Config over Realtime

Establishing the LinMot-Talk Connection over the fieldbus port

March 2021 0185-0142-E_1V3_AN_HT_ConfigOverRealtime

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Use of This Document

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

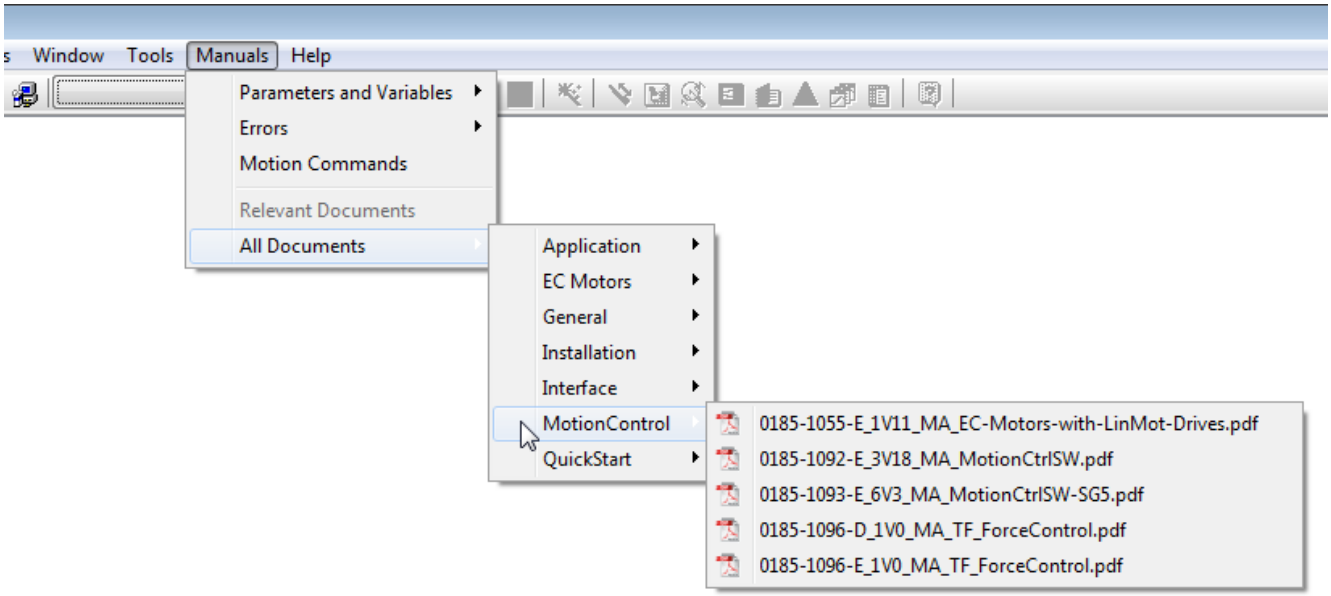
Drive: Drives are listed under General

Classification :
[ ] Application Note
[ ] Installation Guide
[ ] User Manual
[x] Documentation
[ ] LinMot internally

Recommended Documentation

Reading the following user manuals is essential to understand the communication between the PLC and the LinMot drive. The manuals are included in 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 Manual	Document Reference
LinMot-Talk	0185-1059
Motion Control Software	0185-1092 / 0185-1093



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)	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	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	-	-	-	-	-	-	-	-	-	-
Scanning Over Ethernet	•	•	•	-	-	-	-	-	•	-
Import Configuration file (lmc)	•	•	•	•	•	•	•	•	•	•
Blink Status LED's	•	•	•	•	•	•	•	•	•	•
Login without connected PLC	•	•	•	(-)	(-)	-	-	-	•	-

IP = Ethernet/IP
http://shop.linmot.com/E/product/0185-1081-E

CM = Ethernet/IP (CIP Sync)
http://shop.linmot.com/E/product/0185-1165-E

LU = LinUDP V2
http://shop.linmot.com/E/product/0185-1108-E

PN = PROFINET
http://shop.linmot.com/E/product/0185-1090-E

PD = PROFidrive
http://shop.linmot.com/E/product/0185-1132-E

EC = EtherCAT
http://shop.linmot.com/E/product/0185-1079-E

SE = SERCOS over EtherCAT (SoE)
http://shop.linmot.com/E/product/0185-1080-E

DS = EtherCAT CiA402
http://shop.linmot.com/E/product/0185-1103-E

SC = SERCOS III
http://shop.linmot.com/E/product/0185-1091-E

PL= POWERLINK
http://shop.linmot.com/E/product/0185-1088-E

Supported Servo Drives Series

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

*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.

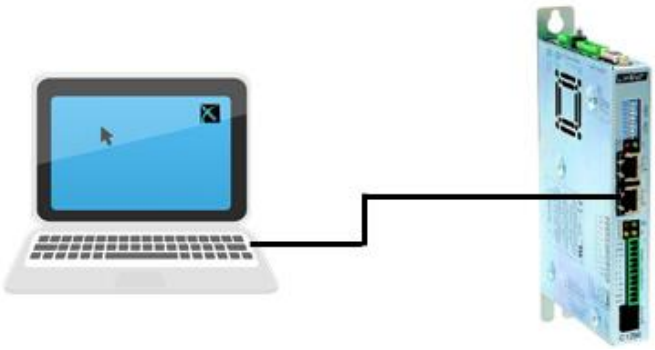
http://shop.linmot.com/E/product/0150-2473

1 Ethernet/IP

1.1 Compatibility

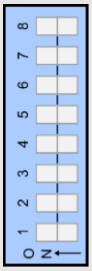
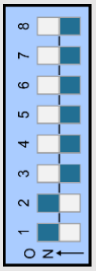
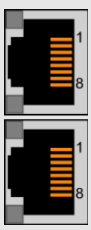
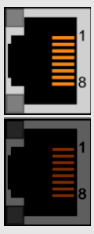
Servo Drive	Firmware-Version
C1250-IP-XC-0S-000	LinMot-Talk 6 Version 6.4 Build 20151112 or newer
C1250-IP-XC-1S-000	LinMot-Talk 6 Version 6.4 Build 20151112 or newer
C1450-IP-VS-1S-000	LinMot-Talk 6 Version 6.6 Build xxx or newer
C1250-CM-XC-0S-000	LinMot-Talk 6 Version 6.8 Build 20190315 or newer
C1250-CM-XC-1S-000	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

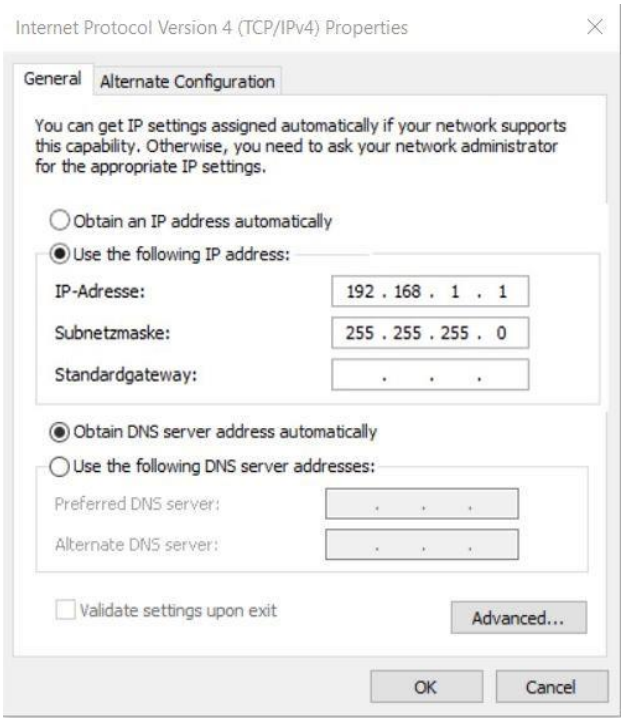
The default setting of the Ethernet/IP port address is manual IP Configuration using hex switches. With the standard settings, the IP address will be in the following range 192.168.001.xxx. The last number can be set with the hex switches S1 and S2.

Identification	Description	Example
S1 – S2 	S1: (5..8) Bit 5 is LSB Bit 8 is MSB S2: (1...4) Bit 1 is LSB Bit 4 is 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	Connect network cable on X17:  X17 RT ETH In

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

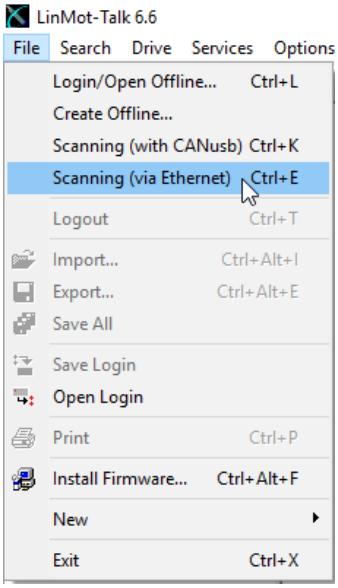
1.2.2 Settings on the PC

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.



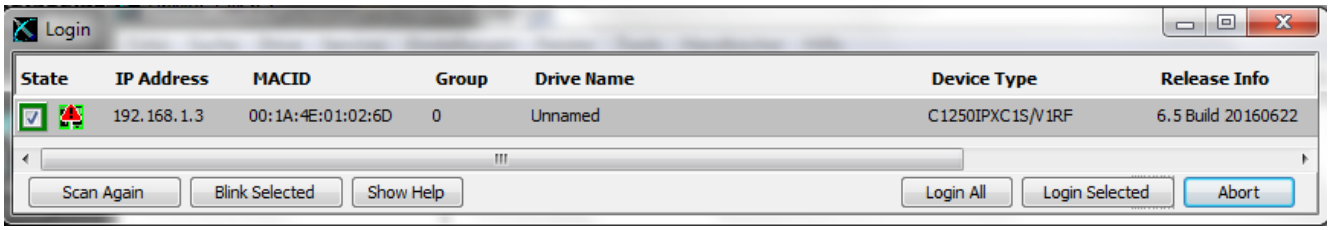
1.2.3 Login with LinMot-Talk

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).

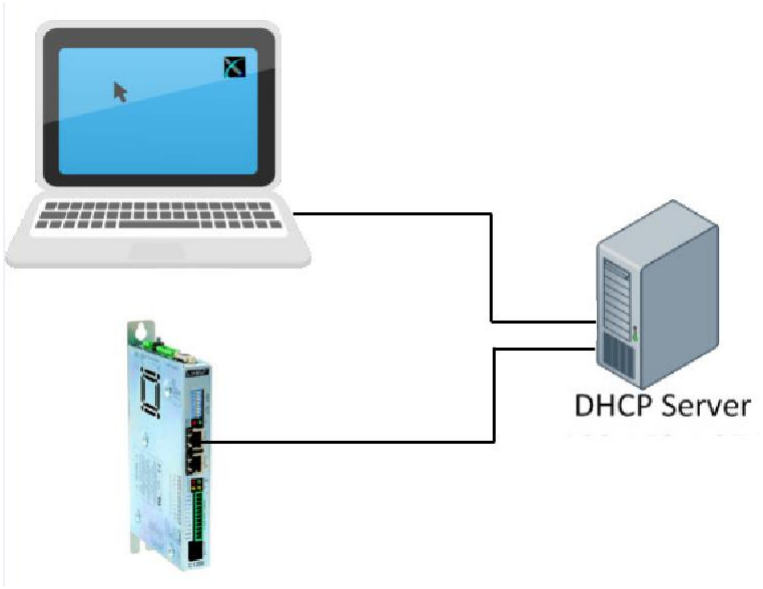
The following table will show all connected LinMot drives in the network.



Login to the drive to adjust drive settings.

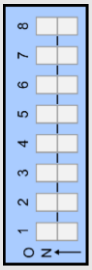
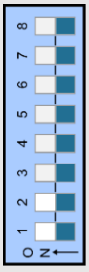
Note: When configuring the IP address of the drive, a new scan is necessary to reconnect the LinMot-Talk communication if the IP address is changed. The IP address of the drive can be configured with LinMot Talk:
Parameter/ Ethernet/IP Intf/ IP Configuration Mode

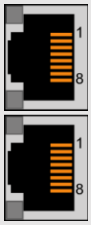
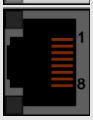
1.3 Login with dynamic IP address (DHCP)



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.

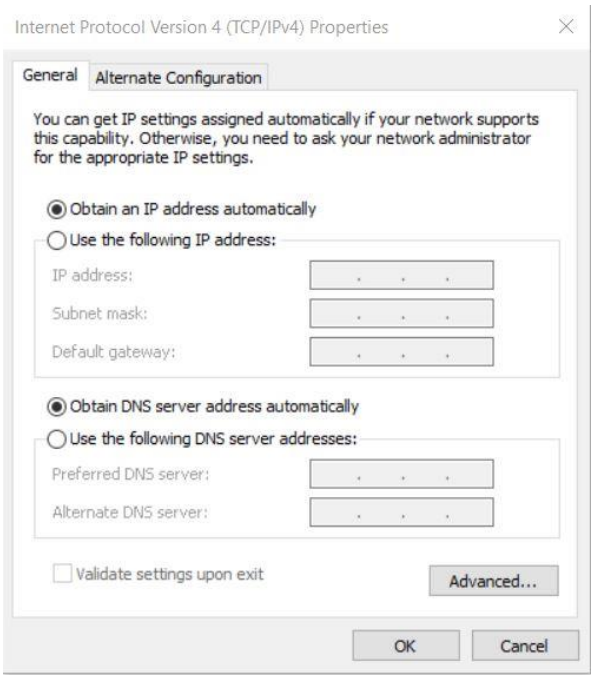
Identification	Description	Example
S1 – S2		S1 to OFF / S2 to OFF = DHCP.
	S1: (5..8) Bit 5 is LSB Bit 8 is MSB S2: (1...4) Bit 1 is LSB Bit 4 is MSB	

X17 – X18		Connect the network cable to X17:
	X17 RT ETH In	X17 RT ETH In
	X18 RT ETH Out	

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

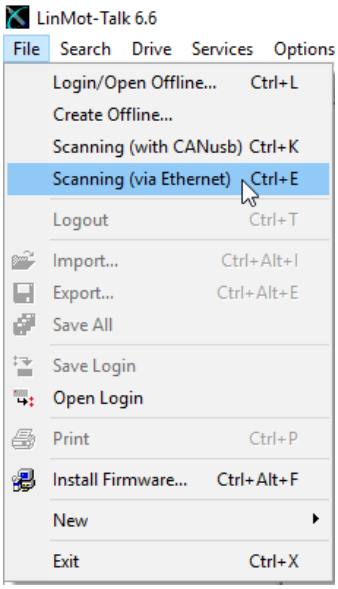
1.3.2 Setting on PC

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

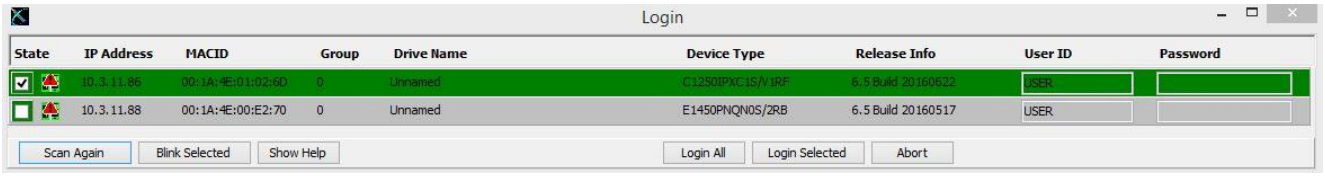


1.3.3 Login with LinMot-Talk

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



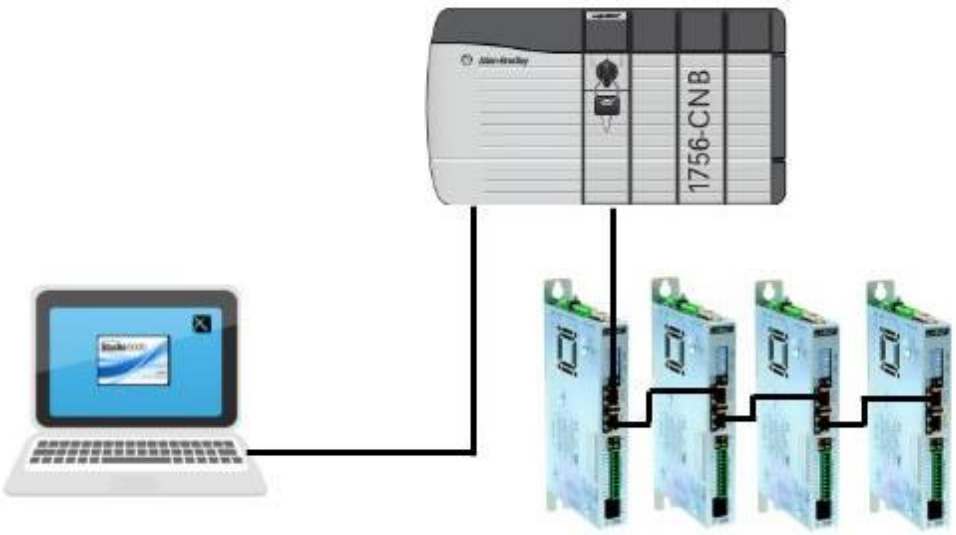
Attention: Use the "Blink Selected" function if you have more than one drive in the network.



Login to the drive to adjust the drive settings.

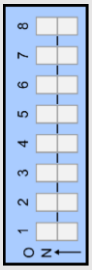
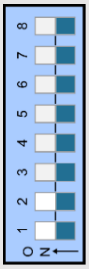
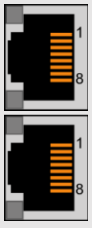
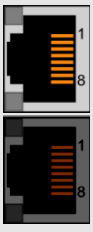
Note: When configuring the IP address of the drive, a new scan is necessary to reconnect the LinMot-Talk communication if the IP address is changed. The IP address of the drive can be configured with LinMot Talk:
Parameter/ Ethernet/IP Intf/ IP Configuration Mode

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.

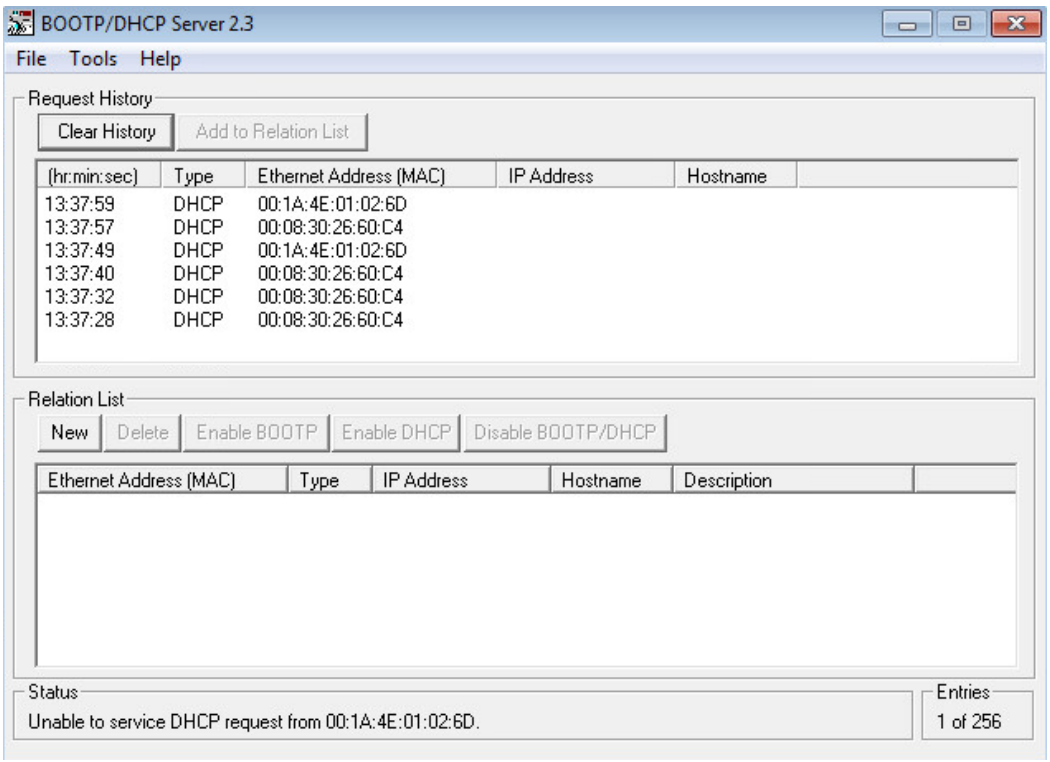
Identification	Description	Example
S1 – S2 	S1: (5..8) Bit 5 is LSB Bit 8 is MSB S2: (1...4) Bit 1 is LSB Bit 4 is MSB	S1 to OFF / S2 to OFF = DHCP. 
X17 – X18 	X17 RT ETH In X18 RT ETH Out	The network cable is plugged into X17:  X17 RT ETH In

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.

