SIMATIC NET

Industrial Remote Communication Remote Networks SINEMA Remote Connect V3.2

Operating Instructions

04/2025

C79000-G8976-C395-15

Legal information

Warning notice system

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

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

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

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

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

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

Qualified Personnel

The product/system described in this documentation may be operated only by **personnel qualified** for the specific task in accordance with the relevant documentation, in particular its warning notices and safety instructions. Qualified persons are those who, because of their training and experience, are familiar with the installation, assembly, commissioning, operation, decommissioning and disassembly of the product and can recognize risks and avoid possible hazards.

Proper use of Siemens products

Note the following:

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

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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.

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Preface

Purpose of this documentation

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

Validity of this documentation

This manual is valid for the following software version:

- SINEMA Remote Connect as of version V3.2 SP4

Article number - licenses

To enable the connection functionality on the SINEMA RC Server, the following license is available:

Product name	Order ID
SINEMA Remote Connect Client (1 VPN client)	6GK1721-1XG03-0AA0
SINEMA Remote Connect Client (OSD)	6GK1721-1XG03-0AK0

Abbreviations/acronyms and terminology

- **SINEMA RC**
  In the remainder of the manual, the "SINEMA Remote Connect" software is abbreviated to "SINEMA RC".

New in this release

- Revision of existing projects

Required experience

To be able to configure and operate the system described in this document, you require experience of the following products, systems and technologies:

- SIMATIC NET - Telecontrol
- IP-based communication
- STEP 7 Basic / Professional
- SIMATIC S7

Further documentation

- Operating instructions "SINEMA Remote Connect Server"
  This manual supports you when installing, configuring and operating the application SINEMA RC Server.
- Getting Started "SINEMA Remote Connect"
  Based on an example, the configuration of SINEMA Remote Connect is shown.

Current manuals and further information

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 (https://support.industry.siemens.com/cs/ww/en/ps/21816)
  Enter the entry ID of the relevant manual as the search item.
- via the navigation in the "Telecontrol" area:
  Link to the area "Telecontrol" (https://support.industry.siemens.com/cs/de/en/ps/15915)
  Go to the required product group and make the following settings:
  "Entry list" tab, Entry type "Manuals"

You will find the documentation for the products relevant here on the data storage medium that ships with some products:

- Product CD / product DVD
- SIMATIC NET Manual Collection

License conditions

Note

Open source software

Read the license conditions for open source software carefully before using the product.

You will find license conditions in the following documents on the supplied data medium:

- OSS_SINEMA-RC-Client_86.pdf

Cybersecurity notes

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

In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement – and continuously maintain – a holistic, state-of-the-art industrial cybersecurity 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.

For additional information on industrial cybersecurity measures that may be implemented, please visit
https://www.siemens.com/cybersecurity-industry (https://www.siemens.com/industrialsecurity).

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

To stay informed about product updates, subscribe to the Siemens Industrial Cybersecurity RSS Feed under
https://new.siemens.com/cert (https://www.siemens.com/cert).

Note on firmware/software support

Check regularly for new firmware/software versions or security updates and apply them. After the release of a new version, previous versions are no longer supported and are not maintained.

Decommissioning

Note that personal data such as addresses or passwords can also be saved on the computer on which the software is installed.

Decommission the device properly to prevent unauthorized persons from accessing confidential data.

To this end, reset the SINEMA RC Client to factory settings.

Procedure

To reset the SINEMA RC Client to factory setting, follow the steps described below:

1. In the "Settings" tab, disable the option "Start SINEMA RC Client automatically after Windows login".
2. Confirm the setting with the "Save" button.
3. Exit the SINEMA RC Client.
4. Delete the folder "C:\ProgramData\Siemens\Automation\SINEMA_RC_Client".

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

Trademarks

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SINEMA, SCALANCE

Table of contents

Requirements for operation

1

Hardware requirements

Parameter	Minimum requirements
Processor (x86)	1 GHz
RAM	2 GB (64-bit)
Storage requirements hard disk	approx. 2.1 GB (with a 64-bit operating system)

Operating systems

- Microsoft Windows 11 Professional (64-bit)
- Microsoft Windows 10 Professional (64-bit)
- Microsoft Windows 10 Enterprise (64-bit)
- Microsoft Windows Server 2022 (64-bit)
- Microsoft Windows Server 2025 (64-bit)

Required license

For SINEMA RC Client, the following license type is available:

- SINEMA Remote Connect Client

The license must be enabled on the SINEMA Remote Connect Server.

Compatibility

The SINEMA RC Client should always have the same version as the SINEMA RC Server.

Installation and commissioning 2

2.1 Planned operating environment

This section describes the recommended boundary conditions for using the SINEMA Remote Connect client.

- For secure operation, observe the security recommendations (Page 11).
- Check that open ports comply with security standards. All firewall changes are displayed during installation.
- Check that the offered ciphers comply with security standards. You can find more information on ciphers used in the SINEMA RC Server operating instructions.
- Use the user and group settings in the SINEMA Remote Connect Server to grant the respective users access to only the necessary plant parts.
- Use Public Key Infrastructure (PKI) certificates or two-factor authentication for the users.
- Use hardware encryption on the PCs, e.g. BitLocker.
- Make sure that only authorized persons have access to the system.
- Install and run antivirus software on the PC.
- As user with operator rights, configure and maintain the platform securely, including the hardware, the operating system and the adjacent network with additional SINEMA RC clients.
- As user with administrator rights, protect your Windows operating system. Keep it up to date and apply updates to the operating system when they are available.
- As user with administrator rights, use different accounts - one for administration and one for operative use.

