



Config over Realtime

Establishing the LinMot-Talk Connection over the fieldbus port

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Use of This Document

Description: Login with the LinMot-Talk Software over the Real-time Ethernet Port

Drive: Drives are listed under General

Classification :

- Application Note
- Installation Guide
- User Manual
- Documentation
- LinMot internally

Recommended Documentation

Beside the documentation included in the libraries available for download, reading the following user manuals is essential to understand the communication between the PLC and the LinMot drive. The manuals are included in the LinMot-Talk software (*Menu Manuals* → *All Documents* or *Relevant Documents* if logged in to a drive) or can be downloaded from the LinMot eCatalogue (search by document reference): <http://shop.linmot.com>



User Manuals: General	System Generation	Document Reference
LinMot-Talk	All	0185-1059
Motion Control Software	SG3 & SG4	0185-1092
Motion Control Software	SG5 - SG7	0185-1093
User Manuals: Interfaces	System Generation	Document Reference
EtherCAT (LinMot Profile)	SG5 - SG7	0185-1079
EtherCAT CoE (CiA402, CANopen over EtherCAT)	SG5 - SG7	0185-1103 / 0185-1178 (-MI)
EtherCAT SoE (Servo Drive Profile over EtherCAT)	SG5 - SG7	0185-1080
PROFINET IO	SG5 - SG7	0185-1090 / 0185-1154 (-MI)
PROFINET PROFIdrive	SG6	0185-1132 / 0185-1154 (-MI)
Sercos III (FSP_DRIVE or FSP_IO [-SC only!])	SG5 & SG6	0185-1091
EtherNet/IP	SG5 & SG6	0185-1081
EtherNet/IP CIP Sync	SG6	0185-1165
Powerlink	SG5 & SG6	0185-1088
LinUDP V2 (LinMot Ethernet UDP protocol) from FW6.3	SG5 & SG6	0185-1108

General

Requirements

The following tables show which drive types support remote access with LinMot-Talk over the fieldbus. More details can be found in the following chapters:

Interface	Chapter
Ethernet/IP (-IP & -CM)	1 Ethernet/IP
LinUDP (-LU)	2 LinUDP
PROFINET (-PN & -PD)	3 PROFINET
EtherCAT (-EC & -DS & -SE)	4 EtherCAT
Sercos III (-SC)	5 Sercos III
POWERLINK (-PL)	6 POWERLINK
Config Eth	7 Configuration ETH Port

RT ETH supported Interfaces

	IP	CM	LU	PN	PD	EC	SE	DS	SC	PL
Remote Access with LinMot-Talk	•	•	•	•	•	•	•	•	•	•
Configuration with LinMot-Talk	•	•	•	•	•	•	•	•	•	•
Firmware Installation	x	x	x	x	x	x	x	x	x	x
Scanning Over Ethernet	•	•	•	•*	•*	x	x	x	•	x
Import Configuration file (Imc)	•	•	•	•	•	•	•	•	•	•
Blink Status LED's	•	•	•	•	•	•	•	•	•	•
Login without connected PLC	•	•	•	(-)	(-)	x	x	x	•	x

- Yes
- * Yes, -MI drive only
- x No
- (-) If IP is set in another way



Attention: -MI drives with Sercos interface installed **do not** support configuration over RT ETH Ethernet.

Supported Servo Drives Series

	B1100	E1100	C1150*	C1250*	C1450*	E1250**	E1450**
Ethernet Access with LinMot-Talk	x	x	x	•	•	•	•
Ethernet Config with LinMot-Talk	RS232/CAN	RS232/CAN	RS232	•	•	•	•
Firmware Installation over RT	x	x	x	x	x	x	x
Firmware Installation Config ETH	x	x	x	x	x	•	•
Firmware Installation RS232	•	•	•	•	•	•	•
Internet Browser Access	x	x	x	x	x	•	•
Scanning over Ethernet	x	x	x	•	•	•	•
Import Configuration File (.lmc)	RS232/CAN	RS232/CAN	RS232	•	•	•	•
Blink Status LED's	x	x	x	•	•	•	•

- Yes
- X No
- * only supported with the specific interface
- ** only Config ETH supported, RT Config check with support@linmot.com



Note: In case of doubt use for the LinMot-Talk Communication the USB-RS232 Converter (0150-2473) on X19.



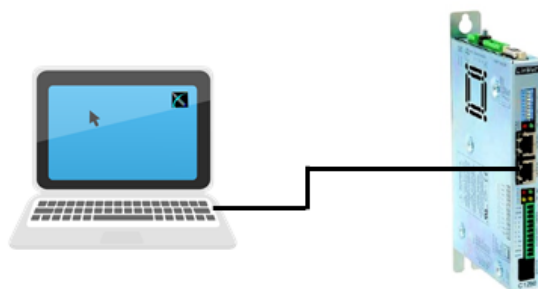
<http://shop.linmot.com/E/product/0150-2473>

1 Ethernet/IP

1.1 Compatibility

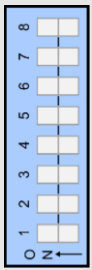
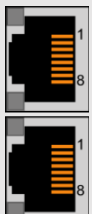
Servo Drive	Firmware-Version
C1250-IP-XC-0S-000	LinMot-Talk 6 Version 6.4 Build 20151112 or newer
C1250-IP-XC-1S-000	LinMot-Talk 6 Version 6.4 Build 20151112 or newer
C1450-IP-VS-1S-000	LinMot-Talk 6 Version 6.6 Build xxx or newer
C1250-CM-XC-0S-000 / C1250-MI-XC-0S-000	LinMot-Talk 6 Version 6.8 Build 20190315 or newer
C1250-CM-XC-1S-000 / C1250-MI-XC-1S-000	LinMot-Talk 6 Version 6.8 Build 20190315 or newer
E1250-IP-UC	More details in chapter Configuration ETH Port
E1450-IP-QN-0S	More details in chapter Configuration ETH Port
E1450-IP-QN-1S	More details in chapter Configuration ETH Port

1.2 Login with static IP address



1.2.1 Settings on the LinMot Drive

The default setting of the Ethernet/IP port address is manual IP Configuration using hex switches. With the standard settings, the IP address will be in the following range 192.168.001.xxx. The last number can be set with the hex switches S1 and S2.

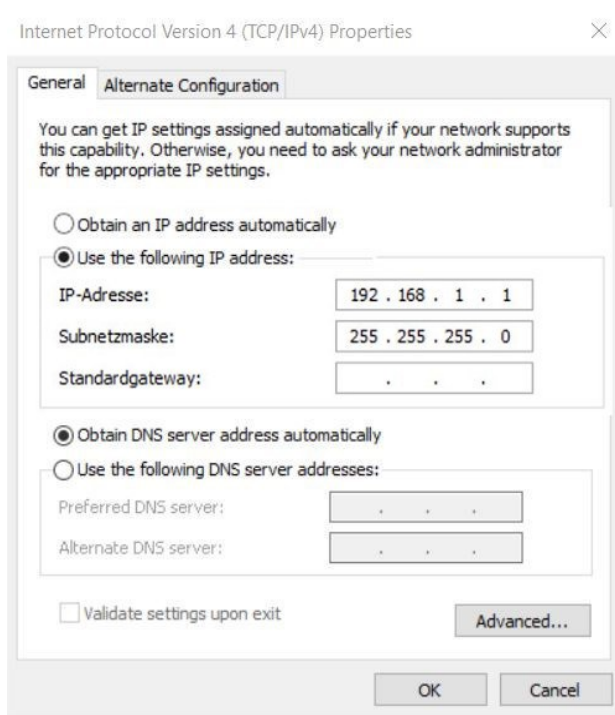
Identification	Description	Example
S1 – S2		IP address with the settings below:
	<p>S1: (5..8) Bit 5 is LSB Bit 8 is MSB</p> <p>S2: (1..4) Bit 1 is LSB Bit 4 is MSB</p>	<p>S1 = binary 0000, dec 0, hex 0</p> <p>-----</p> <p>S2 = binary 0011, dec 3, hex 3</p> <p>Address = 192.168.001.003</p>
X17 – X18		Connect network cable on X17:
	<p>X17 RT ETH In</p> <p>X18 RT ETH Out</p>	<p>X17 RT ETH In</p>



Note: Changes on S1 and S2 need a power up cycle to refresh the values in the drive.

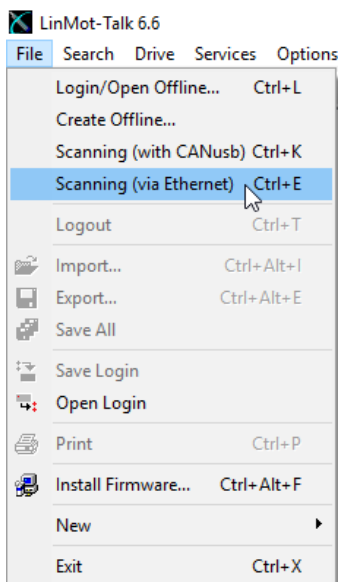
1.2.2 Settings on the PC

The computer needs to be in the same IP subnet as the servo drive. Set the network settings in the PC to an IP address with 192.168.1.xxx. The IP address needs to be different from the IP address of the drive.



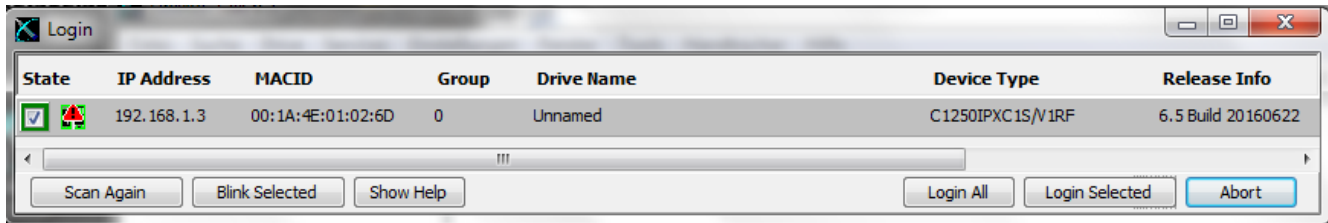
1.2.3 Login with LinMot-Talk

Open the LinMot-Talk Software and start the Scanning (via Ethernet) in the menu tab: [File -> Scanning \(via Ethernet\)](#).



Select the network card of the laptop. Make sure that the IP address of the Laptop is in the following sub net (192.168.1.xxx).

The following table will show all connected LinMot drives in the network.



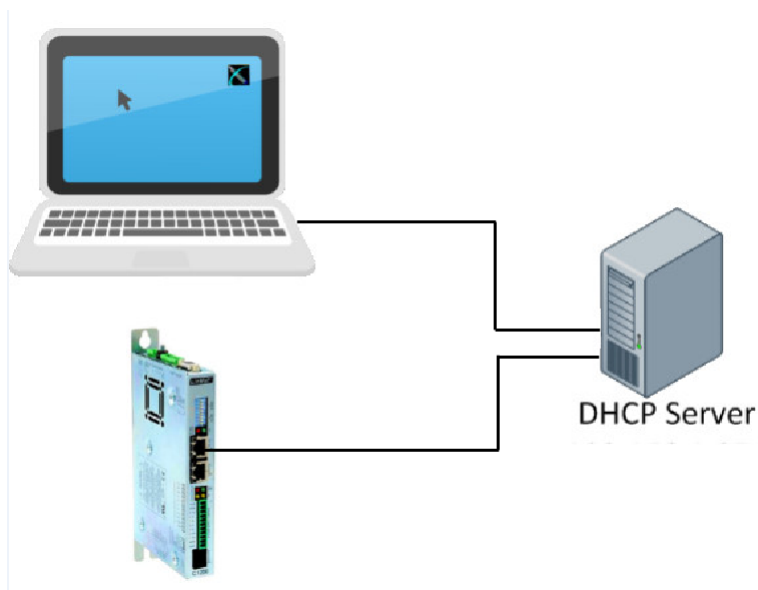
Login to the drive to adjust drive settings.



Note: When configuring the IP address of the drive, a new scan is necessary to reconnect the LinMot-Talk communication if the IP address is changed. The IP address of the drive can be configured with LinMot Talk:

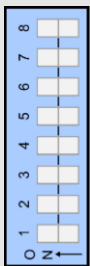
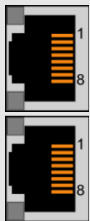
[Parameter/ Ethernet/IP Intf/ IP Configuration Mode](#)

1.3 Login with dynamic IP address (DHCP)



1.3.1 Settings on the LinMot Drive

If the hex switches are set to S1=0 and S2=0, the servo drive is in the dynamic IP configuration mode. The servo drive doesn't support APIPA (Automatic Private IP Addressing). Connect the servo drive with a DHCP Server to receive a TCP/IP address.

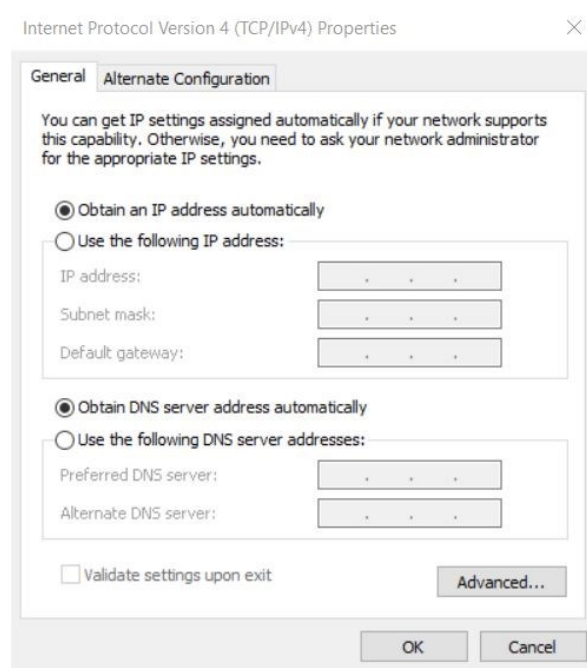
Identification	Description	Example
S1 – S2 	S1: (5..8) Bit 5 is LSB Bit 8 is MSB S2: (1..4) Bit 1 is LSB Bit 4 is MSB	S1 to OFF / S2 to OFF = DHCP.
X17 – X18 	X17 RT ETH In X18 RT ETH Out	Connect the network cable to X17: X17 RT ETH In



Note: Changes on S1 and S2 need a power up cycle to refresh the values in the drive.

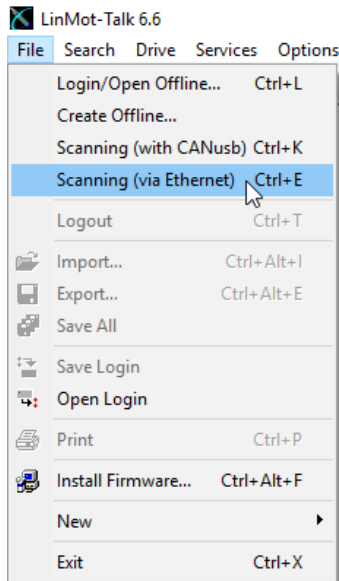
1.3.2 Setting on PC

Set the Network Configuration IPv4 to “Obtain an IP address automatically”.

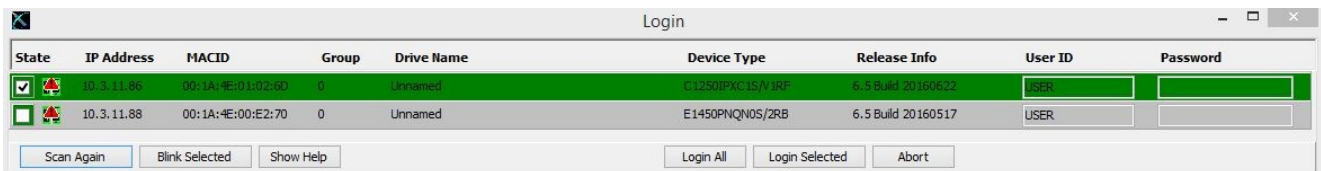


1.3.3 Login with LinMot-Talk

Open the LinMot-Talk Software and start the Scanning (via Ethernet) in the menu. *File* → *Scanning (via Ethernet)*



Attention: Use the “Blink Selected” function if you have more than one drive in the network.



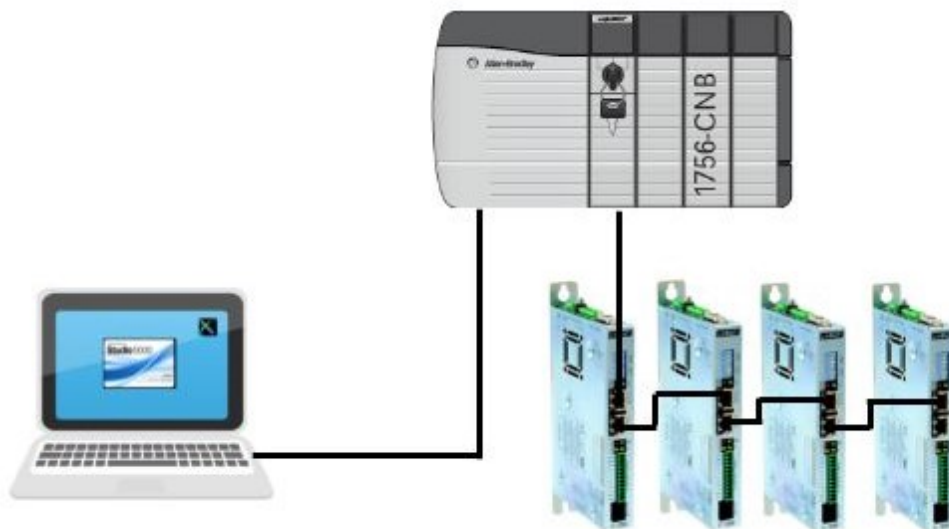
Login to the drive to adjust the drive settings.



Note: When configuring the IP address of the drive, a new scan is necessary to reconnect the LinMot-Talk communication if the IP address is changed. The IP address of the drive can be configured with LinMot Talk:

Parameter/ Ethernet/IP Intf/ IP Configuration Mode

1.4 IP address configuration with BOOTP/ DHCP Server



1.4.1 Settings on the LinMot Drive

If the hex switches are set to S1=0, and S2 =0, the servo drive is in the dynamic IP configuration. The servo drive doesn't support APIPA (Automatic Private IP Addressing). Connect the servo drive with a DHCP Server to receive a TCP/IP address.

