



Oracle ISV Migration Center

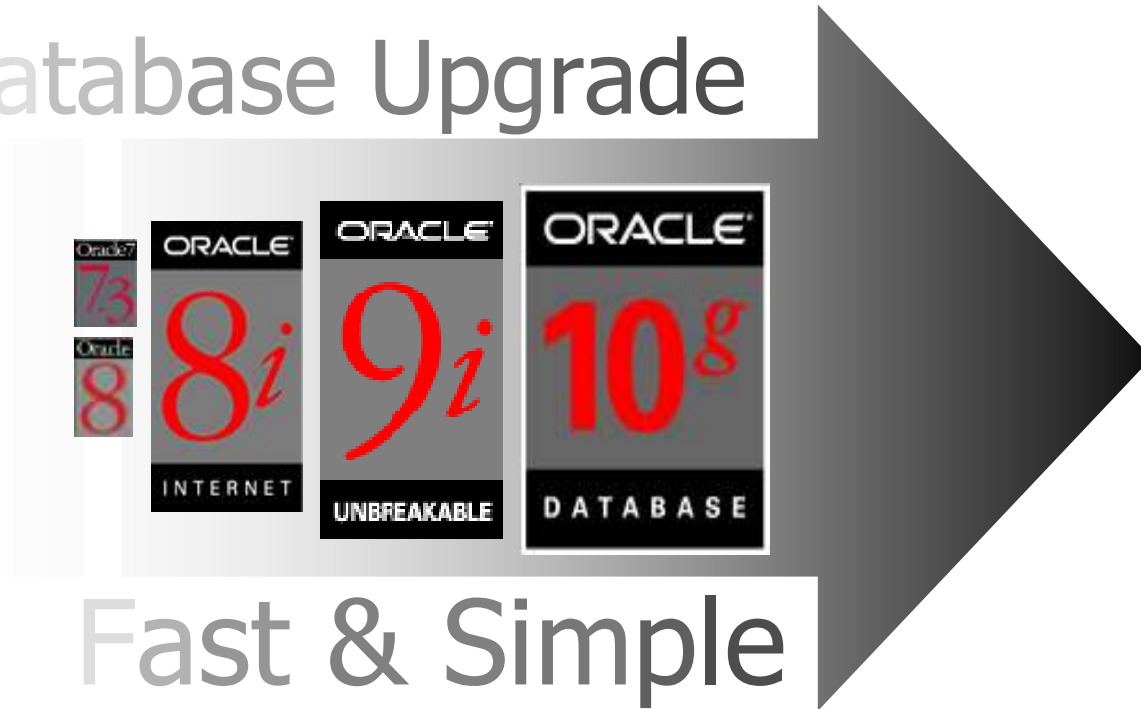


Upgrade to Oracle Database 11g

Вадим Мельников
Консультант по базам данных



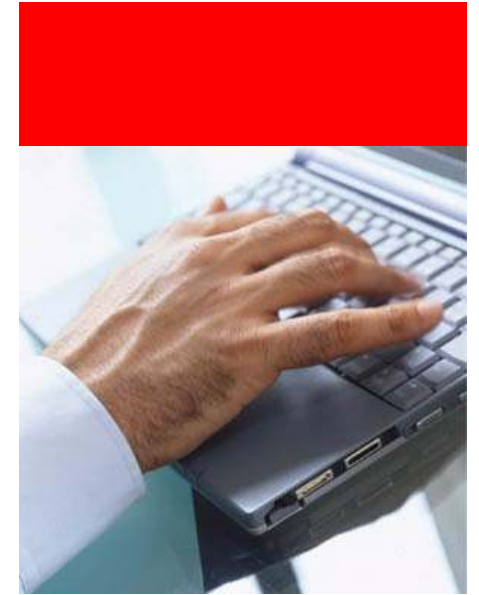
Database Upgrade





План

- Подготовка
- Upgrade
- Новое в 11g
- Полезные советы



План



Подготовка



Upgrade



Новое в 11g

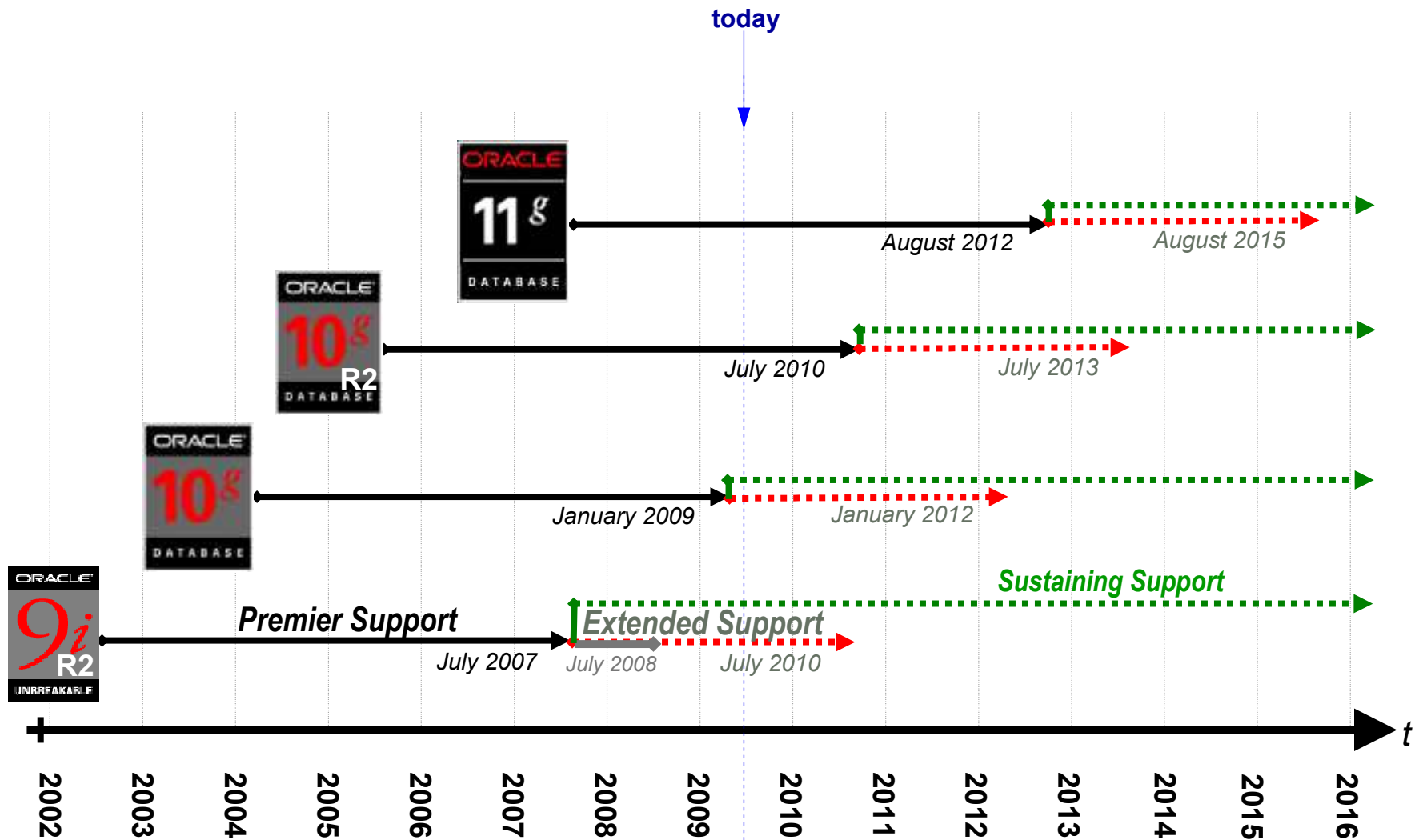


Полезные советы

Support Policy
Патчи
Сертификация
Документация
Установка ПО
Редакции ПО



Lifetime Support Policy



ORACLE®

<http://www.oracle.com/support/library/brochure/lifetime-support-technology.pdf>


Lifetime Support Policy

- <http://www.oracle.com/support/library/brochure/lifetime-support-technology.pdf>

Oracle Database Releases

Release	GA Date	Premier Support Ends	Extended Support Ends	Sustaining Support Ends
8.1.7	Sep 2000	Dec 2004	Dec 2006	Indefinite
9.2	Jul 2002	Jul 2007	Jul 2010	Indefinite
10.1	Jan 2004	Jan 2009	Jan 2012	Indefinite
10.2	Jul 2005	Jul 2010	Jul 2013	Indefinite
11.1	Aug 2007	Aug 2012	Aug 2015	Indefinite

Extended Support is only offered against the terminal patchset for a release. Customers using Oracle Database 9.2 on Fujitsu Siemens BS2000 will receive a fee waiver for Extended Support until December 2009.

 Support does not follow the Lifetime Support Policy.

Oracle releases

11.1.0.6.0

Номер версии
СУБД

Номер релиза
СУБД

Номер релиза
Application Server

Номер
промежуточного
патча

Patch set

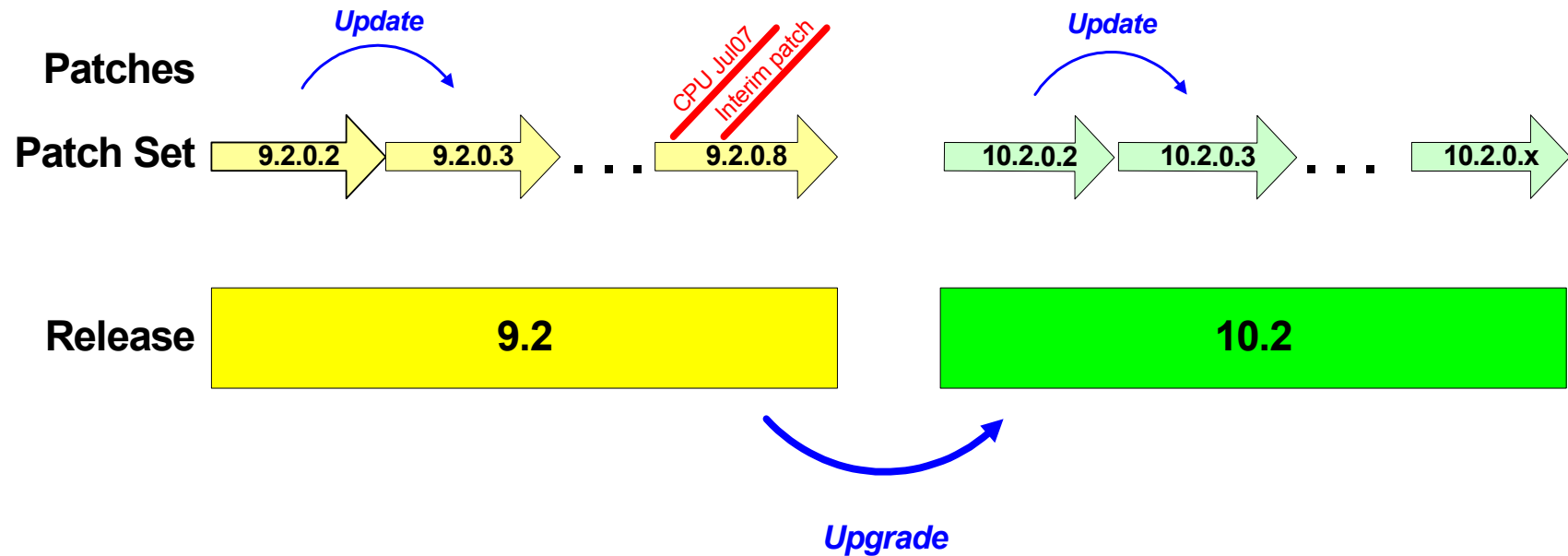
```
d:\oracle\product\11.1.0\client_1\bin\sqlplus.exe
SQL> select * from v$version;

BANNER
-----
Oracle Database 11g Enterprise Edition Release 11.1.0.6.0 - Production
PL/SQL Release 11.1.0.6.0 - Production
CORE    11.1.0.6.0    Production
TNS for 32-bit Windows: Version 11.1.0.6.0 - Production
NLSRTL Version 11.1.0.6.0 - Production

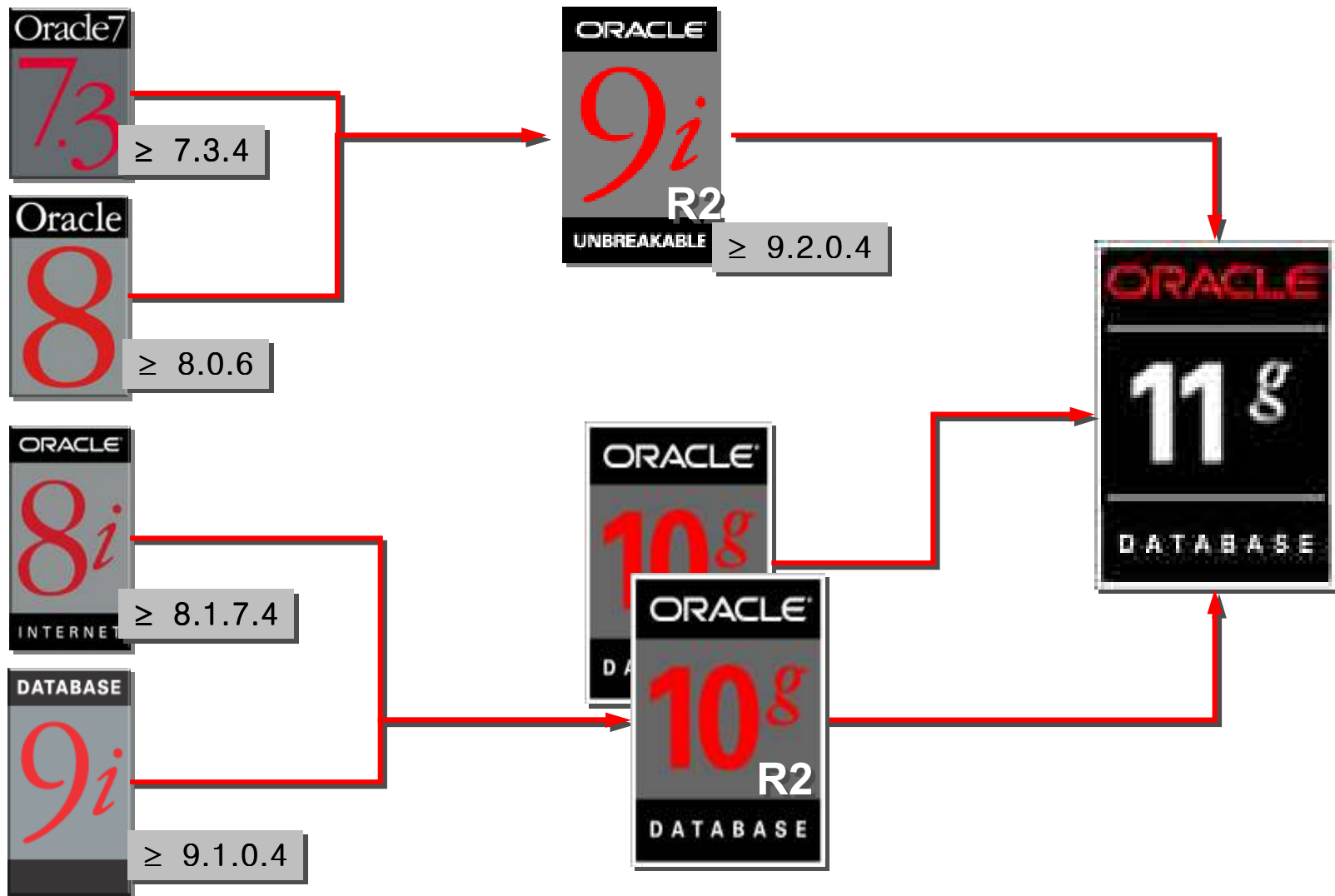
SQL>
```

Releases, Patch Sets, Patches

Разные типы патчей:



Upgrade to 11g

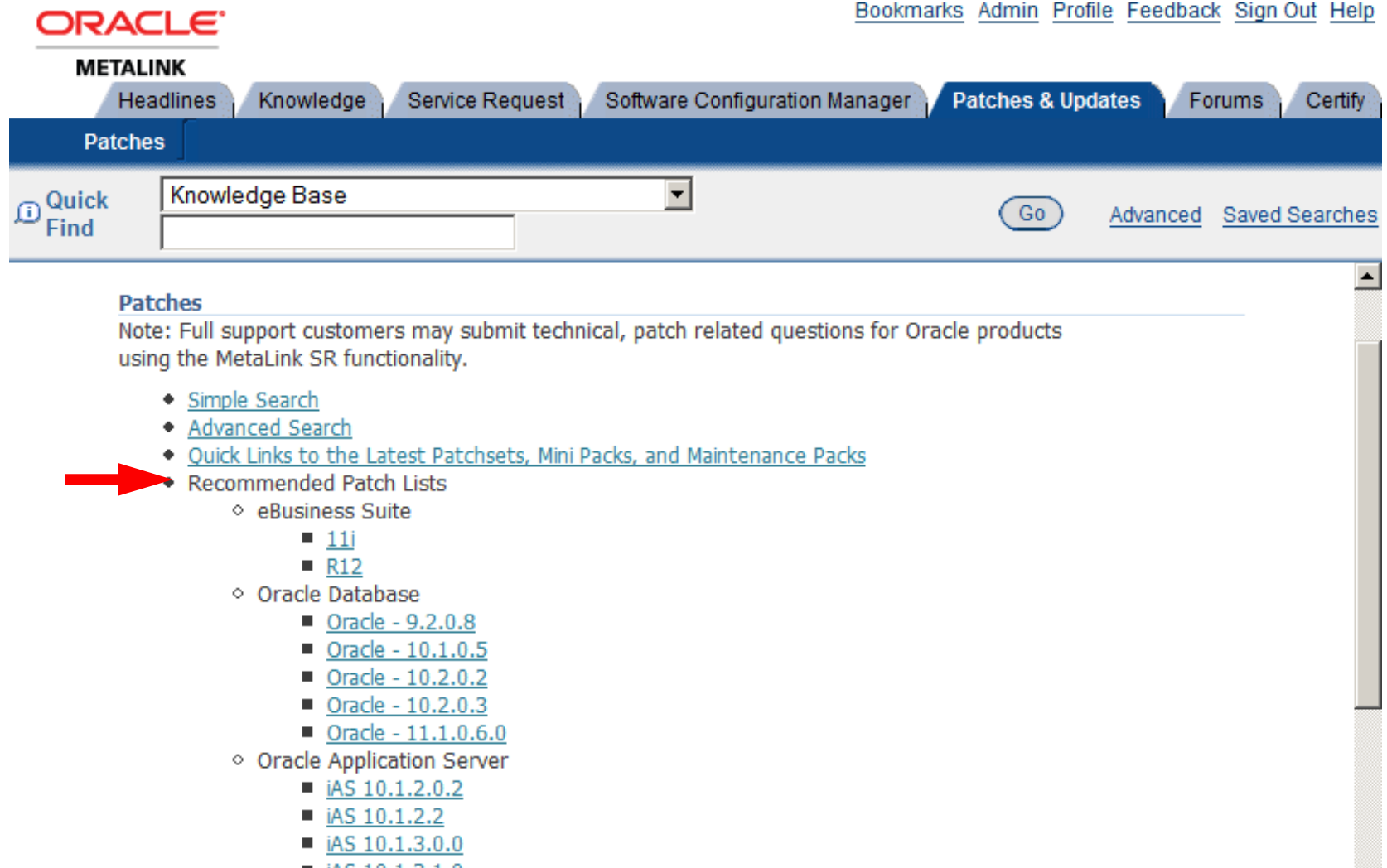




Patches

- Patch level исходной БД:
 - Upgrade to Oracle Database 10gR2:
8.1.7.4 ... ≥ 9.0.1.4 ... ≥ 9.2.0.4 ... ≥ 10.1.0.2
 - Upgrade to Oracle Database 11g:
≥ 9.2.0.4 ... ≥ 10.1.0.2 ... ≥ 10.2.0.1
- Установите последний patch set перед началом обновления версии.
- Проверьте наличие внутренних патчей
- Не забывайте про патчи ОС !

