This Quick Note is provided to cover the situation where a Project file and SCD file have been supplied to a technician for loading into a relay. It does not cover the generation of the setting or SCD file.

The Quick Note has been prepared using DIGSI 5 v7.5, but the process is the same for later versions that were available at the time this document was written (DIGSI 5 v7.8, v7.9, v8.0).

To load settings into a SIPROTEC 5 relay that is to use IEC 61850 GOOSE and/or MMS, a DIGSI 5 setting file MUST have a correctly linked SCD file. <u>If the SCD file is not correctly linked or missing the main protection settings will be uploaded but MMS points and GOOSE connections may be missing.</u>

> *This 'linking' essentially allows DIGSI 5 to pull the required IEC 61850 information from the SCD file and load that with the 'setting file'. You do not separately directly load the SCD file to the relay – but you make the SCD file available for DIGSI 5 to pull the appropriate information which is uploaded as part of the DIGSI 5 "setting upload". WARNING - if the SCD file is not correctly 'available' to DIGSI 5, the DIGSI 5 setting file can still be uploaded to the protection relay without obvious warning messages and you may find some IEC 61850 MMS points are missing, or GOOSE connections do not work.*

This linking needs to be checked each time a DIGSI 5 Project is opened on a PC for the first time, or when an existing SCD file is moved or renamed.

When DIGSI 5 is installed on your PC, the separate IEC 61850 System Configurator program is normally also installed. DIGSI 5 will start the IEC 61850 System Configurator as required. However, if needed it should be able to be found via the start menu… All Programs>Siemens Energy>IEC 61850 System Configurator>IEC 61850 System Configurator.
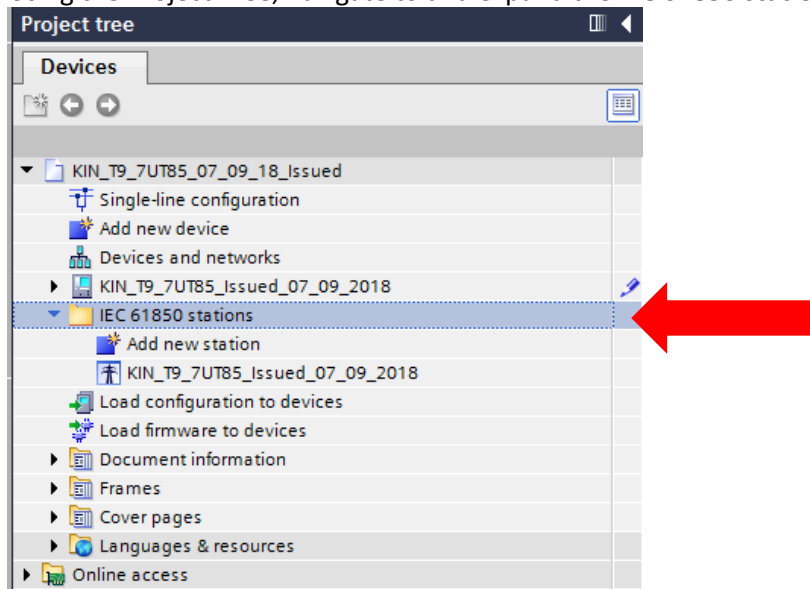
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1	Obtain the setting file and separate SCD file created for the target relay. This Quick Note example is based on a .dz5 project file being provided, and the SCD file that was linked to this on the source/originating computer has also been provided.
2	Open the Project in DIGSI 5. *In this example, a .dz5 file has been "Retrieved", and project folder saved as "C:\Users\warwick\Documents\Automation\KIN_T9_7UT85_07_09_18_Issued"* Using the Project Tree, navigate to and expand the **IEC 61850 stations** section.
