Predefined structure definitions

D2000 System contains several predefined objects of Structure definition type.

SD._System_ArchivPerformance

Item name	Description
Name	Name of a process of **D2000 Archiv** type.
PendingDbReque st	The number of queued write requests waiting for the archive database.
PendingStatReqe st	The number of waiting requests for the archives.
PerformedDbReq uest	The number of write requests performed per second for the archive database (10-second average).
PerformedCalcRe quest	The number of performed calculated and statistical calculations per second (10-second average).
TotalItemsInCache	The number of items in an internal archive cache.
CacheEffectivity	Cache usage in % (if it is 100%, the system does not need to read source data from disk for evaluation of statistical historical values - the data are in the memory).
DatabaseSize	Database size [MB].
AutoExtensible	If TRUE, then at least one of the datafiles is extensible (for ORACLE databases only).
FreeSpace	For Sybase/PostgreSQL: Free disk space. For Oracle: Free space in existing datafiles.
PendingClearReq uest	The number of waiting requests for deleting old data from the archive database.
Active	True - the instance of **D2000 Archiv** is active (performs writing as well as reading for users and ESL scripts). False - the instance of **D2000 Archiv** is passive (performs only writing).
LatestCommand	Description of the last executed command – a database request or statistics evaluation request in the process **D2000 Archiv**.
DataSize	for Sybase/PostgreSQL: DataSize = DatabaseSize for Oracle: DataSize = DatabaseSize - FreeSpace
Ready	True - the instance of **D2000 Archiv** is ready (the initial recalc has been executed). It may become active. False - the instance of **D2000 Archiv** is not ready.
DepositoryStatus	The status of depositories: • 0 - depositories are off • 1 - depositories are on and functional • 2 - depositories are on and non-functional

SD._System_EDAServerPerformance2

Item name	Description
Name	Name of process EDA Server.
DatabaseTaskCount	The number of database connections to DBS Oracle.
WorkerTasksCount	The number of computing threads of the EDA Server.
clientsCount	The number of connected clients.
triggersCount	The number of connected triggers.
gcTotalBlocks	The number of pre-allocated data blocks of the global cache.

gcTotalVectors	The number of pre-allocated vector definitions of the global cache.
gcTotalGroups	The number of pre-allocated group definitions of the global cache.
gcTotalScenarios	The number of pre-allocated scenario definitions of the global cache.
gcUsedBlocks	The number of used data blocks of the global cache.
gcUsedVectors	The number of used vector definitions of the global cache.
gcUsedGroups	The number of used group definitions of the global cache.
gcUsedScenarios	The number of used scenario definitions of the global cache.
ccTotalBlocks	The number of pre-allocated data blocks of the client cache.
ccTotalVectors	The number of pre-allocated vector definitions of the client cache.
ccTotalGroups	The number of pre-allocated group definitions of the client cache.
ccTotalScenarios	The number of pre-allocated scenario definitions of the client cache.
ccUsedBlocks	The number of used data blocks of the client cache.
ccUsedVectors	The number of used vector definitions of the client cache.
ccUsedGroups	The number of used group definitions of the client cache.
ccUsedScenarios	The number of used scenario definitions of the client cache.
lpqLength	Length of message queue with a lower priority.
npqLength	Length of message queue with a normal priority.
ipqLength	Length of message queue with an internal priority.
lpqMsgs	The number of processed messages with a lower priority.
lpqAvgWaitTime	An average wait time of the message in a queue with a lower priority.
lpqMaxLength	The maximum length of a queue with a lower priority.
npqMsgs	The number of processed messages with a normal priority.
npqAvgWaitTime	The average wait time of a message in a queue with a normal priority.
npqMaxLength	The maximum length of a queue with a normal priority.
ipqMsgs	The number of processed messages with an internal priority.
ipqAvgWaitTime	The average wait time of a message in a queue with an internal priority.
ipqMaxLength	The maximum length of a queue with an internal priority.
transTime	Time spent on transactions for EDA Server synchronization.
transCount	The number of transactions for EDA Server synchronization.
triggerTransTime	Time spent on transactions for EDA Server synchronization from a trigger.
triggerTransCount	The number of transactions for EDA Server synchronization from a trigger.
msgProcessingTime	Time spent on processing messages.
processedMsgCount	The number of processed messages.
statementExecTime	Time spent on processing EDA-L commands.
statementExecCount	The number of executed EDA-L commands.
compilationTime	Time spent on EDA-L compilations.
compilationCount	The number of EDA-L compilations.
descVectorCalcTime	Time spent on the calculation of descriptive vectors.
descVectorCalcCount	The number of calculations of descriptive vectors.
archiveTransTime	Time spent on transactions with the archive.
archiveTransCount	The number of transactions with the archive.

