

SAPInst & Oracle

ASM, Exadata, DB Rename in SAPInst

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Oracle Platforms
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About Me

Nixdorf Computer AG / Siemens Nixdorf	8 years
Ordix AG	2 years
SAP Basis consultant (freelance)	2 years
SAP LGD	3 years
SAP AG	over 10 years

... About Me... SAP AG

R3INST

- Oracle versions 6 - 7

R3SETUP

- Oracle versions 8 - 10

SAPInst

- Oracle versions 9 - 11

R3*tools

- Oracle versions 6 - 11

Shell scripts

- startsap, stopsap, SAP environment

Agenda

SAPInst & DB Rename

- LVM = Landscape Virtualization Management 1.0

SAPInst & ASM

- What is possible and what not

SAPInst & Exadata

- Plans

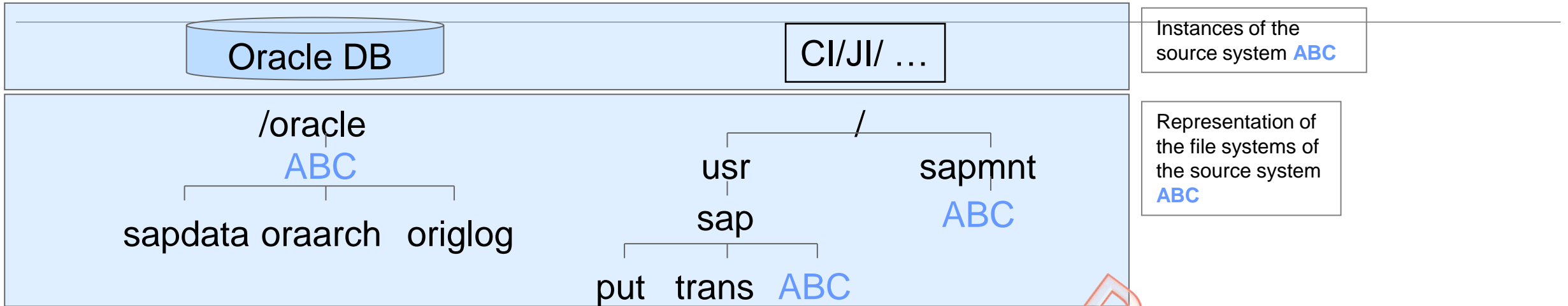
SAPInst Outlook

- Downward-compatible releases
- New Oracle platforms

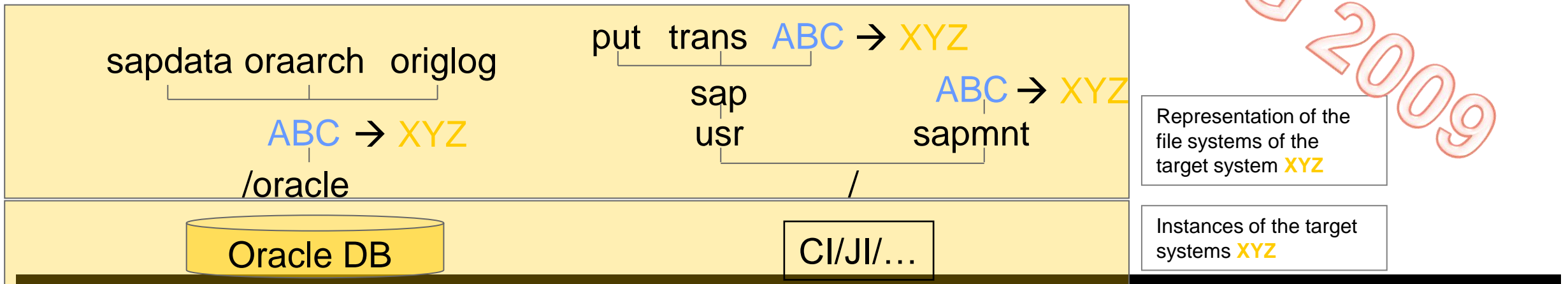


SAPInst & DB Rename

Outlook: System Copy – Storage-Based



1. Copy / clones of the file systems of all instances
2. Mounting the file systems on the target host - under the new SID
3. Adaptations: file system permissions, profiles, user environments, Secure Store, OPS\$user, ...



DOAG 2009

SAPinst & DB Rename

Landscape Virtualization Management LVM 1.0 Enterprise/Standard Edition

Enterprise Edition in LVM 1.0

Note: [1527538](#)