2.2 Security recommendations

Keep to the following security recommendations to prevent unauthorized access to the system.

General

- You should make regular checks to make sure that the device meets these recommendations and other internal security guidelines if applicable.
- Evaluate your plant as a whole in terms of security. Use a cell protection concept with suitable products (https://www.siemens.com/industrialsecurity).
- Do not connect the device directly to the Internet. Operate the device within a protected network area.

Physical access / Remote access

- Restrict physical access to the device to qualified personnel. Use the security mechanisms of the operating system.
- Decommission the device properly to prevent unauthorized persons from accessing confidential data. For more information, refer to "Decommissioning".
- Terminate management connections (e.g. HTTPS, SSH) properly.

Software

- Keep the operating system up to date. Check regularly for security updates of the operating system and use them.
  Use the options of the Windows firewall and the configuration options of the product.
- Check regularly for new software versions or security updates and apply them.
- You can find the latest information on security patches for Siemens products on the Industrial Security (https://www.siemens.com/industrialsecurity) and ProductCERT Security Advisories (https://www.siemens.com/cert) web pages.
- For updates on Siemens product security advisories, subscribe to the RSS feed on the ProductCERT Security Advisories website or follow @ProductCert on Twitter.
- If a new version is available for the SINEMA RC Server, you can find the update on the Internet pages of Siemens Industry Online Support under the following ID: 21816 (https://support.industry.siemens.com/cs/ww/en/ps/21816/dl)
- You will find a SHA256 hash value in the update file. With this, you can check whether the file was downloaded unchanged. To check this, you calculate the hash value of the downloaded file and compare it with the value specified on the download page.

Keys and certificates

- There is a preset SSL/TLS (RSA) certificate with 4096 bit key length on the SINEMA RC Server. Replace this certificate with a user-generated, high-quality certificate with key. Use a certificate signed by a reliable external or internal certification authority. You can install the certificate via the WBM ("Security > Certificate management > Web server").
- The product supports RSA 1024 - 8192 bits key length.
- Use certificates with a key length of 4096 bits.
- Use a certification authority including key revocation and management to sign the certificates.
- Make sure that user-defined private keys are protected and inaccessible to unauthorized persons.
- If there is a suspected security violation, change all certificates and keys immediately.
- Verify certificates based on the fingerprint on the server and client side to prevent "man in the middle" attacks. Use a second, secure transmission path for this.
- SINEMA RC uses smart card authentication. PKCS#11 is used.

Available protocols

The following list provides you with an overview of all used services of the product.

Keep this in mind when configuring a firewall.

The table includes the following columns:

- Protocol
- All protocols that the device supports
- Port number
  Port number assigned to the protocol
- Port status
  - Open, authentication required
    The port is always open and cannot be closed. To use it, authentication is necessary.
  - Open (when configured), authentication necessary
    The port is open if it has been configured. To use it, authentication is necessary.

Protocol		Port number	Port status
OpenVPN	UDP	1194	Outgoing
	TCP	5443	Outgoing
Web Client	TCP	443	Outgoing
Routing update	UDP	5243	Open, authentication required

2.3 Installing / uninstalling

Overview

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.

Note

Multiple OpenVPN clients

If the SINEMA Remote Connect Client is installed parallel to other OpenVPN clients, perfect functioning cannot be guaranteed.

It is recommended to only install the SINEMA Remote Connect as an OpenVPN client.

Note

Prior to installation

Before installing, read the "Readme" and follow the instructions for installation and updating.

Installing client software from the installation DVD

To install the SINEMA RC client on your computer, follow the steps below:

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 on the "Continue" button.
3. Click the "Open source license agreement" button to display the license agreement. Read the license agreement and select the option "I accept the conditions of the above license agreement as well as the conditions of the Open Source license agreement".
4. Click on the "Next" button.
   A list with programs to be installed opens. Leave the preselection of the components as it stands. These include:
   - SINEMA RC Client
   - TAP-Windows Adapter V9.24.20 (VPN tunnel)
   - Microsoft KM-TEST Loopback Adapter (Layer 2)
   - Microsoft .NET Framework
   - Microsoft VC++ Redistributable

   You can find information about the programs to be installed in the respective readme file. To do this, select the component in the tree view and click the "Read Me" button.
5. Click the "Next" button. The "System settings" dialog box opens.
6. The overview lists the changes made to the system settings during installation.
   If you want, you can either print the overview or save it as a text file.
7. Accept the changes to the system settings and click the "Next" button.
   Follow the further instructions that guide you through the entire installation. This process can take several minutes.
   At the end of the installation process, a dialog window appears with the status message about the successful installation of the SINEMA RC Client.
   Here, you can choose to either restart the computer immediately or later.
   Select the desired option.
8. Click on the "Finish" button to end the installation.

Loading and installing client software from the SINEMA RC Server

Configured users that have the "Download client software" right can download and install the client software from the SINEMA RC Server.

1. Log into the SINEMA RC Server with your user account.
2. In the navigation, select "My Account > Client Software".
3. Check the software version and the displayed SHA fingerprint to see whether it corresponds to the fingerprint on the Siemens Online Support website.
4. Download the self-extracting ZIP file with the client software to your PC.
5. Double-click on the file to unzip it. You can also run it by right-clicking it.
   The file is unzipped.
6. Follow the instructions and start the setup.
7. Perform steps 2 - 8 as described in the section on installing from a DVD.

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".

NOTICE
Local port settings after updating
When you update the SINEMA RC Client software, the SINEMA RC Client service port is reset to its default value. Adjust the port after updating.

