# The Configuration Overview Command

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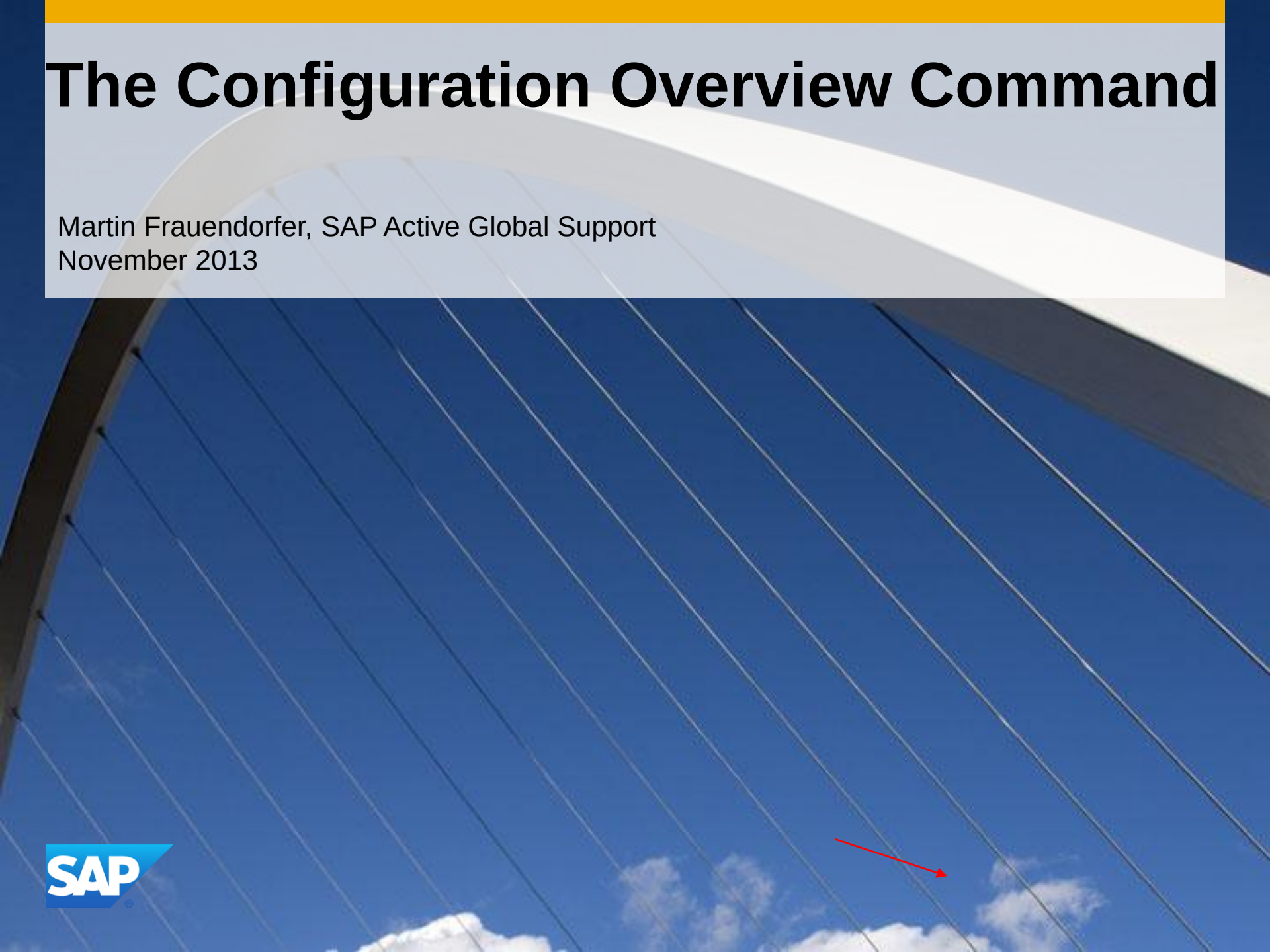

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# Introduction

# Introduction

## Motivation

- SAP Active Global Support provides Oracle related services to SAP customers with special support contracts like MaxAttention or Active Embedded, e.g.:
  - SAP Technical Performance Optimization – Oracle
  - SAP System Administration – Oracle
    - Focus on reorganizations
    - Focus on compression
    - Focus on security
    - Focus on other key areas
- For an efficient service it is not sufficient to rely on standard SAP tools (e.g. ST04) or standard Oracle tools (e.g. AWR or ADDM reports)
- Additional tools are required…

