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GOOSE Inspector

7XS5900-0AA00

Online Monitoring Tool for IEC 61850

General Description

With the Online Monitoring Tool GOOSE Inspector you can capture IEC 61850 related packets from the station bus. The IEC 61850 telegrams can be decoded, checked, displayed, filtered, stored in a ring buffer and if necessary be printed.

COOS 🖸	E Inspector Testre	ef2mitMiss	ing.lg6 - iec6	1850-station	n5.9.8.sc		_		🔽 23.884 16:36:49,491 Server GOOSE 📃 🗖 🗙
Eile Log f Donnei 23.884 23.885 23.886 23.887 23.888 23.889 23.890 23.891	Mode <u>V</u> iew <u>S</u> e ile, logical , rstag, 5. Mär 16:36:49,491 d 16:36:49,492 d 16:36:49,492 d 16:36:49,493 d 16:36:49,493 d	attings Filt all pa z 2009 =0,0005 =0,0005 =0,0005 =0,0005 =0,0005 =0,0005 =0,0005	er Help Packets Packet \$08:00:06:8 \$08:00:06:8 \$08:00:06:8 \$08:00:06:8 \$00:00:68:8 \$00:00:68:0 \$00:00:88:0	23.884 6558:48 6558:4C 6558:55 6557:55 6557:50 7:C6:02 6:57:33	of 35.3 \$01:0C: \$01:0C: \$01:0C: \$01:0C: \$01:0C: \$01:0C: \$01:0C: \$01:0C: \$01:0C:		GOOSE GOOSE GOOSE GOOSE GOOSE GOOSE GOOSE	Contraction of the second s	<pre>23.684 16:36:49.491 d=0,000s Server GOOSE \$08:00:06:86:58:48 > \$01:0C:CD:01:03:82 AppD : 11 CB Reference : G7SJ64_SCTRL/LLN0\$GO\$Control_DataSet2 Time to Live : 3000 ms DataSet Ref. : G7SJ64_SCTRL/LLN0\$DataSet2 Goose ID : 28 UtcTime : 04.12.2008 15:02:43,862 - LSU Statusnumber : 10968335 Sequenznumber: 1 Test : No Config Revis: 1 Needs Commiss: No No. of Elem. : 2 G7SJ64_SCTRL/KetteGGI01\$SPCS04\$q : good</pre>
Offline	Log packets			Output filter:		Goose Prob		▼ cor	G7SJ64_5CTRL/KetteGGI01\$SPCS04\$stVal : True

Picture 1: main window with menu and packet list

Picture 2: Detail view window

Through the Import of a Station Configuration Description file (SCD) the users of Siprotec devices and DIGSI will have a comfortable view with the Siemens Application Monitor (SAM). To reduce the complexity in using the GOOSE Inspector, the view of the SAM is similar to the well known graphical user interface of the DIGSI station configurator. The tool observes the GOOSE transmission at the Ethernet network and displays the actual status of each application and GOOSE message with colored icons (according to traffic lights).

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Ied Goose Input F					
Subnet1	G6MD6641CTRL/ChainGGI01/SPCS01	6MD664 1/Control/ChainGGIO1/Goose	OUT G6MD6642CTRL/ChainGGIO1/SPC5C	2 6MD664 2/Control/ChainGGIO1/Goose IN	parameter
🗄 🚱 Blinking1	G6MD6642CTRL/ChainGGI01/SPCS01	6MD664_2/Control/ChainGGIO1/Goose			Name
🗉 🙀 Blinking2	G6MD6643CTRL/ChainGGI01/SPCS01	6MD664_3/Control/ChainGGIO1/Goose			Description
🗉 🜪 Blinking3	G6MD6644CTRL/ChainGGI01/SPCS01	6MD664_4/Control/ChainGGIO1/Goose			Application ID
e 🏀 Blinking4 Blinking5	don boot terray chaird droity of ebor				VLAN ID
G01					VLAN Priority
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💑 G03					
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G07 G08					
G08 G09					
610 G10					
GOOSE Light					
GOOSE Rack1					
😽 GOOSE Rack2					
G6MD6641/CTRL/LL					
G6MD6642/CTRL/LL					
G6MD6644/CTRL/LL					
GOOSE Rack3					
GOOSE Rack4					
GOOSE Rack5					
GOOSE Rack6					
GOOSE Rack7					
GOOSE Trip					
GOOSE big loop					
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	G6MD6643CTRL/LLN0\$GO\$Cor		000 9 0 2 0 0 0 1	1 0	
	G6MD6644CTRL/LLN0\$GO\$Cor	ntrol_DataSet7 08:00:06:86:57:4A 3	000 8 0 2 0 0 0 1	1 0	
>					

Picture 3: SAM (Siemens Application Monitor) with integrated GOOSE-Monitor



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With SAM it is also possible to export a signal list, which shows all the sources and dedicated destinations of all applications, which supports a step-by-step test and documentation of all IEC 61850 signals.

