

SAP on Oracle:

Development Update November 2010

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ORACLE®

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THE BEST-RUN BUSINESSES RUN SAP



Oracle 10g @SAP

New SAP/Oracle Patch Concept

Oracle 11g Roadmap @ SAP

DBA Tools

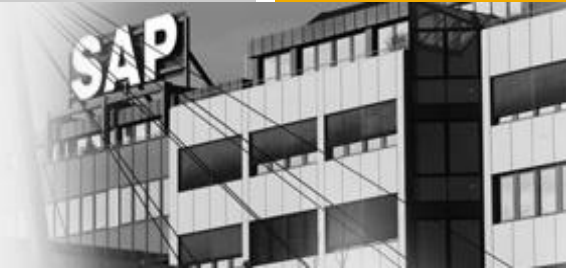
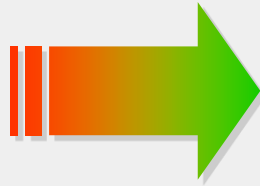
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SAP on Oracle 10g: Supported Releases



Patchset **10.2.0.4** is supported on **ALL OS platforms**

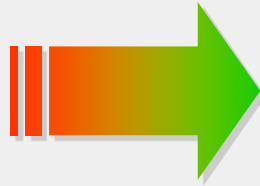
- Additional necessary patches on top of 10.2.0.4 will be released monthly (at every 10th of each month) through special SAP Patch Bundle
- CPU (Critical Patch Update) for July 2010 is also certified and recommended
- All 10.2.0.4 PSUs from PSU 4 on are available

Patchset **10.2.0.5** was released on Nov 10th for major OS platforms

- Nov 10th SAP Patch Bundle includes first PSU of 10.2.0.5 (10.2.0.5.1)
- Planned 2011: HPUX PA-RISC, Linux & Windows Itanium, Linux on Power

Oracle 10.2 adoption rate: ~ 90 % of SAP/Oracle customers are on 10g

Oracle Announcement 10g support



- In May 2009 Oracle announced that **Extended Support fees for Oracle version 10.2 are waived for first year**
- No extra charged support for Oracle 10.2 **until July 2011**
- Extended Support will be available for **version 10.2.0.5 only**
 - Grace Period: 10.2.0.4 receives support until end of April 2011
 - For details see SAP Note 1339724

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New Oracle Patch Concept: Patch Set Updates (PSUs)



This only affects Unix/Linux-platforms! Windows platforms are not affected.

Starting with Oracle patchset 10.2.0.4 Oracle provides so-called **Patch Set Updates (PSU)**

A PSU is a **collection of important fixes** encountered by Oracle customers

Oracle releases a new **PSU every three months**

The **PSUs will contain the Critical Patch Updates (CPU)**
(Oracle CPU concept will vanish)

PSUs must be applied on top of an already installed Patch Set

New SAP/Oracle Patch Concept: SAP Patch Bundles & Patch Set Updates (PSUs)



- Oracle database patches for Unix-platforms are now delivered in form of so-called **SAP Bundle Patches (SBP)**
 - Initial Oracle versions: **10.2.0.4.4 & 11.2.0.1.1**

- A SBP consists of:
 - Current Patch Set Update (PSU)
 - SAP specific necessary Single- and Merge-Patches which are not contained in the PSU
 - Current SAP specific Optimizer-Merge-Patch
 - README.html: installation manual for SBP
 - bugs_fixed.html: list of patches contained in SBP

- SBPs are cumulative. The next SBP will contain all previous patches and the new patches in addition.

- Notation of SBPs:
SAP_<Oracle-version>_<YYYYMM>_<plattform>.zip
Example: SAP_102044_201004_AIX.zip

- For the installation you'll need MOPatch Version 2.1.1 or higher

- For more details please see SAP note 1027012

Oracle 10g @SAP

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11g Rollout Schedule



SAP [only certifies](#) Oracle Database 11g Release 2

Only [SAP products based on 6.40_EX2 kernel and later](#) get certified with 11.2

- 11.2 support only for SAP products which are in SAP Extended Maintenance at least until the end of 2010

SAP 11.2 certification and Rollout happens in [three OS waves](#) (due to availability from Oracle)

SAP 11.2 certification happens in [three stages](#):

[Stage 1: Runtime certification](#)