# Introduction

**The SAP Oracle Script Collection**

- SAP standard transactions like ST04 cover standard database monitoring
- For extended analysis additional tools can be useful
- A comprehensive script collection is provided via SAP Note 1438410
- For compatibility with DBACOCKPIT every command is a SELECT, so “script” is slightly misleading.
- No comprehensive documentation is available, but the script names already indicate the purpose, e.g.:

  - *SQL: “Segments_Tables_HiddenColumns”* → Show tables with hidden columns
  - *SQL: “Transactions_CurrentUndoUtilization”* → Overview of currently used undo space
  - *SQL: “TimedEvents_TopTimedEvents”* → Display of most important wait events and CPU

# Introduction

## The Overview Script

- A good starting point for understanding the database setup and potential issues is the configuration overview script.
- It is available in different versions:
  - *SQL: "Configuration_Overview"*: Can be used on Oracle 10g and higher
  - *SQL: "Configuration_Overview_11g+"*: Can be used on Oracle 11g and higher, contains additional Oracle 11g related information
  - *SQL: "Configuration_Overview_Part1_11g+" / "Configuration_Overview_Part2_11g+"*: Script for 11g and higher cut in two pieces to minimize risk of very high parse time and runtime
- Oracle parameter check is not included (see SAP Note 1171650 instead)
- Script is regularly updated in order to stay up-to-date
- Script is partially SAP-related (e.g. reporting of HANA triggers) but can be used for any Oracle database

# Introduction

## The Overview Script

- Settings in BASIS_INFO section of script can be adapted if required:
  - **-1 DBID**

    → ID of database to be analyzed, -1 for current database, usually no change required
  - **-1 INSTANCE_NUMBER**

    → DB instance to be analyzed, -1 for current instance, only applies to RAC systems
  - **USER OWNER**

    → Schema owners to be analyzed, USER for executing schema, '%' for all schemata
    → Restriction to SAP schemata via 'SAP%' normally useful

# General Data Section

# Configuration Overview – General Data Section

| GENERAL INFORMATION: | |
|---|---|
| Evaluation time | 17.06.2013 14:26:35 |
| Evaluation user | SAPSR3 |
| Last startup times | 27.03.2013 20:08:10 |
| Database creation time | 20.10.2003 09:32:23 |
| Database RESETLOGS time | 15.12.2004 06:32:01 |
| Prior database RESETLOGS time | 20.10.2003 09:32:23 |
| Database ID | 2104668455 |
| Database name | ABC |
| Instance name | ABC |
| Instance number | 1 |
| Version | 11.2.0.2.0 |
| Host name | cdcsvabc |
| Characterset | UTF8 |
| National characterset | UTF8 |
| Platform | Solaris[tm] OE (64-bit) |
| CPUs | 44 |
| CPU cores | 22 |
| Physical memory (GB) | 288 |

- Some rather self-explaining general database details
- “Evaluation user” is the schema configured in the BASIS_INFO section
- “Characterset” indicates if unicode is used (e.g. UTF8) or not (e.g. WE8DEC)