dbTaskRequestWait	Time spent on waiting for a database thread.
dbTaskRequestCount	The number of requests for a database thread.
dbActionsTime	Time spent on database actions.
dbActionsCount	The number of database actions.
sqlActionsTime	Time spent on executing SQL commands.
sqlActionsCount	The number of executed SQL commands.
cCacheMissCount	The number of queries on client cache which do not contain data.
cCacheHitCount	The number of queries on client cache which contains data.
ncCacheFullCount	The number of attempts to write to the full client cache.
cCacheBypassCount	The number of attempts to write to the client cache of entities that have the "non-cacheable" temporary flag.
cCacheNoncacheableCount	The number of non-cacheable access to the client cache.
gCacheMissCount	The number of queries to global cache, which do not contain data.
gCacheHitCount	The number of queries to global cache, which contains data.
gCacheFullCount	The number of attempts to write to the full global cache.
gCacheBypassCount	The number of attempts to write to the global cache of entities, that have the "non-cacheable" temporary flag.
gCacheNoncacheableCount	The number of non-cacheable access to the global cache.

SD._System_FileInfo

A structure contains the information about the files which have been returned by FIND_FILES action.

Item name	Description
IsFile	@TRUE - in case of a file, @FALSE - in case of a directory.
CreateTime	The time when the file or directory was created.
AccessTime	Time of the last access to the file (writing or reading).
ModifyTime	Time of the last file modification.
Size	File size in bytes.
Name	Filename.

Attribs	File attributes.
	The parameter *Attribs* contains file (directory) attributes, so as they were returned by an operating system. The following table contains the list of the attributes and their values from the file **winnt.h**.

Attribute	Value
FILE_ATTRIBUTE_READONLY	0x00000001
FILE_ATTRIBUTE_HIDDEN	0x00000002
FILE_ATTRIBUTE_SYSTEM	0x00000004
FILE_ATTRIBUTE_DIRECTORY	0x00000010
FILE_ATTRIBUTE_ARCHIVE	0x00000020
FILE_ATTRIBUTE_ENCRYPTED	0x00000040
FILE_ATTRIBUTE_NORMAL	0x00000080
FILE_ATTRIBUTE_TEMPORARY	0x00000100
FILE_ATTRIBUTE_SPARSE_FILE	0x00000200
FILE_ATTRIBUTE_REPARSE_POINT	0x00000400
FILE_ATTRIBUTE_COMPRESSED	0x00000800
FILE_ATTRIBUTE_OFFLINE	0x00001000
FILE_ATTRIBUTE_NOT_CONTENT_INDEXED	0x00002000