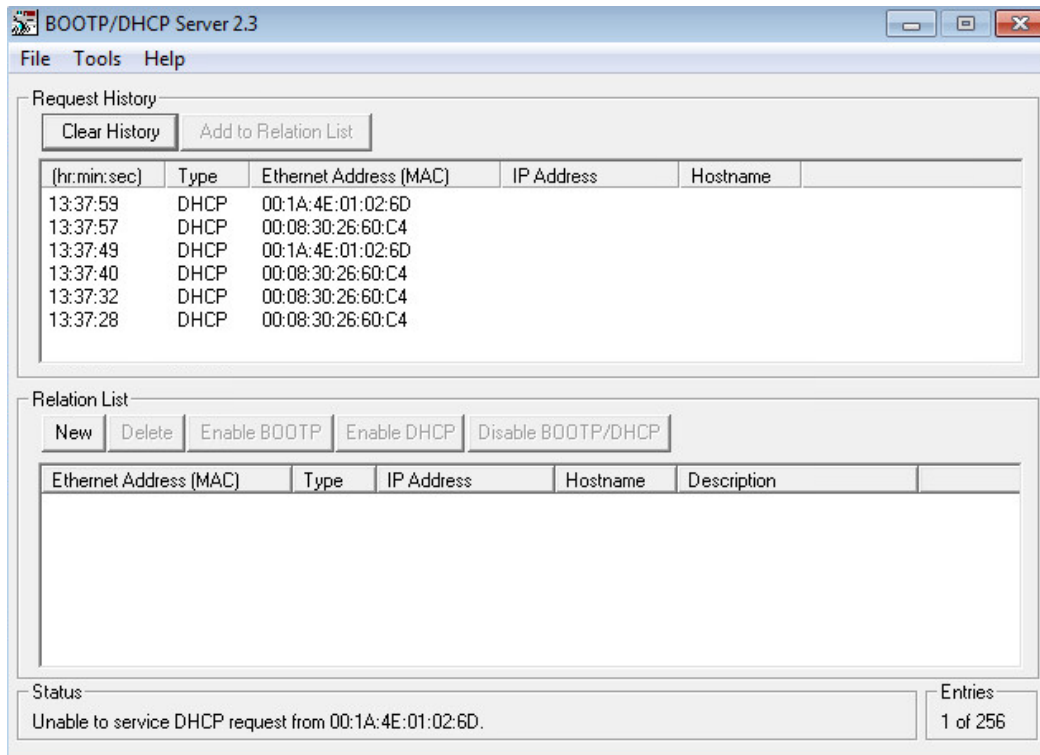
Identification	Description	Example
S1 – S2		
	<p>S1: (5..8) Bit 5 is LSB Bit 8 is MSB</p> <p>S2: (1..4) Bit 1 is LSB Bit 4 is MSB</p>	S1 to OFF / S2 to OFF = DHCP.
X17 – X18		
	<p>X17 RT ETH In</p> <p>X18 RT ETH Out</p>	<p>The network cable is plugged into X17:</p> <p>X17 RT ETH In</p>

1.4.2 Using the Software BOOTP/ DHCP Server

The following settings are shown with BOOTP/DHCP Server Version 2.3.2.0 from Rockwell Automation. The software shows all the MAC addresses in the Ethernet network. An IP address can be assigned to a LinMot drive with this software. Once the servo drive has an assigned IP address, the LinMot-Talk Software can connect to the drive over the Ethernet real-time port.

1.4.2.1 Search for the LinMot Drive in the Network

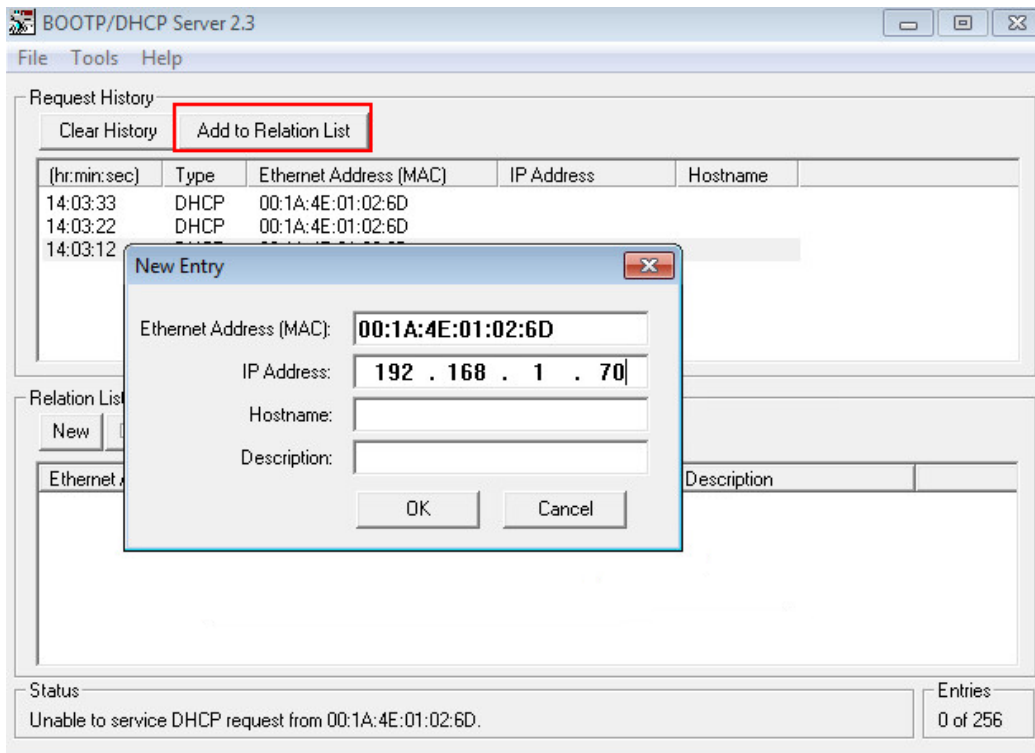
The BOOTP Software shows all the slaves in the Network.



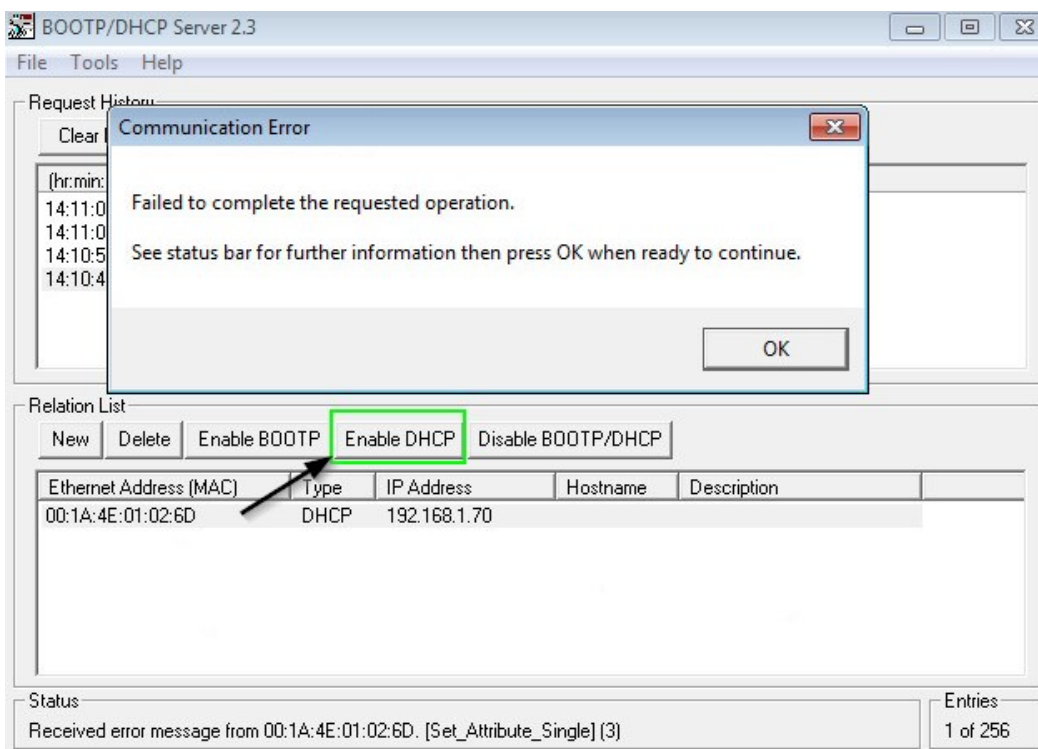
Compare the MAC-Address in the list with the MAC on the Servo Drive label.



Select the correct MAC and assign the IP address to the drive.



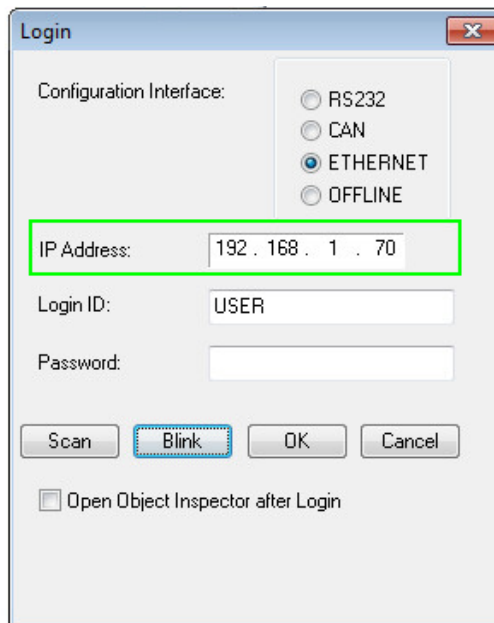
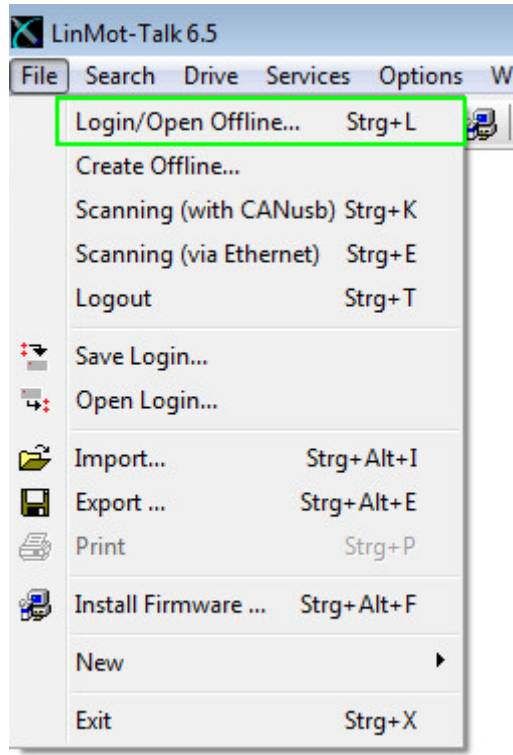
Add the IP address in the Relation List and press "Enable DHCP". Normally a Communication Error is displayed, but the message can be ignored. Press OK.



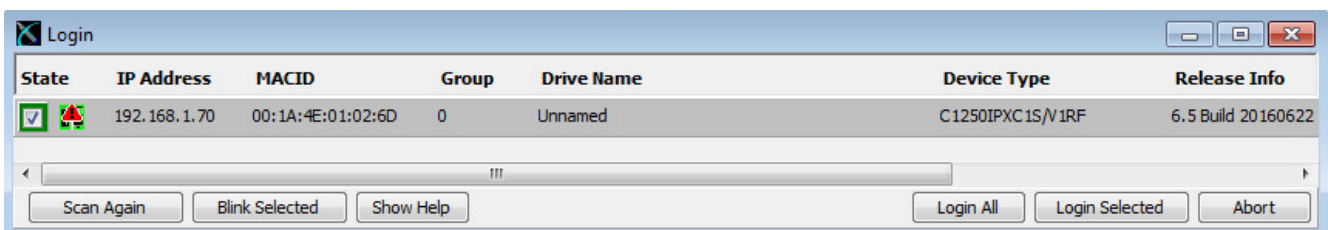
Note: After the IP address assignment, the BOOTP/DHCP Server Software must be closed. After that, restart the LinMot-Talk Software to login in the drive.

1.4.3 Login with LinMot-Talk

In the LinMot-Talk Software **File -> Login/Open Offline** and enter the IP address of the Servo Drive.

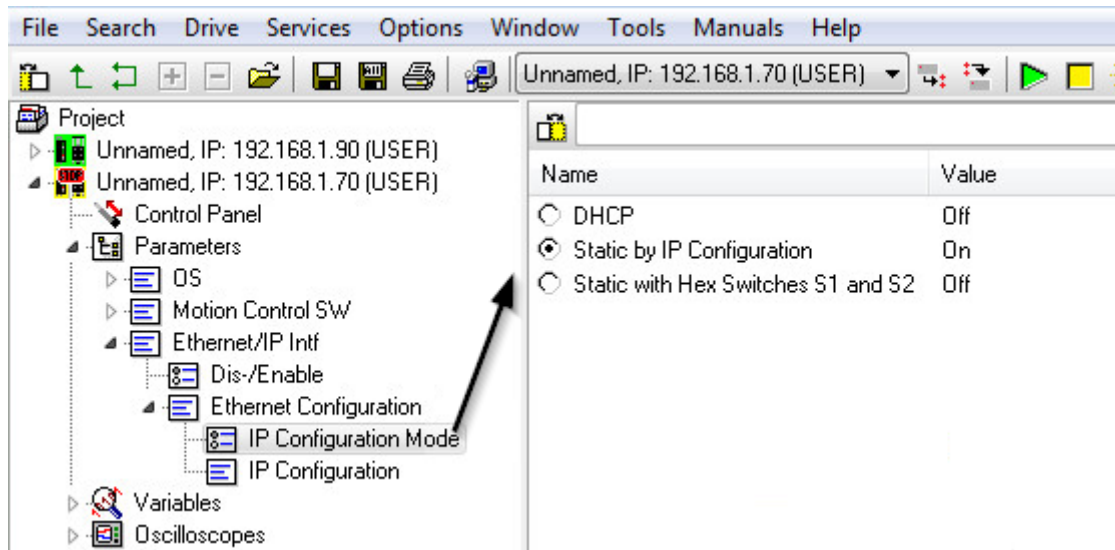


Use the Scan function if the IP address is unknown.



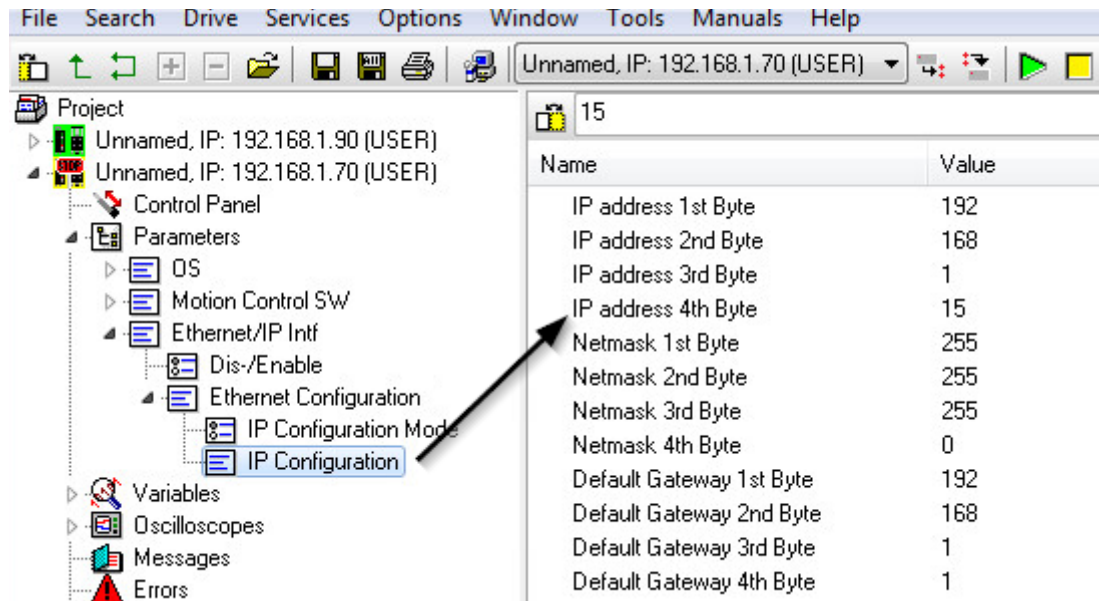
1.4.3.1 Change the IP settings in the LinMot-Talk Software

Go to *Parameters/ Ethernet/IP Intf/ Ethernet Configuration/ IP Configuration Mode* and set the mode to “Static by IP Configuration”.



Change the settings of the IP address if the IP Configuration Mode is Static by IP Configuration.

Parameters/ Ethernet/IP Intf/ Ethernet Configuration/ IP Configuration



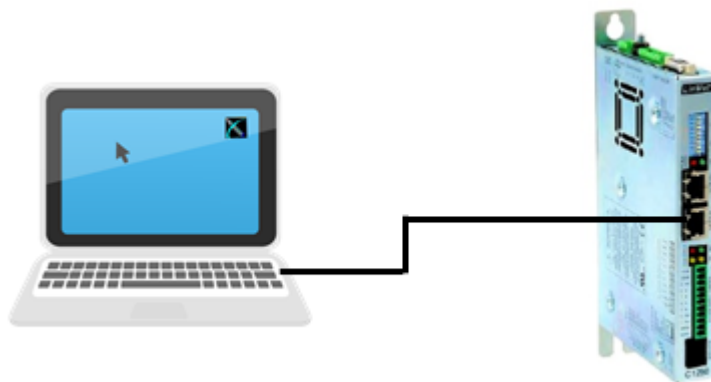
Attention: Modifications to the IP address will be activated only after a restart of the firmware. Logging back into the drive with the new IP address will be necessary to reestablish the LinMot-Talk connection.

2 LinUDP

2.1 Compatibility

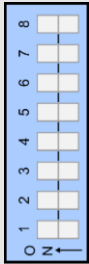
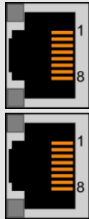
Servo Drive	Firmware-Version
C1250-LU-XC-0S-000	LinMot-Talk 6 Version 6.4 Build 20151112 or newer
C1250-LU-XC-1S-000	LinMot-Talk 6 Version 6.4 Build 20151112 or newer
C1450-LU-VS-1S-000	LinMot-Talk 6 Version 6.6 Build xxx or newer
E1250-LU-UC	More details in chapter Configuration ETH Port
E1450-LU-QN-0S	More details in chapter Configuration ETH Port
E1450-LU-QN-1S	More details in chapter Configuration ETH Port

2.2 Login with static IP address



2.2.1 Settings on the LinMot Drive

The default setting of the Ethernet/IP port address is manual IP Configuration using hex switches. With the standard settings, the IP address will be in the following range 192.168.001.xxx. The last number can be set by the hex switches S1 and S2.

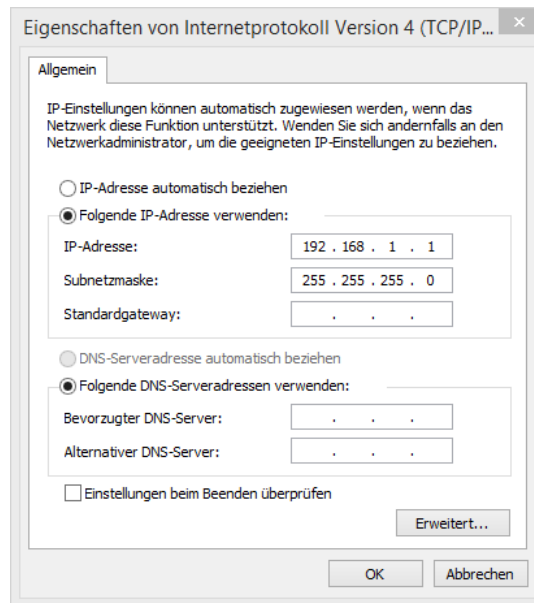
Identification	Description	Example
S1 – S2 	S1: (5..8) Bit 5 is the LSB Bit 8 is the MSB S2: (1..4) Bit 1 is the LSB Bit 4 is the MSB	IP address with the settings below: S1 = binary 0000, dec 0, hex 0 ----- S2 = binary 0011, dec 3, hex 3 Address = 192.168.001.003
X17 – X18 	X17 RT ETH In X18 RT ETH Out	Network Cable connected on X17 X17 RT ETH In



Note: Changes on S1 and S2 need a power up cycle to refresh the values in the drive.

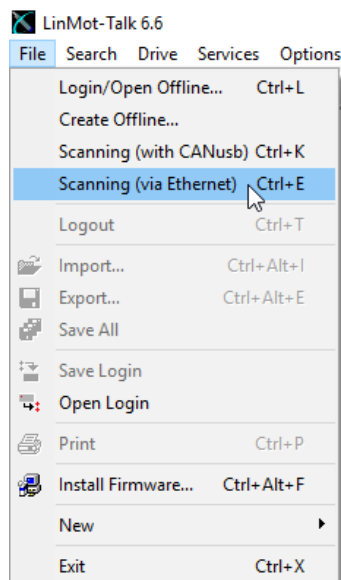
2.2.2 Settings on the PC

Set the IP address of the PC to the same range as the Servo Drive. Change the IP address in the Network Setting to 192.168.1.xxx.



2.2.3 Login with LinMot-Talk

Open the LinMot-Talk Software and start the Scanning (via Ethernet) in the menu.
[File -> Scanning \(via Ethernet\)](#)



The subnet of the network should be in the range of 192.168.1.xxx.
If LinMot-Talk can't find a LinMot Servo Drive connected on the network, check the IP address and firewall settings.