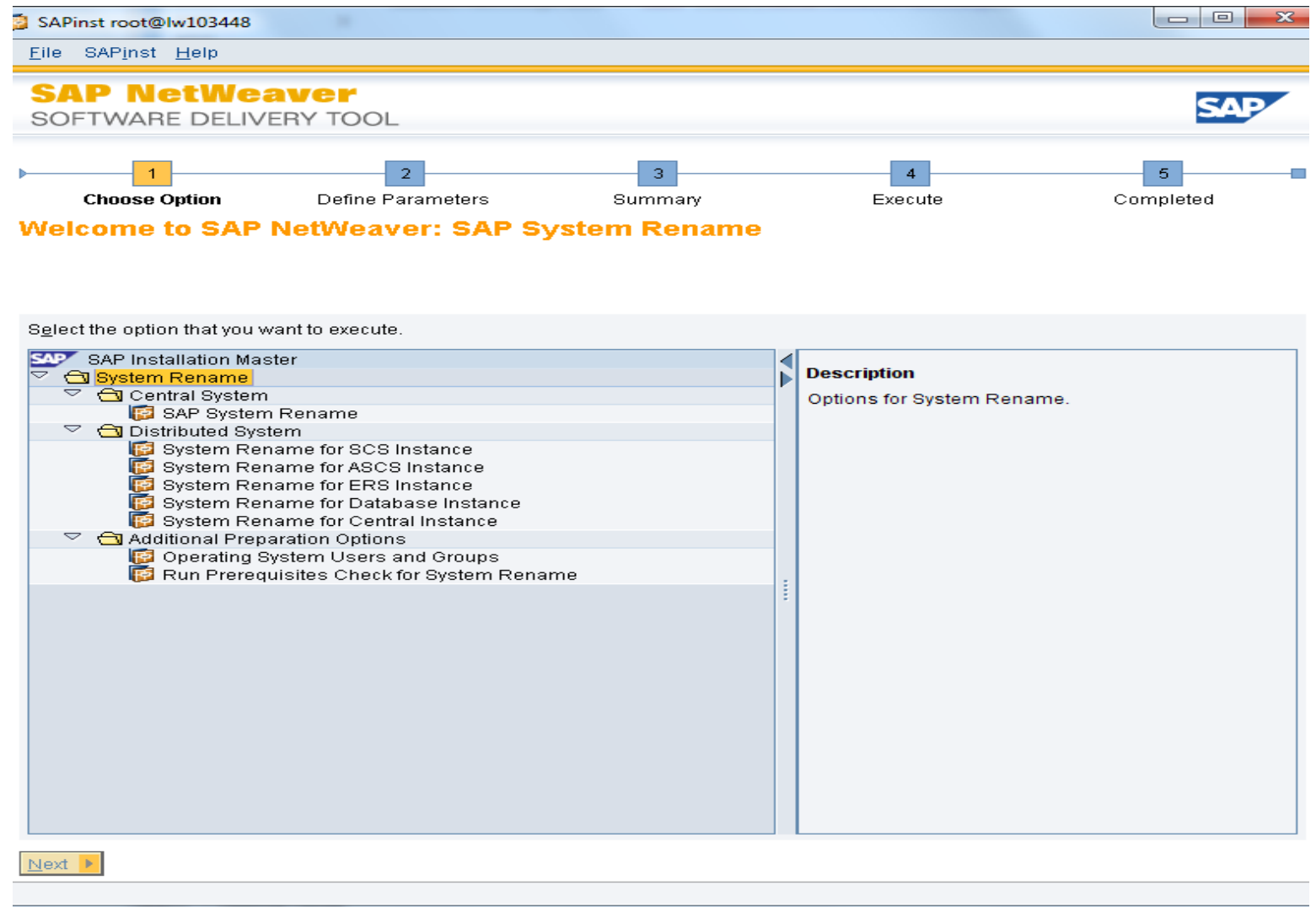
- Chargeable
- Complete automation including *Post System Copy Automation*
- <http://www.sdn.sap.com/irj/sdn/virtualization>
- <http://service.sap.com/instlvm>

Standard Edition

Released for 7.0.x products

- Freely available and installable with SAPinst
- No *Post System Copy Automation*

