

DIGSI-5-QN0024:

DIGSI 5 QUICK NOTES DIGSI 5 and SCD files

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. 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.

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.



Recommended procedure for linking SCD file

1	Obtain the setting file and separate SCD file created for the target relay.
-	ostant the setting me and separate separate setting the treated 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.
	inked to this on the source/originating computer has also been provided.
2	Open the Project in DIGSI 5.
2	Open the Project in Diddi 5.
	In this events of the base bases (Detrieved), and ensite the later encoders
	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.
	Project tree
	Devices
	▼ 📑 KIN_T9_7UT85_07_09_18_Issued
	T Single-line configuration
	Add new device
	📩 Devices and networks
	KIN_T9_7UT85_lssued_07_09_2018
	IEC 61850 stations
	Add new station T KIN_T9_7UT85_Issued_07_09_2018
	Load configuration to devices
	Load firmware to devices
	Document information
	Frames
	Cover pages
	Languages & resources
	Image Online access
3	Right-click on the IEC station entry, and select Properties
	Project tree
	Devices
	KIN_T9_7UT85_07_09_18_Issued
	🕂 Single-line configuration
	Add new device
	Devices and networks Improvement of the second se
	▼ EC 61850 stations
	Add new station
	T KIN_T9_ X Delete Del
	A Load config Rename E2
	Image: Second firmwere Image: Second firmwere Image: Second firmwere Image: Second firmwere Image: Second firmwere Alt+Enter
	▶ 🔄 Document I 🔤 Frames
	Im Cover pages Import changes from IEC 61850 System Configurator

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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.

General	
Details	Details
	IEC station name: KIN_T9_7UT85_Issued_07_09_2018
	IEC Edition 1
	IEC 61850 station description file: C:\Users\gfs\Documents\Automation\KIN_T9_7UT85_07_09_18_Issued\KIN_T9_7UT85_07_09_18_Issued.scd
	Create new IEC 61850 station description (SCD)
	button to the right to select the SCD file obtained in step 1 and click Open .
General	
Details	Details
	en Assign IEC 61850 station description (SCD)
	IEC st Lookin: 🍟 Temp 💌 🎯 🎓 📂 🖽 🗸
	Name ^
	IEC 61850 station Recent Places PAS
	PQ Forum
	Desktop 🔐 REG-DA selection tool
	RMU selection tool
4	Libraries JSP5APPnotes
•	्या 🔐 🖉
	Computer Jier KIN, T9.7UT85_07_09_18_Jssued(1).scd
	Network File name: KIN_T9_7UT85_07_09_18_issued(1).scd Open
	Files of type: SCD files (".scd) Cancel
	tion description file now links to the SCD file this is accessible on this PC.
N_T9_7UT85_I	ssued_07_09_2018 [IECStationData]
General	
Details	Details
	IEC station name: KIN_T9_7UT85_Issued_07_09_2018
	IEC Edition: IEC 61850 Edition 1
	IEC 61850 station description file: C:IUsers\warwicklDocuments\TemplKIN_T9_7UT85_07_09_18_Issued(1).scd
	Create new IEC 61850 station description (SCD)
ick OK to	close the Properties window.

