Application Note

FESTO

Conversion of CMMT-EC/PN/EP to Multi Protocol MP

This document explains how to convert existing applications that use CMMT-AS-x-EC/PN/EP-x to CMMT-AS-x-MP-x

CMMT-AS

100377

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Table of contents

1 Components/Software used

Type/Name	Version Software/Firmware	Date of manufacture
CMMT-AS-x-EC/PN/EP-x		
CMMT-AS-x-MP-x		
Festo Automation Suite	V2.4.0.372	

Table 1.1: 1 Components/Software used

2 Intro / How to use this document

In order to provide the best information without having to read the whole document, please look up what chapters are applicable to your situation. In some situations it is required to only convert the existing Automation Suite Project, in other situations it is also required to change software in the PLC.

2.1 Abbreviations

In this document the following abbreviations are used:

EC drive: CMMT with EtherCAT fieldbus
PN drive: CMMT with Profinet fieldbus
EP drive: CMMT with Ethernet/IP fieldbus
MP drive: CMMT with Multi-Protocol fieldbus

2.2 New project with Multi-Protocol drive

To use the Multi-Protocol drive, it is required to update the Festo Automation Suite to the latest version.

Chapters to read:

3.1 Update Festo Automation Suite (to v2.4.x)

2.3 Existing project: CMMT with EtherCAT

No changes are required in the PLC, **only** when you are using File over EtherCAT (FoE) to automatically download the drive configuration. It is then required to update the XML files in the PLC.

Chapters to read when **NOT** using File over EtherCAT (FoE):

3. Convert existing project to Multi-Protocol

Chapters to read when using File over EtherCAT (FoE) to configure the drive:

3. Convert existing project to Multi-Protocol
4.1 When using File over Ethercat (FoE) to configure the drive

2.4 Existing project: CMMT with Profinet

When using any Telegram within Application Class 3 (AC3), no changes are required to the parameter set or the PLC. Example of a Telegram with AC3 is:

- Telegram 111 (**SINA_POS** or **Festo_PtP_drives_PN**)

Chapters to read:

3. Convert existing project to Multi-Protocol
5.1 Telegram 111 or any other Application Class 3 Telegram

When using any Telegram within Application Class 4 (AC4), no changes are required to the parameter set, but it is required to change the device configuration in the PLC. Example of a Telegram with AC4 is:

- Telegram 105 (**TO_PositioningAxis**)

Chapters to read:

3. Convert existing project to Multi-Protocol
5.2 Telegram 105 or any other Application Class 4 Telegram

2.5 Existing project: CMMT with Ethernet/IP

No PLC changes are required when using Ethernet/IP.

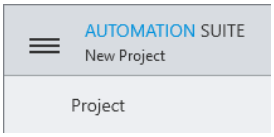
Chapters to read:

3. Convert existing project to Multi-Protocol

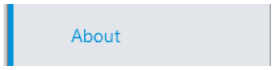
3 Convert existing project to Multi-Protocol drive

3.1 Update Festo Automation Suite (to v2.4.x) or higher

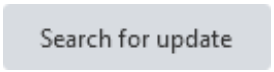
The CMMT-AS-x-**MP**-x drives can only be configured using the Festo Automation Suite version 2.4.x or higher. To update the Festo Automation Suite, go to the settings menu by clicking the three bars in the top left corner:



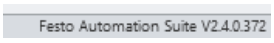
Navigate to ‘About’:



And click on ‘Search for Update’: *(It is required to have an Internet connection available on your PC)*



Execute the available download, start the application and make sure the version showing in the bottom right corner is V2.4.xx or higher:



It is now possible to connect to MP drives and convert drives in existing projects from EC/PN/EP to MP.

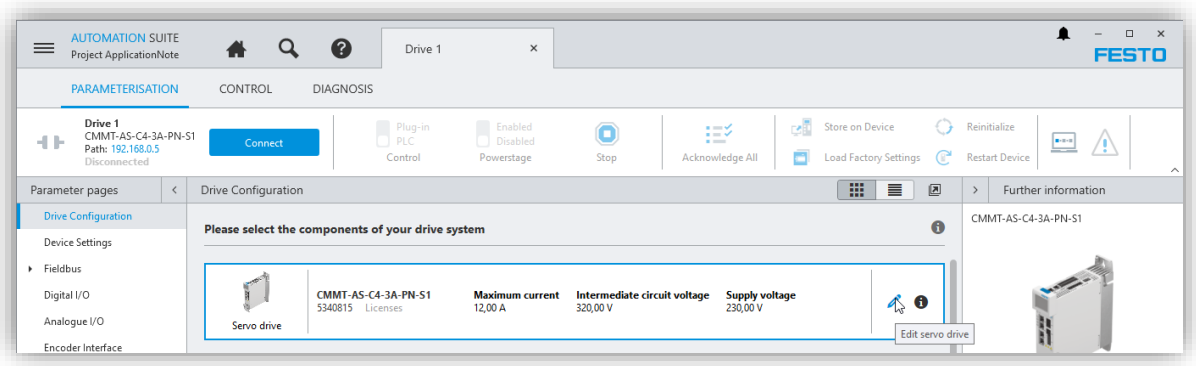
It is however still possible to open any project that was originally created with a version lower than V2.4.x. Opening such older projects does not change any of the drive configurations, no existing drives are automatically converted to the MP variant, and it is still possible to create new drive configurations using the EC/PN/EP drives.

3.2 Use existing project with EC/PN/EP drive and load to MP drive

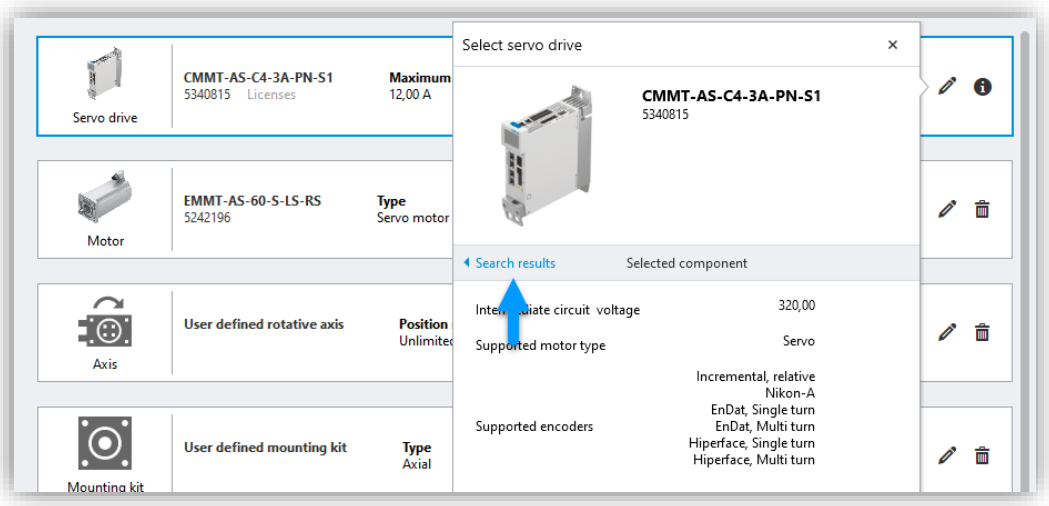
You can either use the Festo Automation Suite to first convert the configuration and load this to the new drive, or use an existing parameter file (.PCK) and load this directly to the drive using the webserver.