The following network interfaces are installed:

- TAP Windows Adapter V9 to establish the VPN connection to the SINEMA RC Server
- Microsoft KM-TEST Loopback Adapter to establish the Layer 2 connection

2.3.1 Uninstalling the SINEMA RC Client

Use the Windows system function for removing software to uninstall the SINEMA RC Client software:

- Start > Control Panel > Programs and Features > Uninstall or change a program.

The following network interfaces are not uninstalled:

- TAP Windows Adapter V9: Uninstallation via Windows system function "Start > Control Panel > Programs and Features > Uninstall or change a program" or via the Device Manager
- Microsoft KM-TEST Loopback Adapter: Uninstallation via Device Manager

2.4 Licensing

To be able to connect the SINEMA RC Client with the SINEMA RC server, you need a client license. You can find the MLFB numbers of the licenses in the preface (Page 3). Each obtained license contains a specific number of license nodes. The number of license nodes determines how many clients you can enable. You can enable clients as needed, or release unused license nodes again and enable them later.

You can manage the client licenses on the SINEMA RC server on the tab "System > Licenses". You can enable client licenses either online or offline there. With online activation, you specify how many license nodes you want to activate. With offline activation, all licenses are always activated. Specification of the number of license nodes to be activated is not possible offline.

Three client licenses can be converted into one floating license. The floating license is only blocked during actual use. When it is no longer in use, the license is available again and can be temporarily assigned to any user.

Configuration 3

3.1 Login

First login to SINEMA RC Server after installation of the client software

After the SINEMA RC client is started, the login dialog is displayed. Because no SINEMA RC Server profile has been configured yet, the input boxes in the login dialog are empty. However, you can enter the IP address of the server in the "SINEMA RC Server URL" input box, select a login method and log into the SINEMA RC Server.

Creating a server profile simplifies login. You can then select the desired server in the login dialog. The data of the server and the user are applied to the login dialog. You can find additional information in the section "Server Profiles (Page 27)".

Logging on to SINEMA RC Server

1. Double-click on the "SINEMA RC Client" icon on your desktop.
   As an alternative, start the SINEMA RC Client with "Start > All Programs > Siemens Automation > SIMATIC > SINEMA RC Client".
   The SINEMA RC Client login dialog is displayed.
2. Select the relevant SINEMA RC Server name from the drop-down list.
   The IP address of the SINEMA RC Server and the configured login method are displayed.

3. If necessary, select a different login method from the drop-down list.
   You have the following options for this:

Login via ...	Procedure
User name / Password	**Requirement** • The user name and password are stored on the SINEMA RC Server • TOTP-based two-factor authentication is enabled (default setting). Two-factor authentication is configured for the user in the role settings. **Procedure** 1. Enter the user name and password. Note: You cannot log in to the SINEMA RC Client with the user name of the system administrator or "admin" (after a new installation). 2. Click the "Log in" button. 3. If two-factor authentication is enabled in the role setting, you generate a one-time token with the authentication app. Enter the token in the following dialog. 4. Click the "OK" button.
Smart card	**Requirement** • The relevant PKI CA certificates are installed on the SINEMA RC Server. • A card reader is available on the PC or notebook • The card reader is connected according to the manufacturer's specifications and the corresponding driver is installed • The card has a valid end-entity certificate • The path to the library file pks11-dll is set, see section "General settings (Page 29)" **Procedure** 1. Insert the card into the card reader. 2. Select "Smartcard" as the login method. 3. Click the "Smartcard PKI Login" icon. 4. Enter your PIN. 5. Click the "Log in" button.
Local certificate	**Requirement** • The relevant PKI CA certificates are installed on the SINEMA RC Server. • The certificate file (*.p12 *.pfx) is available on the PC or notebook. • The user is configured as PKI user on the server. **Procedure** 1. Navigate to the storage directory of the certificate file. 2. Select the certificate file and click the "Open" button. 3. If the file is password-protected, enter the password. 4. Click the "Log in" button.

Login via ...	Procedure
A UMC server with user name / password	**Requirement** • A user is created on the UMC and assigned to a UMC user group. • A valid SINEMA RC UMC license (MLFB 6GK1724-2VH03-0BV0) or trial license is activated on the SINEMA RC Server. • The connection to the UMC server is set up on SINEMA RC Server; see SINEMA Remote Connect - Server, "UMC Settings" section. • A role is created on the SINEMA RC Server and uses the same name for the UMC user group to which the relevant user is assigned on the UMC; see SINEMA Remote Connect - Server, section "Managing roles and rights". **Procedure** 1. Enter the user name and the password. 2. Click the "Log in" button. 3. When two-factor authentication is enabled, generate a one-time token using the authentication app. Enter the token in the following dialog. 4. Click the "OK" button.
OAuth/OpenID	**Requirement** • A valid SINEMA RC OpenID license (MLFB 6GK1724-3VH03-0BV0) or trial license is activated on the SINEMA RC Server. • The role has been created on the authorization server. • The settings for the application registration server are configured on the SINEMA RC Server. • OAuth/OpenID is enabled on the SINEMA RC Server. • On the application registration server: – SINEMA RC Server is registered as application (app) – The corresponding app roles are present **Procedure** 1. Select "OICD" for the login method. 2. Click the "Log in" button. 3. Follow the instructions on the screen.

4. Log in to the SINEMA RC Client.

5. Check the validity of the certificates.
   - If the CA certificate of the server has not been stored in the certificate store of the PC before logging in, you are prompted to check the Web server certificate and confirm it if required.
     Click on the "Allow" button when you are sure that the correct Web server certificate is displayed.
   - Possibly a user agreement will be displayed. If you click the "Allow" button, the start page appears, see section "Design (Page 20)".
6. To establish a VPN tunnel to the SINEMA RC Server, click the "Connect" button on the start page on the right.
   A VPN tunnel is established after successful authentication and authorization. The "OFFLINE" status to the left of the button changes to "CONNECTED".