Recommended Patches



ORACLE

[Bookmarks](#) [Admin](#) [Profile](#) [Feedback](#) [Sign Out](#) [Help](#)

METALINK

[Headlines](#) [Knowledge](#) [Service Request](#) [Software Configuration Manager](#) **[Patches & Updates](#)** [Forums](#) [Certify](#)

Patches

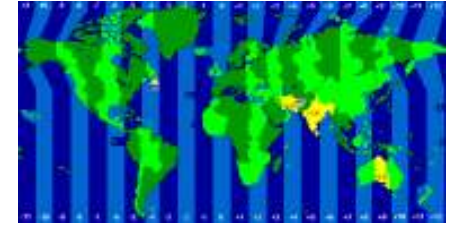
Quick Find Knowledge Base [Advanced](#) [Saved Searches](#)

Patches

Note: Full support customers may submit technical, patch related questions for Oracle products using the MetaLink SR functionality.

- ◆ [Simple Search](#)
- ◆ [Advanced Search](#)
- ◆ [Quick Links to the Latest Patchsets, Mini Packs, and Maintenance Packs](#)
- ◆ **Recommended Patch Lists**
 - ◇ eBusiness Suite
 - [11j](#)
 - [R12](#)
 - ◇ Oracle Database
 - [Oracle - 9.2.0.8](#)
 - [Oracle - 10.1.0.5](#)
 - [Oracle - 10.2.0.2](#)
 - [Oracle - 10.2.0.3](#)
 - [Oracle - 11.1.0.6.0](#)
 - ◇ Oracle Application Server
 - [iAS 10.1.2.0.2](#)
 - [iAS 10.1.2.2](#)
 - [iAS 10.1.3.0.0](#)
 - [iAS 10.1.3.1.0](#)

Timezone Patches



- Зачем нужны timezone патчи? (DST: Daylight Savings Time)
 - The date for moving to DST has been changed for 7 different timezones since 2007
 - HST - EST - MST - EST5EDT - MST7MDT - CST6CDT - PST8PDT
 - Current DST definitions are included from within the following patch set
 - 10.2.0.4
 - Oracle Database 11g requires timezone version V.4
 - Oracle 9i: Timezone V1
 - Oracle 10g: Timezone V2
- Without timezone V4 no upgrade to Oracle Database 11g will be possible!!!



Important Alerts?

- Note 161818.1

Oracle Server Releases Status Summary

Release <i>(Click to see Details)</i>	Current Patch Set	Next Patch Set	Premier Support Ends	Extended Support Ends	Notes
11.1.0.X	None	TBD	-	-	Base release is 11.1.0.6
 10.2.0.X	10.2.0.3	TBD	Jul-2010	Jul-2013	
10.1.0.X	10.1.0.5	None	Jan-2009	Jan-2012	10.1.0.5 is the terminal 10.1 Patch Set
9.2.0.X	9.2.0.8	None	Jul-2007	Jul-2010 First year Extended Support is free for 9.2	9.2.0.8 is terminal 9.2 Patch Set.

Key to coloring of above table:

Premier Support
Extended Support
Fixes only possible where noted
Sustaining Support



Upgrade Information / Alerts

- Note 316900.1
Support Status and Alerts for Oracle 10g Release 2 (10.2.0.X)

Patch Sets

This section gives a summary of the patch sets available for Oracle 10g Release 2. Note that the BASE release of Oracle 10g Release 2 is 10.2.0.1 .

Release	Comments
10.2.0.4	Current Patch Set List of fixes included in 10.2.0.4 Note 401436.1 Known issues and alerts affecting 10.2.0.4 Note 555579.1
10.2.0.3	Second Patch Set List of fixes included in 10.2.0.3 Note 391116.1 Known issues and alerts affecting 10.2.0.3 Note 401435.1
10.2.0.2	First Patch Set List of fixes included in 10.2.0.2 Note 358749.1 Known issues and alerts affecting 10.2.0.2 Note 359415.1
10.2.0.1	Oracle 10g Release 2 Base Release. Known issues and alerts affecting 10.2.0.1 Note 316901.1

Upgrade Information / Alerts

- [Note 555579.1](#) Known Issues specific to the 10.2.0.4 Patch Set

10.2.0.4 Alerts / Issues

This section lists alerts and important issues relevant to 10.2.0.4 .

General Alerts / Issues

Note:464683.1P*	Win: Unexplained Database Slowdown Seen on Windows 2003 Service Pack 1
---------------------------------	--

Upgrade Issues

7139820+	10.2.0.4 Patch Set overwrites %ORACLE_HOME%\network\admin\sqlnet.ora
Note:567389.1P	Solaris: 10.2.0.4 manual relink fails on target install of ins_odbc.mk
Note:567386.1P	10.2.0.4 manual relink fails on target \$OH/precomp/lib/libpfo.a

Verify Database Creation Wordsize

- Что проверить при смене разрядности с 32 на 64 бит:

```
select decode(instr(metadata, 'B023'), 0,  
'64bit Database', '32bit Database') "DB Creation"  
from kopm$;
```

- Результат содержит '**B023**' → created in 32-bit env – apply patch
- Результат содержит '**B047**' → created in 64-bit env – no patch
 - See [Note:579523.1](#) (patch:6770913)

Oracle Certification

ORACLE MetaLink [Bookmarks](#) [Admin](#) [Profile](#) [Feedback](#) [Sign Out](#) [Help](#)

[Headlines](#) [Knowledge](#) [Service Request](#) [My Configs & Projects](#) [Patches & Updates](#) [Forums](#) **Certify**

Certifications [Product Availability](#) [Desupport Notices](#) [Alerts](#)

Quick Find Knowledge Base [Advanced](#) [Saved Searches](#)

Certify - Oracle's Certification Matrices, Desupport Notices & Product Availability

Welcome to Certify! This application provides product certification information, including patches and workarounds, for Oracle and non-Oracle products. For assistance with this application, please review our [online documentation](#).

Please forward all Certify and Product Availability inquiries to CERTADMIN_US@oracle.com and all Desupport Notices inquiries to OBSSUPP_US@oracle.com.

To best view the matrices, it is recommended that you maximize your browser window.

1. [View Certifications by Product](#)
2. [View Certifications by Platform](#)
3. [View Product Availability](#)

[Bookmarks](#) [Admin](#) [Profile](#) [Feedback](#) [Sign Out](#) [Help](#)

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Upgrade проще!

- Upgrade на Oracle Database 11g - легче чем на прошлые версии Oracle
- Size of Upgrade guides:
 - **8.1.7** - 512 pages
 - **9.0.1** - 484 pages – 111 steps for an RDBMS with 9 components
 - **9.2.0** - 344 pages
 - **10.1.0** - 170 pages - **only 6 steps!!!**
 - **10.2.0** - 140 pages
 - **11.1.0** - 186 pages - **now detailed explanations and information about new options included**



Документация

- Documents to study before you start?

Oracle® Database

Upgrade Guide

11g Release 1 (11.1)

B28300-01

- [PDF](#)
- [HTML](#)

- [Note:429825.1](#)
Complete Checklist for Manual Upgrades to 11gR1

- [Note: 421191.1](#)
Complete checklist for manual upgrades from X to Y

Документация

- Note: 466181.1 Upgrade Companion 10gR2

ORACLE 10g Upgrade Companion

Home Best Practices Behavior Changes Patches Recommended Documentation

Oracle Upgrade Companion

Version 2.30 May 13, 2008

Welcome to the Oracle Upgrade Companion. This Upgrade Companion helps you upgrade from Oracle9i Release 2 (9.2) to Oracle Database 10g Release 2 (10.2), including guidance on pre-upgrade, upgrade, and post-upgrade steps. This web site is instructional only, and does not supply automation tools.

NOTE: This document is not a replacement for the Oracle Database 10g Upgrade Guide. It should be used as a companion document to the Oracle Database documentation.

This document is continually updated as new information becomes available. Please check back prior to your upgrade.

If advice or onsite assistance is needed during your upgrade, go to [Oracle's Upgrade Management Services](#) page for details. Oracle Upgrade Management Services is designed to simplify your unique upgrade challenges, no matter what stage you are at in the upgrade process.

The Upgrade Companion does not cover upgrading Oracle E-Business Suite or Siebel Business Applications. Please refer to your application documentation. For convenience, some common E-Business Suite and Siebel Business Application MetaLink notes are listed below. This is not a complete list.

- Note: 601807.1 Upgrade Companion 11g

ORACLE 10g Upgrade Companion

Home Best Practices Behavior Changes Patches Recommended Documentation

Oracle 11g Upgrade Companion

Version 1.00 June 9, 2008

Welcome to the Oracle 11g Upgrade Companion. This Upgrade Companion helps you upgrade from Oracle9i Release 2 (9.2) or Oracle Database 10g to Oracle Database 11g, including guidance on pre-upgrade, upgrade, and post-upgrade steps. This document is instructional only, and does not supply automation tools.

NOTE: This document is not a replacement for the Oracle Database 11g Upgrade Guide. It should be used as a companion document to the Oracle Database documentation.

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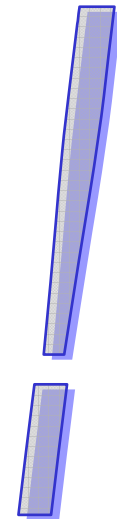
Подготовка

- Найдите объекты в состоянии INVALID:

```
SQL> SELECT UNIQUE object_name, object_type, owner  
      FROM dba_objects WHERE status='INVALID';
```

Перекомпилируйте объекты скриптом `ultrp.sql`

- Подготовьте результаты критичных запросов
 - Comparison: before ↔ after
 - Time specific queries and batches
- Сделайте тестовый upgrade
 - Проведите функциональные тесты
 - И тесты на производительность с реальной нагрузкой!!!



Подготовка

- Соберите статистику по словарю данных – это поможет ускорить процесс обновления

```
SQL> EXECUTE dbms_stats.gather_schema_stats
('SYS',
 options          => 'GATHER',
 estimate_percent => DBMS_STATS.AUTO_SAMPLE_SIZE,
 method_opt      => 'FOR ALL COLUMNS SIZE AUTO',
 cascade         => TRUE);
```

- Дополнительную информацию можно получить тут:
[Oracle® Database Upgrade Guide Appendix B](#)

- Или  / 

```
SQL> EXECUTE dbms_stats.gather_dictionary_stats;
```

Подготовка

- Отключите DATABASE VAULT (если используется)
 - Oracle® Database Vault Administrator's Guide: Appendix B
 - Unix: (simplified)
 - Relinking without Database Vault
`[$ make -f ins_rdbms.mk dv_off]`
 - `$ dvca -action disable ...`
 - Windows:
 - Rename `oradv10.dll` in `ORACLE_HOME\bin`
 - Upon restart: `$ dvca -action disable ...`
- After upgrading relink with `dv_on` or rename the DLL and enable Database Vault again:
`$ dvca -action enable ...`

Установка ПО

- Системные требования

- Software installation:

- 150-200 MB in /tmp or \TEMP necessary

Installation Type	Requirement for Software Files (GB)
Enterprise Edition	3.47
Standard Edition	3.22
Custom (maximum)	3.45

Example: Linux

- Seed database: $\geq 1,6$ GB

- RAM: ≥ 1 GB

- Swap space

- RAM between 513Mb and 2048Mb $\rightarrow 1.5x$ RAM
 - RAM between 2049Mb and 8192Mb $\rightarrow 1x$ RAM
 - RAM more than 8192Mb $\rightarrow 0.75x$ RAM



Установка ПО

- Системные требования
 - Oracle executable binary - comparison done on Linux 32-bit x86:
 - 8.1.7.4: 26 MB
 - 9.0.1: 37 MB
 - 9.2.0.4: 49 MB
 - 10.2.0.3: 91 MB
 - 11.1.0.6: 144 MB

Установка ПО

- How to access the software?

- Download from OTN:

<http://otn.oracle.com/software/index.html>

- Metalink:



ORACLE MetaLink [Bookmarks](#) [Admin](#) [Profile](#)

Headlines Knowledge **Service Request** My Configs & Projects Patches & Updates

SR Search **SR Create** SR Profiles SR Management Reports Collaborative Support

Quick Find Knowledge Base

Create a SR - Brief Description

TIP Requesting a product update? Go to **Patches & Updates** to download licensed products.

TIP Choosing "Other technical issues with this product" will slow SR resolution.

*Type of problem:

ORACLE E-Delivery

<http://edelivery.oracle.com/>



Установка ПО

- DVD contents?
 - Database
 - Enterprise Edition
 - Standard Edition
 - Personal Edition (Windows)
 - Client
 - Clusterware
- Extra: Examples (formerly known as companion)
 - Required Products
 - Oracle Globalization Support Demos
 - Oracle Multimedia Demos
 - Oracle Precompiler Demos
 - Oracle Spatial Demos
 - Oracle SQLJ Demos
 - Oracle XML Demos
 - Oracle JDBC Development Drivers
 - Oracle Text Knowledge Base

Установка ПО

- Download from OTN:

Download the Complete Files

☒ [linux 11gR1 database.zip](#) (1,844,533,232 bytes) (cksum - 4231932775)

Directions

1. All files are in the .zip format. There is an unzip utility [here](#) if you need one.
2. Installation guides and general Oracle Database 11g documentation are [here](#).
3. Review the certification matrix for this product [here](#).

Oracle Database 11g Release 1 Client (11.1.0.6.0) for Linux x86

☒ [linux 11gR1 client.zip](#) (458,677,395 bytes) (cksum - 2693183676)

Oracle Database 11g Examples (formerly Companion)

☒ [linux 11gR1 examples.zip](#) (457,209,469 bytes) (cksum - 606940067)

Oracle Clusterware Release 1 (11.1.0.6.0) for Linux x86

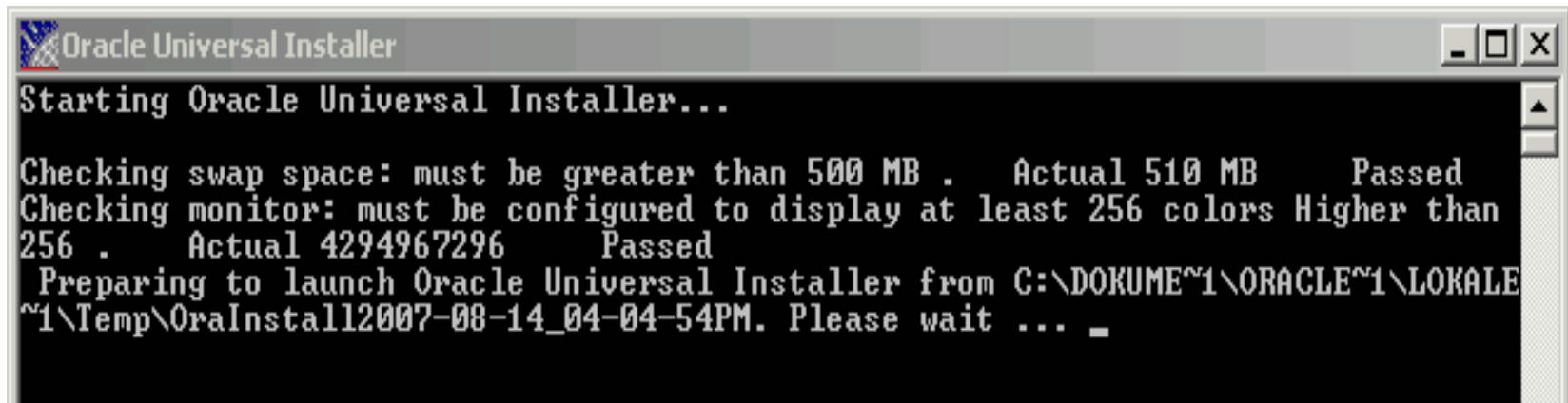
☒ [linux 11gR1 clusterware.zip](#) (244,654,895 bytes) (cksum - 3625236068)

Oracle Database Gateways 11g Release 1 (11.1.0.6.0) for Linux x86

☒ [linux 11gR1 gateways.zip](#) (451,061,474 bytes) (cksum - 1541243104)

Установка ПО

- Pre-installation checks:



```
Oracle Universal Installer
Starting Oracle Universal Installer...

Checking swap space: must be greater than 500 MB .   Actual 510 MB   Passed
Checking monitor: must be configured to display at least 256 colors Higher than
256 .   Actual 4294967296   Passed
Preparing to launch Oracle Universal Installer from C:\DOKUME~1\ORACLE~1\LOKALE
~1\Temp\OraInstall12007-08-14_04-04-54PM. Please wait ... _
```

- Warning: 500MB swap space needed – also on Windows!!!
- Ignore the result:
`./runInstaller -ignoreSysPrereqs`

Установка ПО



Установка ПО

The screenshot shows the 'Oracle Database 11g Installation - Select Installation Method' dialog box. The window title is 'Oracle Database 11g Installation - Select Installation Method'. The Oracle logo and '11g DATABASE' are in the top right corner. The dialog is titled 'Select Installation Method' and has two radio buttons: 'Basic Installation' (selected) and 'Advanced Installation'. The 'Basic Installation' section includes a description: 'Perform full Oracle Database 11g installation with standard configuration options requiring minimal input. This option uses file system for storage, and a single password for all database accounts.' Below this are three fields: 'Oracle Base Location' (C:\app\ORACLECORP), 'Oracle Home Location' (C:\app\ORACLECORP\product\11.1.0\db_1), and 'Installation Type' (Enterprise Edition (2.9GB)). There are 'Browse...' buttons for the first two fields. A checked checkbox 'Create Starter Database (additional 1482MB)' is followed by a 'Global Database Name' field (orcl) and two 'Database Password' and 'Confirm Password' fields. A note states: 'This password is used for the SYS, SYSTEM, SYSMAN, and DBSNMP accounts.' The 'Advanced Installation' section is currently unselected and includes a description: 'Allows advanced selections such as different passwords for the SYS, SYSTEM, SYSMAN, and DBSNMP accounts; database character set, product languages, automated backups, custom installation, and alternative storage options such as Automatic Storage Management.' At the bottom, there are buttons for 'Help', 'Back', 'Next', 'Install', and 'Cancel'.