3	Right-click on the IEC station entry, and select **Properties**…
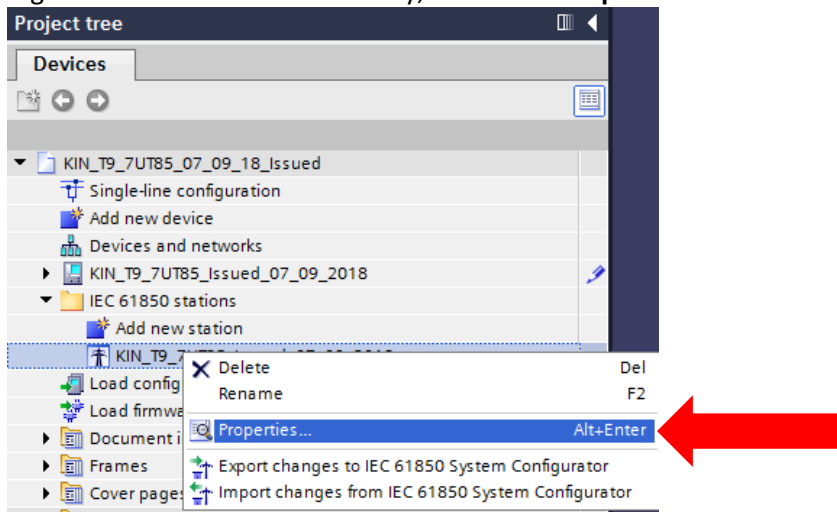
A window opens showing the path that was last used in the creation of the project (or location during last save) to link to the SCD file. In our scenario, as the technician copy of DIGSI 5 does not access to the original file location/path, a valid link to a copy of the SCD file must be set up.
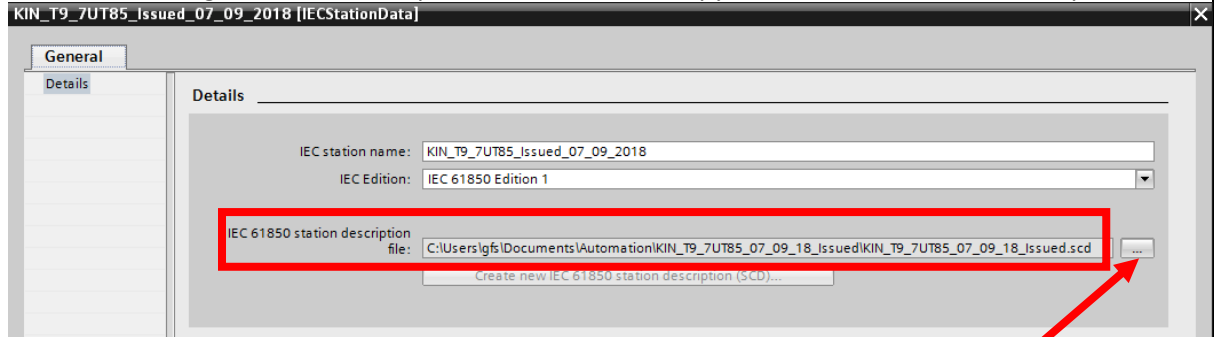
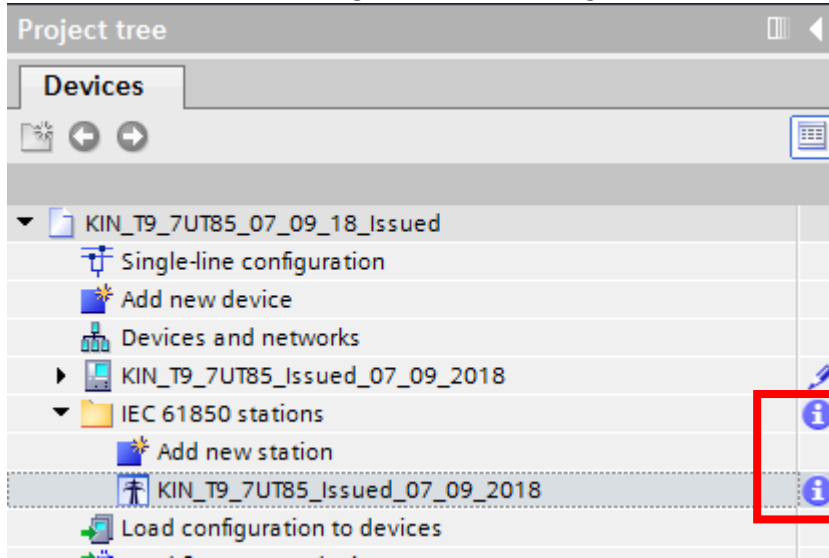Use the '…' button to the right to select the SCD file obtained in step 1 and click **Open**.