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4	Note the information warning icons now showing.	
	Project tree	
	Devices	
	KIN_T9_7UT85_07_09_18_Issued	
	T Single-line configuration	
	Add new device	
	Devices and networks	
	KIN_T9_7UT85_Issued_07_09_2018 IEC 61850 stations	
	Add new station	
	Time Time	
	Load configuration to devices	
	Details of the warning can be found in the inconsistencies list. In this case DIGSI is informing that	t
	the associated station is not synchronised with the IEC station.	
	General) Cross-references Compile Inconsistencies Search results	ostics
	1 Result object indication Opens Editor Date Tim	e
	KIN_T9_7UT85_Issued_07_09_2018 IEC 61850 station is modified. Export the updated station to the IEC 61850 System Configurator. IEC Station 2/1/2020 3:4	6:53 PM 6:53 PM
	KIN_T9_7UT85_Issued_07_09_2018 The associated station is not synchronized with the IEC 61850 configuration of the device. Import the updated station from the IEC 61850 System Configurator. IEC Station 2/1/2020 3:4	
		9.59 FM
		9:39 FM
5		
5	but this and the following steps are done to ensure that the SCD file is correctly linked). This is d	
5		
5	but this and the following steps are done to ensure that the SCD file is correctly linked). This is d	one
5	but this and the following steps are done to ensure that the SCD file is correctly linked). This is d as follows:	one
5	but this and the following steps are done to ensure that the SCD file is correctly linked). This is d as follows: Right-click on the Station in the Project Tree and select Export changes to the IEC 61850 System	one
5	but this and the following steps are done to ensure that the SCD file is correctly linked). This is d as follows: Right-click on the Station in the Project Tree and select Export changes to the IEC 61850 System Configurator .	one
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5	but this and the following steps are done to ensure that the SCD file is correctly linked). This is d as follows: Right-click on the Station in the Project Tree and select Export changes to the IEC 61850 System Configurator. Project tree Devices KIN_T9_7UT85_07_09_18_Issued T Single-line configuration M Add new device	one
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5	but this and the following steps are done to ensure that the SCD file is correctly linked). This is d as follows: Right-click on the Station in the Project Tree and select Export changes to the IEC 61850 System Configurator. Project tree Devices KIN_T9_7UT85_07_09_18_Issued T Single-line configuration M Add new device	one
5	but this and the following steps are done to ensure that the SCD file is correctly linked). This is d as follows: Right-click on the Station in the Project Tree and select Export changes to the IEC 61850 System Configurator. Project tree Devices Solution Single-line configuration Single-line configuration Struct Add new device Devices and networks Single-line configuration Struct Single-line configuration Struct Single-Si	one
5	but this and the following steps are done to ensure that the SCD file is correctly linked). This is d as follows: Right-click on the Station in the Project Tree and select Export changes to the IEC 61850 System Configurator. Project tree ■ Devices ■ Configuration ■ Add new device ■ Devices and networks ▶ ■ KIN_T9_7UT85_07_09_18_Issued ■ Devices and networks ▶ ■ KIN_T9_7UT85_issued_07_09_2018 ■ TEC 61850 stations ■ Add new station ■ Add new station ■ Add new station ■ Collect Del	one
5	but this and the following steps are done to ensure that the SCD file is correctly linked). This is d as follows: Right-click on the Station in the Project Tree and select Export changes to the IEC 61850 System Configurator. Project tree Devices Single-line configuration Add new device Devices and networks Single-line configuration Add new device Devices and networks Single-line configuration Add new station Delete Rename F2	one
5	but this and the following steps are done to ensure that the SCD file is correctly linked). This is d as follows: Right-click on the Station in the Project Tree and select Export changes to the IEC 61850 System Configurator. Project tree Devices Solution KIN_T9_7UT85_07_09_18_Issued T Single-line configuration Add new device Devices and networks EC 61850 stations Add new station Add new station Configuration Add new station Delete Rename F2	one

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	Check there are no errors reported.
	Import
	Successfully imported.
	Status Imported data
	Validating XML structure
	Validating against schema Validating IEC 61850 edition
	Checking consistency
	Importing device KIN0322P2 Check for unconnected GOOSE inputs
	Save result
	ОК
7	The DIGSI 5 project now has the SCD file correctly linked – the information warning is no longer
'	
	present.
	Project tree
	Devices
	▼KIN_T9_7UT85_07_09_18_Issued
	T Single-line configuration
	Add new device
	Devices and networks
	►
	▼ IEC 61850 stations
	Add new station TKIN_T9_7UT85_Issued_07_09_2018
	↓ Load configuration to devices
	Toda configuration to devices
	Document information
	Frames
	Cover pages
	Core pages A resources
	Im Online access
8	The settings (with GOOSE/MMS information) can now be loaded to the target relay.
0	The settings (with GOOSE) while information, can now be loaded to the target relay.