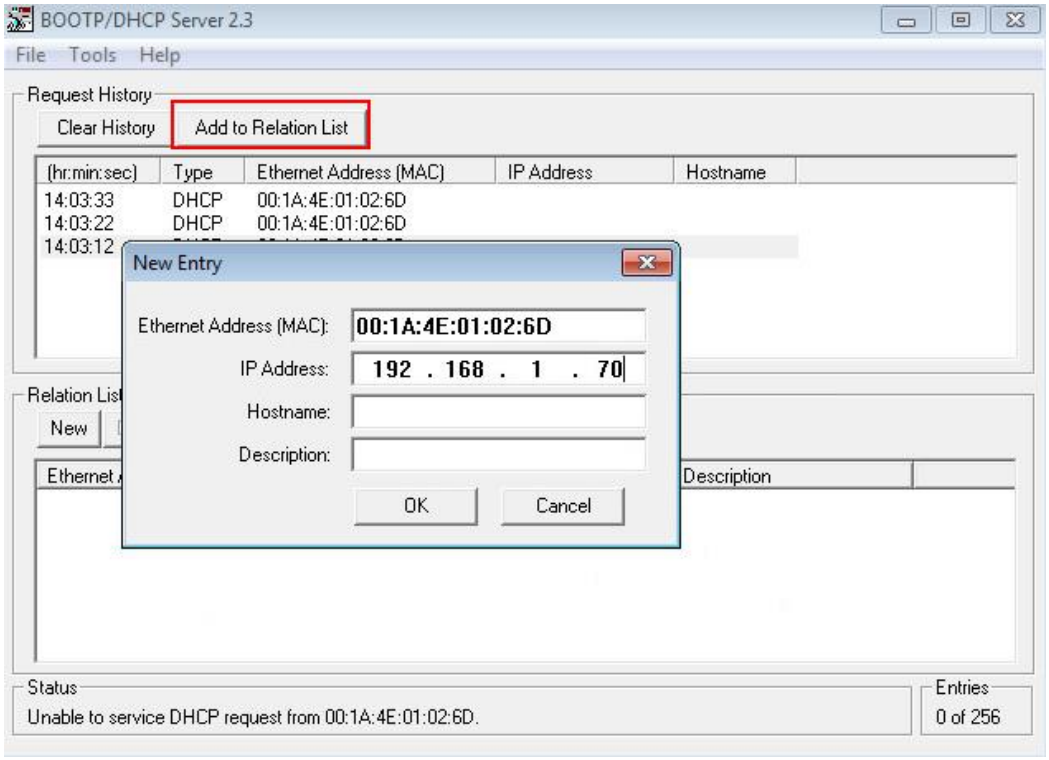
1.4.2.1 Search for the LinMot Drive in the Network

The BOOTP Software shows all the slaves in the Network.

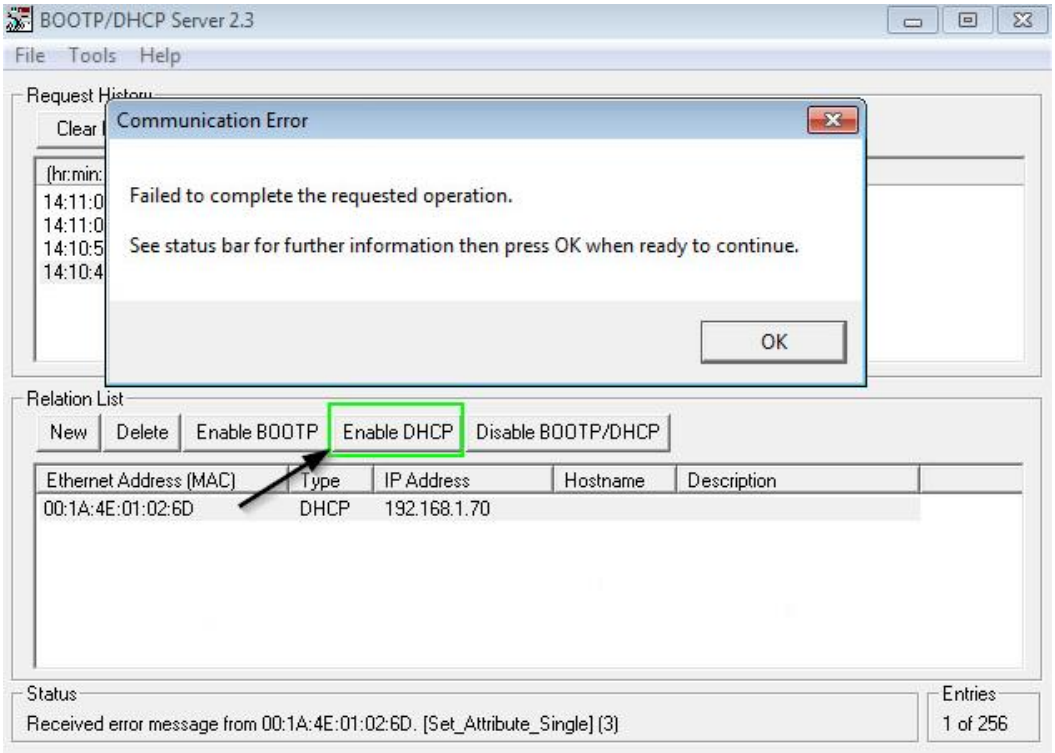


Compare the MAC-Address in the list with the MAC on the Servo Drive label.

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



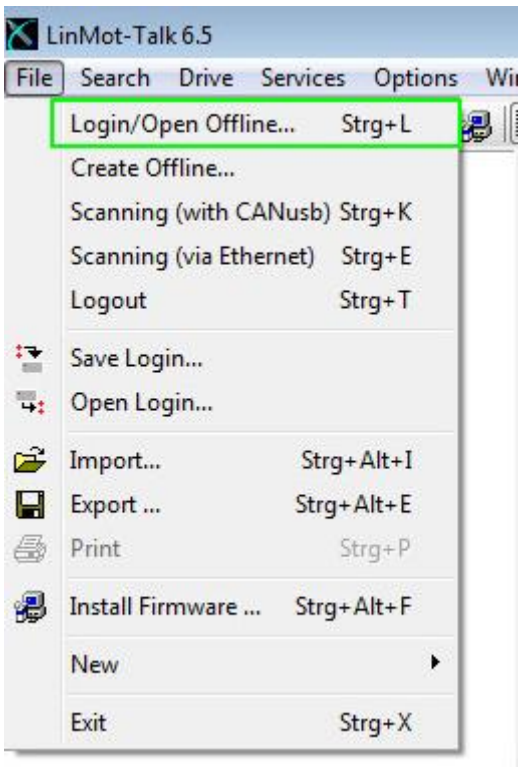
Add the IP address in the Relation List and press “Enable DHCP”. Normally a Communication Error is displayed, but the message can be ignored. Press OK.

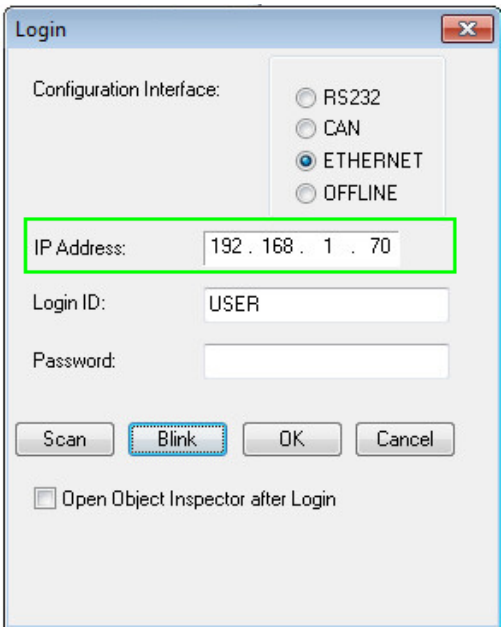


Note: After the IP address assignment, the BOOTP/DHCP Server Software must be closed. After that, restart the LinMot-Talk Software to login in the drive.

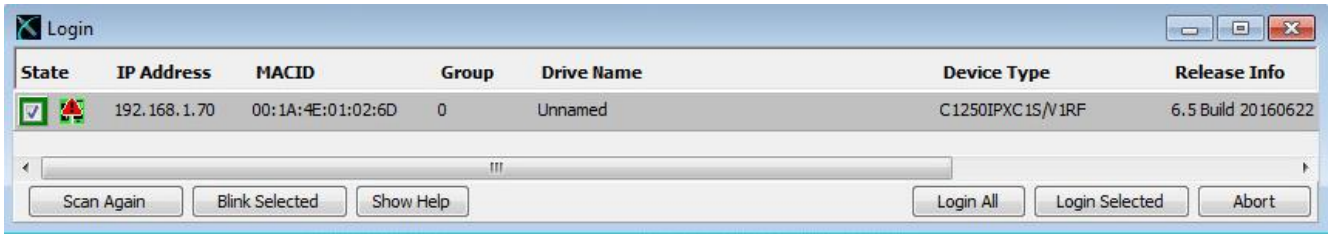
1.4.3 Login with LinMot-Talk

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



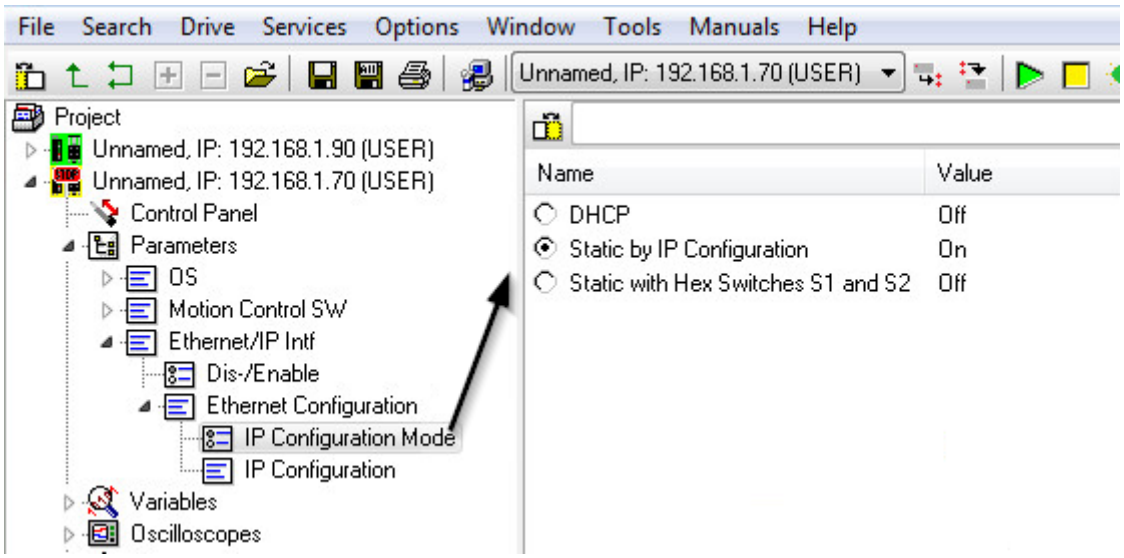


Use the Scan function if the IP address is unknown.

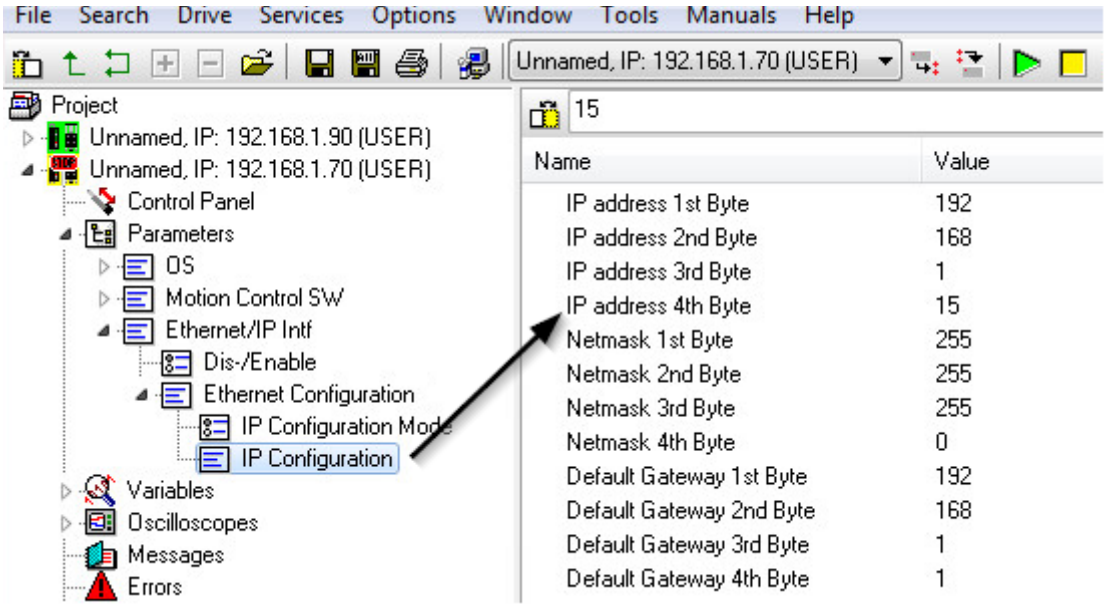


1.4.3.1 Change the IP settings in the LinMot-Talk Software

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



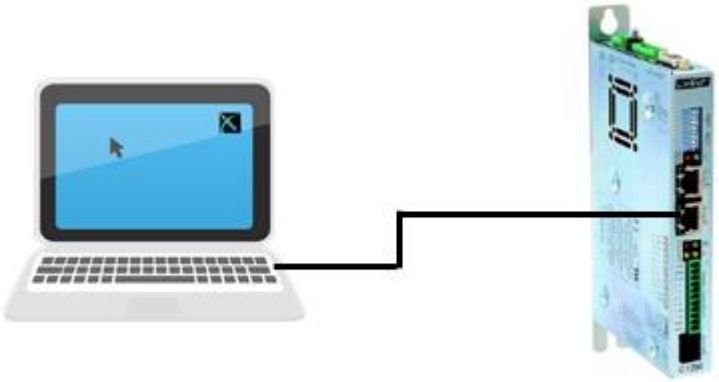
Attention: Modifications to the IP address will be activated only after a restart of the firmware. Logging back into the drive with the new IP address will be necessary to reestablish the LinMot-Talk connection.

2 LinUDP

2.1 Compatibility

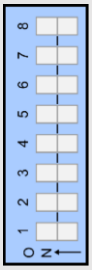
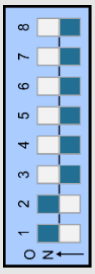
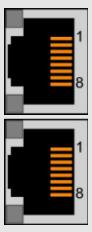
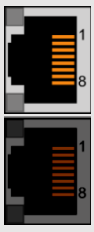
Servo Drive	Firmware-Version
C1250-LU-XC-0S-000	LinMot-Talk 6 Version 6.4 Build 20151112 or newer
C1250-LU-XC-1S-000	LinMot-Talk 6 Version 6.4 Build 20151112 or newer
C1450-LU-VS-1S-000	LinMot-Talk 6 Version 6.6 Build xxx or newer
E1250-LU-UC	More details in chapter Configuration ETH Port
E1450-LU-QN-0S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

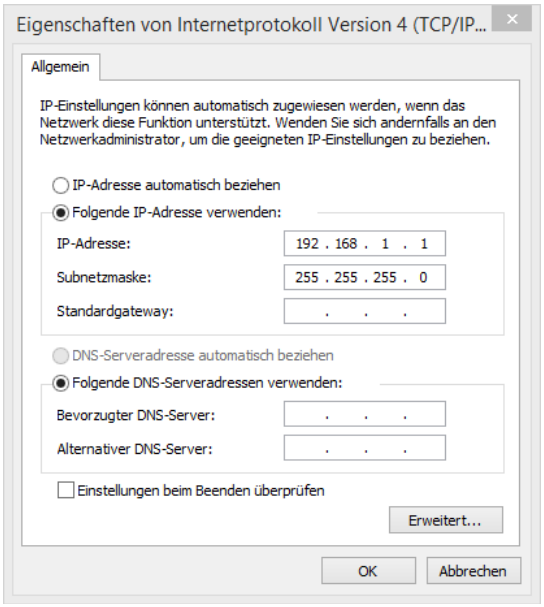
The default setting of the Ethernet/IP port address is manual IP Configuration using hex switches. With the standard settings, the IP address will be in the following range 192.168.001.xxx. The last number can be set by the hex switches S1 and S2.

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.

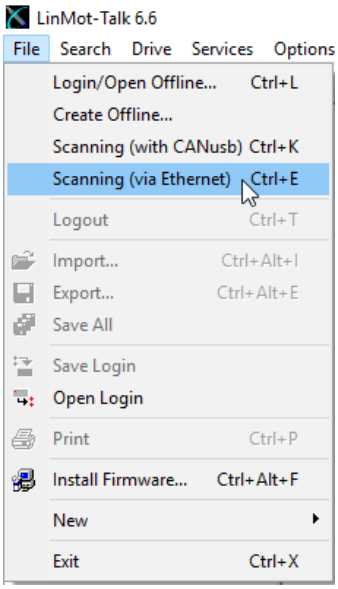
2.2.2 Settings on the PC

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.

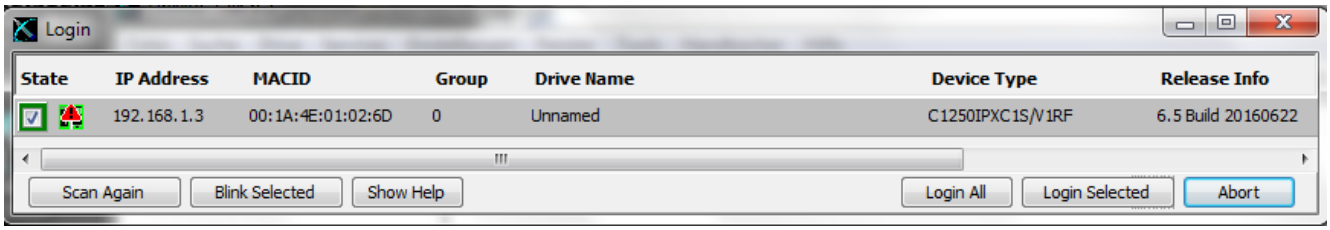


2.2.3 Login with LinMot-Talk

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

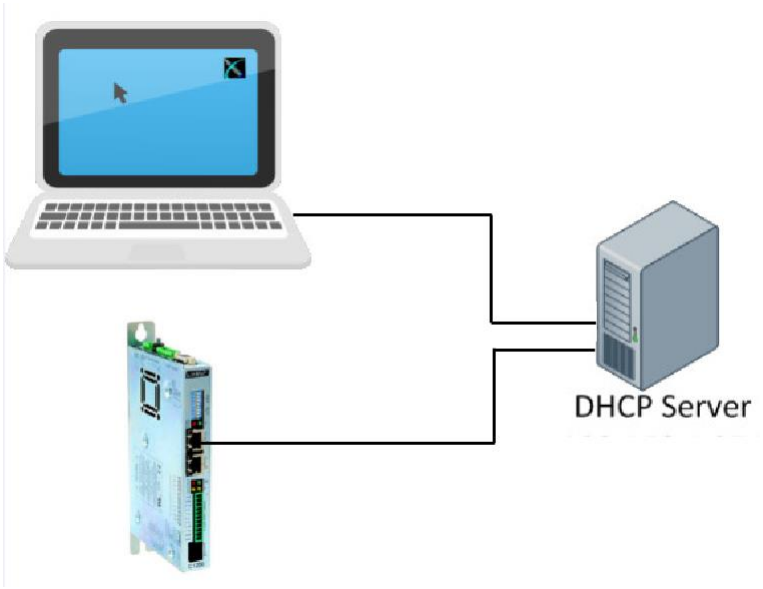


The subnet of the network should be in the range of 192.168.1.xxx.
If LinMot-Talk can't find a LinMot Servo Drive connected on the network, check the IP address and firewall settings.



