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Logging in OpcDbGateway and SAEAUT UNIVERSAL OPC Server

*OpcDbGateway is an universal platform enabling **integration of complex or easy applications** preferably by configuring instead of more laborious programming and for **bridging of different data sources**. SAEAUT UNIVERSAL OPC Server is a tool for easy development of dedicated OPC servers. Both products use common configuring and programming practices. One of most important usage of them is a **logging of data from a controlled and monitored system – e.g. a plant floor data from machines and devices**. They have also **parameterizable logging of internal configurable or programmable functionality**.*

Logging functionality

OpcDbGateway and also SAEAUT UNIVERSAL OPC Server (OdbGw/SUOS) enable collecting of data from different data sources. Both can save data to **text files** as **parameterizable messages** of the type:

%1% text part2 %2% ... text part5 %5%

where *Text part1 ... text part5* are defined by configuring and *%1% ...%5%* are replaced in run-time by **actual values of concrete variables** before writing of message to a log file.

To write this type messages to log file, *configurable commands* and *events* are used. Configurable commands are configured within *function blocks*. Events are triggered by triggers which can be of the type *TIME* (event is triggered in defined time) or *VALUE* (event is triggered by changing of variable value).

OpcDbGateway enables to save data also to **different databases**. Additionally, logged messages can be sent as **SMS and/or E-mails**.

There are two types of text log-files – **standard log files** and **alarm log files**. The second ones are used within alarm system built into the OpcDbGateway. Writing of data to them is alike as to standard log-files. Description of the internal alarm system is described in another document.

User needs not only information from monitored system but also information that infrastructure (software and hardware) providing the monitoring functions correctly. Also, to debug configurable or programmable functionality, it is necessary to **log information about executing of different commands and function blocks within a user's configuration**.

Critical time within functionality of the OdbGw/SUOS is start, restart and stop of the whole system. Therefore, by start log a file is created named like *START_120604_095041* (it means

START_YYMMDD_HHMMSS) and by stop another one with prefix STOP_. In case that start of the applications fails by start, it is possible to find out from log file what caused the problem.

New log files are created automatically in case log file achieve its maximal allowed size or as a result of configured triggered event.

Amount of system messages written to the log file can be affected in run-time using 2 system variables *TimeLog* and *TraceLog*. These variable are mapped to the OPC items of the internal OPC server *System.TimeLog* and *System.TraceLog* and so can be set reset in run-time from e.g from connected external OPC client application.

In case that none of *TimeLog* and *TraceLog* is set to *TRUE*, to the log file are written only:

- Header (see in Figure 1)
- Information about initialisation of different run-time parts (e.g database tables of a process database)

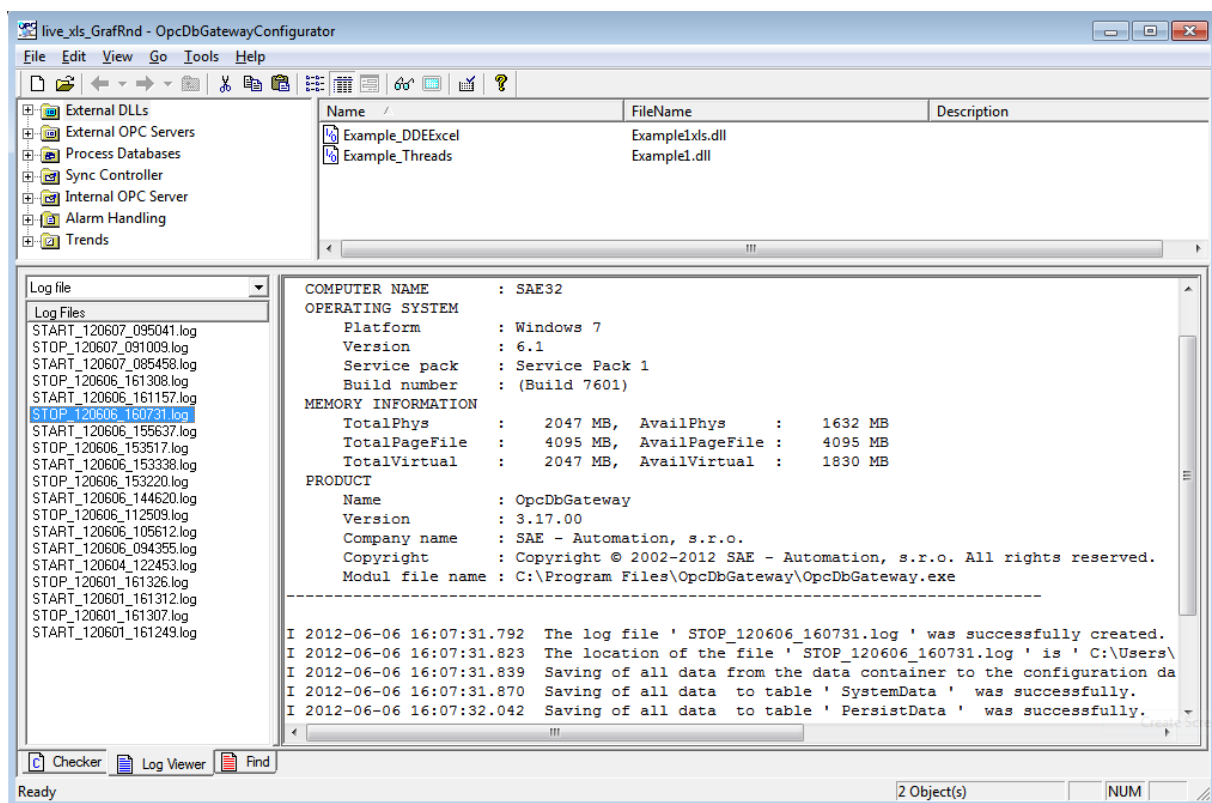


Figure 1 Log Viewer in OpcDbGateway displays list of created files and content of chosen file