3.2.1 Using the Festo Automation Suite

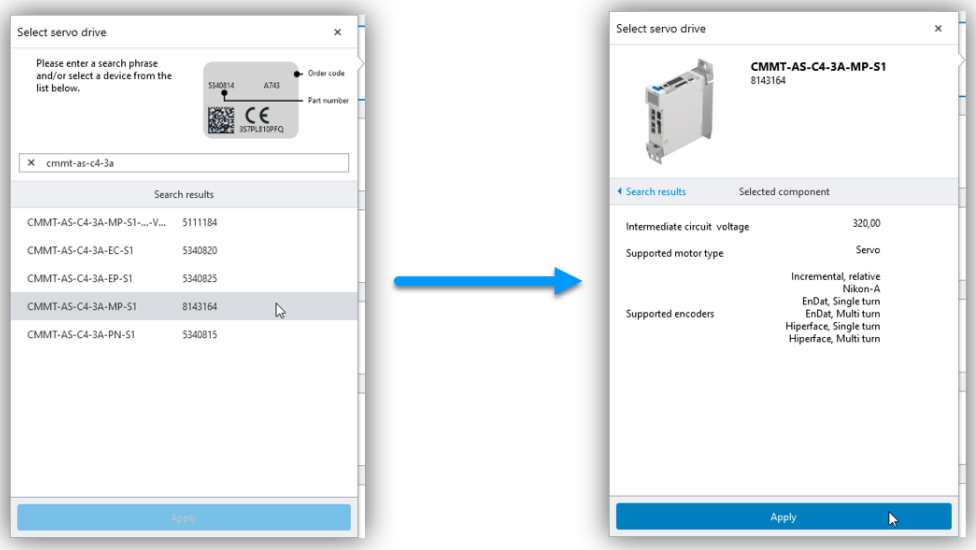
Open your existing project that contains an EC/PN/EP drive. Open the plugin for the drive you want to convert and navigate to the **'Drive Configuration'** section:



Change the servo drive configuration: click the pencil, select 'Search Results':



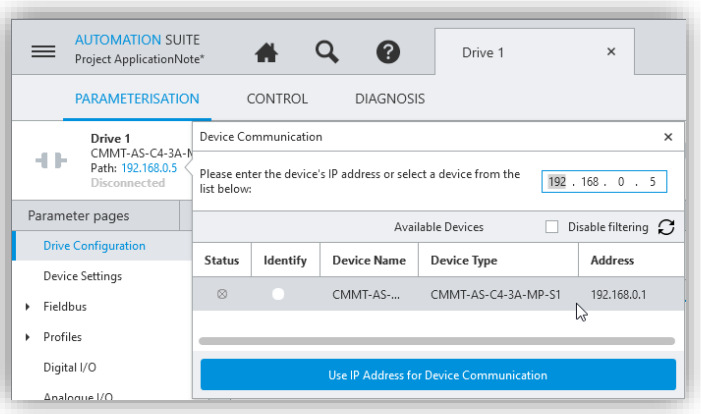
Search for the correct drive and select the MP drive:



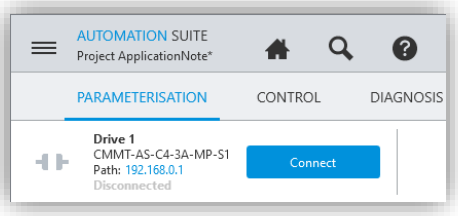
Wait until updating the drive configuration if finished.

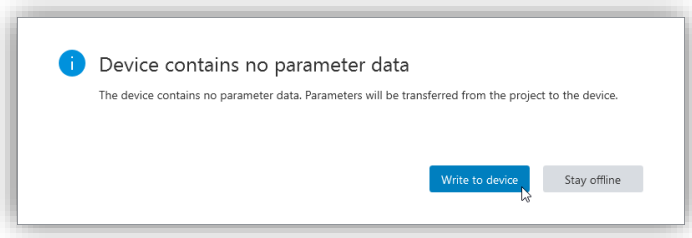
To connect the Festo Automation Suite to the CMMT-x-MP it is required to apply 24VDC and 0VDC to connector **[X9A]**. Connect your PC to port **[X18]** on the drive using a standard ethernet cable.

Click ‘Path’, select the detected MP drive and click **‘Use IP Address for Device Communication’**:

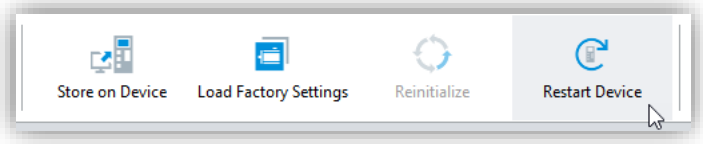


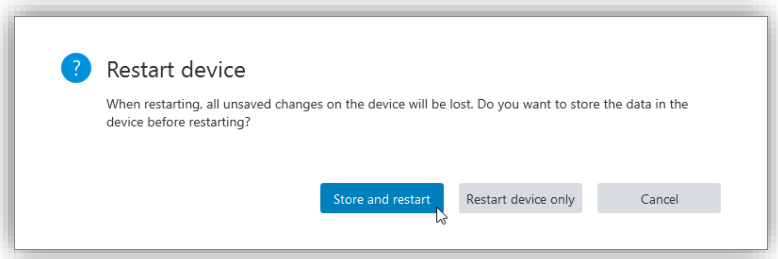
Connect to the drive and use **‘Write to device’** upon request:





Restart the drive and use **‘Store and Restart’**:



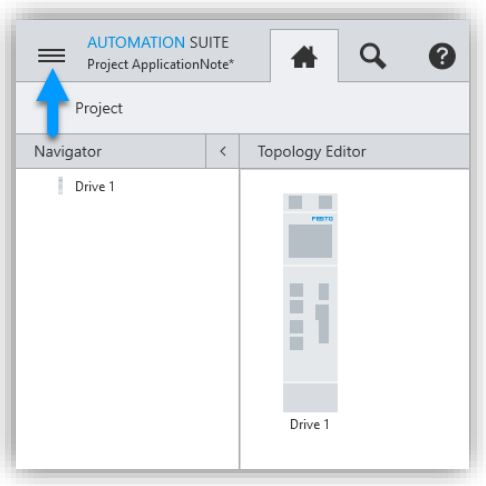


The configuration is now finished and the drive can be used. Don’t forget to store and save the project!