- Allows 11.2 database upgrade of existing SAP systems

[Stage 2: SAP Upgrade and Enhancement Package Update certification](#)

- Allows SAP Upgrades and Enhancement Package Updates of Oracle 11.2 based SAP systems

[Stage 3: Support for Oracle 11.2 based direct SAP installations \(incl. Unicode Migration\)](#)

- Allows direct SAP system installations with Oracle 11.2

11g Rollout Schedule



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DATABASE **11g**



First wave was released on March 31st 2010

- Major UNIX platforms (AIX, HP-UX IA64, Solaris SPARC & x64) and Linux x64
- As of today ,runtime certification' and upgrade certification (Stage 1 & 2)
- Stage 3: Released for 640 based products, 7.0x based products: Release on Nov 22nd

Second wave was released on June 9th 2010.

- Covers Windows x86/x64 and HP-UX PA RISC.
- As of today ,runtime certification' and upgrade certification (Stage 1 & 2)
- Stage 3: Released for 640 based products, 7.0x based products: Released on Nov 22nd

Third wave will cover remaining OS platforms (planned for 2011)

- Windows IA64
- Linux on Power: Oracle has not yet decided about support ⇒ **Status ,TBD'**
- Linux IA64: Desupported by Oracle. Last Oracle version will be 10.2.0.5

For current status please see SAP note 1398634

11.2 Patchset/PSU Schedule by SAP



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DATABASE 11g



- PSU 1 of 11.2.0.1 (11.2.0.1.1) released through June 10th SAP Patch Bundle
- PSU 2 of 11.2.0.1 (11.2.0.1.2) released through September 10th SAP Patch Bundle
- 11.2.0.2 (first 11.2 patchset) was released on November 10th via SAP Patch Bundle
 - All platforms except Windows IA64

11g News for SAP

Oracle Feature Availability (with 11.2 SAP GA) – Space (I)

SAP



■ Advanced Compression

- OLTP compression
- Securefile compression
- RMAN Backup compression
- Data Guard Network compression
- Data Pump Export compression
- License for ACO required
 - SAP ASFU license includes ACO

■ Index Compression

- Already supported by SAP (since version 10g)
- No additional license required

11g News for SAP

Oracle Feature Availability (with 11.2 SAP GA) – Space (II)

SAP



Dictionary-Only Add Column

- Very common operation within SAP BW application and SAP Upgrades
- Factor 10-20 performance improvement for SAP BW during add column processes
- Saves large amount of disk space

Deferred Segment Creation

- Empty database objects will not consume any disk space
- Very important for SAP environments as 60-70% of all tables, lobs, indexes and partitions in an SAP installation are empty
 - Saves disk space
 - Improves query response times on space objects in Oracle Data Dictionary
 - Makes database install part for SAP a lot faster
 - Creation of empty tables, lobs, indexes and partitions are dramatically faster

11g News for SAP

Oracle Feature Availability (with 11.2 SAP GA) – Space (III)

SAP



ORACLE[®] 11^g
DATABASE

Performance Impact when using ACO on production database

- Measured through Capture Replay Functionality of Real Application Testing Option
- 10.2.0.4 production workload was captured for more than 2 days
 - No impact on production database during capture

Results:

- Factor 2.2 Space Savings
- 60% less physical reads
- 5% less physical writes
- 10% better database cache hit rate
- 30% higher redo rate
- No overhead in CPU consumption



Implementation Guidelines for Compression Technologies in SAP Environments

1. Start with Index Compression

- Improves R/3 Performance the most as all database access in R/3 environments is index based, especially index range scans
- Up to 20% disk space reduction for complete database

2. Implement OLTP Table Compression

- No real query performance benefit in R/3 environments
- Provides very good disk space savings

3. Implement SecureFiles Compression

- Very important for SAP Applications like CRM or XI who store large (uncompressed) amount of data in LOBs.

