



NORAD Surveillance *DB* for Oracle

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

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

Predefined ORACLE Rules

Parameters

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

The default values can be overridden when the rule is applied, or changed in the rule definition.

Column Name	Restrictions	Description
REFRESH	Integer	The time lapse between Analyzer polling and the entity for a new data sample and testing of the rule.
OCCURRENCES_HITS	Integer	The number of times the condition was TRUE for this rule within the OCCURRENCES_WINDOW.
OCCURRENCES_WINDOW	Integer	The number of intervals to test backward to evaluate if a rule has been satisfied.
VALUE	Type Specific	This parameter (usually a number) represents the value to test for inside the rule.

ORACLE Rules

ORA_ALERTLOG_ERROR

New Oracle Alert Log Error

Occurrence Hits: 1
Occurrence Window: 1
Refresh: 60 seconds

Monitors for any new entry in the ORACLE Alert Log file. Watch for specific ORACLE Errors by copying this rule and specifying a WHERE clause that tests for the specific error. (e.g., ErrorCode = "ORA-1652").

ORA_ALERTLOG_SIZE

Alert Log Size (Kbytes) exceeds value

Occurrence Hits: 1
Occurrence Window: 1
Refresh: 600 seconds
Value: 1024

Monitors the size of the ORACLE Alert Log file. The Alert log file keeps growing over time and needs to be purged (or archived) manually to avoid disk space issues.

ORA_ARCHIVE_REDO_LOG_SIZE

Archive Redo Log Size (Kbytes) exceeds value

Occurrence Hits: 1
Occurrence Window: 1
Refresh: 600 seconds
Value: 102400

Monitors the size of the ORACLE Archive Redo logs. The Redo log files keep growing over time and need to be purged (or archived) manually to avoid disk space issues.

ORA_EBULOG_ERROR

New EBU log error

Occurrence Hits: 1
Occurrence Window: 1
Refresh: 600 seconds

Monitors the EBU (Enterprise Backup Utility) log file(s) for "Failed", "Partial", or "Warning" errors. See the section *Monitoring Oracle EBU Logs* for more details.

ORA_FILEIO_IOS_PER_SECOND

File IOs per second exceeds value

Occurrence Hits: 1
Occurrence Window: 1
Refresh: 60 seconds
Value: 10

I/O is one of the slowest operations a computer can perform. The physical reads and writes for specific files can detect an uneven workload. The goal is to have a database with as balanced an I/O distribution as possible. This analysis can provide a method to determine I/O load balance.

ORA_GLOB_BLOCKED_SESSIONS

Blocked Session count exceeds value

Occurrence Hits: 1
Occurrence Window: 1
Refresh: 60 seconds
Value: 5

Database contention may cause sessions to be blocked. The global number of Blocked Sessions is monitored by this rule.

ORA_GLOB_CACHE_MISS_PERCENT

Cache Miss percent exceeds value

Occurrence Hits: 1
Occurrence Window: 1
Refresh: 60 seconds
Value: 10

The Oracle instance reads and writes data to the database buffer cache during operations. A cache hit means the required information is already in memory. A cache miss means that Oracle must perform disk I/O to satisfy the request. Cache misses should be minimized. The Cache Miss Percent is the number of cache misses divided by the number of cache hits.

ORA_GLOB_CURRENT_SESSIONS

Current Session count exceeds value

Occurrence Hits: 1
Occurrence Window: 1
Refresh: 60 seconds
Value: 150

The total number of user and system sessions operating globally on the Server.

ORA_GLOB_CURR_OPEN_CURSORS

Current Open Cursors exceeds value

Occurrence Hits: 1
Occurrence Window: 1
Refresh: 60 seconds
Value: 200

The total number of memory segments acquired for SQL statement execution open globally on the Server.

ORA_GLOB_DBWR_CHECKPOINTS

DBWR Checkpoints exceeds value

Occurrence Hits: 1
Occurrence Window: 1
Refresh: 60 seconds
Value: 10

The database writer manages all writes to the database. A checkpoint occurs when Oracle writes information from its buffers in memory to the appropriate database files. This measurement monitors the total of database writer checkpoints.

ORA_GLOB_DDLLOCKS

Current DDL Locks exceeds value

Occurrence Hits: 1
Occurrence Window: 1
Refresh: 60 seconds
Value: 100

Data Definition Language is the set of SQL commands that create and define objects in the database. Locks ensure consistency, concurrence, and integrity of data and are acquired to accomplish these tasks. This measurement inspects the global number of DDL Locks on the Server.

ORA_GLOB_DISKIO_PER_SEC

Disk IOs per second exceeds value

Occurrence Hits: 1
Occurrence Window: 1
Refresh: 60 seconds
Value: 20

Disk access is much slower than memory access. Disk I/O bottlenecks can inhibit the performance of Oracle. The Global Disk I/O per Second measurement indicates the level of Disk I/O activity to help identify potential problems.