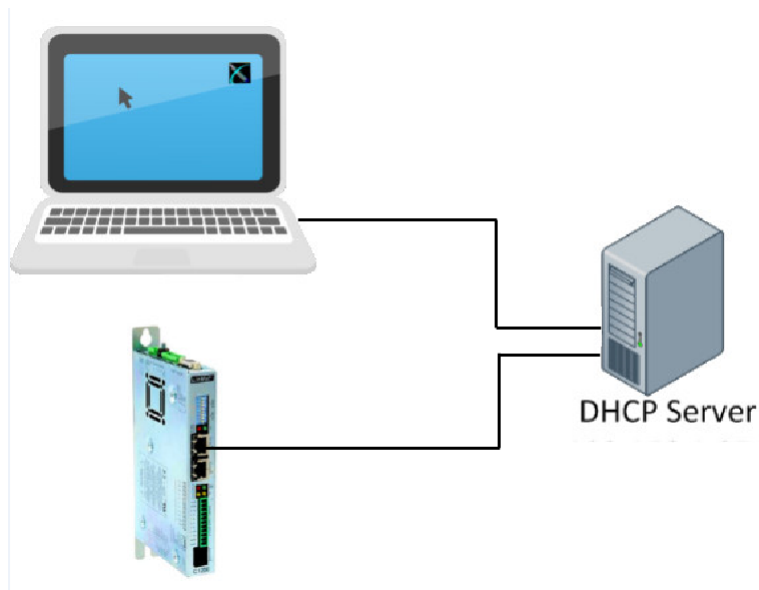
State	IP Address	MACID	Group	Drive Name	Device Type	Release Info
<input checked="" type="checkbox"/>	192.168.1.3	00:1A:4E:01:02:6D	0	Unnamed	C1250IPXC1S/V1RF	6.5 Build 20160622



Note: When configuring the IP address of the drive, a new scan is necessary to reconnect the LinMot-Talk communication if the IP address is changed. The IP address of the drive can be configured with LinMot Talk:

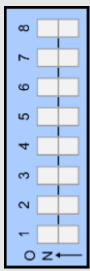
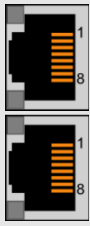
[Parameter/ Ethernet/IP Intf/ IP Configuration Mode](#)

2.3 Login with dynamic IP address (DHCP)



2.3.1 Settings on the LinMot Drive

If the hex switches are set to 0000 0000, the servo drive is in the dynamic IP configuration. The servo drive doesn't support APIPA (Automatic Private IP Addressing). Connect the servo drive with a DHCP Server to receive a TCP/IP address.

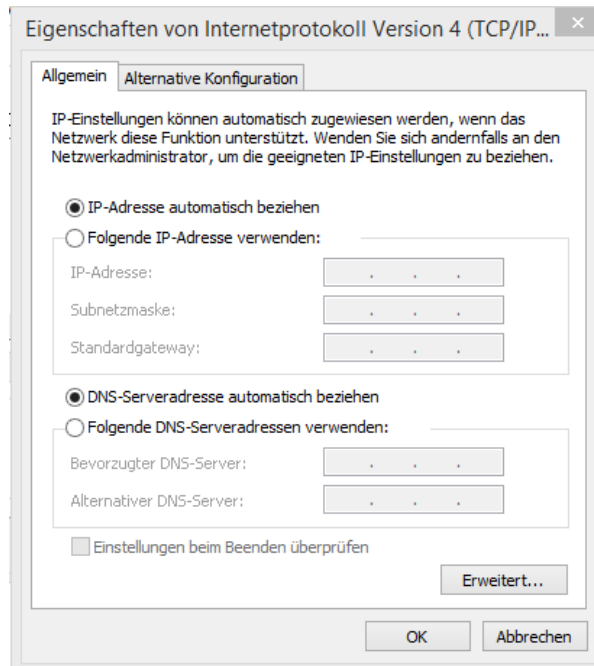
Identification	Description	Example
S1 – S2 	S1: (5..8) Bit 5 is LSB Bit 8 is MSB S2: (1..4) Bit 1 is LSB Bit 4 is MSB	S1 to OFF / S2 to OFF = DHCP.
X17 – X18 	X17 RT ETH In X18 RT ETH Out	Connect the network cable to X17 X17 RT ETH In



Note: Changes on S1 and S2 need a power up cycle to refresh the values in the drive.

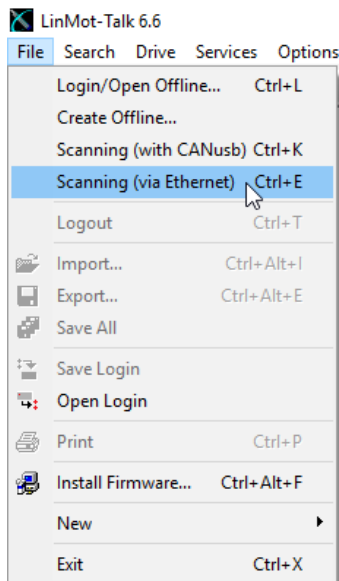
2.3.2 Settings on the PC

Set the Network Configuration IPv4 to “Obtain an IP address automatically”.

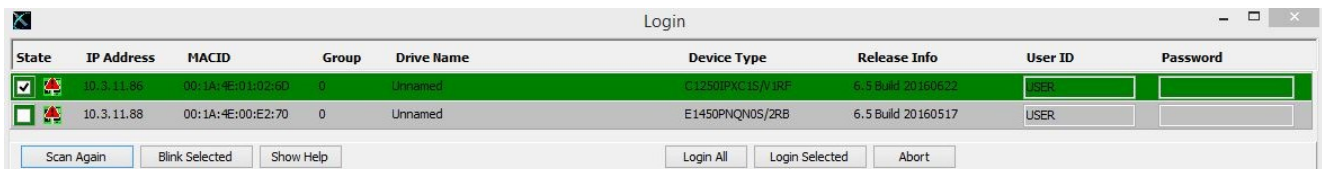


2.3.3 Login with LinMot-Talk

Open the LinMot-Talk Software and start the Scanning (via Ethernet) in the menu.
File -> Scanning (via Ethernet)



Attention: Use the *"Blink Selected"* function if you have more than one drives in the network.



Login to the drive to adjust drive settings.



Note: When configuring the IP address of the drive, a new scan is necessary to reconnect the LinMot-Talk communication if the IP address is changed. The IP address of the drive can be configured with LinMot Talk:

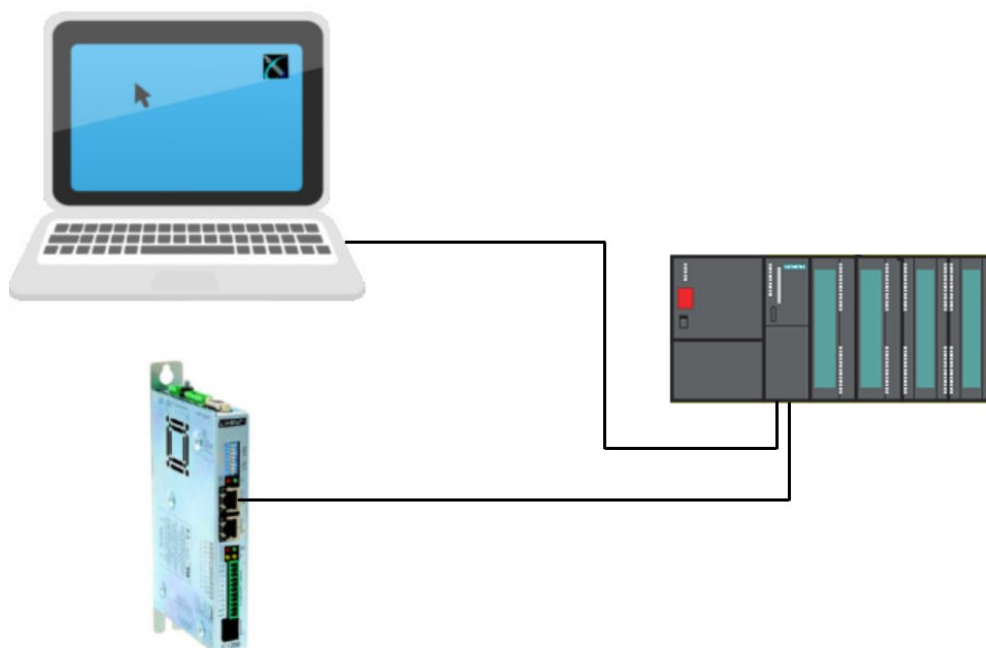
Parameter/ Ethernet/IP Intf/ IP Configuration Mode

3 PROFINET

3.1 Compatibility

Servo Drive	Firmware-Version
C1250-PN-XC-0S-000	LinMot-Talk 6 Version 6.5 Build 20160711 or newer
C1250-PN-XC-1S-000	LinMot-Talk 6 Version 6.5 Build 20160711 or newer
C1250-PD-XC-0S-000	LinMot-Talk 6 Version 6.6 Build 20170704 or newer
C1250-PD-XC-1S-000	LinMot-Talk 6 Version 6.6 Build 20170704 or newer
C1250-MI-XC-0S-000	LinMot-Talk 6 Version 6.6 Build 20170704 or newer
C1250-MI-XC-1S-000	LinMot-Talk 6 Version 6.6 Build 20170704 or newer
C1450-PN-VS-1S-000	LinMot-Talk 6 Version 6.6 Build xxx or newer
C1450-PD-VS-1S-000	LinMot-Talk 6 Version 6.6 Build xxx or newer
E1250-PN-UC	More details in chapter Configuration ETH Port
E1250-PD-UC	More details in chapter Configuration ETH Port
E1450-PN-QN-0S	More details in chapter Configuration ETH Port
E1450-PN-QN-1S	More details in chapter Configuration ETH Port
E1450-PD-QN-0S	More details in chapter Configuration ETH Port
E1450-PD-QN-1S	More details in chapter Configuration ETH Port
C1150-PN-XC-0S-000	Only RS232 supported
C1150-PN-XC-1S-000	Only RS232 supported

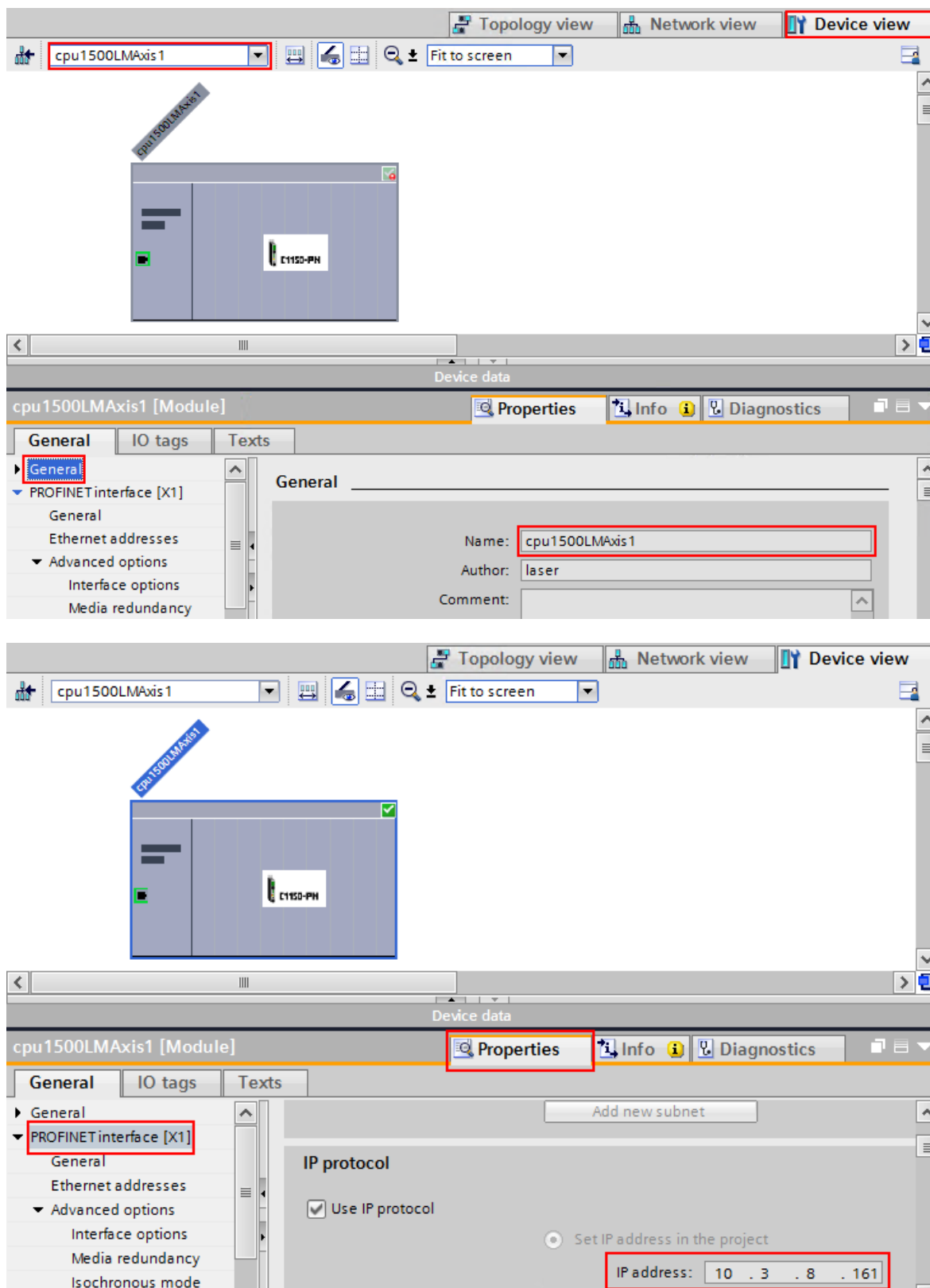
3.2 Login with static IP address



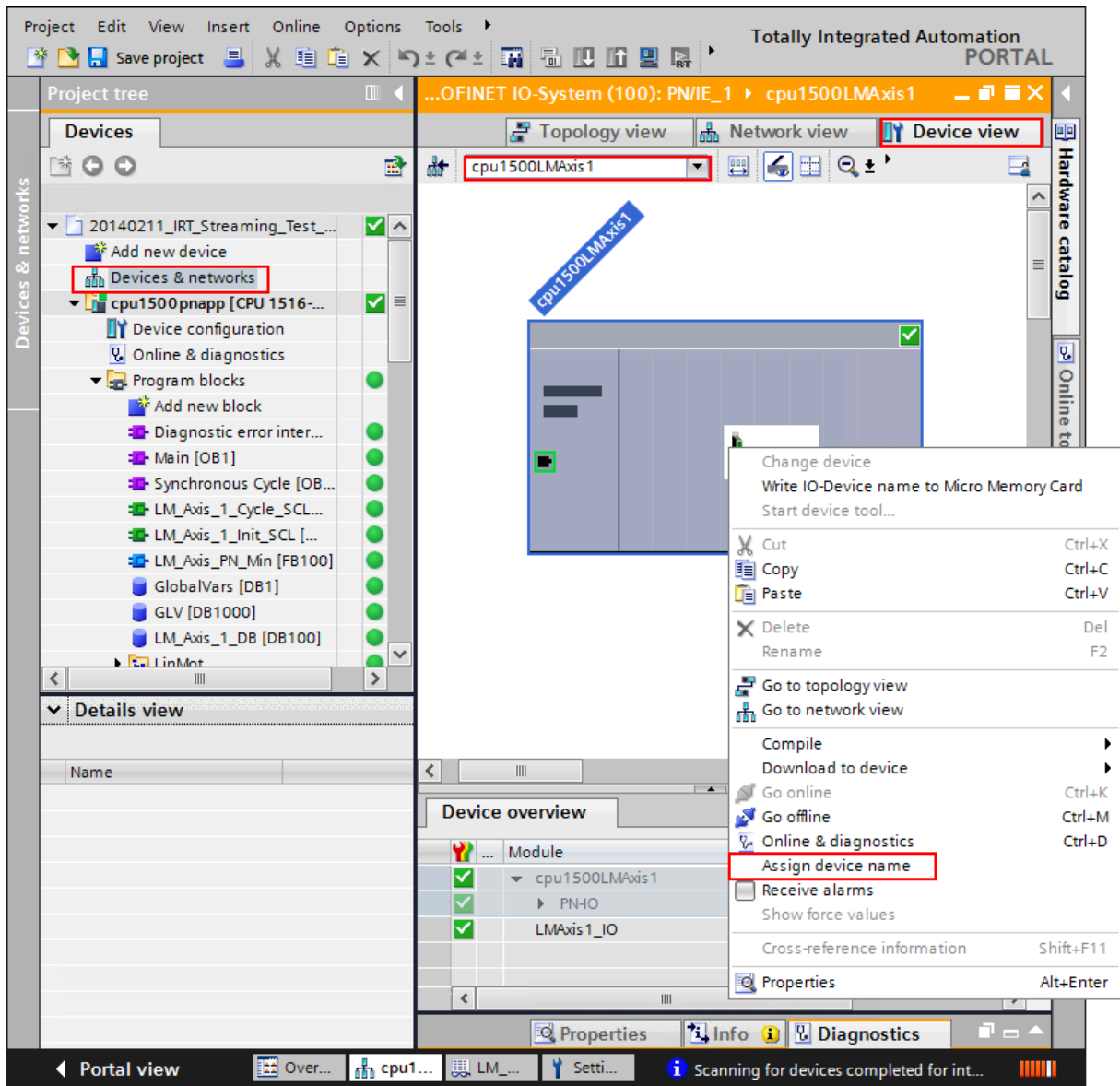
3.2.1 Assigning the device name and IP address with TIA Portal - Siemens

The following steps show how to assign the device name to LinMot drive using the TIA Portal from Siemens. The IP address is assigned automatically when PROFINET starts.

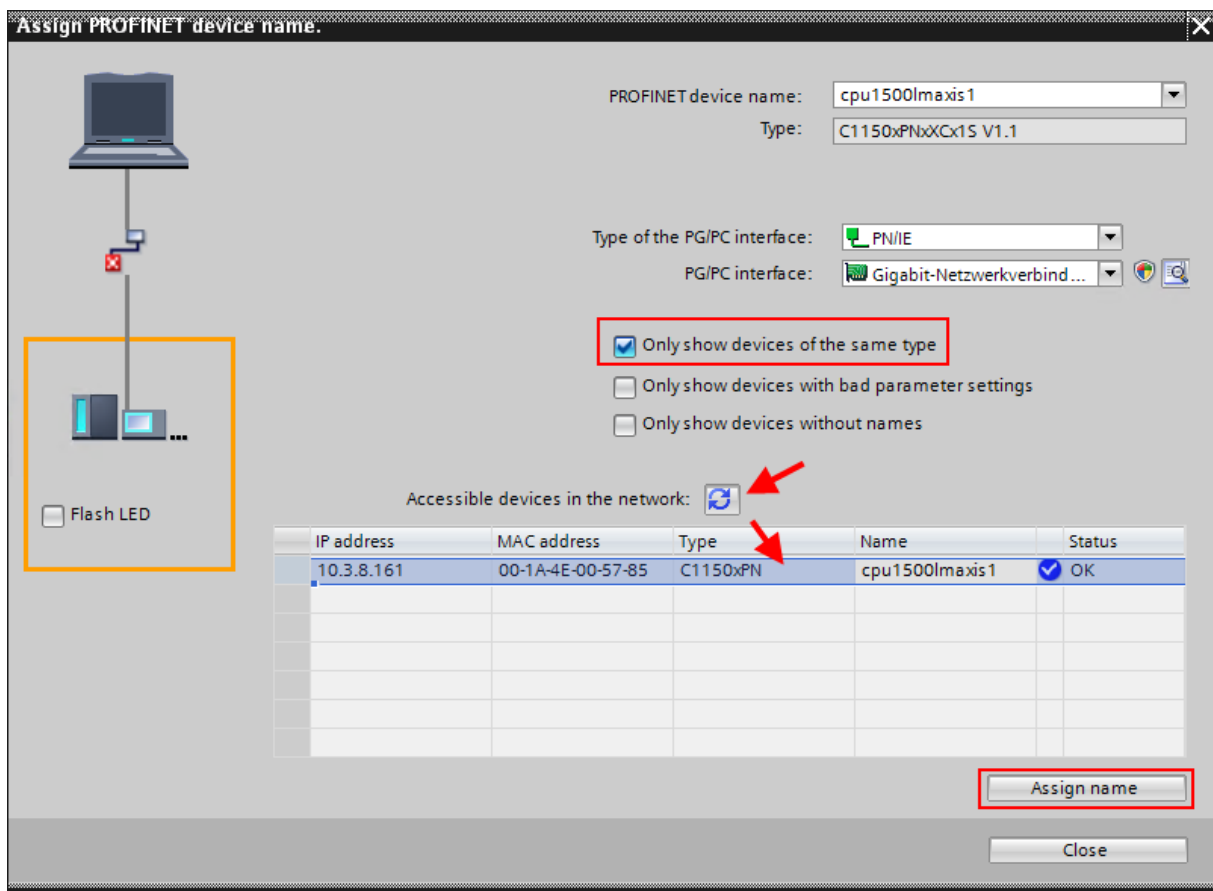
1. Set the IP address and the device name in the device properties.



