NORAD Surveillance *DB* for Microsoft SQL Server

NORAD Surveillance *DB* for Microsoft SQL Server provides several predefined rule templates and parameters which can immediately apply to SQL Server entities through the standard Analyzer agent. The Analyzer agent also allows the user to define custom single entity rule templates. These templates can be applied to multiple databases with different thresholds, refresh rates, and other characteristics.

For more information in defining and applying rule templates and parameters please refer to the *NORAD Surveillance DB User's Guide*.

Predefined Microsoft SQL Server Rules

Parameters
Predefined rule templates use one or more of the following standard parameter names:

Parameter Name	Type	Description
REFRESH	Integer	The time interval used to poll the statistic and test the rule. The time value unit is rule dependent, but typically it is seconds.
OCCURRENCES_HITS	Integer	The number of times the condition was TRUE for this rule within the OCCURRENCES_WINDOW
OCCURRENCES_WINDOW	Integer	The number of previous intervals to test backward to evaluate whether or not a rule condition has been satisfied.
VALUE	Type Specific	This parameter (usually a number) represents the value to test for inside the rule.

SQL Server Rules

MSSQL_BUFF_CACHEHIT_ALERT
Monitors the cache hit percent of the buffer manager cache. This rule will trigger an alert message.

Description	Buffer Mgr CacheHi < value(Alert)
Collection	BUFFCACHE
Where Clause	"SQLServer_Buffer Manager : NULL Buffer Cache Hit Ratio". Current <@VALUE@
Occurrence Hits	1
Occurrence Window	1
Default Refresh	120 (Seconds)
Default Value	10

MSSQL_BUFF_CACHEHIT_WARN
Monitors the cache hit percent of the buffer manager cache. This rule will trigger a warning message.

Description	Buffer Mgr CacheHit < value(warn)
Collection	BUFFCACHE

Where Clause	“SQLServer_Buffer Manager:NULL:Buffer Cache Hit Ratio”.Current <@VALUE@
Occurrence Hits	1
Occurrence Window	1
Default Refresh	120 (Seconds)
Default Value	50

MSSQL_BUFF_FREEBUFFERS
Monitors the amount of Buffer Manager free buffer space (in KB) on the SQL Server.

Description	Buffer Mgr Free Buffers < value
Collection	MEMORYMANAGER
Where Clause	“Free Buffers”.KB<@VALUE@
Occurrence Hits	1
Occurrence Window	1
Default Refresh	120 (Seconds)
Default Value	10

MSSQL_DBFILES_SPACEBOUNDALLOC
Monitors for database files that do not have enough space on the logical device to grow to their next allocation size, and the logical device space usage exceeds 85%.

Description	Next file alloc exceeds space
Collection	DBFILES
Where Clause	((nextallocmb > drivembfree) or (maxsize > 0 and nextallocmb > (maxsize - size))) and usedpercent > 85
Occurrence Hits	5
Occurrence Window	10
Default Refresh	120 (Seconds)
Default Value	NA

MSSQL_DBSUMMARY_LOGPCT
Monitors the log space usage for all databases of the SQL Server.

Description	Database Log Usage % exceeds value
Collection	DBSUMMARY
Where Clause	logpct > @VALUE@
Occurrence Hits	1
Occurrence Window	1
Default Refresh	600 (Seconds)
Default Value	90

MSSQL_GLOB_BATCH_REQS
Monitors the SQL Server batch request rate.

Description	Batch requests/sec exceeds value
Collection	Globalstats
Where Clause	“Batch Reqs Sec”.Current>@VALUE@
Occurrence Hits	1
Occurrence Window	1
Default Refresh	60 (Seconds)
Default Value	10

MSSQL_GLOB_BLOCKED
Database contention may cause lock requests to be blocked. The global number of blocked processes is monitored by this rule.

Description	Blocked Process count exceeds value
Collection	Globalstats
Where Clause	“Blocked Procs”.Current>@VALUE@
Occurrence Hits	1
Occurrence Window	1
Default Refresh	60 (Seconds)
Default Value	10

MSSQL_GLOB_LOCKS
Monitors the active lock requests during the sample interval.

Description	Lock count exceeds value
Collection	Globalstats
Where Clause	Locks.Current>@VALUE@
Occurrence Hits	1
Occurrence Window	1
Default Refresh	60 (Seconds)
Default Value	100

MSSQL_GLOB_PROCESSES
Monitors the total tally of launched processes. This rule vigilantly watches for those runaway processes which spawn too many child-processes (in excess of a user-defined limit.)

Description	Process count exceeds value
Collection	GLOBALSTATS
Where Clause	Processes.Current > @VALUE@
Occurrence Hits	1
Occurrence Window	1
Default Refresh	60
Default Value	100

MSSQL_GLOB_RUNNING_JOBS
Monitors the number of jobs executing on the SQL Server.