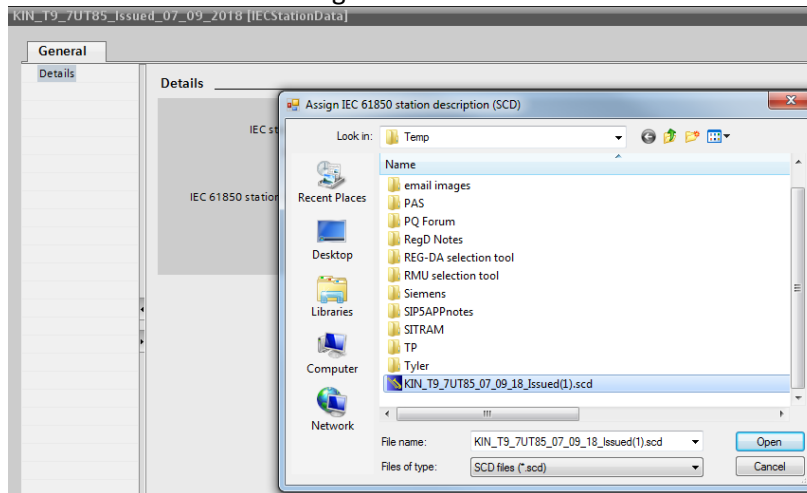
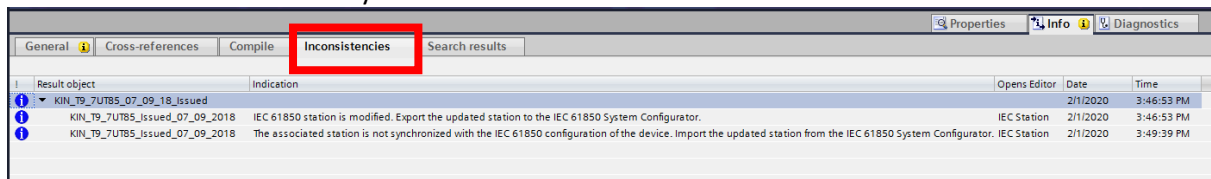The IEC Station description file now links to the SCD file this is accessible on this PC.
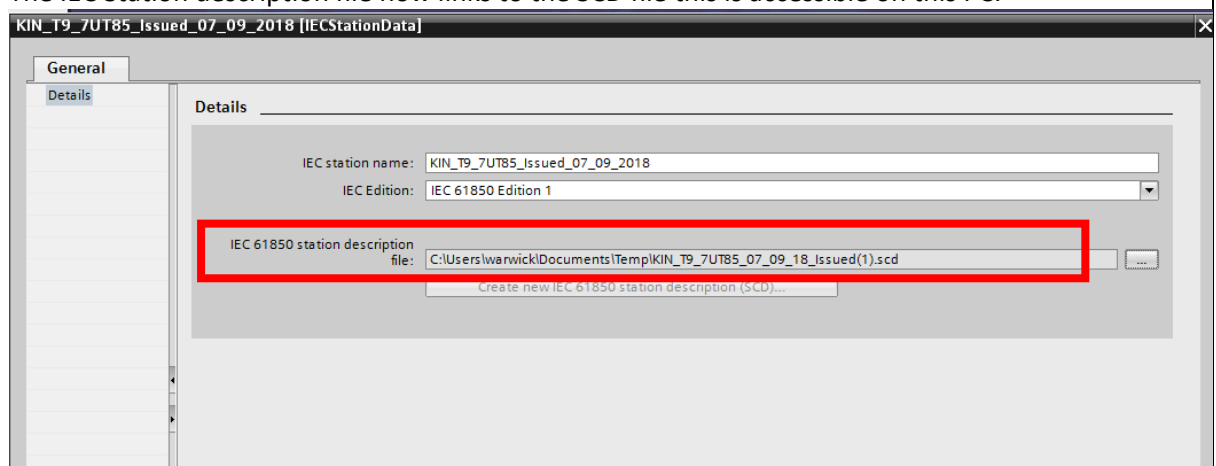
Click **OK** to close the Properties window.