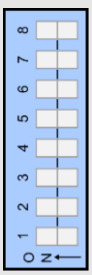
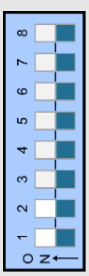
Note: When configuring the IP address of the drive, a new scan is necessary to reconnect the LinMot-Talk communication if the IP address is changed. The IP address of the drive can be configured with LinMot Talk:
Parameter/ Ethernet/IP Intf/ IP Configuration Mode

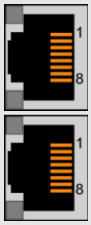
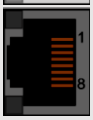
2.3 Login with dynamic IP address (DHCP)



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.

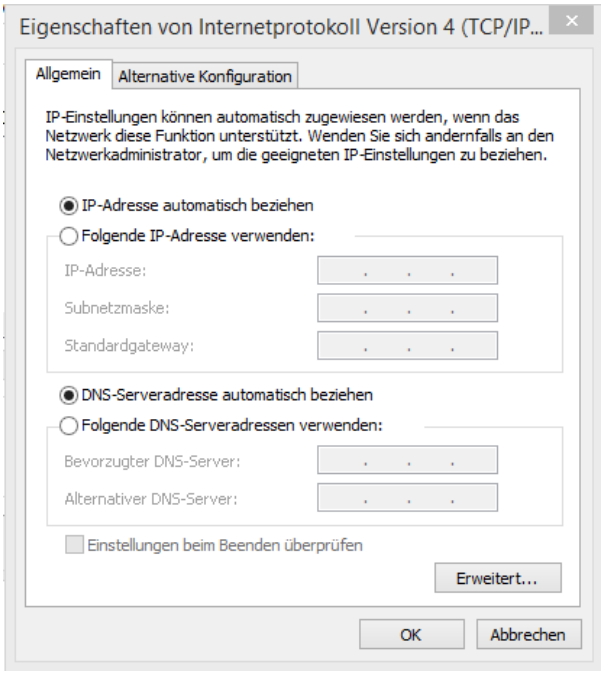
Identification	Description	Example
S1 – S2 	S1: (5..8) Bit 5 is LSB Bit 8 is MSB S2: (1...4) Bit 1 is LSB Bit 4 is MSB	S1 to OFF / S2 to OFF = DHCP. 

X17 – X18		Connect the network cable to X17
	X17 RT ETH In	X17 RT ETH In
	X18 RT ETH Out	

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

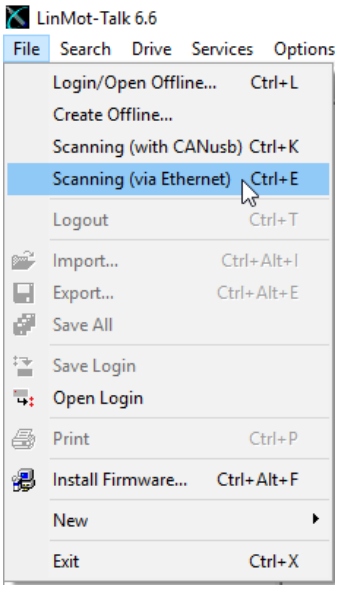
2.3.2 Settings on the PC

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

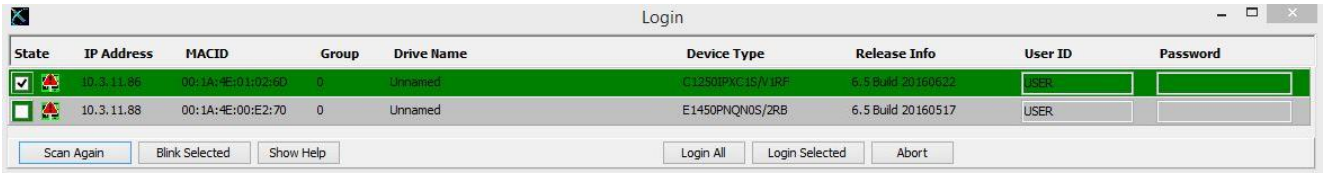


2.3.3 Login with LinMot-Talk

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.

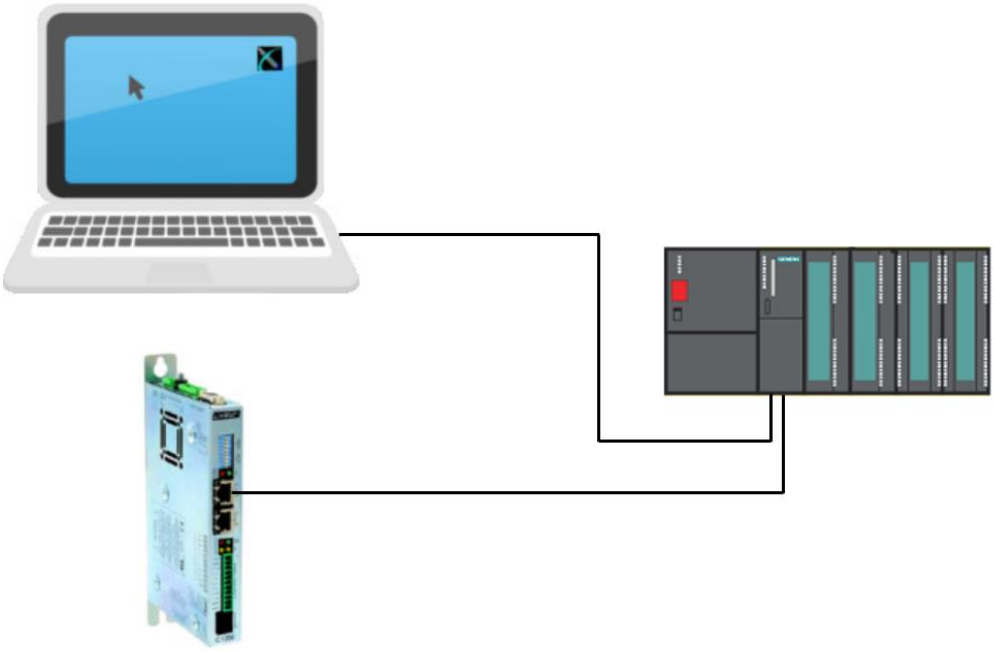
Note: When configuring the IP address of the drive, a new scan is necessary to reconnect the LinMot-Talk communication if the IP address is changed. The IP address of the drive can be configured with LinMot Talk:
Parameter/ Ethernet/IP Intf/ IP Configuration Mode

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
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

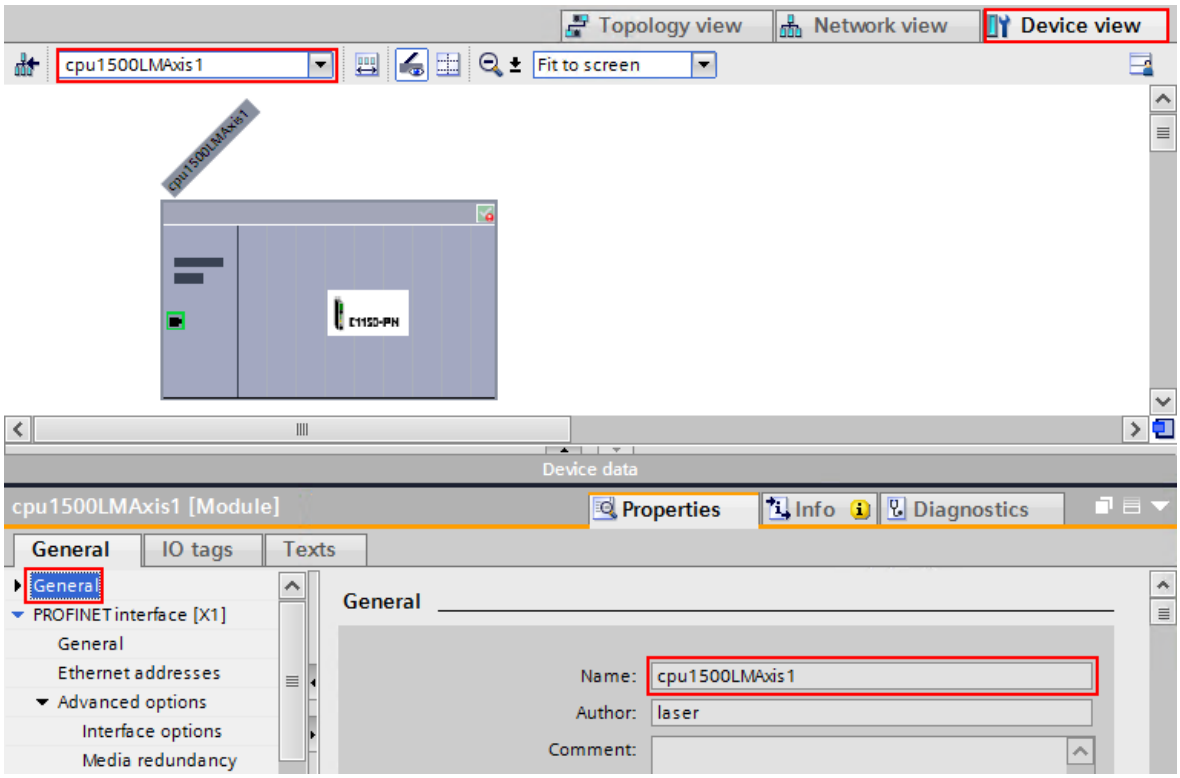
3.2 Login with static IP address

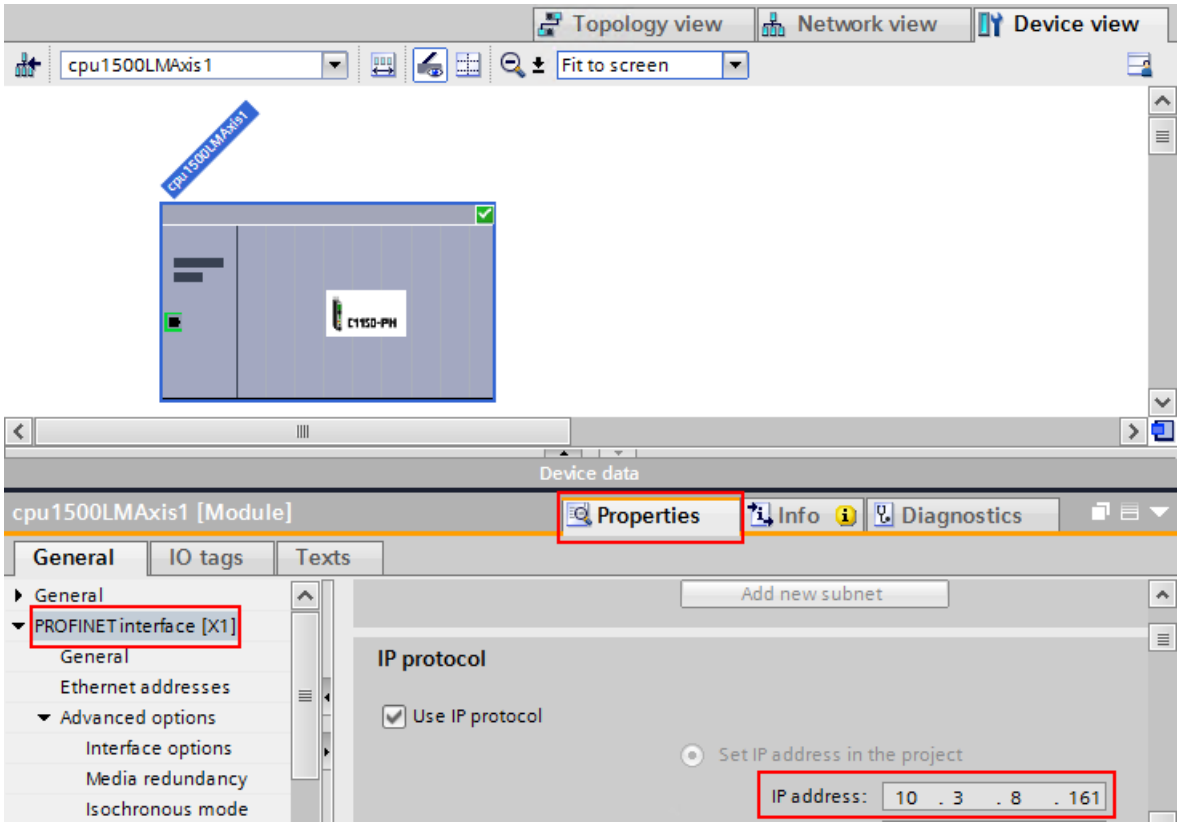


3.2.1 Assigning the device name and IP address with TIA Portal - Siemens

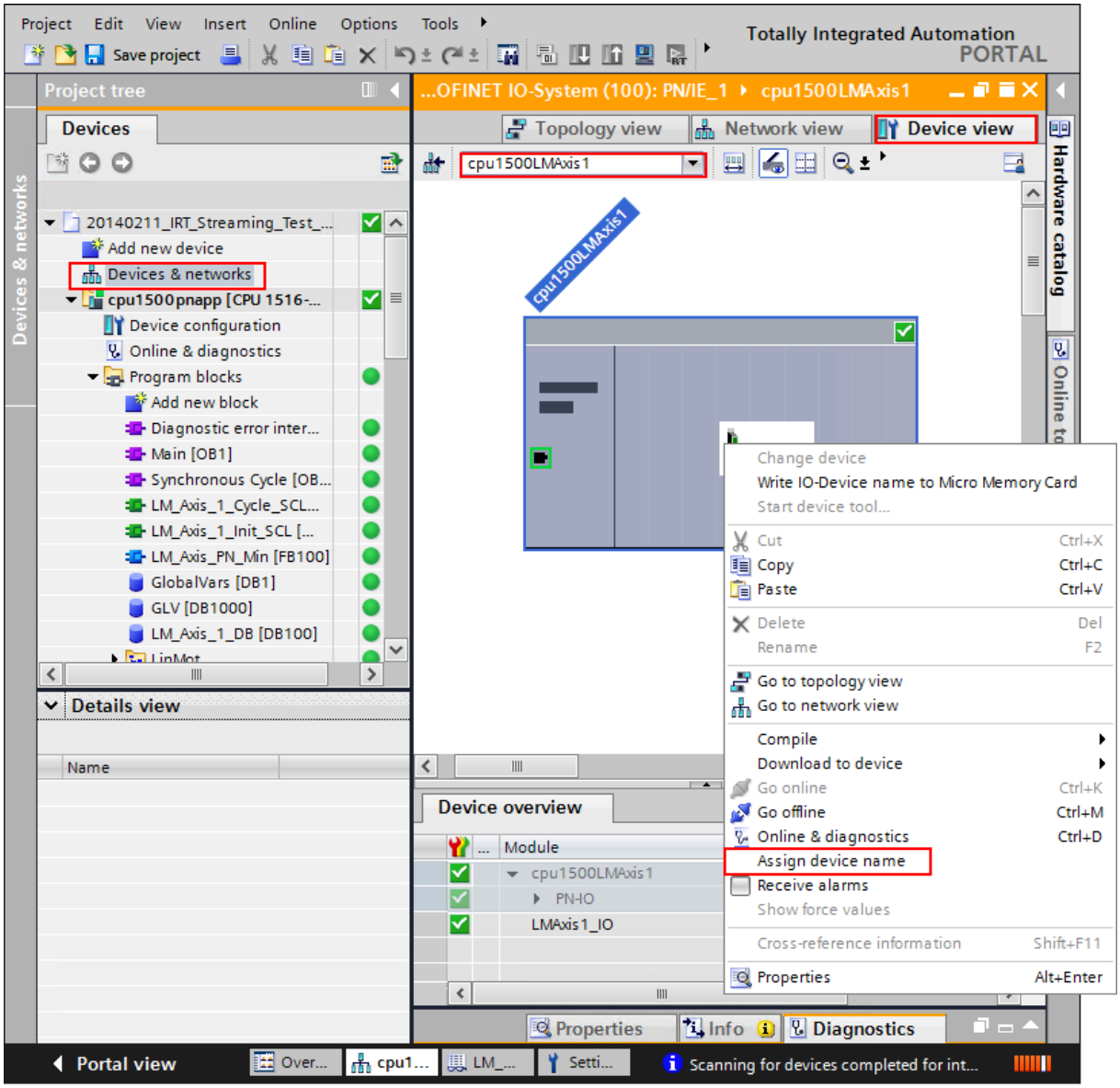
The following steps show how to assign the device name to LinMot drive using the TIA Portal from Siemens.
The IP address is assigned automatically when PROFINET starts.

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

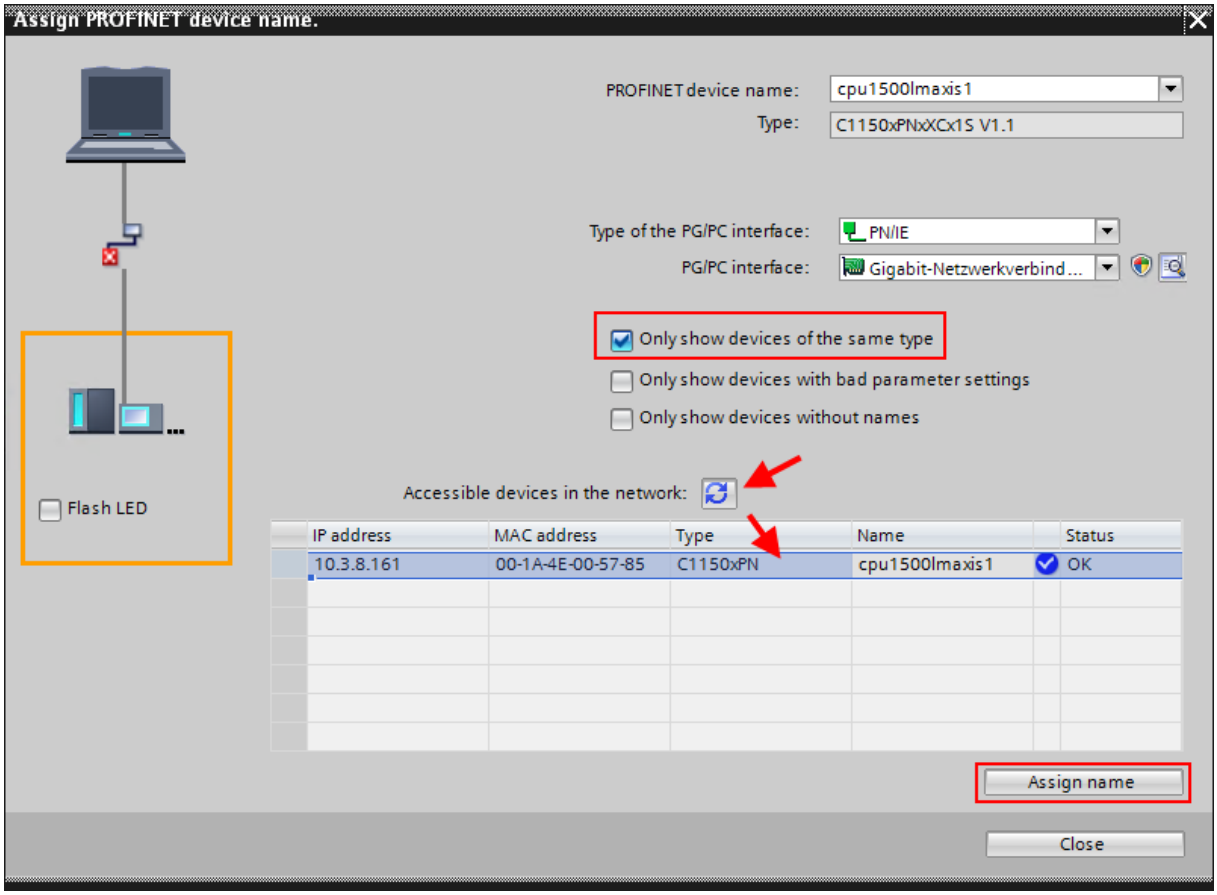




2. Choose the device you want to assign the name to (right-click on the device).



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.