Description	Running Job count exceeds value
Collection	Globalstats
Where Clause	“Running Jobs”.Current > @VALUE@
Occurrence Hits	1
Occurrence Window	1
Default Refresh	60 (Seconds)
Default Value	10

MSSQL_GLOB_SQLSVR_CPU
Monitors the % of CPU utilization of principal process SQLSVR.EXE of Microsoft SQL Server.

Description	SQL Server CPU % exceeds value
Collection	GLOBALSTATS
Where Clause	"SQLSvr CPU %".Current > @VALUE@
Occurrence Hits	1
Occurrence Window	1
Default Refresh	60
Default Value	70

MSSQL_GLOB_SQLSVR_DISKIO
Monitors for conditions where the Disk IO activities of the SQL Server principal process SQLSRVR exceeded a preset limit.

Description	SQLSvr Disk IO/sec exceeds value
Collection	GLOBALSTATS
Where Clause	"SQLSvr Disk IO Sec".Current > @VALUE@
Occurrence Hits	1
Occurrence Window	1
Default Refresh	60
Default Value	50

MSSQL_GLOB_SQLSVR_MEM_MB
Monitors the amount of system memory allocated to SQL Server.

Description	SQL Server memory (MB) exceeds value
Collection	Globalstats
Where Clause	“SQLSvr Mem MB”.Current > @VALUE@
Occurrence Hits	1
Occurrence Window	1
Default Refresh	60 (Seconds)
Default Value	30

MSSQL_GLOB_TOTAL_CPU
Monitors the overall server CPU utilization.

Note: When using a screen saver on the server, idle time may be completely given to the screen saver, causing your CPU utilization to be near 100%.

Description	Total CPU % exceeds value
Collection	Globalstats
Where Clause	“Total CPU %”.Current>@VALUE@
Occurrence Hits	10
Occurrence Window	15
Default Refresh	60 (Seconds)
Default Value	95

MSSQL_GLOB_TOTAL_DISKIO
Monitors the overall server Disk IO rate.

Description	Total Disk IO/sec exceeds value
Collection	Globalstats
Where Clause	“Total Disk IO Sec”.Current>@VALUE@
Occurrence Hits	1
Occurrence Window	1
Default Refresh	60 (Seconds)
Default Value	50

MSSQL_LOGDEVIO_IOSPERSEC
Monitors the I/O rate (I/Os per second) on each logical device.

Description	Log Dev IO rate > value
Collection	LOGDEVIO
Where Clause	IOSPERSEC > @VALUE@
Occurrence Hits	5
Occurrence Window	10
Default Refresh	120 (Seconds)
Default Value	100

MSSQL_LOGDEVIO_USEDPERCENT
Monitors the percent space used on each logical device.

Description	Log Dev % space usage exceeds value
Collection	LOGDEVIO
Where Clause	USEDPERCENT > @VALUE@
Occurrence Hits	1
Occurrence Window	1
Default Refresh	600 (Seconds)
Default Value	95

MSSQL_MEMORY_AVAILBYTES
Monitors Available Bytes. Available Bytes displays the size of the virtual memory currently on the Zeroed, Free, and Standby lists. Zeroed and Free memory is ready for use, with Zeroed memory cleared to zeros. Standby memory is memory removed from a process' Working Set but still available. Notice that this is an instantaneous count, not an average over the time interval.

Description	System Memory Avail < value
Collection	MEMORY
Where Clause	"Available Bytes".Current < @VALUE@
Occurrence Hits	15
Occurrence Window	30
Default Refresh	120 (Seconds)
Default Value	1000000

MSSQL_MEMORY_PAGESPERSEC
Monitors System Pages/sec. Pages/sec is the number of pages read from the disk or written to the disk to resolve memory references to pages that were not in memory at the time of the reference. This is the sum of Pages Input/sec and Pages Output/sec. This counter includes paging traffic on behalf of the system Cache to access file data for applications. This value also includes the pages to/from non-cached mapped memory files. This is the primary counter to observe if you are concerned about excessive memory pressure (that is, thrashing), and the excessive paging that may result.

Description	System Memory Pages / sec > value
Collection	MEMORY
Where Clause	"Pages / sec".Current > @VALUE@
Occurrence Hits	15
Occurrence Window	30
Default Refresh	120 (Seconds)
Default Value	100

MSSQL_PHYSDEVIO_IOSPERSEC
Monitors the I/O rate (I/Os per second) on each physical device.

Description	Phys Dev IO rate exceeds value
Collection	PHYSDEVIO
Where Clause	IOSPERSEC > @VALUE@
Occurrence Hits	5
Occurrence Window	10
Default Refresh	120 (Seconds)
Default Value	100

MSSQL_PROCESS_BLOCKED_TIME
Monitors for specific processes that have been blocked for more than a user-specified amount of time.

