S30 Substation Integration System

Event Format Data Sheet

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1. EVENT REPORTING TO EVENT LOGGER APP

1.1. Asynchronous Event Reporting

A PMCS/S30 compatible DDE server must support a special "Event" item which is formatted similarly for all devices. Each topic needs to have an event item. It is expected that when a DDE link is created to a topic's event item, the server will poll the device for pending events, retrieve all pending events, format the data into the event item string, and pass the item to the client(s). The PMCS/S30 compatible DDE server must also support a WFServer topic with and event item. It is expected that when a link is created to the event item of the WFServer topic, the server will supply an event item string and pass it to client(s) whenever a waveform retrieval is attempted.

1.2. EVENT Item Format

Each event is formatted as an ASCII String format item with maximum 132 characters including the NULL terminator. The EVENT item is a ASCII String format item consisting of concatenated event strings "\n" separated.

General format of a specific event in the EVENT Item string is across the devices is:

"MM/DD/YYYY   HH:MM:SS.SSS   DeviceName EventCode   EventDescription   FirstData SecondData ThirdData …"

All the fields are separated by a space character in EVENT item ASCII string.

- The first two fields are Date and Time stamps of the event. The time stamp may or may not include the milliseconds, depending upon the precision of the device.

- Device Name is a Maximum 20 character string. It does not contain any white spaces.

- Event Code is the code that describes event for the type of device being referred to. The field is a maximum 4 digit hexadecimal number, "FFFF".

- Event Description is the string being attached by DDE Server for the event reported by field device. This is a fixed 50 character long string. This may contain white space characters within it but length of this field is always 50 characters. If the description is shorter than 50 characters then it must be padded with space characters.

- FirstData SecondData ThirdData …are optional fields intended for numeric data associated with the specific event. All data supplied by the device for each event should be included.

Multiple events will be retrieved at one time by the server, formatted into the event string, concatenated together and separated by "\n" (quotation marks not included):

"event1 \n event2 \n event3 \n ......eventx "

Example:

To monitor the events for "Front_Panel_MVT" device in Excel, enter the following formula in a spreadsheet cell.

=GE32MODB|Front_Panel_MVT!EVENT

Events will look like following string:

"08/08/95 12:35:01.502Front_Panel_MVT 648 IPC failure on metering board 0 0 0 02 0".

The above example shows a single event.

1.3. Logging Oscillography Events in the Logger - Event Item Format for WFServer Topic

If an application retrieves oscillography files from an IED, it is responsible for informing the Event Logger of the new file retrieved. This is accomplished using a single DDE topic and item for all devices. The topic and item names for waveform events shall be WFServer and event, respectively. This functionality is supported in S30 by the GE Waveform Server application for DFP 100, DFP 200, ALPS, LPS, SR 469, SR 489, SR 745, SR 750, SR 760 and PQM.

All Waveform (oscillography) files and other data files retrieved by applications other than S30 must be placed in specific directories directory relative to the PMCS or S30 installation directory. Comtrade Waveform (oscillography) should be stored in the "**\WFServer\Waveforms\COMTRADEfiles".** Any other report data files such as fault reports, demand data, or currents data should be stored in the "**\WFServer\OtherReports".**

The format of the DDE Item for logging oscillography retrieval in the Logger app is shown in table 1.1

below.

The file naming conventions for the waveform files
and other report files are described below.

Note: The words "Auto" and "Manual" in the Event
String parameter refer to whether or not the
oscillography file was captured as a result of a
manual trigger from the HMI or as a result of the IED
having automatically captured it due to a fault or other
such condition.

Table 1.1 WaveformCapture Event DDE Item Format

Parameter	Type	Description
Date	MM/DD/YYYY	Time at which the waveform capture was done by the device.
TimeStamp	HH:MM:SS.SSS	Time in mSec (If available from the device) If mSec not available, then mSec left blank.
DeviceName	TEXT(20)	Device name as configured in the DDE Server (no white spaces)
DeviceType	TEXT(20)	See Table 1.2 below
EventCode	TEXT(4)	See Table 1.3 below
FileType	TEXT(20)	See Table 1.4 below
Event String	TEXT(128)	See Table 1.5 below

Table 1.2 Device Type

This table to be updated as devices are added.