Concept

With GOOSE Inspector also users without detailed knowledge of IEC 61850 standard can monitor and evaluate the existing GOOSE communication. After importing the SCD-file the GOOSE Inspector checks without complex configuration the GOOSE messages which are available at the station bus. The check contains the verification of the configured and captured GOOSE parameters and additionally the periodical and complete appearance of all GOOSE messages. In the following some examples for warnings and errors, which will be calculated and displayed in real-time:

Criteria for a GOOSE-warning:

- A GOOSE message will be received with a short delay
- Loss of a single GOOSE-message
- Small variance between captured and configured GOOSE-message

Criteria for a GOOSE-error:

- Missing GOOSE-message
- Loss of multiple GOOSE-messages
- A Status (eg. Switching status) was skipped
- Severe variance between captured and configured GOOSE-message
- Unconfigured, but captured GOOSE-messages

The SAM displays the actual status of applications and GOOSE-messages via colored icons like traffic lights. The icons are structured in a hierarchical tree, which shows the relation between the application and the GOOSE messages. The upper level (eg. application) assumes always the worst status of the next lower level (eg. one GOOSE-message). Because of this a single faulty GOOSE-message can be detected very fast and simple.

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		normal	warning	error				
	normal	\$	\	۱				
Logfile	warning	<u> </u>	 	۱				
_	error	٠	Ŷ	 				

Picture 4: Icons with traffic light character



Picture 5: Hierarchical tree

For specialists there is the possibility to set a filter inside SAM, which allows a fast analysis in detail (eg. for a faulty GOOSE-message). It is possible to have access to all packets, which are stored in the ring buffer. The filtered GOOSE-messages will be displayed in the main and detail view window.

Missing	Reference	MAC Sender	TTL	Total	E	W	Stat.Nr.	Seq.Nr	D_TTL	S_TTL	SGM	Reboot
	G6MD6644CTRL/LLN0\$GO\$Control_DataSet7	08:00:06:86:57:4A	3000	8	0	2	0	0	0	1	1	0
	G6MD6641CTRL/LLN0\$GO\$Control_DataSet1	00:0F:BB:07:C5:80	3000	9	Filter(all) Filter(only fau			-	0	1	1	0
	G6MD6642CTRL/LLN0\$GO\$Control_DataSet2	00:0F:BB:07:C5:7D	3000	9				(Fy)	0	1	1	0
	G6MD6643CTRL/LLN0\$GO\$Control_DataSet2	00:0F:BB:07:C6:40	3000	9				0	1	1	0	

Picture 6: Extract of the GOOSE-monitor and set up of a filter



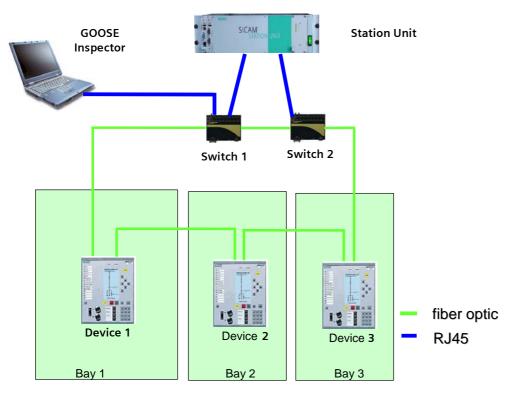


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Integration of the GOOSE Inspector at the stationbus

The connection to the network will be realized via the network interface card of your PC.

If the PC is connected to a normal port of a switch you will receive GOOSE messages automatically. Other network traffic (like client server communication via MMS) will not be received. So your main focus can be the capturing and analysis of GOOSE-messages.



Picture 7: schematic network sketch

Planned new additional functions

The following listed additional functions will be offered to owners of user licenses without any costs.

- Real-time monitoring of dedicated status values (binary tracks)
- · Error logs for detailed analysis in long term records
- Event logs





Technical Data

Protocol:

IEC 61850, MMS- and GOOSE-Coding with BER

Included in delivery:

Contains installation CD with USB-dongle and PDF user manual

Supported languages:

English, German

Minimal system requirements:

Windows XP, 32 Bit, SP2 or SP3 CPU at least 1,3 GHz RAM 500MB Network interface (Ethernet LAN, TCP/IP) USB-Port for licence-dongle

Recommended system requirements:

Windows XP, 32 Bit, SP2 or SP3 Duo CPU at least 1,6 GHz RAM 2 GB Network interface (Ethernet LAN, TCP/IP) USB-Port for licence-dongle

Ordering Data

Product Name GOOSE Inspector		Order No.: 7 XS 5 9	0	0	- 0	Α	Α	0	D
GOOSE Inspector for IEC 61850 Ethe	ernet stationbus								
Online-Monitoring of IEC 61850 GOO	SE telegrams								
licence for one computer									
contains Installation CD with USB-don	ngle and user manual								
									_
Responsible for technical content: Markus Spangler, E D EA PRO LM 2	Division: Energy Energy Automation				-				
Siemens AG, Nuremberg	PO box 48 06		0		-		_		
Internet: www.SIPROTEC.com	D-90026 Nuremberg		2	5 1	P	ĸ	U		EC

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