Description	Seconds blocked exceeds value
Collection	Process

Where Clause	time_blocked>@VALUE@
Occurrence Hits	1
Occurrence Window	1
Default Refresh	60 (Seconds)
Default Value	10

MSSQL_PROCESS_CPU%
Monitors the interval cpu percent utilization for a process.

Description	Process CPU % exceeds value
Collection	Process
Where Clause	CPUPCT>@VALUE@
Occurrence Hits	1
Occurrence Window	1
Default Refresh	60 (Seconds)
Default Value	10

MSSQL_PROCESS_CPUSECS
Monitors the total number of cpusecs for a process. System processes are excluded by testing for kpid > 0.

Description	Process CPU secs exceeds value
Collection	Process
Where Clause	cpusecs>@VALUE@ and kpid > 0
Occurrence Hits	1
Occurrence Window	1
Default Refresh	60 (Seconds)
Default Value	10

MSSQL_PROCESS_DECEASED_SPID
Monitors for *deceased* processes, processes that no longer appear in the process collection during the current interval.

Description	Record Deceased SPIDs
Collection	process
Where Clause	MergeStatus < 0
Occurrence Hits	1
Occurrence Window	1
Default Refresh	60 (Seconds)
Default Value	NA

MSSQL_PROCESS_NEW_SPID
Monitors for *new* processes, processes that have not appeared in the process collection until the interval. The first collection is ignored.

Description	Record New SPIDs
Collection	process
Where Clause	MergeStatus = 1
Occurrence Hits	1
Occurrence Window	1
Default Refresh	60 (Seconds)
Default Value	NA

MSSQL_PROCESS_PHYSIO_RATE
Monitors for specific processes that have Physical I/O rates (I/Os per second) greater than a user-specified value.

Description	Physical IO rate exceeds value
Collection	Process
Where Clause	physical_io_rate>@VALUE@
Occurrence Hits	1
Occurrence Window	1
Default Refresh	60 (Seconds)
Default Value	10

MSSQL_PROCESS_STATUS

Monitors for processes with a specific status. The '%' can be used at the end of a string for wild card searches. When setting the value, DO NOT use quotes (the rule condition already has the proper quotes included).

Description	Process status like value
Collection	process
Where Clause	status like "@VALUE@%"
Occurrence Hits	1
Occurrence Window	1
Default Refresh	60 (Seconds)
Default Value	NULL

MSSQL_SYSTEM_PRIVTIME

Monitors the percentage of processor time spent in Privileged Mode in non-Idle threads. The Windows NT service layer, the Executive routines, and the Windows NT Kernel execute in Privileged Mode. This rule generates an event when the System % Processor time exceeds a value(50%) AND the ratio of priv time to proc time exceeds a user defined value (50%).

Description	% Total Priv Time exceeds value
Collection	PERFMON
Where Clause	"SYSTEM:NULL:% Total Processor Time".Current > @VALUE@ AND ("SYSTEM:NULL:% Total Privileged Time".Current/"SYSTEM:NULL:% Total Processor Time".Current)*100 > @PRIVTOPROC@
Occurrence Hits	20
Occurrence Window	30
Default Refresh	120 (Seconds)
Default Value	50
PRIVTOPROC	50

MSSQL_SYSTEM_PROCQUEUELEN

Monitors System Processor Queue Length. Processor Queue Length is the instantaneous length of the processor queue in units of threads. This counter is always 0 unless you are also monitoring a thread counter. All processors use a single queue in which threads wait for processor cycles. This length does not include the threads that are currently executing. A sustained processor queue length greater than two generally indicates processor congestion. This is an instantaneous count, not an average over the time interval.

Description	Processor Queue Length exceeds value
Collection	PERFMON
Where Clause	"SYSTEM:NULL:Processor Queue Length".Current > @VALUE@
Occurrence Hits	15
Occurrence Window	30
Default Refresh	120 (Seconds)
Default Value	5

MSSQL_SYSTEM_PROCTIME_ALERT

Monitors the percentage of the elapsed time that a processor is busy executing a non-Idle thread. This rule is intended to be used to generate an Alert message.

Description	% Total Proc Time exceeds value (Alert)
Collection	PERFMON
Where Clause	“SYSTEM:NULL:% Total Processor Time”.Current >@VALUE@
Occurrence Hits	20
Occurrence Window	30
Default Refresh	120 (Seconds)
Default Value	85

MSSQL_SYSTEM_PROCTIME_WARN

Monitors the percentage of the elapsed time that a processor is busy executing a non-Idle thread. This rule is intended to be used to generate a warning message.

Description	% Total Proc Time exceeds value (warn)
Collection	PERFMON
Where Clause	“SYSTEM:NULL:% Total Processor Time”.Current >@VALUE@
Occurrence Hits	20
Occurrence Window	30
Default Refresh	120 (Seconds)
Default Value	65