DeviceType	Description
PLM	Power Leader Meter
E3710	EPM 3710
E3720	EPM 3720
ML469	Multilin SR 469
ML489	Multilin SR 489
ML745	Multilin SR 745
MLPQM	Multilin PQM
ML750	Multilin SR 750
ML760	Multilin SR 760
ALPS	ALPS
LPS	LPS
DFP100	DFP100
DFP200	DFP 200

Table 1.3 Event Code

Event Code	Description
1	
.	Reserved for GE Events
.	
999	
1001	Successful Waveform
1002	Successful Non-Waveform
1003	Failed Waveform
1004	Failed Non-Waveform
.	
.	
.	
1999	
2000	
.	Reserved for Other Events
.	
65535	

Table 1.4 File Type

This table to be updated as oscillography types are added.

File Type	Used for:
INST	DFP200
RMS	DFP200
THD	DFP200
HIZ	DFP200
DMND_REPRT	DFP200
CURR_REPRT	DFP100
WF_CAPT	E3710, E3720
WF_RECRD	E3720
OST	ALPS, LPS
OSC	ALPS, LPS, DFP100, DFP200
TRACE_MEM	ML469, ML489, ML745, MLPQM, ML750, ML760

Table 1.5 Event Strings

Event Code	Event Strings
1	<Auto/Manual> Waveform in <CSV/COMTRADE/CSV & COMTRADE> File:<*filename*>
2	<*filetype*> in <CSV/CSV & COMTRADE> File:<*filename*>
3	Waveform Retrieval Failure
4	Other Retrieval Failure
.	
.	
.	
999	

Waveform Filename:

The output file name will have the following form:

DEVICENAME-YYYYMMDD-HHMMSS-REPTYPE.<file extension>

DEVICENAME is a maximum 20 character string. It does not contain any white spaces.

DEVICENAME is followed by a hyphen character **"-"**

YYYYMMDD is the four digit year, two digit month and two digit day which describes the date on which the Server prepared the waveform data files. There are no white spaces in this field.

YYYYMMDD is followed by a hyphen character **"-"**

HHMMSS is the two digit hour (military time), two digit minute and two digit second which describes the time at which the Server prepared the waveform data files. Note that this time differs from the time at which the waveform

was captured in the device.

HHMMSS is followed by a hyphen character "_"

REPTYPE is described below in Table 1.6, Report Type.

<file extension> is specific to the format in which the file was saved. PMCS CSV files have a "csv" file extension. COMTRADE format produces three output files. These files will have extensions "hdr", "cfg", and "dat".

Example of a filename in PMCS CSV format would be:

D1000001-19970830-142231-OSC.csv

In COMTRADE format, an example of the output files might be:

D1000001-19970830-142231-OSC.hdr

D1000001-19970830-142231-OSC.cfg

D1000001-19970830-142231-OSC.dat

Other Reports Filename:

The output file name will have the following form:

TBD

Table 1.6 Report Type

Report Types	Used for:
WAV	PMCS 5.0, PMCS 5.1 devices, SR760
OST	Malvern Devices
OSC	Malvern Devices
CUR	Malvern Devices
RMS	Malvern Devices
THD	Malvern Devices
HiZ	Malvern Devices
DMN	Malvern Devices

Example of a Waveform Capture Text Item :

"08/30/1997 14:22:31.0 D100001 DFP100 1 OSC Manual Waveform in COMTRADE & CSV File:D100001-19970830-142315-OSC"

Note that the time embedded in the filename is the time at which the data file was prepared by the Waveform Server, and will in all likelihood be later than the time at which the Waveform was captured at the device.

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