Result:

- The OpenVPN configuration file is downloaded from the SINEMA RC Server.
- The SINEMA RC client automatically creates a configuration file with the most important settings. These include among other things the IP addresses and NAT settings.
- The SINEMA RC Client establishes the VPN tunnel.

Connecting to the SINEMA RC Server automatically

With this function, the SINEMA RC Client logs in to the SINEMA RC Server automatically and establishes the VPN tunnel.

The automatic establishment is only possible with a valid SINEMA RC user account. You can find additional information in the section "Logging into SINEMA RC Server automatically (Page 31)".

Limit of session duration

You can define the policy for the session on the SINEMA RC Server. With this, you define how long a user must be connected to the SINEMA RC Client before needing to log in again.

The session duration is shown (except with login via OAuth/OpenID). With the "Renew" button, you can extend the timeout time without having to log in again.

3.2 Account

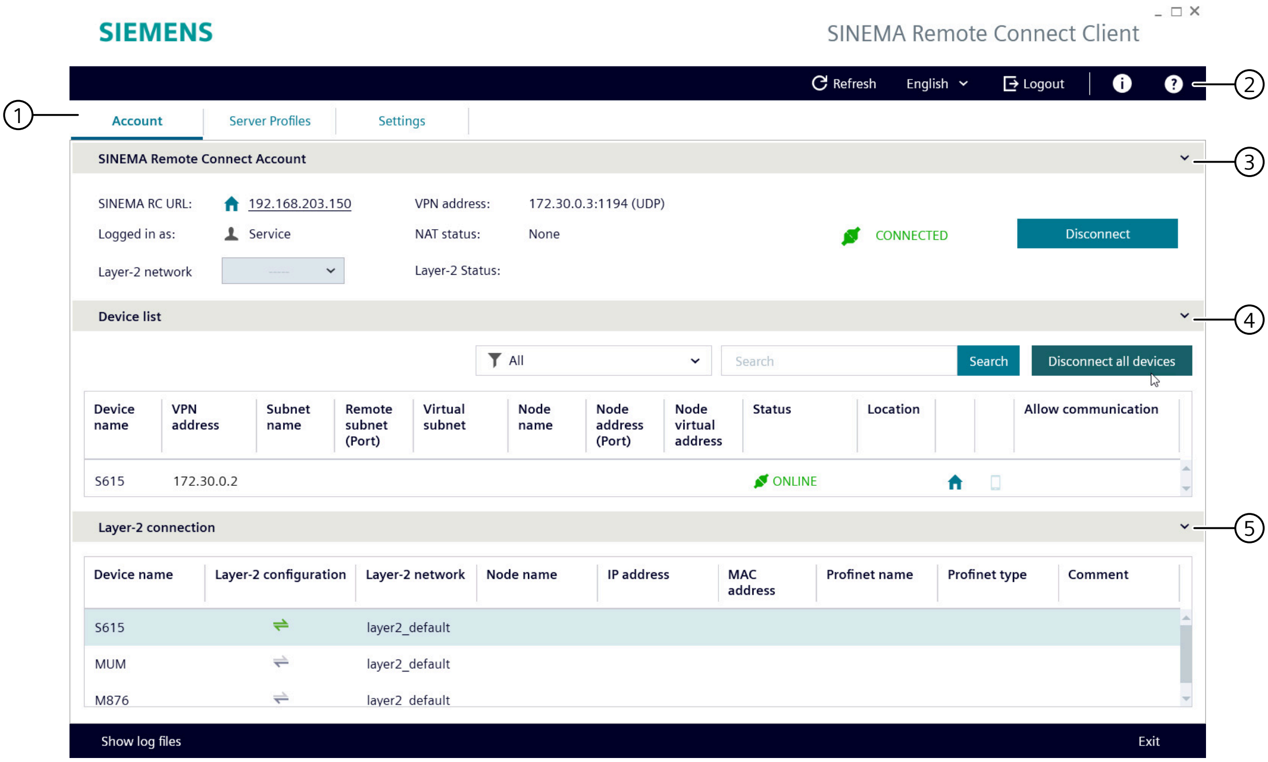
3.2.1 Design

After successful login, the start page of the SINEMA RC Client is displayed on the "Account" tab.

The following areas are available:

- Navigation (Page 21)①
- Selection area (Page 22)②

- SINEMA Remote Connect user account (Page 22)③
- Content area with the device list (Page 23)④
- Content area for devices with Layer 2 connection (Page 26)⑤



SINEMA RC URL: 192.168.203.150
Logged in as: Service
Layer-2 network: -----
VPN address: 172.30.0.3:1194 (UDP)
NAT status: None
Layer-2 Status:

Device name	VPN address	Subnet name	Remote subnet (Port)	Virtual subnet	Node name	Node address (Port)	Node virtual address	Status	Location			Allow communication
S615	172.30.0.2							ONLINE		⌂	▯	

Device name	Layer-2 configuration	Layer-2 network	Node name	IP address	MAC address	Profinet name	Profinet type	Comment
S615	⇄	layer2_default						
MUM	⇄	layer2_default						
M876	⇄	layer2_default						

3.2.2 Navigation

You can switch to the desired page via the navigation ①.