2. Choose the device you want to assign the name to (right-click on the device).



3. Search for the LinMot drive you want to name. The safest way to identify the drive is by either activating the “Flash LED” function in TIA Portal or to verify the MAC address (can be found on the housing of the drive).



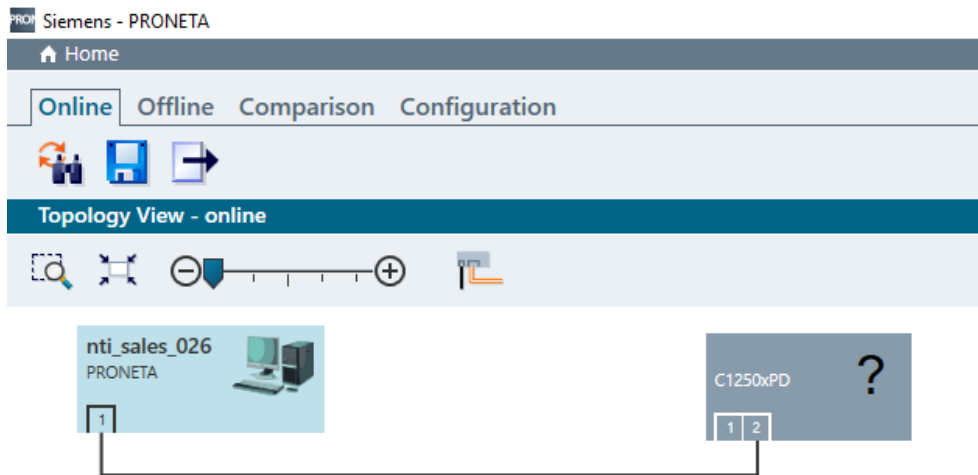
4. Communication between the drive and LinMot Talk can be established when the drive has a name and assigned IP address.

3.2.2 Assigning the device name and IP address with PRONETA

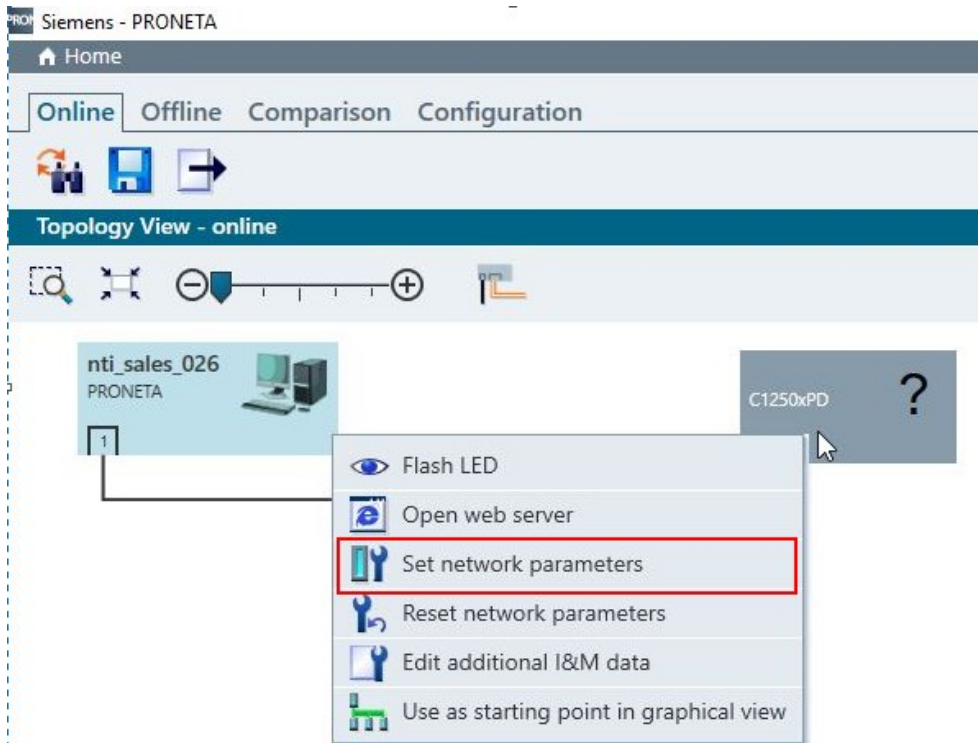
Siemens PRONETA is a free tool for the analysis and configuration of PROFINET networks. The tool is useful to assign the IP address and device name without a Siemens PLC.

The newest Version from Siemens is available from:
<https://support.industry.siemens.com/cs/ch/en/view/67460624>

1. Run the software on the PC and scan the network for PROFINET or PROFIdrive devices.



2. Right-click on the C1250xXX will show the different tool options



Attention: The safest way to identify the drive is by either activating the “Flash LED” function in the Siemens – PRONETA.

3. Define Device Name and IP address

Set Network Parameters

Please select your network parameters

Assign device name

IP configuration

Static IP configuration

IP address

Network mask

Use router for Gateway

Obtain IP configuration from a DHCP server and identified by

MAC address

Device name

Client ID

Devices connected to an enterprise network or directly to the internet must be appropriately protected against unauthorized access, e.g. by use of firewalls and network segmentation. For more information about industrial security, please visit <http://www.siemens.com/industrialsecurity>

Apply settings permanently

Set Cancel

4. Communication between the drive and LinMot Talk can be established when the drive has a name and assigned IP address.

3.2.3 Login with LinMot-Talk

In the LinMot-Talk Software *File -> Login/Open Offline* and enter the IP address of the Servo Drive.

Login

Configuration Interface:

RS232

CAN

ETHERNET

OFFLINE

IP Address:

Login ID:

Password:

Scan Blink OK Cancel

Open Object Inspector after Login

The Scan over Ethernet functionality is not supported with PROFINET interface. If the IP address is unknown scan the PROFINET network e.g. PRONETA from Siemens or check the settings in the TIA Portal.

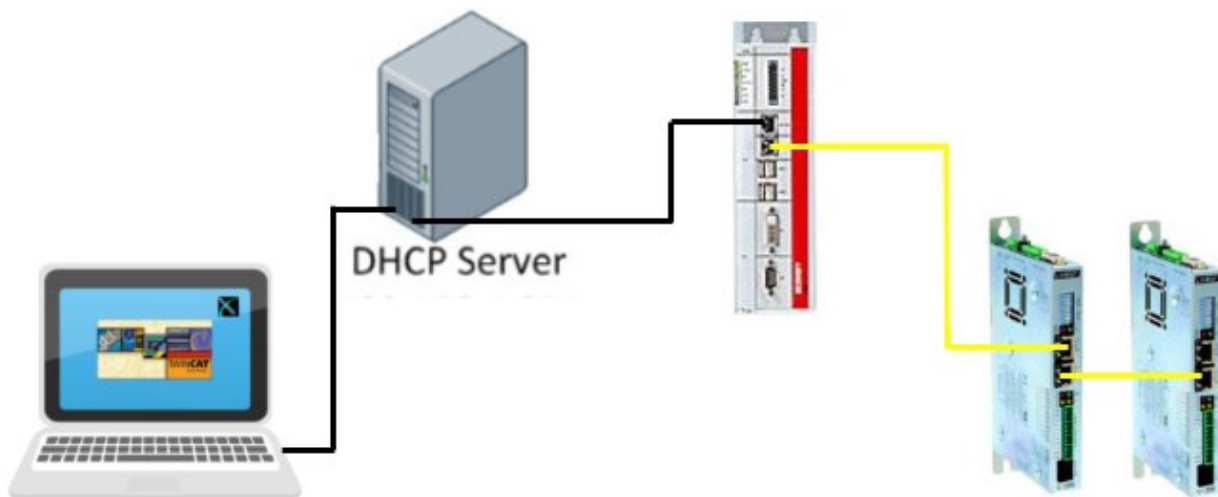
4 EtherCAT

4.1 Compatibility

Servo Drive	Firmware-Version
C1250-EC-XC-0S-000	LinMot-Talk 6 Version 6.5 Build 20160711 or newer
C1250-EC-XC-1S-000	LinMot-Talk 6 Version 6.5 Build 20160711 or newer
C1250-SE-XC-0S-000	LinMot-Talk 6 Version 6.5 Build 20160711 or newer
C1250-SE-XC-1S-000	LinMot-Talk 6 Version 6.5 Build 20160711 or newer
C1250-DS-XC-1S-000	LinMot-Talk 6 Version 6.5 Build 20160711 or newer
C1250-DS-XC-0S-000	LinMot-Talk 6 Version 6.5 Build 20160711 or newer
C1250-MI-XC-1S-000	LinMot-Talk 6 Version 6.5 Build 20160711 or newer
C1250-MI-XC-0S-000	LinMot-Talk 6 Version 6.5 Build 20160711 or newer
E1250-EC-UC	More details in chapter Configuration ETH Port
E1450-EC-QN-0S	More details in chapter Configuration ETH Port
E1450-EC-QN-1S	More details in chapter Configuration ETH Port
E1250-SE-UC	More details in chapter Configuration ETH Port
E1450-SE-QN-0S	More details in chapter Configuration ETH Port
E1450-SE-QN-1S	More details in chapter Configuration ETH Port
E1250-DS-UC	More details in chapter Configuration ETH Port
E1450-DS-QN-0S	More details in chapter Configuration ETH Port
E1450-DS-QN-1S	More details in chapter Configuration ETH Port
C11x0-xx-xx-xS-000 Series Drives	Only RS232.supported

4.2 Login over Ethernet over EtherCAT (EoE)

Beckhoff Ethernet DHCP	Beckhoff EtherCAT EoE - Static
IP 10.3.11.65	IP 192.168.1.1
Sub 255.255.0.0	255.255.255.0



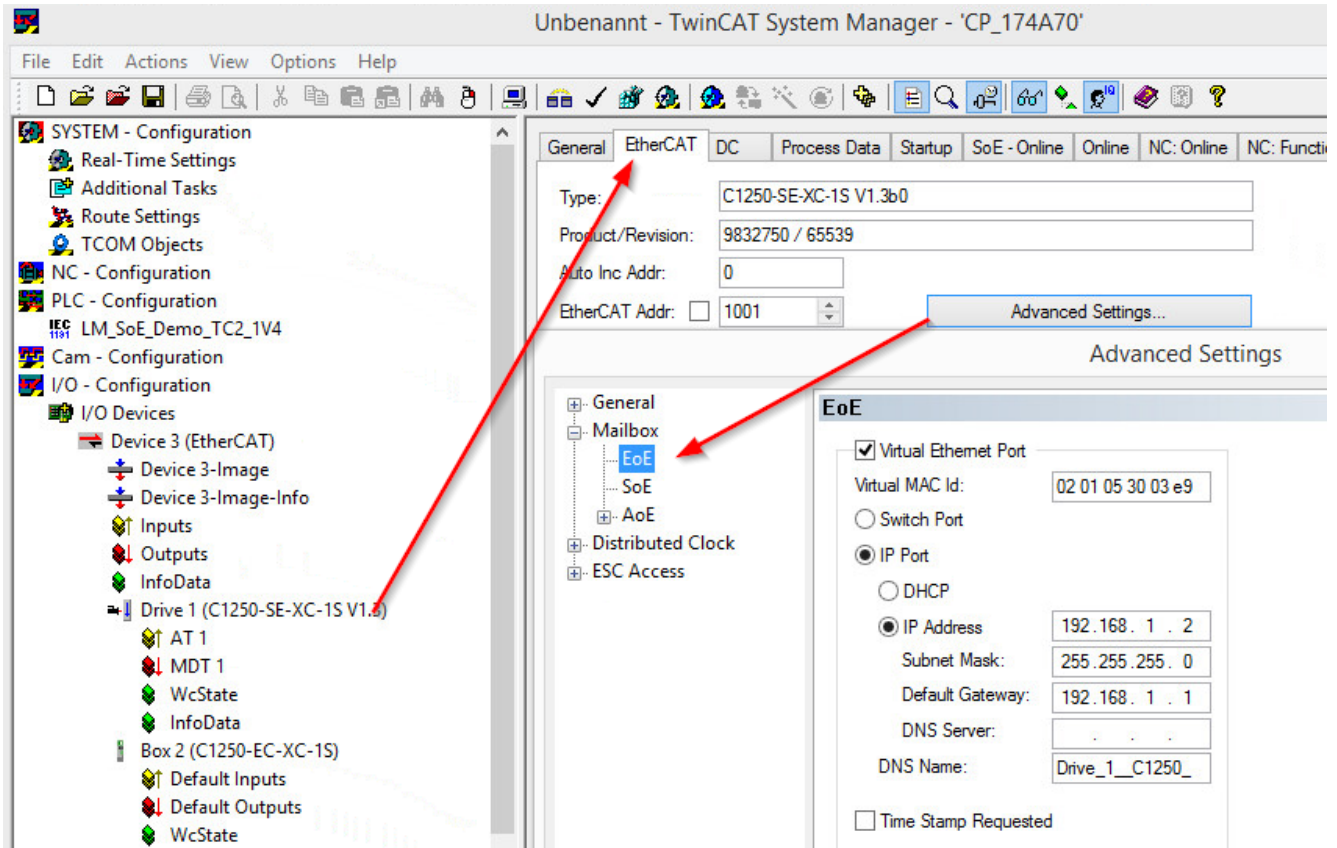
PC -DHCP
TwinCAT 2.x.x
IP 10.3.11.242

LinMot Servo Drive 1	LinMot Servo Drive 2
IP 192.168.1.2	IP 192.168.1.3
255.255.255.0	255.255.255.0

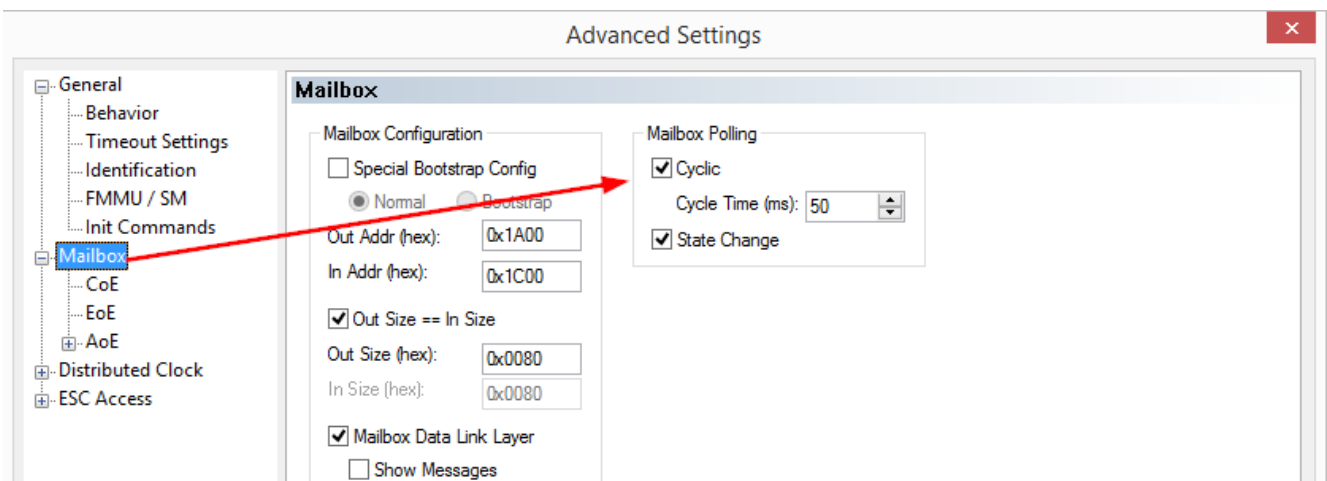
4.2.1 EoE-Settings in TwinCAT (EtherCAT Slave)

4.2.1.1 TwinCAT 2.x

The definition for the EoE function is in the tab “EtherCAT” under “Advanced Settings”.
 The IP address for EoE communication must be in the same range as the PLC (e.g. 192.168.1.1).
 The DHCP mode for EoE is not currently supported. The EtherCAT communication will not run if the EoE is set to DHCP.



Define each axis with a different IP address.