ORA_GLOB_DMLLOCKS

Current DML Locks exceeds value

Occurrence Hits: 1
Occurrence Window: 1
Refresh: 60 seconds
Value: 100

Although this parameter does not affect performance, too low a setting causes transactions to fail with a "DMLLOCK" error. The Global Data Manipulation Language Lock variable should usually be set at eight times the number of transactions. The Value for this rule should be set to monitor when the number of DML Locks reaches a particular level. If an error occurs, the database must be closed and the DMLLOCK parameter increased. Restarting the database flushes all cache information loaded into memory.

ORA_GLOB_NEW_CURSORS

New Cursors exceeds value

Occurrence Hits: 1
Occurrence Window: 1
Refresh: 60 seconds
Value: 20

A cursor is the name for memory associated with a specific SQL statement. The number of new cursors opened on the instance during the current refresh interval can effect memory consumption. The Value for this rule can monitor new cursor activity to ensure that excessive parsing of SQL statements does not occur.

ORA_GLOB_NEW_SESSIONS

New Sessions count exceeds value

Occurrence Hits: 1
Occurrence Window: 1
Refresh: 60 seconds
Value: 20

System overhead is associated with every new logon. The number of new sessions currently connected to the instance may indicate an application disconnecting and reconnecting between transactions. Setting the Value of this rule to a consequential level can identify the longer response time associated with this activity.

ORA_GLOB_RECURSIVE_CALLS

Recursive Calls exceeds value

Occurrence Hits: 1
Occurrence Window: 1
Refresh: 60 seconds
Value: 10

Recursive Calls are additional SQL statements issued by Oracle to satisfy a user issued SQL statement or stored procedure. They can be caused by Dictionary Cache misses or by dynamic extensions of tables, indexes, clusters, or rollback segments. The Global Recursive Calls value establishes a threshold for monitoring this occurrence. Excessive Recursive Calls (generally 4 times the number of sessions) can indicate the need to optimize the Dictionary Cache or rebuild tables with fewer extents.

ORA_GLOB_SORT_DISK_PERCENT

Sort Disk % exceeds value

Occurrence Hits: 1
Occurrence Window: 1
Refresh: 60 seconds
Value: 10

Disk Sort represents the number of times Oracle creates a temporary segment to perform sorting on a disk. Sorting requires space in memory to manage the data. The percentage value is determined by dividing the sorts related to disk by the sum of disk sorts and the amount of memory required for sorting.

ORA_GLOB_TABLE_SCANS_LONG

Table Scans Long exceeds value

Occurrence Hits: 1
Occurrence Window: 1
Refresh: 60 seconds
Value: 10

Performance can be affected when accessing non-indexed tables larger than five database blocks. If excessive long table scans are occurring, then special tuning may be required. The Value for this rule can be set to a level to monitor the condition.

ORA_GLOB_TRANS_PER_SEC

Transactions per second exceeds value

Occurrence Hits: 1
Occurrence Window: 1
Refresh: 60 seconds
Value: 20

Global Transactions per Second represents the rate of committed and rolled back updates, inserts, and deletes per second. A reduced rate may indicate heavy contention for resources in an environment where transaction processing and batch/reporting processing are present.

ORA_LATCH_MISS_PERCENT

Latch Miss % exceeds value

Occurrence Hits: 1
Occurrence Window: 1
Refresh: 60 seconds
Value: 10

When performing an operation such as accessing data, the SGA must obtain a latch from the table and then own the latch. A Latch Miss occurs when a latch request is not satisfied immediately. The calculation is detailed in *Real-Time Diagnostics Windows* chapter of this book.

ORA_LATCH_TIMEOUT_PERCENT

Latch Timeout % exceeds value

Occurrence Hits: 1
Occurrence Window: 1
Refresh: 60 seconds
Value: 10

A Latch Time-out occurs when a request for a latch times out while waiting to be satisfied. The calculation is detailed in *Real-Time Diagnostics Windows* chapter of this book.

ORA_RBS_WAIT_PERCENT

Rollback Segment Wait % exceeds value

Occurrence Hits: 1
Occurrence Window: 1
Refresh: 60 seconds
Value: 10

Rollback Segments enforce read consistency within the database and store data as it existed before an update. This data can be used to restore the database to its original form. Rollback Segments are used by all kinds of transactions for rollback, transaction, read consistency, and recovery. Rollback contention exists if there are any Waits. The Rollback Wait Percent is calculated by dividing the Waits by the Get percentage.

ORA_RMANLOG_ERROR

New RMAN Log error

Occurrence Hits: 1
Occurrence Window: 1
Refresh: 600 seconds

Monitors the RMAN (Oracle Recovery Manager) Log(s) for an “Error Message Stack” record. Events logged following the stack record are parsed as errors. See the section *Monitoring Oracle RMAN Logs* for more detail.