# Features and Settings Section

# Configuration Overview – General Data Section

| | |
|---|---|
| Real application clusters (RAC) | No |
| Automatic storage management (ASM) | No |
| Exadata | No |
| Database vault | No |
| Archiver state | STARTED |
| Archive log mode | ARCHIVELOG |
| Archive log compression | No |
| Force logging mode | Yes |
| Supplemental logging mode | No |
| Protection mode | MAXIMUM PERFORMANCE |
| Diagnostic / tuning pack license | DIAGNOSTIC+TUNING |
| PSAPTEMP type | LMTS/T |
| DBWR processes | 6 |
| ARCH processes | 10 |
| Resource manager active | No |
| Maintenance windows using resource manager | 0 |
| Profile limitations | No |
| Reported block corruptions | 0 |
| Reported backup corruptions | 0 |
| Reported copy corruptions | 0 |
| Tables with activated corruption skipping | 0 |
| OFFLINE datafiles | 0 |
| RECOVER datafiles | 0 |
| Backup mode datafiles | 0 |
| Files with AUTOEXTEND increment > 100 M | 0 |
| Indexes with owner different from table | 0 |
| Indexes with name not starting with table name | 0 |
| Tables with preferred caching | 0 |
| Tables with disabled table lock | 0 |
| Tables with diff. indexes in different tablespaces | 8 |
| Tables with diff. partitions in different tablespaces | 0 |
| Temporary tablespace smaller than largest index | No |
| Invisible indexes | 0 |
| UNUSABLE indexes | 0 |
| UNUSABLE index partitions | 0 |
| UNUSABLE tables | 0 |
| Encrypted tablespaces | 0 |
| Encrypted columns | 0 |
| Hidden columns | 319 |
| Virtual columns | 7 |
| LOB columns | 3151 (SecureFiles: 1) |
| Checkpoint not complete | Yes |
| Archiver stuck | No |
| Free buffer waits | No |
| PGA multipass executions | 1 |
| **Parallel operations downgraded** | **0** |
| **Tables with parallel degree > 1** | **0** |
| **Indexes with parallel degree > 1** | **0** |
| **Tables with > 100 partitions** | **0** |
| **Indexes with > 100 partitions** | **0** |
| **Function based indexes** | **0** |
| **Domain indexes** | **0** |
| **Bitmap indexes** | **0** |
| **Reverse key indexes** | **0** |

| | |
|---|---|
| Compressed indexes | 7620 |
| Compressed tables (BASIC) | 67 (67 SAP default) |
| Compressed tables (OLTP) | 0 |
| Compressed SecureFiles | 0 |
| SecureFiles with deduplication | 0 |
| NOLOGGING indexes | 0 |
| NOLOGGING tables | 0 |
| Temporary tables | 0 |
| Tables with supplemental logging | 0 |
| Tables using result cache | 0 |
| Tables with primary key constraint | 0 |
| Index organized tables | 0 |
| SYS_JOURNAL tables | 0 |
| SYS_IOT_TOP indexes | 0 |
| QCM tables | 6 |
| MLOG$ tables | 0 |
| RUPD$ tables | 0 |
| RECYCLEBIN segments | 0 |
| Segments with INITIAL > 100 M | 50 |
| Segments with PCTFREE > 10 | 0 |
| Tables with PCTFREE < 10 | 10 |
| Tables with PCTUSED < 40 | 0 |
| Segments with INITRANS > 2 | 0 |
| Materialized views | 0 |
| Materialized view logs | 0 |
| Tablespace with block size different from 8K | 0 |
| Segments not in DEFAULT buffer pool | 0 |
| Segments not pre-calculated for DBA_SEGMENTS | 60 (SYSTEM: 0) |
| Outdated DBA_SEGMENTS definition used | No |
| Outdated SYS_DBA_SEGS helper view used | No |
| Outdated DBA_EXTENTS helper view used | No |
| Outdated PLAN_TABLE used | No |
| Non-default triggers | 0 |
| Non-default sequences | 0 |
| INVALID objects in DDIC | 0 |
| INVALID constraints | 0 |
| INVALID views | 11 |
| INVALID procedures | 0 |
| INVALID triggers | 0 |
| Mismatch client / server characterset | No |
| Non-default database users | 3 (e.g. ADMDBA) |
| EXECUTE on DBMS_LOB revoked | No |
| Outlines | 0 |
| SQL plan baselines | 0 |
| SQL profiles | 0 |
| SQL patches | 0 |
| LOBs with PCTVERSION > 10 | 0 |
| Database links | 0 |
| Missing ST04 initialization | No |
| Inconsistency system fix control / parameters | No |
| ORA-01555 errors | 1 |
| Undo space errors | 0 |
| Multiple redo log sizes | No |
| Log switches within less than 1 minute (last 7 days) | 5033 |

# Configuration Overview – Features and Settings Section

- A lot of small “mini-checks”
- Useful to draw the attention to configuration issues that wouldn’t be recognized otherwise
- Usually a value of “No” or “0” indicates a normal configuration
- Interpretation of output and identification of potential issues requires some experience
- SAP Note 1615380 provides some additional information.
- All lines indicating a potential issue or risk are marked blue
- Background for these topics is provided on the next slides

# Configuration Overview – Features and Settings Section

- **FORCE LOGGING mode = ‘Yes’**
  - All database changes are recorded in the redo logs, including operations that were started with the NOLOGGING option
  - For a standby database scenario this setting can be useful to make sure that all database operations are properly replicated
  - For the main database this setting can result in significant additional redo log generation (e.g. during rebuild of large indexes)
  - Sometimes this setting is unintentionally kept activated