| 4	Note the information warning icons now showing.
	Details of the warning can be found in the inconsistencies list. In this case DIGSI is informing that the associated station is not synchronised with the IEC station.
5	To synchronise, EXPORT the changes from DIGSI to the IEC station. (There should be no changes, but this and the following steps are done to ensure that the SCD file is correctly linked). This is done as follows:
	Right-click on the Station in the Project Tree and select **Export changes to the IEC 61850 System Configurator**.
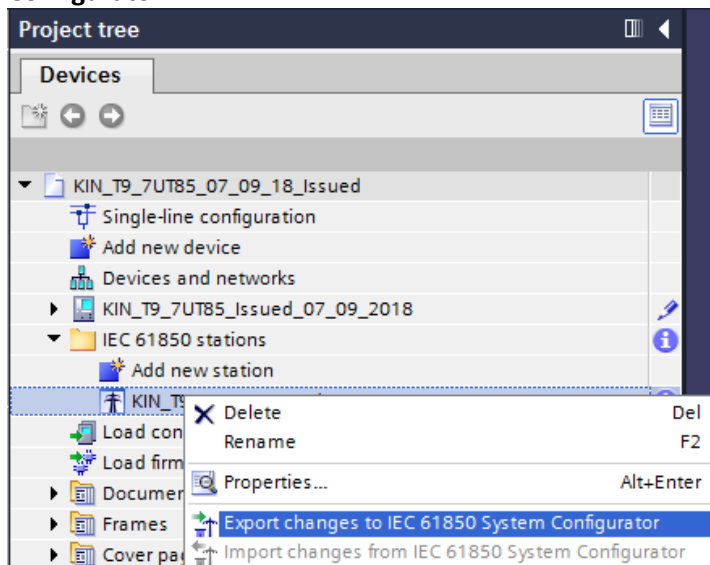
The IEC 61850 System Configurator will open, and when SCD loads a window will open reporting on status will become available. Check the import is "successful" and there are no red faults.
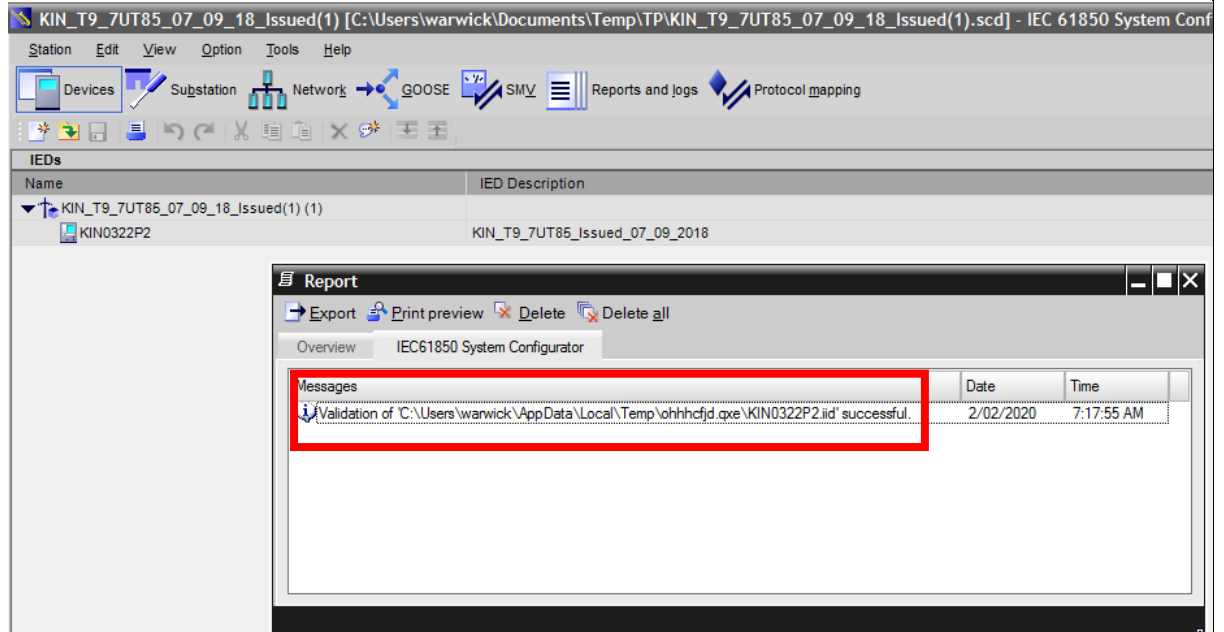
The IEC 61850 System Configurator **report** will keep and list information from prior sessions. If that information has not cleared, inspect it carefully for information relating specifically to the current project/date-time.