ORA_SBO_SPACE_BOUND_OBJECTS

Space Bound Objects

Occurrence Hits: 1
Occurrence Window: 1
Refresh: 600 seconds

Sends an Event when space bound objects are identified. Objects are considered space bound for the following reasons:

- The object’s maximum number of extents has been reached
- Insufficient free space within the tablespace for the objects next extent
- Fragmented free space within tablespace must be defragged for the objects next extent

ORA_SESS_BLOCKEDBY_SESSION

Session Blocked by another Session

Occurrence Hits: 1
Occurrence Window: 1
Refresh: 60 seconds

A session is a specific connection by a user to an Oracle instance via a user process. Some sessions require exclusive access to objects. This rule helps identify blocked sessions and the blocking session.

ORA_SESS_BLOCKED_SESSIONS

Blocks by a Session exceed value

Occurrence Hits: 1
Occurrence Window: 1
Refresh: 60 seconds
Value: 5

This rule permits the identification of a session that is blocking more than a given number of other sessions. An alert will be triggered when the "block count" exceeds the rule's Value parameter.

ORA_SESS_DECEASED_SID

Deceased SID's

Refresh: 60 seconds
During refresh intervals, the current sessions are compared with the sessions from the previous collection. When a session no longer exists it is considered "deceased."

ORA_SESS_INACTIVE_SESSIONS

Session Inactive for HITS of WINDOW times

Occurrence Hits: 1
Occurrence Window: 1
Refresh: 60 seconds
Value: 10

Sessions are identified as *Active*, *Inactive*, or *Killed* by the Status parameter in V\$SESSION. If a session is *Inactive* for a specified occurrence of time and a specified number of times (Value), then an Alert can be initiated.

ORA_SESS_LOGICAL_IOS

Session Logical I/Os exceeded value

Occurrence Hits: 1
Occurrence Window: 1
Refresh: 60 seconds
Value: 20

The Session Logical I/Os is the sum of the Logical Reads and Logical Writes that have occurred during the current refresh interval.

ORA_SESS_LOGICAL_READS

Session Logical Reads exceeds value

Occurrence Hits: 1
Occurrence Window: 1
Refresh: 60 seconds
Value: 10

The Session Logical Reads is the number of Logical Reads that have occurred during the current refresh interval.

ORA_SESS_LOGICAL_WRITES

Session Logical Writes exceeds value

Occurrence Hits: 1
Occurrence Window: 1
Refresh: 60 seconds
Value: 10

The Session Logical Writes is the number of Logical Writes that have occurred during the current refresh interval.

ORA_SESS_MISS_PERCENT

Session Miss percent exceeded value

Occurrence Hits: 1
Occurrence Window: 1
Refresh: 60 seconds
Value: 20

The Session Miss Percent is a comparison of I/Os requiring disk operations and those being serviced by a cache.

ORA_SESS_NEW_SID

New SIDs

Refresh: 60 seconds

This rule facilitates the identification of new sessions as they log in.

ORA_SESS_OSUSER

Session OSUSER Like "value"

Refresh: 60 seconds
Value: " "

Specifying an option in the Value parameter can monitor the Operating System User Name of the logon ID. You can use wildcard characters (%) for the user name (e.g., SYS%).

ORA_SESS_PHYSICAL_READS

Session physical reads exceeded value

Occurrence Hits: 1
Occurrence Window: 1
Refresh: 60 seconds
Value: 20

The Session Physical Reads is the number of Physical Reads that have occurred during the current refresh interval.

ORA_SESS_PROGRAM

Session Program Like "value"

Refresh: 60 seconds
Value: "SQL%"

Predefined Analyser Rules for Oracle

A Value can be specified to monitor the name of the client programs that are executing. You can use wildcard characters (%) to group similar types of programs. When entering the search pattern string, always enclose it in double quotes (e.g., "SQL%").

ORA_SESS_SESSION_USER

Session User Like "value"

Refresh: 60 seconds

Value: "SYS%"

Monitors Session Users by specifying a Value to identify sessions that have been started. You can use wildcard characters (%) to specify similar types of User names. When entering the search pattern string, always enclose it in double quotes (e.g., "SYS%").

ORA_TSUSAGE_PERCENT_FULL

Tablespace percent usage exceeds value

Occurrence Hits: 1

Occurrence Window: 1

Refresh: 600 seconds

Value: 90

Monitors for any tablespace exceeding a user-specified percent full.

ORA_WAIT_WAITSTAT_COUNT

Waitstat Count exceeds value

Occurrence Hits: 1

Occurrence Window: 1

Refresh: 60 seconds

Value: 10

Monitors the number of waits that occurred during the last refresh interval.