- **Recommendation:**
  - Check if you really still need the FORCE LOGGING mode
  - If not, switch it off:

```
ALTER DATABASE NO FORCE LOGGING;
```

# Configuration Overview – Features and Settings Section

- **Hidden columns = 319**
  - Hidden columns still allocate space, but they are no longer used
  - They are typically introduced by deleting table columns or by reorganizing tables without unique index (e.g. BW fact tables) online
  - In extreme situations a hidden column can increase the table size by 50 %

- **Recommendation:**
  - Check which tables contain hidden columns (*SQL: "Segments_Tables_HiddenColumns"*)
  - Reorganize large tables with hidden columns in order to release the space
  - Make sure that tables without primary index are reorganized offline, otherwise a new hidden column will be introduced.

# Configuration Overview – Features and Settings Section

- **Virtual Columns = 7**
  - Unlike hidden columns virtual columns don’t allocate space
  - Instead they contain data derived from other columns (e.g. functions, column groups)
  - They can be related to standard features like column group statistics or potentially critical and unintended features like function based indexes

- **Recommendation:**
  - Check for what purpose the virtual columns are created (*SQL: “Segments_Tables_VirtualColumns”, SQL: “CBOStatistics_ExtendedStatistics”*)
  - Deactivate the underlying feature if it is not required (e.g. drop an accidentally created function based index).

# Configuration Overview – Features and Settings Section

- **Checkpoint not complete = ‘Yes’**
  - In case of “checkpoint not complete” situations the DBWR processes are not able to keep up with the LGWR process.
  - During “checkpoint not complete” times database changes can no longer be performed and the system can come to a standstill.
  - Any occurrence of “checkpoint not complete” is a warning sign.

- **Recommendation:**
  - Check when “log file switch (checkpoint incomplete)” waits happened (*SQL: “TimedEvents_EventPerAWRInterval”*).
  - See SAP Note 79341 and take appropriate actions like:
    - Larger redo logs
    - More DBWR processes
    - DBWR I/O tuning
    - Reduction of redo load

# Configuration Overview – Features and Settings Section

- **Segments with INITIAL > 100 M = 50**
  - If the INITIAL extent value is set high while there is not much data in the segment, a significant amount of space is wasted.
  - It can also result in the situation that after compression the size of the segment is not reduced.

- **Recommendation:**
  - Check if the large INITIAL size already results in a significant amount of space wasted after the high water mark of segments (*SQL: "Space_HighWaterMarkFragmentation"*).
  - If segments with a high water mark far below INITIAL are identified, they can be reorganized with BRSPACE and the option "-l 3" (→ INITIAL extent size = 1 MB)

# Configuration Overview – Features and Settings Section

- **Tables with PCTFREE < 10 = 10**
  - PCTFREE defines the percentage of an Oracle block that should be reserved for future updates or extensions of records.
  - When using a small PCTFREE value it can quickly happen that added columns or extended values no longer find space in the original block of a record
  - Oracle needs to move the row in a new block (“migrated row”)
  - Both performance and space are negatively impacted.

- **Recommendation:**
  - Use SQL: “*Segments_PCTFREEAndPCTUSEDSettings*” to determine the involved tables.
  - Check in table TAORA whether TABARTs are defined with PCTFREE = 0 and adapt it to 10 unless there is a real good reason for the setting.
  - Reorganize the involved tables with BRSPACE using the parameter “-STF 10” in order to set the PCTFREE value to 10 %.

# Configuration Overview – Features and Settings Section

- **Log switches within less than 1 minute (last 7 days) = 5033**
  - Each redo log switch causes system load because of the log switch itself and the triggered checkpoint.
  - The “checkpoint not complete” situations already discussed before can be caused by a high number of log switches.
  - Therefore it should be avoided that two log switches happen within less than 1 minute.

- **Recommendation:**
  - Use SQL: “*IO_SmallLogSwitchIntervals*” and SQL: “*IO_RedoLogsPerHour*” to understand times and durations of small log switch intervals.
  - Increase the online redo logs so that the interval between two log switches is usually above 1 minute.
  - SAP Note 1259767 describes how the increase of the redo log size can be performed automatically by BRSPACE.