6	Go to DIGSI 5 and right-click on the station, then select **Import changes from the IEC 61850 System Configurator**.
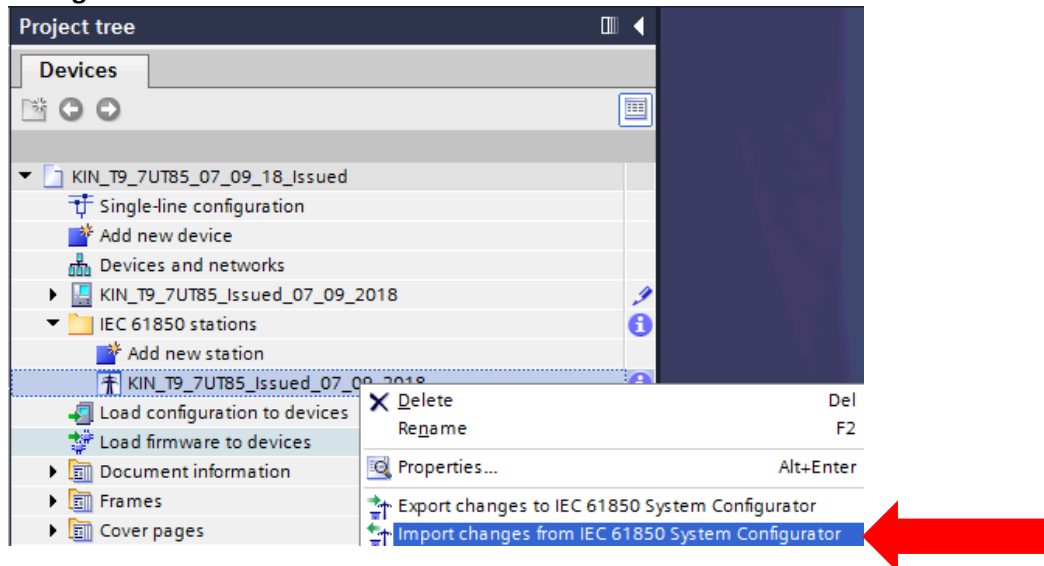
	Check there are no errors reported.
7	The DIGSI 5 project now has the SCD file correctly linked – the information warning is no longer present.
8	The settings (with GOOSE/MMS information) can now be loaded to the target relay.
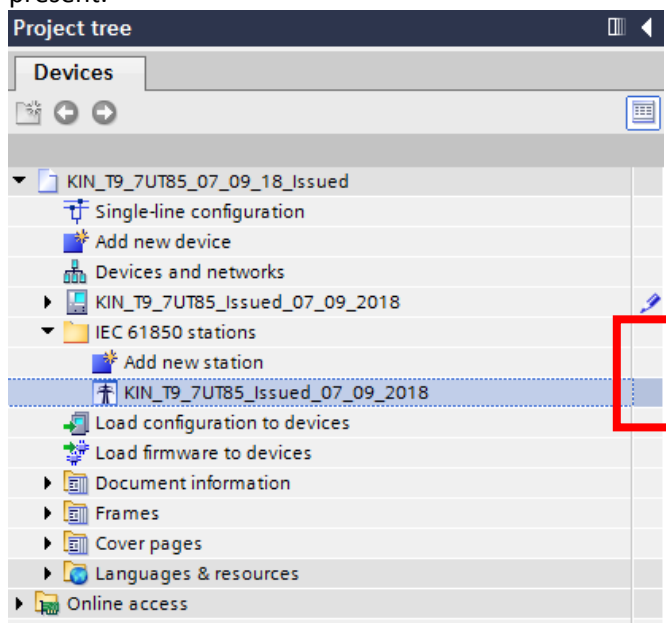
Devices screen – IED naming:
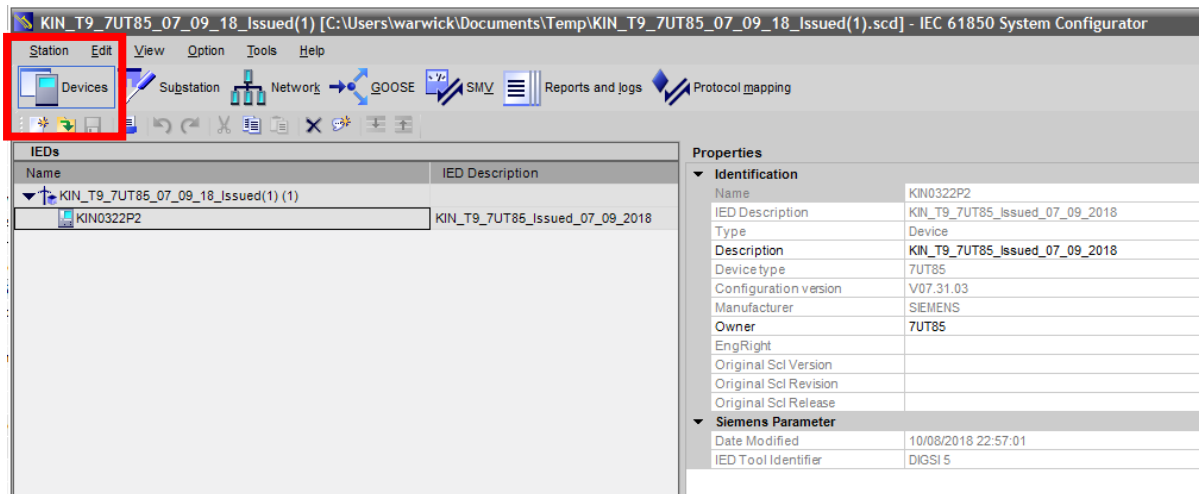
Network screen – device IP addresses (can be changed here, or in the relay setting file):

HV Power Measurements & Protection Ltd
Unit K, 3 Gloucester Park Road, Onehunga, Auckland
P O Box 26-074, Epsom, Auckland 1030, New Zealand

Tel: +64-9- 377 2001
Fax: +64-9- 302 2142

