Header Data

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Release Status   Released for Customer
Component   BC-DB-SDB MaxDB
Other Components   BC-DB-LVC liveCache

Priority   Recommendations / Additional Info
Category   Consulting

Symptom

You want to use an automatic check to check whether the configuration of your SAP MaxDB
(OLTP/BW)/liveCache/OneDB database corresponds to the current SAP recommendations.

Other Terms

liveCache, MaxDB, OneDB, BW, SAP Business Information Warehouse, parameter, configuration

Reason and Prerequisites

Reason:

Due to developments in experience and knowledge, it may be useful to adjust the SAP
MaxDB/liveCache/OneDB configuration. In this case, these are general configuration recommendations.
In individual cases (depending on the load profile or the application profile), you do not have to
follow these recommendations (for example, if you have been instructed otherwise by Support in
relation to your system).

Prerequisites:

You use a SAP MaxDB/liveCache/OneDB database with Version >= 7.5.00 Build 22 and you want to check
whether the configuration of your database corresponds to the SAP configuration recommendations.
In general, the database parameter recommendations that are described in the notes listed under
"related Notes" are checked.

Note the following:

We recommend that you perform the check after each import of a new SAP MaxDB/liveCache/OneDB version
because different recommendations might be relevant for different versions. Since the configuration
file that is attached to this note is regularly updated, you must download it before each check
again.
Current check version: "1.66, JUL/02/2015"

Additional information:

As of the SAP MaxDB/liveCache/OneDB versions
        7.6. Support Package 06 Build 03 (PTS 1160858)
        7.7. Support Package 07 Build 05 (PTS 1160860)
        7.8. Support Package 00 Build 11 (PTS 1160859)
the database analyzer that is included in the standard delivery analyzes whether the configuration
of your database was checked (if this is the case, the analyzer also determines when the check was
performed and which version was used to do this). The system may issue the following or similar
messages:

- If a check has never been performed:

       * W1 *No configuration check of instance <SID> has been performed so far!*

- If the check has not yet been performed for the current version:

      *I *Last configuration check of instance <SID> executed 2014*-09-15 17:11:06 with checker
version 1.60, September 15, 2014
       *W1 *Last configuration check based on version 7.9.08 Build 24, current version is 7.9.08*
Build 25

- If the check has already been performed for the current version:

      *I *Last configuration check of instance <SID> executed 2014*-09-15 17:11:06 with checker
version 1.60, September 15, 2014
      *I *Last configuration check based on version 7.9.08 Build 25, current version is 7.9.08*
Build 25

Solution

The automatic check is performed using the database analyzer tool that is already available in your system and a special database analyzer configuration file (dbanalyzer_InstanceParameterCheck.cfg). The database must have the operational state ONLINE.

Proceed as follows:

- Download the SAR package that is attached to this note and unpack the Database Analyzer configuration file that is contained in the SAR package. The checks are implemented in a temporary file:

        SAPCAR -xvf DbanalyzerParamCheck.sar
          ==> dbanalyzer_InstanceParameterCheck.cfg

CAUTION: The dbanalyzer<version>.cfg configuration files in the directory <INSTROOT>/env, required for the regular operation of the database analyzer (for example, /sapdb/<SID>/db/env), must **not** be replaced.

- Perform the automatic check as the database administrator (SUPERDBA) using the following command:

        dbanalyzer
         -d <database_name> -u <database_system_administrator>,<password>
         -f dbanalyzer_InstanceParameterCheck.cfg
         -o <temp_dir> -i -c 1 -t 1,1 [-n host]

- Analyze the screen output or the file <temp_dir>/<YYYYMMDD>/DBAN.prt. Analyze all the outputs that are marked with "* W1 - *W3".

Depending on the database type type and the SAP MaxDB/liveCache/OneDB version that is to be checked, the following database parameters are checked:

- General database parameters:

        _LOCKMANAGER_ENABLED
        _MAXTASK_STACK (MaxTaskStackSize)
        ENABLE_SYSTEM_TRIGGERS (UseSystemTrigger)
        INIT_ALLOCATORSIZE (InitialAllocatorSize)
        MAXLOCKS (MaxSQLLocks)
        _PACKET_SIZE (CommandBufferSize)
        MINI_DUMP (MiniDumpType,AbortHandlingMode)
        PROTECT_DATACACHE_MEMORY (UseDataCacheMemoryProtection)
        SUPPRESS_CORE (AbortHandlingMode)
        REQUEST_TIMEOUT (RequestTimeout)
        USEVARIABLEINPUT (EnableVariableInput)
        EnableVariableOutput
        EnableLegacyOuterJoinSyntax
        UseExtendedTimeMeasurement
        MEMORY_ALLOCATION_LIMIT (MaxMemoryAllocationSize)
        MaxTempFilesPerIndexCreation
        UseAlternateAllocatorForServer
        MaxDropDataReadAheadRequests
        EnableLobTransactionConsistency
        DeleteLeafsWithoutRead
        TransactionLockManagementStripes

- I/O

        _IOPROCS_FOR_READER
        IOPROCS_SWITCH
        SIMULATE_VECTORIO (UseVectorIOSimulation)
        USE_OPEN_DIRECT (UseFilesystemCacheForVolume)
        USE_OPEN_DIRECT_FOR_BACKUP (UseFilesystemCacheForBackup)
        UseLobClustering
        IOTicketQueueSynchronizationMode

- Tasking/Dispatching:

        LOAD_BALANCING_CHK (LoadBalancingCheckLevel)
        MAXCPU (MaxCPUs)
        ScheduleInterval
        XP_MP_RGN_LOOP/MP_RGN_LOOP (MaxExclusiveLockCollisionLoops)
        EnableSchedNoAgePolicy
        DedicatedServerTaskUKTs
        EnableMultipleServerTaskUKT

- SQL optimizer:

        EnableQualificationBypass
        HASHED_RESULTSET (UseHashedResultset)
        JOIN_OPERATOR_IMPLEMENTATION
        JOIN_MAXTAB_LEVEL9 (JoinSearchTableThreshold9)
        LRU_FOR_SCAN (UseDataCacheScanOptimization)
        _MBLOCK_STRAT_SIZE (InternalOrderStrategySize)

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MAX_HASHTABLE_MEMORY (HashJoinTotalMemorySize)
MAX_SINGLE_HASHTABLE_SIZE (HashJoinSingleTableMemorySize)
SHAREDSQL
OPTIMZE_FETCH_REVERSE
SharedSQLCleanupThreshold
EnableSharedSQLForInternalSQL
OPTIMIZE_FIRST_ROWS (EnableFirstRowAccessOptimization)
OPTIMIZE_JOIN_OUTER (EnableOuterJoinOptimization)
OPTIMIZE_JOIN_PARALLEL_SERVERS (ParallelJoinServerTasks)
OPTIM_MAX_MERGE (IndexlistsMergeThreshold)
OPTIMIZE_OPERATOR_JOIN
OPTIMIZE_OPERATOR_JOIN_COSTFUNC
OPTIMIZE_QUERYREWRITE (EnableQueryRewrite)
OPTIMIZE_STAR_JOIN (EnableStarJoinOptimization)
UPDATESTAT_SAMPLE_ALGO (UpdateStatSampleAlgorithm)
OPTIM_CACHE (UseStrategyCache)
USESELECTFETCH (UseSelectFetchOptimization)
EnableJoinIntermediateSort (OPTIMIZE_JOIN_OPERATOR_SORT)
```

- Logging:

```
LOG_IO_QUEUE (LogQueueSize)
LOG_MIRRORED
LOG_QUEUE_COUNT (LogQueues)
LOCAL_REDO_LOG_BUFFER_SIZE (LocalRedoLogBufferSize)
```

- SAP liveCache:

```
_MAXGARBAGE_COLL (GarbageCollectors)
HEAP_CHECK_LEVEL (CheckAllocator)
MAX_RETENTION_TIME (MaxRetentionTime)
OMS_HEAP_COUNT (OmsSubHeaps)
OMS_HEAP_LIMIT (OmsMaxHeapSize)
```

In addition, it is checked whether

- o defective indexes exist
- o the database trace is activated.
- o tables exist for which no statistics are stored in the file directory.
- o Logging is activated and the "automatic overwrite" is deactivated.
- o The size of the data cache corresponds to our recommendations.
  (2% of the database size for Unicode, 1% for non-Unicode systems).
- o Tables with packed UNICODE columns exist.
- o The max. number of data volumes has almost been reached.
- o The dataset has almost reached the maximum total size of 16 TB.

Note the following when checking a SAP MaxDB database of Version 7.8:

We recommend that you set the database parameter ScheduleInterval from 0 to 10000 during the check of an SAP MaxDB database with a version < 7.8.01.21 or < 7.8.02.20. This database parameter is defined as "hidden" and therefore, it is not displayed on the Database Studio/Database Assistant (transaction DB50) or DBA Cockpit (transaction DBACOCKPIT) interfaces. Change the database parameter to the recommended value using the tool Database Manager CLI (DBMCLI) (see also SAP Note 1308217). In more recent SAP MaxDB versions, the value for this database parameter is automatically set correctly (PTS 1217475, 1217476).

Validity

This document is not restricted to a software component or software component version

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References

This document refers to:

SAP Notes

1846502	HP-UX: SAP MaxDB/liveCache >= 7.8 performance not optimal
1830959	SAP MaxDB/liveCache: Housekeeping
1800396	-7069: POS(1) Outer/Semi join with bushy trees not allowed
1567117	Database parameter values for liveCache Version 7.9
1466698	DATA CACHE OVERFLOW, column/sysbuffer_overflow
1422648	DBAnalyzer liveCache 7.6.as of SP 05: Slow data collection
1308434	Memory leak when using VectorIOSimulation on Linux
1308217	SAP MaxDB 7.8 database parameter recommendations
1147936	Parameter recommendations for OneDB systems
1139904	FAQ: SAP MaxDB/liveCache database parameters
1038709	FAQ: SAP MaxDB/liveCache OneDB
1004886	SAP MaxDB 7.7 database parameter recommendations
901377	SAP MaxDB 7.5/7.6 - database parameter recommendations for BW systems

833216   Database parameters for SAP liveCache Version 7.5, 7.6 and 7.7
814704   MaxDB Version 7.6 parameter settings for OLTP/BW
767635   MaxDB Version 7.5 parameter settings for OLTP/BW

This document is referenced by:

SAP Notes (16)

1800396   -7069: POS(1) Outer/Semi join with bushy trees not allowed
1422648   DBAnalyzer liveCache 7.6.as of SP 05: Slow data collection
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Attachments

File Name	File Size (KB)	Mime Type
DbanalyzerParamCheck.SAR	16	application/octet-stream