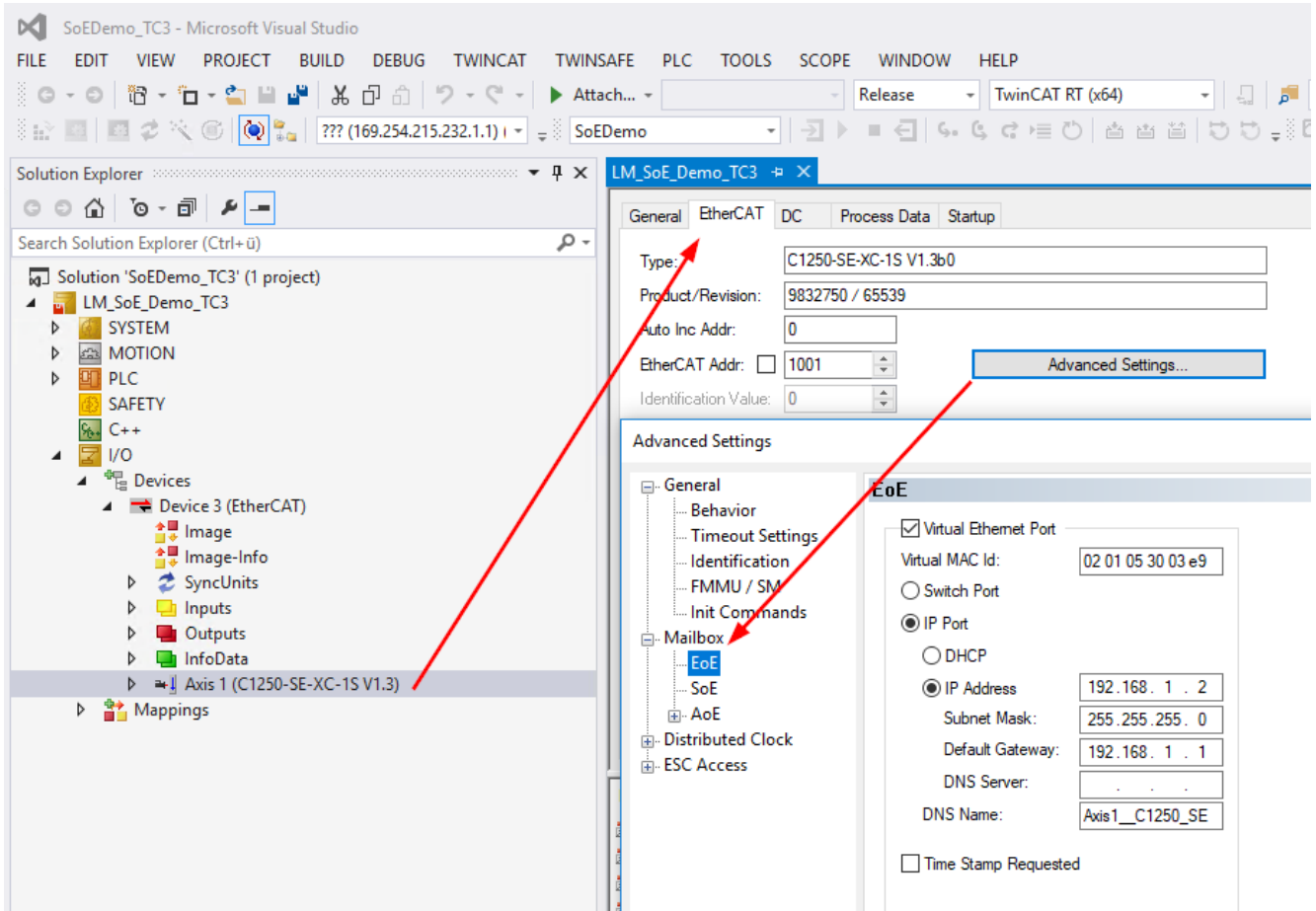


4.2.1.2 TwinCAT 3.x

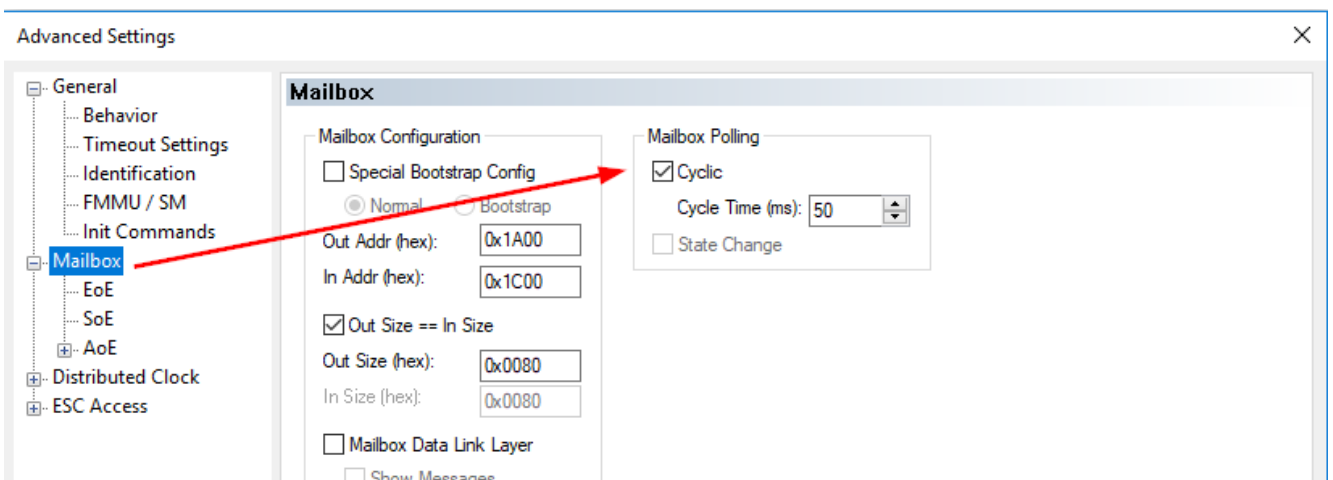
The definition for the EoE function is in the tab “EtherCAT” under “Advanced Settings”.

The IP address for EoE communication must be in the same range as the PLC (e.g. 192.168.1.1).

The DHCP mode for EoE is not currently supported. The EtherCAT communication will not run if the EoE is set to DHCP.

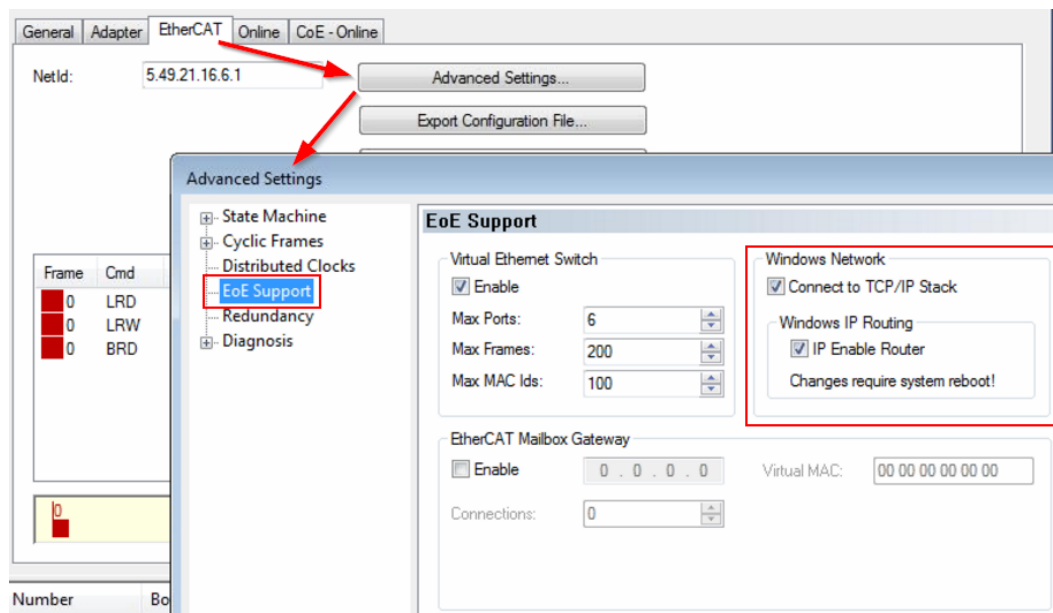


Define each axis with a different IP address.



4.2.2 EoE-Settings in TwinCAT (EtherCAT Master)

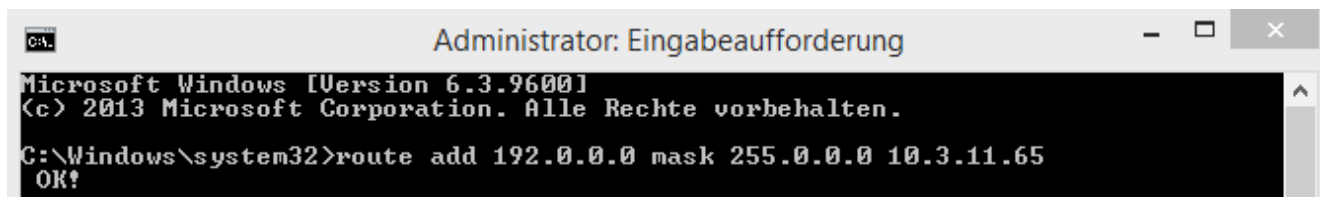
The routing function on the EtherCAT Master need to be activated.



4.2.3 Settings on the PC

Use the following command to route the network of the PC to the EoE network.

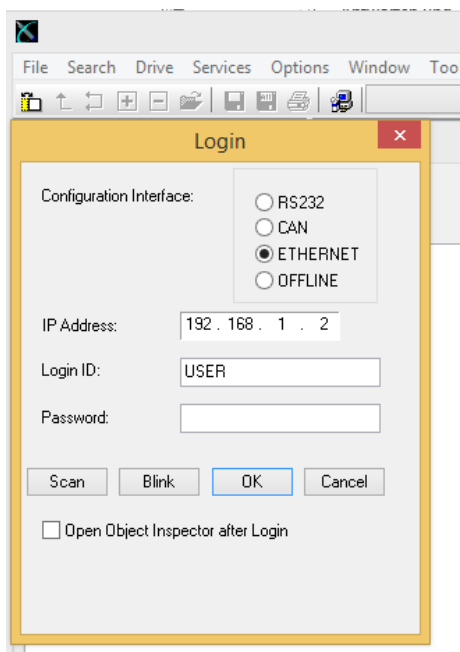
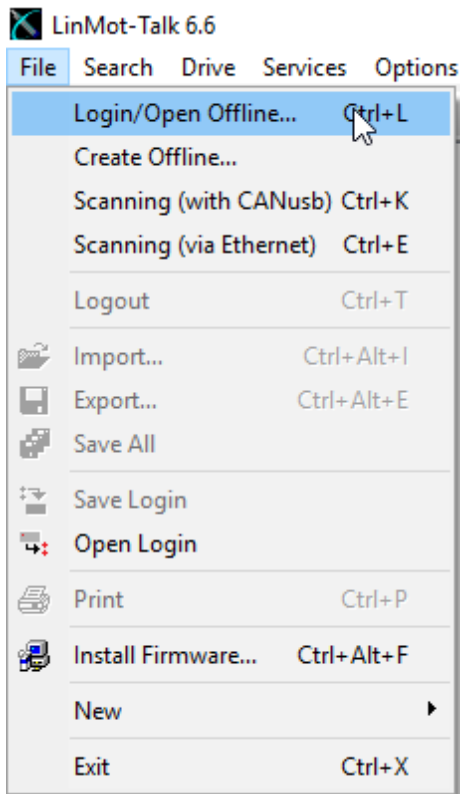
1. Run the Windows Commander Prompt (CMD) as an Administrator:
2. Add Route:
 - route add 192.0.0.0 mask 255.0.0.0 10.3.11.65
 - or route add 192.168.0.0 mask 255.255.0.0 10.3.11.65
 - or route add 192.168.1.0 mask 255.255.255.0 10.3.11.65



Note: The Command “route add” for a new route in the network routing table is activated until the next restart of the PC. The command in the example contains the following components:
route add “*Destination – EoE IP Range*” **mask** “*Subnet mask*” “*Gateway – IP of PLC Ethernet Port*”

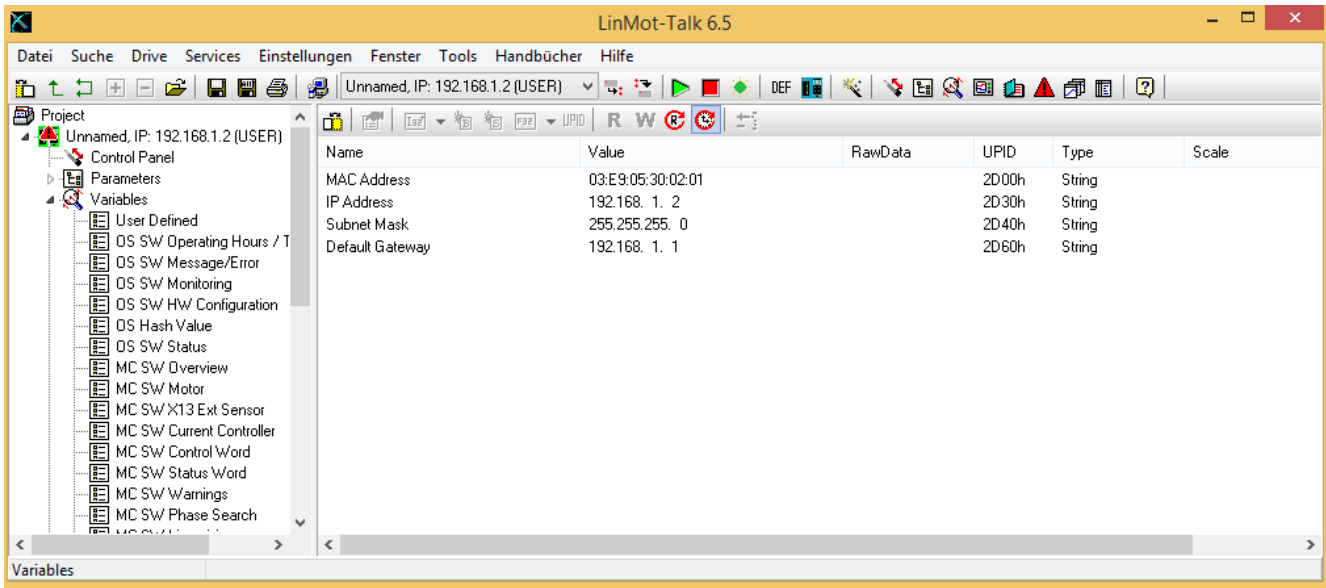
4.2.4 Login with LinMot-Talk

Open the LinMot-Talk Software and select *File*→ *Login/Open Offline*.

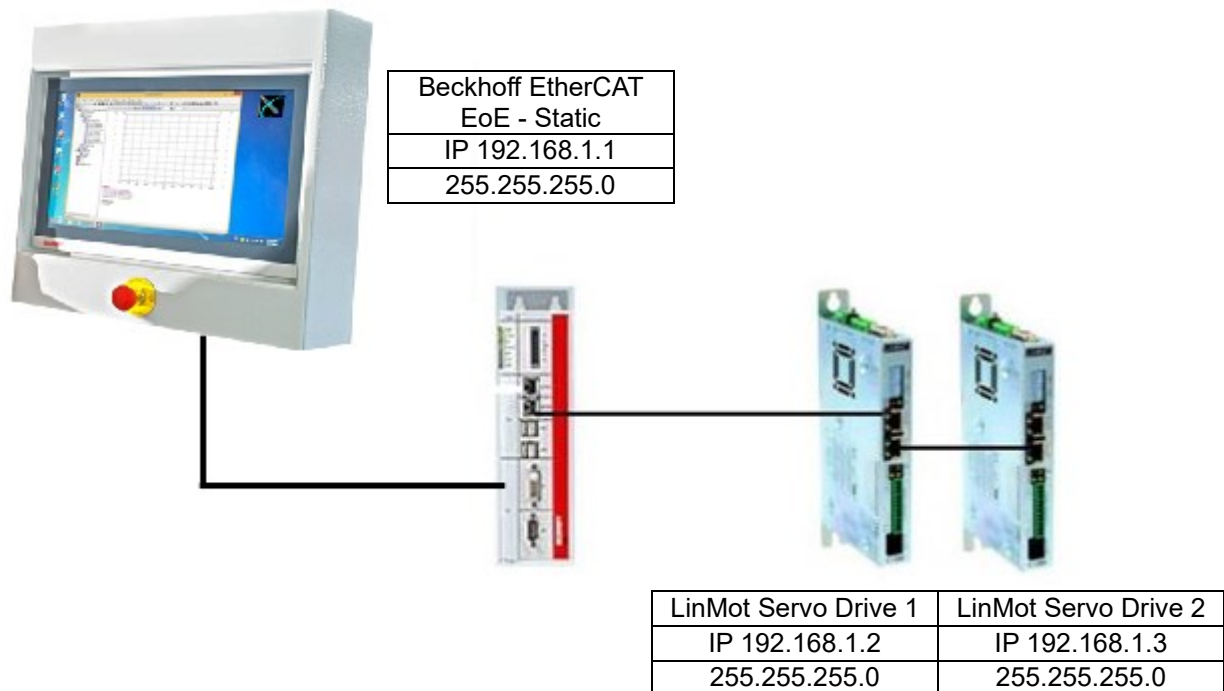


Attention: Scanning (via Ethernet) does not work with EoE and the routing function. Without routing, e.g. when LinMot-Talk is run on the PLC, it is possible to use the scan functionality of LinMot-Talk.

LinMot-Talk shows the IP address and Mac address in the variables.

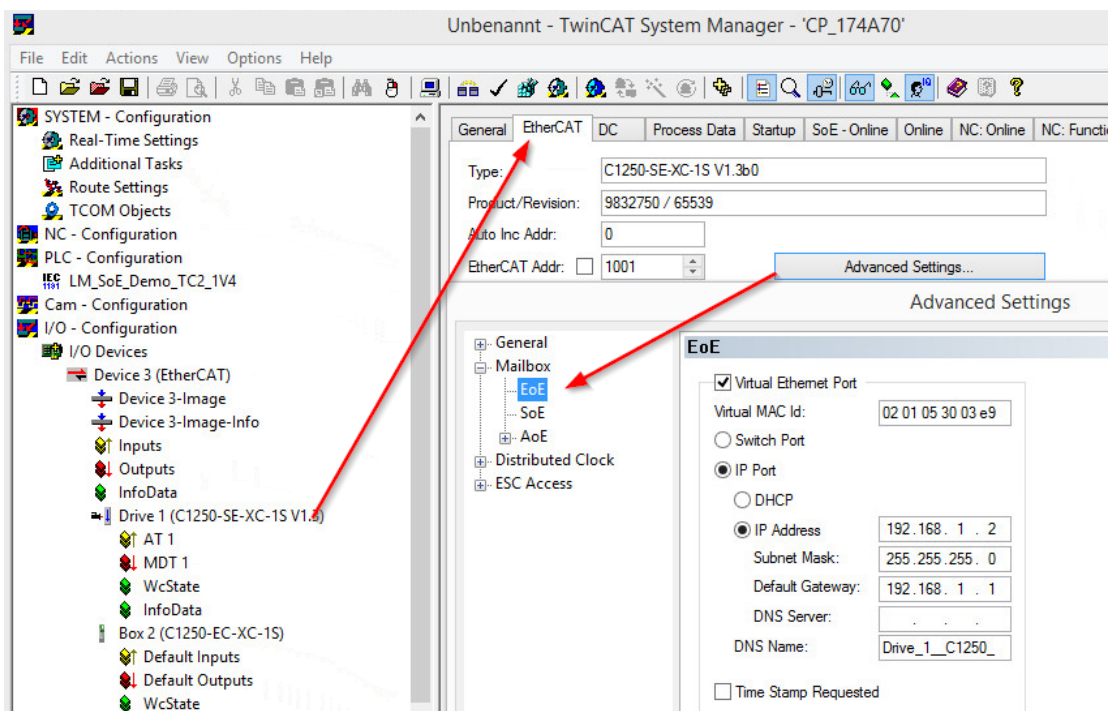


4.3 LinMot-Talk on the Beckhoff PLC running on a Windows Embedded System



4.3.1 EoE Settings in TwinCAT

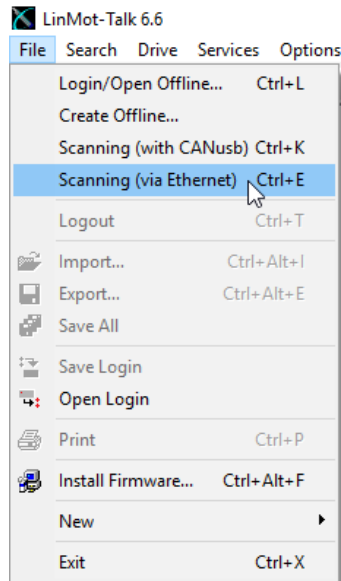
The definition for the EoE function is in the tab “EtherCAT” under “Advanced Settings”.
 The IP address for EoE-Communication must be in the same range as the PLC (e.g. 192.168.1.1).
 The DHCP mode for EoE is not supported. The EtherCAT communication will not run if the EoE is set to DHCP.



Define each axis with a different IP address.

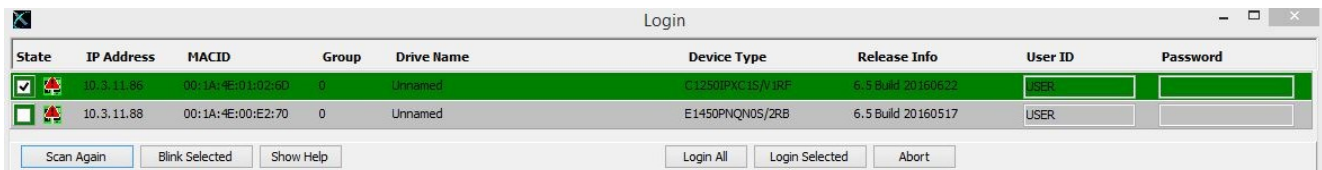
4.3.2 Login with LinMot-Talk

Open the LinMot-Talk Software and go to *File -> Scanning (via Ethernet)*.



Attention:

The safest way to identify the drive is by activating the "Blink Selected" function in the LinMot-Talk Software. It's also possible to login to all drives at the same time ("Login All").



