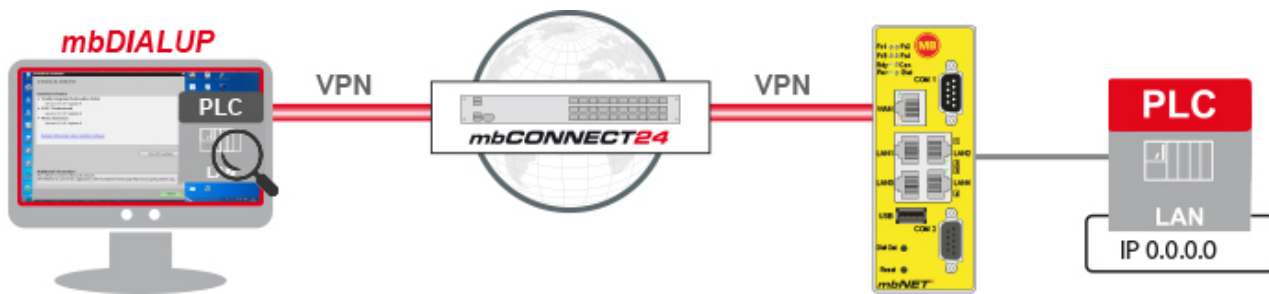


SEARCH over IP

Functional Overview

Version: 1.0 DR01 - EN - Apr. 6th, 2020



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Table of Contents

1	General.....	4
2	Legal information.....	5
3	Notes on Cyber-Security.....	6
4	Functional Overview.....	7
5	Configure / enable SEARCHoverIP.....	9
5.1	Preparation / checklist.....	9
5.2	Enable / disable SEARCHoverIP.....	10
5.3	Run SEARCHoverIP.....	12
5.4	Quit SEARCHoverIP.....	14

1 General

Purpose of this documentation

This user document describes the "SEARCHoverIP" function.

Target group

This document is intended for mbCONNECT24 users who are familiar with the operation and handling of the Remot Service Platform and the mbNET routers.

Validity of this documentation

This manual is valid for the routers

mbNET.mini (MDH 860 - MDH 863) from firmware version V 1.9.0*

mbNET (MDH 800 - MDH 859) from firmware version V 3.7.0*

(for devices with WiFi modem as of firmware version V 4.3.0 *)

Prerequisites / additional required components

- Standard Windows PC with network interface (ethernet interface).
- To establish a secure VPN connection to the portal **mbCONNECT24**, the Remote Client software **mb-DIALUP** from version V 3.7 * must be installed on the Remote Client PC.
- You have an account on the RSP mbCONNECT24 from version V 2.x.
- You have an **mbNET.mini** router with firmware from 1.9.0; **mbNET** router with firmware from 3.7.0 / 4.3.0.
- The programming software for the respective control system must be installed on the remote client PC.
- The **mbDIALUP**-PC has an Internet connection.

* The latest version can be downloaded from www.mbconnectline.com.

Release notes:

Version	Date	Comment
V 1.0	2016 / 11 / 30	-
V 1.0 DR01	Apr. 6 th , 2020	Information about increased data traffic and possibly occurring IP address conflicts when activating SEARCHoverIP - see Chap. "Functional Overview"

Currently manuals and more information

The latest manuals and more information about products related to secure remote maintenance can be found on www.mbconnectline.com in the download portal.

2 Legal information

Qualified Personnel

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

Proper use

The mbNET / mbNET.mini router may be used only as described in the manual.

Disclaimer

In this manual all technical information, data and instructions for installation, operation and maintenance are based on our previous experience and insights to the best knowledge. For the details, illustrations and descriptions in these instructions, no claims can be deduced. We assume no liability for damage due to:

- disregard of these operating instructions
- improper use
- technical modifications

Translations are performed best of our knowledge. We do not assume no liability for translation mistakes, even if the translation was carried out by us or on our behalf. Binding remains solely the original German text.

Subject to technical and content changes.

