D2000 Replay

Process **D2000 Replay** is an auxiliary process used as a substitution of process D2000 KOM for the data simulation of I/O tags. Unlike the process D2000 KOM that allows to set individual stations to the simulation mode, the process **D2000 Replay** works with real data acquired from the archive database and can be used for e.g. replaying D2000 system reactions to particular input data and further debugging the application with real data. Of course, it is necessary to archive as many I/O tags as possible.

Before use of process **D2000 Replay**, all the archive data (or a part) must be converted to the Replay database using the Arc2Rpl utility.

To run the D2000 Replay process

Declaration	**replay**[/H] replayDSN [start_time]
Parameters	/H — Initial values of I/O tags will be sent at the beginning of the simulation (if the parameter */H* was also used for the Arc2Rpl utility). replayDSN — DSN (Distinguished Source Name) of the Replay database generated by the Arc2Rpl utility. start_time — Optional simulation time. If it is not defined, the values of I/O tags from the Replay database will be read since the current time, that is detected by the D2000 Replay process from D2000 Server (i.e. before running the D2000 system, it is necessary to set the time and date of the computer with **D2000 Server** to the period, values within which that are stored in the database). If the parameter is defined, the values from the Replay database will be read since this defined time. The value of *Delta* - difference between the current time and the time of the first value read from the Replay database - will be added to the timestamps. **Example**: Process **D2000 Replay** is run using the parameter **start_time** "2004-01-01 10:00", the current time is "2004-01-30 11:00". Process D2000 Replay will add the value of 29 days and 1 hour to the times of values read.
Note	Time and date format may depend on the ODBC driver used, the example above is functional for Sybase SQL Anywhere database. Except the parameters described above, the process **D2000 Replay** also supports other standard parameters for D2000 processes such as /S, /DP, /F, /TP and others.
Description	*replay myRepl1* *replay /SsrvD2 /DP /H myRepl1 "2004-01-15 10:55"* You can also run several D2000 Replay processes - each of them reads the values of I/O tags from other Replay database. In that case, you must run each of the processes using a different parameter /W<Workstation> *replay /Wreplay1 myRepl1 "2004-01-15 10:55"* *replay /Wreplay2 myRepl2 "2004-01-15 10:55"*

Arc2Rpl utility

The **Arc2Rpl** utility is used for data conversion from the archive to the Replay database.

The utility reads the values of all I/O tag from the archive and then it saves them to the Replay database. While performing this task, it reads the I/O tags archived directly (in the configuration of historical value, there is defined an object of I/O tag type) as well as indirectly (using structures - in the configuration of historical value, there is a definition of a structure item of Object type that contains the reference to an I/O tag).

To run the Arc2Rpl utility

Declaration	**arc2rpl [/H] archive replay sysCfg [start_time [end_time]]**
Parameters	/H — In the Replay database (in the RPL_HIST table) there are stored last values of I/O tags before **start_time**. The values are used by the Replay as initial values. archive — DSN (distinguished source name) of archive database (by default, ApplicationName.Archiv). replay — DSN of Replay database. sysCfg — DSN of configuration database of the application (by default, ApplicationName.Syscfg). start_time — Optional parameter. Start time for reading the values of I/O tags from the archive. If it is not defined, all the archive contents will be converted. end_time — Optional parameter. End time for reading the values of I/O tags from the archive. If it is not defined, the archive since either **start_time** or all the archive contents will be converted.
Note	Time and date format can depend on the ODBC driver used, the example above is functional for Sybase SQL Anywhere database.
Description	After launching, the **Arc2Rpl** utility, except screen output, also generates the Arc2Rpl.log file placed in the directory, where the utility is placed in.
Example	*arc2rpl Test.Archiv myRepl1 Test.Syscfg* *arc2rpl Test.Archiv /H myRepl2 Test.Syscfg "2004-01-15 10:55"* *arc2rpl Test.Archiv myRepl3 Test.Syscfg "2004-01-15 10:55" "2004-01-19"*

Replay database structure

An empty Replay database is placed in the directory **D2000.e60\Templates** as the Sybase database *rpltemplate.db*. The Replay database contains the tables *RPL_DATA* (time indexed values) and *RPL_HIST* (initial values) with the following columns (listed for the possibility to create a Replay database working on other database servers):

- ID - integer
- CAS - timestamp
- VALUE - double
- STATUS - integer
- FLAGS - integer

In the table *RPL_DATA* an index on the column CAS is created, in the table *RPL_HIST*, no index is created. There is no unique index for the table *RPL_DATA*, so when you run the utility several times the table may contain identical values of I/O tags.

Related pages:

System processes