Oracle Database 11g Installation - Select Installation Method

Select Installation Method

Basic Installation

Perform full Oracle Database 11g installation with standard configuration options requiring minimal input. This option uses file system for storage, and a single password for all database accounts.

Oracle Base Location: C:\app\ORACLECORP Browse...

Oracle Home Location: C:\app\ORACLECORP\product\11.1.0\db_1 Browse...

Installation Type: Enterprise Edition (2.9GB)

Create Starter Database (additional 1482MB)

Global Database Name: orcl

Database Password: Confirm Password:

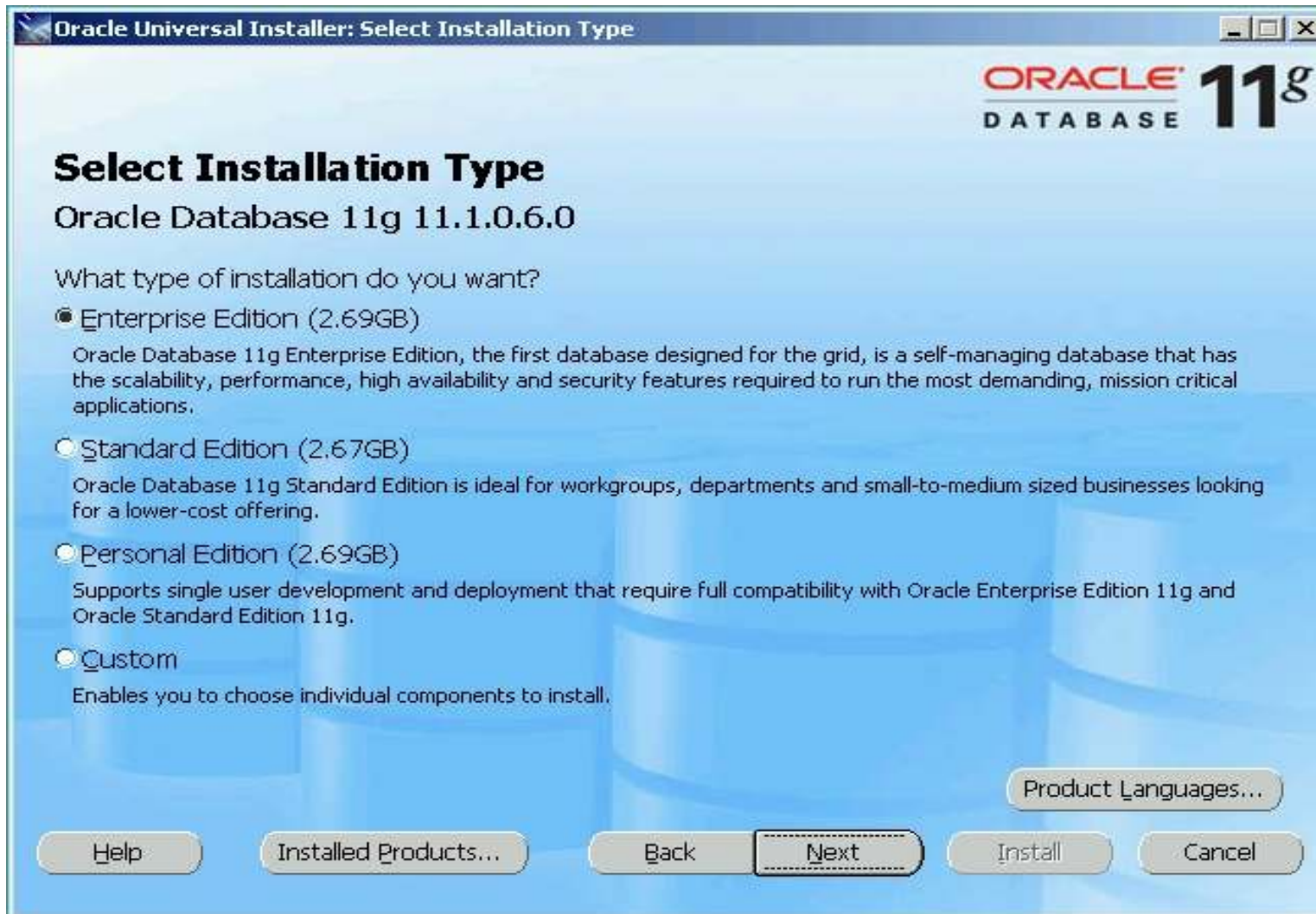
This password is used for the SYS, SYSTEM, SYSMAN, and DBSNMP accounts.

Advanced Installation

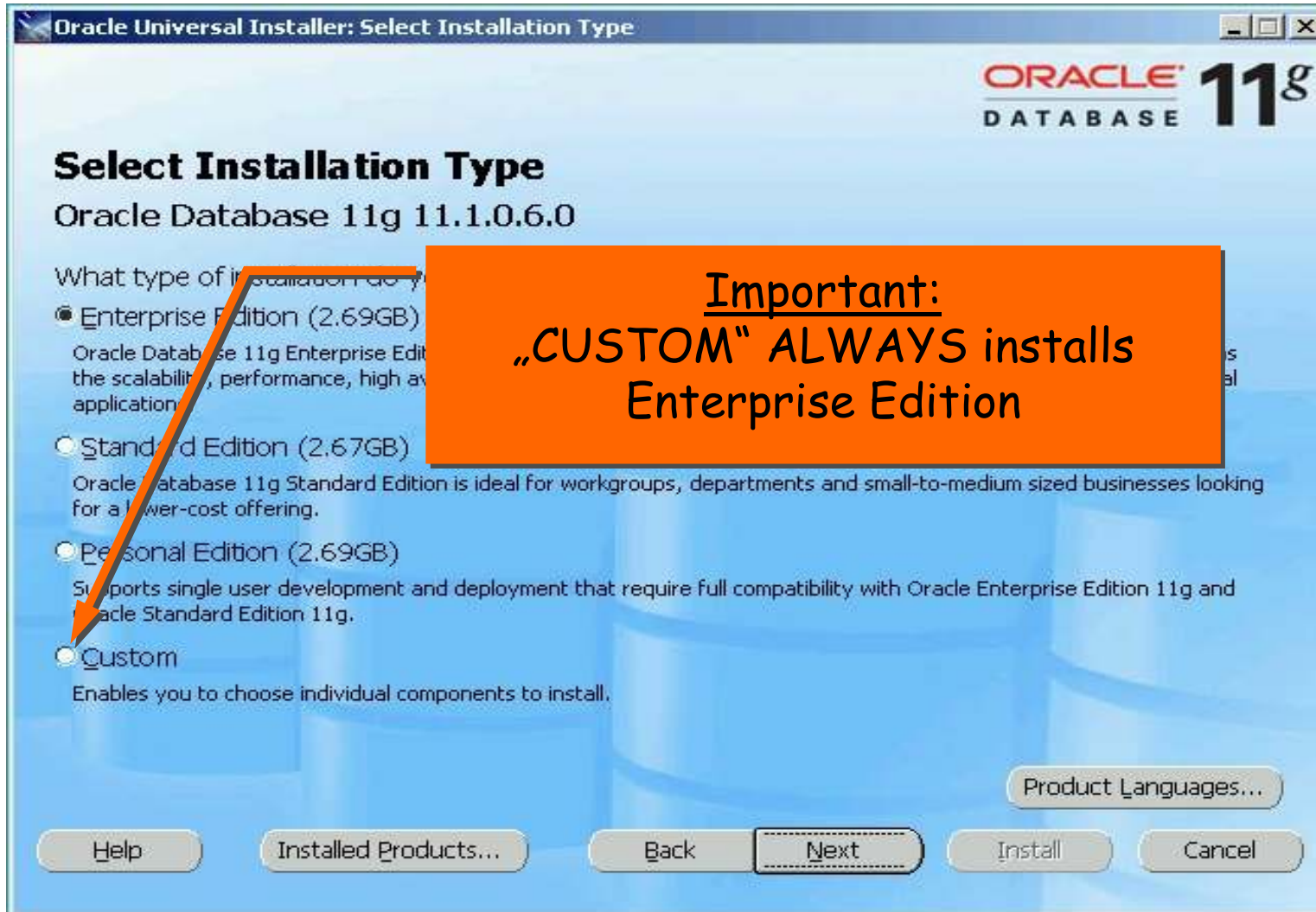
Allows advanced selections such as different passwords for the SYS, SYSTEM, SYSMAN, and DBSNMP accounts; database character set, product languages, automated backups, custom installation, and alternative storage options such as Automatic Storage Management.

Help Back Next Install Cancel

Установка ПО



Установка ПО





Установка ПО

- Custom installation:
 - [10gR2 doc installation guide](#)

Note:

If you purchased a Standard Edition license, and you perform a Custom installation, then ensure that you install only the components covered by the Standard Edition license.

- [11gR1 doc installation guide](#)

Note:

If you perform a Custom Installation, then ensure that you install only the components covered by your license. You can not install Standard Edition using Custom Installation.

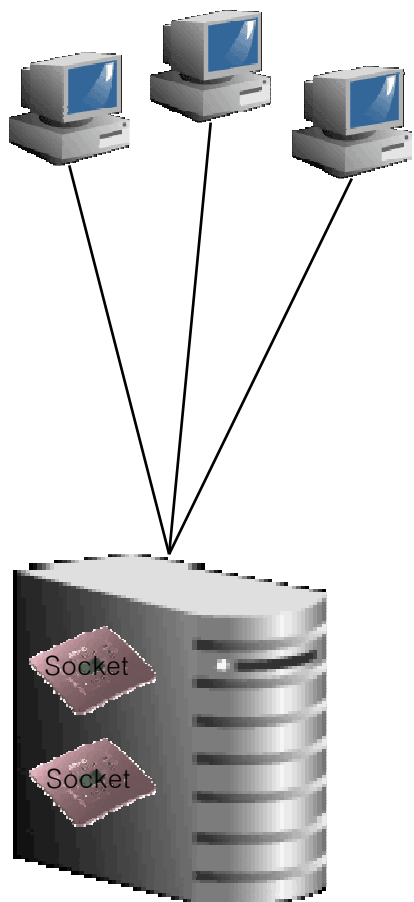


Установка ПО

- Различия между редакциями Oracle Database
 - Feature differences:
[Note.465465.1](#)
Differences Between Enterprise, Standard and Personal Editions on Oracle 10.2

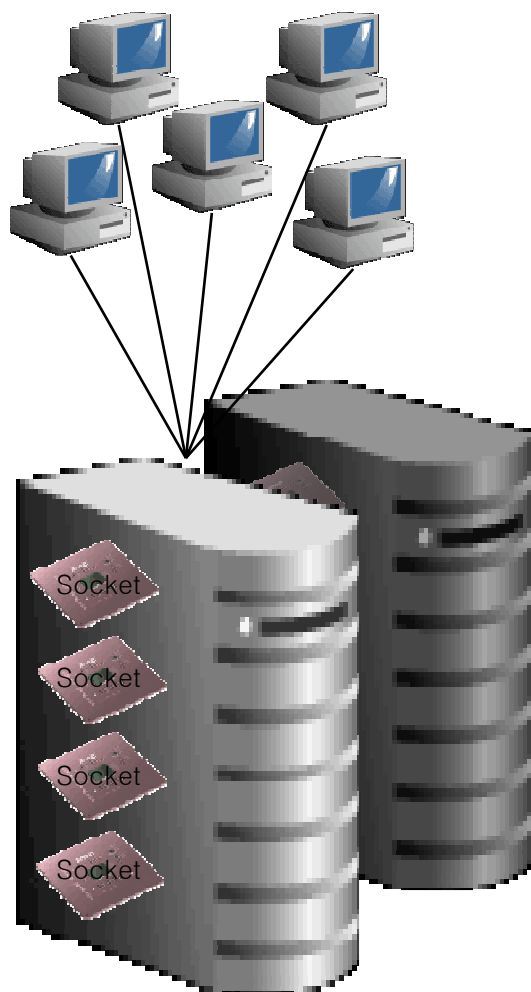
[Note.465460.1](#)
Differences Between Enterprise, Standard and Personal Editions on Oracle 11.1
 - Oracle® Database Licensing Information
11g Release 1 (11.1)
Part Number B28287-01
http://download.oracle.com/docs/cd/B28359_01/license.111/b28287/editions.htm

Установка ПО



Standard Edition ONE (SEone)
Install "Standard Edition" software from DVD

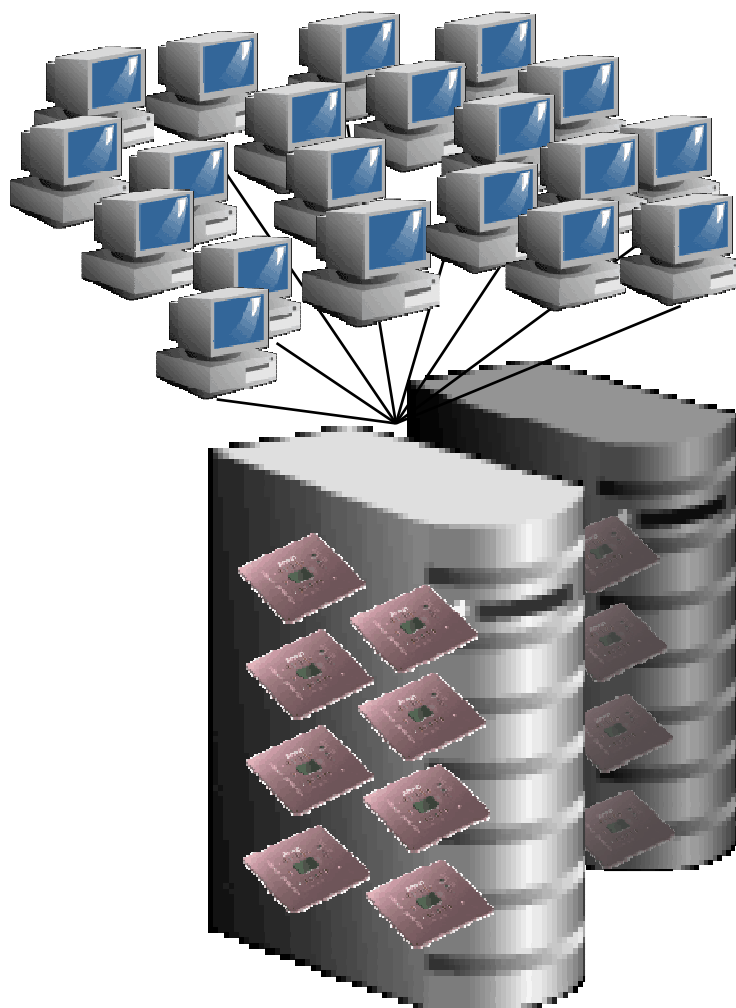
Установка ПО



Standard Edition (SE)

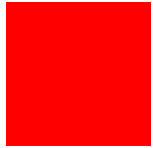
- ✓ includes RAC and requires
 - ASM (no LVM!!!!)
 - Oracle Clusterware

Установка ПО

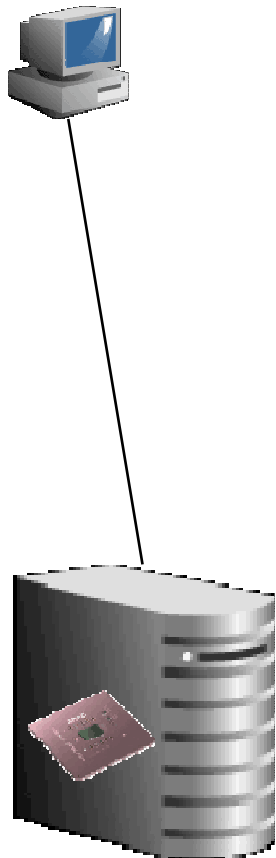


Enterprise Edition (EE)

- Data Guard
- Flashback Database
- Resource Manager
- Parallel Backup/Recovery
- Oracle Clusterware
- SQL Plan Management
- Virtual Private Database
- + licensable options
 - + Partitioning
 - + RAC
 - + Spatial Data
 - + Active Data Guard
 - + Total Recall
 - + Real Application Testing
 - + Advanced Security Option
 - + Database Vault
 - + several database packs
 - + ...

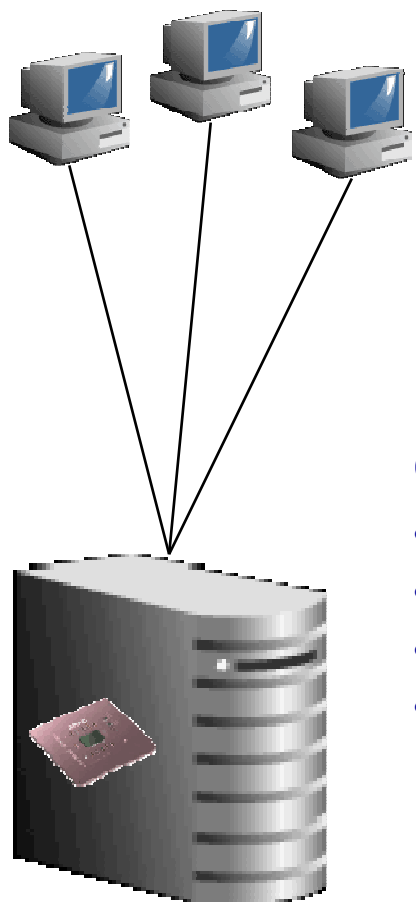


Установка ПО



Personal Edition
Windows only - functionality like EE

Установка ПО



eXpress Edition (XE)

- Only downloadable from OTN
- No license fees
- Support available only via OTN forum
- Supports max.:
 - 1GB RAM
 - 4GB database size (user data)
 - 1 CPU
 - 1 database instance per server

Установка ПО

Oracle Universal Installer: Specify Home Details

ORACLE 11g
DATABASE

Install Location

Specify a base location for storing all Oracle software and configuration-related files. This location is the Oracle Base directory. Create one Oracle Base for each operating system user. By default, software and configuration files are installed by version and database name in the Oracle Base directory

Oracle Base: Browse...