Protocol mapping:

Protocol mapping table (IEC 61850 System Configurator):
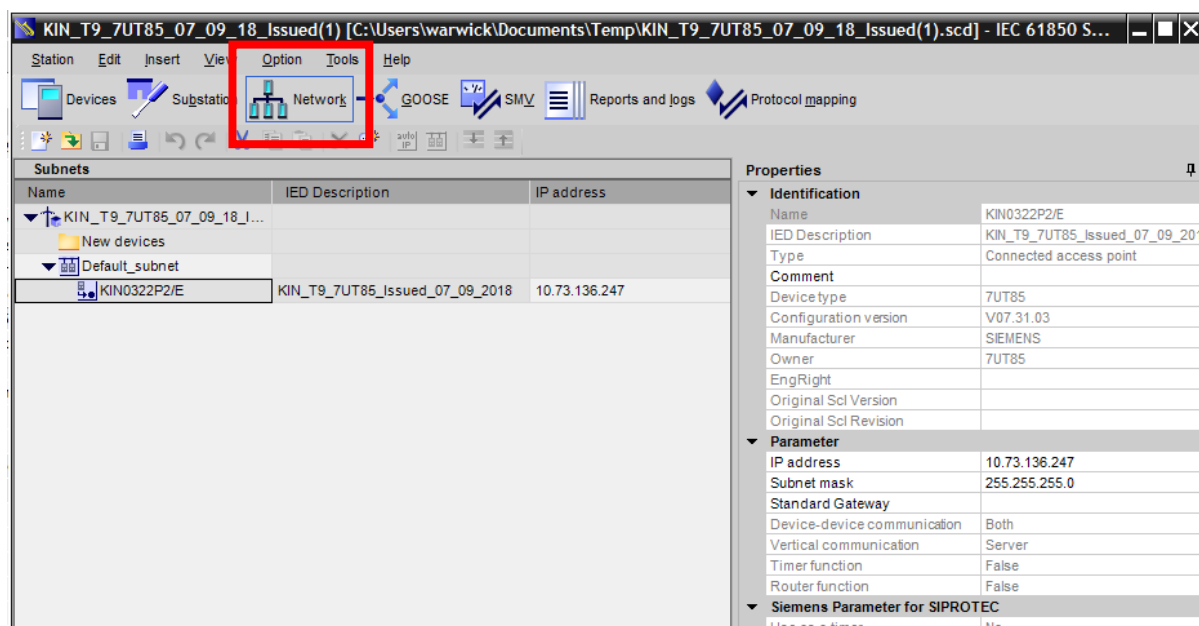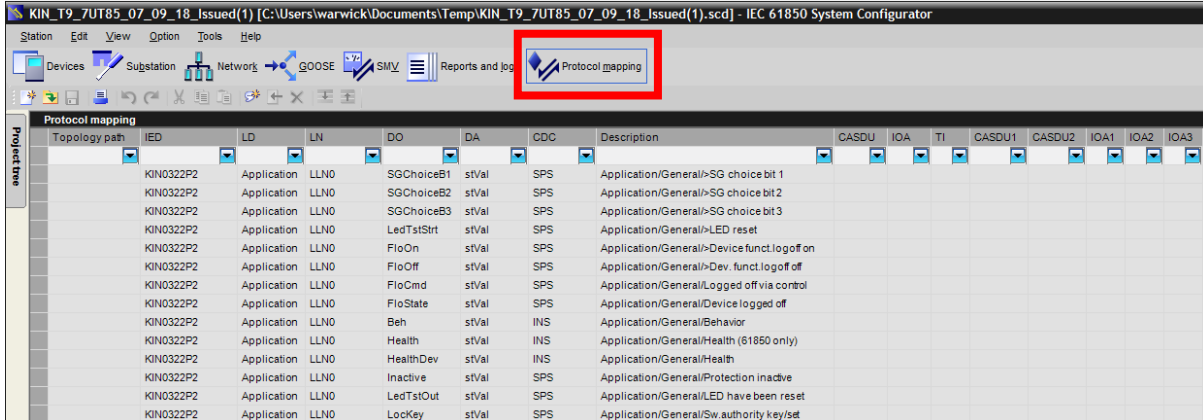
Topology path	IED	LD	LN	DO	DA	CDC	Description	CASDU	IOA	TI	CASDU1	CASDU2	IOA1	IOA2	IOA3
	KIN0322P2	Application	LLN0	SGChoiceB1	stVal	SPS	Application/General/>SG choice bit 1								
	KIN0322P2	Application	LLN0	SGChoiceB2	stVal	SPS	Application/General/>SG choice bit 2								
	KIN0322P2	Application	LLN0	SGChoiceB3	stVal	SPS	Application/General/>SG choice bit 3								
	KIN0322P2	Application	LLN0	LedTstStrt	stVal	SPS	Application/General/>LED reset								
	KIN0322P2	Application	LLN0	FloOn	stVal	SPS	Application/General/>Device funct.logoff on								
	KIN0322P2	Application	LLN0	FloOff	stVal	SPS	Application/General/>Dev. funct.logoff off								
	KIN0322P2	Application	LLN0	FloCmd	stVal	SPS	Application/General/Logged off via control								
	KIN0322P2	Application	LLN0	FloState	stVal	SPS	Application/General/Device logged off								
	KIN0322P2	Application	LLN0	Beh	stVal	INS	Application/General/Behavior								
	KIN0322P2	Application	LLN0	Health	stVal	INS	Application/General/Health (61850 only)								
	KIN0322P2	Application	LLN0	HealthDev	stVal	INS	Application/General/Health								
	KIN0322P2	Application	LLN0	Inactive	stVal	SPS	Application/General/Protection inactive								
	KIN0322P2	Application	LLN0	LedTstOut	stVal	SPS	Application/General/LED have been reset								
	KIN0322P2	Application	LLN0	LocKey	stVal	SPS	Application/General/Sw.authority key/set								