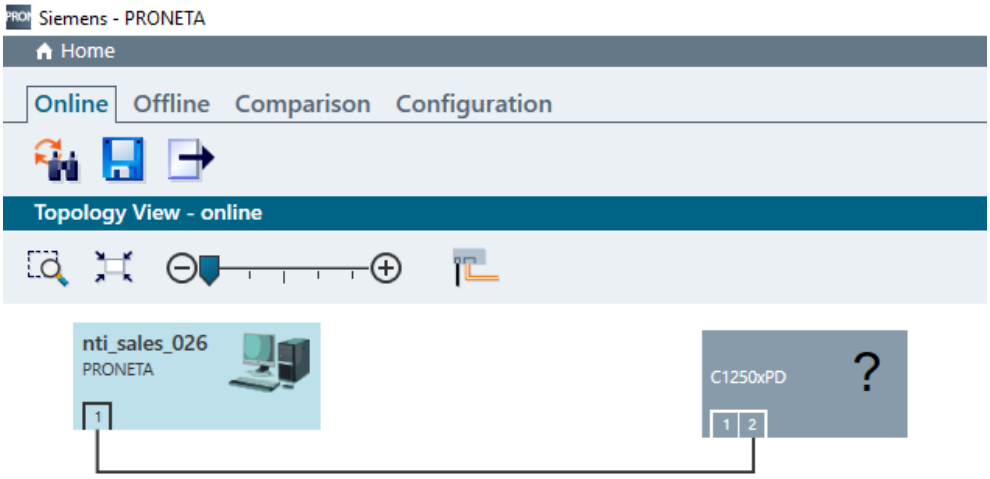
3.2.2 Assigning the device name and IP address with PRONETA

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.

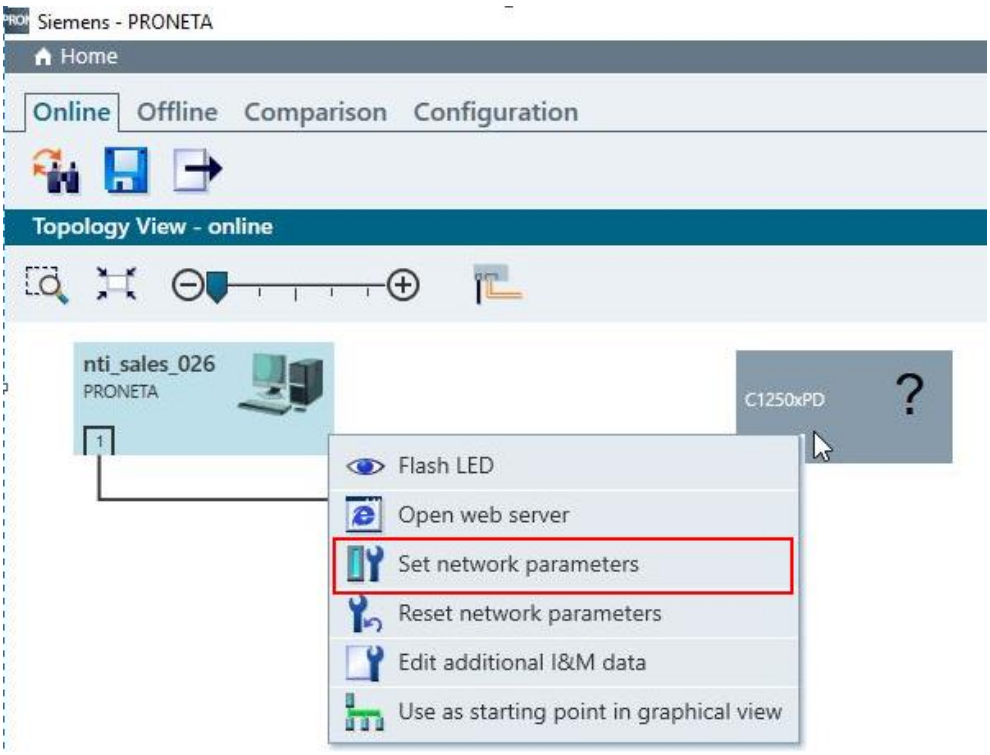
The PRONETA 2.3 can be downloaded from: http://download.linmot.com/plc_lib/

The newest Version from Siemens is available from:
https://support.industry.siemens.com/cs/document/67460624/proneta-2-4-0-39-commissioning-and-diagnostics-tool-for-profinet?dti=0&lc=en-WW

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

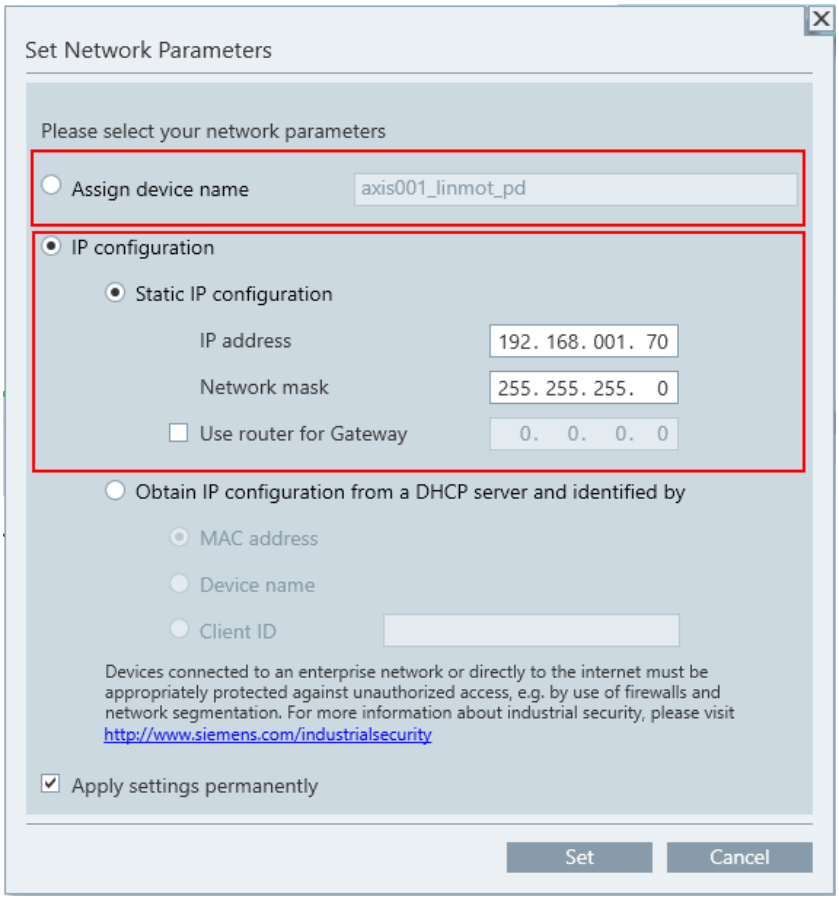


2. Right-click on the C1250xXX will show the different tool options



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

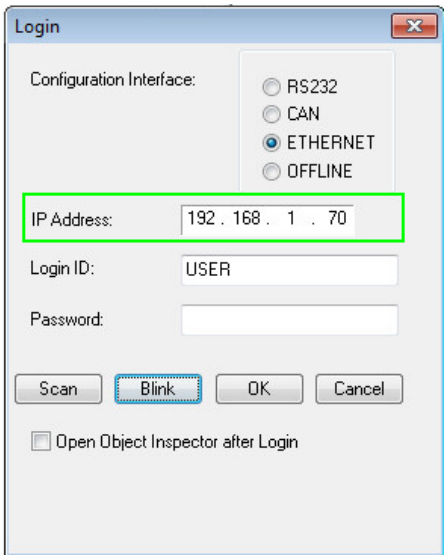
3. Define Device Name and IP address



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.



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.

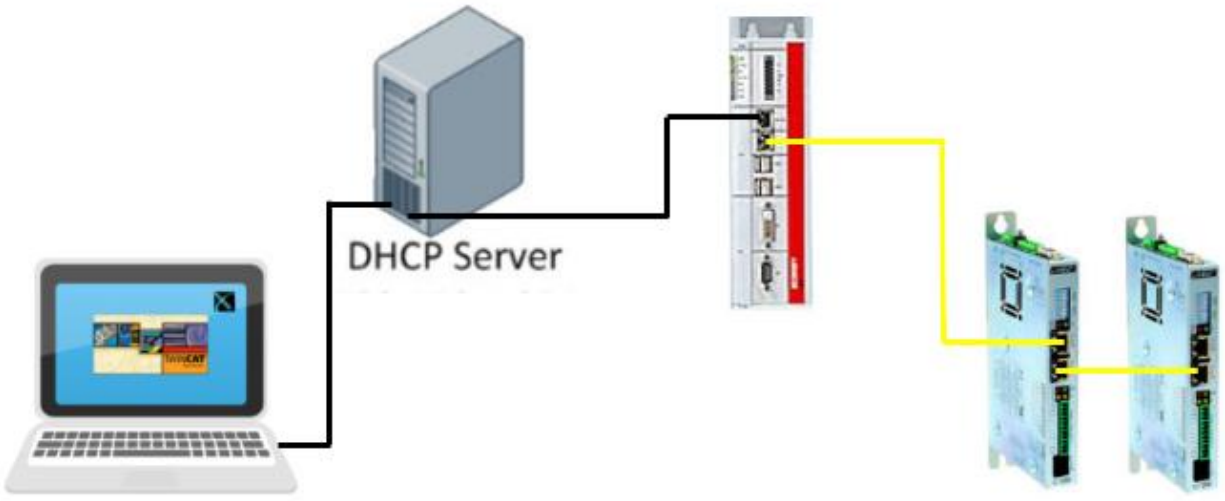
4 EtherCAT

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
C1450-EC-VS-1S-000	Coming soon
C1450-SE-VS-1S-000	Coming soon
C1450-DS-VS-1S-000	Coming soon
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



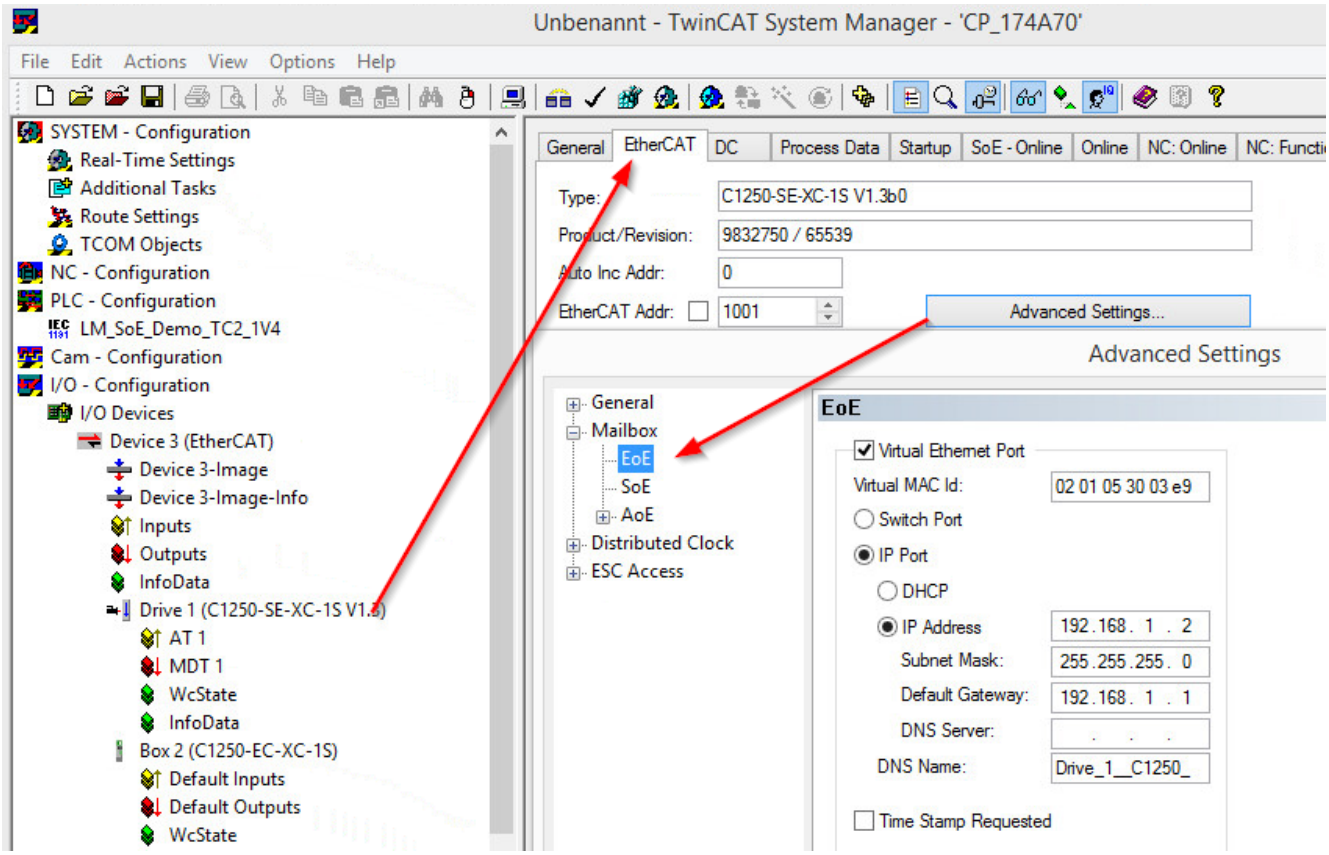
PC -DHCP
TwinCAT 2.x.x
IP 10.3.11.242

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

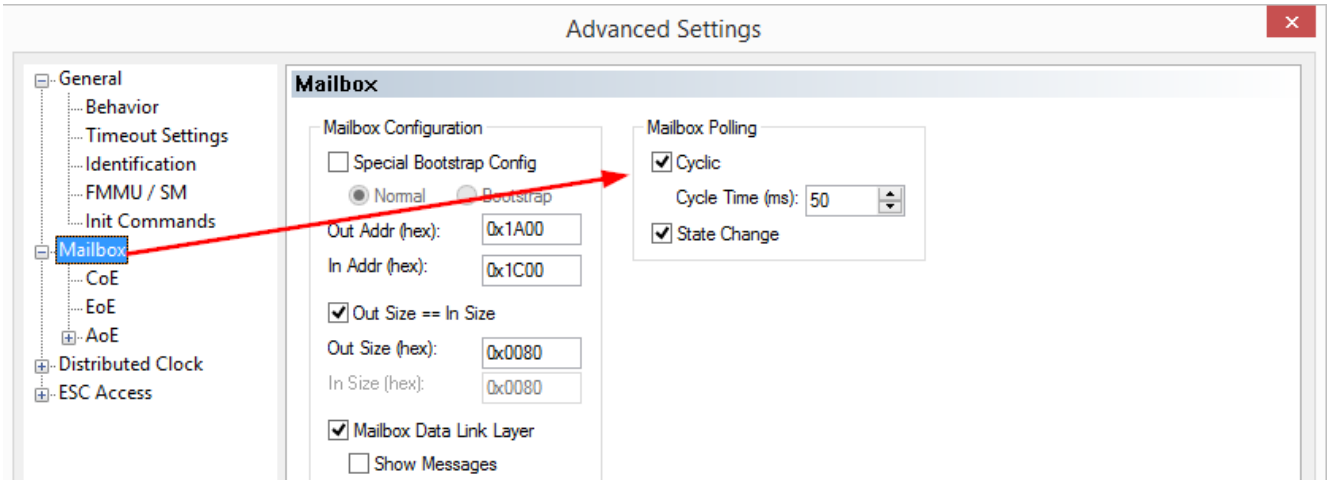
4.2.1 EoE-Settings in TwinCAT (EtherCAT Slave)

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.

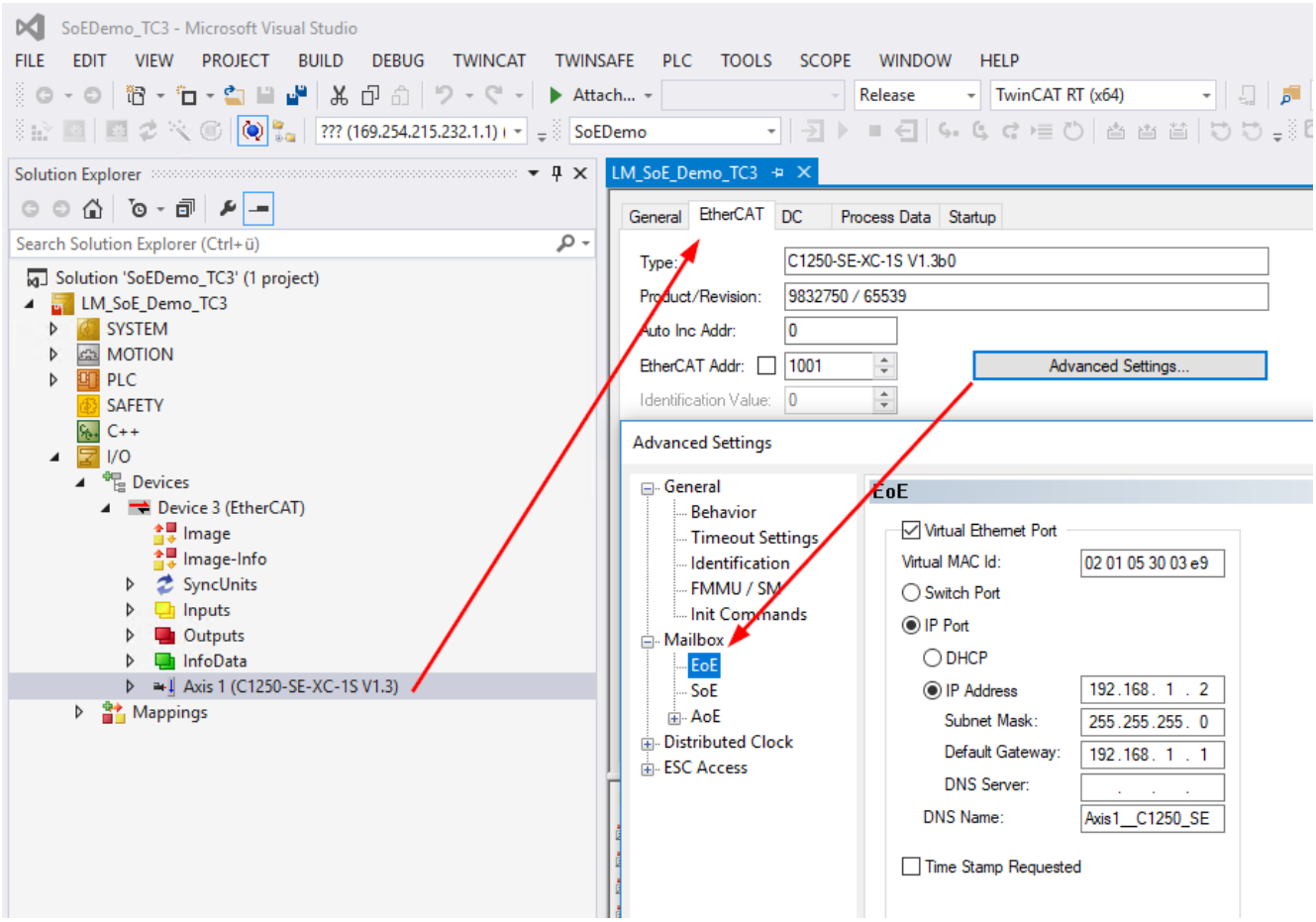


Define each axis with a different IP address.