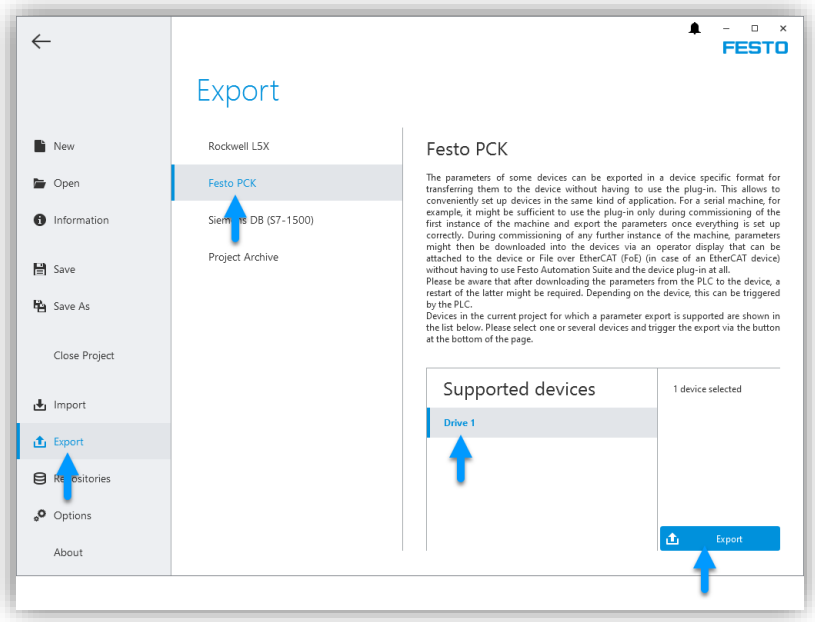
3.2.2 Using the webserver

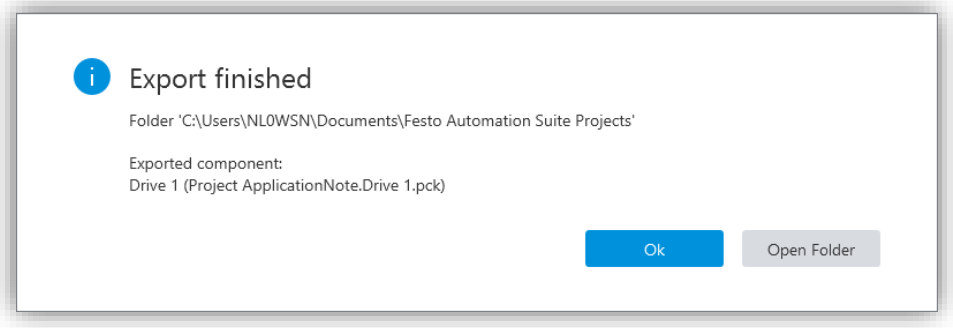
Open your existing project that contains an EC/PN/EP drive.

In order to upload the parameter file using the webserver, it is required to create an export file (.PCK). To do this, navigate to the settings menu by clicking the three bars in the top left corner:



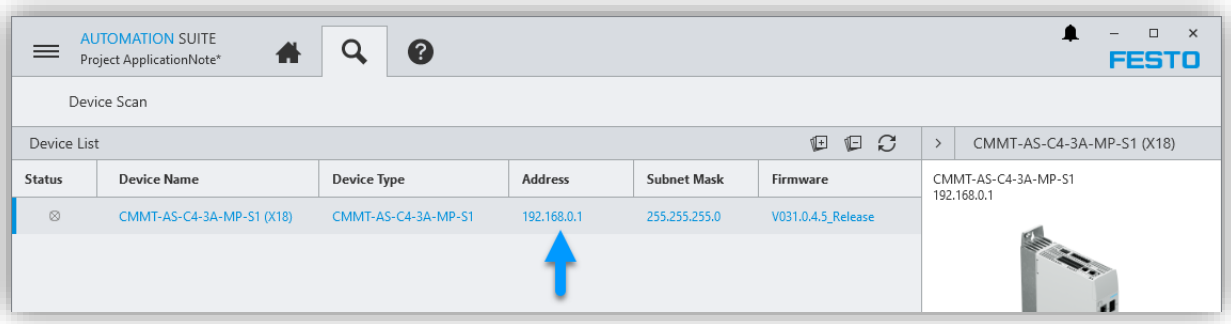
Click on **'Export'** --> **'Festo PCK'** and select the drives you want to export. After that click on **'Export'**, save the files on a desired location and open the folder.



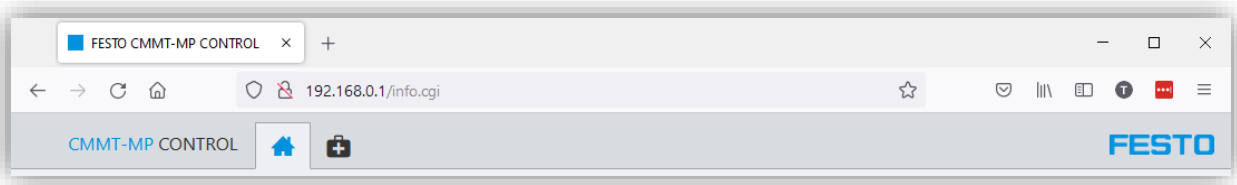


To open the webserver on the **CMMT-x-MP**, it is required to apply 24VDC and 0VDC to connector **[X9A]**. Connect your PC to port **[X18]** on the drive using a standard ethernet cable.

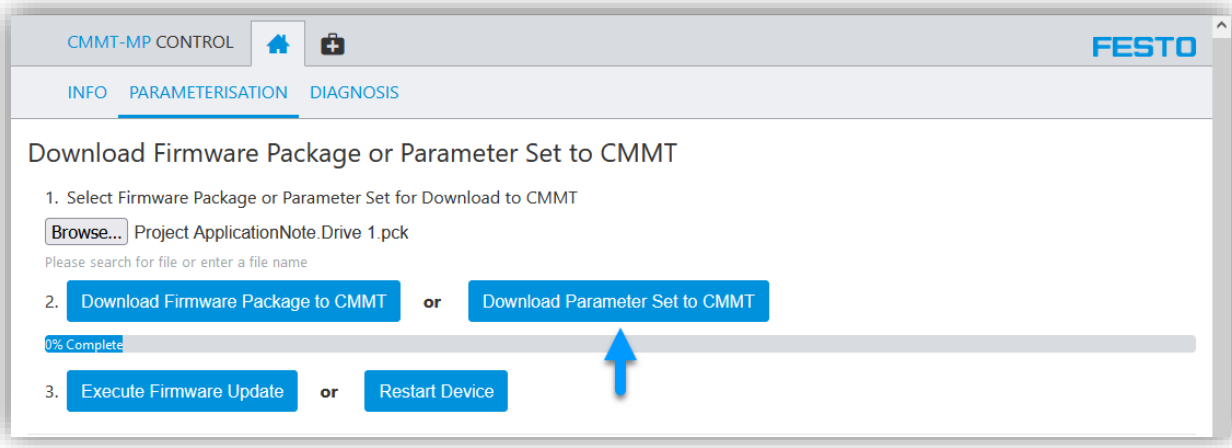
Use the **'Device Scan'** section to find (or change) the IP address of the drive:



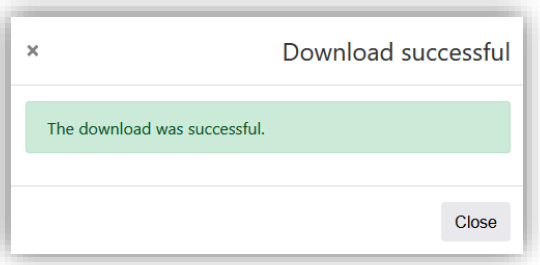
Use a web browser to navigate to the IP Address:



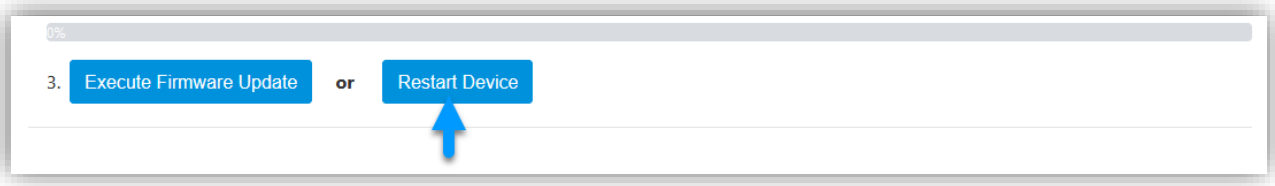
Open the **'Parameterisation'** section, choose **'Browse...'**, select the created PCK file and click: **'Download Parameter Set to CMMT'**.