# Configuration and Space Section

# Configuration Overview – Configuration and Space Section

| | |
|---|---|
| ORACLE DDIC COMPONENTS: | |
| | |
| CATALOG | 11.2.0.2.0 (VALID) |
| CATPROC | 11.2.0.2.0 (VALID) |
| | |
| ORACLE JOBS: | |
| | |
| BSLN_MAINTAIN_STATS_JOB | SCHEDULED |
| DRA_REEVALUATE_OPEN_FAILURES | SCHEDULED |
| HM_CREATE_OFFLINE_DICTIONARY | DISABLED |
| ORA$AUTOTASK_CLEAN | SCHEDULED |
| FILE_WATCHER | DISABLED |
| SM$CLEAN_AUTO_SPLIT_MERGE | SCHEDULED |
| RSE$CLEAN_RECOVERABLE_SCRIPT | SCHEDULED |
| AUTO_SPACE_ADVISOR_JOB | DISABLED |
| GATHER_STATS_JOB | DISABLED |
| FGR$AUTOPURGE_JOB | DISABLED |
| PURGE_LOG | SCHEDULED |
| MGMT_STATS_CONFIG_JOB | DISABLED |
| MGMT_CONFIG_JOB | DISABLED |
| | |
| ORACLE AUTO TASKS: | |
| | |
| sql tuning advisor | DISABLED |
| auto space advisor | DISABLED |
| auto optimizer stats collection | DISABLED |
| | |
| CHANGE HISTORY: | |
| | |
| 23.03.2013 16:51:10 | APPLY 11.2.0.2 (SBP 11.2.0.2.9 201302 containing CPUJan2013) |
| 23.03.2013 16:39:43 | APPLY 11.2.0.2 (PSU 11.2.0.2.9) |
| 13.10.2012 17:20:36 | APPLY 11.2.0.2 (SBP 11.2.0.2.7 201209 containing CPUJul2012) |
| 13.10.2012 17:05:44 | APPLY 11.2.0.2 (PSU 11.2.0.2.7) |
| 21.07.2012 17:37:18 | APPLY 11.2.0.2 (SBP 11.2.0.2.6 201206 containing CPUApr2012) |
| 21.07.2012 17:18:42 | APPLY 11.2.0.2 (PSU 11.2.0.2.6) |
| 17.03.2012 17:09:18 | APPLY 11.2.0.2 (SBP 11.2.0.2.4 201201 containing CPUOct2011) |
| 17.03.2012 16:57:22 | APPLY 11.2.0.2 (PSU 11.2.0.2.4) |
| 19.11.2011 17:25:42 | APPLY 11.2.0.2 (SBP 11.2.0.2.3 201110 containing CPUJul2011) |
| 19.11.2011 17:05:55 | APPLY 11.2.0.2 (PSU 11.2.0.2.3) |
| 29.05.2011 10:00:50 | APPLY 11.2.0.2 (SBP 11.2.0.2.0 201101) |
| 29.05.2011 09:18:38 | APPLY 11.2.0.2 (Patchset 11.2.0.2.0) |
| 29.05.2011 09:15:45 | UPGRADE 11.2.0.2.0 (Upgraded from 10.2.0.4.0) |
| 29.05.2011 09:15:44 | VIEW INVALIDATE (view invalidation) |
| 20.11.2010 17:40:37 | APPLY 10.2.0.4 (SBP 10.2.0.4.5 201010) |
| 20.11.2010 17:22:47 | APPLY 10.2.0.4 (PSU 10.2.0.4.5) |
| 20.11.2010 17:22:45 | APPLY 10.2.0.4 (PSU 10.2.0.4.4) |
| 24.07.2010 17:30:08 | CPU (view recompilation) |
| 24.07.2010 17:19:42 | APPLY 10.2.0.4 (PSU 10.2.0.4.4) |
| 20.03.2010 16:20:42 | APPLY 10.2.0.4 (CPUJan2010) |
| 21.11.2009 16:23:12 | APPLY 10.2.0.4 (CPUJul2009) |
| 25.07.2009 16:54:44 | APPLY 10.2.0.4 (CPUApr2009) |
| 21.03.2009 17:30:26 | CPU (view recompilation) |
| 21.03.2009 17:24:50 | APPLY 10.2.0.4 (CPUOct2008) |
| 21.03.2009 17:12:42 | UPGRADE 10.2.0.4.0 (Upgraded from 10.2.0.2.0) |
| 19.07.2008 16:45:21 | UPGRADE 10.2.0.2.0 (Upgraded from 9.2.0.8.0) |
| 11.08.2007 16:26:28 | CPU (CPUOct2006) |