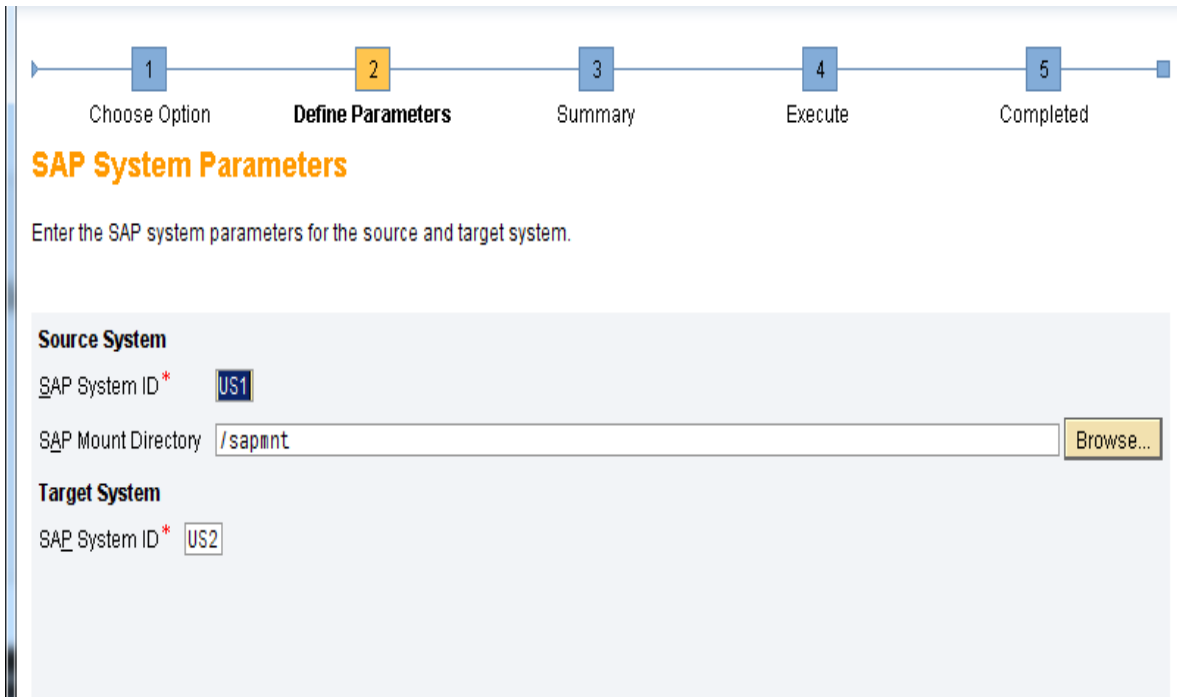
Planned RTC: end November 2011



SAPinst & DB Rename Dialogs (1/2)

SAP system parameters

Enter the parameters for source and target system.



1 Choose Option 2 Define Parameters 3 Summary 4 Execute 5 Completed

SAP System Parameters

Enter the SAP system parameters for the source and target system.

Source System

SAP System ID*

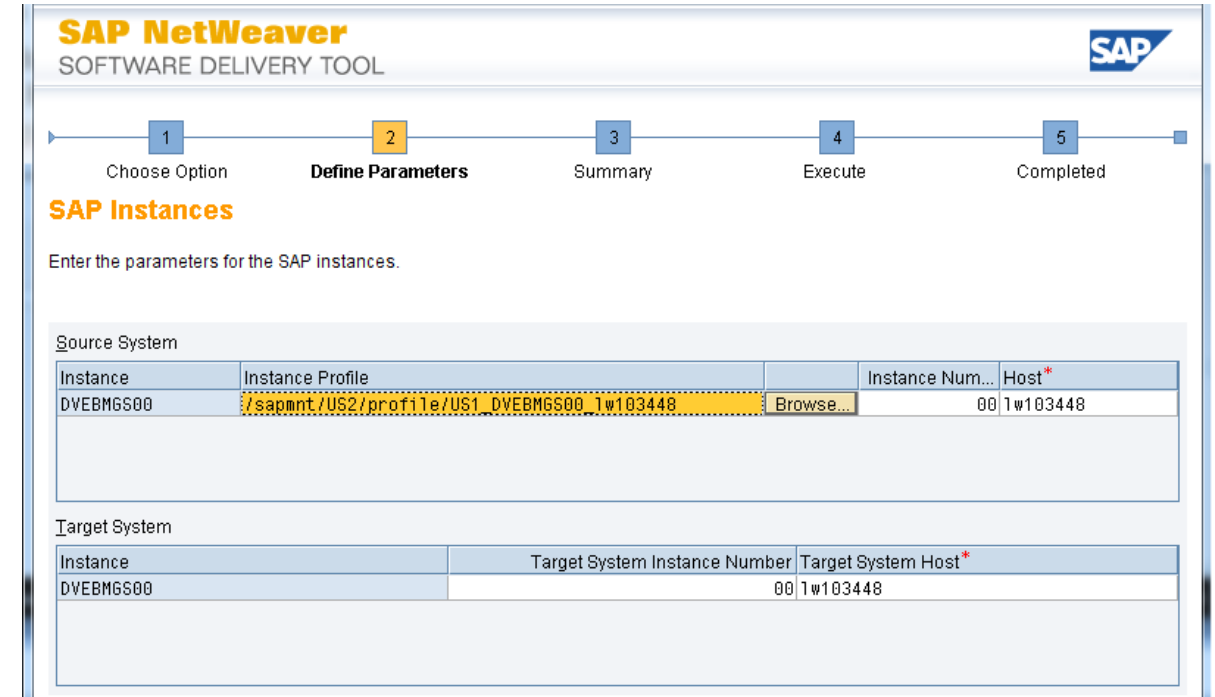
SAP Mount Directory

Target System

SAP System ID*

SAP instances selection

Enter the parameters for source and target instances.



SAP NetWeaver SOFTWARE DELIVERY TOOL

1 Choose Option 2 Define Parameters 3 Summary 4 Execute 5 Completed

SAP Instances

Enter the parameters for the SAP instances.

Source System

Instance	Instance Profile	Instance Num...	Host*
DVEBM6S00	<input type="text" value="/sapmnt/US2/profile/US1_DVEBM6S00_1w103448"/> <input type="button" value="Browse..."/>	00	1w103448

Target System

Instance	Target System Instance Number	Target System Host*
DVEBM6S00	00	1w103448

SAPinst & DB Rename Dialogs (2/2)

Creating a renamed Oracle database

Enter the parameters for source and target database.

1 Choose Option 2 Define Parameters 3 Summary 4 Execute 5 Completed

Creating a Renamed Oracle Database

Enter the parameters of the source and target database.

Database

Source ID*

Target ID*

Host name*

Password

Master password*

Confirm*

Additional Information

Oracle database configuration

Enter the target system parameters.

SAP NetWeaver SOFTWARE DELIVERY TOOL

1 Choose Option 2 Define Parameters 3 Summary 4 Execute 5 Completed

Oracle Database Configuration

Enter the target system parameters.