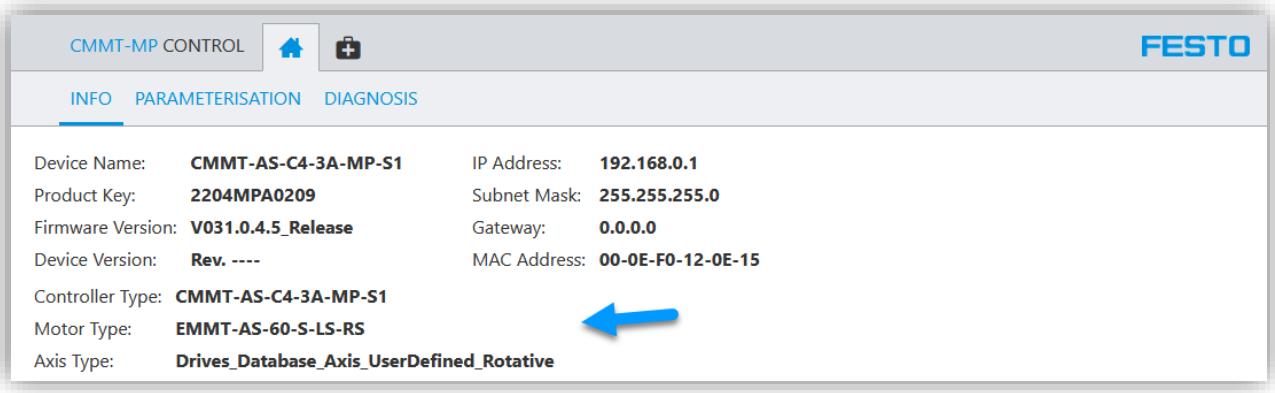
If successful, a message will appear:



To activate this parameter set, restart the device using the **‘Restart Device’** button:

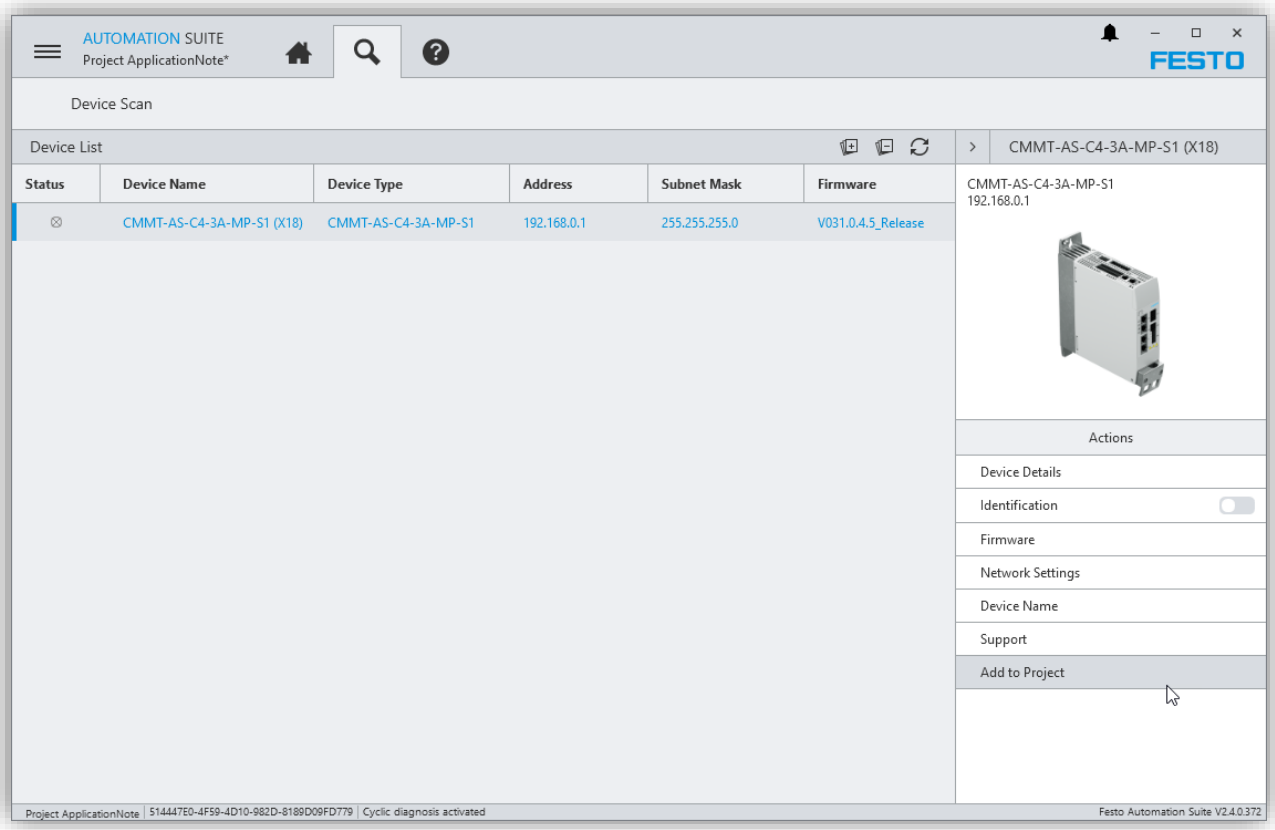


Navigate to the **‘Info’** section and check if the correct drive configuration is shown:

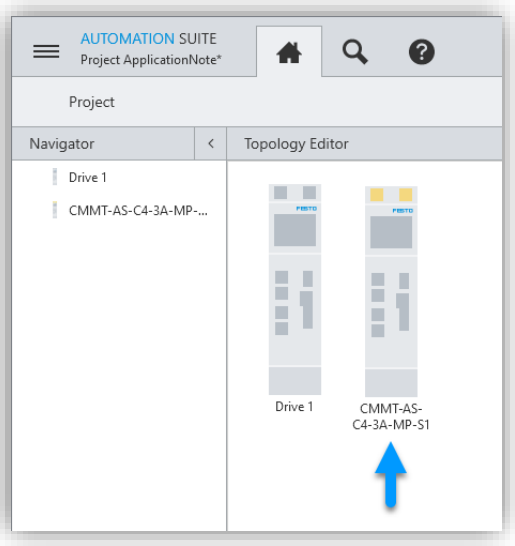


The configuration is now finished and the drive can be used.