| | |
|---|---|
| USED FEATURES: | |
| | |
| ADDM | used since 06.09.2011 00:56:39 |
| AWR Report | used since 30.08.2011 00:52:36 |
| Audit Options | used since 03.01.2012 02:02:26 |
| Automatic SGA Tuning | used since 05.07.2011 00:47:15 |
| Automatic SQL Execution Memory | used since 05.07.2011 00:47:15 |
| Automatic Segment Space Management (system) | used since 05.07.2011 00:47:15 |
| Automatic Segment Space Management (user) | used since 16.08.2011 01:14:03 |
| Automatic Undo Management | used since 05.07.2011 00:47:15 |
| Character Set | used since 05.07.2011 00:47:15 |
| Client Identifier | used since 02.04.2012 04:24:58 |
| Data Guard | used since 05.07.2011 00:47:15 |
| Deferred Segment Creation | used since 05.07.2011 00:47:15 |
| LOB | used since 05.07.2011 00:47:15 |
| Locally Managed Tablespaces (system) | used since 05.07.2011 00:47:15 |
| Locally Managed Tablespaces (user) | used since 05.07.2011 00:47:15 |
| Logfile Multiplexing | used since 05.07.2011 00:47:15 |
| Oracle Utility Metadata API | used since 05.07.2011 00:47:15 |
| Parallel SQL DDL Execution | used since 21.02.2012 23:36:42 |
| Parallel SQL Query Execution | used since 05.07.2011 00:47:15 |
| Partitioning (system) | used since 05.07.2011 00:47:15 |
| RMAN - Tape Backup | used since 05.07.2011 00:47:15 |
| Recovery Area | used since 05.07.2011 00:47:15 |
| Recovery Manager (RMAN) | used since 05.07.2011 00:47:15 |
| SQL Tuning Advisor | used since 03.01.2012 02:02:26 |
| SecureFiles (user) | used since 09.04.2013 04:19:28 |
| Server Parameter File | used since 05.07.2011 00:47:15 |
| | |
| RESOURCE INFORMATION: | |
| | |
| Processes | current: 451, max.: 497, limit: 1200 |
| Sessions | current: 493, max.: 573, limit: 2420 |
| PX slaves | current: 0, max.: 24, limit: 40 |
| Datafiles | current: 237, limit: 512 |
| | |
| SPACE INFORMATION: | |
| | |
| Tablespaces | 9 |
| Datafiles | 237 ( 4398.35 GB) |
| Tempfiles | 4 ( 74.22 GB) |
| Segments | 129183 ( 3548.32 GB) |
| Extents | 626772 |
| Index partitions | 271 ( 0.43 GB) |
| Indexes | 67776 ( 644.18 GB) |
| Lobindexes | 853 ( 0.20 GB) |
| Lobsegments | 853 ( 144.79 GB) |
| Table partitions | 247 ( 2.26 GB) |
| Table subpartitions | 32 ( 0.00 GB) |
| Tables | 58945 ( 2714.64 GB) |
| Freespace fragments | 60332 ( 849.97 GB) |
| Redo log groups | 5 |
| Redo log members | 2 |
| Redo log size (min.) | 400.00 MB |

# Configuration Overview – Configuration and Space Section

- **ORACLE DDIC COMPONENTS**
  - CATALOG and CATPROC should exist for the current Oracle patch level and with status VALID
  - Further components like RAC or OEM may also be visible
- **ORACLE JOBS**
  - Overview of Oracle internal jobs
  - MGMT_STATS_CONFIG_JOB and MGMT_CONFIG_JOB should be disabled (SAP Note 974781)
- **CHANGE HISTORY**
  - Historic Oracle patch applications
  - Should display the applied SAP bundle patch (SBP)
  - If not, running of catsbp.sql was probably forgotten

# Configuration Overview – Configuration and Space Section

- **USED FEATURES**
  - Overview of Oracle features that were already used
- **RESOURCE INFORMATION**
  - Current, peak and configured resources like sessions, processes, PX slaves and datafiles
  - Peak utilization should be significantly below configured limit value for sessions, processes and datafiles
- **SPACE INFORMATION**
  - High level information about space consumption and physical structure of database
  - At least 2 redo log members should exist for safety reasons

