal injury may result if proper precautions are not taken.
 CAUTION
indicates that minor personal injury can result if proper precautions are not taken.
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indicates that property damage can result if proper precautions are not taken.


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Preface

Purpose

Based on examples, the configuration of SINEMA Remote Connect is shown.

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 documentation

- Operating instructions "SINEMA Remote Connect Client"
This manual supports you when installing, configuring and operating the application SINEMA RC Client.
- Operating instructions "SINEMA Remote Connect server"
This manual supports you when installing, configuring and operating the application SINEMA RC Server.
- "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.
- Getting Started "Industrial Remote Communication Remote Networks - SCALANCE S615"
Based on examples, this document explains the configuration of the SCALANCE S615.
- 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>)

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You will find the current manuals and further information on telecontrol products on the Internet pages of Siemens Industry Online Support:

- Using the search function:

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

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- via the navigation in the "Telecontrol" area:

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Go to the required product group and make the following settings:
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- Product CD / product DVD
- SIMATIC NET Manual Collection

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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 here:

- SIMATIC NET Manual Collection or product DVD
The DVD ships with certain SIMATIC NET products.
- On the Internet under the following entry ID:
50305045 (<http://support.automation.siemens.com/WW/view/en/50305045>)

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SINEMA, SCALANCE, KEY-PLUG

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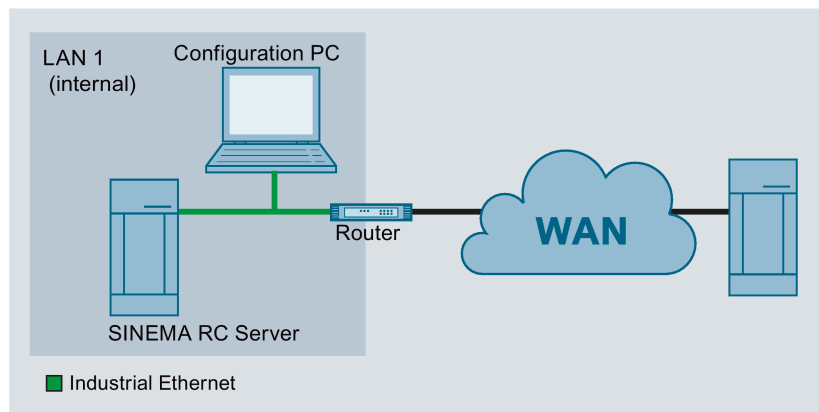
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Connecting the SINEMA RC Server to the WAN

1.1 Procedure in principle

In this example, the SINEMA RC Server is configured using the Web Based Management (WBM). On the WAN/LAN access is via a router that is connected to the WAN port of the server.

Structure



Required devices/components

- 1 x PC without operating system
- 1 x router

On the router, PORT forwarding for the Web Based Management and OpenVPN with TCP and UDP (TCP/443,UDP/1194,TCP/5443) must be enabled.

- 1 x PC for configuring the SINEMA RC Server
- 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
LAN1	SINEMA RC Server	WAN port (eth0)	192.168.20.250 255.255.255.0 Gateway: IP address of the router
	PC	Ethernet	192.168.20.20 255.255.255.0
	Router	LAN port	192.168.20.2 255.255.255.0
		WAN port	192.168.184.20 255.255.255.0

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.

Steps in configuration

1. Installing SINEMA RC Server (Page 11)
2. Launching Web Based Management (Page 12)
3. Logging in to Web Based Management (Page 15)
4. Check the interface (Page 16)
5. Setting the time (Page 17)

1.2 Installing SINEMA RC Server

NOTICE
Installation formats the hard disk
The installation of the SINEMA RC Server includes its own operating system. If you use a PC on which an operating system already exists, the hard disk will be formatted. This means that existing data is lost. Make sure that all important data on the PC has been backed up.

Requirement

- PC without operating system. The hard disk should be at least 30 GB.
- In the boot order, CD/DVD is set as the first boot medium.

Procedure

1. Turn on the PC.
2. Insert the data medium in the drive. Installation starts automatically.
3. In the following dialog the entry "single - Single tenant appliance" is selected. Press <Return> to confirm the selection.
4. In the following dialog, the entry "eth0" is selected. Press <Return> to confirm the selection.
5. Enter the WAN IP address of the SINEMA RC Server, refer to the table "Settings used (Page 9)". Press <Return> to confirm the entry.
6. For the network mask, leave the entry unchanged. Press <Return> to confirm the entry.
7. As the gateway enter the LAN IP address of the router, refer to the table "Settings used (Page 9)". Press <Return> to confirm the entry.

The operating system and the SINEMA RC Server are installed. Follow the further instructions on the screen.

1.3 Launching Web Based Management

After installation, the SINEMA RC Server is reachable via the WAN interface at the following IP address 192.168.20.250