Software Location

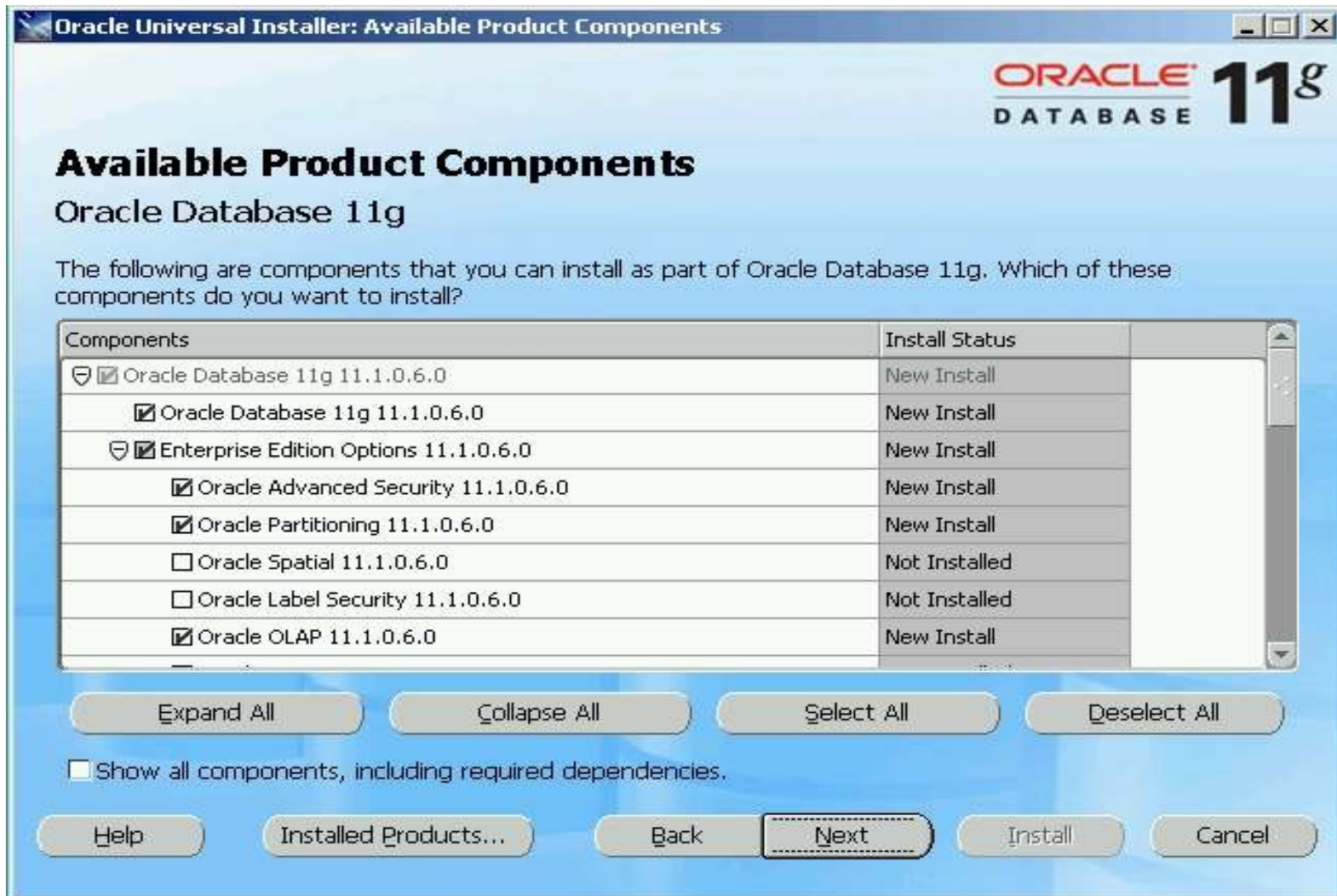
Specify a base location for storing Oracle software files separate from database configuration files in the Oracle Base directory. This software directory is the Oracle Home directory. Change the defaults below either to specify an alternative location, or to select an existing Oracle Home

Name:

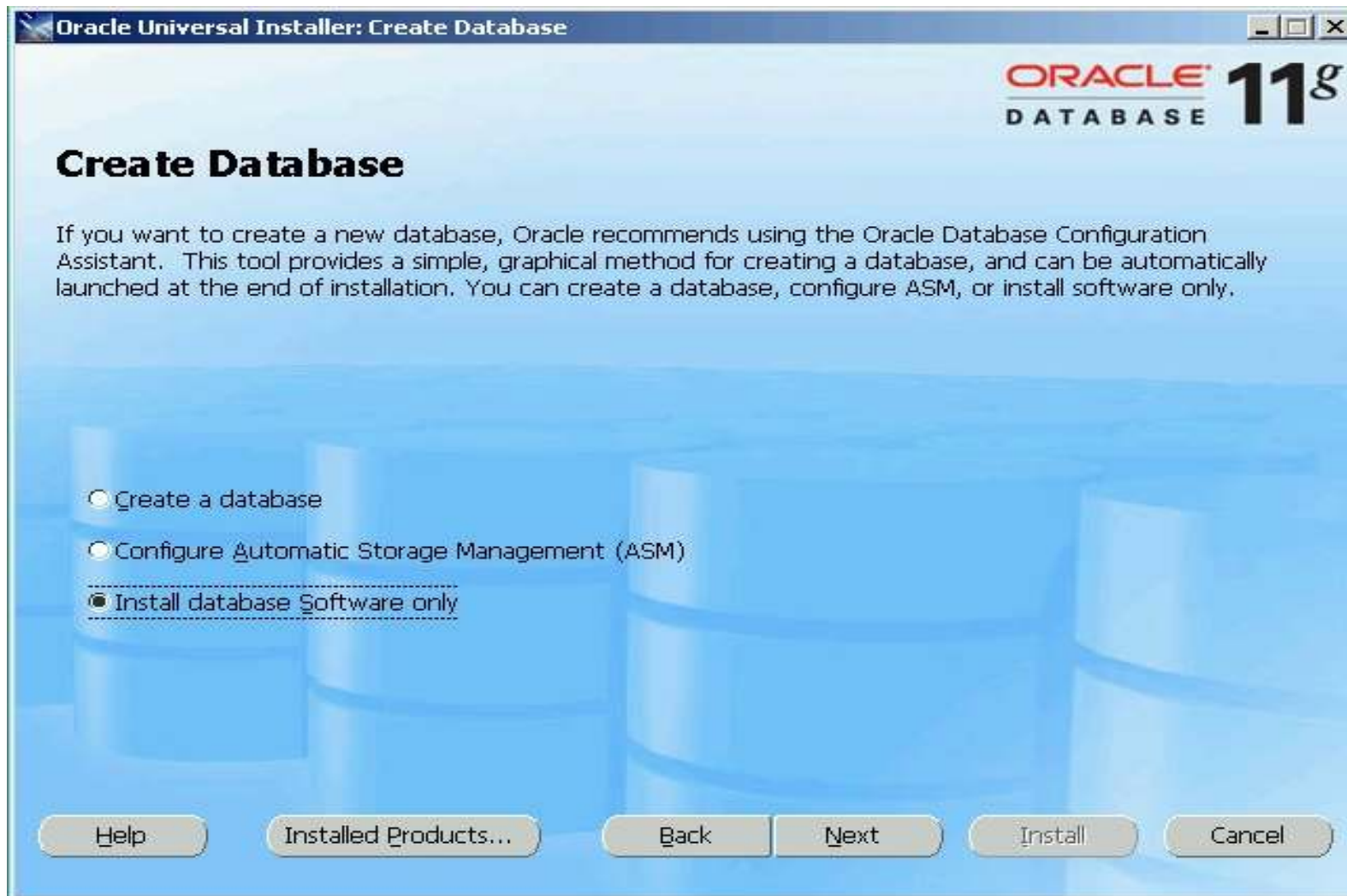
Path: Browse...

Help Installed Products... Back **Next** Install Cancel

Установка ПО



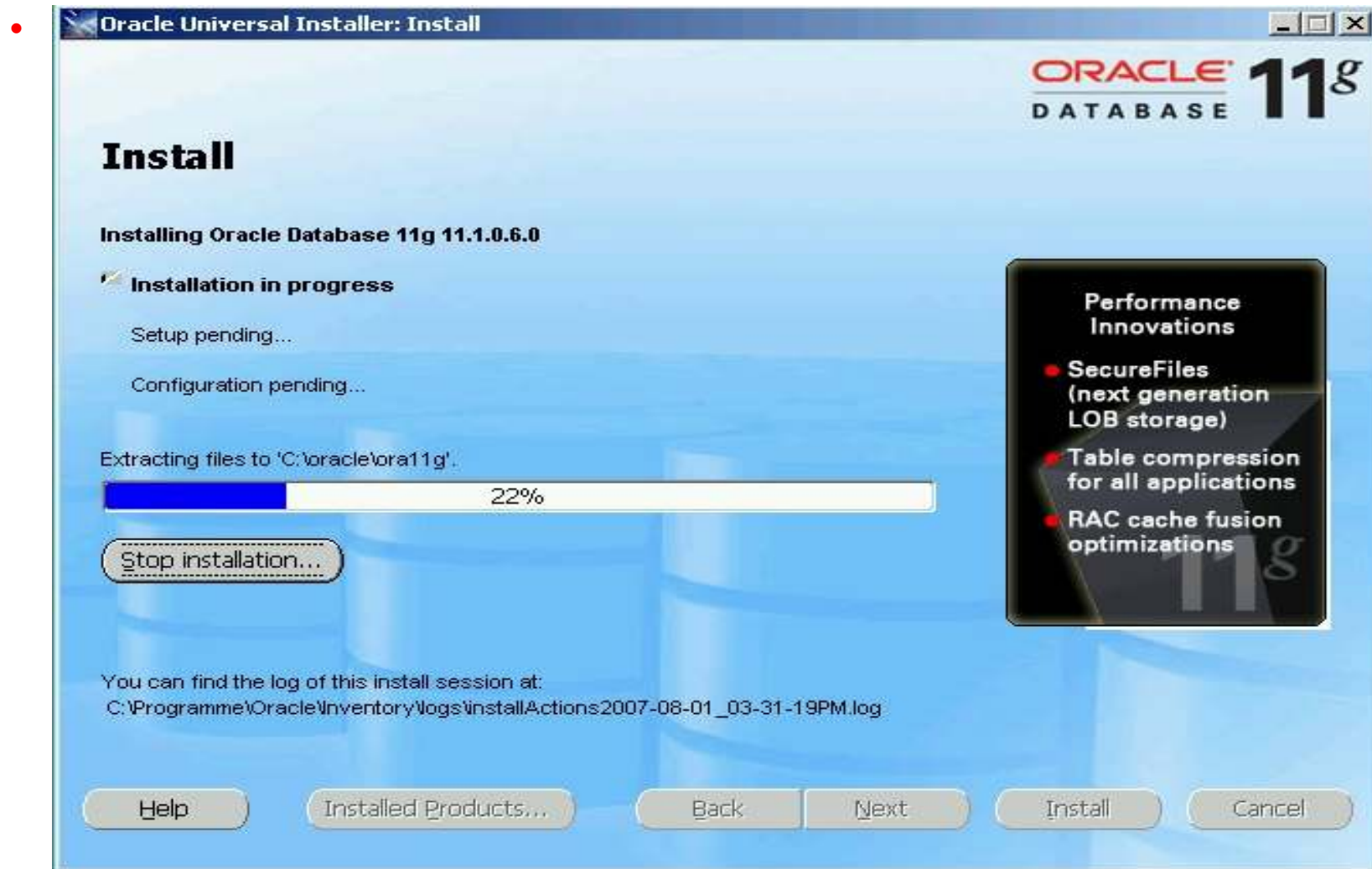
Установка ПО



Установка ПО



Установка ПО



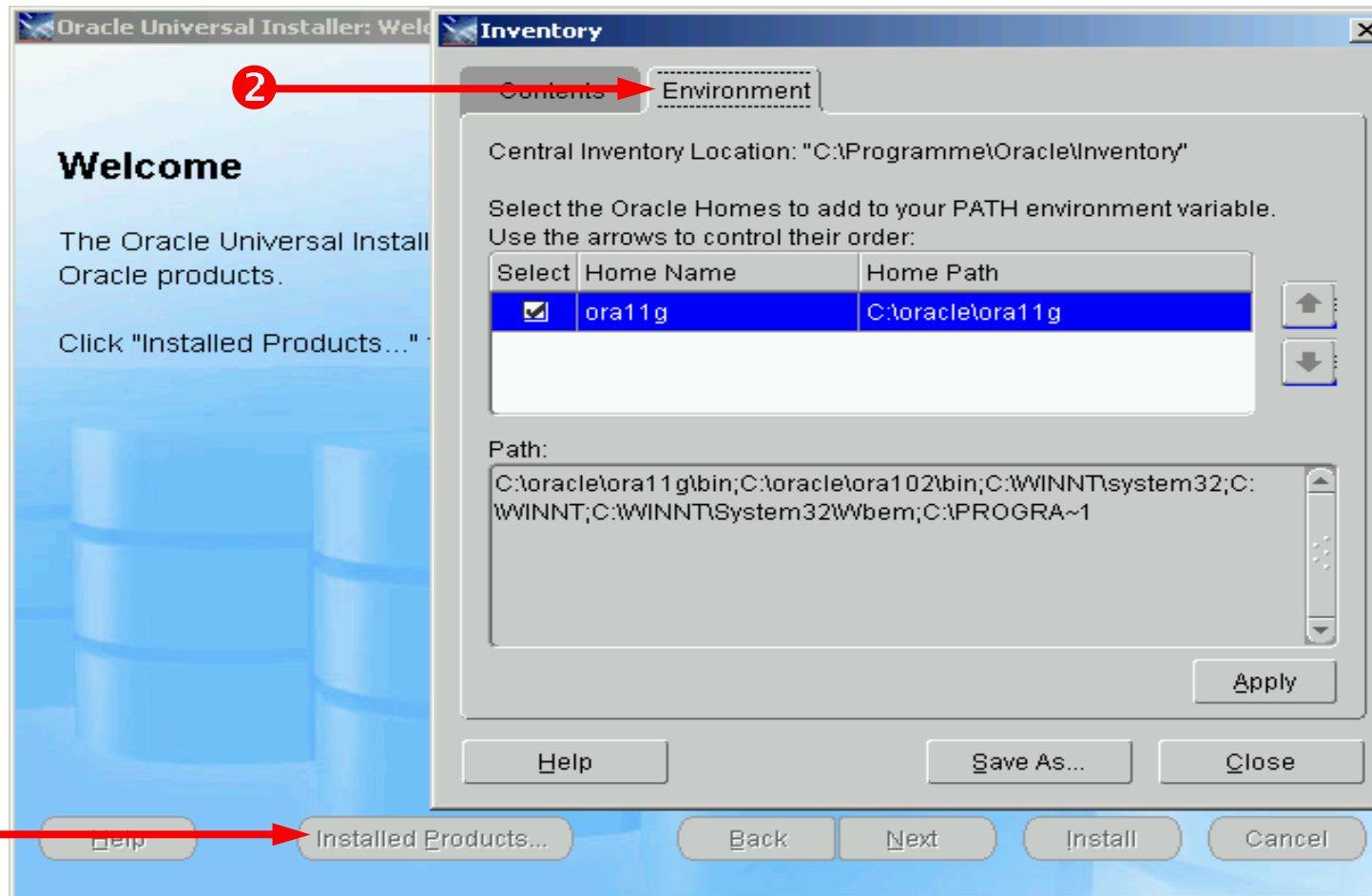
Установка ПО



Установка ПО



- Windows OS - Home Selector :



План

- Подготовка
- Upgrade
- Новое в 11g
- Полезные советы

Методы Upgrade

- Database Upgrade Assistant
- Command Line Upgrade
- Alternatives
- ASM Upgrade



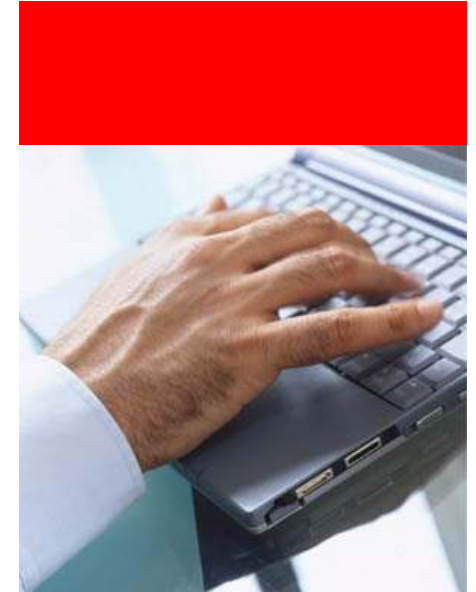
Методы Upgrade

	(+) Преимущества	(-) Недостатки
Oracle Database Upgrade Assistant (GUI)  <div style="border: 1px solid red; padding: 2px; transform: rotate(-15deg); display: inline-block; color: red; font-weight: bold;">Oracle recommended</div>	<ul style="list-style-type: none"> • Проще и короче • Происходит автоматически • Проверки ресурсов / доступного места • Изменения параметров • Подробный error log 	<ul style="list-style-type: none"> • В случае непредвиденных ошибок upgrade приходится делать вручную через скрипты • Ограниченные возможности для управления • Не предусмотрена возможность смены ОС
Upgrade by script (CLI)	<ul style="list-style-type: none"> • Полный контроль • В случае ошибки : просто перезапустить upgrade script 	<ul style="list-style-type: none"> • Не предусмотрена возможность смены ОС • Больше ручной работы
Full Export/Import	<ul style="list-style-type: none"> • Reorganisation • Можно сменить ОС • Возможность для Oracle 5/6 	<ul style="list-style-type: none"> • Процесс занимает существенное время для больших БД • Требуется дисковое пространство для дамп-файла
SQL*Plus-COPY, CTAS and Scripts	<ul style="list-style-type: none"> • Не зависит от платформы 	<ul style="list-style-type: none"> • Только структура и данные – остальное вручную
TTS, SQL Apply, Standby, etc..	<ul style="list-style-type: none"> • Очень быстро 	<ul style="list-style-type: none"> • Требуется много усилий по подготовке • Существует много ограничений

План



Методы Upgrade
Database Upgrade Assistant
Command Line Upgrade
Alternatives
ASM Upgrade

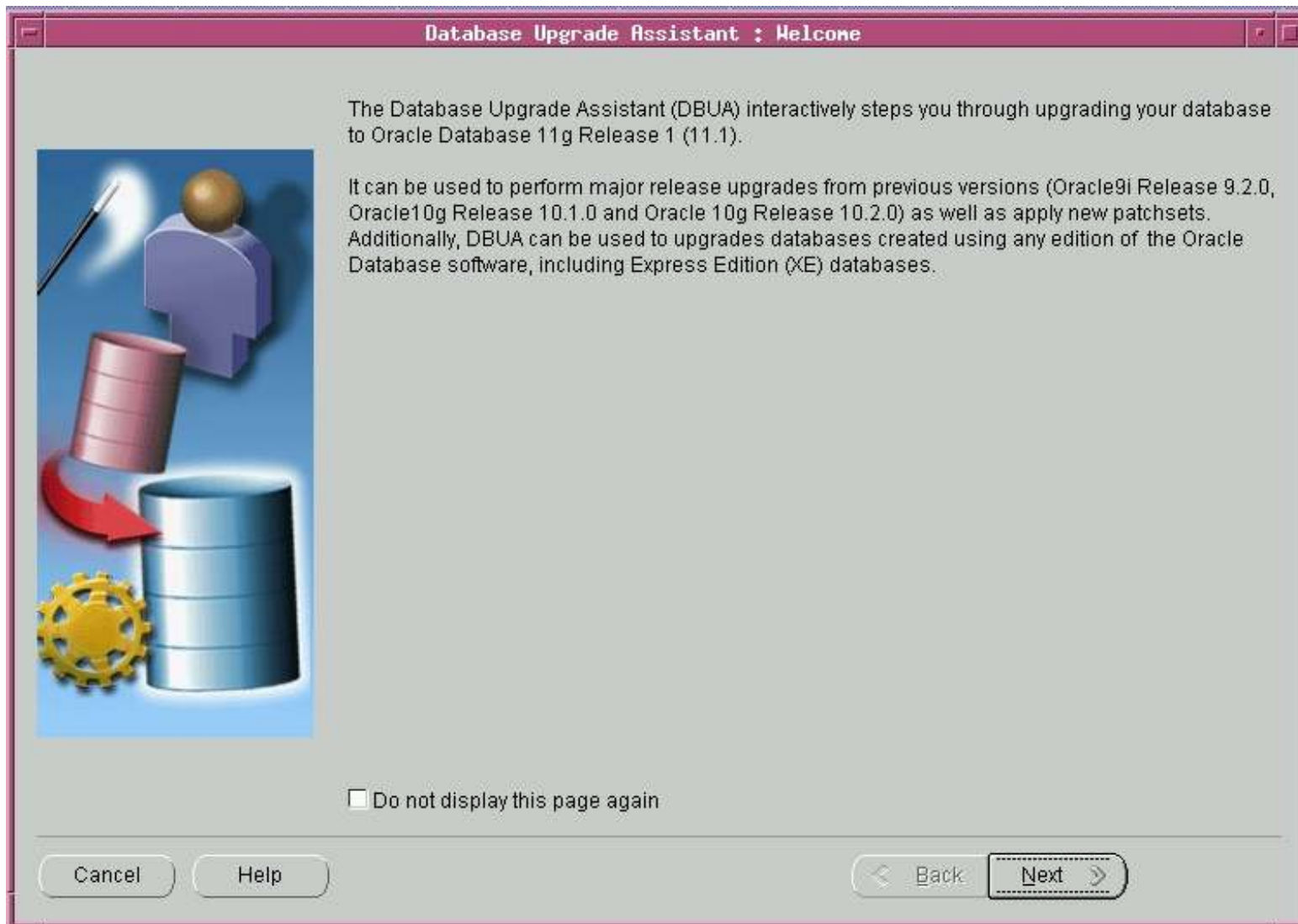


Database Upgrade Assistant (GUI)