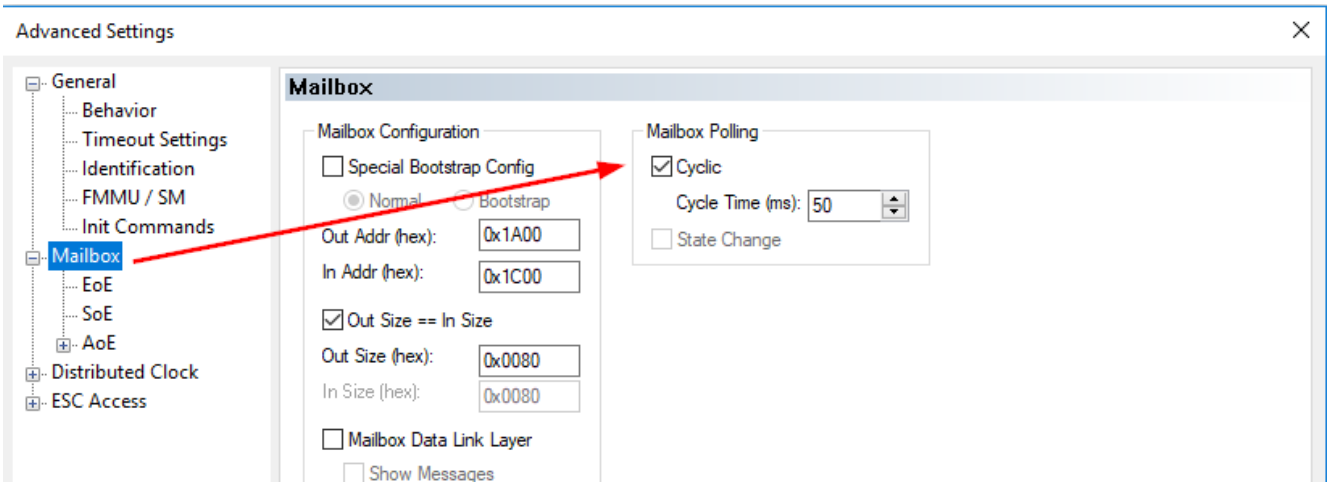


4.2.1.2 TwinCAT 3.x

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.

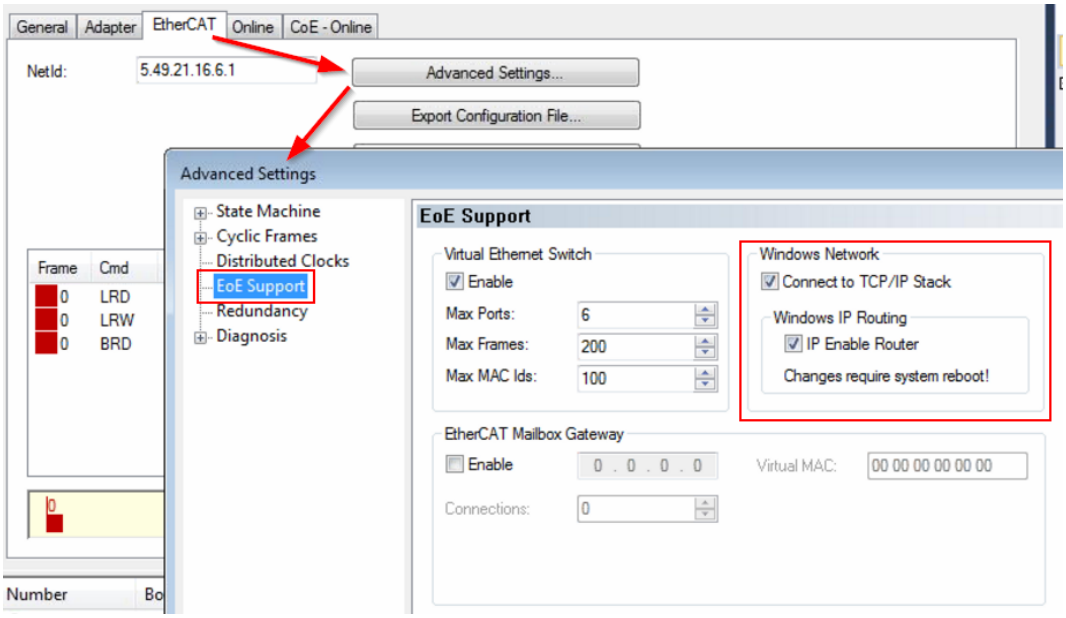


Define each axis with a different IP address.



4.2.2 EoE-Settings in TwinCAT (EtherCAT Master)

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

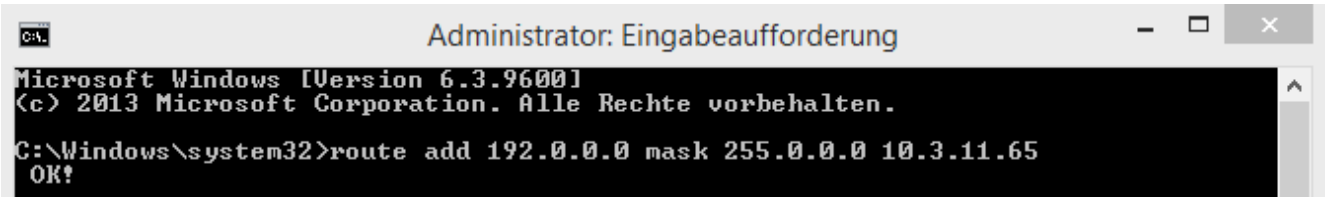


4.2.3 Settings on the PC

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:

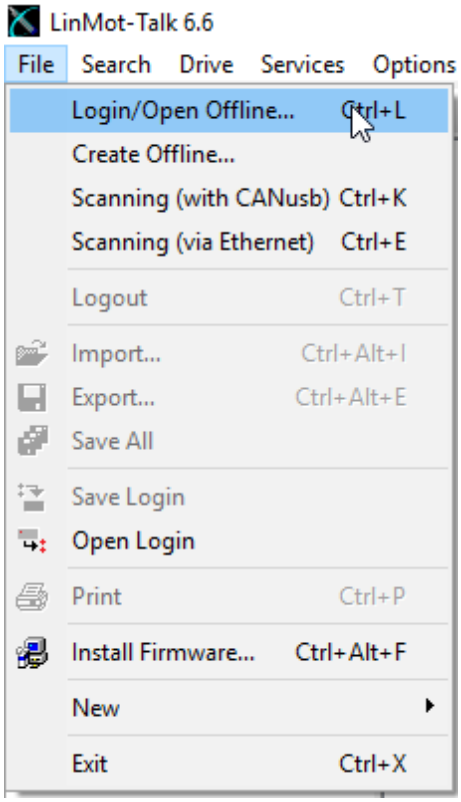
2. Add Route:
   route add 192.0.0.0 mask 255.0.0.0 10.3.11.65
or route add 192.169.0.0 mask 255.255.0.0 10.3.11.65
or route add 192.169.1.0 mask 255.255.255.0 10.3.11.65

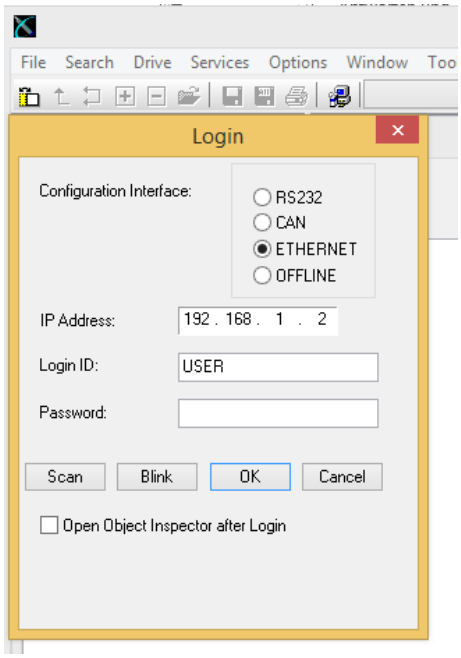


Note: The Command “route add” for a new route in the network routing table is activated until the next restart of the PC. The command in the example contains the following components:
route add *“Destination – EoE IP Range”* **mask** *“Subnet mask” “Gateway – IP of PLC Ethernet Port”*

4.2.4 Login with LinMot-Talk

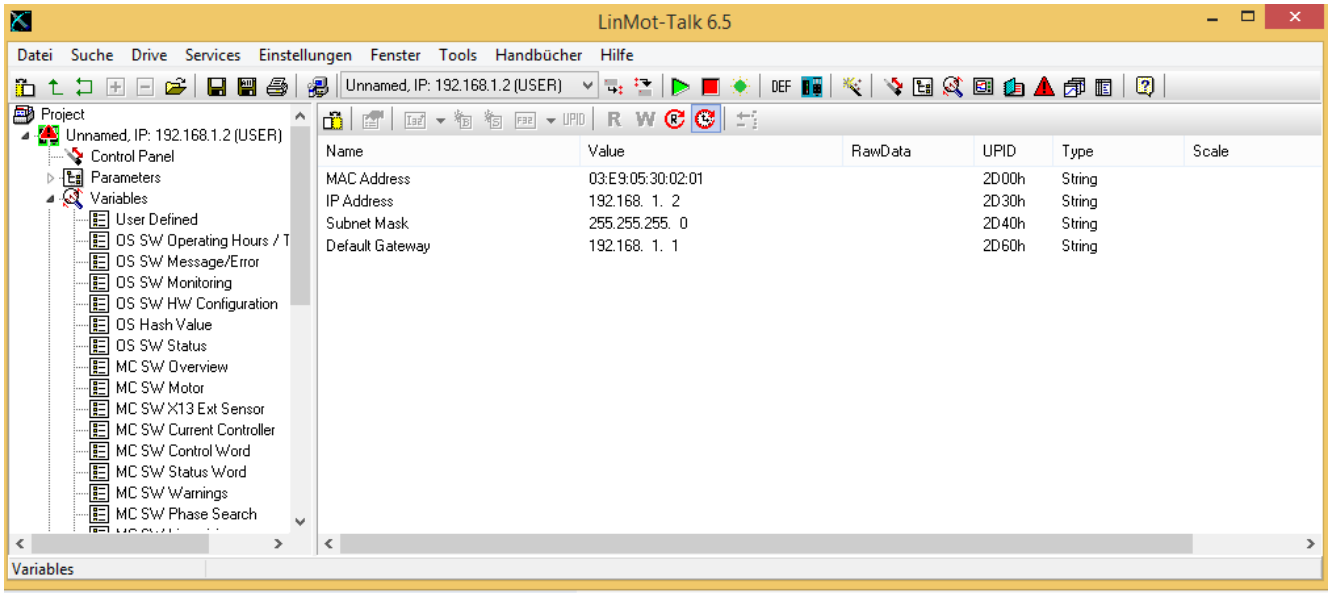
Open the LinMot-Talk Software and select *File–> Login/Open Offline*.



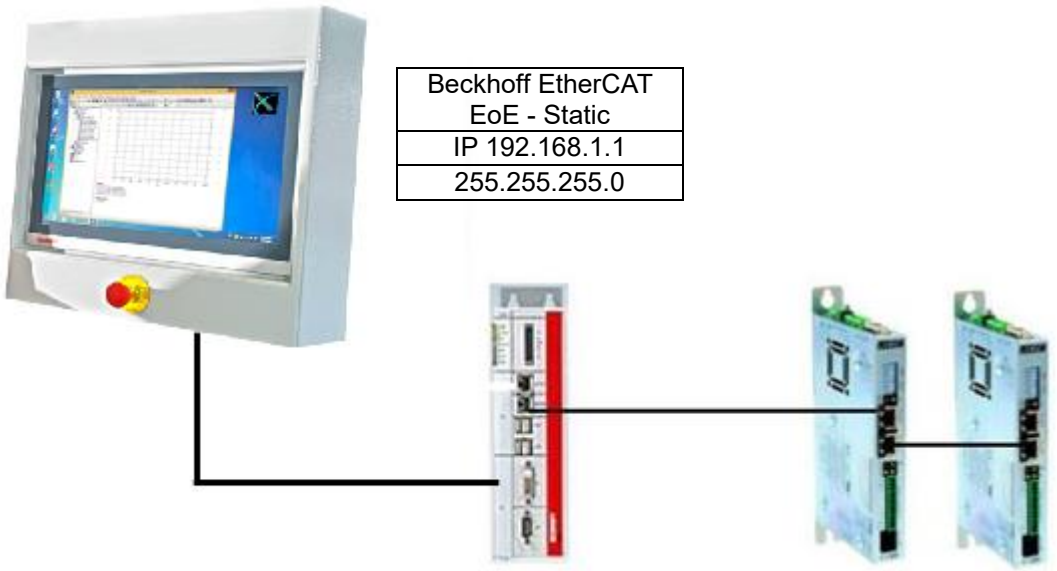


Attention: Scanning (via Ethernet) does not work with EoE and the routing function.
Without routing, e.g. when LinMot-Talk is run on the PLC, it is possible to use the scan functionality of LinMot-Talk.

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

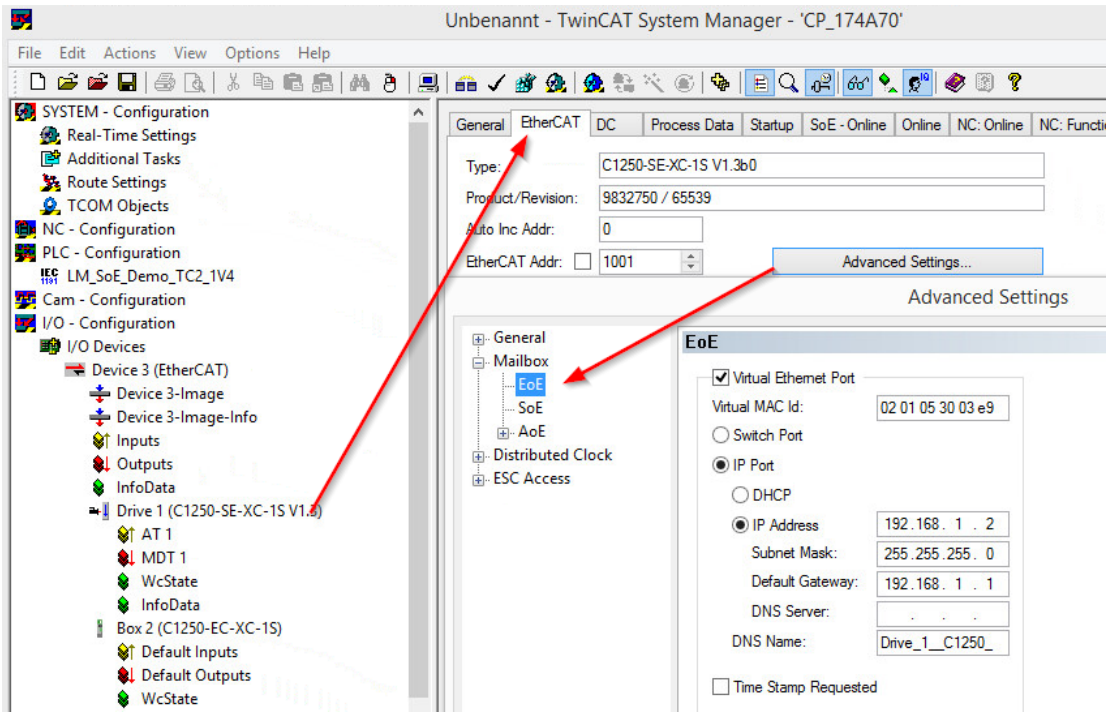


Beckhoff EtherCAT EoE - Static
IP 192.168.1.1
255.255.255.0

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

4.3.1 EoE Settings in TwinCAT

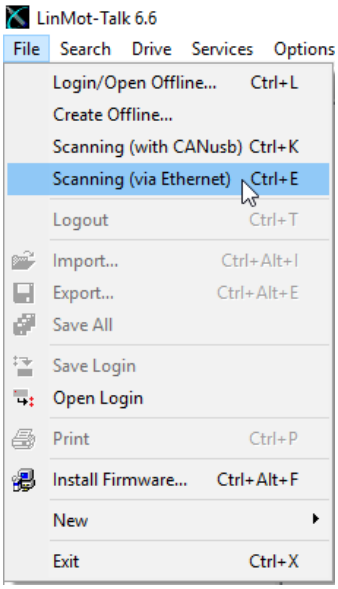
The definition for the EoE function is in the tab “EtherCAT” under “Advanced Settings”.
The IP address for EoE-Communication must be in the same range as the PLC (e.g. 192.168.1.1).
The DHCP mode for EoE is not supported. The EtherCAT communication will not run if the EoE is set to DHCP.



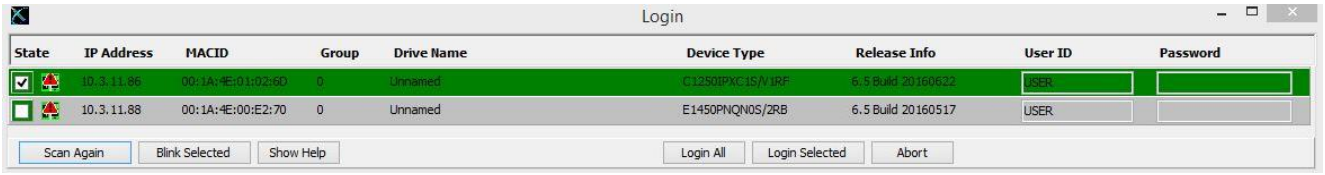
Define each axis with a different IP address.

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”).