To view the drive in Festo Automation Suite, navigate again to the **‘Device Scan’** section, select the drive and click on **‘Add to Project’**:

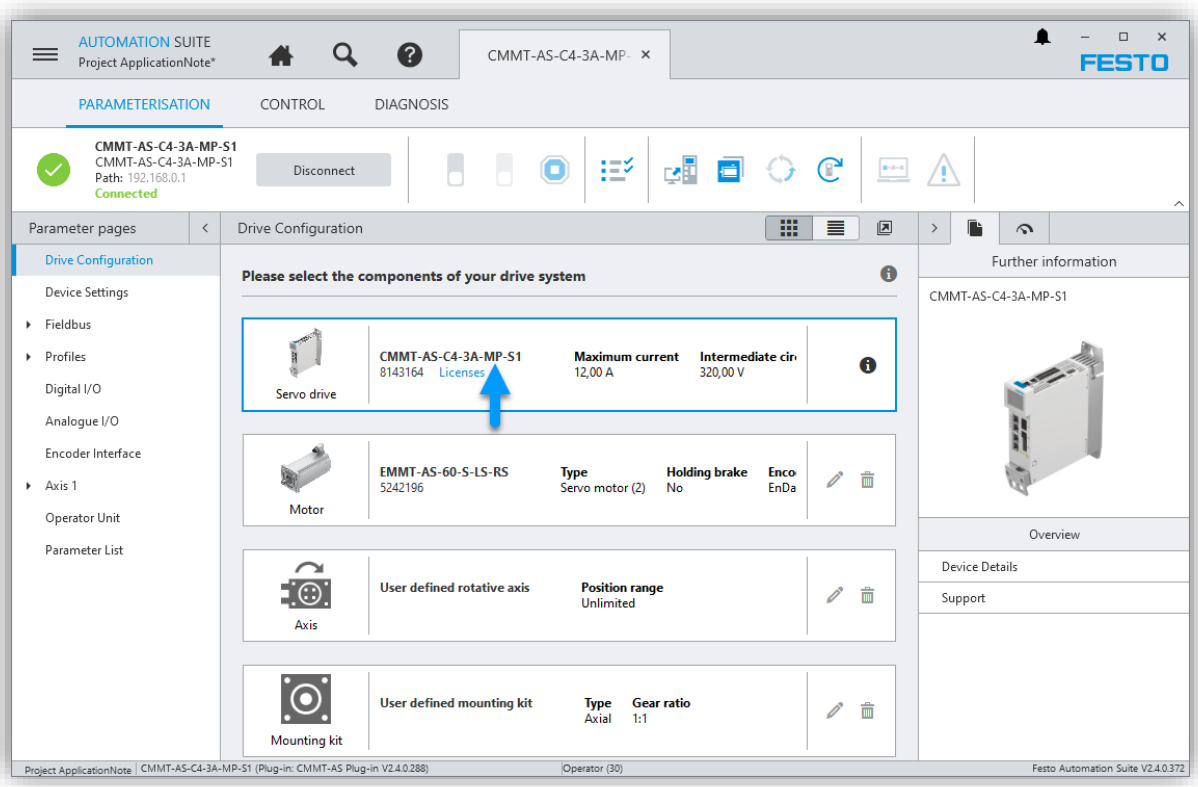


Open the **'Project'** section and double click on the new **CMMT-x-MP** drive.



The drive has automatically been converted to an MP drive. No parameters require change and the drive will work exactly as expected.

Don't forget to store and save the project!



4 Specific information: EtherCAT

4.1 When using File over Ethercat (FoE) to configure the drive

When the MP drive is in factory default settings, it is not able to detect EtherCAT as the fieldbus system. To force EtherCAT as fieldbus, activate the correct DIL switch behind the cover. With this setting, the PLC can connect to the drive and use File over EtherCAT to send the drive configuration to the CMMT.

There are three DIL switches, to activate EtherCAT:

SW1: 0

SW2: 1

SW3: 0

In addition to the DIL switches, it is required to follow a naming rule when uploading or downloading files using EtherCAT.

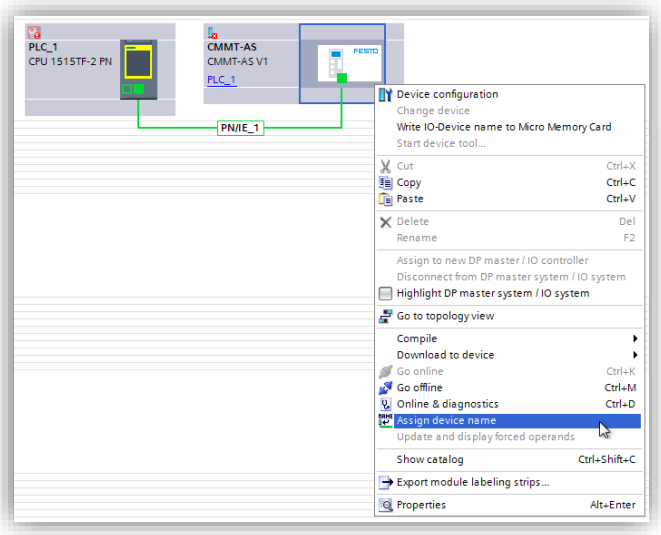
Action:	**Filename (Do not use a file extension!)**
Downloading firmware file	firmwarePCK
Uploading firmware file (not supported by all PLC's)	firmwarePCK
Downloading parameter file	paramPCK
Downloading parameter file	paramPCK

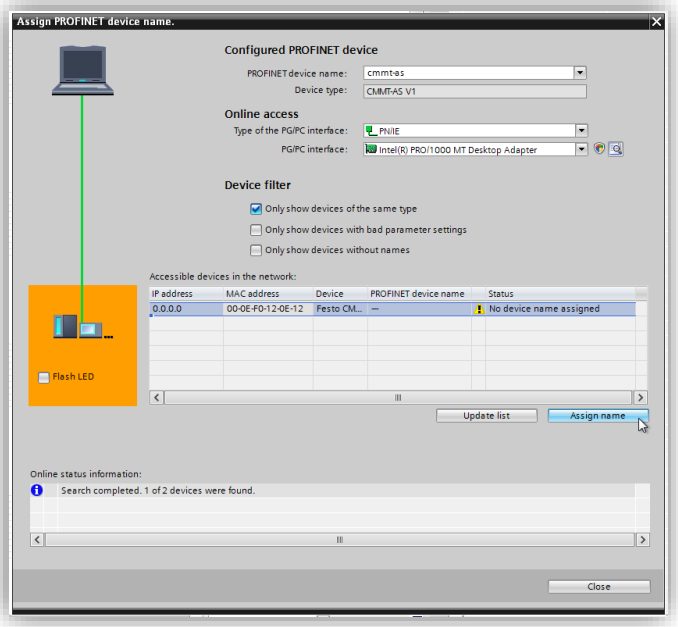
5 Specific information: Profinet

5.1 Telegram 111 or any other Application Class 3 Telegram

No changes to the PLC are required, the MP drive is compatible with the same GSDML file and as the PN drive.

When exchanging a drive in an already running application, it is required to assign the device name using TIA Portal. This is always required when exchanging components in a Profinet Network where the Topology is not configured:





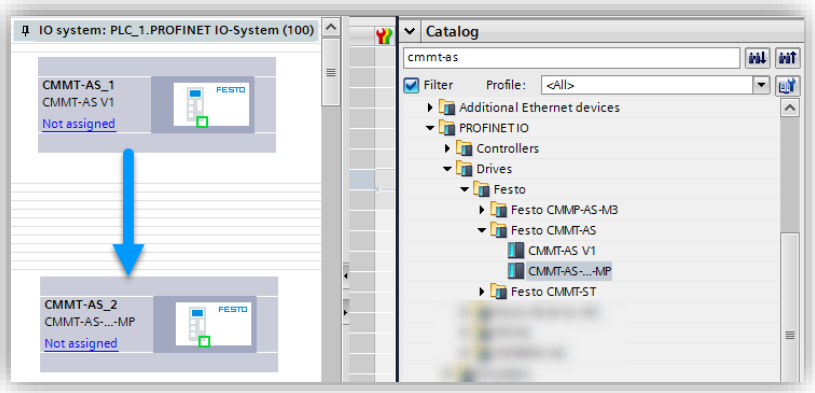
5.2 Telegram 105 or any other Application Class 4 Telegram