# CBO Statistics Section

# Configuration Overview – CBO Statistics Section

| CBO STATISTICS: | |
|---|---|
| | |
| Last CBO statistics creation | 16.06.2013 22:01:18 |
| DDIC statistics creation | 02.06.2013 23:10:53 |
| Fixed objects statistics creation | 03.06.2013 00:08:03 |
| Tables with small statistics sample size | 0 |
| Tables without statistics | 2 |
| Tables with locked statistics | 28 |
| Tables with statistics older than segment | 0 |
| Tables with ANALYZE statistics | 5 |
| Indexes without statistics | 2 |
| Columns without statistics | 33 (LONG: 0, LONG RAW: 0, LOB: 0) |
| Tables with non-default histograms | 1010 |
| Indexed columns of infocubes without histograms | 0 |

- Make sure that BRCONNECT runs on a daily basis
- Create new DDIC and fixed objects statistics from time to time (e.g. once a quarter)
- Avoid tables, indexes and columns without statistics
- Avoid tables with a small statistic sample size (danger of inaccurate statistics)
- Tables with locked statistics typically indicate that the CBO statistics delivered by SAP (SAP Note 1020260) are properly implemented.
- Tables with non-default histograms can indicate that statistics are created in a wrong way, e.g. using the Oracle auto statistic task.

# KPIs and Load Information

# Configuration Overview – KPIs and Load Information

| KEY FIGURES (SINCE DATABASE START): | |
|---|---|
| Buffer quality | 98.99 % |
| Reads / user call | 21.90 |
| User / recursive calls | 75.91 |
| Time / user call | 1.44 ms |
| user commits / s | 76.13 |
| user calls / s | 10203.41 |
| recursive calls / s | 134.41 |
| session logical reads / s | 223481.43 |
| physical reads / s | 3115.21 |
| db block changes / s | 7347.36 |
| consistent changes / s | 1983.07 |
| physical writes / s | 503.41 |
| physical reads cache prefetch / s | 846.20 |
| redo blocks written / s | 5217.75 |
| table fetch by rowid / s | 126491.82 |
| table fetch continued row / s | 3377.21 |
| parse count (total) / s | 226.35 |
| parse count (hard) / s | 0.44 |
| bytes sent via SQL*Net to client / s | 6757245.75 |
| bytes received via SQL*Net from client / s | 2308232.65 |
| SQL*Net roundtrips to/from client / s | 10201.07 |

| TIMED EVENTS (SINCE DATABASE START): | |
|---|---|
| User I/O sessions active | 8.98 ( 56.12 %) |
| CPU sessions active | 5.34 ( 33.41 %) |
| System I/O sessions active | 0.64 ( 4.01 %) |
| Commit sessions active | 0.44 ( 2.78 %) |
| Application sessions active | 0.26 ( 1.62 %) |
| Concurrency sessions active | 0.17 ( 1.09 %) |
| | |
| TIME MODEL ACTIVITIES (SINCE DATABASE START): | |
| | |
| DB time sessions active | 14.72 |
| sql execute elapsed time sessions active | 13.28 |
| DB CPU sessions active | 5.34 |
| background elapsed time sessions active | 0.90 |
| background cpu time sessions active | 0.61 |
| | |
| TOP SQL TYPES (FROM ASH): | |
| | |
| SELECT | 76.34 % |
| BACKGROUND | 6.17 % |
| INSERT | 5.51 % |
| CREATE INDEX | 3.40 % |
| COMMIT | 2.83 % |

# Configuration Overview – KPIs and Load Information

- **KEY FIGURES**
  - Some important overall counters and ratios
  - Useful for a rough understanding of database performance and load behavior
  - “Read / user call” > 15 is often an indicator for expensive SQL statements in ERP systems
- **TIMED EVENTS**
  - Top timed event wait classes
  - Indication for Oracle server activity distribution and load
- **TIME MODEL ACTIVITIES**
  - Oracle server activity distribution in terms of SQL execution, CPU consumption, parsing and background activities

# Configuration Overview – KPIs and Load Information

- **TOP SQL TYPES**
  - Load share of different SQL types
  - In most cases SELECT should be the dominating type
  - If CREATE INDEX, COMMIT or DML operations have double-digit percentages, a more detailed analysis should be done