4. RMAN Backup Compression

- Additional disk space savings (even if database tables and indexes are already compressed)

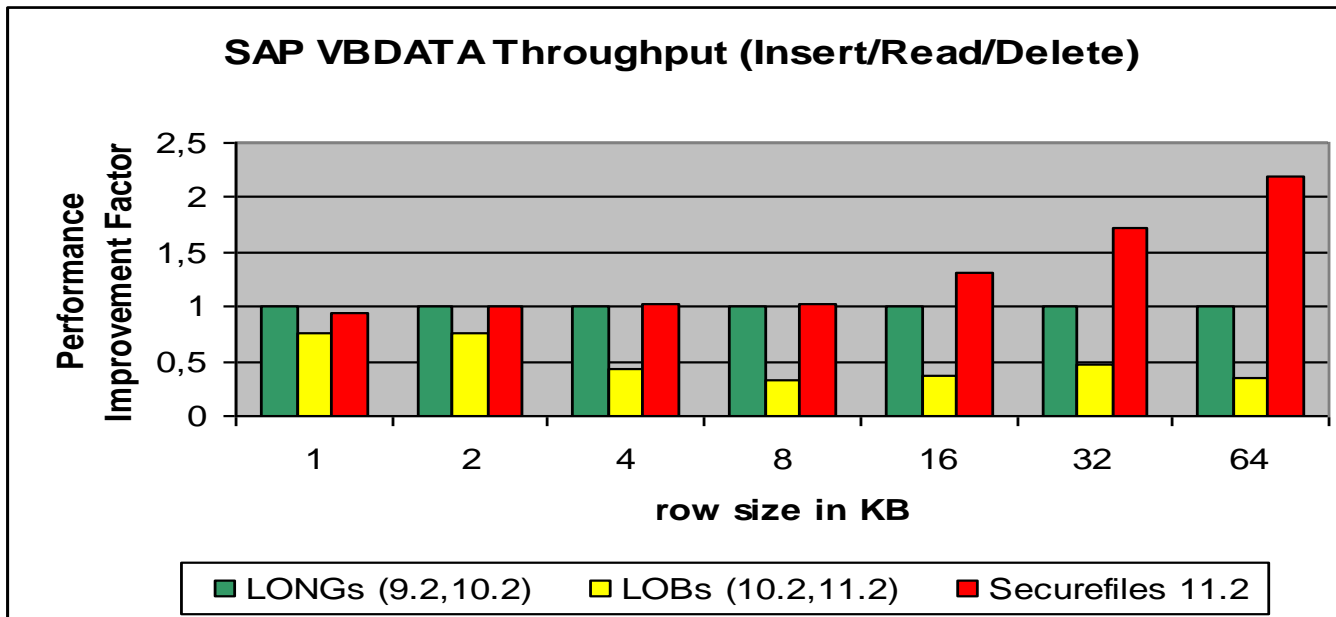
11g News for SAP

Oracle Feature Availability (with 11.2 SAP GA) – Performance (I)



Securefiles

- Significantly faster access times compared to LOBs in SAP environments
- Increased transaction throughput on SAP cluster tables especially with RAC
- Prerequisite for compression of SAP tables containing LOBs



11g News for SAP

Oracle Feature Availability (with 11.2 SAP GA) – Performance (II)

SAP



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DATABASE 11g

DirectNFS

- Increases database throughput up to 50% in NAS environments with multiple NICs
 - NAS Storage such as NetApp have become very popular in SAP environments due to high flexibility, ease-of-use and NFS
 - Very common in Linux environments. Ideal for Linux/RAC.
 - SAP and Oracle use NetApp for most development and operational systems
- Up to 20% CPU savings on database server due to integrated NFS client in Oracle kernel
- Superior to any bonding solution – Faster and Easier
- Better throughput than most SAN solutions
- Highly available. Multiple network cards can be used between database server and NAS

11g News for SAP

Oracle Feature Availability (with 11.2 SAP GA) – Manageability

SAP



Online Patching

- Most One-Off-Patches and PSUs can be installed while SAP and Database are up and running
- Reduces need for standby and failover solutions for patch maintenance
- No impact on active SAP transactions in contrast to failover solutions
 - Every failover solution from any vendor has to rollback active database transactions during switchover
 - Online Patching is faster than any failover solution
 - No additional administration overhead
 - No failover and failback needed
- Available for Single Instance and RAC
- Available for all platforms (even for Windows) except HP-UX PA-RISC and AIX 5.3

11g News for SAP

Oracle Feature Availability (with 11.2 SAP GA) – Security

SAP



- Database Vault 11.2 (separate license required)
- Encryption
 - Tablespace Encryption
 - Securefile Encryption
 - RMAN Backup Encryption
 - Expdp Encryption
 - Data Guard Secure Redo Transport