SD._System_LinePerformance

Item name	Description
Name	Line name. *Name* is entered by the D2000 system user (configurator) - the name of a line to be tracked. In systems with redundant application servers, the *Name* can be of the form *KernelName::LineName* (e.g. *MesA::L.Something*). For communication processes in active-active instance mode, the *Name* can be in the form *[Instance]_LineName* (e.g. *[2]_L.Something*).
Status	Line status (True / False).
StatusTime	Relative time from last line status change.
BytesIn	The number of received bits on the line from the start of process D2000 KOM or from the time when the data are set to zero by using the Tell command RESETPERF.
BytesOut	The number of sent bits on the line from the start of process D2000 KOM or from the time when the data are set to zero by using the Tell command RESETPERF.
FramesIn	The number of received datagrams/packets on the line from the start of process D2000 KOM or the time when the data are set to zero by using the Tell command RESETPERF.
FramesOut	The number of sent datagrams/packets on the line from the start of process D2000 KOM or the time when the data are set to zero by using the Tell command RESETPERF.
RetryError	The number of datagram request retry error (no response) on the line from the start of process D2000 KOM or the time when the data are set to zero by using the Tell command RESETPERF.
LastErrorTime	Last line error time.
LastErrorText	Last line error report.
Changes	The number of changes of I/O tags on the line that were sent to process D2000 Server during the last 10-second period.
ChangesTotal	The total number of changes of I/O tags on the line that were sent to process D2000 Server from the start of process D2000 KOM or the time when the data are set to zero by using the Tell command RESETPERF.
StationsNumber	The number of stations on the line.

SD._System_NetStatus

Item name	Description
IP_Address	The IP address or hostname to be tested using the PING network service. Both IPv4 and IPv6 addresses and names are supported.
Period	PING messages sending period (seconds).
Timeout	Wait time (milliseconds) for device response.
Reset	Setting the parameter to TRUE resets the parameter listed below.
Status	Network status.
StatusTime	The elapsed time of given status.
PktRcv	The number of successfully transferred packets.
PktLost	The number of lost packets.
SuccRatio	Network transfer ratio.
LastPingTime	The time when the last message was sent.

SD._System_ObjectInfo

The structure contains the basic information about the objects which have been returned by LST_CREATE action.

Item name	Description
ID	HOBJ of the object.
Name	Object name.
Desc	Object description.
Type	Object type.
Rows	The number of rows in case of the structured variable, otherwise 0.
Cols	The number of columns in case of the structured variable/structure definition, otherwise 0.
Parent	HOBJ of the parent object.

It is possible to use a structure extended by 2 more columns with their types and meanings:

UUID	Unique object identifier.
ModifyTime	Time of the last modification of the object.

SD._System_Proces

Item name	Description
Name	Name of D2000 system process. In the case of a process instance, the object name must be written with the prefix [instNr]_, in which *instNr* is the instance number. For example [2]_SELF.ARC for the instance archive (instance 2). **Note 1:** The parameter also allows defining a process running on another server (connected to another D2000 Server process) within a redundant system. To define such a process, define the parameter as follows: *server_name::process_name* (e.g. *DS15A::SELF.KOM*) **Note 2**: The parameter is not case sensitive.
ID	Process ID.
Status	Process status.

Computer Name	Name of the computer where the specified process is running.
ClientType	Type of the connection of specified process to process D2000 Server.
IPAddr1	The IP address of a specified process if it is connected to D2000 Server using TCP/IP or DUAL TCP/IP.
Comm Status1 1)	Status of the connection using the parameter **IPAddr1**.
IPAddr2	The IP address of a specified process. The parameter is shown if the process is connected to D2000 Server using DUAL TCP/IP.
Comm Status2 1)	Status of the connection using the parameter **IPAddr2**.
SentMessages	The number of messages that were sent by the D2000 Server to a client.
Receiv Messages	The number of messages that were received by the D2000 Server from a client.
Allocated Memory	Size (in bytes) of memory allocated by the specified process.
FreeMemory	for Windows/Linux/Raspberry PI: Free memory size of the computer (kilobytes) where the specified process is running for OpenVMS: Size of memory (kilobytes) that can be allocated by a specified process
CpuLoad	CPU load of the specified process.
Active	Indicates whether the instance is active or not. Possible values: • *True* - process instance is active • *False* - process instance is inactive
StartTime	Start time of the process.
Handles	for Windows: The number of the process handles.
Threads	The number of the process threads.
SendBytes	The number of bytes that were sent by the D2000 Server to a client.
ClientSendBytes	The number of bytes that were sent by a client to the D2000 Server.
AvailVirtual	The amount of unreserved and uncommitted memory currently in the user-mode portion of the virtual address space of the process, in bytes.
Private Usage	The Commit Charge value in bytes for this process. Commit Charge is the total amount of memory that the memory manager has committed for a running process.

