

The Configuration Overview Command

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Agenda

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Introduction

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 character set	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 “-1 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 Overview – Various other Information

ORACLE DDIC COMPONENTS:		USED FEATURES:	
CATALOG	11.2.0.2.0 (VALID)	ADDM	used since 06.09.2011 00:56:39
CATPROC	11.2.0.2.0 (VALID)	AWR Report	used since 30.08.2011 00:52:36
ORACLE JOBS:		Audit Options	used since 03.01.2012 02:02:26
BSLN_MAINTAIN_STATS_JOB	SCHEDULED	Automatic SGA Tuning	used since 05.07.2011 00:47:15
DRA_REEVALUATE_OPEN_FAILURES	SCHEDULED	Automatic SQL Execution Memory	used since 05.07.2011 00:47:15
HM_CREATE_OFFLINE_DICTIONARY	DISABLED	Automatic Segment Space Management (system)	used since 05.07.2011 00:47:15
ORA\$AUTOTASK_CLEAN	SCHEDULED	Automatic Segment Space Management (user)	used since 16.08.2011 01:14:03
FILE_WATCHER	DISABLED	Automatic Undo Management	used since 05.07.2011 00:47:15
SMS\$CLEAN_AUTO_SPLIT_MERGE	SCHEDULED	Character Set	used since 05.07.2011 00:47:15
RSE\$CLEAN_RECOVERABLE_SCRIPT	SCHEDULED	Client Identifier	used since 02.04.2012 04:24:58
AUTO_SPACE_ADVISOR_JOB	DISABLED	Data Guard	used since 05.07.2011 00:47:15
GATHER_STATS_JOB	DISABLED	Deferred Segment Creation	used since 05.07.2011 00:47:15
FGR\$AUTOPURGE_JOB	DISABLED	LOB	used since 05.07.2011 00:47:15
PURGE_LOG	SCHEDULED	Locally Managed Tablespaces (system)	used since 05.07.2011 00:47:15
MGMT_STATS_CONFIG_JOB	DISABLED	Locally Managed Tablespaces (user)	used since 05.07.2011 00:47:15
MGMT_CONFIG_JOB	DISABLED	Logfile Multiplexing	used since 05.07.2011 00:47:15
ORACLE AUTO TASKS:		Oracle Utility Metadata API	used since 05.07.2011 00:47:15
sql tuning advisor	DISABLED	Parallel SQL DDL Execution	used since 21.02.2012 23:36:42
auto space advisor	DISABLED	Parallel SQL Query Execution	used since 05.07.2011 00:47:15
auto optimizer stats collection	DISABLED	Partitioning (system)	used since 05.07.2011 00:47:15
CHANGE HISTORY:		RMAN - Tape Backup	used since 05.07.2011 00:47:15
23.03.2013 16:51:10	APPLY 11.2.0.2 (SBP 11.2.0.2.9 201302 containing CPUJan2013)	Recovery Area	used since 05.07.2011 00:47:15
23.03.2013 16:39:43	APPLY 11.2.0.2 (PSU 11.2.0.2.9)	Recovery Manager (RMAN)	used since 05.07.2011 00:47:15
13.10.2012 17:20:36	APPLY 11.2.0.2 (SBP 11.2.0.2.7 201209 containing CPUJu12012)	SQL Tuning Advisor	used since 03.01.2012 02:02:26
13.10.2012 17:05:44	APPLY 11.2.0.2 (PSU 11.2.0.2.7)	SecureFiles (user)	used since 09.04.2013 04:19:28
21.07.2012 17:37:18	APPLY 11.2.0.2 (SBP 11.2.0.2.6 201206 containing CPUApr2012)	Server Parameter File	used since 05.07.2011 00:47:15
21.07.2012 17:18:42	APPLY 11.2.0.2 (PSU 11.2.0.2.6)	RESOURCE INFORMATION:	
17.03.2012 17:09:18	APPLY 11.2.0.2 (SBP 11.2.0.2.4 201201 containing CPUOct2011)	Processes	current: 451, max.: 497, limit: 1200
17.03.2012 16:57:22	APPLY 11.2.0.2 (PSU 11.2.0.2.4)	Sessions	current: 493, max.: 573, limit: 2420
19.11.2011 17:25:42	APPLY 11.2.0.2 (SBP 11.2.0.2.3 201110 containing CPUJu12011)	PX slaves	current: 0, max.: 24, limit: 40
19.11.2011 17:05:55	APPLY 11.2.0.2 (PSU 11.2.0.2.3)	Datafiles	current: 237, limit: 512
29.05.2011 10:00:50	APPLY 11.2.0.2 (SBP 11.2.0.2.0 201101)	SPACE INFORMATION:	
29.05.2011 09:18:38	APPLY 11.2.0.2 (Patchset 11.2.0.2.0)	Tablespaces	9
29.05.2011 09:15:45	UPGRADE 11.2.0.2.0 (Upgraded from 10.2.0.4.0)	Datafiles	237 (4398.35 GB)
29.05.2011 09:15:44	VIEW INVALIDATE (view invalidation)	Tempfiles	4 (74.22 GB)
20.11.2010 17:40:37	APPLY 10.2.0.4 (SBP 10.2.0.4.5 201010)	Segments	129183 (3548.32 GB)
20.11.2010 17:22:47	APPLY 10.2.0.4 (PSU 10.2.0.4.5)	Extents	626772
20.11.2010 17:22:45	APPLY 10.2.0.4 (PSU 10.2.0.4.4)	Index partitions	271 (0.43 GB)
24.07.2010 17:30:08	CPU (view recompilation)	Indexes	67776 (644.18 GB)
24.07.2010 17:19:42	APPLY 10.2.0.4 (PSU 10.2.0.4.4)	Lobindexes	853 (0.20 GB)
20.03.2010 16:20:42	APPLY 10.2.0.4 (CPUJan2010)	Lobsegments	853 (144.79 GB)
21.11.2009 16:23:12	APPLY 10.2.0.4 (CPUJu12009)	Table partitions	247 (2.26 GB)
25.07.2009 16:54:44	APPLY 10.2.0.4 (CPUApr2009)	Table subpartitions	32 (0.00 GB)
21.03.2009 17:30:26	CPU (view recompilation)	Tables	58945 (2714.64 GB)
21.03.2009 17:24:50	APPLY 10.2.0.4 (CPUOct2008)	Freespace fragments	60332 (849.97 GB)
21.03.2009 17:12:42	UPGRADE 10.2.0.4.0 (Upgraded from 10.2.0.2.0)	Redo log groups	5
19.07.2008 16:45:21	UPGRADE 10.2.0.2.0 (Upgraded from 9.2.0.8.0)	Redo log members	2
11.08.2007 16:26:28	CPU (CPUOct2006)	Redo log size (min.)	400.00 MB

Configuration Overview – Various other Information

- **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 – Various other Information

- **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

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.

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 – More 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 %
SYS_AUX	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 %
OPSS\$ABCADM	1.65 %
THEGUARD	1.01 %
TOP CLIENT IDS (FROM ASH):	
SY-BATCH	44.17 %
SY-R-OPEC	11.46 %
SY-BATCH-01	5.27 %
ALEREMOTE	1.23 %

Configuration Overview – More 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 – More 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

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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