Database Schema

ABAP schema*

Password of ABAP schema*

Confirm*

Oracle Listener Configuration

Listener*

Listener port*

Domain*

Oracle home*

SAPInst & DB Rename

Prerequisites for Unix (1/2)

You must reset Unix mountpoints. SAPInst can move directories.

Stop the database before the snapshot (recovery is not yet possible for rename).

No support for ASM or Exadata.

***/oracle/<DBSID>/112_64* must be a relative link (as of 11.2.0.3 with runInstaller)**

Permissions are only transferred for database files under directories */oracle/<DBSID>* and */oracle/client/1[01]x_64/instantclient/*

Permissions of Oracle oraInventory (*/etc/orainst.loc*) are reset.

SAPInst & DB Rename

Prerequisites for Unix (2/2)

TNS_ADMIN=/usr/sap/SID/SYS/profile/oracle

Installations that do not follow SAP naming conventions are not fully supported.

SAPInst & DB Rename

Prerequisites Windows (1/2)

The Oracle software must already be installed and the path to \$ORACLE_HOME must not have been changed.

- As of LVM 1.1, the Oracle database software is also renamed

You must stop the database before the snapshot (recovery is not yet possible for rename).

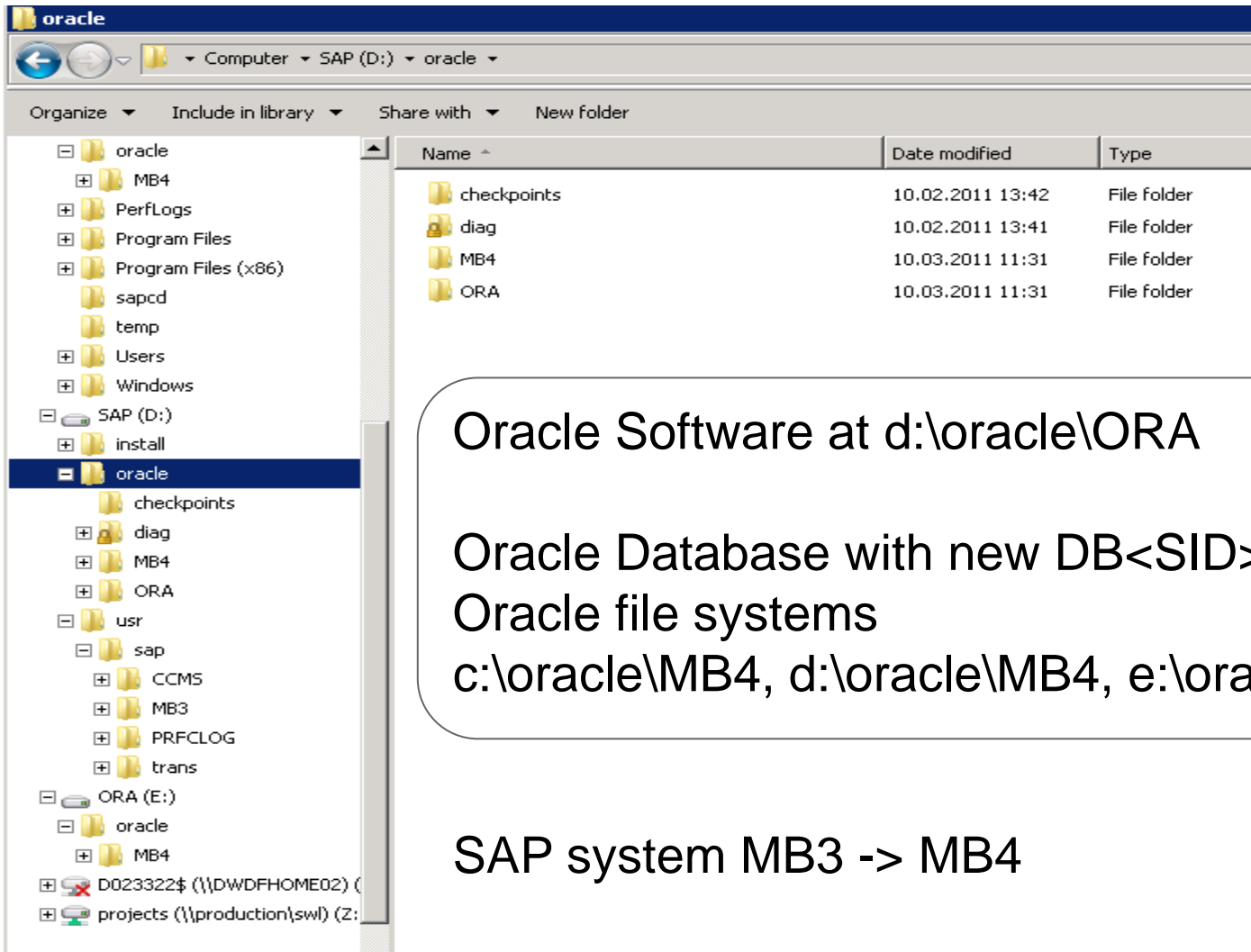
No support for ASM or Exadata.

Important: The ABAP schema can not be determined on Windows platforms. Therefore, you must enter this correctly in the dialog.

Installations that do not follow SAP naming conventions are not fully supported.