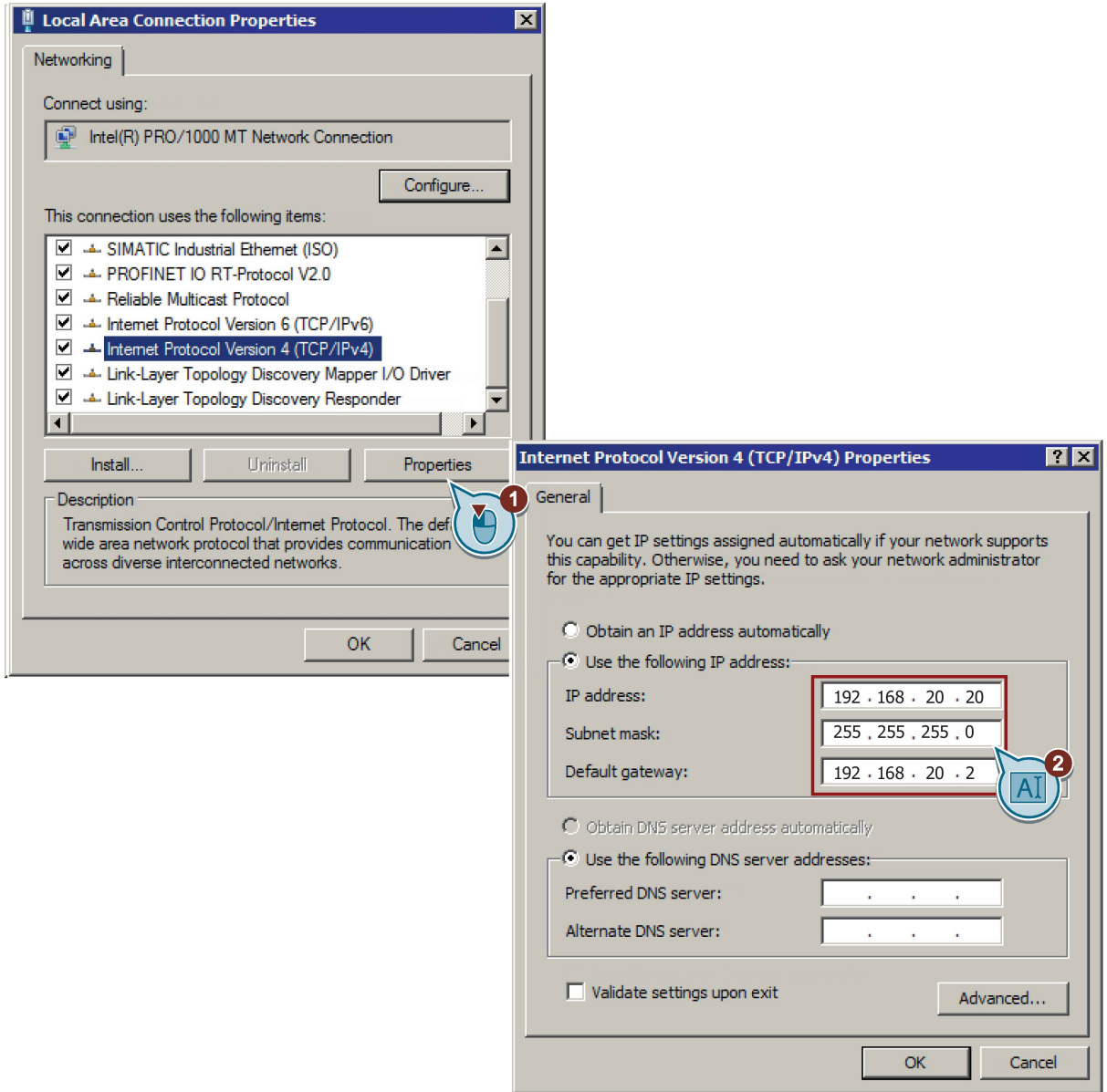
In this configuration example, the configuration PC has the following IP address setting to allow it to access the Web Based Management of the SINEMA RC Server.

IP address	Subnet mask	Gateway
192.168.20.20	255.255.255.0	192.168.20.2

Procedure

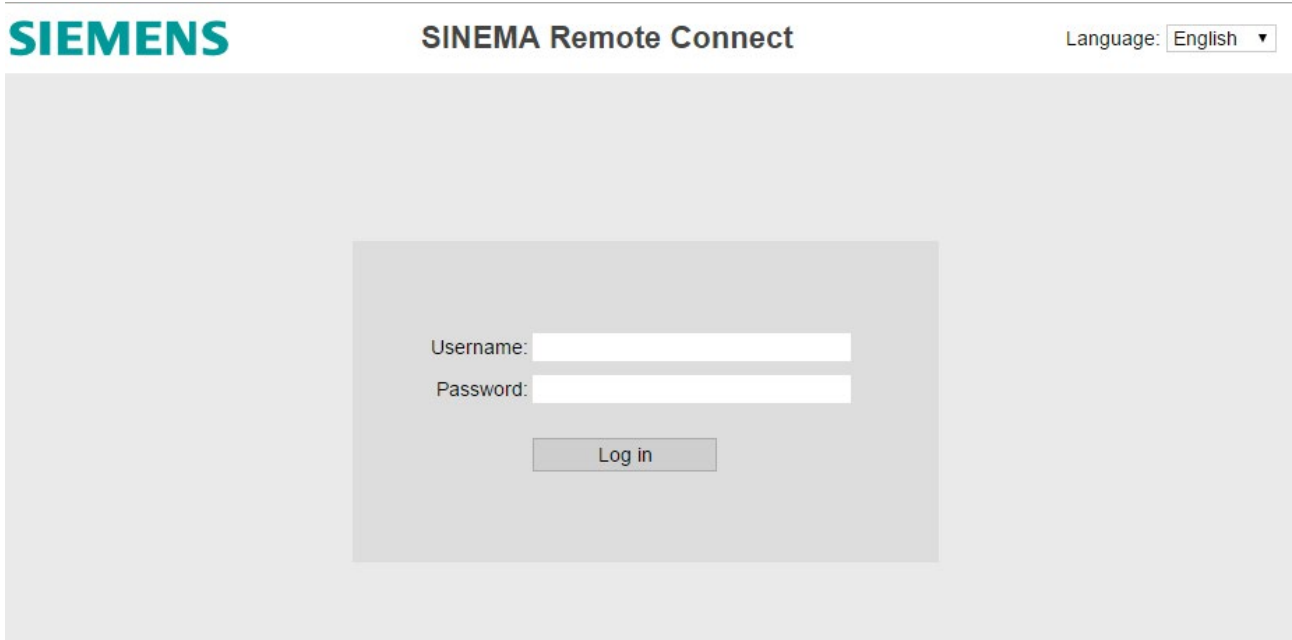
1. On the PC, open the Control Panel with the menu command "Start" > "Control Panel".
2. Click "Network and Sharing Center" and select the "Change adapter settings" option in the navigation menu on the left.
3. Right-click on the "LAN Connection" symbol and select the "Properties" menu command.
4. In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

5. Enter the values in the table above.



1.3 Launching Web Based Management

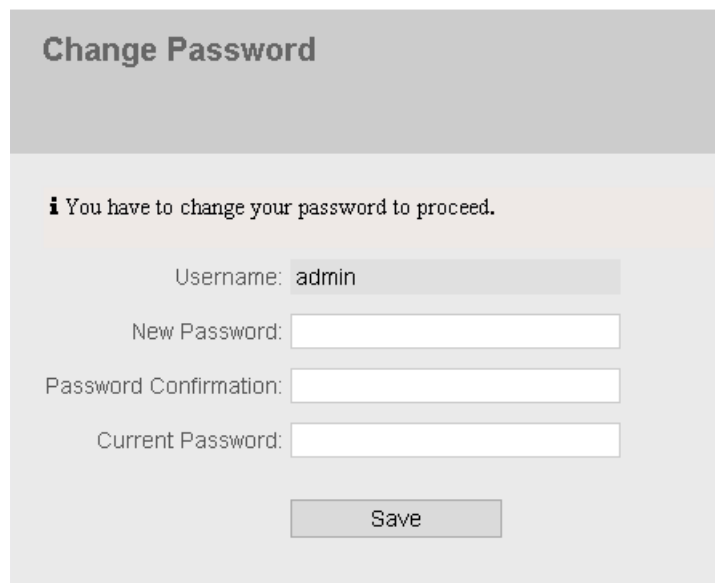
- 6. Confirm the dialogs with "OK" and close the Control Panel.
- 7. In the address box of the Web browser enter "https://192.168.20.250". If there is a problem-free connection, the login page of Web Based Management (WBM) is displayed.