The following tabs are available:

- **Account**
  You manage your devices on this tab.
- **Server Profiles**
  On this tab, you configure connections to your SINEMA RC Servers.
- **Settings**
  On this tab, you make settings for the SINEMA RC Client.

3.2.3 Selection area

The following is available in the selection area ②:

- **Refresh**
  Refreshes the complete device list.
  This button can be found in the selection area ② with configured Layer 2 connections. You click it to refresh the device list with Layer 3 and Layer 2 devices.
  The button is in the selection area ④ (Page 23) if you have not created any Layer 2 connections.
- Drop-down list for language selection
  Select the required language.
- **Logout**
  Closes the application but does not stop communication between the SINEMA RC Client and the server.
- **Info**
  Opens information on the product.
- **Help**
  Opens the online help in a new web browser window.

3.2.4 SINEMA RC account

In the left section, you get an overview of the SINEMA Remote Connect user account ③ with the IP address of the SINEMA RC Server as well as the name of the user currently logged in.

Clicking the 🏠 button or the IP address of the SINEMA RC Server opens the WBM on the SINEMA RC Server.

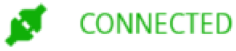
The available Layer 2 networks can be selected under "Layer-2-Netzwerk".

Information on the client is shown in the middle part. If a VPN connection exists, the VPN address of the client is displayed. The "NAT status" shows whether device-specific NAT settings are present.

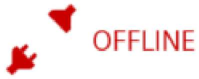
The "Layer 2 status" shows whether Layer 2 is in operation or not.

The status of the VPN connection is displayed on the right:

- VPN connection established


CONNECTED

- No VPN connection established


OFFLINE

Buttons:

- Start the VPN connection establishment to the SINEMA RC server

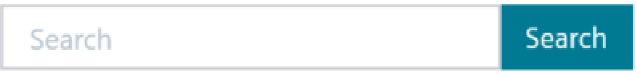
- Terminates the VPN connection

If the user account is assigned the right "Force comment", the user will be prompted to enter a comment. Only then is the VPN connection terminated. The comment is entered in the log of the SINEMA RC Server.

3.2.5 Device list

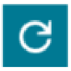
The following buttons are located above the device list ④:

- **Search parameter**
  Selection list with search criteria
- **Search filter**



Input box for the search function
Enter a term in the input box, e.g. a device name for which you need more information, and start the search with the ENTER key or by clicking on the "Search" button. Choose the desired filter criterion with the magnifying glass symbol to restrict the search results.

- **Refresh**



Refreshes the complete device list.
This button is in the selection area ④ if you have not created any Layer 2 connections. With configured Layer 2 connections, this button can be found in the selection area ② (Page 22).

- **Terminate connections**

  Terminates the connections of all devices from the device list to the SINEMA RC Server.

- **Establish connection**

  Connects all the devices from the device list to the SINEMA RC Server.
  The route to each individual device is transferred to the routing table of the client PC. All devices can be reached by the client.

The device list contains information about the connected devices.

Field	Description	
Device name	Displays the name of the available device. The name is adopted from the settings of the SINEMA RC Server.	
VPN address	Shows the VPN address of the device that the device receives from the SINEMA RC Server.	
Subnet name	Shows the name of the subnet accessible from the device.	
Remote subnet (port)	Shows the IP address of the subnet. This requires the logged-on user to be a member of the user group that is permitted to access the subnet. If this is not the case, only the subnet name and the nodes that they are permitted to access are shown. If several IP addresses are created, they are displayed one under the other. If the subnet is restricted by port filtering, accessible ports are displayed.	
Virtual subnet	Shows the IP address of the virtual subnet if NAT mode is configured on SINEMA RC Server. If several IP addresses are created, they are displayed one under the other.	
Node name	Shows the name of the node.	
Address of the end device (port)	Shows the IP address of the node. If the IP address of the end device is restricted by port filtering, accessible ports are displayed.	
Node virtual address	Shows the virtual IP address of the node if NAT mode is configured on the SINEMA RC Server.	
Status	Indicates whether the connection to the device is established:	
	ONLINE	The device is connected
	OFFLINE	The device is not connected
	⛔ DISABLED	The device is disabled.
Location	Displays the location of the device.	
Vendor	Shows entries, if configured.	
Comment		

Field	Description
Actions	Shows the actions enabled for this device: • 🏠 Opens the WBM on the device. • 📱 If the device is not connected, the SINEMA RC Server sends the wake-up SMS message to the device. This action is only available for the connection type "Wake-up SMS" or "Wake-up SMS & digital input". **Only with RTU 303xC:** For RTUs, you can also add a wake-up SMS message with a specified deadline. At exactly the time you specified in the SMS, the RTU establishes a connection to its communication partner. When you click on the action, the "Select wake-up time" dialog opens. – Wake up at selected time: The RTU activates the timer and connects to the communication partner at the relevant time. – Wake up now: The RTU wakes immediately and establishes the connection to the communication partner.
Allow communication	Use the following buttons to manage routes and NAT settings to the remote subnets of individual devices. • NO The route to the device is removed from the routing table of the client PC. The device can no longer be reached by the SINEMA RC Client. • YES A route to the virtual subnet (VPN address) is entered temporarily in the routing table and added to the Windows PC to reach the target via the virtual subnet. • The route to the device is entered in the routing table of the client PC. The device can be reached by the SINEMA RC Client. • NAT Only for devices with virtual subnets In addition to the route entry, the destination NAT settings of the device are configured in the SINEMA RC Client and on the client PC: If you activate NAT, existing VPN tunnels are automatically terminated. Then click on the "Connect" button to re-establish the connection to the SINEMA RC Server.