Trademarks

The use of any trademark not listed herein is not an indication that it is freely available for use.

3 Notes on Cyber-Security

To prevent unauthorized access to facilities and systems, observe the following security recommendations:

General

- Periodically ensure that all relevant components meet these recommendations and any additional internal security policies.
- Perform a security assessment of the entire system. Use a cell protection concept with suitable products.

For example, "ICS-Security-Kompendium" from the BSI (Federal Office for Security in Information Technology, Bundesamt für Sicherheit in der Informationstechnik)

https://www.bsi.bund.de/SharedDocs/Downloads/DE/BSI/ICS/ICS-Security_kompendium_pdf.html

shortened URL: <http://bit.ly/1rP9znm>

Physical access

- Restrict physical access to security-relevant components to qualified personnel.

Security of the software

- Keep software/firmware updated.
 - Stay informed about security updates for the product.
 - Stay informed about product updates.

You can find information about this at: www.mbconnectline.com

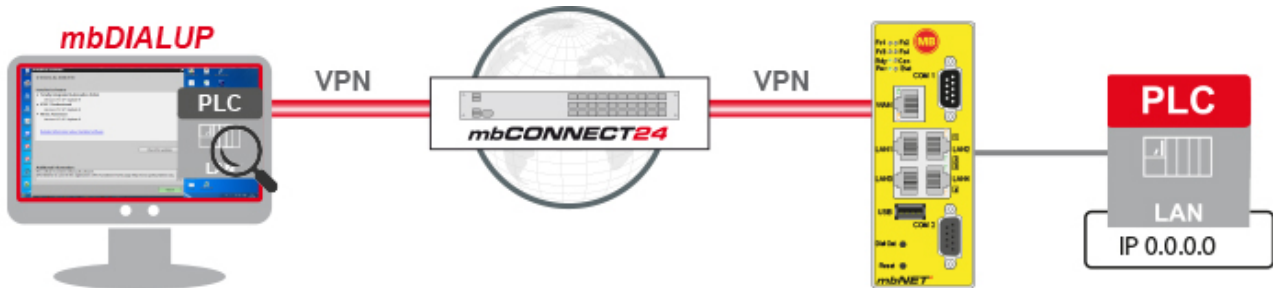
Passwords

- Define rules for the use of the devices and assigning passwords.
- Change passwords regularly, to increase security.
- Use only passwords with a high password strength. Avoid weak passwords such as "password1", "123456789".
- Make sure that all passwords are protected and inaccessible to unauthorized personnel.
- Do not use the same password for different users and systems.

4 Functional Overview

Brief Description

With the SEARCHoverIP function, you can also find your PLC via remote maintenance in the network. For example, "virgin" SIEMENS controllers can be found and configured remotely in the network. Furthermore the search function for controls of the brands SchneiderElectric, Rockwell, Beckhoff and Pilz is supported.



The control systems on the market and their configuration software work mostly with the Broadcast/Multicast/Discover principle during the initial start-up. This principle is based on Layer2 network communication. I.e. the corresponding configuration software searches via network functions the controls in the network. In local networks, this is usually not a problem - but in remote maintenance the network is routed (the local area network does not correspond to the remote network area), and thus, only communications via Layer3 are available. That means that this comfortable way is mostly not available during the remote maintenance and therefore the user has to know the IP-participants and has to specify them manually.

With the **SEARCHoverIP** function, MB connect line offers the reliable and convenient option of performing these search functions via remote maintenance.

⚠ WARNING

When the **SEARCHoverIP** function is activated or executed, the "remote maintenance network" (**mbDIALUP**) is connected one to one to the LAN network on the **mbNET** / **mbNET.mini** via Layer2.

- Under certain circumstances, this can lead to IP address conflicts.
- Network disturbances on the remote maintenance side (**mbDIALUP**) or **mbNET**-LAN side can occur.

The execution of broadcasts and multicasts on the remote maintenance side (**mbDIALUP**) causes an additional increased data traffic through the VPN tunnel.