SAPInst & DB Rename

Prerequisites Windows (2/2)



Oracle Software at d:\oracle\ORA

Oracle Database with new DB<SID>: MB3 - > MB4

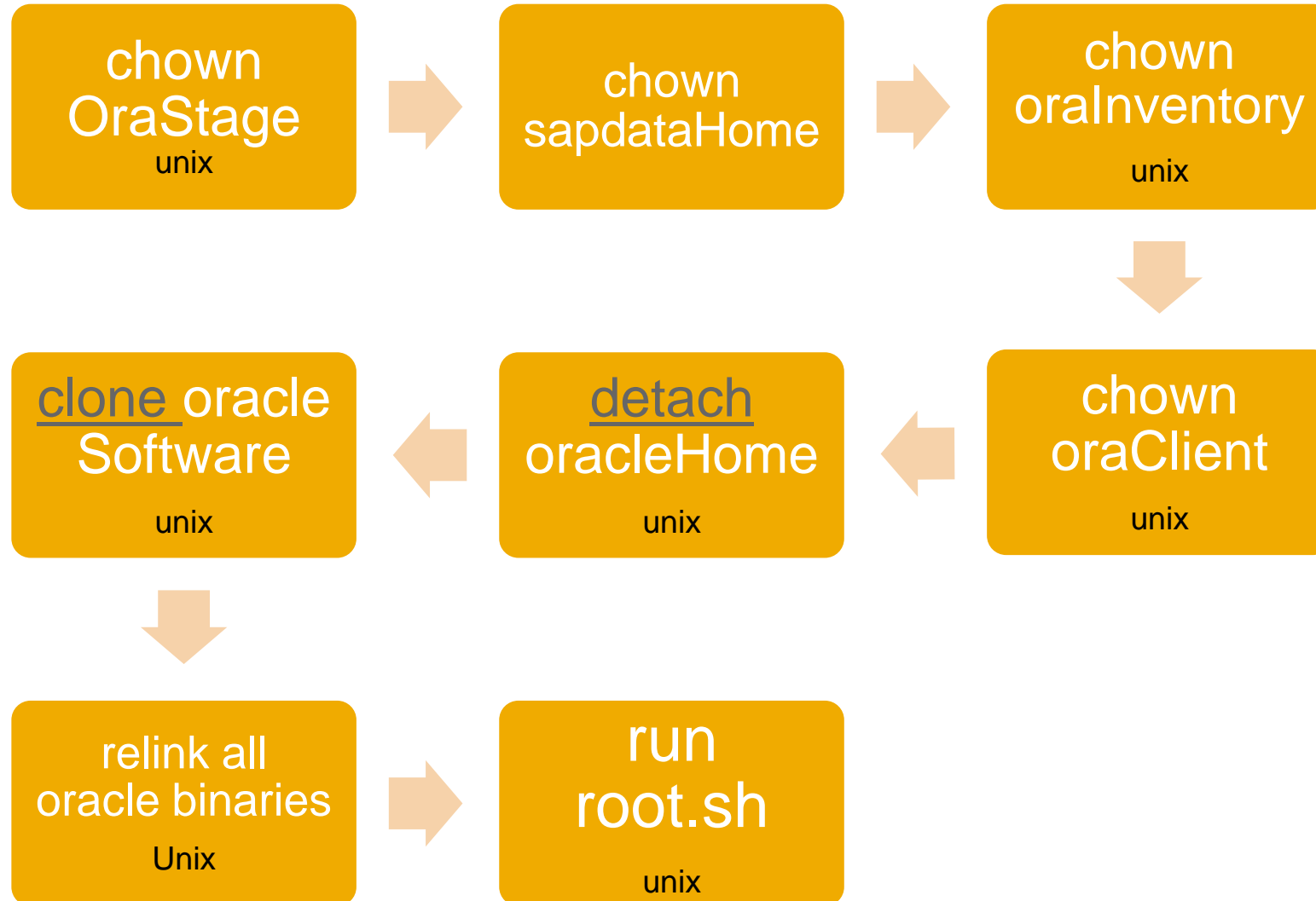
Oracle file systems

c:\oracle\MB4, d:\oracle\MB4, e:\oracle\MB4

SAP system MB3 -> MB4

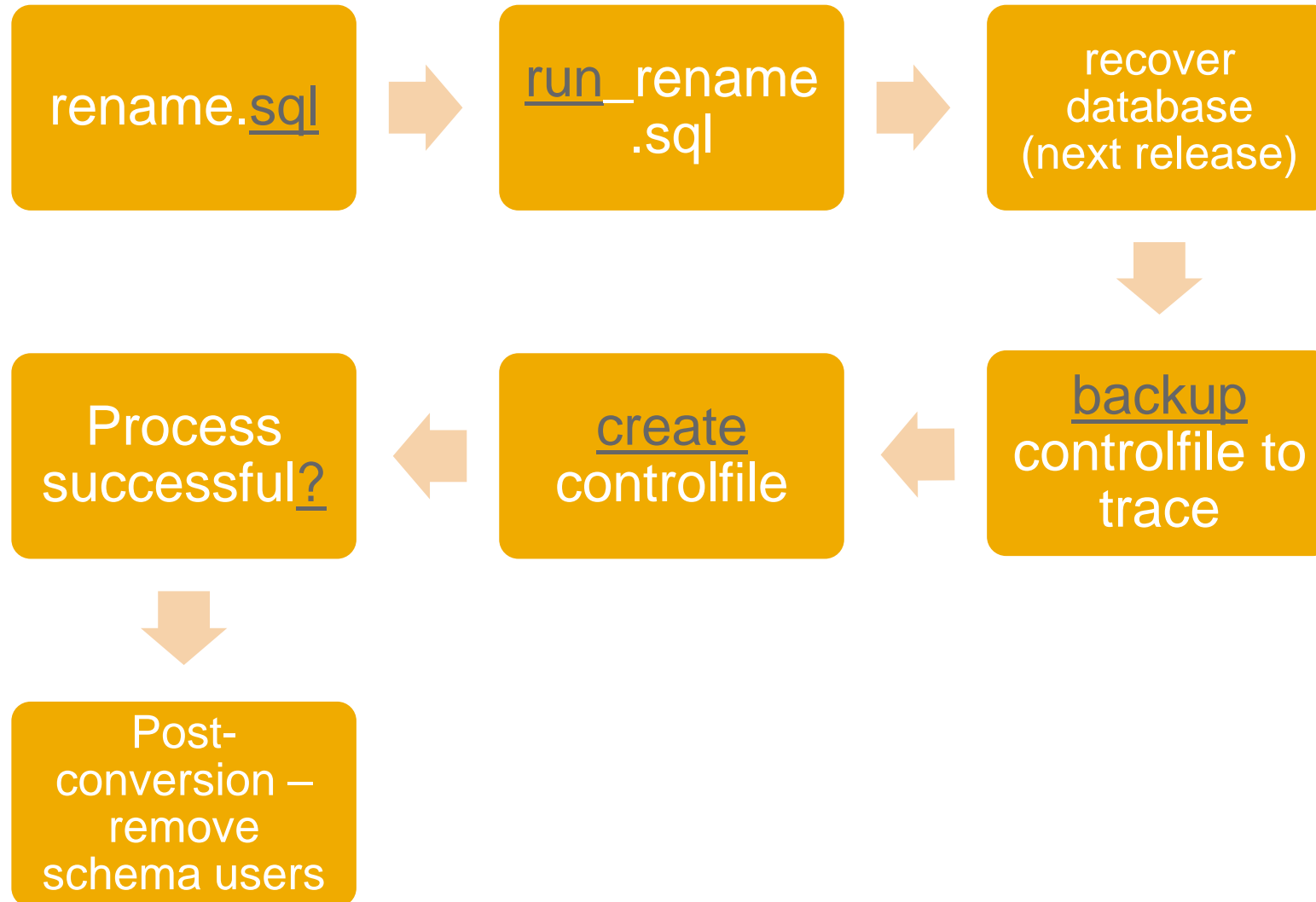
SAPInst & DB Rename

Conversion of the Oracle Software



SAPInst & DB Rename

Conversion of the Oracle Database



SAPInst & DB Rename

Summary: Processing Sequence

Conversion of the database software

- *runInstaller –detachHome -...*
- *runInstaller –clone -...*
- *chown –R orasid:dba ...*
- Relink the Oracle executables
- Run root.sh (file is generated from *runInstaller –clone*)

Conversion of the RDBMS database

- Start the database with old name *dbName* but new data file names (*rename.sql*)
- Generate the control files with *alter database backup controlfile to trace* (*run_rename.sql*)
- Recover the database (as of Version 1.2)
- Generate the new database with *CREATE CONTROLFILE ... SET DATABASE ...*
- Oracle log files (*ora_sql_results.log*, *alert*.log*)



SAPInst & ASM

SAPInst & ASM

Dialogs

Database parameters

Database on ASM

Database on Exadata

- Only for Linux or Solaris Oracle Database Machine

Success option **Database Parameters** Summary Execute Complete

SAP System > Database Parameters

Enter the database parameters

Database Parameters

Database ID (DBSID) *

Database on ASM

Database Host

Additional Information

- If you want to install your SAP system with a **new** database instance, enter the database ID (DBSID) for the database instance to be created.
- If you want to install your SAP system in an **existing** database, enter the DBSID of the existing database to which you want to add the SAP system.

SAPInst & ASM

Users and Groups

OS database accounts

OS users

- oracle

OS groups

- oinstall
- dba
- oper
- asmdba
- asmoper
- asmadmin

User <sid>adm remains

SAP System > Database Administrator Password

Enter the account parameters

Database Administrator (OS User)

Account: *oracle*

Password of Database Administrator*

Confirm*

User ID

Group ID of oinstall

Group ID of dba

Group ID of oper

Group ID of asmdba

Group ID of asmoper

Group ID of asmadmin

Login Shell

Additional Information

The fields *User ID* and *Group ID* should normally be left empty.

If you enter specific user or group IDs, make sure they do not conflict with other IDs you enter later in the installation.