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. For "New password", enter the new password.
The new must be at least 8 characters long and contain special characters, upper and lowercase characters as well as numbers.
3. Repeat the password to confirm it in "Confirm password". The entries must match.
4. For "Current password" enter the default password "admin" and click "Backup".



The screenshot shows a web form titled "Change Password". At the top, there is a message: "i You have to change your password to proceed." Below this, there are four input fields: "Username:" with the value "admin", "New Password:", "Password Confirmation:", and "Current Password:". At the bottom of the form is a "Save" button.

Result

The password for the "admin" user is changed. Log on in future with the changed password.

1.5 Check the interface

Procedure

1. In the navigation area, click "Security" > "Network" and in the content area click the "Interfaces" tab.
2. For "Port" select "WAN". The configuration of the port is displayed.
3. Check the settings of the WAN port.

IP address	WAN IP address of the SINEMA RC Server according to the table "Settings used (Page 9)".
Network mask	Network mask according to the table "Settings used (Page 9)".
Standard gateway	LAN IP address of the router according to the table "Settings used (Page 9)".

4. Enable "SINEMA Remote Connect is downstream from a NAT device" to enter the external WAN IP for the gateway.
5. For the WAN IP address, enter the WAN IP address of the router, see table "Settings used (Page 9)".

The screenshot shows the 'Network Configuration' interface with the 'Interfaces' tab selected. A warning message states: 'A change in the following settings might disconnect all connected devices/users and put web server temporarily out of service!'. The 'Enable Port' checkbox is checked, and the 'Port' dropdown is set to 'WAN'. The MAC Address is 08:00:27:d5:e4:b6, MTU is 1500, IP Address is 192.168.20.250, Netmask is 255.255.255.0, and Default Gateway is 192.168.20.2. The 'SINEMA RC is behind a NAT device' checkbox is also checked, and the WAN IP Address is set to 192.168.184.20. A 'Save' button is visible at the bottom.

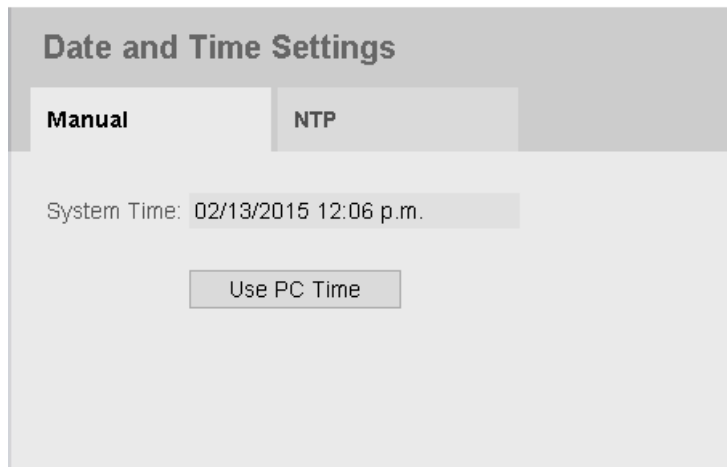
6. Click "Backup".

1.6 Setting the time

The date and time are kept on the SINEMA RC Server 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.

Procedure

1. In the navigation area, click "System" > "Date and time" and in the content area click the "Manual" tab.
2. Click "Use PC time".



Result

System time using PC is set.

Creating devices using a csv file

2.1 Introduction

In this example three devices are created using a csv file. The csv file has a certain structure, see section "Structure of the csv file (Page 20)".

Settings used

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

Name of the device	Setting	
S615_001	Type of connection	1 = permanent
	Participant group	Station1
	Network gateway	Yes
	Local LAN IP address 1	192.168.10.1 255.255.255.0
	Local LAN IP address 2	192.168.20.1 255.255.255.0
	NAT for local subnet Virtual local LAN IP address	10.90.80.1 255.255.255.0 Assigned to local LAN IP address 2
S615_002	Type of connection	1 = permanent
	Participant group	Station2
	Network gateway	No
	Local LAN IP address	192.168.30.1 255.255.255.0
	NAT for local subnet Virtual local LAN IP address	10.90.90.1 255.255.255.0
	NAT for local hosts Virtual local LAN IP address Local host	10.90.90.x 192.168.30.y x = 2 - 20 y = 1 - 19
S615_003	Type of connection	1 = permanent
	Participant group	Station1

Steps in configuration

1. Creating a csv file (Page 22)
2. Importing a csv file (Page 24)

2.2 Structure of the csv file

On the data medium, you will find a template of the [csv file](#). The entries are separated by semicolons.

```
Device Name;GSM Number;Type;Vendor;Location;Type of connection;Provider ;Comment;Group;Local LAN IP;Network mask;Network
gateway;Virtual local LAN IP;Network mask;Virtual local LAN address;Local Single host
S615_001;;;Siemens AG;Karlsruhe;1;;;Station1;192.168.10.1;255.255.255.0;Yes;;;
S615_001;;;192.168.20.1;255.255.255.0;;10.90.80.1;255.255.255.0;;
S615_002;;;Siemens AG;Karlsruhe;1;;;Station2;192.168.30.1;255.255.255.0;;10.90.90.1;255.255.255.0;10.90.90.2;192.168.30.1
S615_002;;;10.90.90.3;192.168.30.2
S615_002;;;10.90.90.4;192.168.30.3
S615_002;;;10.90.90.5;192.168.30.4
S615_002;;;10.90.90.6;192.168.30.5
S615_002;;;10.90.90.7;192.168.30.6
S615_002;;;10.90.90.8;192.168.30.7
S615_002;;;10.90.90.9;192.168.30.8
S615_002;;;10.90.90.10;192.168.30.9
S615_002;;;10.90.90.11;192.168.30.10
S615_002;;;10.90.90.12;192.168.30.11
S615_002;;;10.90.90.13;192.168.30.12
S615_002;;;10.90.90.14;192.168.30.13
S615_002;;;10.90.90.15;192.168.30.14
S615_002;;;10.90.90.16;192.168.30.15
S615_002;;;10.90.90.17;192.168.30.16
S615_002;;;10.90.90.18;192.168.30.17
S615_002;;;10.90.90.19;192.168.30.18
S615_002;;;10.90.90.20;192.168.30.19
S615_003;;;Siemens AG;Karlsruhe;1;;;Station1;;;;;
```

Values to be set

The table contains the entries that you can enter in the csv file. For more detailed information on these entries, refer to the section "Creating a new device" and device information..