NOTICE

Always use the **SEARCHoverIP** function wisely and as an ultimate ratio.

Activate the function only for the duration of the action to find and configure a controller in order to minimize the above-mentioned risks and to reduce the data traffic in the VPN tunnel.

The following devices / programming software have been tested for use with the SEARCHoverIP function (from 2016/11/30):

Manufacturer	Software	Version	Controller / PLC
Siemens	TIA V13	SP1 Update 9	S7-1200
Schneider	SoMachine	V4.1	TM251 MESE
Beckhoff	TwinCat2	V2.11.2257	Beckhoff TwinCat2
PILZ	PILZ PAS4000		PILZ PAS4000

5 Configure / enable SEARCHoverIP

5.1 Preparation / checklist

- The remote client software mbDIALUP must be upgraded to version 3.7 or re-installed.

NOTICE

In order to use the SEARCHoverIP function, you must agree to the installation of the free software "Win-Pcap".

When using a SIEMENS PLC, you must restart the configuration PC after the update or the installation of mbDIALUP.

- The device (mbNET / mbNET.mini) with which the search function is to be executed must have at least the firmware version 3.7.0 (mbNET), 4.3.0 (mbNET with WiFi) or 1.9.0 (mbNET.mini).
- In the Remote Service Portal mbCONNECT24, the SEARCHoverIP function must be activated in the LAN settings of the relevant device.
"Administration > Projects > Project Alpha (selected project) > RouterAlpha (selected device) > Interfaces > LAN".
- This change in mbCONNECT24 must be transferred to the device (Synchronization).

5.2 Enable / disable SEARCHoverIP

The SEARCHoverIP function is activated

- a. globally on the remote client software mbDIALUP (Settings/Options)