SAPInst & ASM

Advanced DB Configuration 1/4

Advanced dialog changes for ASM

Enter the general check parameters - for Oracle experts only

Advanced Configuration Enablement





Select what you want to configure in advance:

- Sapdata Directory Mapping
- Windows Drive Mapping
- Database Instance File Systems
- Create Database Parameters
- Create Tablespaces
- Control Files
- Autoextend
- General Storage
- Default Storage

Mapping sapdata key to ASM data path

Enter the parameters of the sapdata directory distribution

Sapdata Directory Location on Database

Sapdata Key	Sapdata Path	ASM Data Path	Directory
SAPDATA1	/oracle/USP/sapdata1	+DATA	DIRECTORY 
SAPDATA2	/oracle/USP/sapdata2	+DATA	DIRECTORY 
SAPDATA3	/oracle/USP/sapdata3	+DATA	DIRECTORY 
SAPDATA4	/oracle/USP/sapdata4	+DATA	DIRECTORY 

SAPInst & ASM

Advanced DB Configuration 2/4

DBSIZE.XML

```
</row> ' ...  
<row>  
<fld name="tblspName,,"> <strval><![CDATA[PSAP@SCH/PSAP@AID@USR]]></strval>  
</fld>  
<fld name="tblspSize,,"> <strval><![CDATA[20]]> </strval> </fld>  
<fld name="sapdataDir,,"> <strval><![CDATA[SAPDATA4]]> </strval> </fld>  
</row>  
<row> ...
```

sapdataDir =
SAPDATA4

ASM Data Path =
+DATA

Enter the general tablespace parameters - for Oracle experts only

Enter the parameters of the sapdata directory distribution

Tablespace Information

Tablespace	Size [MB]	Sapdata Directory
PSAPSR3	2000	SAPDATA2
PSAPSR3	2000	SAPDATA2
PSAPSR3	2000	SAPDATA2
PSAPSR3	2000	SAPDATA2
PSAPSR3	2000	SAPDATA2
PSAPSR3	1540	SAPDATA2
PSAPSR3731	2000	SAPDATA3
PSAPSR3731	2000	SAPDATA3
PSAPSR3731	2000	SAPDATA3
PSAPSR3731	2000	SAPDATA3
PSAPSR3731	1010	SAPDATA3
PSAPSR3USR	20	SAPDATA4

Sapdata Directory Location on Database

Sapdata Key	Sapdata Path	ASM Data Path	Directory
SAPDATA1	/oracle/USP/sapdata1	+DATA	DIRECTORY
SAPDATA2	/oracle/USP/sapdata2	+DATA	DIRECTORY
SAPDATA3	/oracle/USP/sapdata3	+DATA	DIRECTORY
SAPDATA4	/oracle/USP/sapdata4	+DATA	DIRECTORY

SAPInst & ASM

Advanced DB Configuration 3/4

Mapping tablespace to sapdata key

Enter the general tablespace parameters - for Oracle experts only

Tablespace Information		
Tablespace	Size [MB]	Sapdata Directory
PSAPSR3	2000	SAPDATA2
PSAPSR3	2000	SAPDATA2
PSAPSR3	2000	SAPDATA2
PSAPSR3	2000	SAPDATA2
PSAPSR3	1540	SAPDATA2
PSAPSR3731	2000	SAPDATA3
PSAPSR3731	2000	SAPDATA3
PSAPSR3731	2000	SAPDATA3
PSAPSR3731	2000	SAPDATA3
PSAPSR3731	1010	SAPDATA3
PSAPSR3USR	20	SAPDATA4

Database control files for ASM

Enter the general tablespace parameters - for Oracle experts only

Database Control File Information		
Database ID (DBSID)	Control File Directory	Control File Name
USP	+DATA	/USP/cntrlUSP.dbf
USP	+ARCH	/USP/cntrlUSP.dbf
USP	+RECO	/USP/cntrlUSP.dbf

SAPInst & ASM

Advanced DB Configuration 4/4

Tablespace compression

Enter the compress parameters of the tablespaces - for Oracle experts only

Compress Tablespace Parameters	
TblspName	Compress
PSAPSR3	COMPRESS FOR OLTP
PSAPSR3731	COMPRESS FOR OLTP
PSAPSR3USR	COMPRESS FOR OLTP

Dialog to install the Oracle database software with runInstaller

To proceed with the installation, install the Oracle database as follows:

1. Log in as user oracle.
2. Set the DISPLAY variable.
3. Change to directory `/oracle/stage/112_64/grid`.
4. Start `./runInstaller`.
5. Change to directory `/oracle/stage/112_64/database/SAP`.
6. Set the DB_SID variable to USP.
7. Start `./RUNINSTALLER`.

After you installed the Oracle database software, proceed with the database instance installation by choosing 'OK' in this dialog box.

SAPInst & ASM

Availability

ASM available in SAPInst for versions:

7.03: SAP Business Suite 7 Innovation 2011

7.31: SAP NetWeaver 7.31

ASM in SAPInst for the 11.2 downward-compatible DVDs

In progress

- SAPInst control files (control.xml, keydb.xml, dialog.xml) must be swapped
- There will (probably) be no installation master DVD for Oracle ASM

SAPInst & ASM

Problems when Restarting

Create Database

When SAPint is restarted, in the createDB step the old tablespace data files are not overwritten because the name is automatically generated. If restart is performed several times, this generates a surplus of old files in the ASM container (system, psaptemp, psapundo, sysaux)

Create Tablespaces

When SAPint is restarted, in the createTablespace step all tablespaces are recreated. This can use a lot of space because of the repeated execution of alter tablespace add datafile '+DATA'.