The entry ...	stands for ...
Device Name	Name of the device
GSM Number	GSM number
Type	Device type
Vendor	Manufacturer
Location	Location
Type of connection	Type of connection Enter the number for the relevant type of connection. 1 = permanent: 2 = digital input 3 = wake-up SMS 4 = digital input & wake-up SMS
Provider	Name of the SMS gateway provider
Comment	Comment
Group	Participant group The requirement is that the participant group has already been created.
Local LAN IP	Local LAN IP address
Network mask	Network mask of the local LAN IP address
Network gateway	Device is a network gateway If the device is a network gateway, enter "Yes".
Virtual local LAN IP	Virtual local LAN IP address
Network mask	Network mask of the virtual local LAN IP address

The entry ...	stands for ...
Virtual local LAN address	Virtual local LAN address
Local Single host	Local host

2.3 Creating a csv file

Procedure

1. Open the [csv template](#) with MS Excel or a text editor.
2. Specify the first device.

```
S615_001;;;Siemens AG;Karlsruhe;1;;Station1;192.168.10.1;255.255.255.0;Yes;;;
S615_001;;;;;;;192.168.20.1;255.255.255.0;0;;;
```

Specify the number for the relevant type of connection: 1 for permanent

If the device is a network gateway, specify "Yes". Otherwise no entry is necessary.

3. Specify the second device:

```
S615_002;;;Siemens
AG;Karlsruhe;1;;Station2;192.168.30.1;255.255.255.0;No;10.90.90.1;255.255.255.0;10
.90.90.2;192.168.30.1

S615_002;;;;;;;10.90.90.3;192.168.30.2
S615_002;;;;;;;10.90.90.4;192.168.30.3
S615_002;;;;;;;10.90.90.5;192.168.30.4
S615_002;;;;;;;10.90.90.6;192.168.30.5
S615_002;;;;;;;10.90.90.7;192.168.30.6
S615_002;;;;;;;10.90.90.8;192.168.30.7
S615_002;;;;;;;10.90.90.9;192.168.30.8
S615_002;;;;;;;10.90.90.10;192.168.30.9
S615_002;;;;;;;10.90.90.11;192.168.30.10
S615_002;;;;;;;10.90.90.12;192.168.30.11
S615_002;;;;;;;10.90.90.13;192.168.30.12
S615_002;;;;;;;10.90.90.14;192.168.30.13
S615_002;;;;;;;10.90.90.15;192.168.30.14
S615_002;;;;;;;10.90.90.16;192.168.30.15
S615_002;;;;;;;10.90.90.17;192.168.30.16
S615_002;;;;;;;10.90.90.18;192.168.30.17
S615_002;;;;;;;10.90.90.19;192.168.30.18
S615_002;;;;;;;10.90.90.20;192.168.30.19
```

For "NAT for local subnet", a row is necessary for every assignment.

4. Specify the third device.

```
S615_003;;;Siemens AG;Karlsruhe;1;;;Station1;;;;;
```

In this case, only the name, the location and the group of the device are created. The rest is entered later in the WBM of the SINEMA RC server.

5. Save the csv file.

Result

The csv file has been created with the three devices.

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Device Name	GSM Number	Type	Vendor	Location	Type of connection	Provider	Comment	Group	Local LAN IP	Network mask	Network gate	Virtual local L	Network mas	Virtual local L	Local Single hos
S615_001			Siemens AG	Karlsruhe	1			Station1	192.168.10.1	255.255.255.0	Yes				
S615_001									192.168.20.1	255.255.255.0		10.90.80.1	255.255.255.0		
S615_002			Siemens AG	Karlsruhe	1			Station2	192.168.30.1	255.255.255.0		10.90.90.1	255.255.255.0	10.90.90.2	192.168.30.1
S615_002														10.90.90.3	192.168.30.2
S615_002														10.90.90.4	192.168.30.3
S615_002														10.90.90.5	192.168.30.4
S615_002														10.90.90.6	192.168.30.5
S615_002														10.90.90.7	192.168.30.6
S615_002														10.90.90.8	192.168.30.7
S615_002														10.90.90.9	192.168.30.8
S615_002														10.90.90.10	192.168.30.9
S615_002														10.90.90.11	192.168.30.10
S615_002														10.90.90.12	192.168.30.11
S615_002														10.90.90.13	192.168.30.12
S615_002														10.90.90.14	192.168.30.13
S615_002														10.90.90.15	192.168.30.14
S615_002														10.90.90.16	192.168.30.15
S615_002														10.90.90.17	192.168.30.16
S615_002														10.90.90.18	192.168.30.17
S615_002														10.90.90.19	192.168.30.18
S615_002														10.90.90.20	192.168.30.19
S615_003			Siemens AG	Karlsruhe	1			Station1							

Figure 2-1 csv file: Table editor

```
Device Name;GSM Number;Type;vendor;Location;Type of connection;Provider ;Comment;group;Local LAN IP;Network mask;Network gateway;Virtual local LAN IP;Network mask;Virtual local LAN address;Local Single host
S615_001;;;Siemens AG;Karlsruhe;1;;;Station1;192.168.10.1;255.255.255.0;Yes;;;
S615_001;;;192.168.20.1;255.255.255.0;;10.90.80.1;255.255.255.0;;
S615_002;;;Siemens AG;Karlsruhe;1;;;Station2;192.168.30.1;255.255.255.0;;10.90.90.1;255.255.255.0;10.90.90.2;192.168.30.1
S615_002;;;10.90.90.3;192.168.30.2
S615_002;;;10.90.90.4;192.168.30.3
S615_002;;;10.90.90.5;192.168.30.4
S615_002;;;10.90.90.6;192.168.30.5
S615_002;;;10.90.90.7;192.168.30.6
S615_002;;;10.90.90.8;192.168.30.7
S615_002;;;10.90.90.9;192.168.30.8
S615_002;;;10.90.90.10;192.168.30.9
S615_002;;;10.90.90.11;192.168.30.10
S615_002;;;10.90.90.12;192.168.30.11
S615_002;;;10.90.90.13;192.168.30.12
S615_002;;;10.90.90.14;192.168.30.13
S615_002;;;10.90.90.15;192.168.30.14
S615_002;;;10.90.90.16;192.168.30.15
S615_002;;;10.90.90.17;192.168.30.16
S615_002;;;10.90.90.18;192.168.30.17
S615_002;;;10.90.90.19;192.168.30.18
S615_002;;;10.90.90.20;192.168.30.19
S615_003;;;Siemens AG;Karlsruhe;1;;;Station1;;;;;
```

Figure 2-2 csv file: Text editor

2.4 Importing a csv file

Requirement

- The csv file exists and is filled correctly.
- The activated license is adequate.
- The participant groups "Station1" and "Station2" have been created.
- The names of the devices have not yet been created.
- The logged on user has the right "Manage devices"


Procedure

1. Click the "Import" button on the page with the device list.
2. Click the "Browse" button and select the csv file.
3. Click "Import".