5.2.1 Short summary:

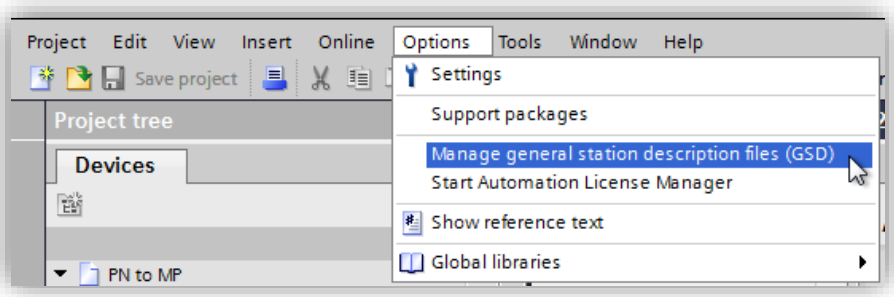
- Import new GSDML
- Delete CMMT V1 from **'Network View'**
- Import CMMT MP into **'Network View'**
- Configure Telegram(s) in **'Device View'**
- Connect PLC connection in **'Topology View'**
- Re-connect drive in Technology Object / Hardware Interface
- Activate *'Automatically apply encoder values during runtime (online)'* in **'Data exchange with encoder'**

5.2.2 Extensive explanation:

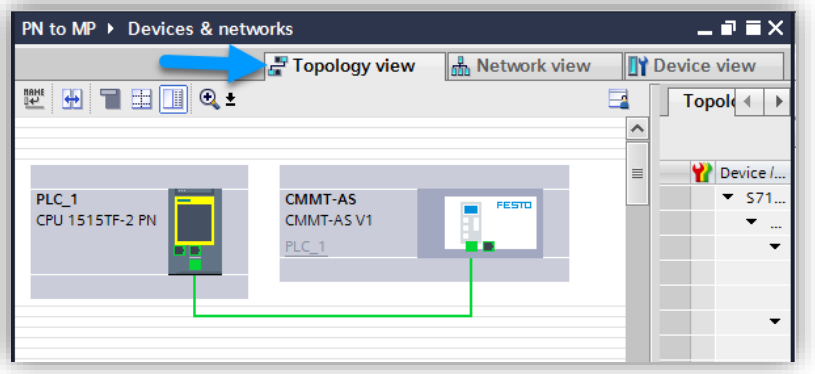
When converting an existing application from **CMMT-x-PN-x** to **CMMT-x-MP-x,** a different GSDML file must be configured in the Device Configuration:



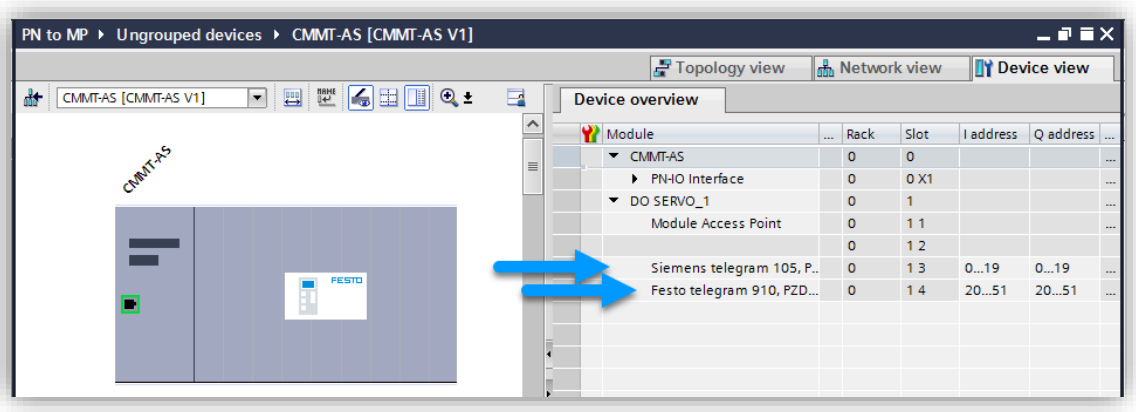
The required files are included with this Application Note, or can be downloaded from the Support Portal. Install the files using the **'Manage general station description files (GSD)'** menu:



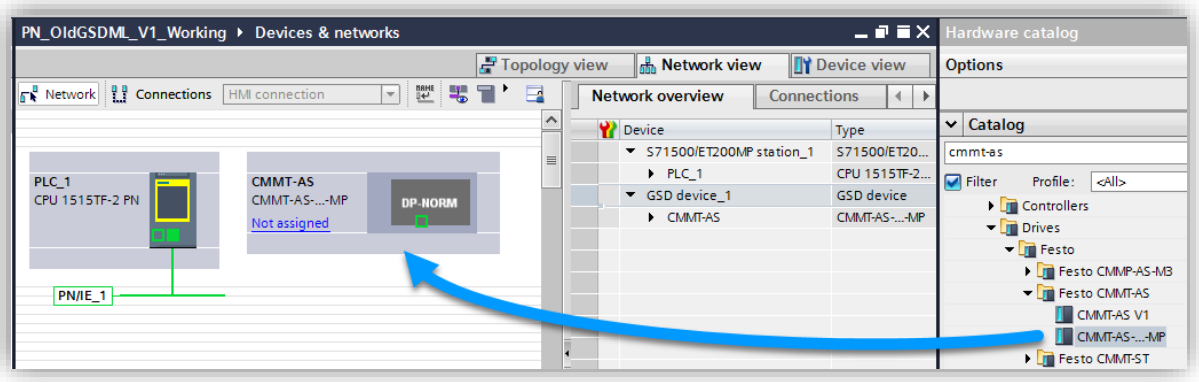
Go to the **'Device Configuration'** menu, open the **'Topology View'** and take note of your actual topology configuration.



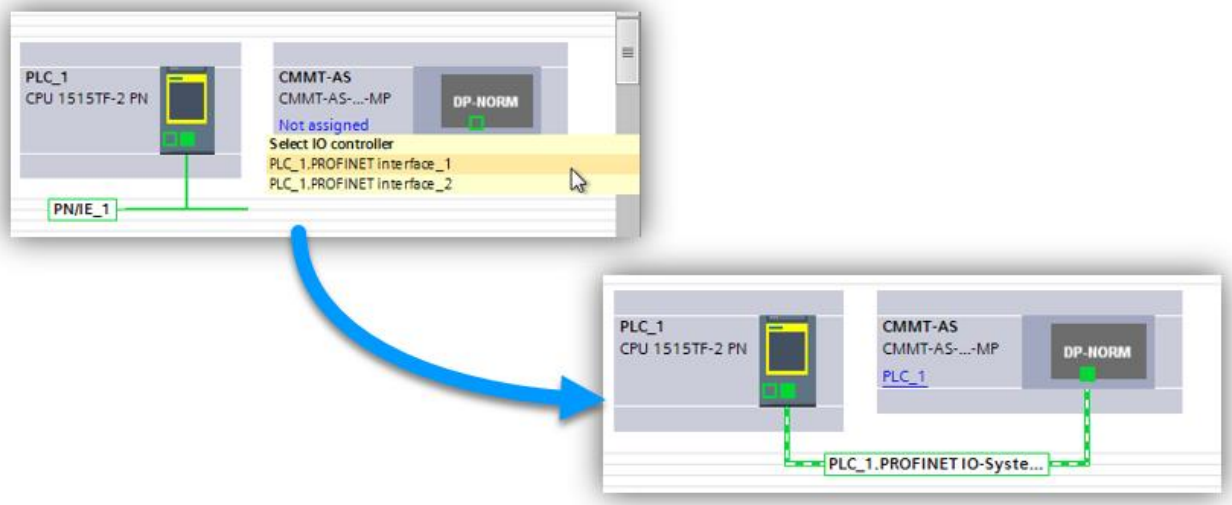
Open the **'Device View'** and take note of the configured Telegrams:



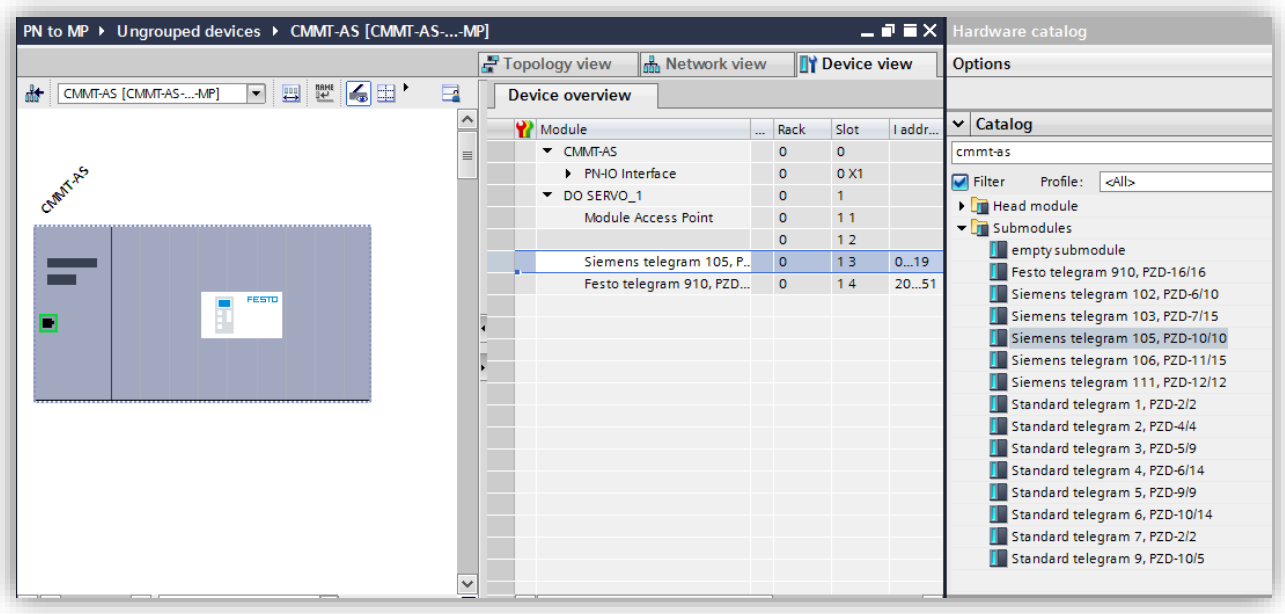
Go back to the **'Network View'**, delete the **CMMT-AS** and replace it with the **CMMT-AS-..-MP**:



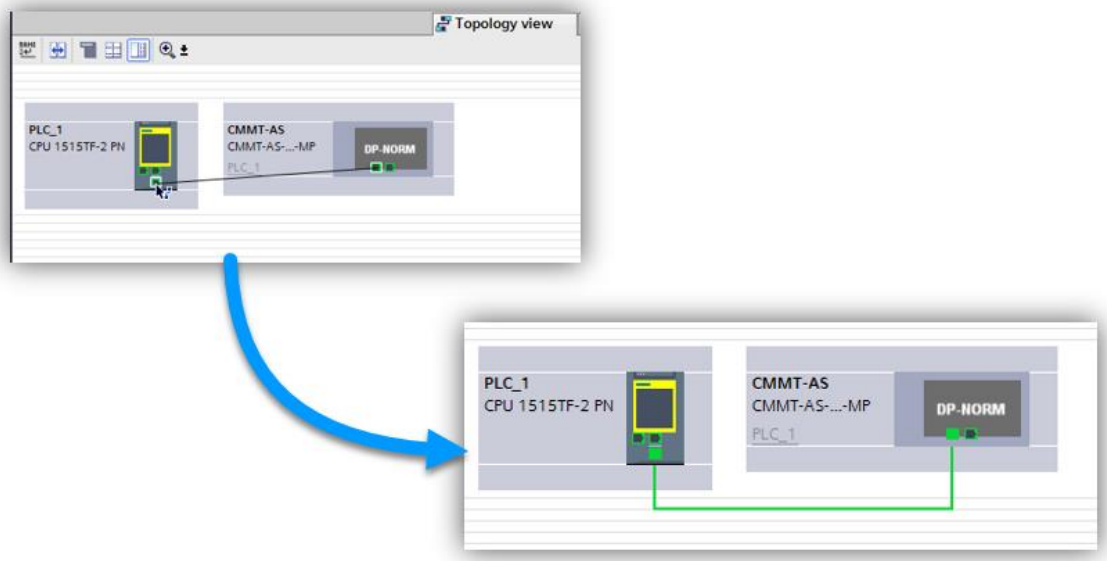
Assign the PLC Profinet interface:



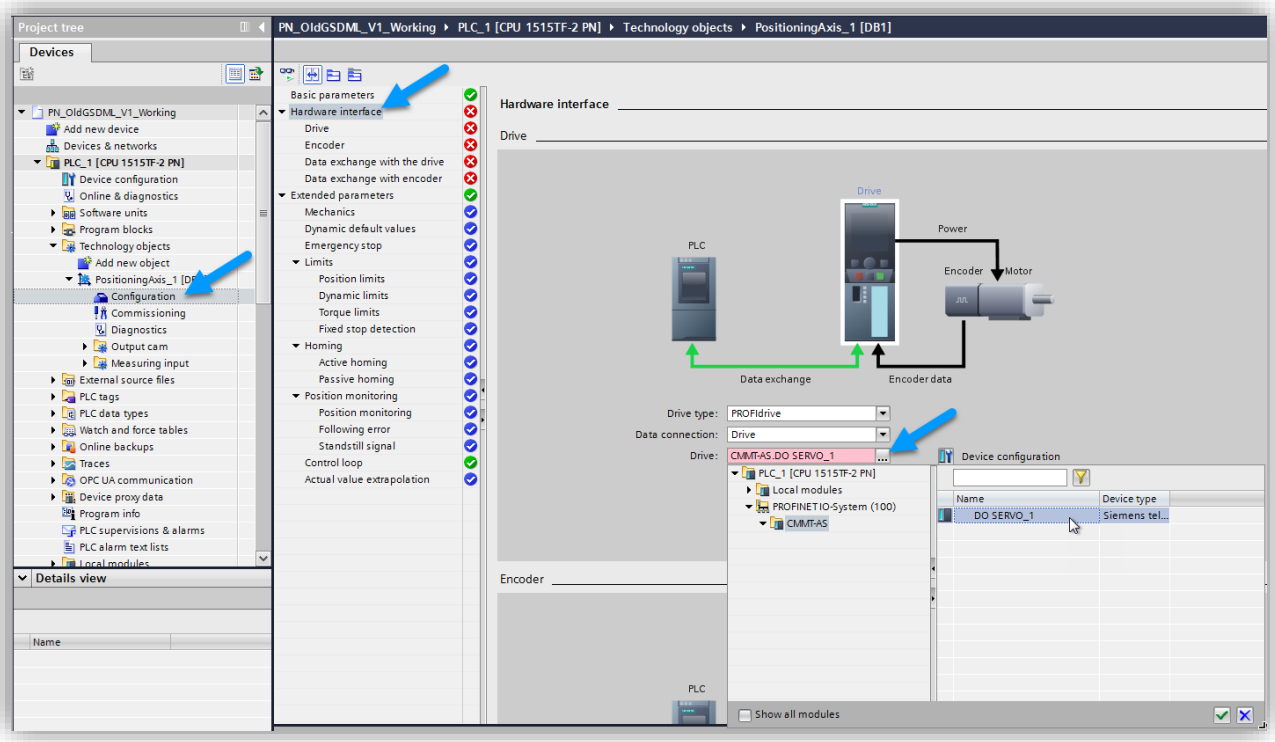
Double click the device to open the **‘Device View’,** delete the pre-configured Telegrams and configure the correct ones. Please note that the picture below is just an example, the configured Telegrams must be the same as with the old drive.