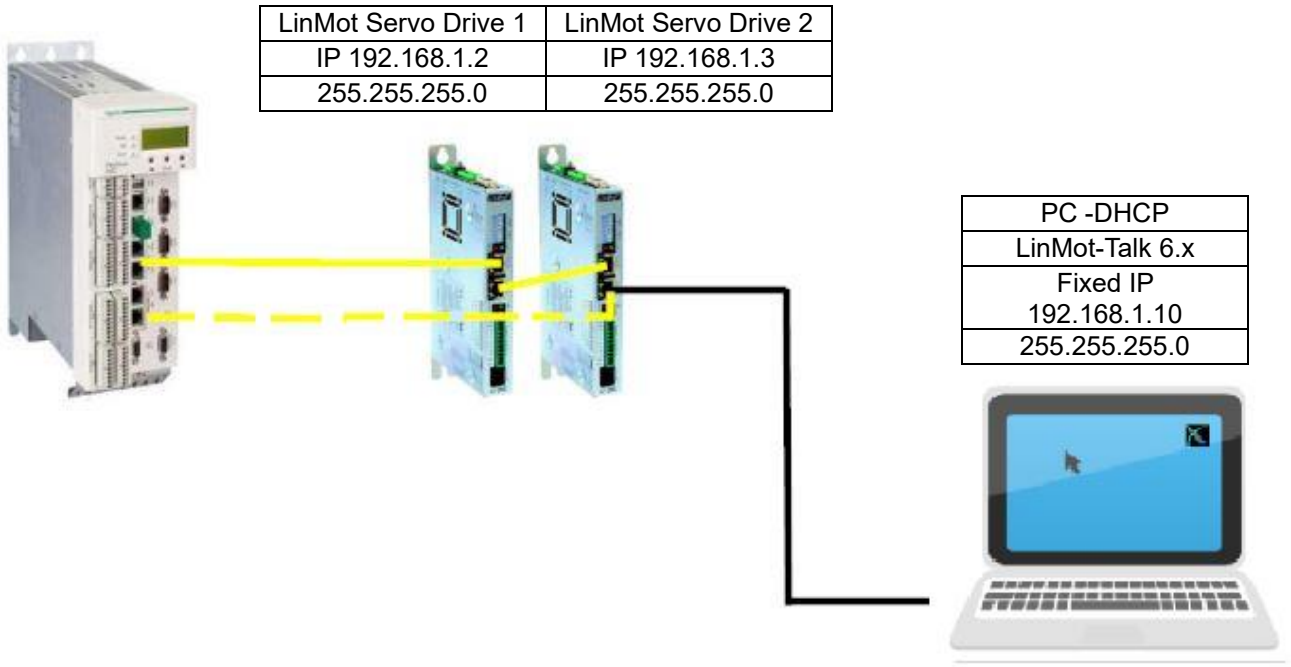


5 Sercos III

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

5.2 Login over Sercos III (PC To Drive)

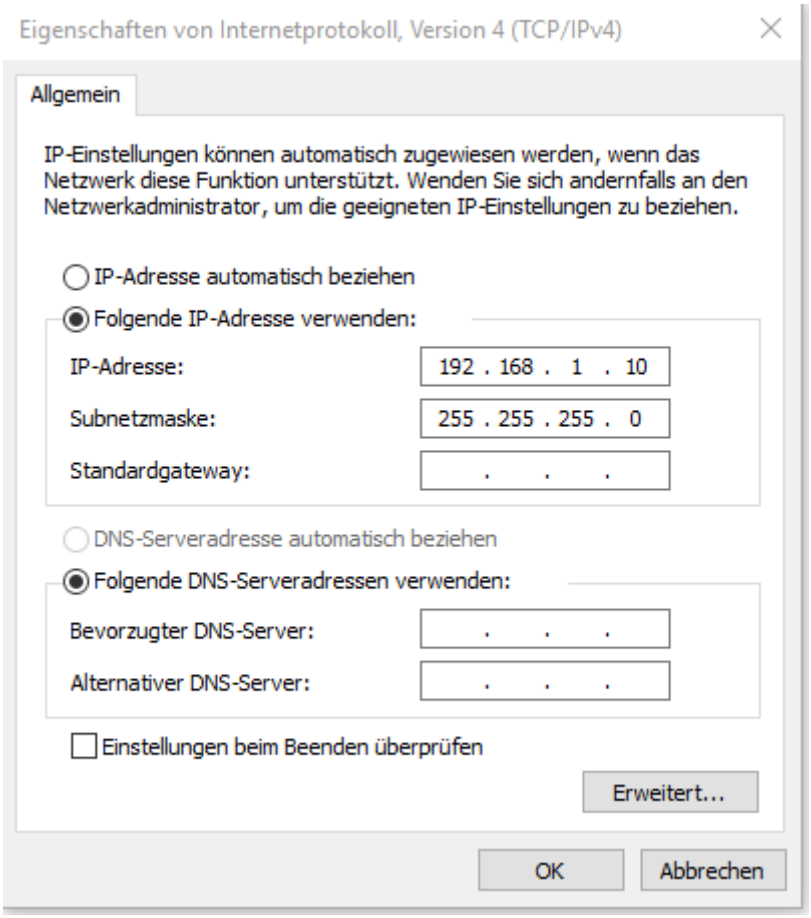


5.2.1 Settings on the PC

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.

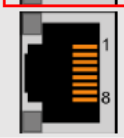
Attention:
If Bosch Rexroth PLC is used and drive IP was written by PLC, default IP of LinMot drive is no longer valid! Network card must be configured in same IP range as PLC SERCOS Interface for use with this chapter!

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.



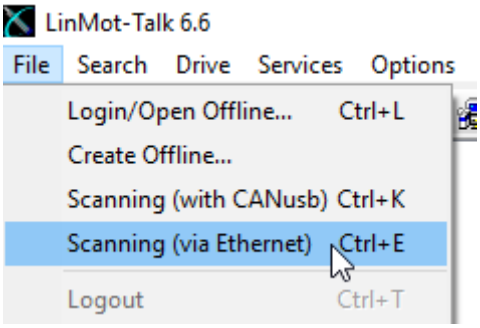
5.2.2 Connection LinMot Servo Drive

Connect ethernet network cable to X17 on the Servo Drive.

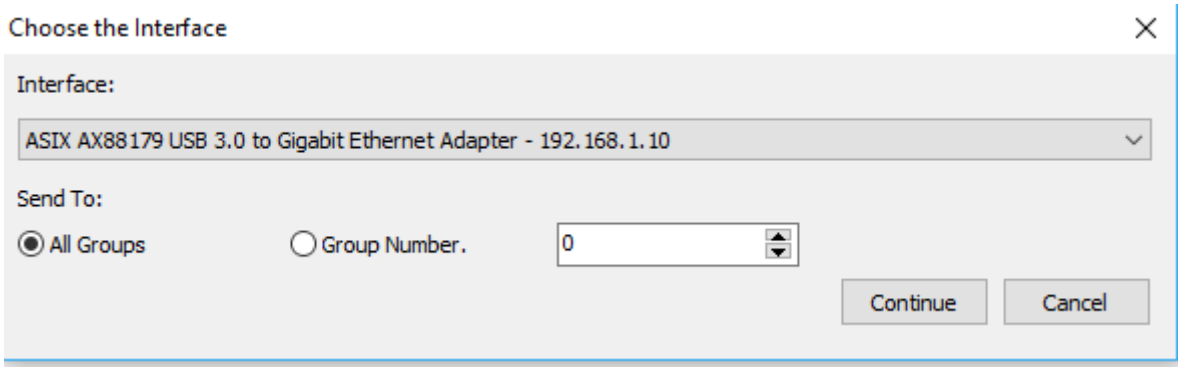
X17 – X18	RealTime Ethernet 10/100 Mbit/s	
	X17 RT ETH In	Spezifikationen sind abhängig vom Echtzeitbus. Bitte beachten Sie die entsprechende Dokumentation.
	X18 RT ETH Out	
RJ-45		

5.2.3 Login with LinMot-Talk

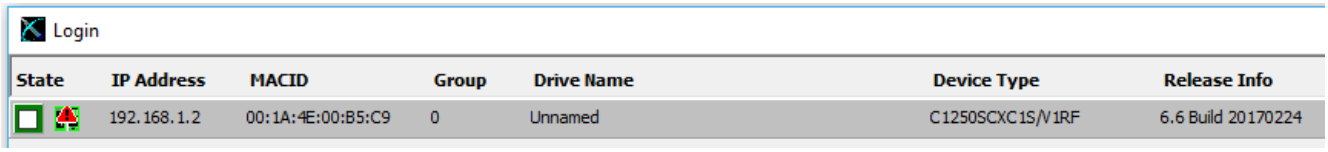
Open the LinMot-Talk Software and start the Scanning (via Ethernet) in the menu.



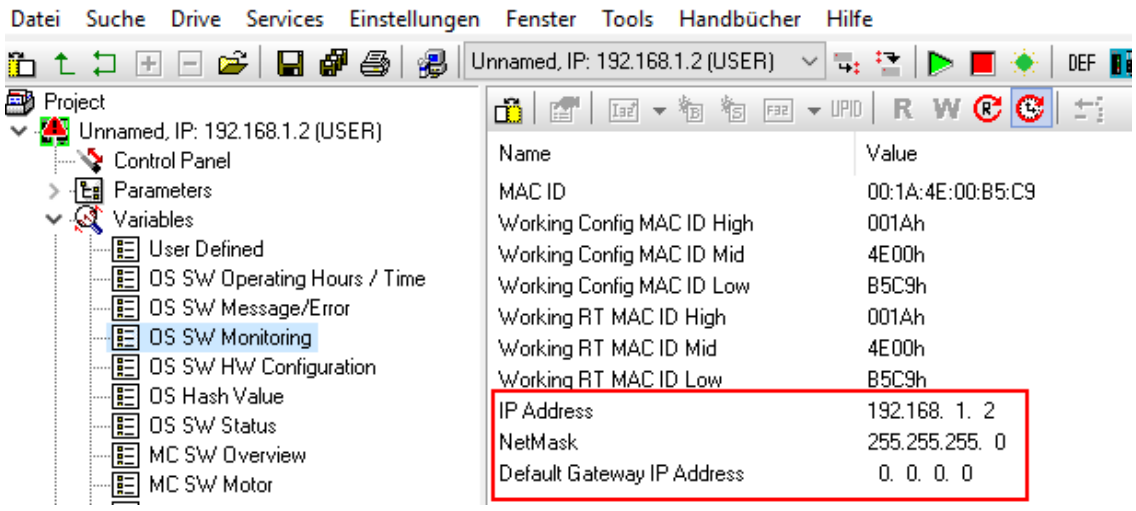
Select the correct Ethernet Adapter with the same IP range of the Servo Drive.



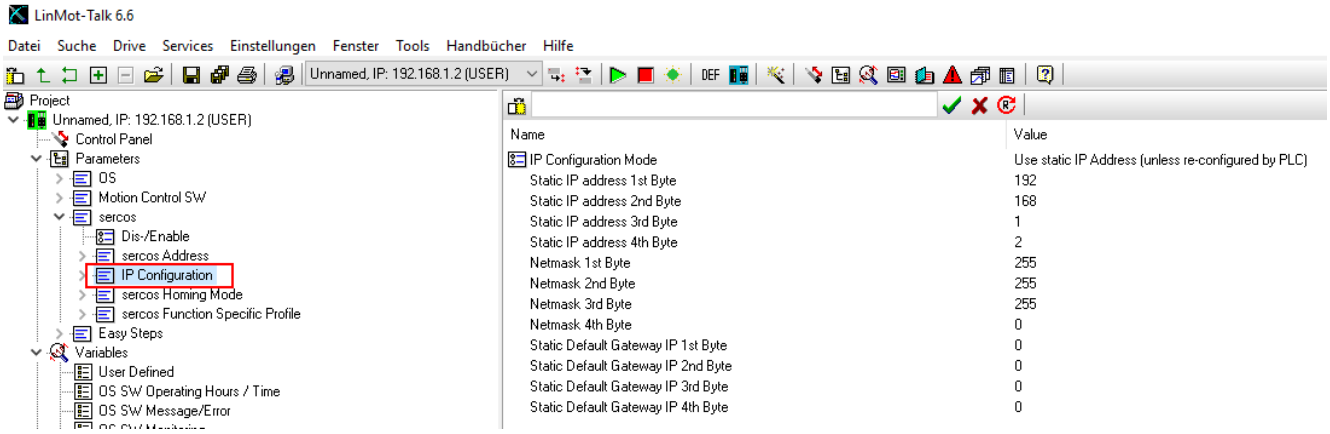
Attention:
The safest way to identify the drive is by activating the “Blink Selected” function in the LinMot-Talk Software. It’s also possible to login to all drives at the same time (“Login All”).



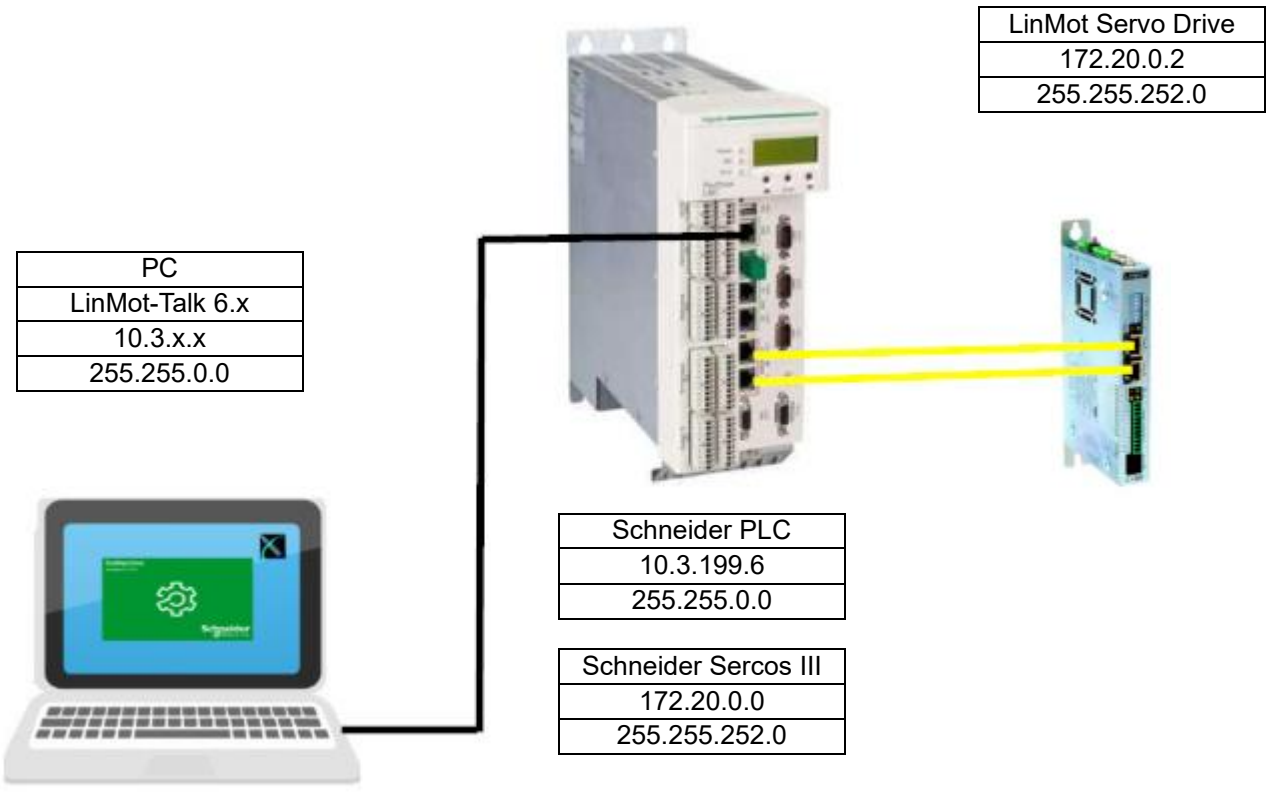
The IP address and NetMask are shown in the *Variables/ OS SW Monitoring:*



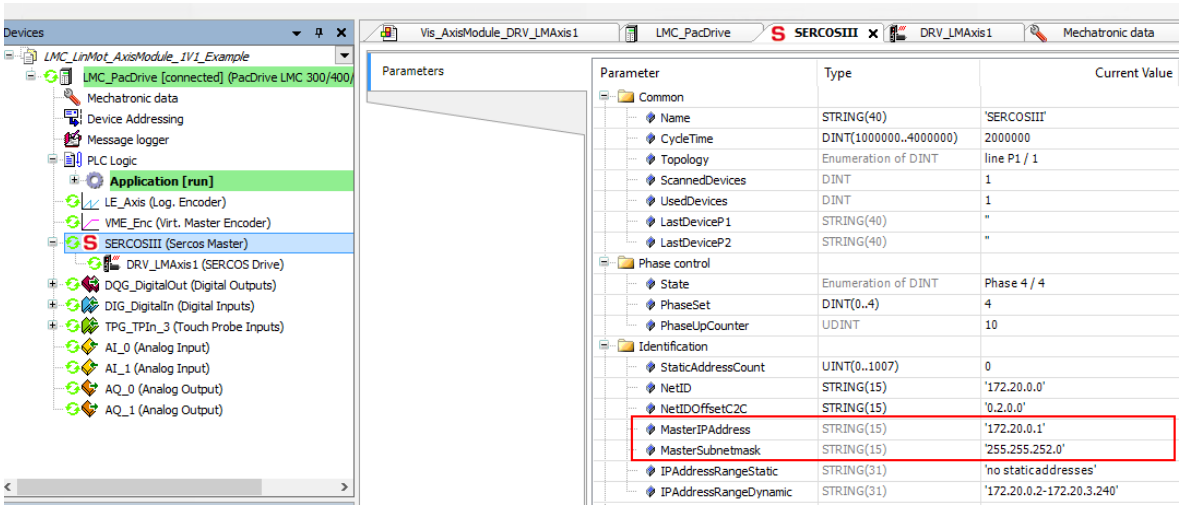
Settings for the IP address if the IP configuration mode is Static by IP Address. Logging back into the drive with the new IP address will be necessary to reestablish the LinMot-Talk connection.



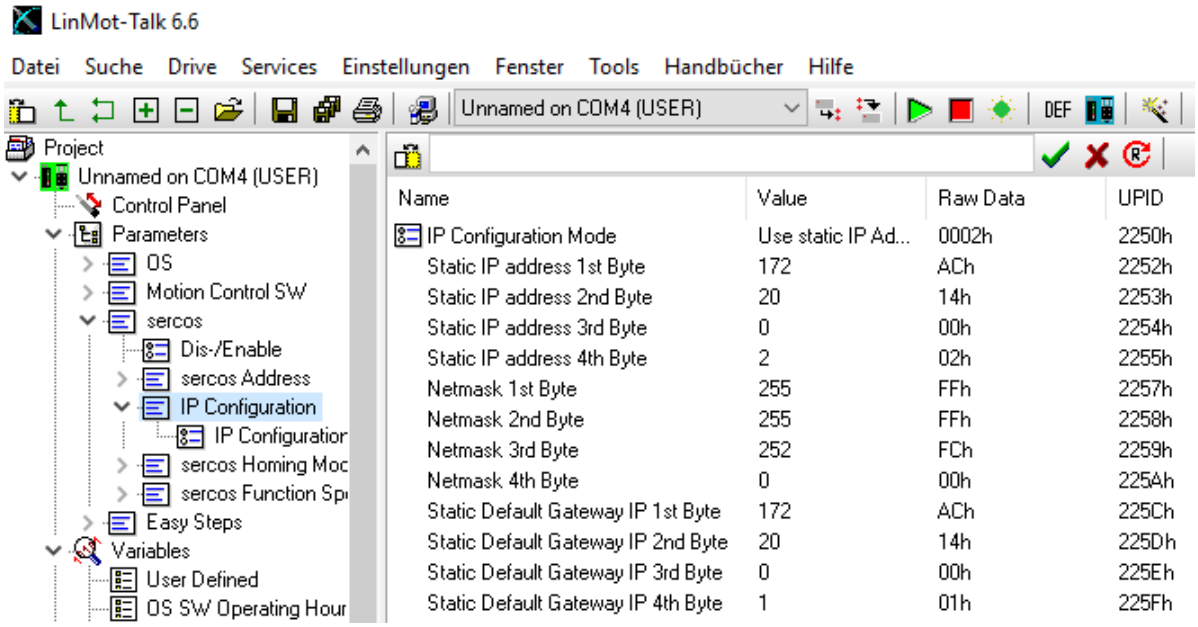
5.3 Login over Sercos III (PC To PLC) with Schneider PLC



1. 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.



2. 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.



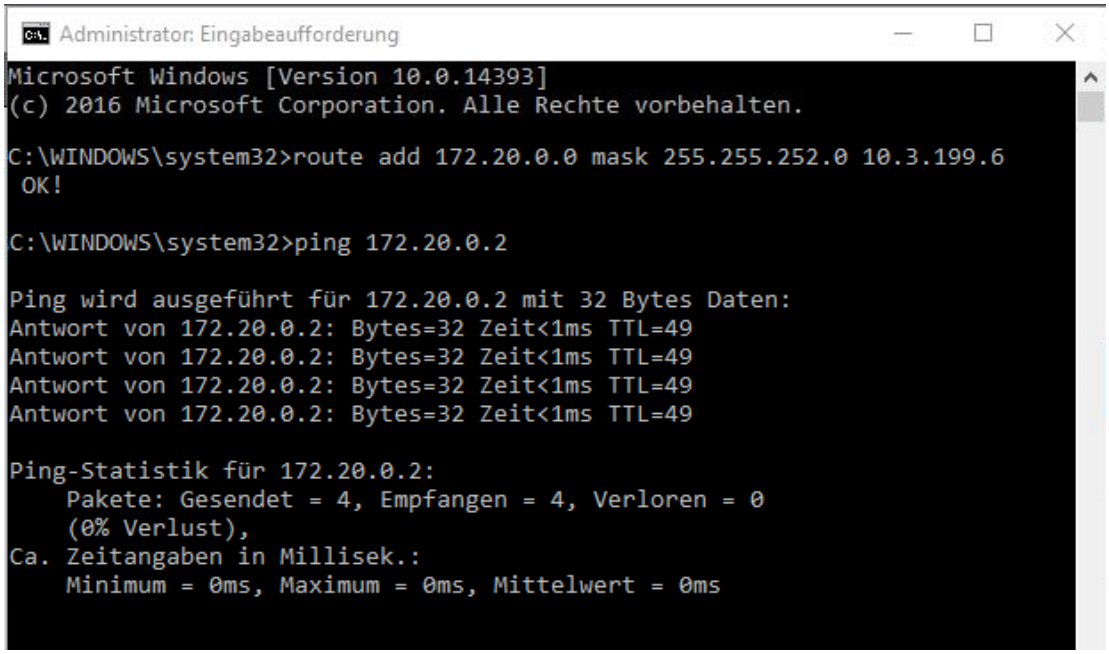
3. Settings on the PC - Use the following command to route the network of the PC to the SERCOS (172.020.000.xxx) network.