After importing the file, the devices are listed on the "Device selection" tab

4. Select the check box for "S615_001", "S615_002" and "S615_003".
5. Click "Finish".

Result

After creating (importing) the devices are displayed in the device list. Click on  to check the settings.

OpenVPN tunnel between SCALANCE S615 and SINEMA RC Server

3

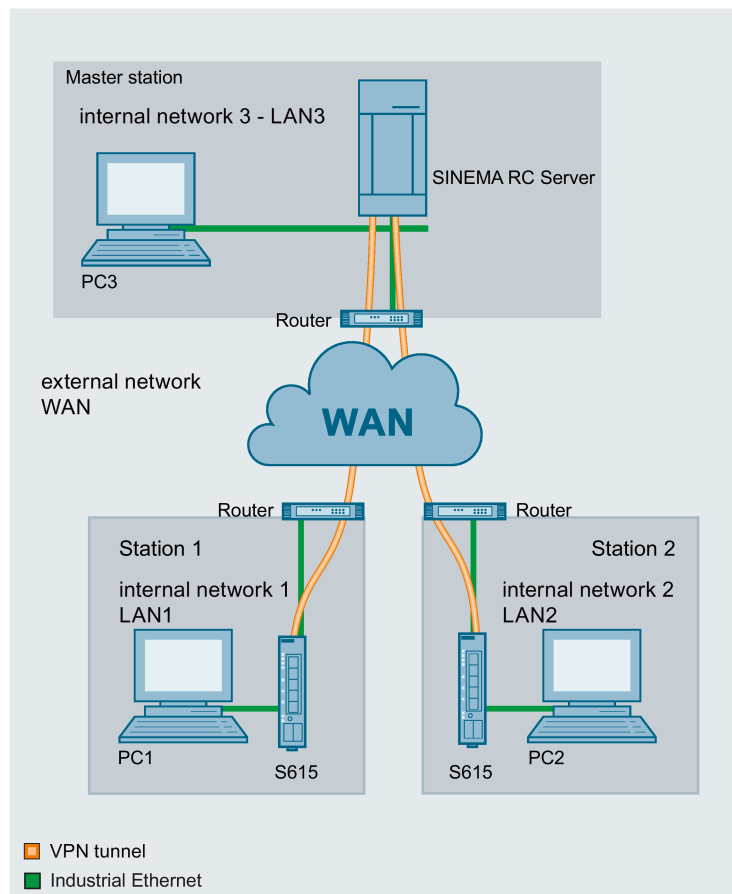
3.1 Procedure in principle

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



3.1 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
Station -1 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
Station-2 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.

3.1 Procedure in principle

Requirement

SINEMA RC Server

- The SINEMA RC Server is connected to the WAN, see "Connecting the SINEMA RC Server to the WAN (Page 9)".

SCALANCE S615

- The SCALANCE S is connected to the WAN. You will find the configuration steps in the Getting Started "SCALANCE S615".

The steps in configuration are the same for all devices, the only difference being the settings, see table "Settings used (Page 47)".

- The SCALANCE S can be reached via PC1/2 and you are logged on 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 on the S615

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

1. Configuring a route (Page 29)

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

1. Activate Basic NAT (Page 30)
2. Allow access (Page 30)

Configure a remote connection on the SINEMA RC Server

1. Creating participant groups (Page 32)
2. Create devices (Page 33)
3. Configure communication relations (Page 36)

Configure the remote connection on the S615

- Secure OpenVPN connection with fingerprint (Page 38)
- Secure OpenVPN connection with CA certificate
 - Loading a certificate (Page 41)
 - Configure an OpenVPN connection to the SINEMA RC Server (Page 43)

3.2 Configuring access to the SINEMA RC Server on the S615

3.2.1 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

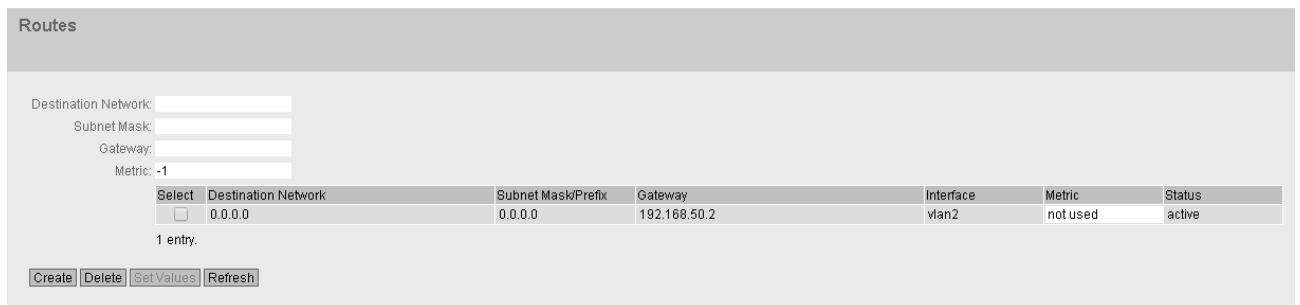
1. In the address box of the Web browser, enter the LAN IP address of the S615, see table "Settings used (Page 47)".
2. Log in as the "admin" user and the corresponding password.
3. Click "Layer 3" > "Routes" in the navigation area.
4. Configure the route to the router with the following settings:

Destination Network	0.0.0.0 (all IP addresses)
Subnetmask	0.0.0.0
Gateway	LAN IP address of the router according to the table "Settings used"
Metric	-1

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

Result

The route is created.



3.2 Configuring access to the SINEMA RC Server on the S615

3.2.2 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. Select "Enable Masquerading" for vlan2.
3. Click "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.

3.2.3 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 "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
<input type="checkbox"/>	IPv4	Accept	vlan1	vlan2	0.0.0.0/0	0.0.0.0/0	all	none	0

1 entry.

Create Delete Set Values Refresh

3.3 Configure a remote connection on the SINEMA RC Server

3.3.1 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.

- Station -1
- Station-2
- Service

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 47)".
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.
5. Enter "Station 1" for group name and click "Exit".
6. Repeat steps 1 - 3 for the groups "Station-2" and "Service"

Result

The participant groups have been created.

Participant Groups

i No Filter active

Exact match

<input type="checkbox"/>	Group Name	Members may Communicate	Number of Users	Number of Devices	Actions
<input type="checkbox"/>	Service	no	1	0	
<input type="checkbox"/>	Station-1	no	0	1	
<input type="checkbox"/>	Station-2	yes	0	1	

3.3.2 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. "S615-1" for station 1 and "S615-2" for station 2.
4. Click "Continue".
5. Enable the option "Connected local subnets".
6. Configure the devices with the following settings:

Local LAN IP address	IP address for vlan1 according to the table "Settings used (Page 47)".
Network mask	255.255.255.0

7. Click "Continue". The "Group memberships" tab is displayed.


3.3 Configure a remote connection on the SINEMA RC Server

8. Enable the appropriate group.
For the "S615-1" device, the group "Station 1"
For the "S615-2" device, the group "Station 2"
9. Click "Continue". The "Password" tab is displayed.
10. Specify the password for 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.
11. Click "Exit".