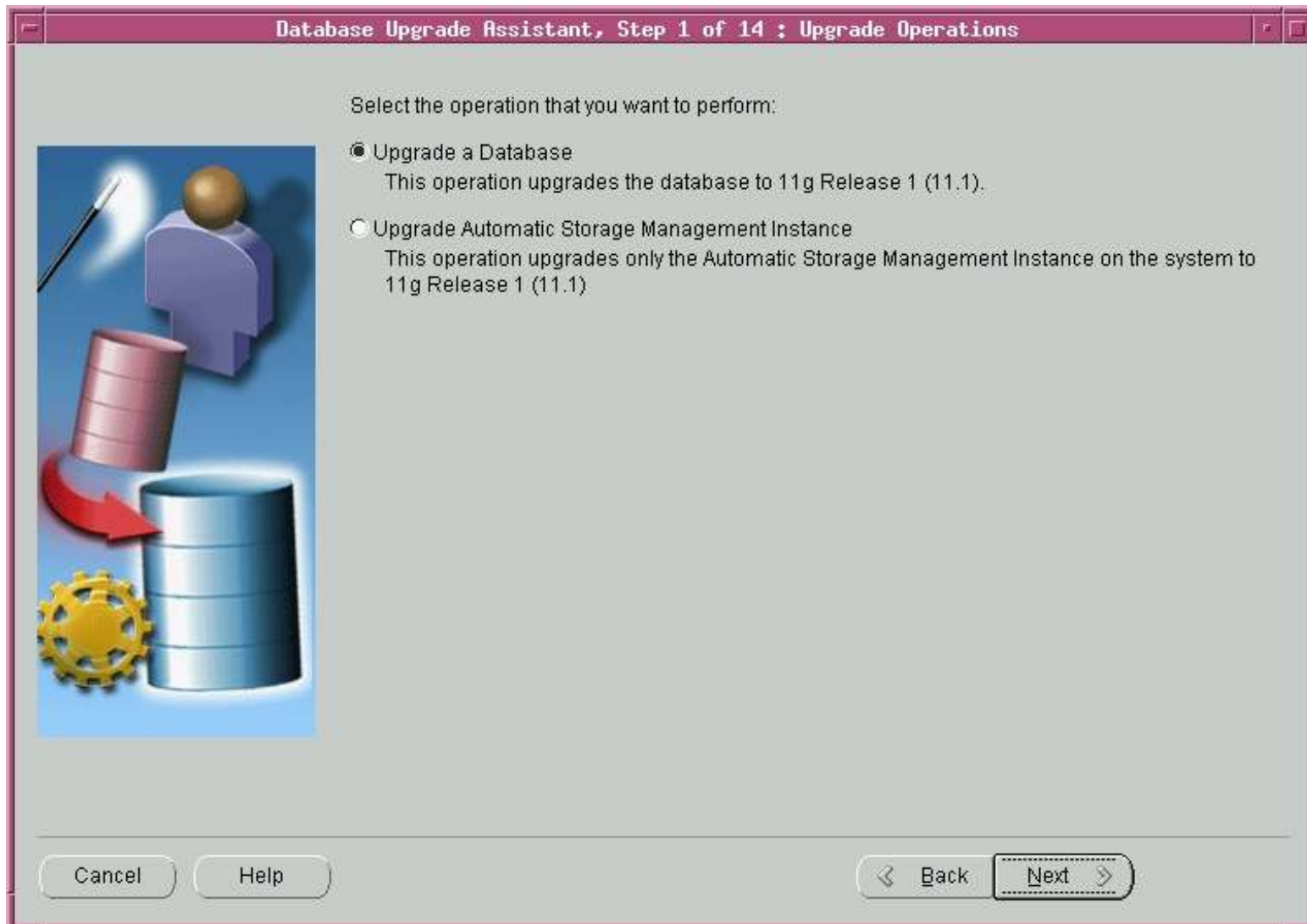


- Преимущества:
 - Наглядная индикация
 - Автоматизирует множество важных проверок
 - RAC *aware* - inclusion of all nodes
 - for RAC (almost) a must !!!
 - Возможность Offline Backup и Restore
 - ASM upgrade
 - Oracle XE upgrade
 - Patch upgrades
- Silent mode:
 - `$ dbua -help` shows all valid options
- Documentation:
 - [Oracle® Database Upgrade Guide](#)

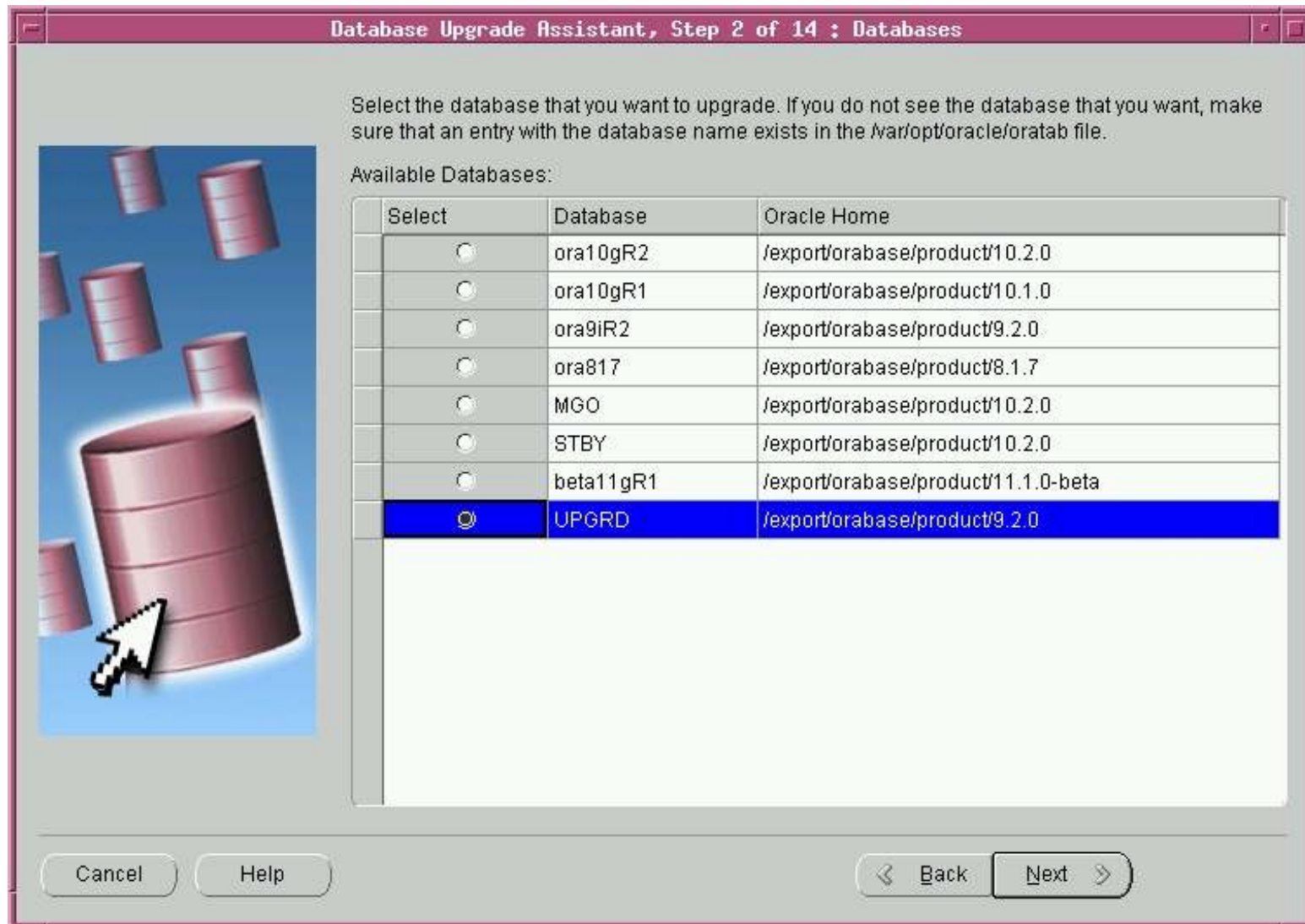
Database Upgrade Assistant (GUI)



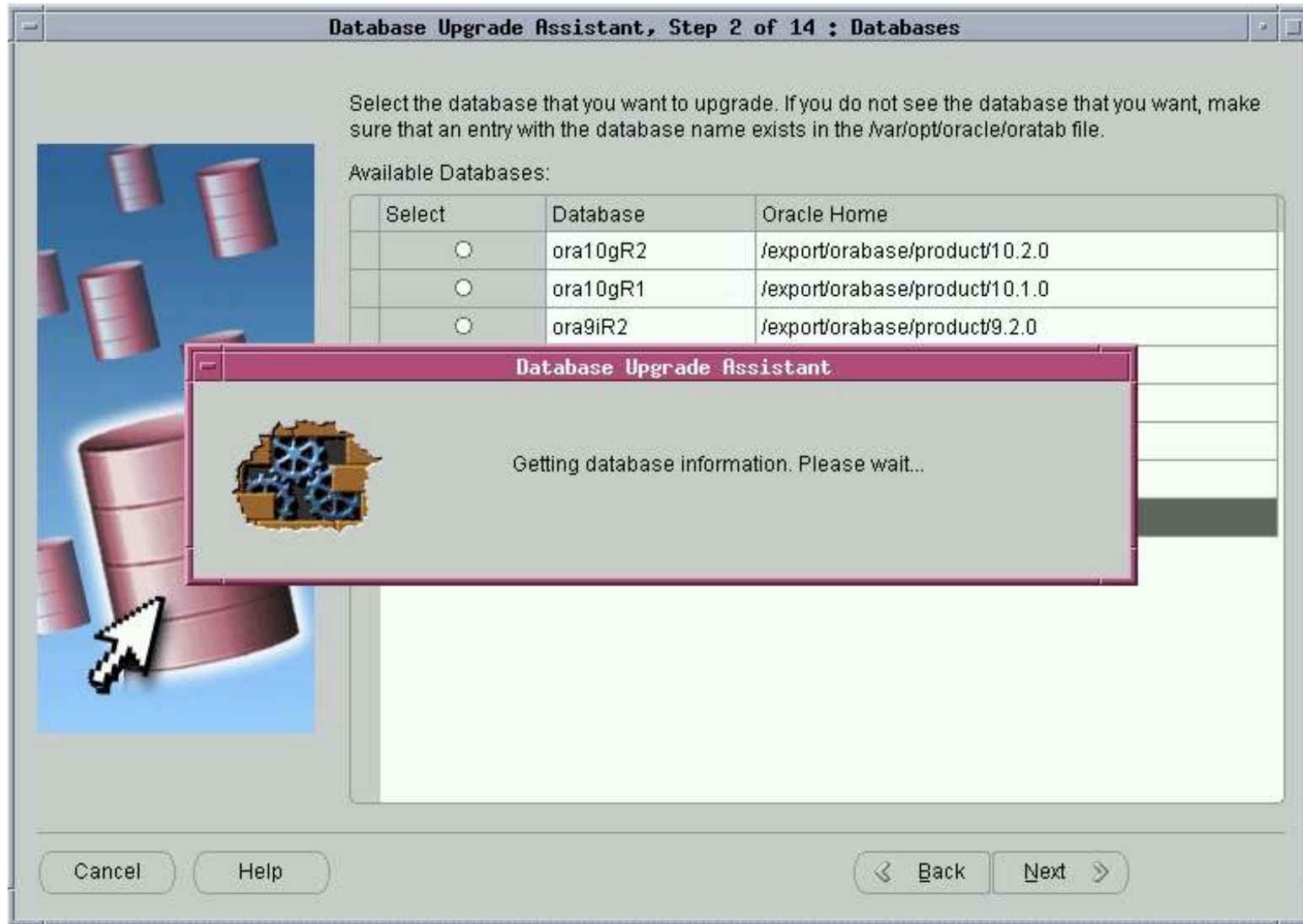
Database Upgrade Assistant (GUI)



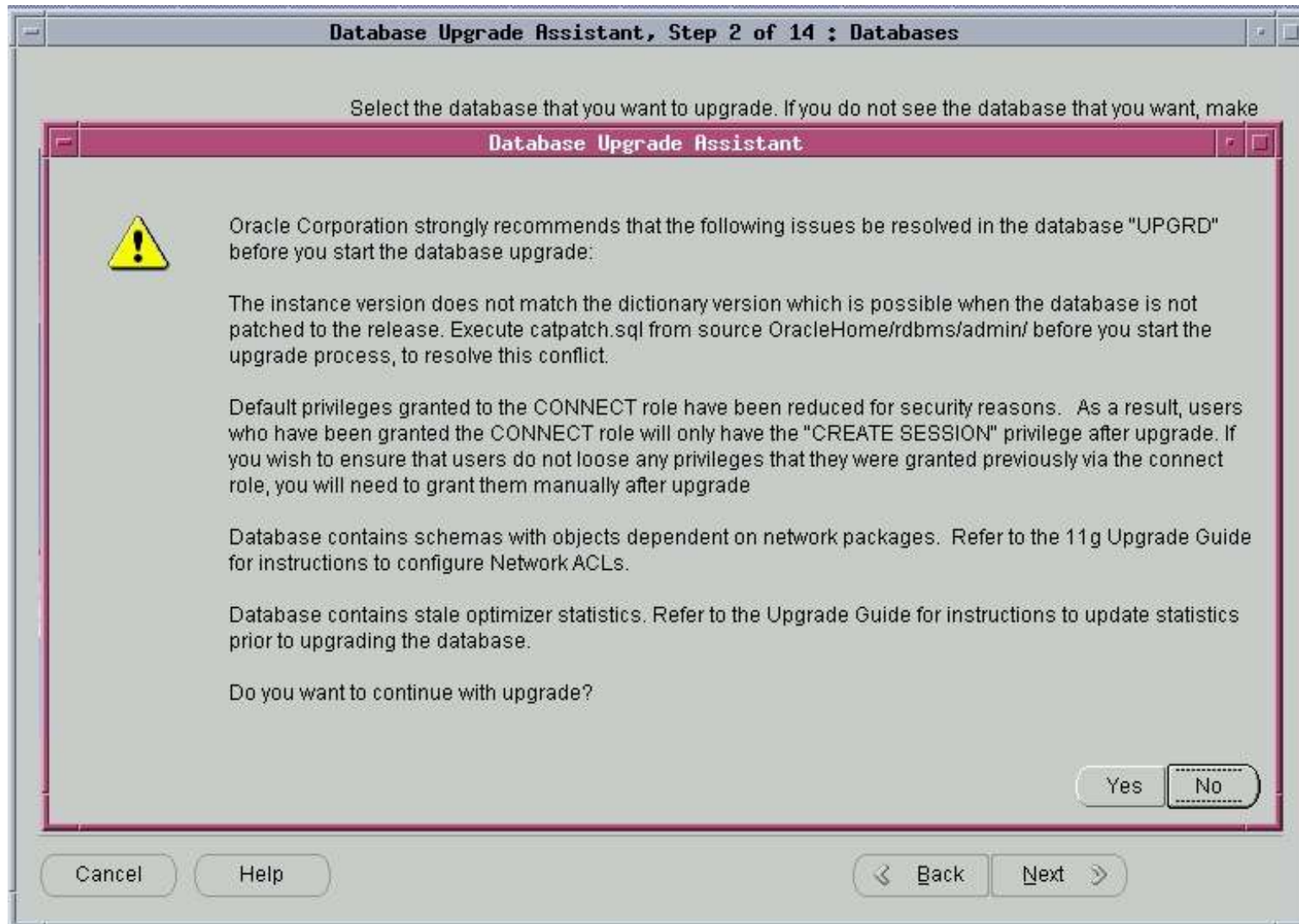
Database Upgrade Assistant (GUI)