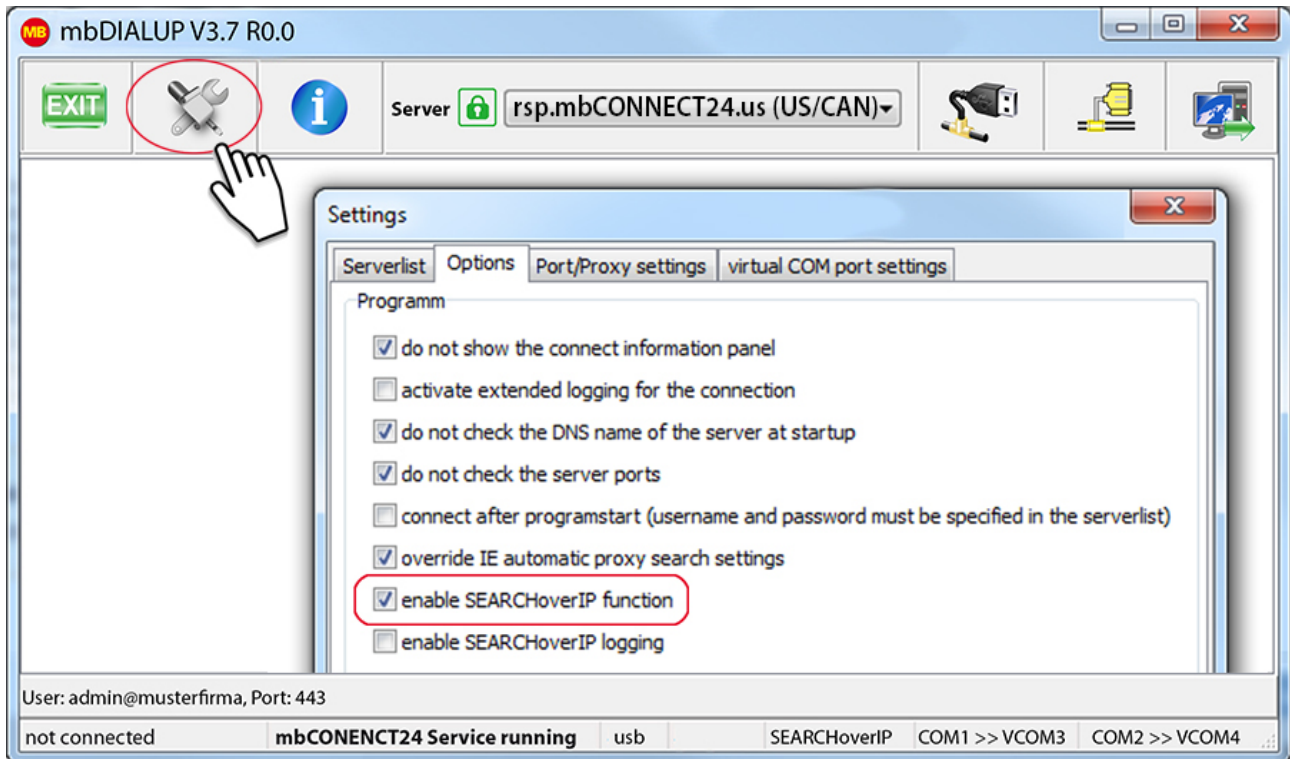


Image 1: By default the function is activated in the mbDIALUP.

and

- b. individually via the device settings of the respective device in the RSP mbCONNECT24.

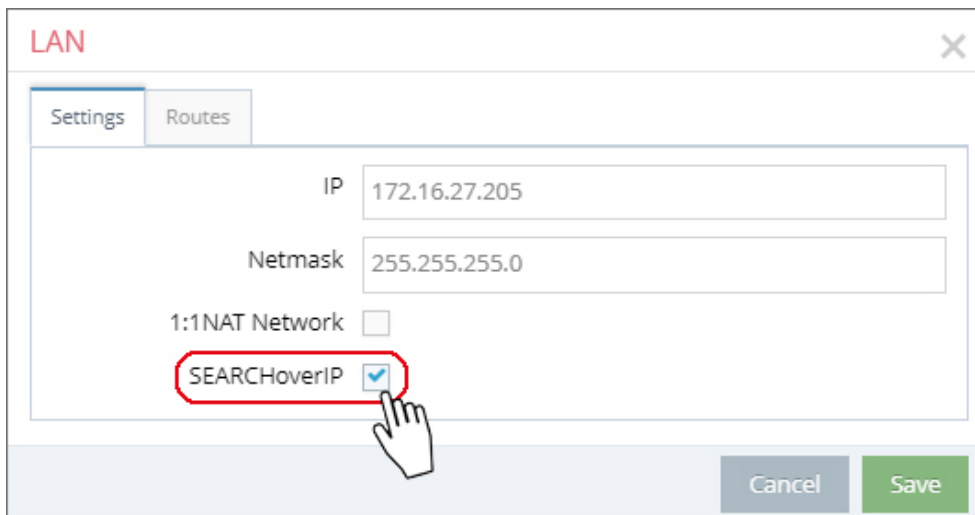


Image 2: The function is deactivated by default in the LAN settings.

NOTICE

The SEARCHoverIP function is a classic "AND" operation. The function must be activated in the mbDIALUP and the portal (mbCONNECT24). Individual devices for SEARCHoverIP are activated in mbCONNECT24. Enabling / disabling SEARCHoverIP in the mbDIALUP refers to all devices (mbNET / mbNET.mini) in the portal.

⚠ WARNING

When the **SEARCHoverIP** function is activated or executed, the "remote maintenance network" (**mbDIALUP**) is connected one to one to the LAN network on the **mbNET / mbNET.mini** via Layer2.

- Under certain circumstances, this can lead to IP address conflicts.
- Network disturbances on the remote maintenance side (**mbDIALUP**) or **mbNET**-LAN side can occur.

The execution of broadcasts and multicasts on the remote maintenance side (**mbDIALUP**) causes an additional increased data traffic through the VPN tunnel.