.

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

b) Add Route:

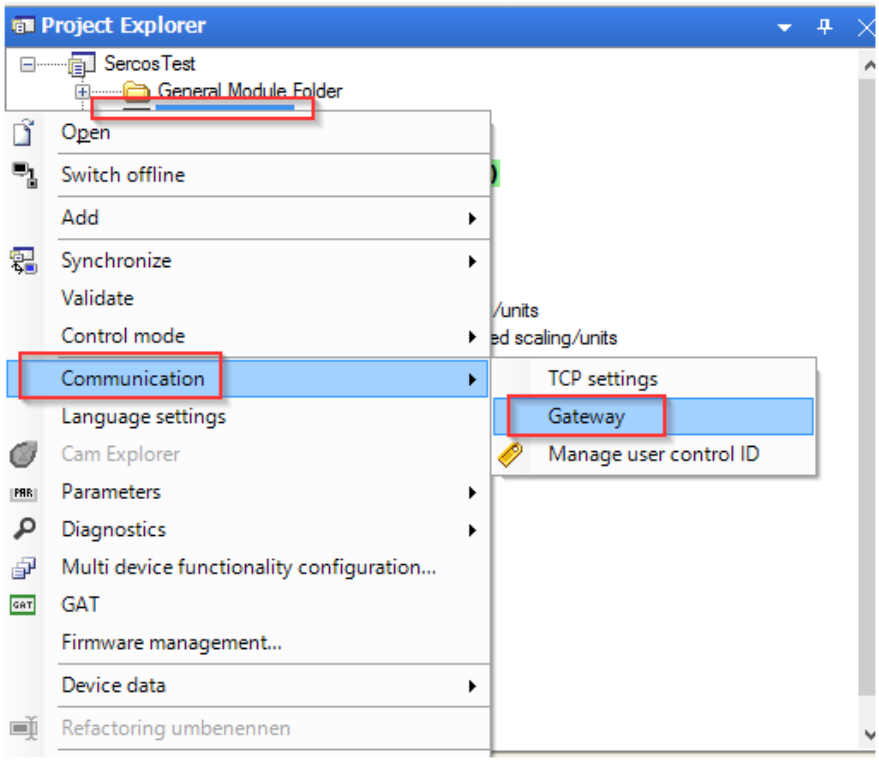
route add 172.0.0.0 mask 255.0.0.0 10.3.199.6
or route add 172.20.0.0 mask 255.255.0.0 10.3.199.6
or route add 172.20.0.0 mask 255.255.252.0 10.3.199.6



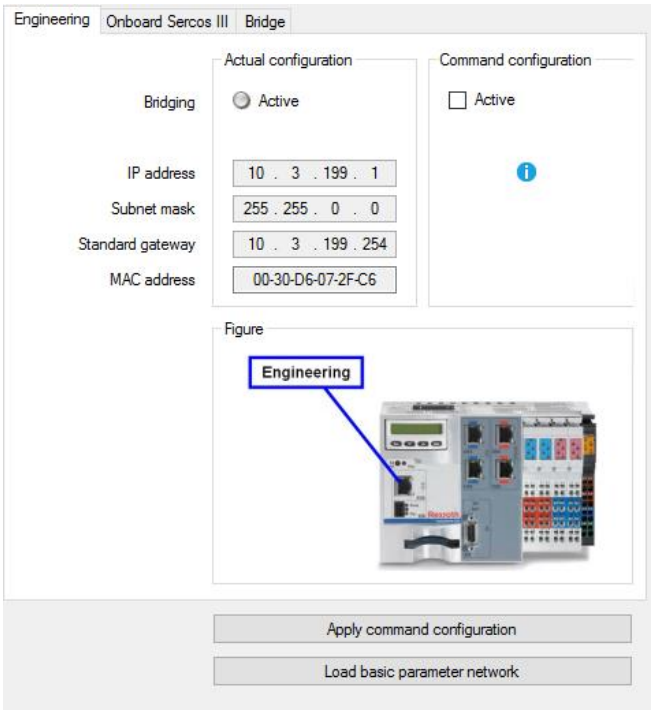
Note: The Command „route add“ for a new route in the network routing table is activated until the next restart of the PC. The command in the example contains the following components:
route add *“Destination – EoE IP Range”* **mask** *“Subnet mask” “Gateway – IP of PLC Ethernet Port”*

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

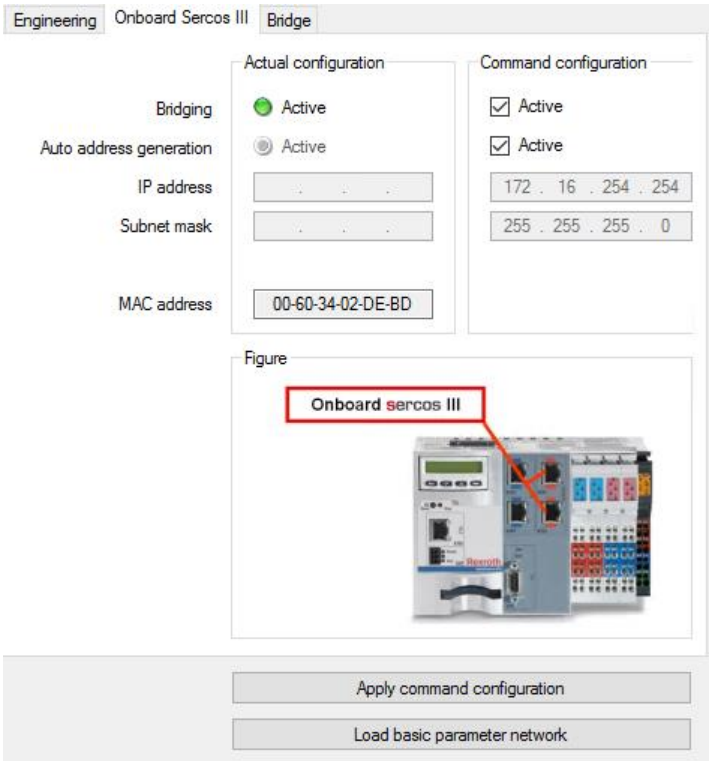
1. When PLC commissioning is done and axis is running, open in the project root by right mouse click the “Communication->Gateway” topic:



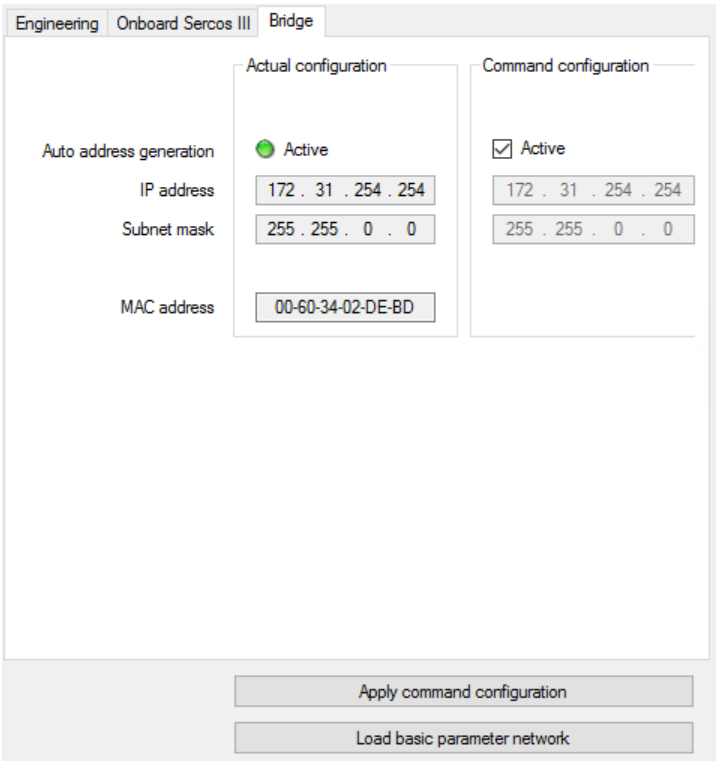
2. The IP address is shown in the Engineering tab:



3. Onboard Sercos III – Settings

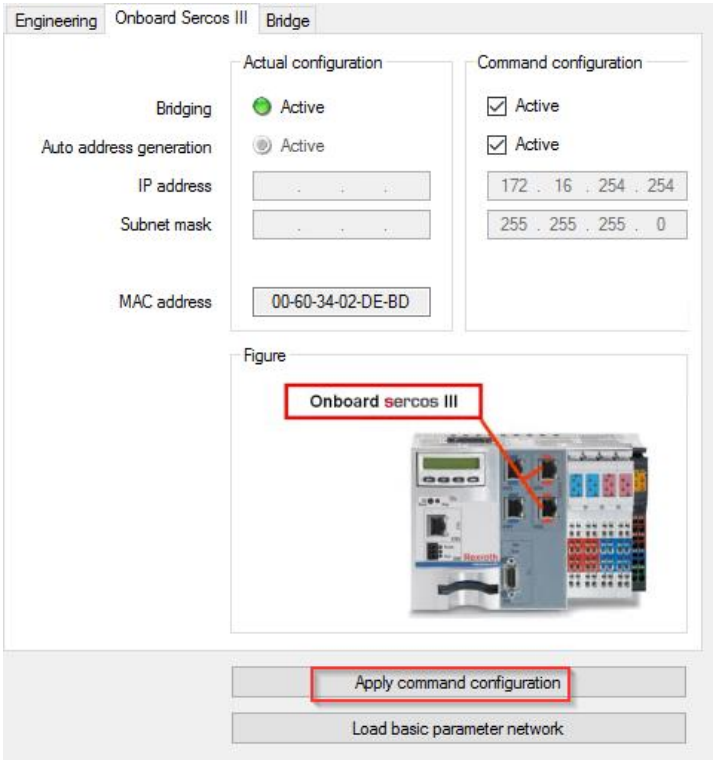


4. Bridge- Settings



Note: Onboad 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.