# Configuration Overview – KPIs and Load Information

| TOP I/O READ TABLESPACES (SINCE DATABASE START): | |
|---|---|
| | |
| PSAPABC | 98.34 % |
| PSAPABCUSR | 0.90 % |
| PSAPUNDO | 0.29 % |
| PSAPABC731 | 0.19 % |
| SYSTEM | 0.11 % |
| SYSAUX | 0.10 % |
| PSAPABCASSM | 0.08 % |
| PSAPZAUD | 0.00 % |
| PSAPTEMP | 0.00 % |
| | |
| TOP MODULES (FROM ASH): | |
| | |
| /ABC/SOM_TR_ORDER_LIST2 | 2.38 % |
| CL_SQL_STATEMENT==============CP | 2.19 % |
| /ABC/DM_SCHEDULING | 1.98 % |
| /ABC/SAPLSOM_OPEC | 1.97 % |
| UNKNOWN (oracle@cdcsv118 (LGWR)) | 1.88 % |
| | |
| TOP PROGRAMS (FROM ASH): | |
| | |
| dw.sapABC_D70@sap05abc (TNS V1-V3) | 11.18 % |
| dw.sapABC_D70@sap07abc (TNS V1-V3) | 11.16 % |
| dw.sapABC_D70@sap03abc (TNS V1-V3) | 11.13 % |
| dw.sapABC_D70@sap09abc (TNS V1-V3) | 10.96 % |
| dw.sapABC_D70@sap08abc (TNS V1-V3) | 10.86 % |

| TOP USERS (FROM ASH): | |
|---|---|
| | |
| SAPSR3 | 88.56 % |
| SYS (BACKGROUND) | 6.24 % |
| SYS | 2.35 % |
| OPS$ABCADM | 1.65 % |
| THEGUARD | 1.01 % |
| | |
| TOP CLIENT IDS (FROM ASH): | |
| | |
| SY-BATCH | 44.17 % |
| | 11.46 % |
| SY-R-OPEC | 6.30 % |
| SY-BATCH-01 | 5.27 % |
| ALEREMOTE | 1.23 % |

# Configuration Overview – KPIs and Load Information

- **TOP I/O READ TABLESPACES**
  - Tablespaces with highest amount of I/O read times
  - Unusual tablespaces with higher percentages (e.g. PSAPUNDO) can indicate problems

- **TOP MODULES**
  - Client modules (e.g. SAP reports) responsible for highest database load
  - Can be used to identify critical coding areas (e.g. customer specific coding like the reports starting with /ABC/)
  - CL_SQL_STATEMENT==========CP refers to dynamically generated EXEC SQL (e.g. from SQL Command Editor in DBACOCKPIT or for certain BW activities)

- **TOP PROGRAM**
  - Contains work process descriptions including the SAP server names
  - Useful to check the load coming from different SAP instances
  - In this example the different instances are responsible for similar load

# Configuration Overview – KPIs and Load Information

- **TOP USERS**
  - Database users responsible for highest load
  - SAP schema user (e.g. SAPSR3) usually responsible for highest load
  - Higher percentages for other users can indicate problems (e.g. high BRCONNECT load in case of OPS$ user)

- **TOP CLIENT IDS**
  - SAP users responsible for highest load
  - Typically generic users (e.g. for batch jobs or interfaces) are at the top

# AWR and ASH Information

# Configuration Overview – AWR and ASH Information

| AWR / ASH INFORMATION: | |
|---|---|
| Multiple database IDs | No |
| Captured SQL statements | DEFAULT |
| Snapshot interval (minutes) | 60 |
| Snapshot retention (days) | 42 |
| V$ACTIVE_SESSION_HISTORY time (hours) | 4 |
| AWR size in SYSAUX (MB) | 5339.6 |

- "Captured SQL statements" indicates the number of top SQL statements captured per AWR interval (default: 30)
- Snapshot interval indicates the AWR snapshot interval (default: 60 minutes)
- Snapshot retention is the retention time for AWR data. Default is 7 to 8 days, but in SAP environments it should be increased to 42 days (SAP Note 1326067)
- The AWR size in SYSAUX is typically well below 10 GB. Higher values can indicate a problem with purging of history data.

# Thank You!

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