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.

Devices / S615-1

Device Details
Network Settings
Group Memberships
Change Password
Device Summary

Device Information:

Device ID: 2

Fingerprint: 6D:78:25:86:46:5C:86:5A:D6:A4:A4:0B:3E:45:28:E5:77:A9:04:FF

Device Name: S615-1

	Local Subnet	Network GW
Local LAN IP Address:	192.168.10.1/24	Yes

	Virtual Local LAN	Local Subnet	Network GW
Virtual Local LAN IP Address:			

Virtual local LAN device specific

	Virtual Local LAN	Destination IP	Network GW

Type:

Vendor:

Location:

Connection Type:

Comment:

Groups:

3.3.3 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	Station -1
	Station-2
Station -1	Station-2

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 "Station 2" to the group "Station 1" another communication relation is necessary.

The group "Service" can also communicate with the groups "Station 1" and "Station 2" but not the other way round.

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 "Station 1", click the symbol  in the "Actions" column. The page "Destination group" is opened.
3. Enable "Station 2" 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 "Station 1" and "Station 2". 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.

Communication Relationships

i No Filter active

Search Filter: Source Group Exact match

Source Group	Destination Groups	Actions
Station-1	Station-2	
Station-2	Station-1 Station-2	


3.4 Configure the remote connection on the S615

3.4.1 Secure OpenVPN connection with fingerprint

Requirement

- On PC1/2 there are two Web browser windows open.
- Web browser 1:
You are logged on to the WBM of the S615 as "admin".
- Web browser 2:
You are logged on to the WBM of the SINEMA RC Server as user "service" or "admin".
- A valid KEY-PLUG is inserted in the S615.

Procedure

1. Change to Web browser 1.
 - In the address box of the Web browser, enter the LAN IP address of the S615, see table "Settings used (Page 47)".
 - 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 47)".
2. Change to Web browser 2.
 - In the address box of the Web browser, enter the WAN IP address of the SINEMA RC Server, see table "Settings used (Page 47)".
 - 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 Web browser 1.
 - Right click in the input box of "Device ID".
 - In the shortcut menu, select the menu command for inserting.
 - In "Device Password", enter the password you have 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".
4. Change to Web browser 2.
 - Holding down the left mouse button, select the entry for fingerprint.
 - Right-click on the selection and in the shortcut menu, select the copy command.
5. Change to Web browser 1.
 - Right click in the input box of "Fingerprint".
 - In the shortcut menu, select the menu command for inserting.
 - Select "Enable SINEMA RC" and click on "Set Values".

SINEMA Remote Connect (SINEMA RC)

Enable SINEMA RC

SINEMA RC Address: 192.168.184.20

SINEMA RC Port: 443

Device ID: 6

Device Password: *****

Auto Firewall/NAT Rules

Use Proxy: none

Verification Type: Fingerprint

Fingerprint: 87:3B:54:8F:A6:A5:F6:39:E0:8A:CA:D3:69:2A:09:06:7A:FB:F4:93

CA Certificate: -

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".

3.4 Configure the remote connection on the S615

SINEMA Remote Connect (SINEMA RC) Information

Status: **established**

Remote Address: 172.31.254.127

Tunnel Interface Address: 10.8.1.2

Connected Local Subnet(s): 192.168.1.1/24 translated to 10.100.1.1/24

Connected Remote Subnet(s): 10.8.1.2/24
10.8.0.0/24
192.168.104.0/24
192.168.105.0/24
192.168.109.0/24
192.168.108.0/24
192.168.111.0/24
192.168.107.0/24
192.168.110.0/24
192.168.103.0/24
192.168.2.0/24
192.168.106.0/24
192.168.102.0/24

Fingerprint: 87:3B:54:8F:A6:A5:F6:39:E0:8A:CA:D3:69:2A:09:06:7A:FB:F4:93

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

Devices

No Filter active

Search Filter: Exact match

<input type="checkbox"/>	Device Name ^	VPN Address ⇅	Remote Subnet ⇅	Virtual Local LAN ⇅	Status ⇅	Location ⇅	Connection Type ⇅	Actions
<input type="checkbox"/>	S615-1	10.8.1.3	192.168.100.0/24	None	online	Station 1	PERMANENT	
<input type="checkbox"/>	S615-2	10.8.0.2	192.168.10.0/24	None	online	Station 2	PERMANENT	


3.4.2 Secure OpenVPN connection with CA certificate

3.4.2.1 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.
- Web browser 1:
You are logged on to the WBM of the S615 as "admin".
- Web browser 2:
You are logged on to the WBM of the SINEMA RC Server as the user "admin".

Procedure

1. Change to Web browser 2.
 - In the address box of the Web browser, enter the WAN IP address of the SINEMA RC Server, see table "Settings used (Page 47)".
 - 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 Web browser 1.
 - In the address box of the Web browser, enter the LAN IP address of the S615, see table "Settings used (Page 47)".
 - Log in as the "admin" user and with the corresponding password.
 - Click on "System" > "Load & Save" in the navigation area and 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".

3.4 Configure the remote connection on the S615

Result

The certificates are loaded. With "Security" > "Certificates", you can display the 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
<input type="checkbox"/>	CA Cert	CA_000001_SINEMA_RC.crt	valid	CN=CA 000001 SINEMA RC	CN=CA 000001 SINEMA RC	01/16/2015 11:20:30	01/15/2025 11:20:30	-

1 entry.

Delete Refresh


3.4.2.2 Configure an OpenVPN connection to the SINEMA RC Server

Requirement

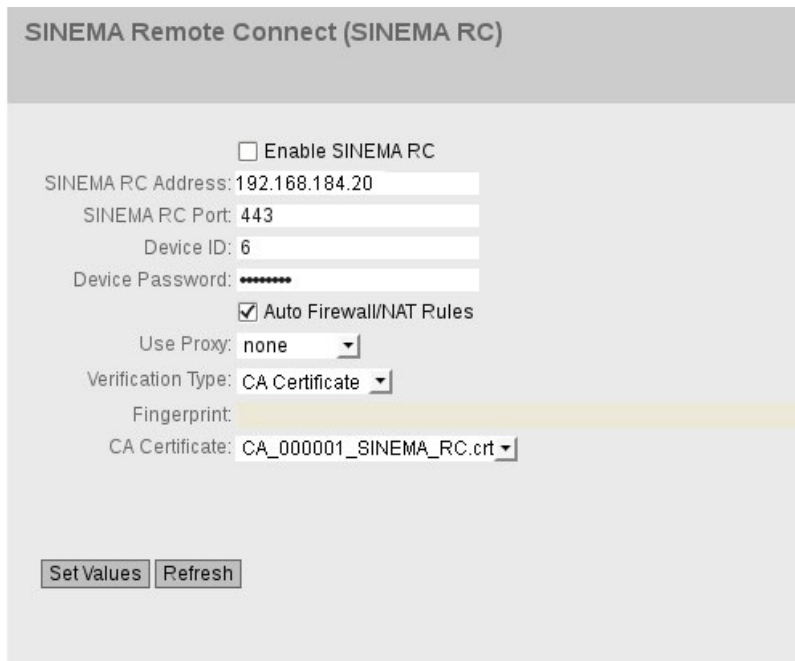
- A valid KEY-PLUG is inserted in the S615.