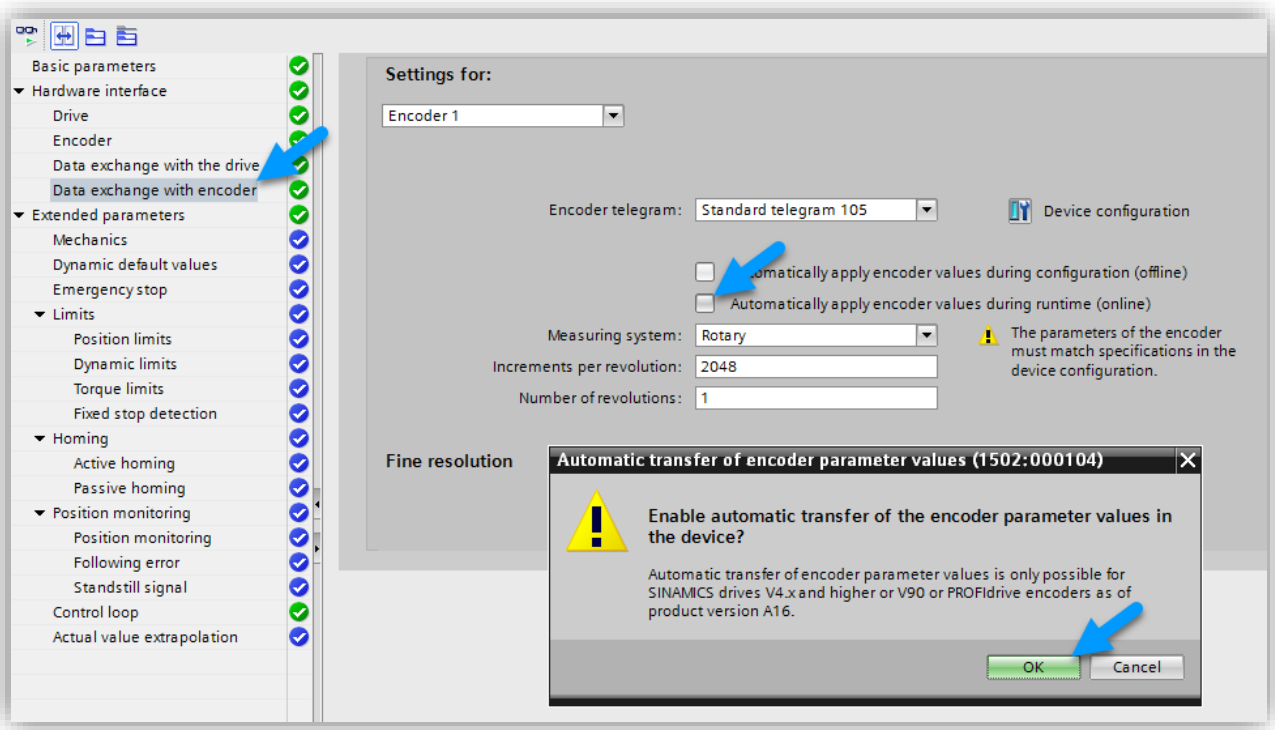
Open the **‘Topology View’** and re-connect the ports:



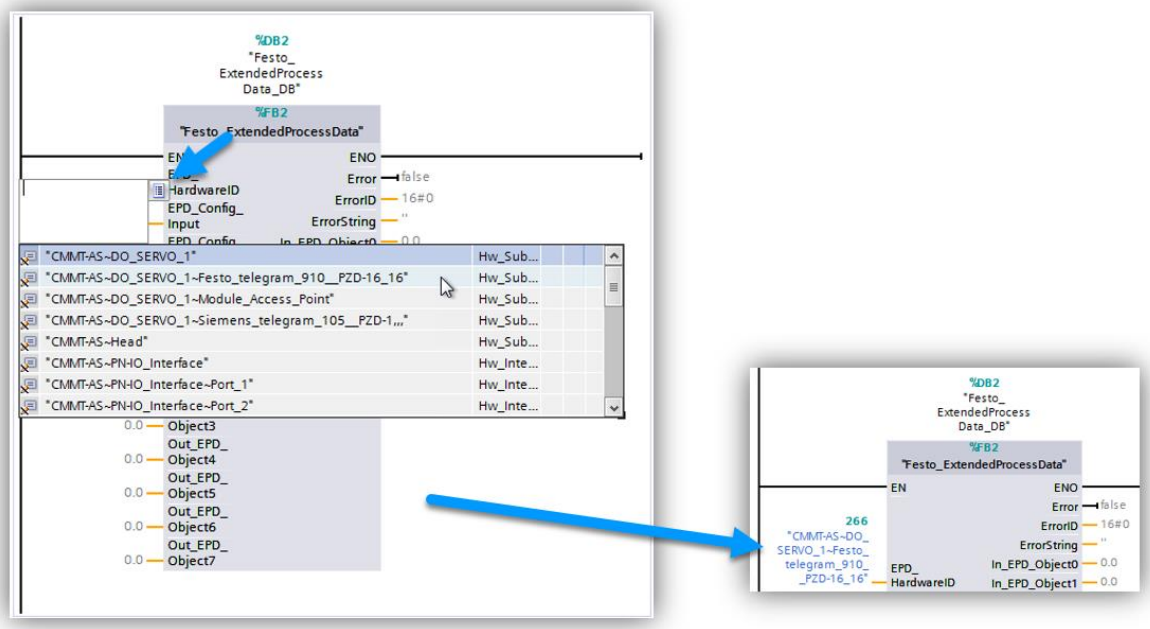
Open the **'Technology Object Configuration'**, go to **'Hardware Interface'** and click the three dots behind the red box. Select the correct CMMT-AS in the ProfinetIO-System and double click the DO-SERVO:



Open the **'Data exchange with encoder'** menu, and activate the checkbox with **'Automatically apply encoder values during runtime (online)'** and click **'OK'** in the pop-up window:



If you were using **Telegram 910**, it is required re-configure the hardware identifiers on the function blocks. If you were NOT using **Telegram 910**, you can skip the following step:



After configuring the Hardware Identifiers for the required function blocks, it is possible to download the hardware / software changes to the PLC.

Go online and check if everything is working. Don't forget to save your project!