To show and hide columns in the device list, right-click the device list and make the desired adjustments. You can change the sorting order of the columns by left-clicking the headers of the individual columns and moving them to the desired position of the header with the mouse button held down.

The following buttons are located below the device list:

- Show log files
  Click on "Show log files" to obtain log information.
  On three tabs (SINEMA RC Client / SINEMA RC Services / OpenVPN), you can view saved log files with time stamp and edition.
  The latest log entries are always displayed. If you want to display older entries, click on the "Show all" button. The entries can be filtered according to their message level (ALL, INFO, WARNING, DEBUG, ERROR).
  If you double-click on an entry, the relevant entry is highlighted in bold and centered.
  To open log files on your PC, click the "Open log folder" button, which is located below the list on the left. You can find saved log files under the following paths:
  - SINEMA RC Client
    (`C:\ProgramData\Siemens\Automation\SINEMA_RC_Client\logs\SRCClient.log`)
  - SINEMA RC Service
    (`C:\ProgramData\Siemens\Automation\SINEMA_RC_Client\logs\srccService.log`)
  - OpenVPN
    `(C:\ProgramData\Siemens\Automation\SINEMA_RC_Client\logs\mngtIF.log)`

  To close the "Show log files" window, click "Close" on the bottom right.
- Exit
  Closes the SINEMA RC Client application and closes the connection to the SINEMA RC Server.

3.2.6 Devices with Layer 2 connection

The list contains information on the devices with Layer 2 support ⑤.

Field	Description	
Device name	Displays the name of the available device. The name is adopted from the settings of the SINEMA RC Server.	
Layer 2 configuration	Indicates the status of the Layer 2 configuration	
	⇌	Layer 2 is disabled on the SINEMA RC Server and on the SRC Client.
	⇌	Layer 2 is enabled only on the SINEMA RC Server.
	⇌	Layer-2 is enabled on the SRC Client:
	⇌	Layer-2 is enabled on the SINEMA RC Server and the SRC Client is Layer-2 capable
	⇌	VPN tunnel is online.
Layer 2 network	Shows the Layer 2 network to which the device is assigned.	

Field	Description
Node name	Settings of the nodes that can be reached via Layer 2.
IP address	
MAC address	
PROFINET name	
PROFINET type	
Comment	

3.3 Server Profiles

You configure the access data in the server profiles in the "Server Profiles" tab. You manage the created server profiles on this page.

Adding a server profile

1. Click the "Create" button.
2. Configure the SINEMA RC server:

Field	Meaning
SINEMA RC server name	Enter a name.
SINEMA RC server URL	Enter the IP address of the SINEMA RC server. If the SINEMA RC server uses a port other than the HTTPS standard port 443, enter the port number along with the server address (IP address or FQDN). Separate the entries of the server address and the port number with a colon "**:**", e.g. 192.168.234.1:6443
SINEMA RC username	Enter the name of the user. The user should be created on the SINEMA RC server.
Login method	From the list, select the method with which the user should log in to the SINEMA RC server: • User name and password • Smart card • Local certificate • User name and password (UMC user) For more information, see section "Login (Page 17)".
Comment	You can enter a comment.

3. Save the settings with "Save".

Result

The server profile has been created and the new entry will be added in the table under the most recently configured server.

Editing the server profile

If you want to edit or copy a server profile, click on ✏ for the respective server profile. The current settings are applied to the configuration fields. Adapt the settings and save the profile.

To delete, click on 🗑.

Exporting/importing a server profile

If server profiles are present, you can export them and then re-import them into another SINEMA RC client. When exporting, the current settings are stored in a file. To ensure that your imported settings are saved, click on "Save". Otherwise, the last saved settings will be restored.

3.4 Settings

You can make the following settings on the "Settings" tab:

- General settings
  - Connection settings
  - Local port settings
  - Proxy settings
  - Smartcard settings
- Notification settings
- Settings for automatic functions
  - Logging into SINEMA RC Server automatically
  - Automatic establishment of the VPN tunnel
  - Automatic update of the device list

The settings are divided into areas that can be collapsed › and expanded ⌄ for clarity.

3.4.1 General settings

Connection settings

You define the protocol under the connection settings.

- Protocol
  - UDP: Connection over UDP
  - TCP: Connection over TCP
  - All: Connection over UDP and TCP
- VPN message level
  Message level of VPN messages
  The message levels are not output in the "openvpn.log" log file. You can control the scope of the log file with the message levels.
  - None: No messages are recorded, apart from fatal errors.
  - Low: Only warnings
  - Medium: Recording of all events (standard)
  - High: Output of read (R) and write (W) characters for each packet. Uppercase letters are used for TCP/UDP packets and lowercase letters for TUN/TAP packets
  - Max: Debug info area
- MTU
  MTU (Maximum Transmission Unit) specifies the maximum size of the packet. If packets are longer than the set MTU, they are fragmented.
  Maximum size 1500 bytes.
  Enter a value of between 68 and 1500.
- Output OpenVPN configuration file
  Disabled as default. If you select the check box, the configuration is output in a file.
  You can find the saved OpenVPN configuration file at the following path:
  C:\Users\[user name]
  \AppData\Roaming\Siemens\Automation\SINEMA_RC_Client\data\userConf.ovpn

Local port settings

The local port settings are used for internal communication of the SINEMA RC client. Changes are only required if there is a port conflict in the system.