In case that *TraceLog* = *TRUE*, information about every configurable command and its parameters is written to log e.g. like this:

```
I 2012-06-01 16:12:56.603 SYS_TRACE_LOG: 00275823 (1) LineNr=30 , CommandID=3,
Operation=MUL, Input1(Typ=Memory, Name=O3, Value=0), Input2(Typ=Memory, Name=a3,
Value=0) ==> DestVar(Typ=Memory, Name=I3, Value=0)
```

In case that *TimeLog* = *TRUE*, information about a time necessary to execute different function blocks is written to log e.g. like this:

I 2012-06-01 16:12:56.649 SYS_TIME_LOG: FunctionBlock ID=102 Name=Start,
TimeConsumption=187 [ms]

Log view (Figure 1) in the OdbGw/SUOS configuration application serves for viewing of log files and alarm log files. User can choose the viewed one in the combo box. If the OdbGw/SUOS is running and creating new log files list control automatically displays new created log files. Rich edit control shows the contents of actually selected log file. The content is still refreshed. Error messages are in red colour. With the right mouse button on rich edit control can user validates the checksum of a log file.

Path for log-files (Figure 2) and maximal space allowed for them are configured in view *System properties/General Settings/Log/Reports Location*.

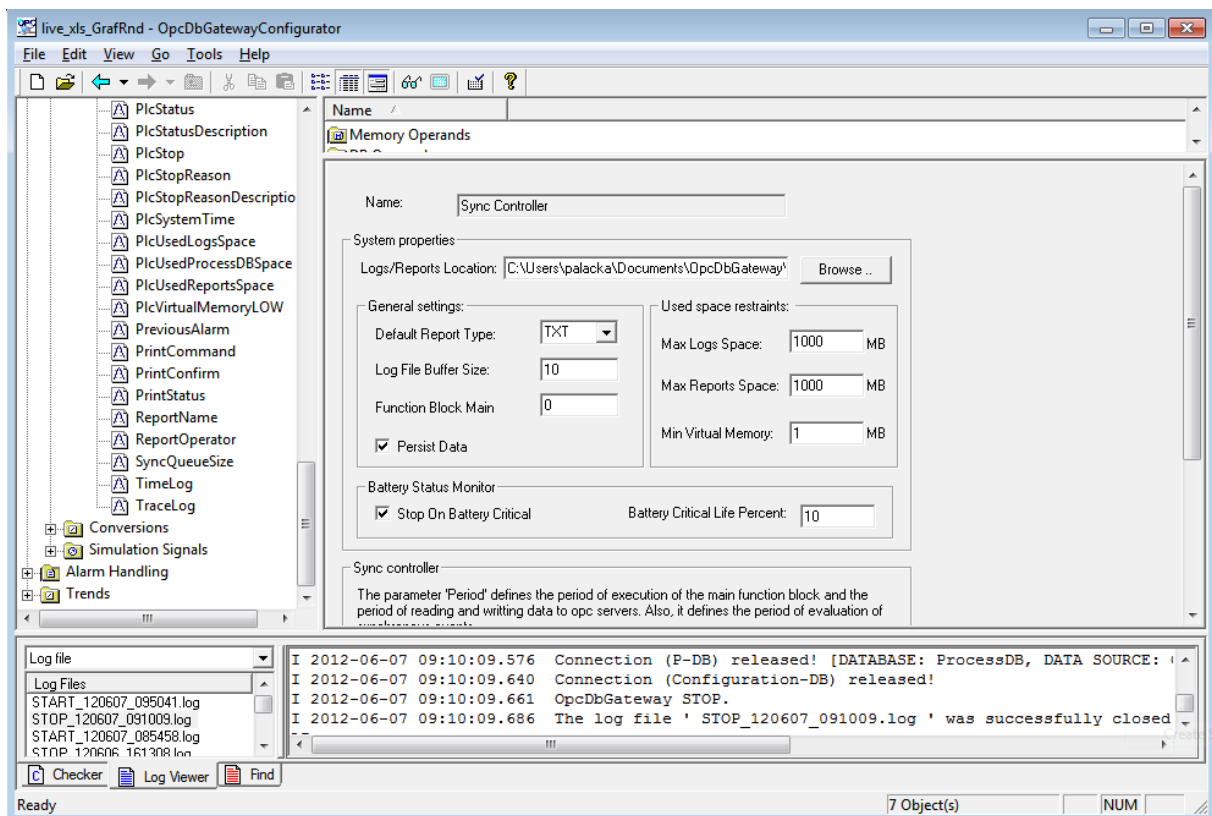


Figure 2 OPC items TimeLog and TraceLog for setting of logging level and setting of path and maximal allowed space for log files in System properties

Features resume:

- Configurable logging of application variables to:
 - log-files
 - databases (only in OpcDbGateway)
- Logging of internal functionality - initialisation and stop of the OdbGw/SUOS run-time
- Trace log – logging of executing configurable commands with input parameters and results
- Time log – measuring and logging of time necessary to fulfil different functionalities (e.g. configurable function blocks)
- Implicit generating of *START_* and *STOP_* standard log file or alarm log file

- Generating of standard and alarm log files using configurable events
- Sending of user log and alarm messages by SMS and/or E-mail
- Limiting of the place for log files (oldest log files are automatically removed)
- Log file validity is provided by a check sum

Applications

- HMI/SCADA
- MES
- Product Tracking
- Product Identification
- Custom VB, VC++, VB.NET, VS.NET, C# applications

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