NOTICE

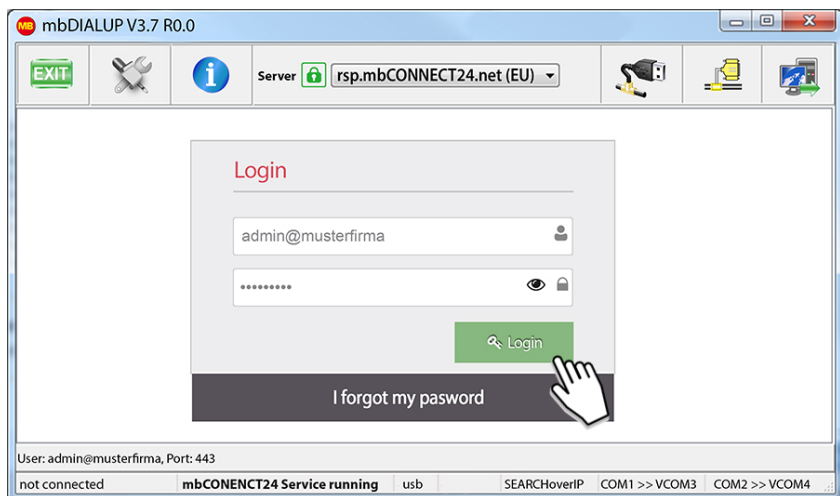
Always use the **SEARCHoverIP** function wisely and as an ultimate ratio.

Activate the function only for the duration of the action to find and configure a controller in order to minimize the above-mentioned risks and to reduce the data traffic in the VPN tunnel.

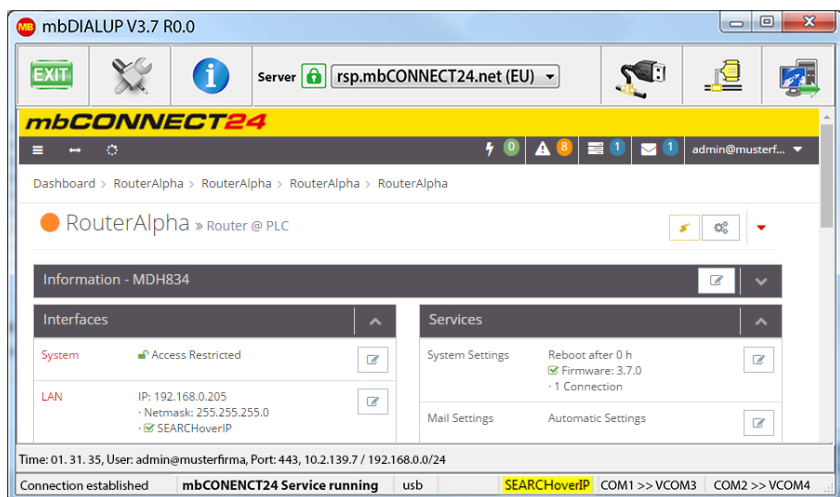
After completing the work, deactivate the function again in the LAN settings of the mbNET.

5.3 Run SEARCHoverIP

Log on to mbCONNECT24 using mbDIALUP.



Connect to the device in question. If the connection is established and the SEARCHoverIP function is ready, this is displayed in the status bar at the bottom of mbDIALUP by the yellow **SEARCHoverIP**.



SEARCHoverIP => if the function is activated on the device, SEARCHoverIP appears green.

SEARCHoverIP => if the function is activated on the device and in the mbDIALUP, the color changes to yellow.

