

Clock Synchronization with SNTP

Overview

The VAMP relays which have an Ethernet interface can be synchronized with a NTP server. The relays makes the synchronization automatically using SNTP protocol. The internal clock of the relay is synchronized to the UTC time of the NTP server. UTC time is used e.g. in the time stamps of the IEC 61850 protocol. It is possible to set the relay to show the local time using "Time zone" and "NTP daylight saving parameters".

The following views were generated from sw. version 10.55.

Starting SNTP synchronization

The VAMP relays starts synchronizing its clock to the clock of the NTP server after the IP-address of the NTP is correctly set to the "ETHERNET PORT" settings.

ETHERNET PORT	
Ethernet port protocol	IEC-61850
IP port for protocol	102
IP Address	10.4.128.2
NetMask	255.255.255.0
Gateway	10.4.128.254
NTP server	10.4.128.250
IP port for setting tool	23
TCP keepalive interval	5 s
MAC address	001AD3000099
Message counter	71
Error counter	0
Timeout counter	0

IP address of the NTP server

Figure 1. An example of the NTP server IP address setting.

Time zone setting

Example 1. Time zone for NTP = 0.00

When the "Time zone for NTP" is 0.00 then the UTC time is used also in the local displays and in the events shown via the VAMPSET event buffer.

CLOCK SYNC

Synchronizing source	SHTP
Time zone for NTP	0.00 h
NTP daylight saving time	Ho
Minute sync pulse DI	-
Synch correction	0.000 s

Time zone = 0.00

Report

LN	DI01GGIO45	Obj	Ind	Attr	t	Value	2010-06-18 03:23:24.761
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Time stamp in IEC 61850 event.

[1]	2010-06-18	03:23:24.761	00E02	DI1 off
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Time stamp in VAMPSET event buffer.

Figure 2. Example of event time stamps when "Time zone" setting is equal to 0.00.

Example 2. Time zone for NTP = 3.00

When the "Time zone for NTP" is 3.00 then the UTC time is used for IEC 61850 event, but the local displays and in the events shown via the VAMPSET event buffer are 3 hours "ahead".

CLOCK SYNC	
Synchronizing source	SHTP
Time zone for ITP	3.00 h
ITP daylight saving time	No
Minute sync pulse DI	-
Synch correction	0.000 s

Time zone = 3.00

Report							
LN	DI01GGIO45	Obj	Ind	Attr	t	Value	2010-06-18 03:14:52.970

Time stamp in IEC 61850 event.

[1]	2010-06-18	06:14:52.970	00E01	DI1 on
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Time stamp in VAMPSET event buffer.

3 hour time difference because of the Time zone setting.

Figure 3. Example of event time stamps when "Time zone" setting is equal to 3.00.

Note: The event time stamps shown on the local display are also local time = UTC time +/- Time Zone



Figure 4. Local display event listing.

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