3.4 Configure the remote connection on the S615

Procedure

1. Change to Web browser 1.
 - 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 47)".
2. Change to Web browser 2.
 - 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 Web browser 1.
 - Right click in the input box of "Device ID".
 - In the shortcut menu, select the menu command for inserting.
 - In "Device Password", enter the password you have 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.
 - In "Verification Type", select "CA Certificate".
 - In "CA Certificate" select the server certificate. Only loaded certificates can be selected.



- Select "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".

SINEMA Remote Connect (SINEMA RC) Information

Status: **established**

Remote Address: 172.31.254.127

Tunnel Interface Address: 10.8.1.2

Connected Local Subnet(s): 192.168.1.1/24 translated to 10.100.1.1/24

Connected Remote Subnet(s): 10.8.1.2/24
 10.8.0.0/24
 192.168.104.0/24
 192.168.105.0/24
 192.168.109.0/24
 192.168.108.0/24
 192.168.111.0/24
 192.168.107.0/24
 192.168.110.0/24
 192.168.103.0/24
 192.168.2.0/24
 192.168.106.0/24
 192.168.102.0/24

Fingerprint: 87:3B:54:8F:A6:A5:F6:39:E0:8A:CA:D3:69:2A:09:06:7A:FB:F4:93

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

Devices

i No Filter active

Search Filter: Exact match

<input type="checkbox"/>	Device Name ^	VPN Address ↕	Remote Subnet ↕	Virtual Local LAN ↕	Status ↕	Location ↕	Connection Type ↕	Actions
<input type="checkbox"/>	S615-1	10.8.1.3	192.168.100.0/24	None	online	Station 1	PERMANENT	
<input type="checkbox"/>	S615-2	10.8.0.2	192.168.10.0/24	None	online	Station 2	PERMANENT	

3.4 Configure the remote connection on the S615

OpenVPN tunnel between SINEMA RC Client and SINEMA RC Server

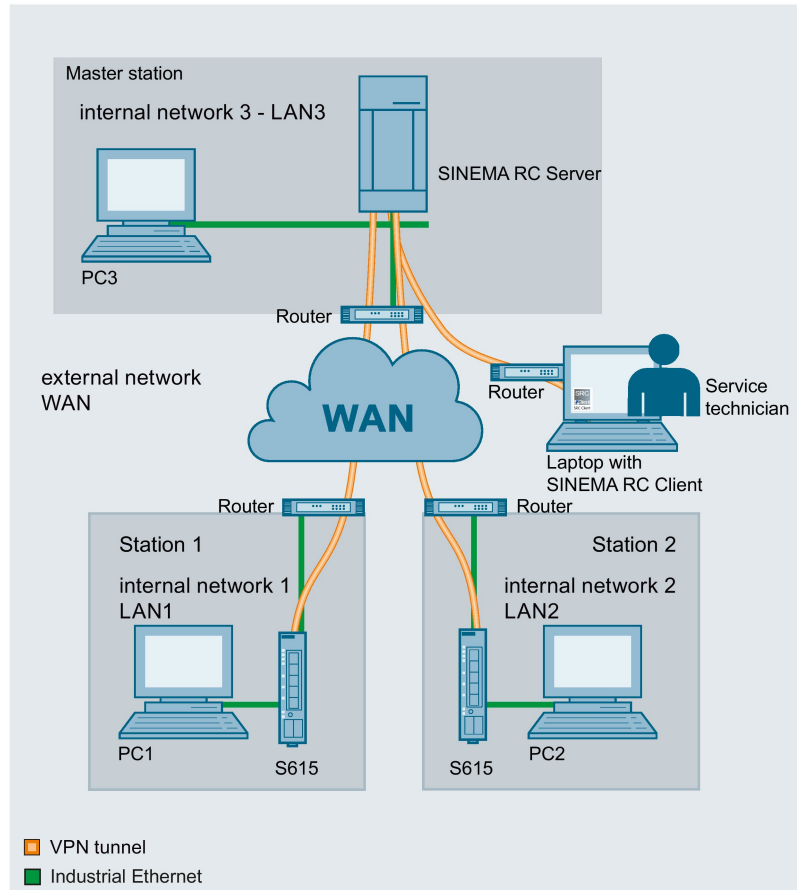
4

4.1 Procedure in principle

This example expands the configuration example "OpenVPN tunnel between SCALANCE S615 and SINEMA RC Server (Page 25)".

A service technician starts the SINEMA RC Client on a laptop and logs on to the SINEMA RC Server with his or her user data. The VPN tunnel between the SINEMA RC Client and the SINEMA RC Server is established after successful authentication.

Structure



4.1 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.

Service technician - connection to SINEMA RC Client

- Connection to the external network via a router
Access to the external network is via a router connected to the Ethernet interface of the laptop.

Required devices/components

Use the following components for setup:

- 2 x S615 (additional option: a suitably installed standard rail with fittings)
- 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.
- 1 x laptop
- 4 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
Station -1 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
Station-2 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
Service techni- cian	Laptop	Ethernet	192.168.1.1 255.255.255.0 Default gateway is the LAN IP address of the router 192.168.1.2
		Router 4	LAN port
		WAN port	WAN IP address is assigned by the provider

4.1 Procedure in principle

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.

Requirement

SINEMA RC Server

- The SINEMA RC Server is connected to the WAN, see "Connecting the SINEMA RC Server to the WAN (Page 9)".
- The SINEMA RC Server can be reached via PC3.

SINEMA RC client

- The laptop is connected to the WAN.

Steps in configuration

1. Create a user on the SINEMA RC Server (Page 51)

On the laptop of the service technician

1. Installing SINEMA RC Client (Page 53)
2. Logging SINEMA RC Client on to SINEMA RC Server (Page 55)

4.2 Create a user on the SINEMA RC Server

In this configuration example, access via the SINEMA RC Client is handled by a service technician. To log on, the service technician requires a user name and a password.