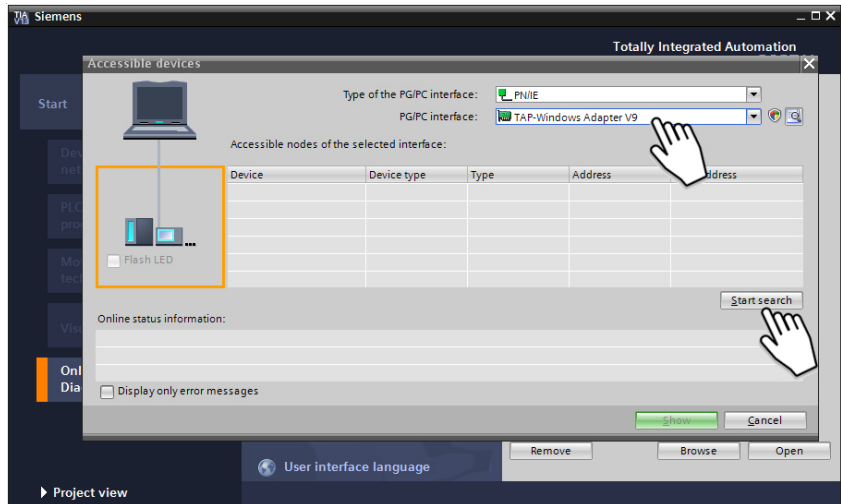
If the function is deactivated in the mbDIALUP, no color changes from green to yellow.

SEARCHoverIP => Connection setup failed!

In this case

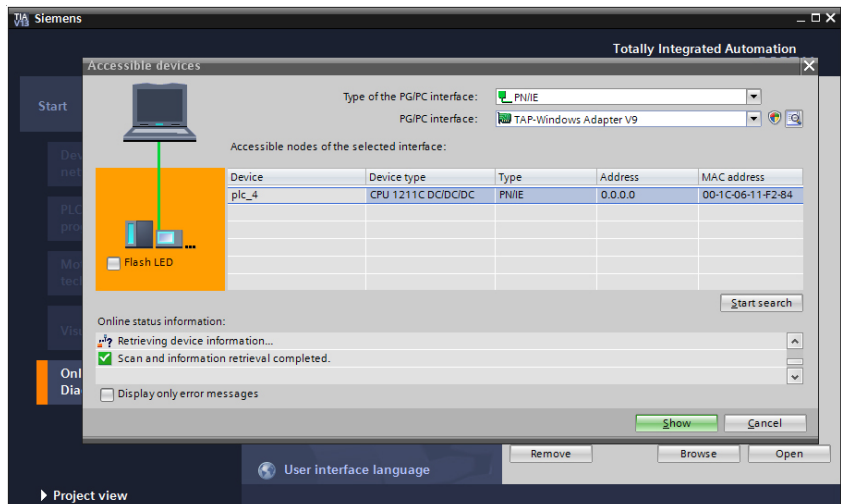
- exit your mbCONNECT24 session
- restart the mbDIALUP
- log on to the portal again
- connect again to the device in question (mbNET / mbNET.mini)

After the connection has been established, start the routine of your programming software to find the controllers / PLCs located in the network. Select the PG/PC interface (TAP-Windows Adapter) and start the search function.