| ModuleInfo | Structured process information in JSON format. Example:
`{`
`  "name":"cli.EVH",`
`  "basename":"cli",`
`  "ext":"EVH",`
`  "descript":"New Process",`
`  "state_value":"RUN",`
`  "state_ts":"2017-06-02T08:47:25.113Z",`
`  "run_counter":2,`
`  "transport":{`
`    "type":"SharedMemory",`
`    "tls":"None"`
`  },`
`  "client_data":{`
`    "host_name":"PC1A3",`
`    "platform":"w32",`
`    "os_info":"",`
`    "d2000_version":"BASIC V11.00.053 (A000000000-00) [s150] - DEBUG",`
`    "image_path":"C:\\D2000\\D2000_EXE\\bin\\event.exe",`
`    "image_ts":"2017-06-02T08:29:48.000Z",`
`    "image_size":67027508,`
`    "command_line":"event.exe /Wcli /DW",`
`    "log_path":"C:\\D2000\\D2000_EXE\\Log\\",`
`    "log_file":"EVH-cli.log"`
`  }`
`}` |

1) The variable contains the status of the TCP/IP connection. TRUE means that the connection has been established and is active. FALSE means that the connection has not been established or has been already ended. If the client process is connected to D2000 Server via one or several active network components (gateway, router...), the status of the connection can, in the specific situations (the fault conditions, a physical cut-off of the wiring network), acquire this value belatedly by tens of seconds up to several minutes.

SD._System_Redundancy

Item name	Description
Name	Name of the server (process D2000 Server) within a redundant group.
ComputerName	Name of the computer where the specified server is running.
UpTime	Run time of the specified server.
Status	Server status in redundancy. For numerical values see the table of server states
StatusTime	The elapsed time of specified status.

SD._System_StationPerformance

Item name	Description
Name	Station name. The *Name* is entered by D2000 system user (configurator) - the name of a station to be tracked. In systems with redundant application servers, the *Name* can be of the form *KernelName::StationName* (e.g. *MesA::B.Something*). For communication processes in active-active instance mode, the *Name* can be in the form *[Instance]_StationName* (e.g. *[2]_B.Something*).
FramesIn	The number of received datagrams/packets on the station from the start of process D2000 KOM or the time when the data are set to zero using the Tell command RESETPERF.
FramesOut	The number of sent datagrams/packets on the station from the start of process D2000 KOM or the time when the data are set to zero using the Tell command RESETPERF.
LastCommActivity	Time of last communication with the station (e.g. data reading time in the communication of request/response type).
LastTimeSynchro	Time of the real-time station synchronization.
LastErrorTime	Last station error time.

LastError Text	Last station error report.
Changes	The number of changes of I/O tags on the station that were sent to the D2000 Server process during the last 10-second period.
ChangesTotal	The total number of changes of I/O tags on the station that were sent to the process D2000 Server from the start of process D2000 KOM or the time when the data are set to zero by using the Tell command RESETPERF.
WaitReqNumber	The number of station communication requests postponed.
PointsNumber	The number of I/O tags on the station.

SD._System_TCTSPerformance

Item name	Description
Name	Name of process.
ClientsNr	The number of clients.
TotalOutMsg	Total outgoing messages.
TotalInMsg	Total incoming messages.
TotalOutBytes	Total outgoing bytes.
TotalInBytes	Total incoming bytes.
ServletQTotalSize	Servlet queue total size.
ServletQTotalCount	Servlet queue total count.

ⓘ **Related pages:**

Structure definition
Structured variables