The administrator creates the user data on the master station.

Requirement

- The SINEMA RC Server can be reached via PC3.
- The "Service" participant group has been created, refer to the section "Creating participant groups (Page 32)"

Create users

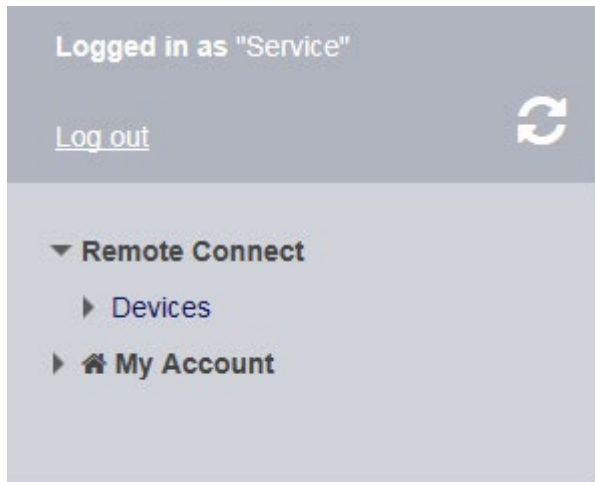
1. In the address box of the Web browser, enter the WAN IP address of the SINEMA RC Server "https://<WAN IP address>", see table "Settings used (Page 47)".
2. Log in as the "admin" user and with the corresponding password.
3. In the navigation area, click "User accounts" > "Users and roles". The users that have already been created are listed in the content area.
4. Click "Create". The "New User" page is opened.
5. Enter the user name e.g. Service and click "Continue".
6. The "Participant group" tab is displayed. Enable the "Service" participant group.
7. Click "Continue". The "Password" tab is displayed.
8. Specify the password for the user e.g. Di1S+Xo? and click "Exit".

4.2 Create a user on the SINEMA RC Server

Result

The "Service" user has been created. In the "Status" column you can see whether or not the user is currently online.

If the user is logged on, he or she can only access the entries in the navigation area for which he or she has rights.



4.3 On the laptop of the service technician

4.3.1 Installing SINEMA RC Client

Most of the installation is handled automatically. The SETUP routine itself recognizes whether other program components apart from SINEMA RC Client itself need to be installed. The installation routine takes the required actions as necessary.

Note

You can only install one SINEMA RC Client per PC.

Requirement

The SINEMA RC Client can be installed on the following operating system:

- Microsoft Windows 7 Professional 32/64-bit + Service Pack 1
- Microsoft Windows 7 Enterprise 32/64-bit + Service Pack 1
- Microsoft Windows 7 Ultimate 32/64-bit + Service Pack 1
- Microsoft Windows 8.1 Professional 64-bit

Procedure

1. Log in to the Windows operating system as administrator. Open the Windows Explorer and double-click on the "Setup.exe" file in the root directory of the installation DVD. As an alternative, start the program from the Windows menu "Start > Run".

If the Auto Run function is enabled for your DVD drive, the installation will start automatically.
2. Select the language for the Setup wizard of SINEMA RC Client and click "Continue".
3. Click the "Open source license agreement" button to display the license agreement. After reading the license agreement, select the option "I accept the conditions of the above license agreement as well as the conditions of the Open Source license agreement" and then click "Continue".
4. A dialog box opens containing the list of programs to be installed. Leave the preselection of the components as it stands. These include:
 - .NET Framework
 - Open VPN
 - Automation License Manager (ALM)
5. If you require further information about the ALM, click the "Readme" button on the right of the dialog box.
6. Select the "Save as" button to display the current storage space of the computer.

4.3 On the laptop of the service technician

7. Click the "Browse" button if you want to change the standard target directory and install the application somewhere else.
8. Select the required storage location and click the "Continue" button.

Note

Memory requirements

If the drive does not have enough free storage space, click the "Browse" button to select a different location for the installation.

The "System settings" dialog box opens.

9. Accept the changes to the system settings.

Follow the further instructions that guide you through the entire installation. This process can take several minutes.

When it is finished, a final window is displayed for the setup. This contains a status message about the successful installation of the SINEMA RC Client.

In the setup window, you can either restart the computer immediately or later. Select the required option and click the "Finish" button to complete the installation.

Result

After restarting you will find a new link "SINEMA RC Client" on your desktop and a new entry in the Start menu "All Programs > Siemens Automation > SIMATIC > SINEMA RC Client".

4.3.2 Logging on to SINEMA RC Server with SINEMA RC Client

Requirement

- The laptop and the SINEMA RC Server are connected to the WAN.
- The "Service" user has been created, see "Create a user on the SINEMA RC Server (Page 51)".

Procedure

1. Double-click on the "SINEMA RC Client" icon on your desktop. The SINEMA RC Client starts.
2. Enter the WAN IP address of the SINEMA RC Server as the IP address, refer to the table "Settings used (Page 47)".
3. Enter "Service" as the user name and as the password e.g. Di1S+Xo? Click the "Log on" button.

After logging on successfully, the start page is displayed.

4. Click the "Open VPN tunnel" button.

Result

The SINEMA RC Client downloads the OpenVPN file from the SINEMA RC Server. The file contains the parameters required for the VPN connection to the SINEMA RC Server. After the download, the SINEMA RC Client establishes the VPN connection with these parameters.

The SINEMA RC Client checks at regular intervals whether a valid license key exists. If it does not, for example if you remove the USB dongle during operation, you will receive a system message.

4.3 On the laptop of the service technician

The "Service" user is a member of the "Service" participant group. All devices that are assigned to this group are displayed.

The screenshot shows the SINEMA RC Client application window. At the top left is the SIEMENS logo. The title bar reads "SINEMA RC Client". On the right side of the title bar are "Settings", "English", and a help icon. Below the title bar is a "SINEMA Remot Connect Account" section with a "Log off" button. The account details show "SINEMA RC URL: 192.168.184.20" and "Logged on as: Service". The "VPN Status" is "CONNECTED" with a green checkmark icon, and the "VPN address" is "-". There are buttons for "Establish VPN tunnel" and "Terminate VPN tunnel". Below this is a "Device list" section with a refresh icon. A table lists two devices, both with "offline" status and a red 'x' icon. At the bottom, there is a section for "Activate NAT" with radio buttons for "Using destination NAT settings of the device" (selected) and "Using manual NAT settings", a "NAT configuration" button, and a "Showing log files" button. An "Exit" button is located at the bottom right of the window.

Name of the device	VPN address	Remote subnet	Virtual local LAN	Status	Location	Actions
S615-1		192.168.10.1		offline	Station 1	
S615-2		192.168.100.1		offline	Station 2	

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