Useful information in the IEC 61850 System Configurator:

Devices screen – IED naming:

	wick\Documents\Temp\KIN_T9_7U	JT85_	_07_09_18_lssued(1).	scd] - IEC 61850 System Configurator
<u>Station Edit</u> <u>View Option</u> <u>Tools</u> <u>H</u> elp				
	SM⊻ ■ Reports and logs	Pro	otocol <u>m</u> apping	
IEDs		Pro	operties	
Name	IED Description	-	Identification	
KIN_T9_7UT85_07_09_18_issued(1)(1)			Name	KIN0322P2
	KIN T9 7UT85 Issued 07 09 2018		IED Description	KIN_T9_7UT85_lssued_07_09_2018
]		Туре	Device
IEDs Properties Name IED Description KIN_T9_TUT85_07_09_18_Issued(1) (1) KIN_T9_TUT85_Issued_07_09_2018 KIN_19_TUT85_issued_07_09_2018 KIN_19_TUT85_issued_07_09_2018 Configuration version KIN_19_TUT85_issued_07_09_2018 Manufacturer SEMENS Owner TUT85 Configural Sci Revision Original Sci Revision 		KIN_T9_7UT85_Issued_07_09_2018		
Protocol mapping Properties Name IED Bescription KIN_T9_7UT85_07_09_18_issued(1) (1) KIN_T9_7UT85_issued_07_09_2018 Wame KIN_T9_7UT85_issued_07_09_2018 Device type Configuration version V07.31.03 Manufacturer SEMENS Owner Owner 7UT85 Semens Parameter Original ScI Revision		7UT85		
		Properties stription JT85_Issued_07_09_2018 V Identification Name KIN0322P2 IED Description KIN_T9_7UT85_lssued_07_09_ Device Device Description KN_T9_7UT85_lssued_07_09_ Device type 7UT85 Configuration version V07.31.03 Manufacturer SIEMENS Owner 7UT85 EngRight Original ScI Revision Original ScI Release • • Siemens Parameter Date Modified 10/08/2018 22:57:01	V07.31.03	
			Manufacturer	SIEMENS
			Owner	7UT85
			EngRight	
			Original Scl Version	
			Original Scl Revision	
			Original Scl Release	
		-	Siemens Parameter	
			Date Modified	10/08/2018 22:57:01
			IED Tool Identifier	DIGSI 5

Network screen – device IP addresses (can be changed here, or in the relay setting file):

Station Edit Insert Viev	8_Issued(1) [C:\Users\warwick\Doc Qption Iools Help Qoose 公会 Goose 公会 SM 正式		gs Protoc	ol <u>m</u> apping	
Name	IED Description	IP address	Prope		ţ
		IP address		ntification	KINGGODDATE
KIN_T9_7UT85_07_09_18_	ļ		Na	me) Description	KIN0322P2/E
New devices					KIN_T9_7UT85_Issued_07_09_201 Connected access point
▼ dd Default_subnet			Ту	mment	connected access point
L KIN0322P2/E	KIN_T9_7UT85_Issued_07_09_2018	10.73.136.247		vicetype	7UT85
				nfiguration version	V07.31.03
				nufacturer	SIEMENS
				ner	7UT85
				aRight	10103
				iginal Scl Version	
				iginal Scl Revision	
				rameter	
				address	10.73 136 247
			Su	bnet mask	255.255.255.0
			Sta	ndard Gateway	
				vice-device communication	Both
			Ver	rtical communication	Server
			Tin	nerfunction	False
			Ro	uter function	False
			▼ Sie	mens Parameter for SIPRO	TEC
			lls	e as a timer	No

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Protocol mapping:

St	ation <u>E</u> dit <u>V</u> iew	Option Tools	Help work $\rightarrow \checkmark$	<u>2</u> 005e 🏹				09_18_Issued(1).scd] - IEC 61850 Sy	stem	Confi	igurato	r					
	Protocol mapping																
Project tree	1 221	IED	LD	LN	DO	DA	CDC	Description		SDU	IOA	TI	CASDU	_	2 IOA1	IOA2	IOA3
ect			🗖) 🗖		-		-	-	-			-	-		
		KIN0322P2	Application	LLN0	SGChoiceB1	stVal	SPS	Application/General/>SG choice bit 1									
		KIN0322P2			SGChoiceB2	stVal	SPS	Application/General/>SG choice bit 2									
		KIN0322P2	Application		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									

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