To change the local ports, make the following settings:

OpenVPN management port	Enter the OpenVPN management port via which the OpenVPN service is addressed.
SINEMA RC Client service port	Enter the SINEMA RC Client service port via which the SINEMA RC Client service can be reached **Note** If you are using a different port, this must be specified again after the software is updated.
SINEMA RC Client service status	Shows the status of the SINEMA RC Client services. • Certificate valid • Certificate invalid • Certificate error, unable to connect

If you change the default port, existing connections are terminated. In this case, click the "Connect" button on the "Account" tab again to re-establish the connection to the SINEMA RC Server.

Proxy settings

A proxy is a communications interface in a network and serves as an intermediary between the Internet and the network to be protected. The proxy receives requests from the client and forwards them to the responsible server via its own address. The address of the client is not made known to the server.

In contrast to simple address translation using NAT, a proxy server can run communication itself instead of passing on packets unseen to the recipient. You can find out whether your proxy server supports OpenVPN from your network administrator.

If you are using a proxy server, for example to reach a Web server in the remote subnet via it, make the following settings:

Proxy settings	Select the check box to make the proxy settings. The proxy server is disabled by default
Proxy type	Select the type of proxy server: • HTTP: Proxy server only for access using HTTP • SOCKS: Universal proxy server
Server	Enter the IP address of the proxy server.
Port	Enter the port through which the proxy server can be reached. Range: 1 ... 65535
OpenVPN auth. method	Select the authentication method: • None: No authentication • Basic: Standard authentication. User name and password are sent unencrypted. • NTLM: Authentication according to NTLM standard (Windows user login). **Note**: When the "Using proxy" option is selected, authentication according to the NTLM standard is not available.

User name	If you have selected an authentication method other than "none", enter a user name for access to the proxy server.
Password	Enter a corresponding password.
Confirm password	Confirm the password.

Smart card setting

1. Make sure that the selected driver is compatible with the OpenSSL version 1.1.1.
2. To log in with the smartcard, specify the path to the PKCS#11 library.

3.4.2 Notification settings

In the "Notification settings" area, you can enable the "Show client-server incompatibility notification" option. This option is enabled by default. If there are existing problems, you receive a note on them. You can disable this option to no longer receive incompatibility notifications.

3.4.3 Settings for automatic functions

3.4.3.1 Logging into SINEMA RC Server automatically

The automatic establishment is only possible with a valid SINEMA RC user account.

1. Enable the option "Start SINEMA RC Client automatically after Windows login" under "Settings for automatic login".
2. Specify the following:
   - User name and password
   - URL
     You can specify the IP address of the SINEMA RC Server. If the field remains empty, the data from the current server is used.
   - Port
     You can change the port for connecting via HTTPS. Default port: 443
     It is not possible to enter the port if you have already specified the port in the URL field, e.g. dsl195.dyndns.org:222.

3. Under "Allow communication", select the desired option at automatic start.

   – Yes, all
     Default value
     The routes to the devices are added to the routing table of the client PC.

   – No, all
     The routes to the devices are not entered in the routing table of the client PC.

   – Yes
     Specify the devices for which the routes are to be added to the routing table. The prerequisite is that the device is configured on the SINEMA RC Server. Enter the device names separated by commas.

   – NAT
     Only for devices with virtual subnets. Enter the device name. The prerequisite is that the device is configured on the SINEMA RC Server. You can set only one device to NAT.
     In addition to the route entry, the destination NAT settings of the device are configured in the SINEMA RC Client and on the client PC.

   Note

   If you set the communication settings of certain devices to "Yes" and/or "NAT", other devices are automatically set to "No".

4. If required, create a batch file.
   Using the "Create the .bat file" you can create a batch file with the start parameters of the client for the automatic setup of VPN and NAT.

`@echo off`	
`set username=username`	Name of the user
`set password=password`	Associated password
`set url=192.168.16.153`	IP address of the SINEMA RC Server
`set port=1443`	Port of the SINEMA RC Server
`set devicename=YesAll;NAT,Test`	devicename=communication relation;[NAT];[device name] • Communication relation: – `YesAll` = Establishes the VPN tunnel to all devices. – `NoAll` = No VPN tunnel is established to the devices. – `Yes` = A VPN tunnel is established to these devices. Specify the device name. Multiple device names are separated by commas. Example: `set devicename=Yes;device1,device2` • `NAT` Specify the device name with NAT. Multiple device names are separated by commas.
`set vpnstartautomatically=no`	Default setting: `no` `yes`: VPN tunnel is established automatically.
`set backgroundprocess=no`	Default setting: `no` `yes`: The SINEMA RC Client runs in the background.
`set layer2=layer2_network`	Name of the Layer 2 network

Example:

```
@echo off
set username=[username]
set password=[password]
set url=1.2.3.4
set port=123
set devicename=YES,dev1,dev2;NAT,dev3
set vpn=yes
set background=no
set layer2=layer2_network

START "" "C:\Program Files\Siemens\Automation\SINEMA RC
Client\Bin\SINEMA_RC_Client.exe" username=%username%
password=%password% url=%url% port=%port% devicename=%devicename%
vpn=%vpn% background=%background% layer2=%layer2%
exit
```

If this order of parameters is maintained, the batch works as expected.
To be independent of the order, you must insert the keywords. But the keywords are different from the parameters that are created by clicking on "Create .bat file".
The keywords are:

   – `username password url port devicename vpn background layer2`

5. Click the "Save" button.

Result

The SINEMA RC Client logs into the SINEMA RC Server automatically after Windows login.

If two-factor authentication is enabled in the role setting, you generate a one-time token with the authentication app and enter this token.

You can find other examples of Batch files

3.4.3.2 Enabling automatic operations

Automatic establishment of the VPN tunnel

To establish the VPN tunnel automatically after login of a user, select the "Automatic tunnel establishment after SINEMA RC Client login" check box.