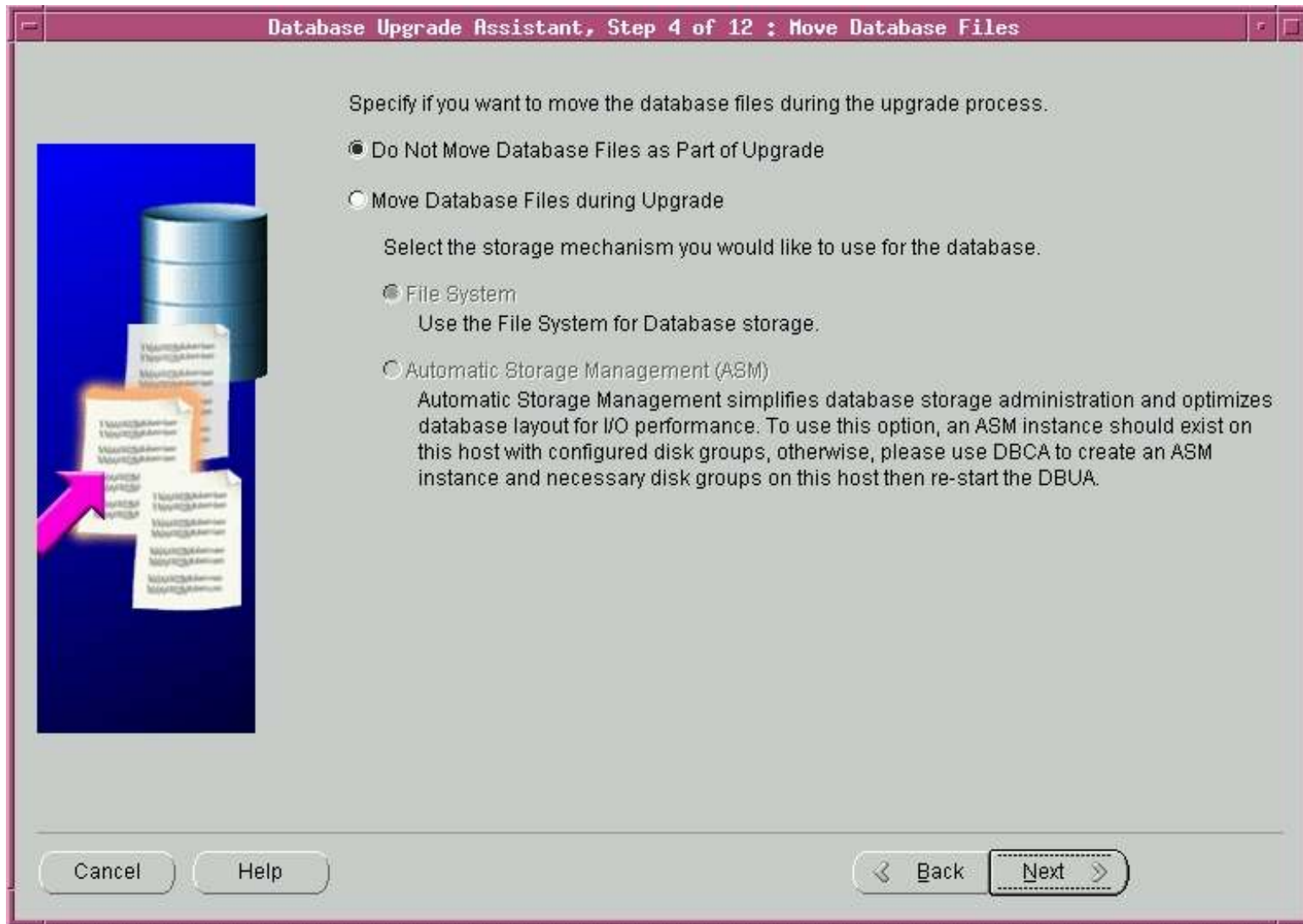
Database Upgrade Assistant (GUI)



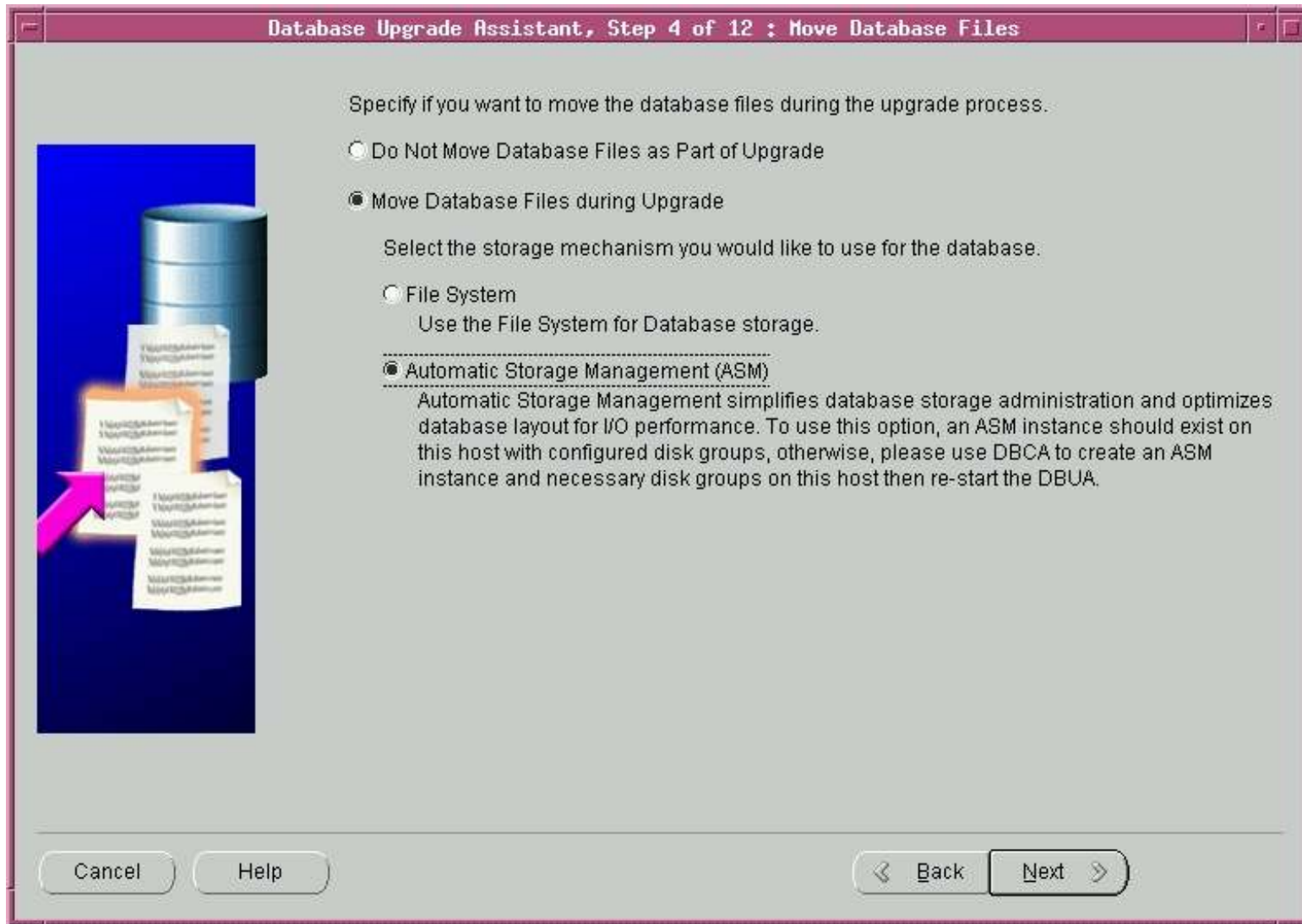
Database Upgrade Assistant (GUI)



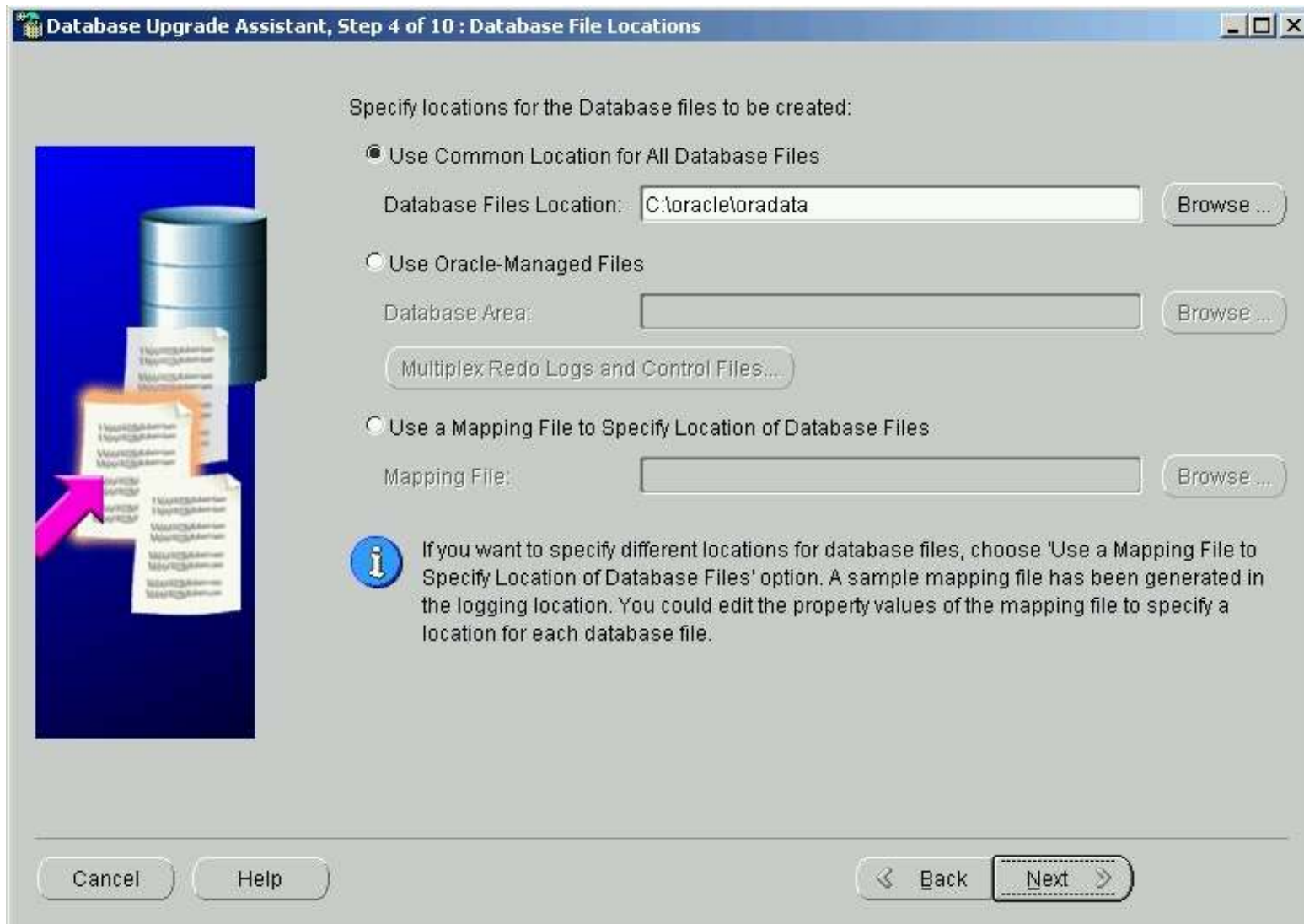
Database Upgrade Assistant (GUI)



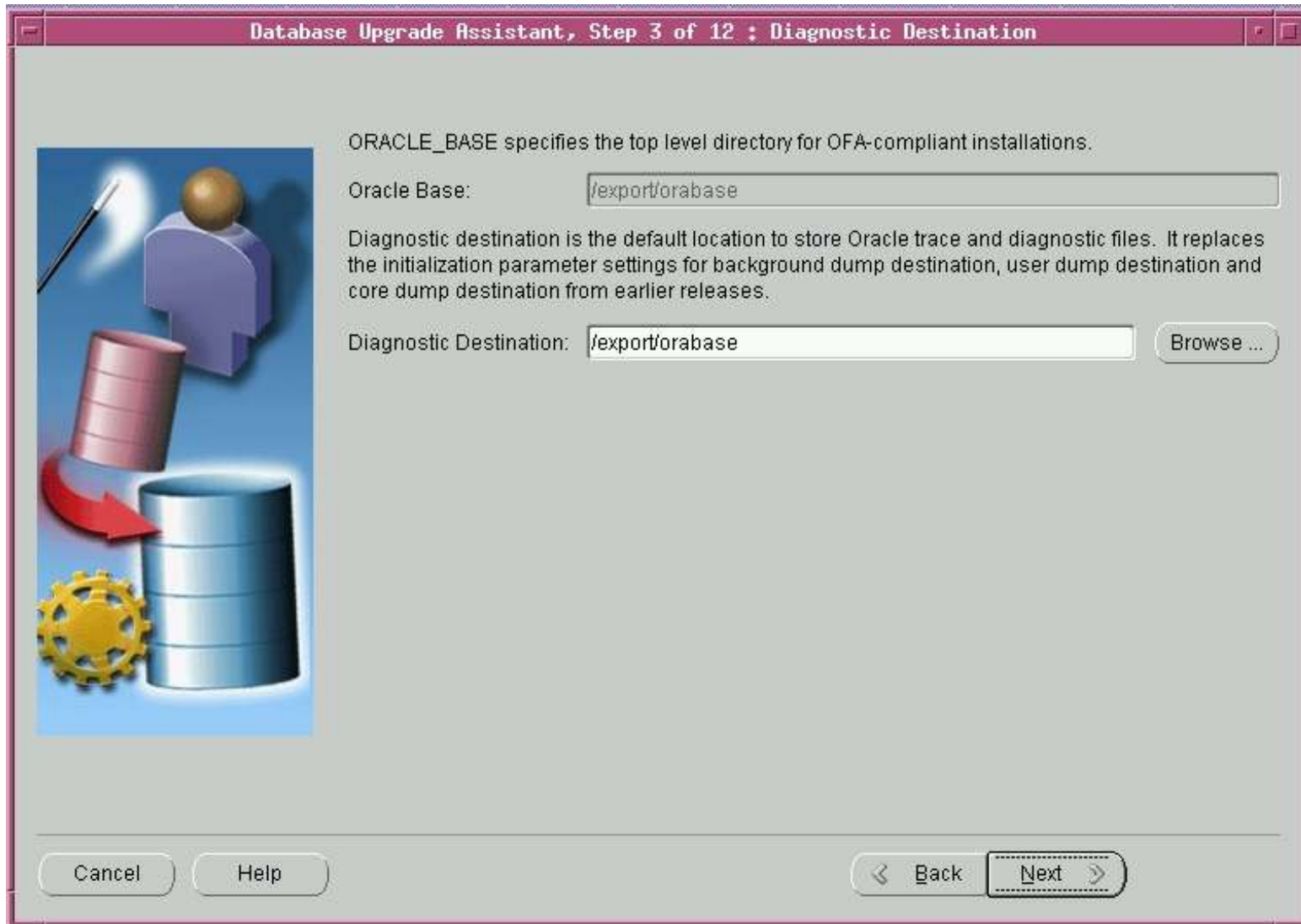
Database Upgrade Assistant (GUI)



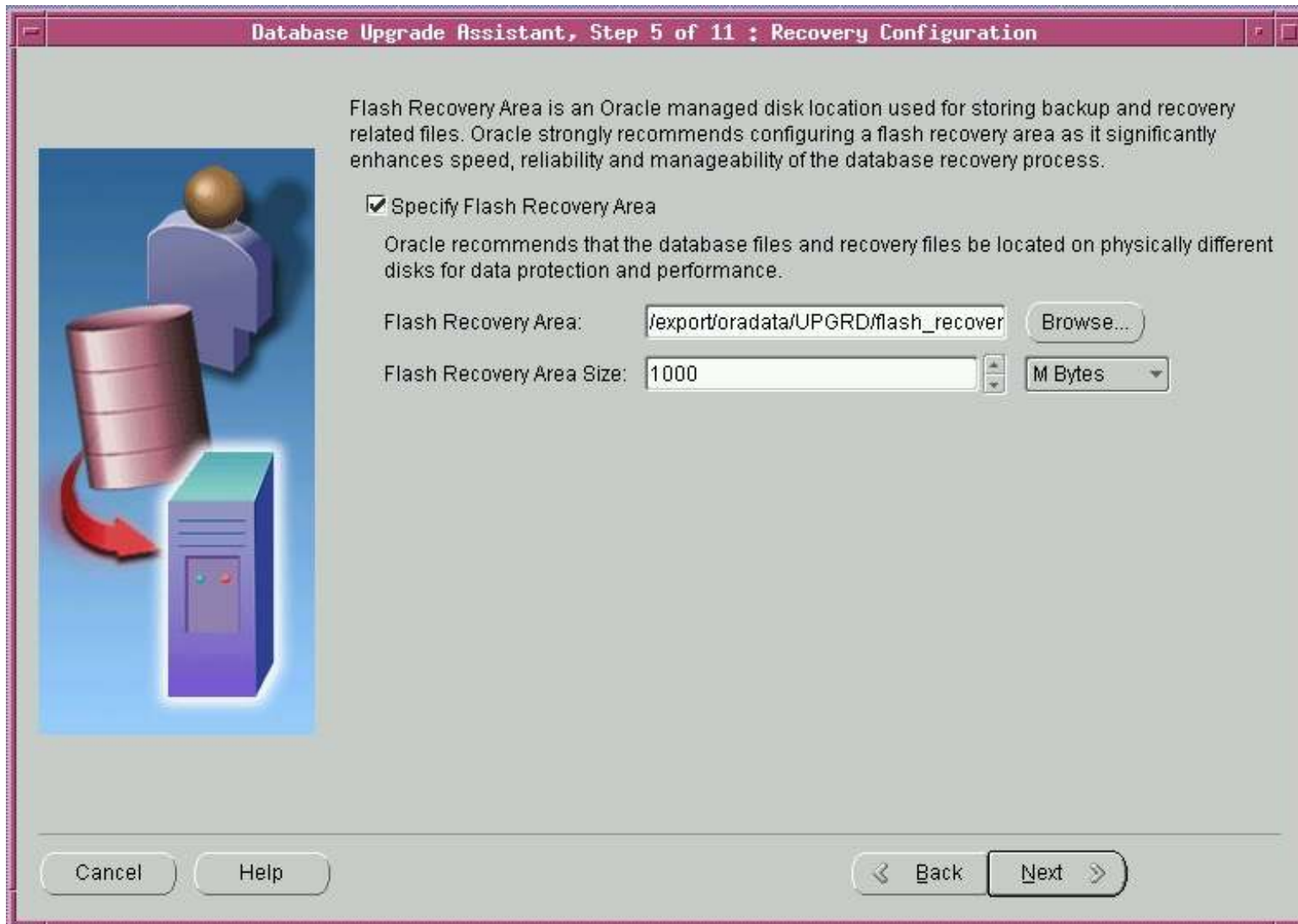
Database Upgrade Assistant (GUI)



Database Upgrade Assistant (GUI)




Database Upgrade Assistant (GUI)



Database Upgrade Assistant (GUI)

Database Upgrade Assistant, Step 6 of 11 : SYSAUX Tablespace

Oracle Database 11g requires a SYSAUX tablespace that serves as an auxiliary tablespace to the SYSTEM tablespace. Most of the SYSAUX tablespace properties are set automatically and cannot be modified. However, you can specify the following properties:



Datafile:

Reuse Existing File Name

Size:

Automatically extend datafile when full (AUTOEXTEND)

Increment:

Maximum Size

Unlimited

Value

Database Upgrade Assistant (GUI)

Database Upgrade Assistant, Step 7 of 11 : Management Options

Each Oracle database may be managed centrally using the Oracle Enterprise Manager Grid Control or locally using the Oracle Enterprise Manager Database Control. Choose the management option that you would like to use to manage this database.