SAPInst & Exadata

SAPInst & Exadata

Initial Delivery via SAP Note

SAP Note 1619343

SAPInst for Oracle Exadata

Platforms

- Oracle Linux on X86_64 (Red Hat)
- Solaris X86

User environment is identical to that of ASM

- oracle user
- oinstall, asmdba, asmoper, asmadmin groups

Restrictions for Exadata compared to ASM

- +ARCH disk group is not present
- Compatible parameters must be correctly set, for example:
compatible = 11.2.0.2

SAPInst & Exadata

Delivery with SAPInst

SAP Business Suite 7 Innovation 2011
Installation Master
SAP Netweaver 7.03 --- Software Life-Cycle Options

File SAPInst Help

SAP NetWeaver

SOFTWARE DELIVERY TOOL

1 Choose Option 2 Define Parameters 3 Summary 4 Execute 5 Completed

Welcome to SAP Installation Master

Before starting the installation, make sure that you have identified the required scenario as described in the Master Guide

Go to the option you want to execute. To display relevant help information in the right-hand panel, select an option or folder.

- Enhancement Package 1 for SAP CRM 7.0
- Enhancement Package 2 for SAP SCM 7.0
- Enhancement Package 2 for SAP SRM 7.0
- SAP NetWeaver 7.0 including Enhancement Package 3
 - SAP Application Server ABAP
 - Standalone Engines
 - Software Life-Cycle Options
 - Additional Preparation Options
 - Host Agent
 - Operating System Users and Groups
 - Prerequisites Check
 - Exadata/ASM Database Instance Preparation**
 - Application Server
 - Database Tools
 - LDAP Registration

Description

Install/Prepare an Exadata database instance or an ASM environment on distributed database host. Mandatory step in installing an SAP system distributed on several hosts.

Exadata Database Instance or ASM environment

SAPInst prepare the environment for the distributed database host. It creates the oracle user, some additional groups and set the correct environment.

Next

SAP Netweaver 7.31
Installation Master
SAP Netweaver 7.31 --- Database Tools

1 Choose Option 2 Define Parameters 3 Summary 4 Execute 5 Completed

Welcome to SAP Installation

Before you start the installation, make sure that you have identified the required capabilities as described in the Master Guide.

Go to the option you want to execute. To display relevant help information in the right-hand panel, select an option or folder.

- SAP Installation Master for Oracle
 - SAP NetWeaver 7.3 including Enhancement Package 1**
 - Preparations
 - SAP Systems
 - Additional SAP System Instances
 - Database Tools
 - Exadata/ASM Database Instance Preparation
 - SAP Library Installation and Update
 - System Copy
 - Uninstall

Description

Options to install SAP NetWeaver 7.3 including Enhancement Package 1

In *Preparation*, you can perform options for preparing the installation hosts.

In *SAP Systems*, you can install your SAP system with any required software unit or usage type. You can also install standalone engines and optional standalone units.

In *Additional SAP System Instances*, you can install new application server instances or modify existing ones.

In *SAP Library Installation and Update*, you can install or update online documentation (SAP Library) for your SAP system.

In *System Copy*, you can perform a system copy.

In *Uninstall*, you can remove SAP systems, instances, and standalone engines or optional standalone units.



SAPInst & Outlook

New Oracle Platforms Solaris 11 and Oracle Linux (Red Hat 6)

Oracle 11.2 Downward-Compatible Releases

New ABAP Secure Store

SAPInst & Outlook

New Oracle Platforms

SAP Note: 1642058

Adapt SAPInst Oracle Client 11.2.0.3 on Solaris 11 and Oracle Linux (Red Hat 6)

All downward-compatible releases for Oracle Server 11.2.0.x use Oracle Client 10.2

- Solaris 11 and Oracle Linux are only released with Oracle Client 11.2
- Shell scripts `adaptSapinst.sh` and `adaptDvd.sh` generate new `ORADBPAR.XML` and `packages.xml`
- Shell scripts available as attachments to SAP Notes
 - [adaptSapinst.sh](#)
 - [adaptDvd.sh](#)

SAPInst & Outlook

Oracle 11.2 Downward-Compatible Releases



No new installation master DVD (“latest and greatest”)

All downward-compatible releases are installed with 11.2 server and 10.2 client

Control files are swapped: control.xml, keydb.xml, dialog.xml

Product files are swapped: product.xml, packages.xml, ORADBPAR.XML

SAPInst Outlook

New ABAP Secure Store

Oracle error as of 11.2.0.x:

- ORA-32006: REMOTE_OS_AUTHENT initialization parameter has been deprecated
Oracle instance started.

SAP Notes:

1623922:

- Connect to Oracle DB

157499:

- OPS\$ Connect and security aspects
 - Aimed especially at SAP versions <= 640

1622837:

- Connect to Oracle by SSFS (secure store)
 - Aimed at SAP versions 7.x

SAPInst Outlook

Newr ABAP Secure Store

SAP Note:

1431798:

- REMOTE_OS_AUTHENT
 - TRUE (optional, no longer recommended, but still SAPInst default)
 - Do not set (=FALSE), if
 - SAP installations with SSFS for ABAP - see SAP Note [1622837](#)
 - SAP installations without ABAP stack
 - Homogenous SAP installations on Windows



Questions? Thank You!

For more information, see SDN:

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

Contact: uwe.specht@sap.com

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