5 Sercos III

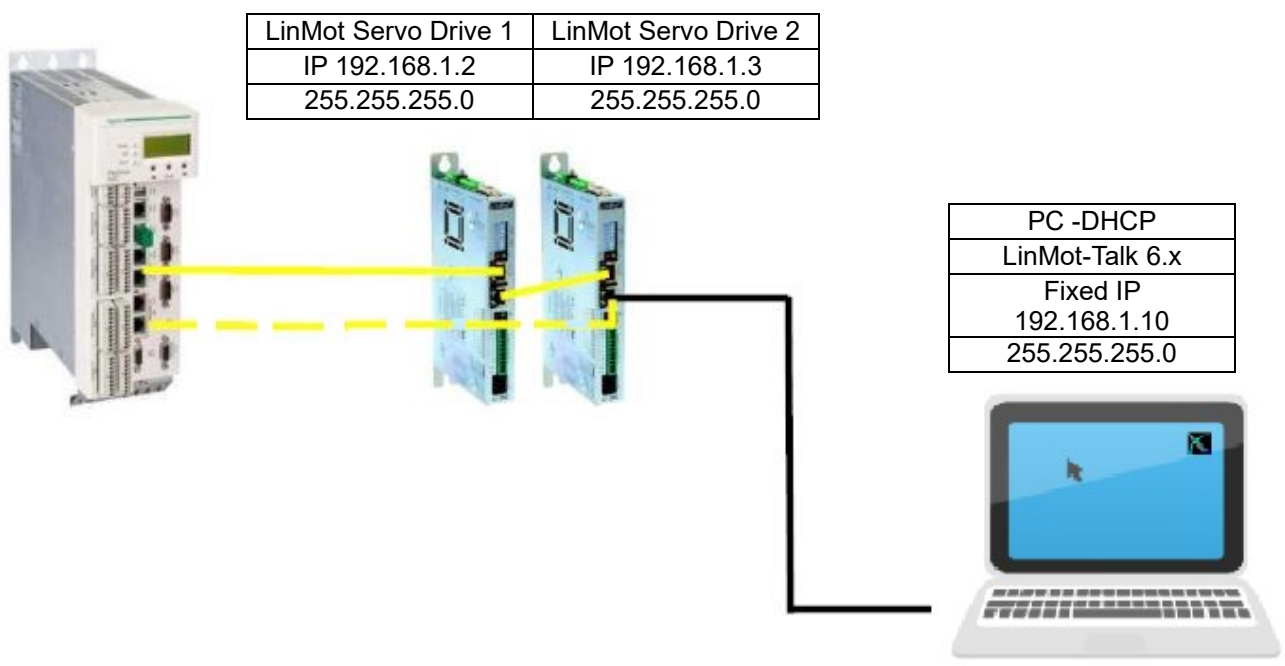
5.1 Compatibility

Servo Drive	Firmware-Version
C1250-SC-XC-0S-000	LinMot-Talk 6 Version 6.6 Build 2017xxxx
C1250-SC-XC-1S-000	LinMot-Talk 6 Version 6.6 Build 2017xxxx
C1450-SC-VS-1S-000	Coming soon
E1250-SC-UC	More details in chapter Configuration ETH Port
E1450-SC-QN-0S	More details in chapter Configuration ETH Port
E1450-SC-QN-1S	More details in chapter Configuration ETH Port



Attention: -MI drives with Sercos interface installed **do not** support configuration over RT Ethernet.

5.2 Login over Sercos III (PC To Drive)



5.2.1 Settings on the PC

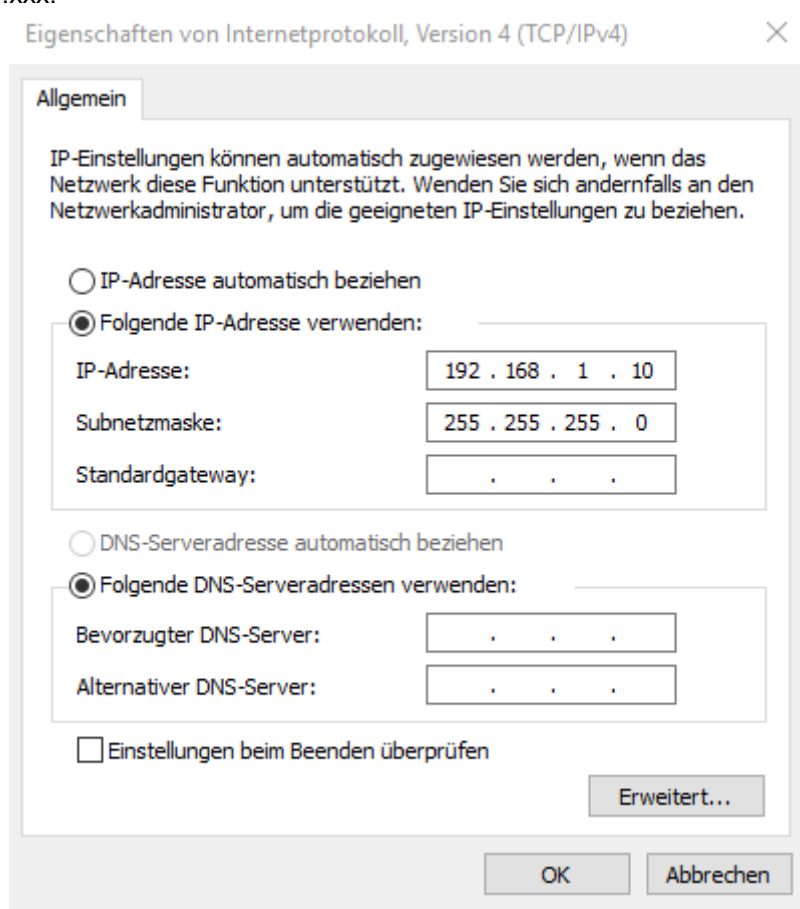
The default setting of the LinMot IP address is 192.168.1.2 (255.255.255.0). Remove the cable from the SERCOS ring and replace it with the ethernet cable to the PC. It's important to connect the PC with Port X17 on the Servo Drive.



Attention:

If Bosch Rexroth PLC is used and drive IP was written by PLC, default IP of LinMot drive is no longer valid! Network card must be configured in same IP range as PLC SERCOS Interface for use with this chapter!

Set the IP address of the PC to the same range as the Servo Drive. Change the IP address in the Network Settings to 192.168.1.xxx.



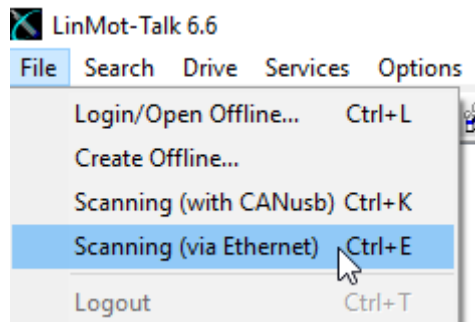
5.2.2 Connection LinMot Servo Drive

Connect ethernet network cable to X17 on the Servo Drive.

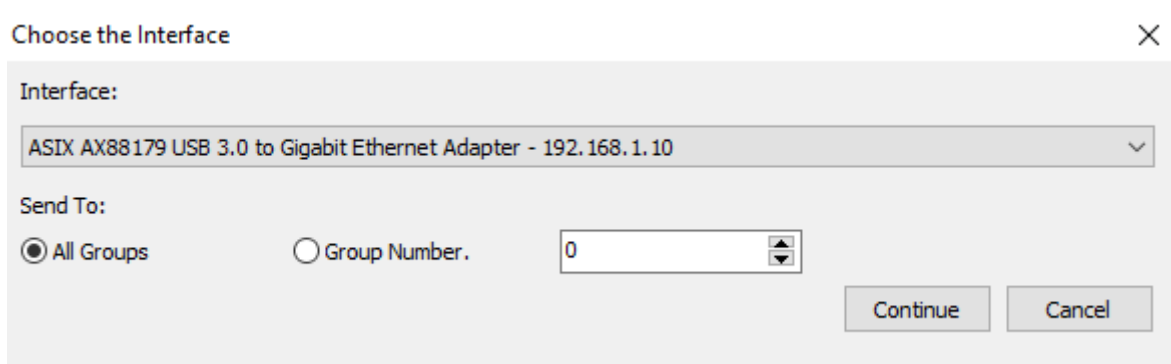
X17 – X18		RealTime Ethernet 10/100 Mbit/s
	X17 RT ETH In	Spezifikationen sind abhängig vom Echtzeitbus. Bitte beachten Sie die entsprechende Dokumentation.
	X18 RT ETH Out	
RJ-45		

5.2.3 Login with LinMot-Talk

Open the LinMot-Talk Software and start the Scanning (via Ethernet) in the menu.





Select the correct Ethernet Adapter with the same IP range of the Servo Drive.

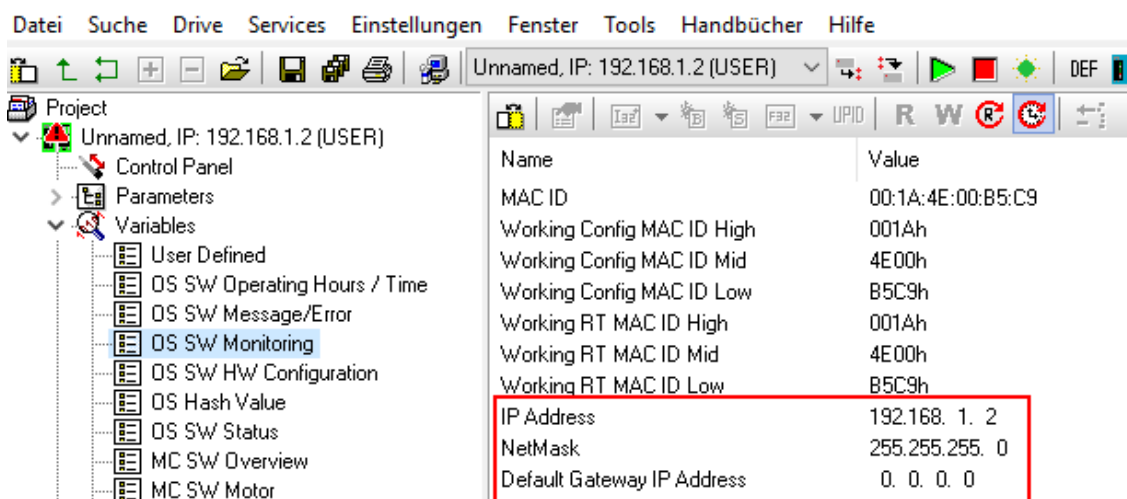


Attention:

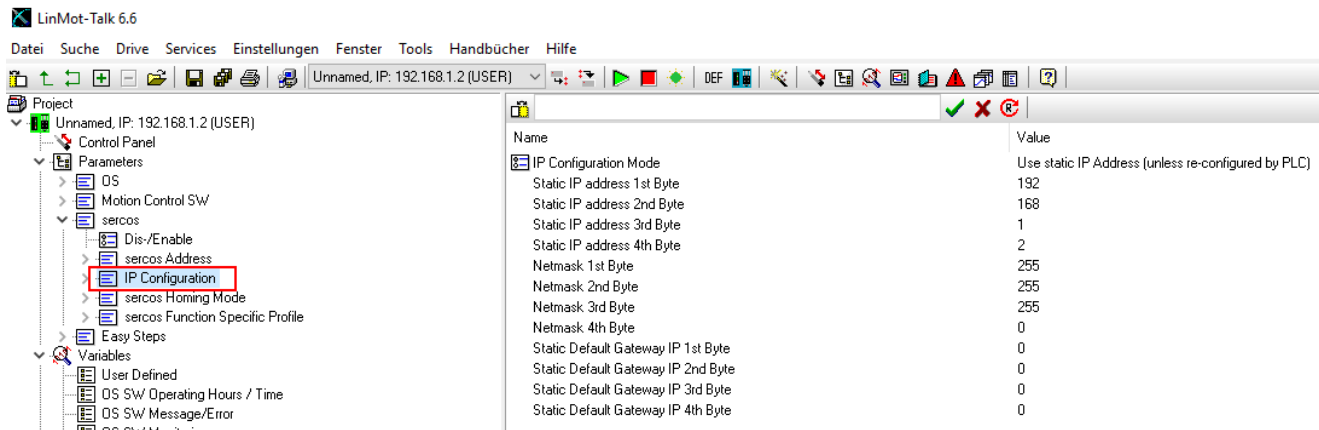
The safest way to identify the drive is by activating the “Blink Selected” function in the LinMot-Talk Software. It’s also possible to login to all drives at the same time (“Login All”).

State	IP Address	MACID	Group	Drive Name	Device Type	Release Info
 	192.168.1.2	00:1A:4E:00:B5:C9	0	Unnamed	C1250SCXC1S/V1RF	6.6 Build 20170224

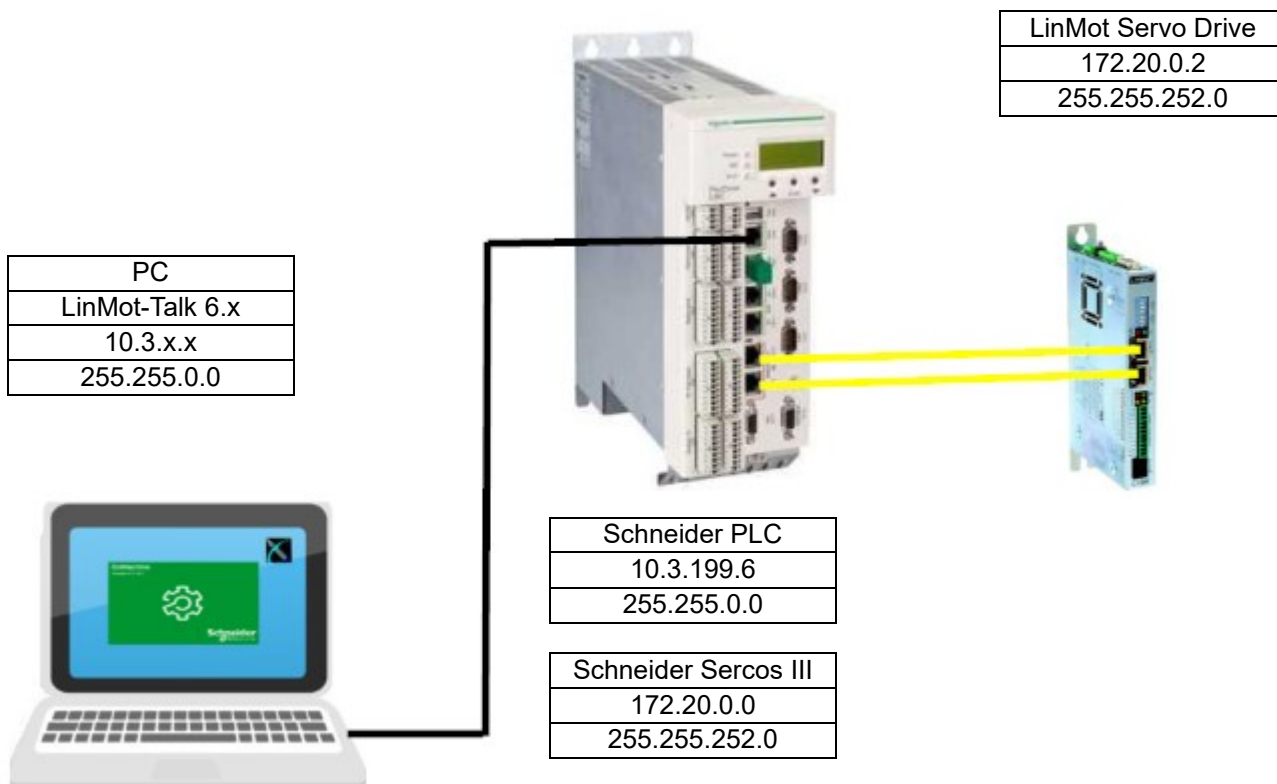
The IP address and NetMask are shown in the *Variables/ OS SW Monitoring*:



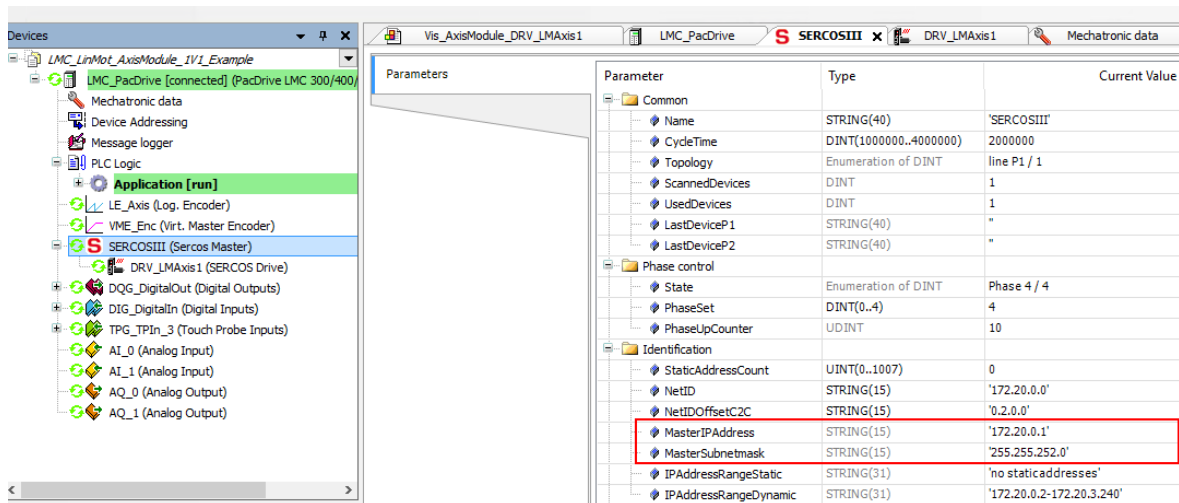
Settings for the IP address if the IP configuration mode is Static by IP Address. Logging back into the drive with the new IP address will be necessary to reestablish the LinMot-Talk connection.



5.3 Login over Sercos III (PC To PLC) with Schneider PLC



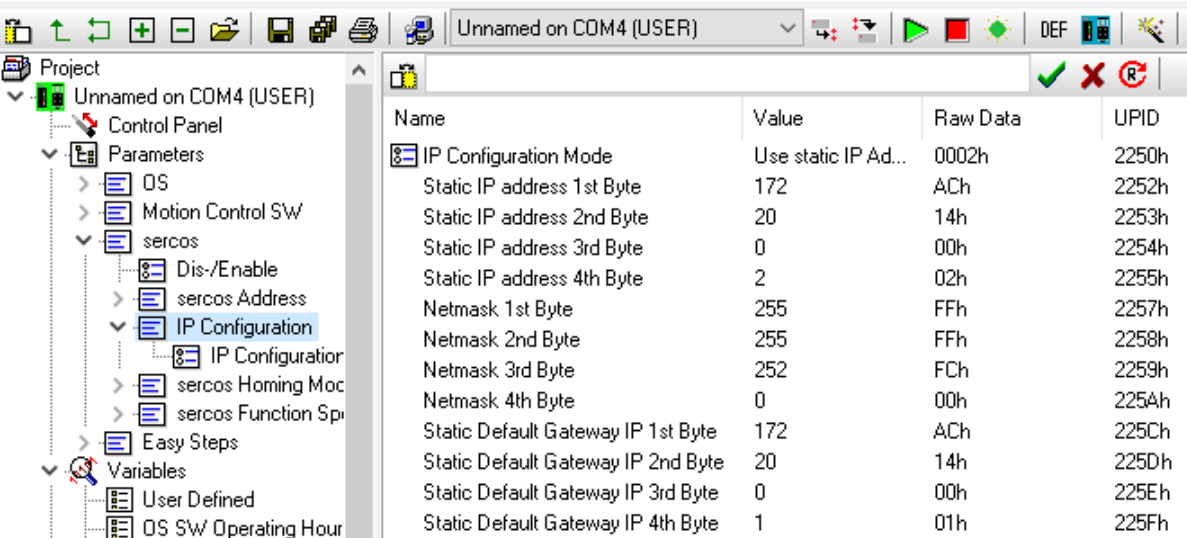
- Settings in SoMachine - The MasterIPAddress of the SERCOS is by default 172.20.0.1 (255.255.252.0). It's not possible to change the IP address.