All encryption functionality requires license for Advanced Security Option

- ASO license is included in SAP ASFU license scope



- **New RAC 11.2 for SAP White Paper available on SDN**
- **New SAPCTL Version 5 available to manage and control SAP critical resources through Oracle Clusterware**
 - Old SAPCTL versions 4.x will not work with Oracle Clusterware 11.2
- **RAC 11.2 available on all UNIX and Linux platforms (for all SAP 6.40_EX2 kernels and up)**
 - Supports the option to put OCR and voting disks on ASM
 - New RAC 11.2 installations only
 - Upgrades from RAC 10.2 must still use shared filesystems for OCR and voting disks
 - Oracle Clusterware 11.2 now installed locally per node
 - Same supported technology stacks defined in SAP Note 527843 stay in place
 - Cluster Filesystem or NAS NFS
 - Shared Oracle_Homes
 - Database (data, control, redo, undo, archive, flashback)
 - /sapmnt
 - OCR and voting disks (upgrades from RAC 10.2 or not using ASM)
 - Same versions for Clusterware and RDBMS software
 - Different and improved network configuration required for Clusterware 11.2

11g Plans

Feature/Product Availability (planned late 2010 - 2011)

SAP



- ASM support planned for Oracle 11.2 during Q1/2011
- ACFS – Required for complete technology stack from Oracle for SAP on RAC
- Evaluation of Oracle Exadata X2 / Database Machine support

Agenda



Oracle 10g @SAP

New SAP/Oracle Patch Concept

Oracle 11g Roadmap @ SAP

DBA Tools

Full Integration of Range Partitioning into SAP OLTP products (e.g. ERP)

- Partitioning Engine offers a predefined set of around 30 application tables to be partitioned based on time based criteria
 - Existing non-partitioned tables will be converted through ABAP/SAP BR*Tools task
 - Partition Maintenance is fully automated through internal SAP SM37 job (no need for DBA intervention)
- Prerequisites
 - SAP systems based on 6.20 WebAS release and higher. Examples:
 - SAP ECC 5.0, ECC 6.0, Business Suite 7
 - Requires **minimum** ABAP Basis **Support Package (SP) level:**
 - 6.20 SP67, 6.40 SP25, 7.00 SP21, 7.01 SP 06, 7.10 SP 09, 7.11 SP04
 - BR*Tools 7.10 Patch 24 and higher
 - Oracle 10.2.0.4 and higher
- General SAP support of Partitioning Engine **started with availability of above mentioned Support Packages**

Entry point for interested customers: [SAP Note 1333328](#)

New Oracle 11g Features supported by BR*Tools 7.20 (1)



- Online conversion to new SecureFile Lobs
 - Implemented as new action 'lob2lob' within BRSPACE reorganization
 - Lob compression can be activated with the same action
 - Can be done only 'online' (by redefinition), not offline (by move/alter)

- Support for the new table compression 'FOR OLTP'
 - The feature can be activated during table reorganization by BRSPACE
 - Table and Lob compression can be enabled at the same time

- Support for the new features of Oracle 11g Data Pump
 - Complete compression of the data in export dump files
 - Complete encryption of the data in export dump files
 - Export of individual tables from different schemas

- Tablespace compression and encryption
 - Allows to set compression and encryption attributes at tablespace level

New Oracle 11g Features supported by BR*Tools 7.20 (2)



- New features in the area of data encryption (TDE)
 - Changing the Wallet password using 'orapki' utility
 - Opening the Oracle Wallet in the database mount status
 - Password protection for closing the Oracle Wallet

- Improvement in database reset/PIT recovery using flashback
 - Increases the reliability of the determination of archivelog files needed

- Cleaning up new Oracle 11g trace files in diagnostic directories
 - Based on new Oracle 11g parameter 'diagnostic_dest'
 - Aware of new Oracle 11g trace file types, e.g. incident files

For more info see:

- SAP note 1430669 - BR*Tools support for Oracle 11g
- SAP note 1431296 - LOB conversion and table compression with BRSPACE 7.20
- SAP note 1428529 - Corrections in BR*Tools Version 7.20



SAP on Oracle forum:

<https://www.sdn.sap.com/irj/sdn/collaboration>

-> Database & OS Platforms -> SAP on Oracle

SAP on Oracle content page:

<https://www.sdn.sap.com/irj/sdn/ora>

-> SAP on Oracle

Thank you!

**Thank you very much
for your attention!**