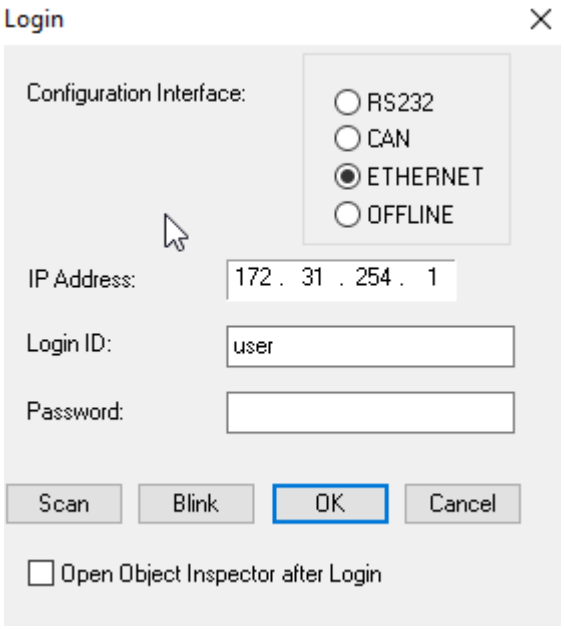
Then you need to add a route from your PC over PLC to SERCOS slaves, here a LinMot drive:

```
>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.

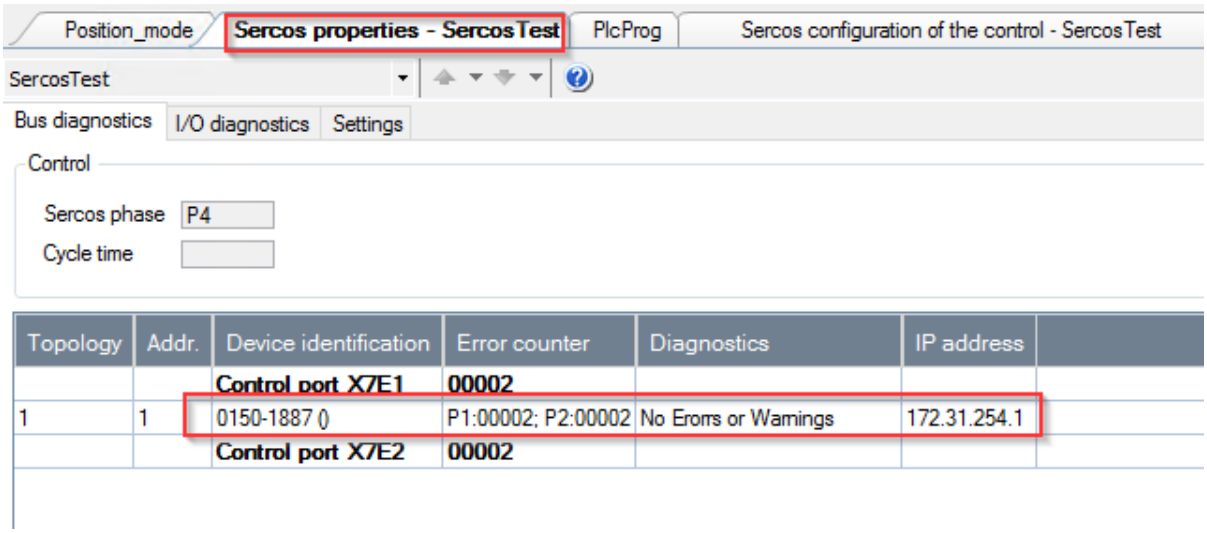
Attention:
Keep in mind, the route is temporary. After rebooting PC route must be set again!
For permanent route, use parameter -P!
(route add 172.31.254.0 MASK 255.255.255.0 10.3.199.1 -p)

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:



6 POWERLINK

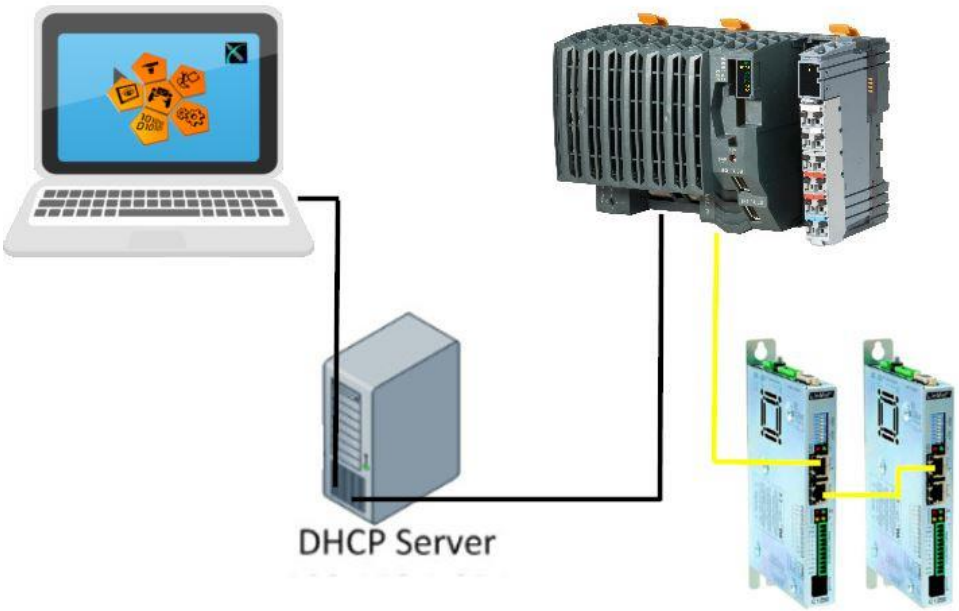
6.1 Compatibility

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
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

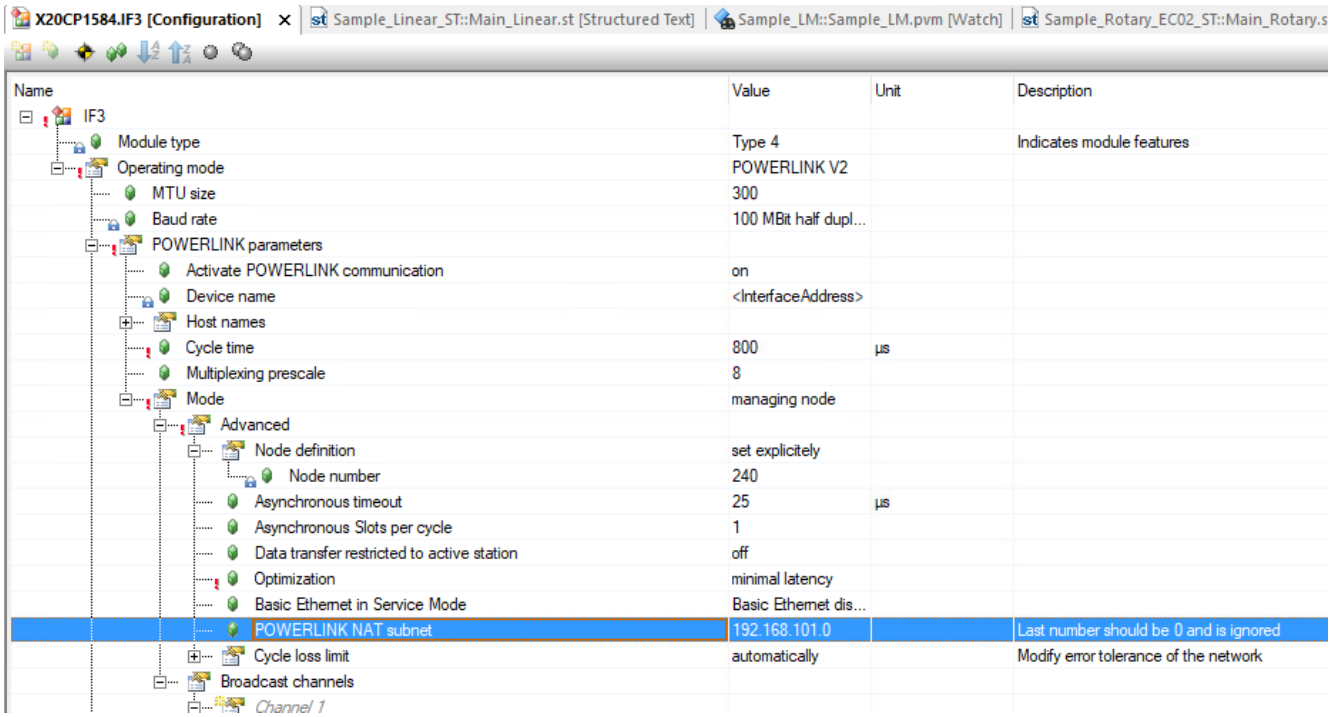


Servo Drive 1 – Node1	Servo Drive 2 – Node2
NAT IP 192.168.101.1	NAT IP 192.168.1.2
255.255.255.0	255.255.255.0

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**.

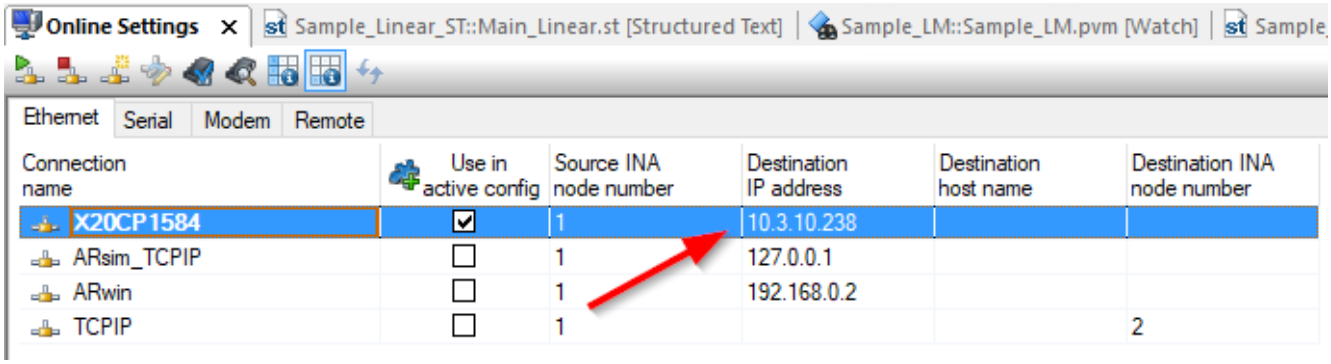
Attention:
This parameter is available in Automation Runtime A2.90 and later when using operating mode POWERLINK V2

6.3 POWERLINK NAT Settings in the Automation Studio



6.3.1 Add the route in the Online Settings

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

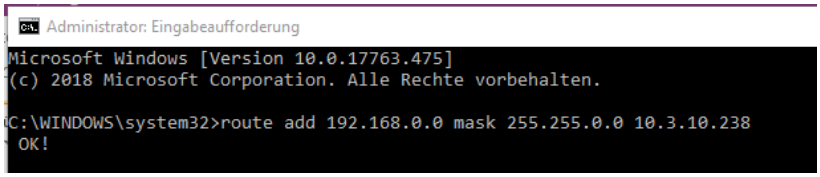


6.4 Settings on the PC

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:

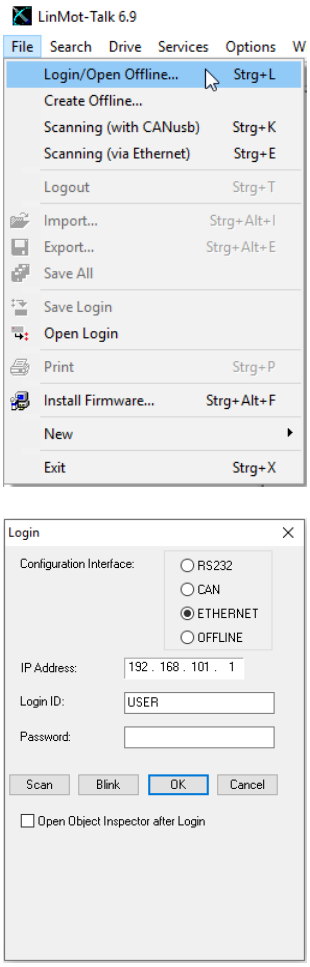
2. Add Route:
   route add 192.0.0.0 mask 255.0.0.0 10.3.10.238
or route add 192.168.0.0 mask 255.255.0.0 10.3.10.238
or route add 192.168.101.0 mask 255.255.255.0 10.3.10.238



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)

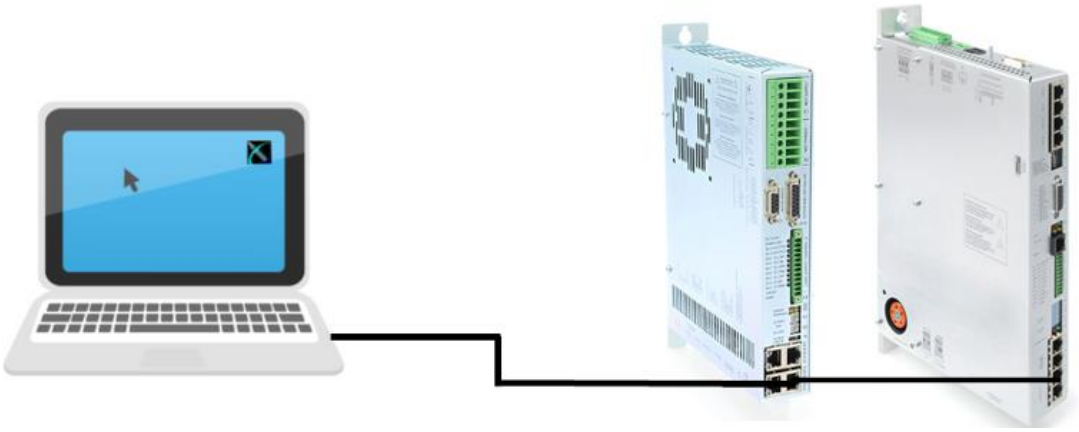
7 Configuration ETH Port

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



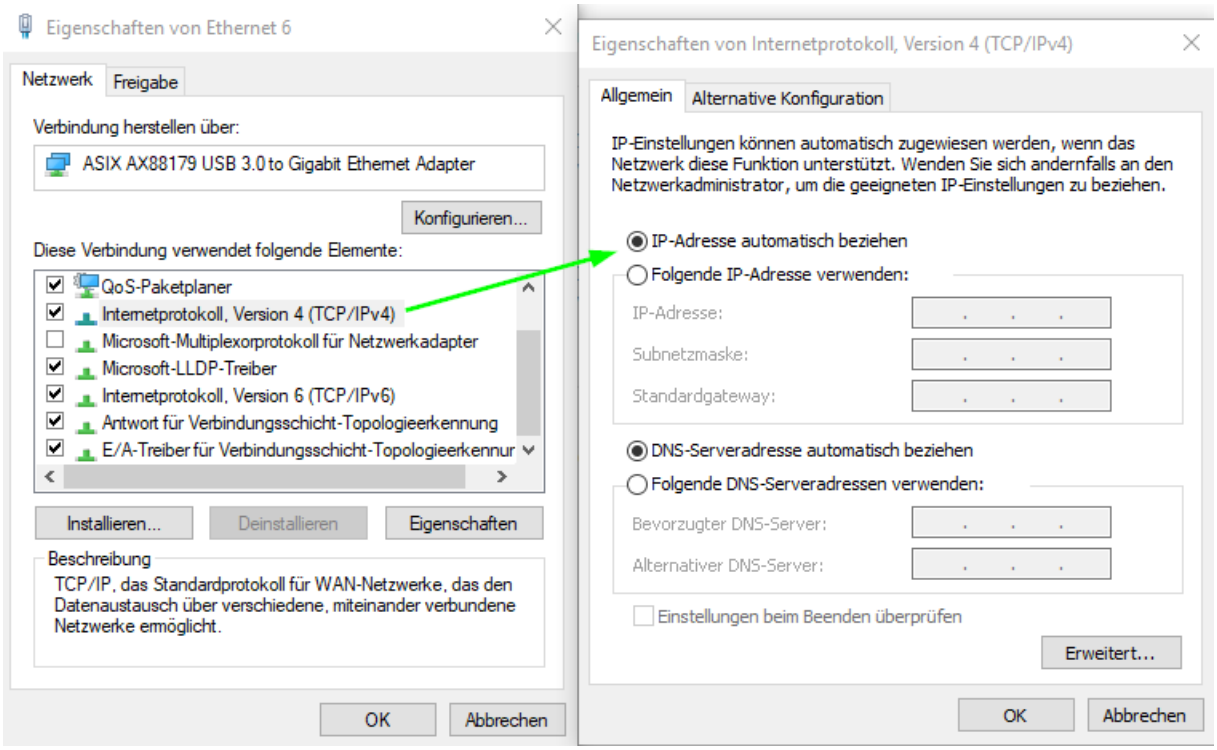
X15 - X16	Config Ethernet 10/100 Mbit/s	
	X15 X16	Internal 2-Port 10BASE-T and 100BASE-TX Ethernet Switch with Auto MDIX. LEDs on the lower side of the device indicate “Link/Activity” per port, the upper ones are not used.
RJ-45		

7.2.1.1 DHCP and APIPA (default Settings)

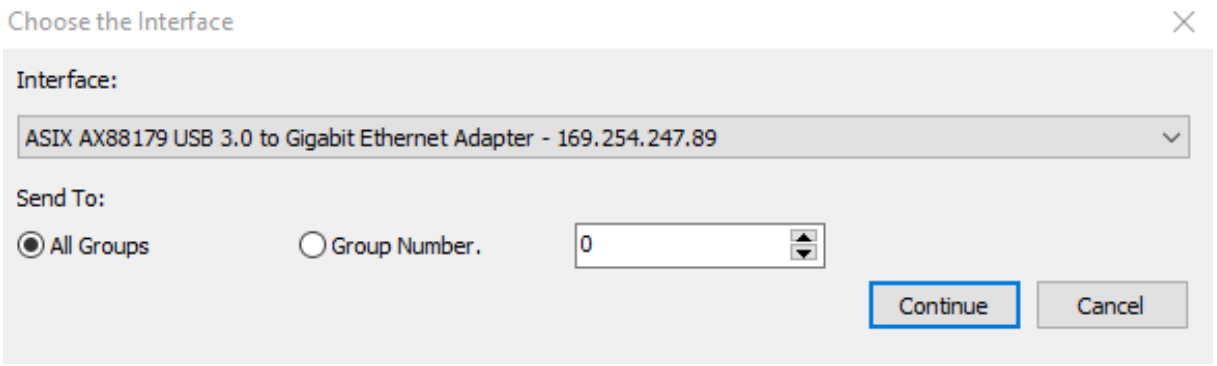
The default mode for acquiring an IP address is via DHCP. If no servers on the connected network respond, the drive switches to the Ipv4 Link-Local addressing scheme (APIPA on Windows systems).
This way the drive automatically assigns itself an address within the range of 169.254.0.1 through 169.254.255.254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

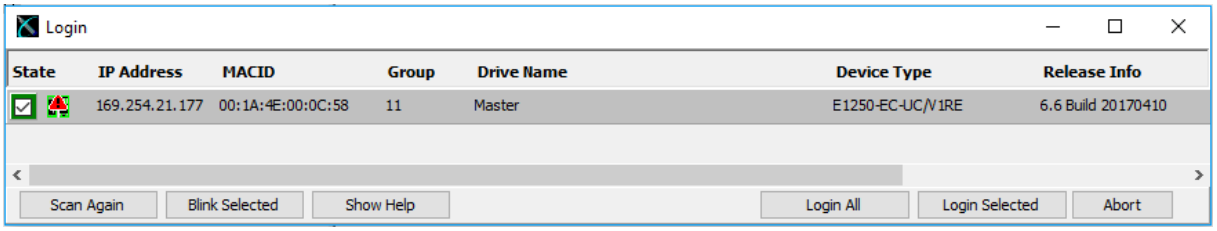
1. Check the Ipv4- Settings of the network connection:



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

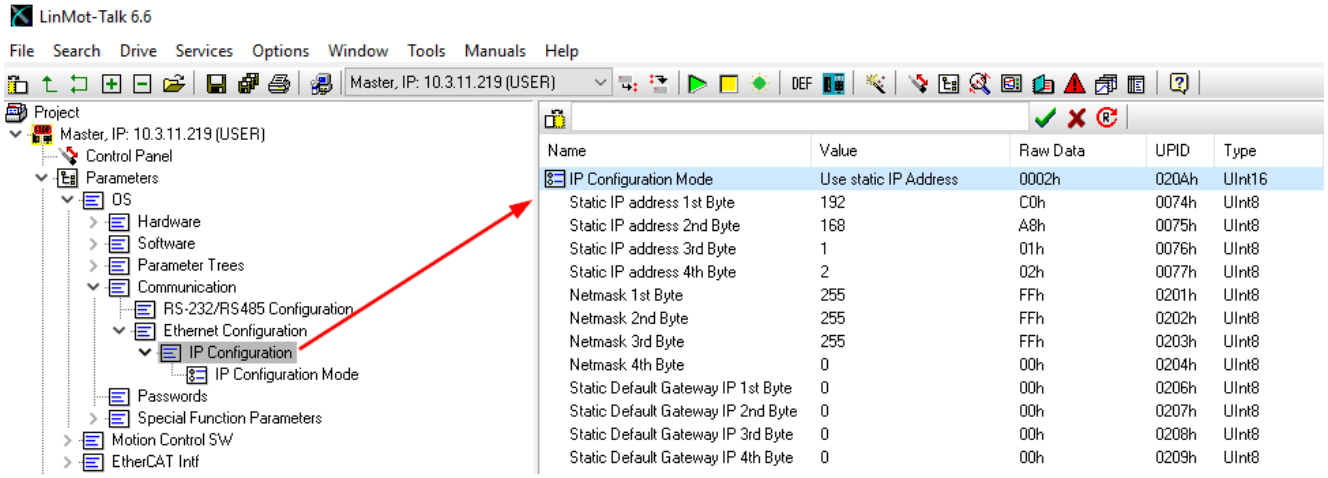


Connected servo drives will appear in the login window



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



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

S5	Bus Termination / AnaIn2 Pull Down	
	S5	Switch 6: Override Configuration Ethernet to DHCP Switch 5: Bootstrap: Must be off for normal operation Switch 4: CAN termination on ME (120R between pin 7 and 8 on X10/X11) on/off Switch 3: CAN termination on CMD (120R between pin 7 and 8 on X7/X8) on/off Switch 2: Termination resistor for RS485 on CMD (120R between pin 1 and 2 on X7/X8) on/off Switch 1: AnIn2 pull down (4k7 Pull down on X4.4). Set to ON, if X4.4 is used as digital output. Factory setting: all switches "on" except S5.5 (Bootstrap) and S5.6 (Override to DHCP)

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).

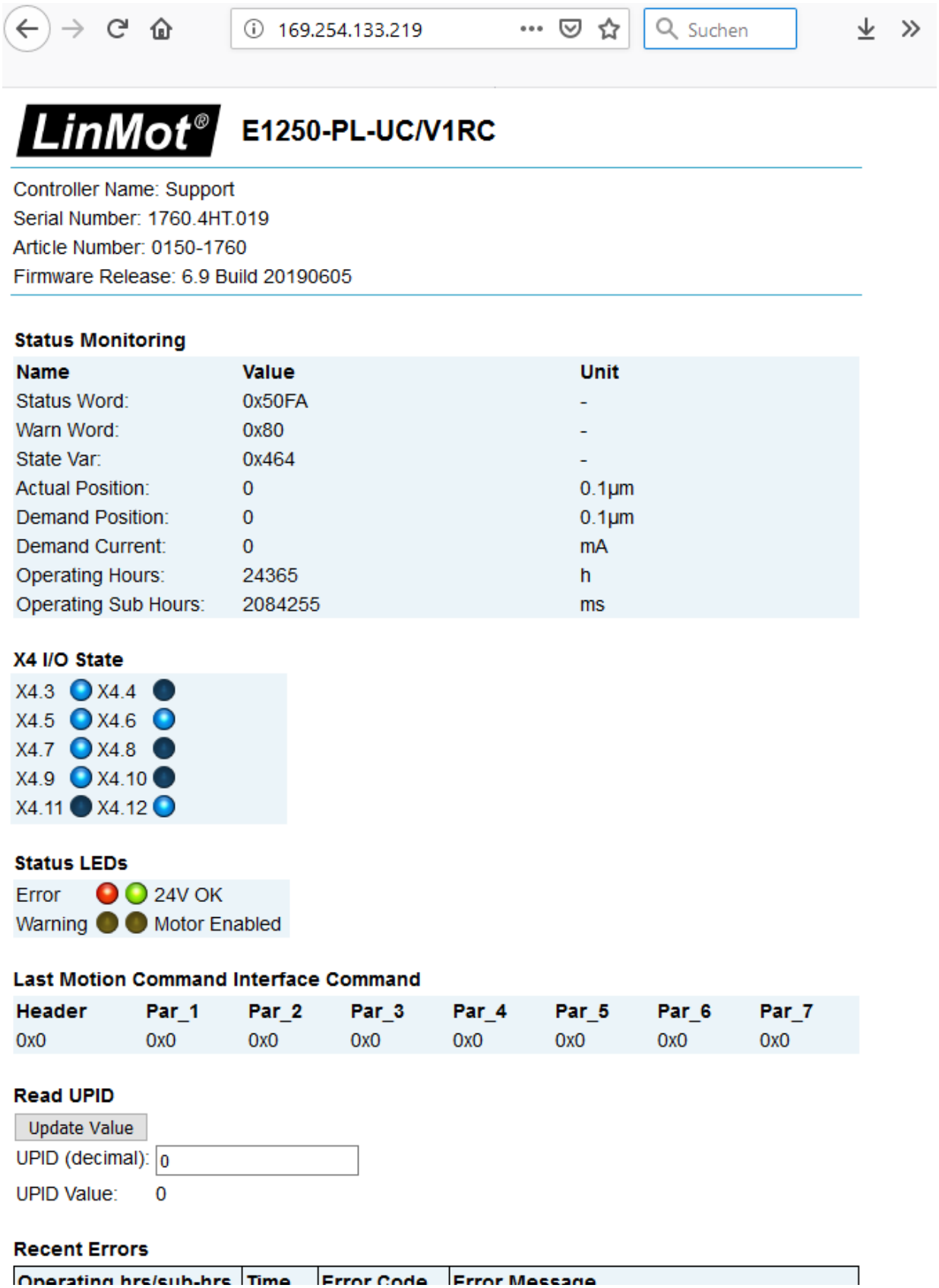
7.4.2 Setting all Parameters to Default Values

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

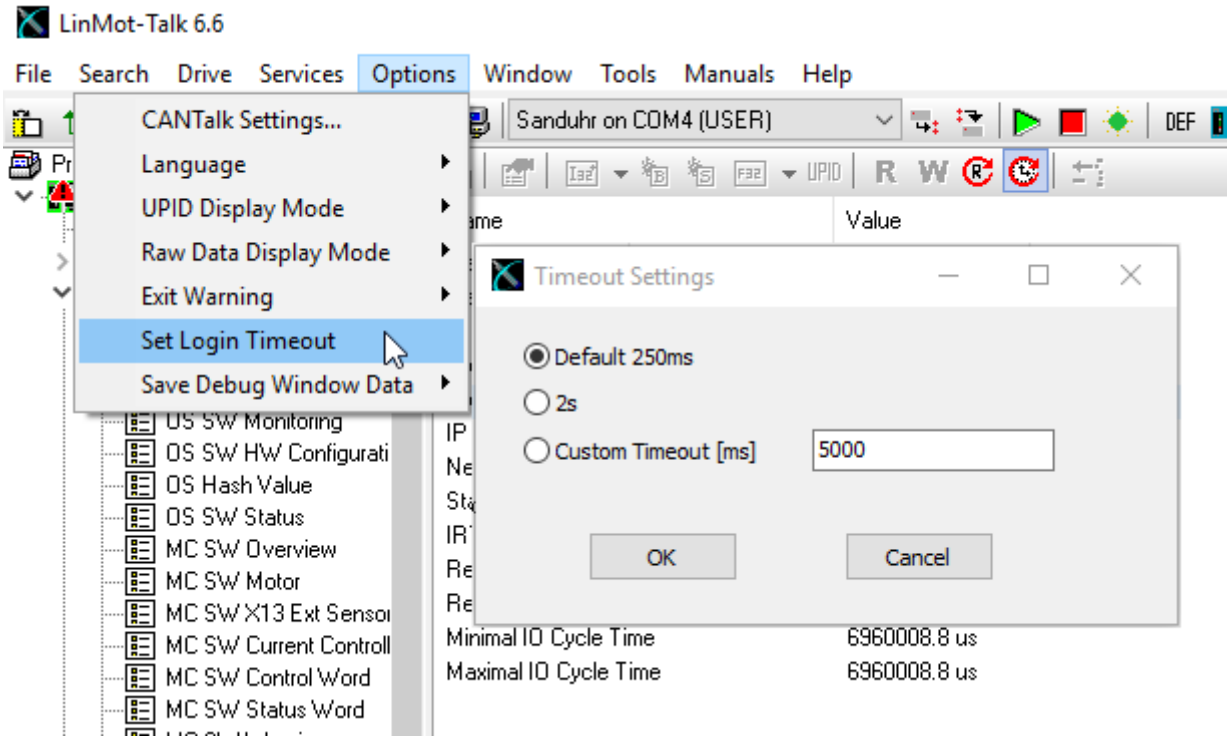
Connect the LinMot Drive with the internet browser. The browser will show the following variables.



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

Notes

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