- Settings in LinMot-Talk - change the IP settings on the drive to the PC network card IP Address range. Use the USB-RS232 Converter (0150-2473) or follow the instruction in Login over Sercos III (PC To Drive). Configuration from the Master is not supported in the Schneider SERCOS drive object.

LinMot-Talk 6.6

Datei Suche Drive Services Einstellungen Fenster Tools Handbücher Hilfe



3. Settings on the PC - Use the following command to route the network of the PC to the SERCOS (172.020.000.xxx) network.

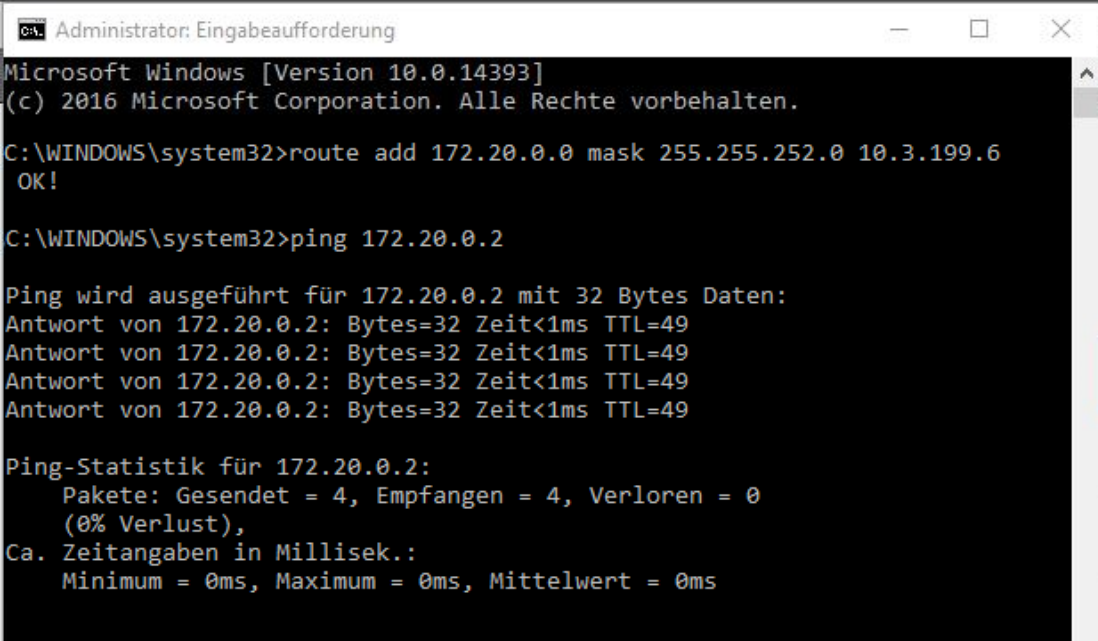
a) Run the Windows Commander Prompt (CMD) as an Administrator

b) Add Route:

```
route add 172.0.0.0 mask 255.0.0.0 10.3.199.6
```

```
or route add 172.20.0.0 mask 255.255.0.0 10.3.199.6
```

```
or route add 172.20.0.0 mask 255.255.252.0 10.3.199.6
```



```
Administrator: Eingabeaufforderung
Microsoft Windows [Version 10.0.14393]
(c) 2016 Microsoft Corporation. Alle Rechte vorbehalten.
C:\WINDOWS\system32>route add 172.20.0.0 mask 255.255.252.0 10.3.199.6
OK!
C:\WINDOWS\system32>ping 172.20.0.2

Ping wird ausgeführt für 172.20.0.2 mit 32 Bytes Daten:
Antwort von 172.20.0.2: Bytes=32 Zeit<1ms TTL=49
Antwort von 172.20.0.2: Bytes=32 Zeit<1ms TTL=49
Antwort von 172.20.0.2: Bytes=32 Zeit<1ms TTL=49
Antwort von 172.20.0.2: Bytes=32 Zeit<1ms TTL=49

Ping-Statistik für 172.20.0.2:
    Pakete: Gesendet = 4, Empfangen = 4, Verloren = 0
            (0% Verlust),
    Ca. Zeitangaben in Millisek.:
        Minimum = 0ms, Maximum = 0ms, Mittelwert = 0ms
```



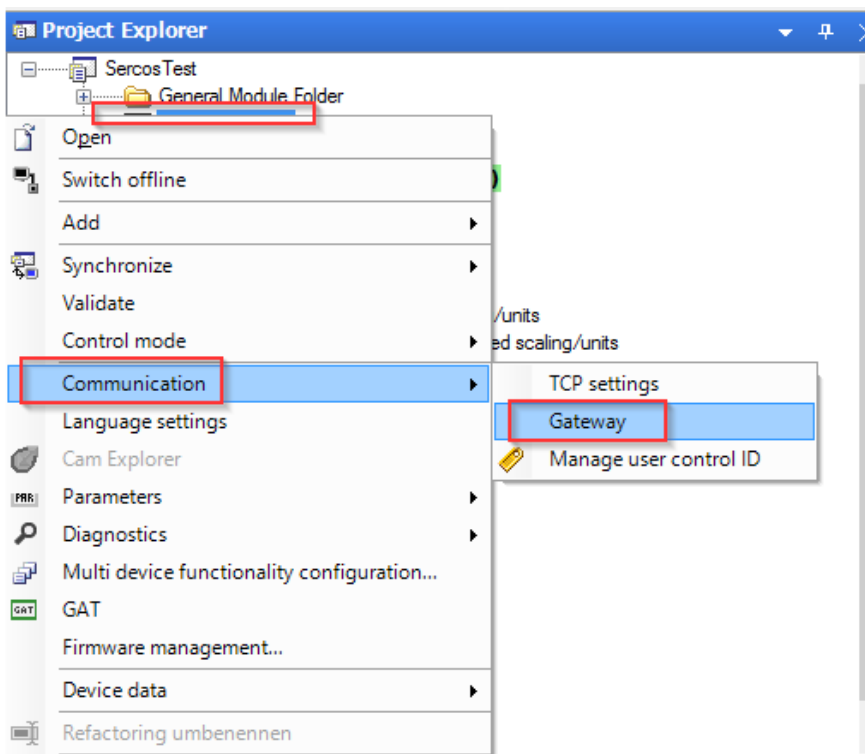
Note: The Command „route add“ for a new route in the network routing table is activated until the next restart of the PC. The command in the example contains the following components:

route add “*Destination – EoE IP Range*” **mask** “*Subnet mask*” “*Gateway – IP of PLC Ethernet Port*”

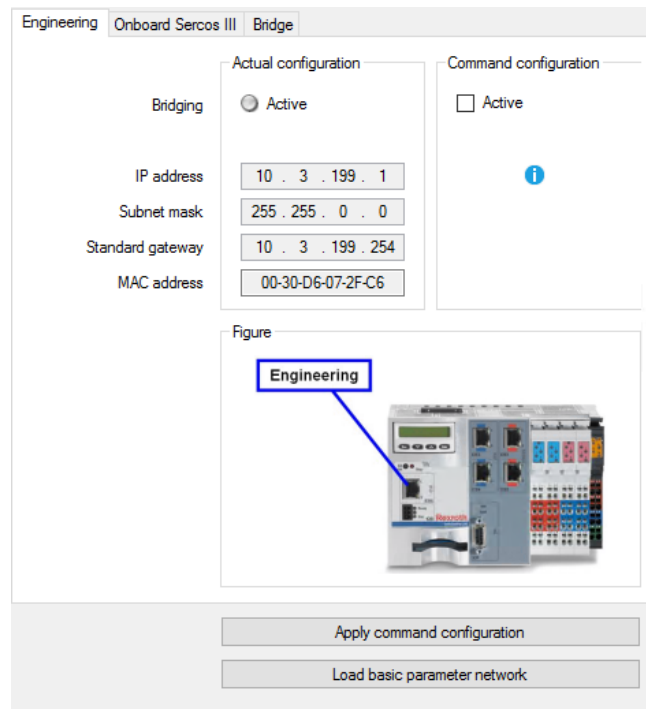
5.4 Login over Sercos III (PC To PLC) with Bosch IndraLogic / IndraMotion



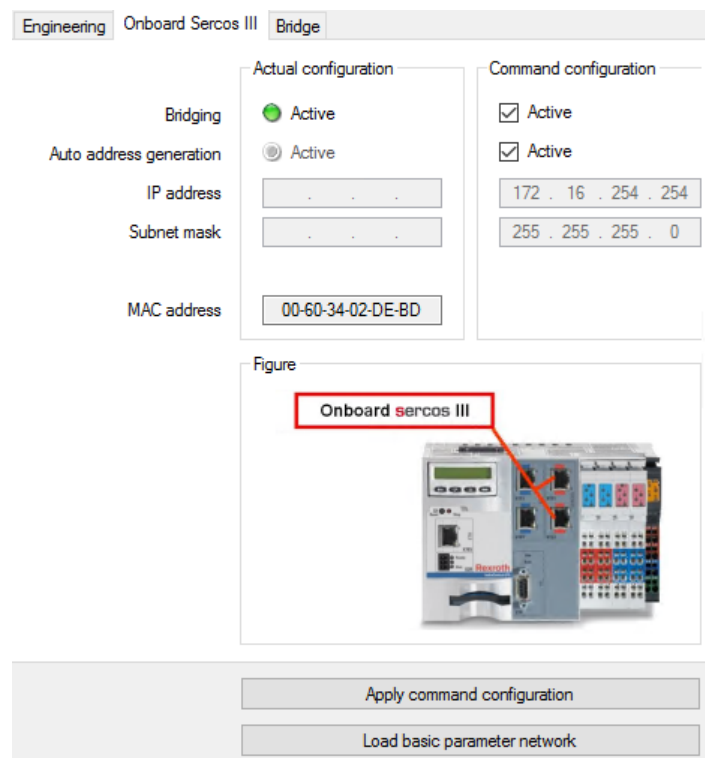
1. When PLC commissioning is done and axis is running, open in the project root by right mouse click the “Communication->Gateway” topic:



2. The IP address is shown in the Engineering tab:



3. Onboard Sercos III – Settings



4. Bridge- Settings

	Actual configuration	Command configuration
Auto address generation	<input checked="" type="radio"/> Active	<input checked="" type="checkbox"/> Active
IP address	172 . 31 . 254 . 254	172 . 31 . 254 . 254
Subnet mask	255 . 255 . 0 . 0	255 . 255 . 0 . 0
MAC address	00-60-34-02-DE-BD	

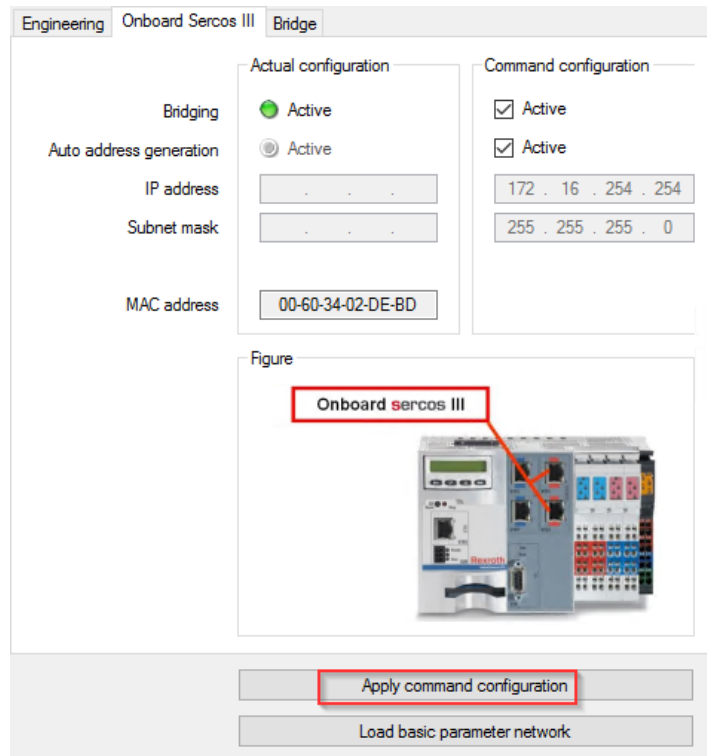
Apply command configuration

Load basic parameter network



Note: Onboard Sercos III and Bridge settings are normally auto-set during project startup.

5. Press in the “Onboard Sercos III” on “Apply command configuration”. This will write the IP addresses to the SERCOS devices.



Then you need to add a route from your PC over PLC to SERCOS slaves, here a LinMot drive:

```
>route add 172.31.254.0 MASK 255.255.255.0 10.3.199.1
```

“route add” in your console will create a new route on your computer (172.31.254.0), which is located in the Sercos III address range over the engineering IP (10.3.199.1) of the PLC.



Attention:

Keep in mind, the route is temporary. After rebooting PC route must be set again!

For permanent route, use parameter -P!

(route add 172.31.254.0 MASK 255.255.255.0 10.3.199.1 -p)

6. After that, you can connect by Ethernet in LinMot Talk, entering drives IP:



Attention:
Scanning over Ethernet is not supported in this use case!

7. IP address must be read from Sercos properties window:

Topology	Addr.	Device identification	Error counter	Diagnostics	IP address
		Control port X7E1	00002		
1	1	0150-1887 ()	P1:00002; P2:00002	No Errors or Warnings	172.31.254.1
		Control port X7E2	00002		

6 POWERLINK

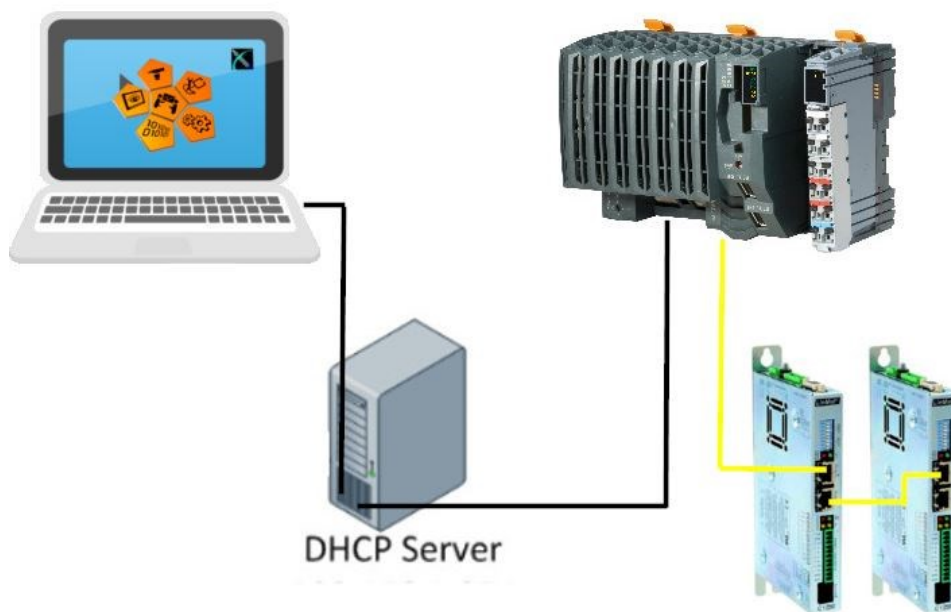
6.1 Compatibility

Servo Drive	Firmware-Version
C1250-PL-XC-0S-000	LinMot-Talk 6 Version 6.9 Build 20190605-IM or newer
C1250-PL-XC-1S-000	LinMot-Talk 6 Version 6.9 Build 20190605-IM or newer
C1250-MI-XC-0S-000	LinMot-Talk 6 Version 6.12 or newer
C1250-MI-XC-1S-000	LinMot-Talk 6 Version 6.12 or newer
C1450-PL-XC-0S-000	LinMot-Talk 6 Version 6.9 Build 20190605-IM or newer
C1450-PL-XC-1S-000	LinMot-Talk 6 Version 6.9 Build 20190605-IM or newer
E1250-PL-UC	More details in chapter Configuration ETH Port
E1450-PL-QN-0S	More details in chapter Configuration ETH Port
E1450-PL-QN-1S	More details in chapter Configuration ETH Port

6.2 Login over POWERLINK NAT

PC -DHCP
Automation Studio
IP 10.3.11.242

B&R Ethernet - DHCP	POWERLINK – Static
IP 10.3.10.238	NAT IP 192.168.101.0
Sub 255.255.0.0	255.255.255.0



Servo Drive 1 – Node1	Servo Drive 2 – Node2
NAT IP 192.168.101.1	NAT IP 192.168.101.2
255.255.255.0	255.255.255.0

The POWERLINK NAT (Network Address Translator) converts the POWERLINK IP to a global address. Each station within the larger IP network can be addressed uniquely. The POWERLINK NAT subnet specifies the subnet mask for this POWERLINK network. The NAT IP address of the individual servo drives is put together using the mask and having the last position replaced by the node number. The POWERLINK station with the node number 17 therefore has NAT IP address 192.168.101.17.



Attention:

This parameter is available in Automation Runtime A2.90 and later when using operating mode POWERLINK V2

6.3 POWERLINK NAT Settings in the Automation Studio

Name	Value	Unit	Description
IF3			
Module type	Type 4		Indicates module features
Operating mode	POWERLINK V2		
MTU size	300		
Baud rate	100 MBit half dupl...		
POWERLINK parameters			
Activate POWERLINK communication	on		
Device name	<InterfaceAddress>		
Host names			
Cycle time	800	µs	
Multiplexing prescale	8		
Mode	managing node		
Advanced			
Node definition	set explicitly		
Node number	240		
Asynchronous timeout	25	µs	
Asynchronous Slots per cycle	1		
Data transfer restricted to active station	off		
Optimization	minimal latency		
Basic Ethernet in Service Mode	Basic Ethernet dis...		
POWERLINK NAT subnet	192.168.101.0		Last number should be 0 and is ignored
Cycle loss limit	automatically		Modify error tolerance of the network
Broadcast channels			
Channel 1			



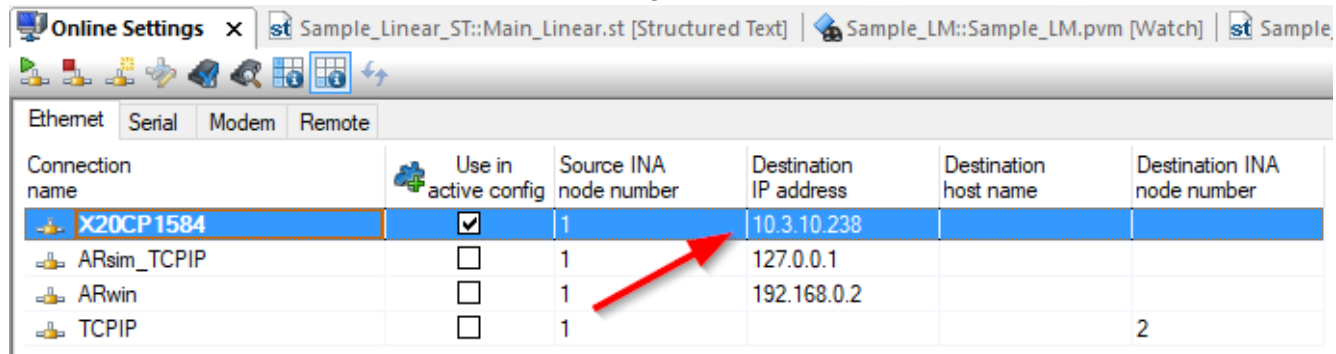
Attention for -MI drives:

In the above Powerlink interface configuration the node number is 240 which acts as gateway for the NAT sub net. In the MI drive settings this address must be set to the same value:

Name	Value	Unit	Description
C1250-MIPL-XC-1S-000			
General			
POWERLINK parameters			
Mode	controlled node		
Advanced			
SoC Jitter Threshold	15		Threshold for 'SoC Jitter' error symptoms, error-reaction will
SoC Jitter Interval	2000	ns	Range in ns, within the SoC Jitter may vary
Verify Device Type	off		Verify device type on boot
Verify VendorID	off		Verify vendor id on boot
Verify RevisionNumber	off		Verify revision number on boot
Verify ProductCode	off		Verify product code on boot
IP Gateway	240		Node number of EPL station acting as IP default gateway
Multiplexed station	off		
Optimization	data throughput		
Channels			Objects for cyclic transmission
Device specific parameters			Transmitted to the device at startup

6.3.1 Add the route in the Online Settings

The route need be defined to the IP address of the PLC!