Updating the device list automatically

For automatic updates, select the "Enable automatic update of the device list" check box.

You can configure an interval for automatic update of the device list.

The range of values for the interval is 1 ... 999 minutes.

Default setting: 10 minutes

3.4.4 Layer 2 settings

Requirement

- There is a license for using Layer 2 on the SINEMA RC Server.
- Layer 2 is enabled for the logged-in user.
- The Layer 2 interface is installed. If this is not the case, it cannot be installed retroactively.

Settings of the Layer 2 interface

- **MAC Address**
  The MAC address used by the Layer 2 interface of the SINEMA RC Client.
- **IP address / Subnet mask**
  The IP address and the subnet mask that is used by the Layer 2 interface.
- **MTU size**
  The MTU size that is set at the Layer 2 interface.

You do not need to change any of the settings. The settings are sent from the server to the client. You have the possibility to modify the settings if necessary. If you change a setting of the Layer 2 interface, you can re-establish the Layer 2 connection with the "Restart" button.

Appendix A

A

A.1 Syslog messages

Event Viewer

The Syslog messages are saved locally in the Microsoft Windows Event Viewer and not sent to a Syslog server.

1. Enter "Event Viewer" in the search line of the start menu.
2. Click the "Event Viewer" entry to start the Event Viewer.
3. Click the "Siemens Automation" entry for "Application and Services Logs".
   The log entries are listed in tabular form. When you click on an entry, the detail view opens in the bottom window area.

A.1.1 Tags in Syslog Messages

The Syslog messages can contain variables that are filled dynamically with the data of the respective event. These variables are displayed within curly brackets {variable} in the "Message text" field in section "List of Syslog Messages (Page 38)".

The following variables occur in Syslog messages:

Parameter	Description	Format	Possible values or example
User name	String that identifies the authenticated user based on his/her name without spaces	%s	Peter_Maier
IP address	IPv4 or IPv6 address	IP address according to RFC1035 or RFC4291 Section 2.2	192.168.10.128
Client version	String for the version of the installed client software	%s	V3.0
Server version	String for the version of the installed server software	%s	V3.0
Time seconds	Number of seconds	%d	600
Reason	String for the cause of the event	%s	e.g. unsuccessful authentication

A.1.2 List of Syslog Messages

A.1.2.1 Identification and authentication of human users

Message text	User {User name} has logged in via HTTPS to server {IP address}
Example	User Peter_Maier has logged in via HTTPS to server 192.168.10.128
Explanation	The user has successfully logged in to the device with the user name/password or PKI via a local interface.
Severity	Info
Facility	local0
Standard	IEC 62443-3-3 Reference: SR 1.1

Message text	User {User name} failed to log in via HTTPS to server {IP address}
Example	User Peter_Maier failed to log in via HTTPS to server 192.168.10.128
Explanation	Login to the device via a local interface failed. Incorrect user name or password entered during login.
Severity	Error
Facility	local0
Standard	IEC 62443-3-3 Reference: SR 1.1

Message text	Client version {Client version} is fully compatible with server version {Server version}.
Example	Client version V2.1 is fully compatible with server version V2.1.
Explanation	The client and server versions are compatible with one another.
Severity	Info
Facility	local0
Standard	IEC 62443-3-3 Reference: SR 1.1

Message text	Client version {Client version} is not fully compatible with server version {Server version}
Example	Client version V2.1 is not fully compatible with server version V2.1
Explanation	The client version is not fully compatible with the server version.
Severity	Info
Facility	local0
Standard	IEC 62443-3-3 Reference: SR 1.1

Message text	User {User name} has logged out
Example	User Peter_Maier has logged out
Explanation	A user logged out, either manually or automatically via the Web interface due to a timeout. User session completed - logged out.
Severity	Info
Facility	local0
Standard	IEC 62443-3-3 Reference: SR 1.1

A.1.2.2 Unsuccessful logon attempts

Message text	User {User name} account is locked for {Time seconds} seconds after {Failed login count} unsuccessful login attempts
Example	User Peter_Maier account is locked for 600 seconds after 10 unsuccessful login attempts
Explanation	If there were too many failed logins, the corresponding user account has been locked for a specific period of time.
Severity	Warning
Facility	local0
Standard	IEC 62443-3-3 Reference: SR 1.11

A.1.2.3 Access via untrusted networks

Message text	VPN connection to server {IP Address} successfully established via OpenVPN
Example	VPN connection to server 192.168.1.105 successfully established via OpenVPN
Explanation	The VPN connection is established.
Severity	Info
Facility	local0
Standard	IEC 62443-3-3 Reference: n/a (NERC-CIP 005-R1)

Message text	VPN tunnel to server {IP address} closed
Example	VPN tunnel to server 192.168.1.105 is closed
Explanation	The VPN connection is closed.
Severity	Info
Facility	local0
Standard	IEC 62443-3-3 Reference: n/a (NERC-CIP 005-R1)

Message text	VPN connection to server {IP address} failed. Fatal error: {Reason}
Example	VPN connection to server 192.168.10.128 failed. Fatal error: unsuccessful authentication
Explanation	The VPN connection could not be established due to invalid authentication.
Severity	Error
Facility	local0
Standard	IEC 62443-3-3 Reference: n/a (NERC-CIP 005-R3)

A.1.2.4 Software and information integrity

Message text	Integrity violations in configuration data detected
Example	Integrity violations in configuration data detected
Explanation	An integrity fault was detected while the configuration integrity was being checked.
Severity	Error
Facility	local0
Standard	IEC 62443-3-3 Reference: SR 3.4

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