Example with TIA-Portal V13 programming software

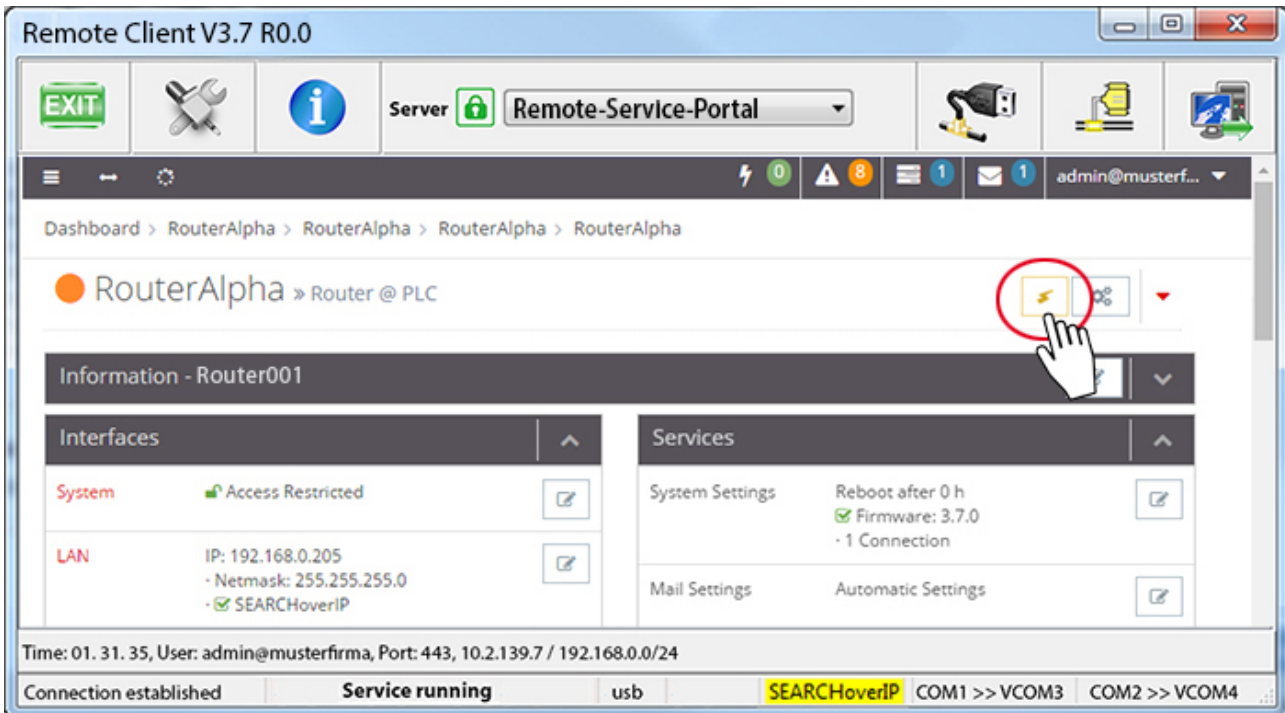
After a controller / PLC has been found, you can remotely configure this now.



Example with TIA-Portal V13 programming software

5.4 Quit SEARCHoverIP

To exit SEARCHoverIP simply disconnect from the device (mbNET / mbNET.mini).



NOTICE

Make sure that the SEARCHoverIP function is **deactivated** again after completing the work.

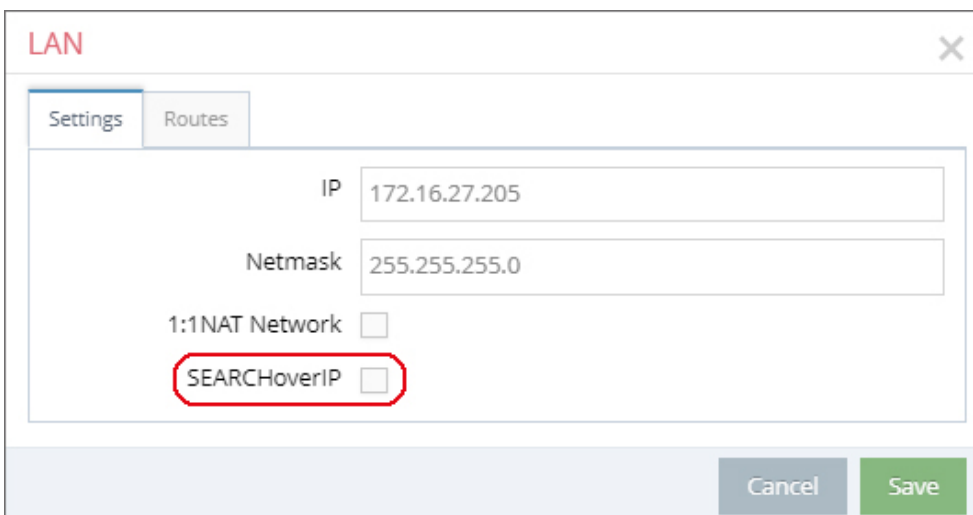


Image 3: Administration > Project Alpha > RouterAlpha > Interfaces > LAN