Connection name	Use in active config	Source INA node number	Destination IP address	Destination host name	Destination INA node number
X20CP 1584	<input checked="" type="checkbox"/>	1	10.3.10.238		
ARsim_TCPIP	<input type="checkbox"/>	1	127.0.0.1		
ARwin	<input type="checkbox"/>	1	192.168.0.2		
TCPIP	<input type="checkbox"/>	1			2

6.4 Settings on the PC

Use the following command to route the network of the PC to the NAT network.

1. Run the Windows Commander Prompt (CMD) as an Administrator:
2. Add Route:
route add 192.0.0.0 mask 255.0.0.0 10.3.10.238
or route add 192.168.0.0 mask 255.255.0.0 10.3.10.238
or route add 192.168.101.0 mask 255.255.255.0 10.3.10.238

```
Administrator: Eingabeaufforderung
Microsoft Windows [Version 10.0.17763.475]
(c) 2018 Microsoft Corporation. Alle Rechte vorbehalten.
C:\WINDOWS\system32>route add 192.168.0.0 mask 255.255.0.0 10.3.10.238
OK!
```

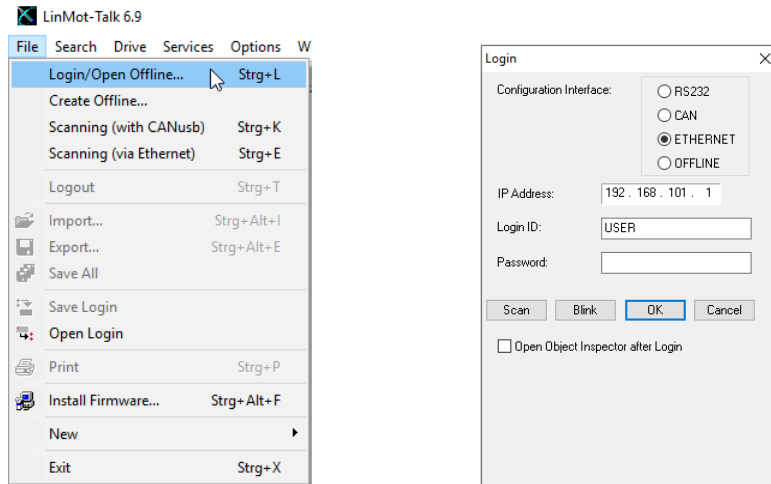


Note: The Command “route add” for a new route in the network routing table is activated until the next restart of the PC. The command in the example contains the following components:

route add “*Destination – NAT IP Range*” **mask** “*Subnet mask*” “*Gateway – IP of PLC Ethernet Port*”

6.5 Login with LinMot-Talk

Open the LinMot-Talk Software and select *File*→ *Login/Open Offline*.



Attention:

Keep in mind, the route is temporary. After rebooting PC route must be set again!
For permanent route, use parameter -p!
(route add 192.168.101.0 mask 255.255.255.0 10.3.10.238 -p)

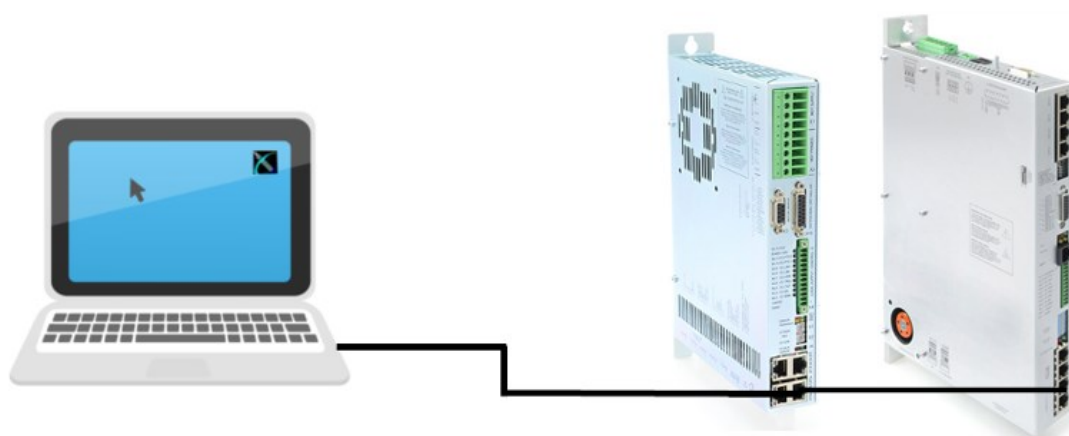
7 Configuration ETH Port


7.1 Compatibility

Servo Drive	Supported Firmware-Version
E1250-xx-UC	All
E1450-xx-QN-0S (V1 und V2)	All
E1450-xx-QN-1S (V1 und V2)	All

7.2 Login with dynamic IP address (first login)

7.2.1 Servo Drive E1250/ E1450



X15 - X16		Config Ethernet 10/100 Mbit/s
	X15	Internal 2-Port 10BASE-T and 100BASE-TX Ethernet Switch with Auto MDIX. LEDs on the lower side of the device indicate "Link/Activity" per port, the upper ones are not used.
	X16	
RJ-45		

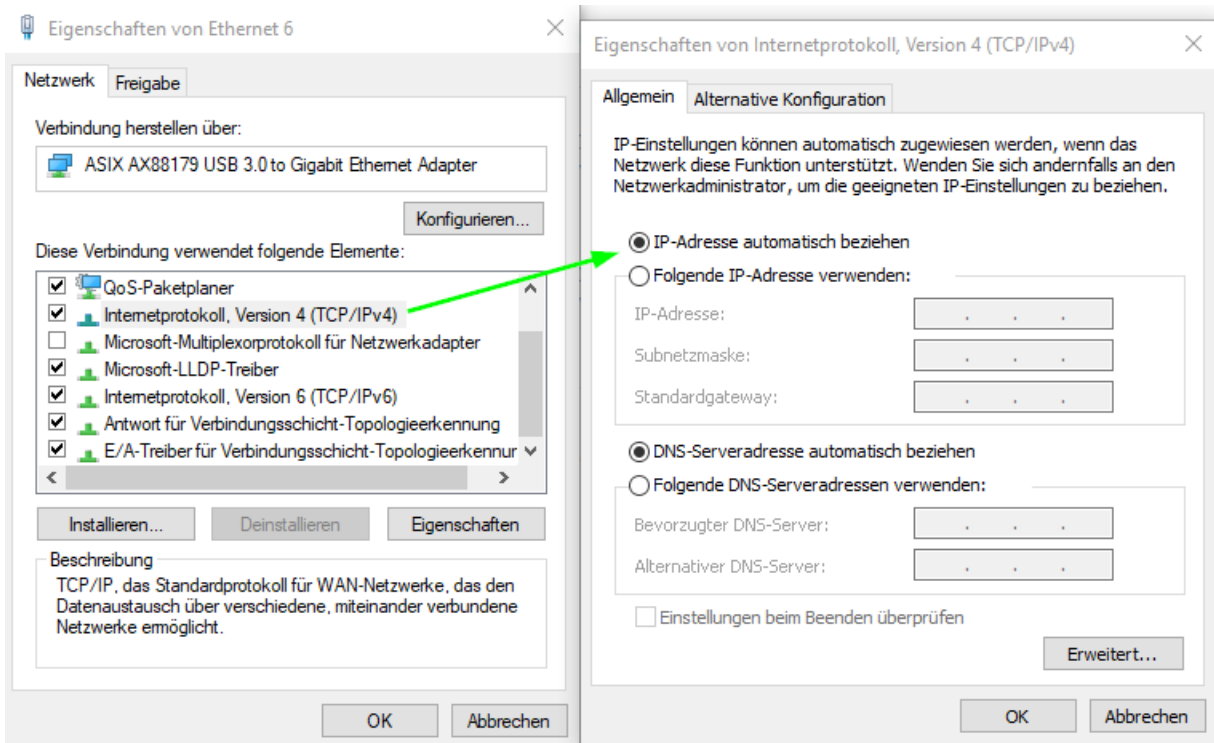
7.2.1.1 DHCP and APIPA (default Settings)

The default mode for acquiring an IP address is via DHCP. If no servers on the connected network respond, the drive switches to the Ipv4 Link-Local addressing scheme (APIPA on Windows systems). This way the drive automatically assigns itself an address within the range of 169.254.0.1 through 169.254.255.254 (Subnet Mask 255.255.0.0).

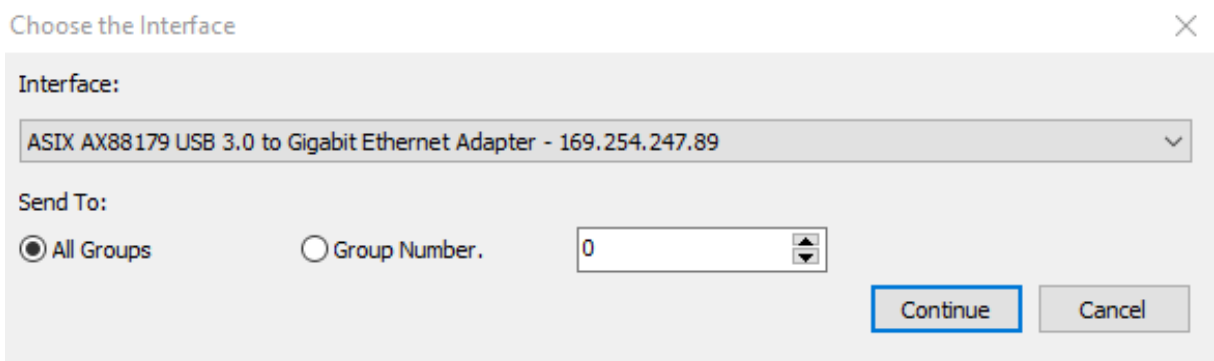


Note: This process can take up to a minute until a valid address is assigned to the drive this way.

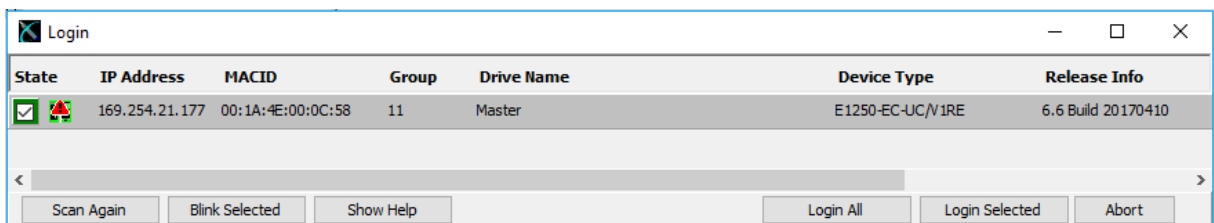
1. Check the Ipv4- Settings of the network connection:



2. Open LinMot-Talk and click on [File -> Scanning \(via Ethernet\)](#):



Connected servo drives will appear in the login window



7.3 Login with fix IP address

Login first with the dynamic IP address and change the settings in the LinMot-Talk Software:
[Parameters/OS/Communication/Ethernet Configuration/IP Configuration](#)

The screenshot shows the LinMot-Talk 6.6 software interface. The left sidebar displays a tree view of the configuration structure, with 'IP Configuration' selected under 'Ethernet Configuration'. A red arrow points from this selection to the main configuration table on the right.

Name	Value	Raw Data	UPID	Type
IP Configuration Mode	Use static IP Address	0002h	020Ah	UInt16
Static IP address 1st Byte	192	C0h	0074h	UInt8
Static IP address 2nd Byte	168	A8h	0075h	UInt8
Static IP address 3rd Byte	1	01h	0076h	UInt8
Static IP address 4th Byte	2	02h	0077h	UInt8
Netmask 1st Byte	255	FFh	0201h	UInt8
Netmask 2nd Byte	255	FFh	0202h	UInt8
Netmask 3rd Byte	255	FFh	0203h	UInt8
Netmask 4th Byte	0	02h	0204h	UInt8
Static Default Gateway IP 1st Byte	0	00h	0206h	UInt8
Static Default Gateway IP 2nd Byte	0	00h	0207h	UInt8
Static Default Gateway IP 3rd Byte	0	00h	0208h	UInt8
Static Default Gateway IP 4th Byte	0	00h	0209h	UInt8



Note: E1450 - the Switch S5.5 needs to be OFF, otherwise the IP Configuration Modes are ignored.

S5	Bus Termination / AnIn2 Pull Down	
	S5	<p>Switch 6: Override Configuration Ethernet to DHCP</p> <p>Switch 5: Bootstrap: Must be off for normal operation</p> <p>Switch 4: CAN termination on ME (120R between pin 7 and 8 on X10/X11) on/off</p> <p>Switch 3: CAN termination on CMD (120R between pin 7 and 8 on X7/X8) on/off</p> <p>Switch 2: Termination resistor for RS485 on CMD (120R between pin 1 and 2 on X7/X8) on/off</p> <p>Switch 1: AnIn2 pull down (4k7 Pull down on X4.4). Set to ON, if X4.4 is used as digital output.</p> <p>Factory setting: all switches "on" except S5.5 (Bootstrap) and S5.6 (Override to DHCP)</p>

7.4 Troubleshooting with Config ETH

7.4.1 No Communication with E1450-PN

Config Ethernet and Config over RT Ethernet are both handled with PROFINET interface, which can cause problems when config telegrams are send over both interfaces.

When Config Ethernet is plugged in, all Config Ethernet traffic is handled exclusively via this interface (No Config over RT ETH possible).

Config over RT ETH is selected when all cables are disconnected from the Config Ethernet interface at start up.



Attention:

LinMot-Talk 6.6 Build 20170704 with Hardware E1450 (check Release Notes).

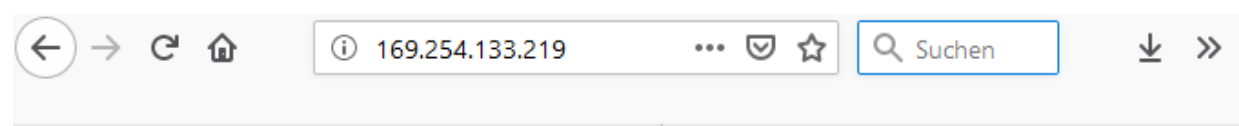
7.4.2 Setting all Parameters to Default Values

With E1200 and E1400, all parameters can be set to their default values without the use of the LinMot-Talk Software. This can be done according these steps:

1. Power off the drive
2. Set the two ID switches to 0xFF
3. Power on the drive, the Error and Warn LEDs will blink alternately at ~4Hz.
4. Set the two ID switches to 0x00
5. Wait until the Warn and EN LEDs will flash together at ~2Hz.
6. Power off and on again.

7.5 LinMot WebUI

Connect the LinMot Drive with the internet browser. The browser will show the following variables.



LinMot® E1250-PL-UC/V1RC

Controller Name: Support
 Serial Number: 1760.4HT.019
 Article Number: 0150-1760
 Firmware Release: 6.9 Build 20190605

Status Monitoring

Name	Value	Unit
Status Word:	0x50FA	-
Warn Word:	0x80	-
State Var:	0x464	-
Actual Position:	0	0.1µm
Demand Position:	0	0.1µm
Demand Current:	0	mA
Operating Hours:	24365	h
Operating Sub Hours:	2084255	ms

X4 I/O State

X4.3 X4.4
 X4.5 X4.6
 X4.7 X4.8
 X4.9 X4.10
 X4.11 X4.12

Status LEDs

Error 24V OK
 Warning Motor Enabled

Last Motion Command Interface Command

Header	Par_1	Par_2	Par_3	Par_4	Par_5	Par_6	Par_7
0x0	0x0	0x0	0x0	0x0	0x0	0x0	0x0

Read UPID

UPID (decimal):

UPID Value: 0

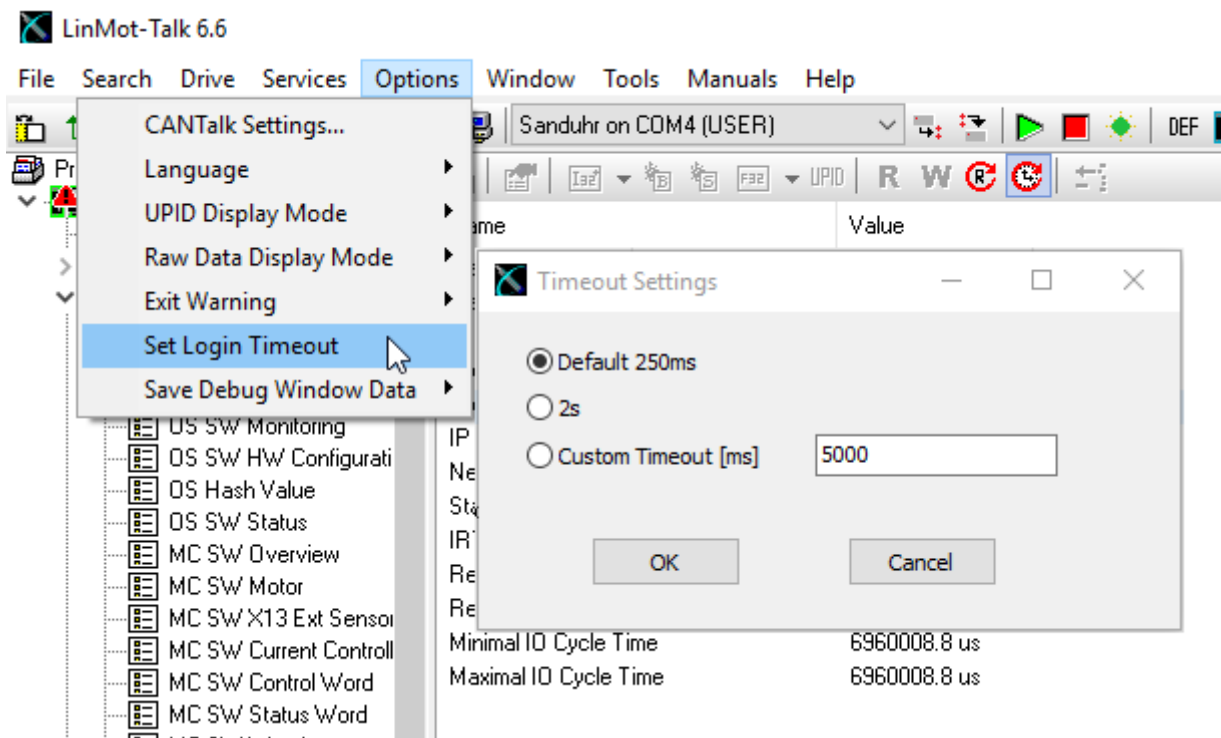
Recent Errors

Operating hrs/sub-hrs	Time	Error Code	Error Message
-----------------------	------	------------	---------------

8 Troubleshooting

8.1 Communication Timeout

Depending on the traffic on the network, it's possible to having communication issues with LinMot-Talk because of the low- priority of the ethernet communication. It can be fixed by increasing the timeout for the LinMot-Talk communication – [Option/ Set Login Timeout](#)



9 Document version

Version	Date	Author	Description
0V1	23.11.2016	mm	Initial version
1V0	31.08.2017	mm	Added Sercos III & improvements
1V1	01.11.2017	mm	Corrections
1V2	03.07.2019	mm	Added POWERLINK & improvements
1V3	03.03.2021	mm	Release version
1V4	15.11.2021	mm	Wrong IP-address in EtherCAT
1V5	22.05.2024	fj	Updated several chapters

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