Configure the Database with Enterprise Manager

Register with Grid Control for centralized management

Management Service:

Configure Database Control for local management

Enable Alert Notifications

Outgoing Mail (SMTP) Server:

Recipient Email Address:

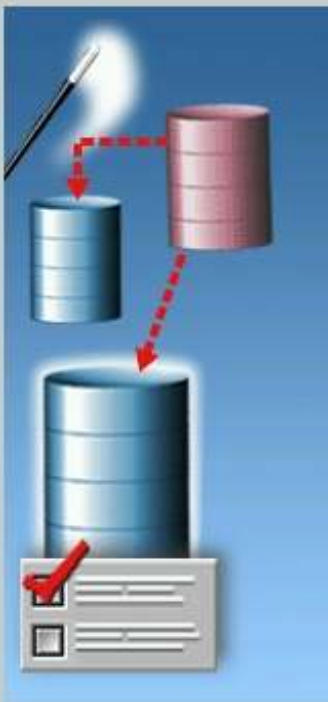
Enable Daily Disk Backup to Recovery Area

Backup Start Time: AM PM

OS Username:

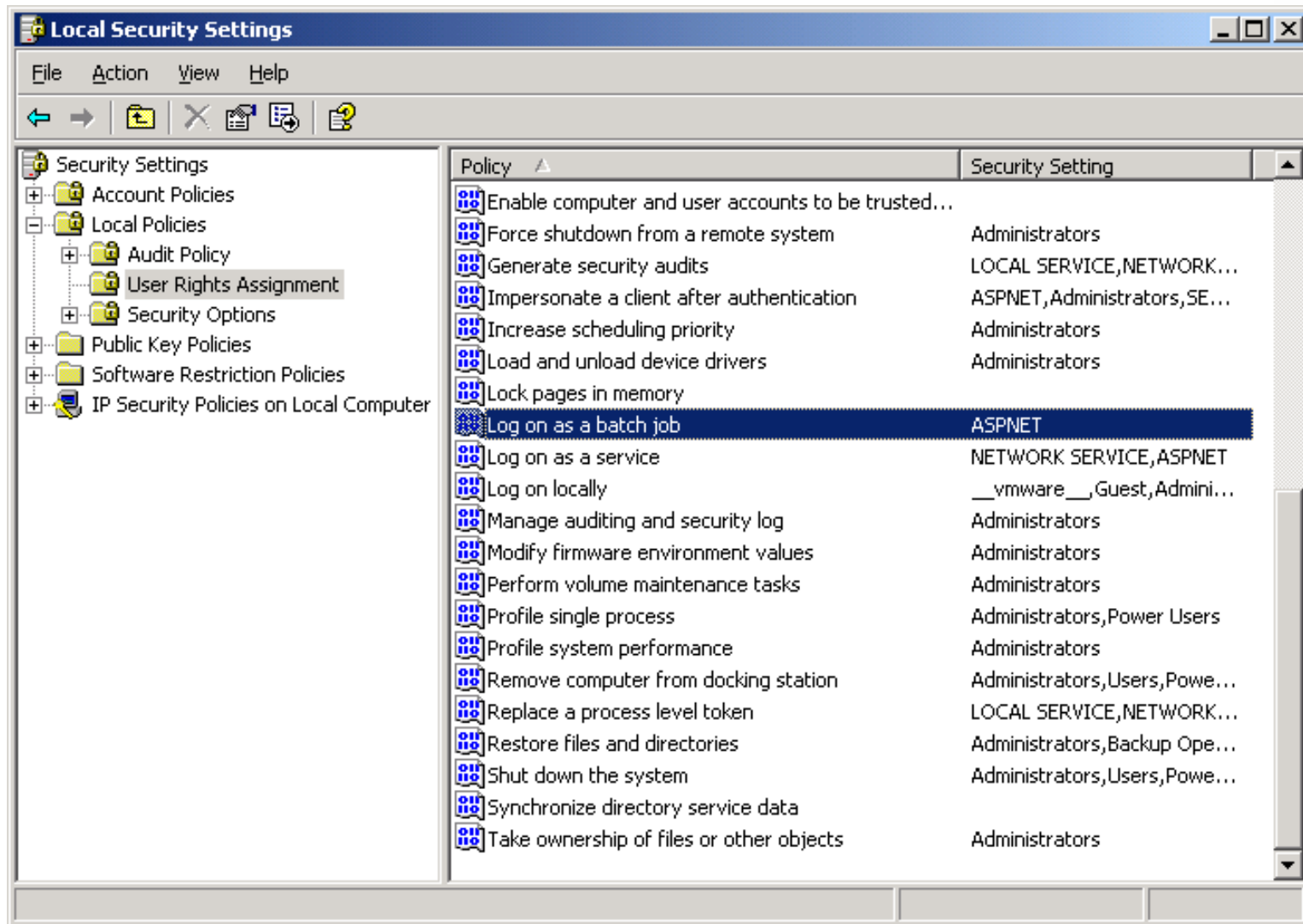
Password:

Cancel Help Back Next



From 11g on always **SECURE**

Database Upgrade Assistant (GUI)



Database Upgrade Assistant (GUI)

Database Upgrade Assistant, Step 8 of 11 : Database Credentials

For security reasons, you must specify passwords for the following user accounts.
Note: DBSNMP user password will be modified if the account already exists in the database.

Use Different Passwords


User Name	Password	Confirm Password
DBSNMP		
SYSMAN		

Use the Same Password for All Accounts

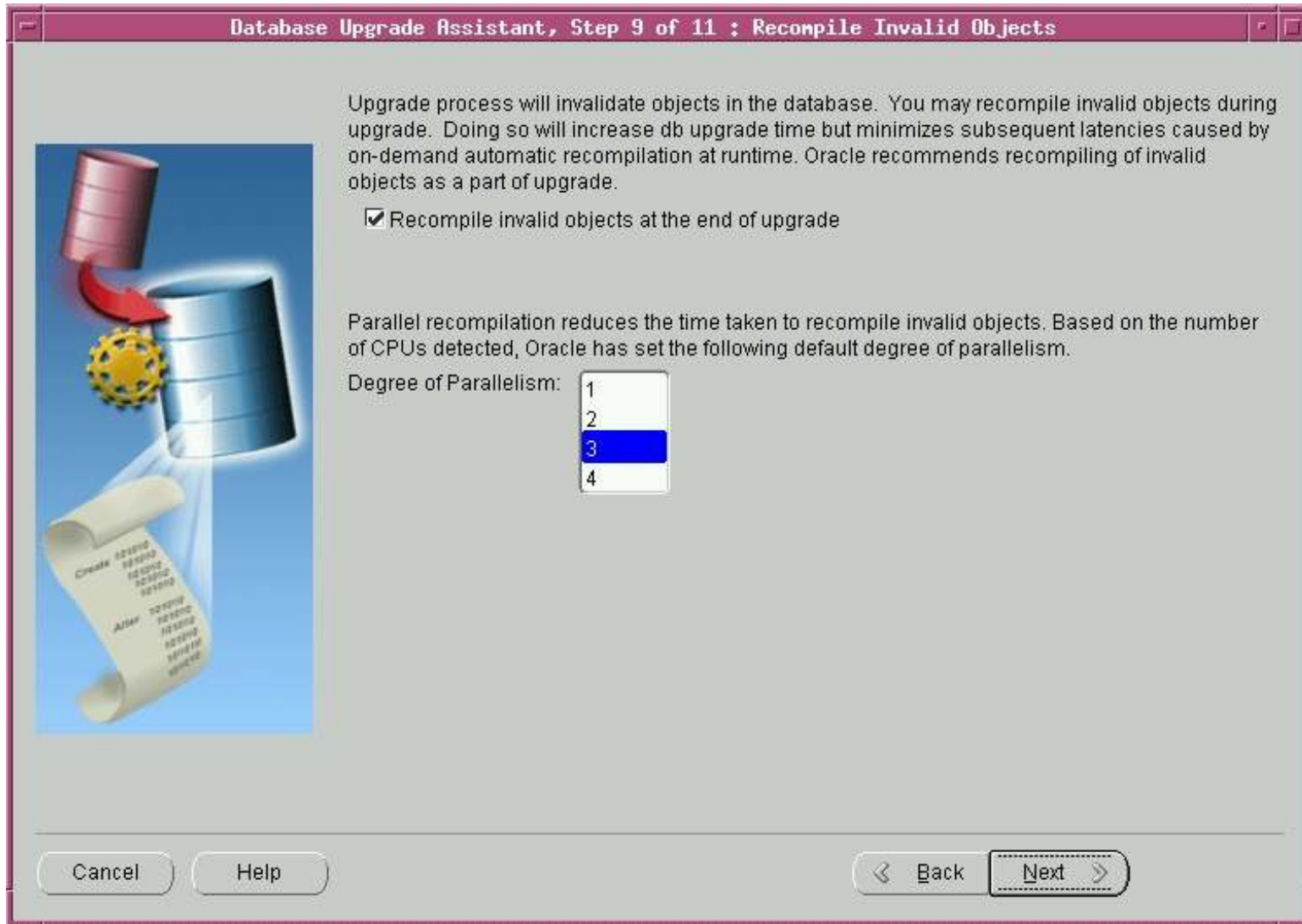
Password:

Confirm Password:

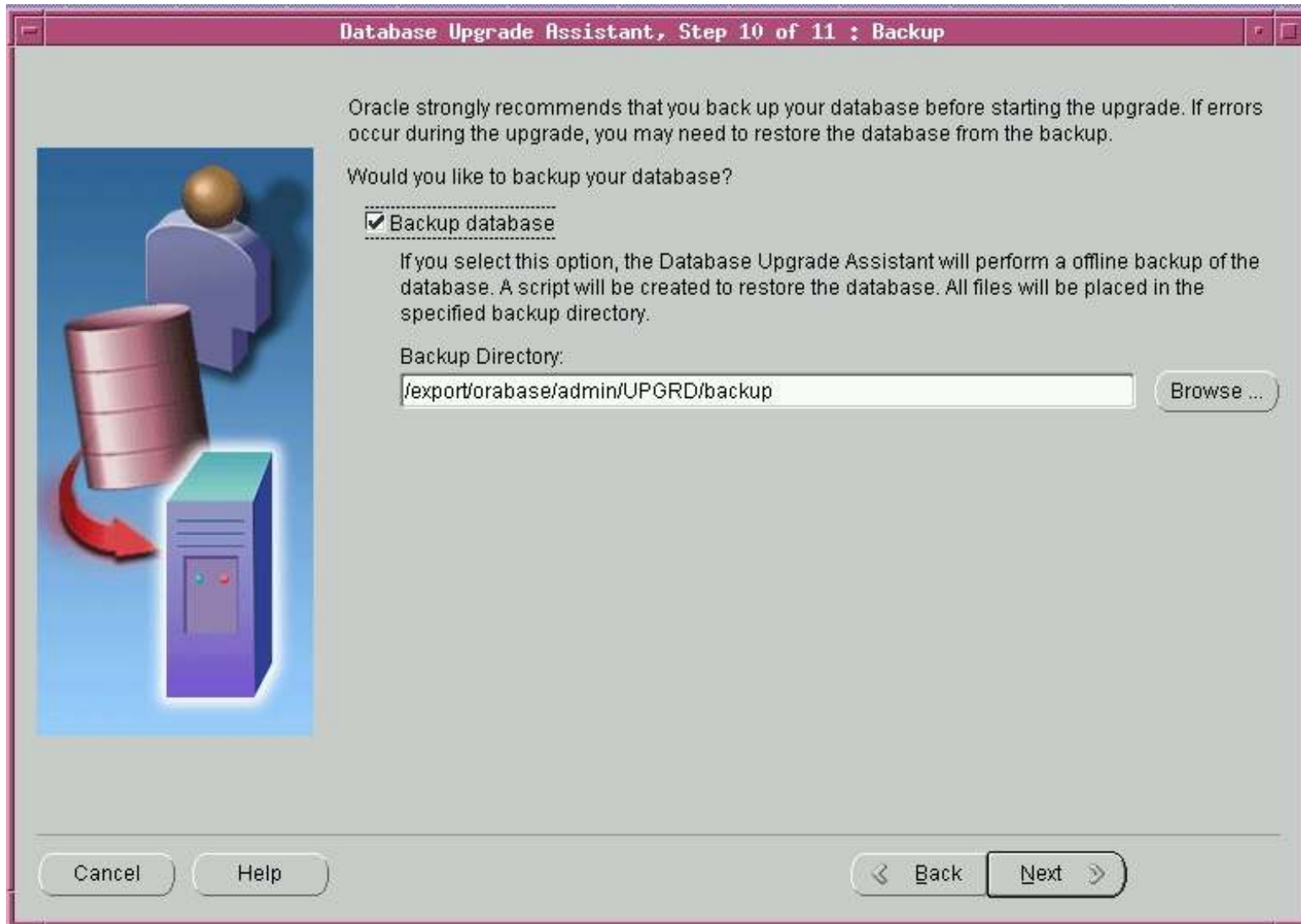
Cancel Help Back Next



Database Upgrade Assistant (GUI)



Database Upgrade Assistant (GUI)



Database Upgrade Assistant (GUI)

Database Upgrade Assistant, Step 11 of 11 : Summary

DBUA will shutdown the database during the upgrade process. The Database will not be available for general use during the upgrade process.

Database Upgrade Summary

	Database	Target Database
Name:	UPGRD	UPGRD
Version:	9.2.0.1.0	11.1.0.6
Oracle Home:	/export/orabase/product/9.2.0	/export/orabase/product/11.1.0-beta

Warnings Ignored

Warnings Ignored

The instance version does not match the dictionary version which is possible when the database is not patched to the release. Execute catpatch.sql from source OracleHome/rdbms/admin/ before you start the upgrade process, to resolve this conflict.

Default privileges granted to the CONNECT role have been reduced for security reasons. As a result, users who have been granted the CONNECT role will only have the "CREATE SESSION" privilege after upgrade. If you wish to ensure that users do not loose any privileges that they were granted previously via the connect role, you will need to grant them manually after upgrade

Database contains schemas with objects dependent on network packages. Refer to the 11g Upgrade Guide for instructions to configure Network ACLs.

Database contains stale optimizer statistics. Refer to the Upgrade Guide for instructions to update statistics prior to

Cancel Help Back Next Finish

Database Upgrade Assistant (GUI)



Database Upgrade Assistant (GUI)

Database Upgrade Assistant, Step 11 of 11 : Summary

i DBUA will shutdown the database during the upgrade process. The Database will not be available for general use during the upgrade process.

Initialization Parameter changes

The following changes will be made in the initialization parameters:

Parameters to be added:

Name	Value
diagnostic_dest	/export/oradata/UPGRD
db_recovery_file_dest	/export/oradata/UPGRD/flash_recovery_area
db_recovery_file_dest_size	1048576000

Parameters to be updated:

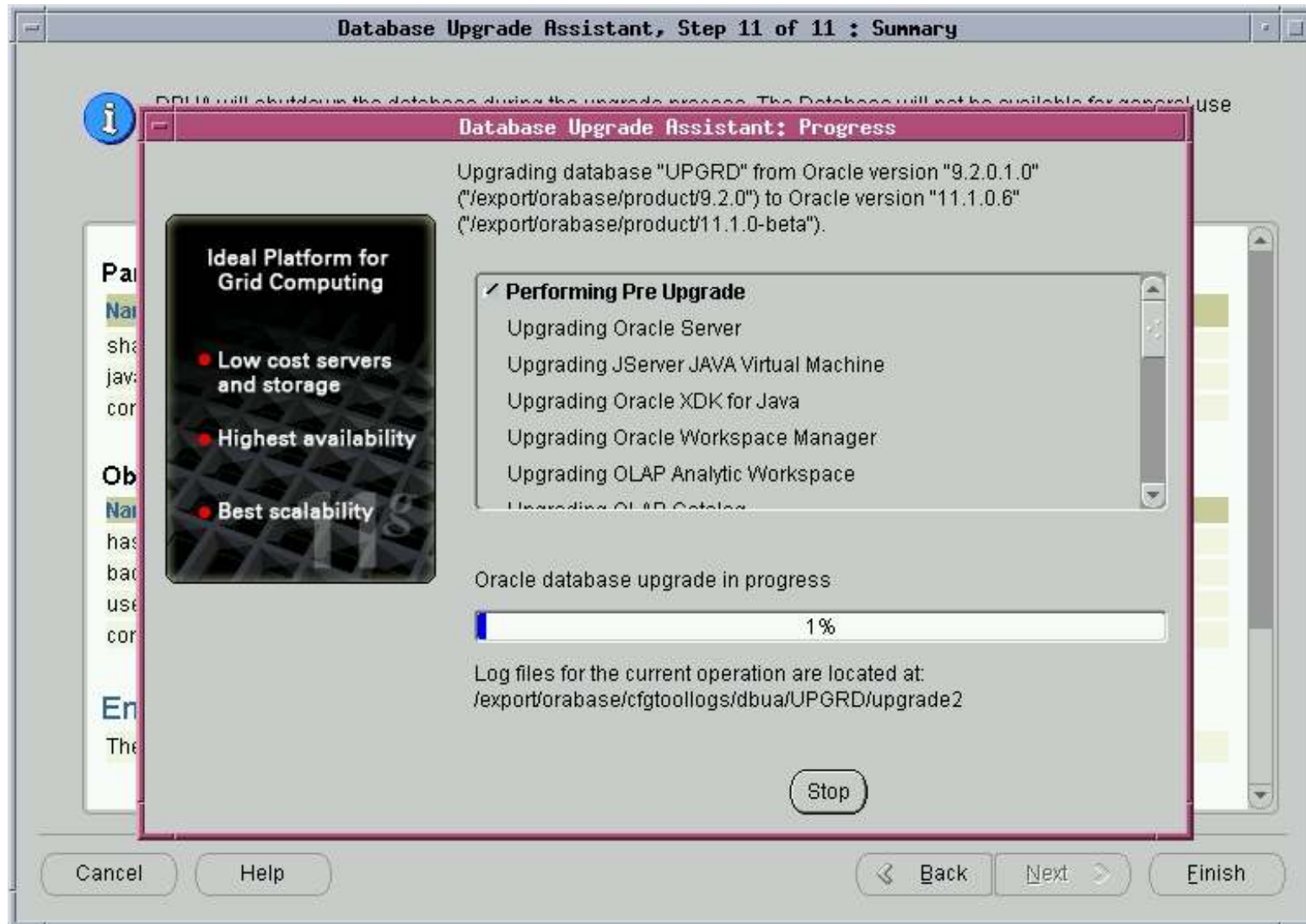
Name	Old Value	New Value
shared_pool_size	117440512	492854067
java_pool_size	33554432	134217728
compatible	9.2.0.0.0	10.1.0

Obsolete Parameters to be removed:

Name
hash_join_enabled

Cancel Help Back Next Finish

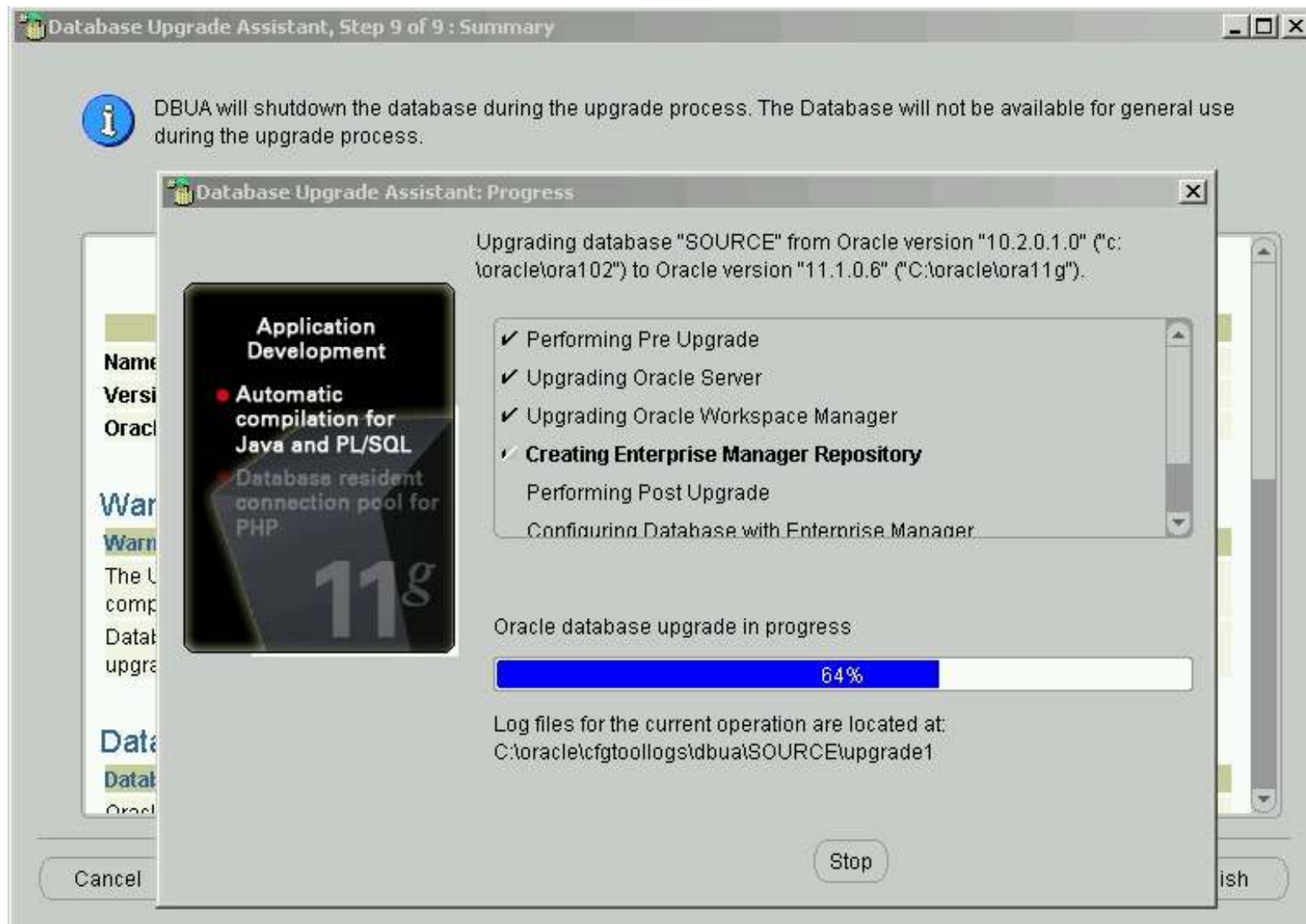
Database Upgrade Assistant (GUI)



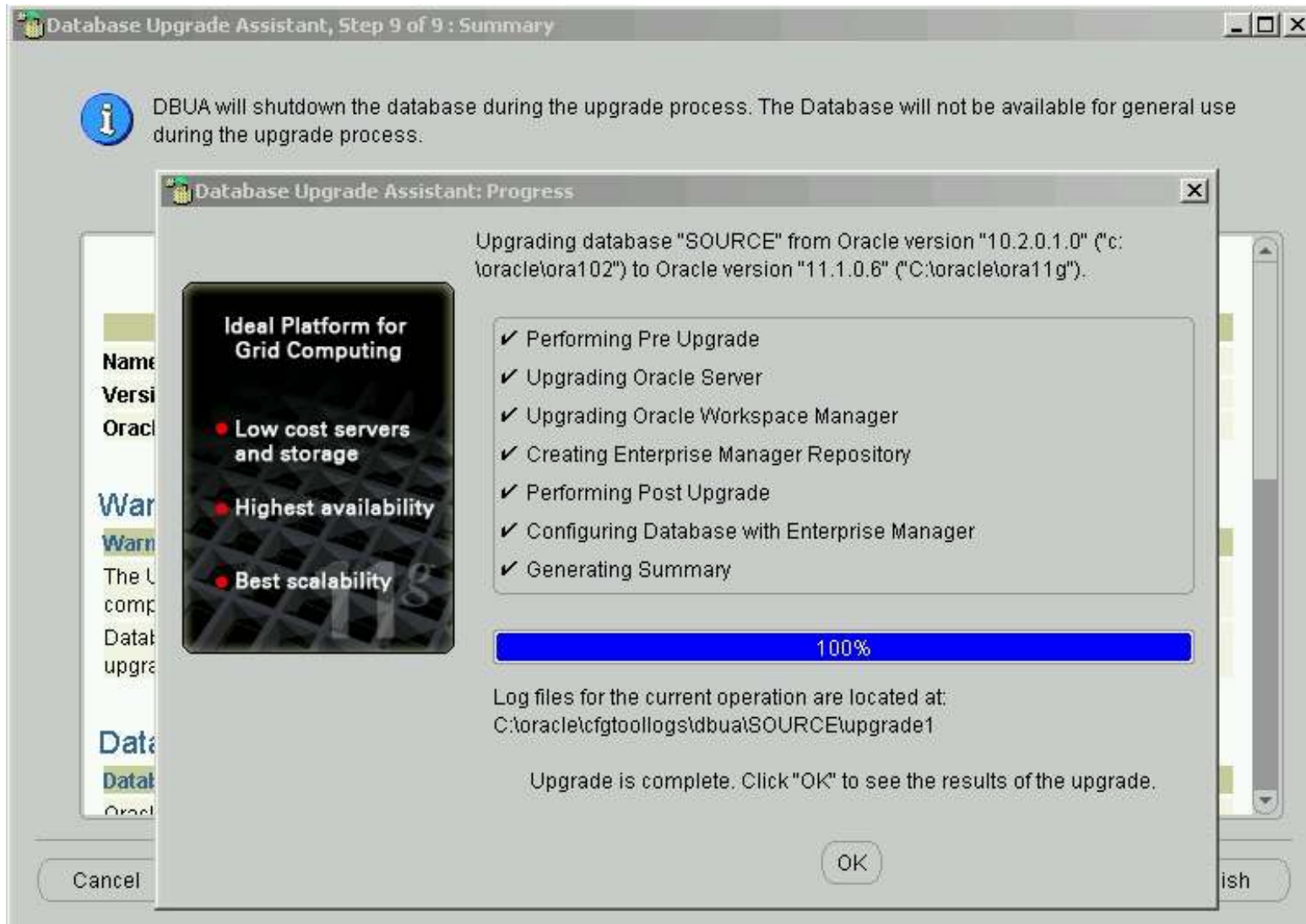
Database Upgrade Assistant (GUI)



Database Upgrade Assistant (GUI)



Database Upgrade Assistant (GUI)



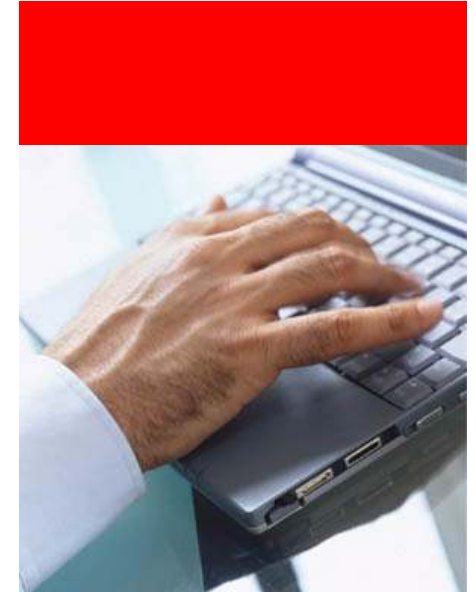
Database Upgrade Assistant (GUI)



План

- Подготовка
- Upgrade
- Новое в 11g
- Полезные советы

Методы Upgrade
Database Upgrade Assistant
Command Line Upgrade
Alternatives
ASM Upgrade





Command Line Upgrade

- Как это работает, step-by-step:
 1. Complete online backup of the database
 2. Install 11g Oracle software
 3. Analyze the DB using `utlu111i.sql` and follow all requirements given by the script
 4. Create a new listener with NETCA
 5. Switch to the new environment, startup the DB (`startup upgrade`) and create the **SYSAUX** tablespace (if source db is an Oracle 9i db)
 6. Run upgrade script `catupgrd.sql` and afterwards recompile: `utlrp.sql`
 7. Check the post upgrade status: `utlu111s.sql`
 8. Run `catuppst.sql` if you are upgrading from 10g

Command Line Upgrade

Info

- Upgrade information script: `utlu111i.sql`
 - Выполняется на исходной БД
 - Проверяет все init параметры и показывает предупреждения о obsolete или deprecated параметрах
 - Проверяет
 - Компоненты
 - Табличное пространство SYSAUX
 - Кодировку
 - Версию Timezone file
 - Cluster check

Command Line Upgrade

- `utlu111i.sql`: Информация о БД и проверка timezone?

(see also PREPARATION)

```
.*
*****
Database:
*****
--> name:          SOURCE
--> version:       10.2.0.1.0
--> compatible:   10.2.0.1.0
--> blocksize:    8192
--> platform:     Microsoft Windows IA (32-bit)
1 --> timezone file: V2
```

- DST (Daylight Savings Time) patches for Version V4 have to have applied as a requirement for the upgrade to Oracle Database 11g

```
*****
Database:
*****
--> name:          SOURCE
--> version:       10.2.0.1.0
--> compatible:   10.2.0.1.0
--> blocksize:    8192
--> platform:     Microsoft Windows IA (32-bit)
2 --> timezone file: V4
```

Command Line Upgrade

- `utlu111i.sql`: Достаточно ли размера Tablespaces?

```
.
*****
Tablespaces: [make adjustments in the current environment]
*****
3 --> SYSTEM tablespace is adequate for the upgrade.
.... minimum required size: 326 MB
.... AUTOEXTEND additional space required: 26 MB
--> UNDOTBS1 tablespace is adequate for the upgrade.
.... minimum required size: 343 MB
.... AUTOEXTEND additional space required: 218 MB
--> SYSAUX tablespace is adequate for the upgrade.
.... minimum required size: 86 MB
--> TEMP tablespace is adequate for the upgrade.
.... minimum required size: 61 MB
.... AUTOEXTEND additional space required: 41 MB
```

Command Line Upgrade

- `utlu11i.sql`: Изменения параметров инициализации?

```
.
*****
Update Parameters: [Update Oracle Database 11.1 init.ora or spfile]
*****
WARNING: --> "sga_target" needs to be increased to at least 336 MB
.
*****
4 Renamed Parameters: [Update Oracle Database 11.1 init.ora or spfile]
*****
-- No renamed parameters found. No changes are required.
.
*****
Obsolete/Deprecated Parameters: [Update Oracle Database 11.1 init.ora or spfile]
*****
--> "background_dump_dest" replaced by "diagnostic_dest"
--> "user_dump_dest" replaced by "diagnostic_dest"
--> "core_dump_dest" replaced by "diagnostic_dest"
```

Command Line Upgrade

- `utlu11i.sql`: Компоненты и опции?

```
.
*****
5 Components: [The following database components will be upgraded or installed]
*****
--> Oracle Catalog Views           [upgrade]  VALID
--> Oracle Packages and Types      [upgrade]  VALID
--> Oracle Workspace Manager       [upgrade]  VALID
```

- Внимание:
Необходимо установить все опции который присутствуют в релизе с которого выполняется Upgrade

Command Line Upgrade

- `utlu111i.sql`: Дополнительные предупреждения?

```
.....  
Miscellaneous Warnings  
.....  
6 WARNING: --> Database is using an old timezone file version.  
.... Patch the 10.2.0.1.0 database to timezone file version 4  
.... BEFORE upgrading the database. Re-run utlu111i.sql after  
.... patching the database to record the new timezone file version.  
WARNING: --> Database contains stale optimizer statistics.  
.... Refer to the 11g Upgrade Guide for instructions to update  
.... statistics prior to upgrading the database.  
.... Component Schemas with stale statistics:  
.... SYS  
WARNING: --> Database contains INVALID objects prior to upgrade.  
.... USER HUGO has 1 INVALID objects.
```



Command Line Upgrade

- Create Dictionary statistics
- Shutdown the database (**IMMEDIATE/NORMAL**)
- Adjust init parameters:
 - COMPATIBLE \geq 10.0.0
 - SGA_TARGET \geq 340MB (32-bit) ... \geq 640MB (64-bit)
 - PGA_AGGREGATE_TARGET \geq 25MB
 - LOG_ARCHIVE_FORMAT must contain %s, &t and %r
- Move init.ora/SPFILE and PWDsid.ora to their new location
- Create a new 11g-Listener (*use the NETCA*)
- Change environment to point to the new \$ORACLE_HOME

Command Line Upgrade



- Windows only:
 - Delete the old Service:

```
> oradim -DELETE -SID ORCL
```
 - Create a new Service:

```
> oradim -NEW  
-SID ORCL  
-SYSPWD passwd  
-STARTMODE a  
-PFILE initfile
```

ORADIM creates a logfile in %ORACLE_HOME%\database

Command Line Upgrade

```
SQL> STARTUP UPGRADE;
```

```
ALTER SYSTEM enable restricted session;  
Wed Aug 08 11:53:23 2007  
ALTER SYSTEM SET _system_trig_enabled=FALSE SCOPE=MEMORY;  
Wed Aug 08 11:53:23 2007  
ALTER SYSTEM SET aq_tm_processes=0 SCOPE=MEMORY;  
MMNL started with pid=12, OS id=336  
Wed Aug 08 11:53:23 2007  
ALTER SYSTEM SET resource_manager_plan='' SCOPE=MEMORY;  
Wed Aug 08 11:53:24 2007  
replication_dependency_tracking turned off (no async multimaster replication found)  
Completed: ALTER DATABASE OPEN MIGRATE
```

Taken from an example alert.log

- Suppresses unnecessary error messages like **ORA-00942: table or view does not exist** - thus logfiles will be easier to read and check



Command Line Upgrade

- Create tablespace SYSAUX (only if source is a 9i db) :

```
SQL> CREATE TABLESPACE sysaux  
      DATAFILE 'file' SIZE 500M  
      EXTENT MANAGEMENT LOCAL  
      SEGMENT SPACE MANAGEMENT AUTO  
      ONLINE ;
```



Command Line Upgrade

- Единый update скрипт для всех релизов и компонентов:

```
SQL> @catupgrd.sql
```

- Useful:

```
SQL> SPOOL c:\temp\upgrade.log
```



Command Line Upgrade

- Перекомпиляция:
 - `utlprp.sql`
 - Calls `utlprp.sql` with CPU_COUNT-1
 - Determines automatically if serial or parallel recompilation with multiple threads can be done
 - Recompiles all INVALID objects
 - Utilizes package `utl_recomp`
 - Re-enables functional indexes automatically
 - `utlprp.sql` can be called directly like:
 - `SQL> utlprp 7`
 - This can be useful to minimize CPU usage

Command Line Upgrade

Status

- Post upgrade script: `utlu111s.sql`
 - Выполняется в среде 11g
 - Проверяет результаты обновления с помощью `DBA_REGISTRY`
 - Показывает хинты и доп. информацию в случае неудачного обновления какого из компонентов
 - Показывает сколько времени было затрачено на каждый компонент и в целом на Upgrade

Command Line Upgrade

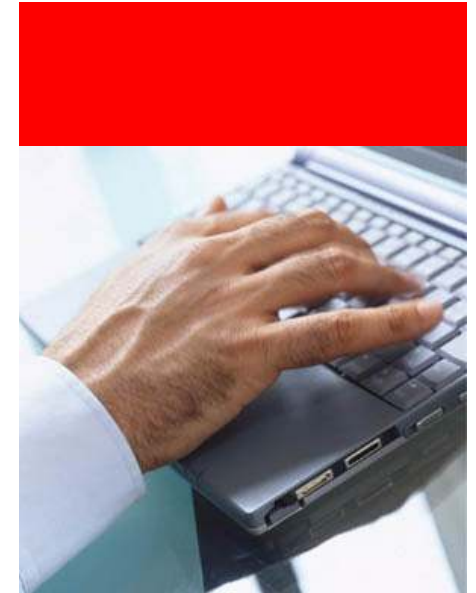
- Post upgrade script: `utlu11s.sql`

```
SQL> @utlu11s.sql
Oracle Database 11.1 Post-Upgrade Status Tool          08-14-2007 13:45:23
Component                Status          Version  HH:MM:SS
Oracle Server              VALID          11.1.0.6.0  00:33:34
Oracle Workspace Manager  VALID          11.1.0.6.0  00:01:09
Gathering Statistics
Total Upgrade Time: 00:37:30
```

План

- Подготовка
- Upgrade
- Новое в 11g
- Полезные советы

Методы Upgrade
Database Upgrade Assistant
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Alternatives
ASM Upgrade





Upgrade Alternatives

- Export/Import
- DataPump
- Transportable Tablespaces
- Logical Standby



Upgrade Alternatives

- Export/Import
 - Универсальный способ
 - Import возможен для \geq Oracle V5
 - Export не поддерживается в Oracle 11g
 - Отнимает много времени и ресурсов
 - Полезно использовать для:
 - Изменения кодировки БД
 - Изменения платформы или ОС
 - Объединения схем
 - Для всех релизов upgrade которых не поддерживается (например 8.1.6)



Upgrade Alternatives

- Export/Import
 - Смена кодировки
 - Changing the Database Character Set
Note: 225912.1
 - Use Scanner Utility **CSscan** before altering the DB Characterset
Note: 123670.1
 - Unicode
 - Problematic can be:
Umlaut **Ä** in WE8ISO... = 1 Byte
Umlaut **Ä** in UTF8 = 2 Byte
 - UTF8 Database Character Set Implications
Note: 119119.1
 - WE8ISO8859P1 ==> P15: Note 257722.1
 - Characterset Migration - White Paper:
 - <http://www.oracle.com/technology/tech/globalization/pdf/mwp.pdf>



Upgrade Alternatives

- Hints and tricks
 - Dump - всегда **BINARY** mode
 - Import длится примерно в 3х раза дольше чем Export
 - Всегда делайте Export утилитами самого старого релиза
 - Всегда делайте Import `imp` целевой БД
- Export performance
 - `DIRECT=Y` ... bypasses SQL-Layer, but no conversions!
 - `RECORDLENGTH=64KB` ... amount of data written to disk
 - Распараллельте экспорт разделив данные логически
- Import performance
 - `BUFFER=xy` ... но не слишком большой - swapping !!
 - `INDEXES=N` ... индексы можно создать позже... `INDEXFILE=...`
 - Параметр `commit_write=NOWAIT`



Upgrade Alternatives

- Data Pump
 - Преимущество:
 - Намного быстрее и больше возможностей чем у exp/imp
 - Как это использовать? :
 - `impdp` работает через database link – экономим на записи на ДИСК

```
IMPDP usr1/password NETWORK_LINK=db_link1 FULL=Y
```

- Это удобно:
 - + Сохраняются все преимущества использования datapump
 - + Dump файл не создается (so no additional IO)
 - + Очень просто
 - Работает с версиями $\geq 10.1.0.2$
- For documentation see:
Oracle® Database Utilities
- Further information and examples: [Note:553337.1](#)

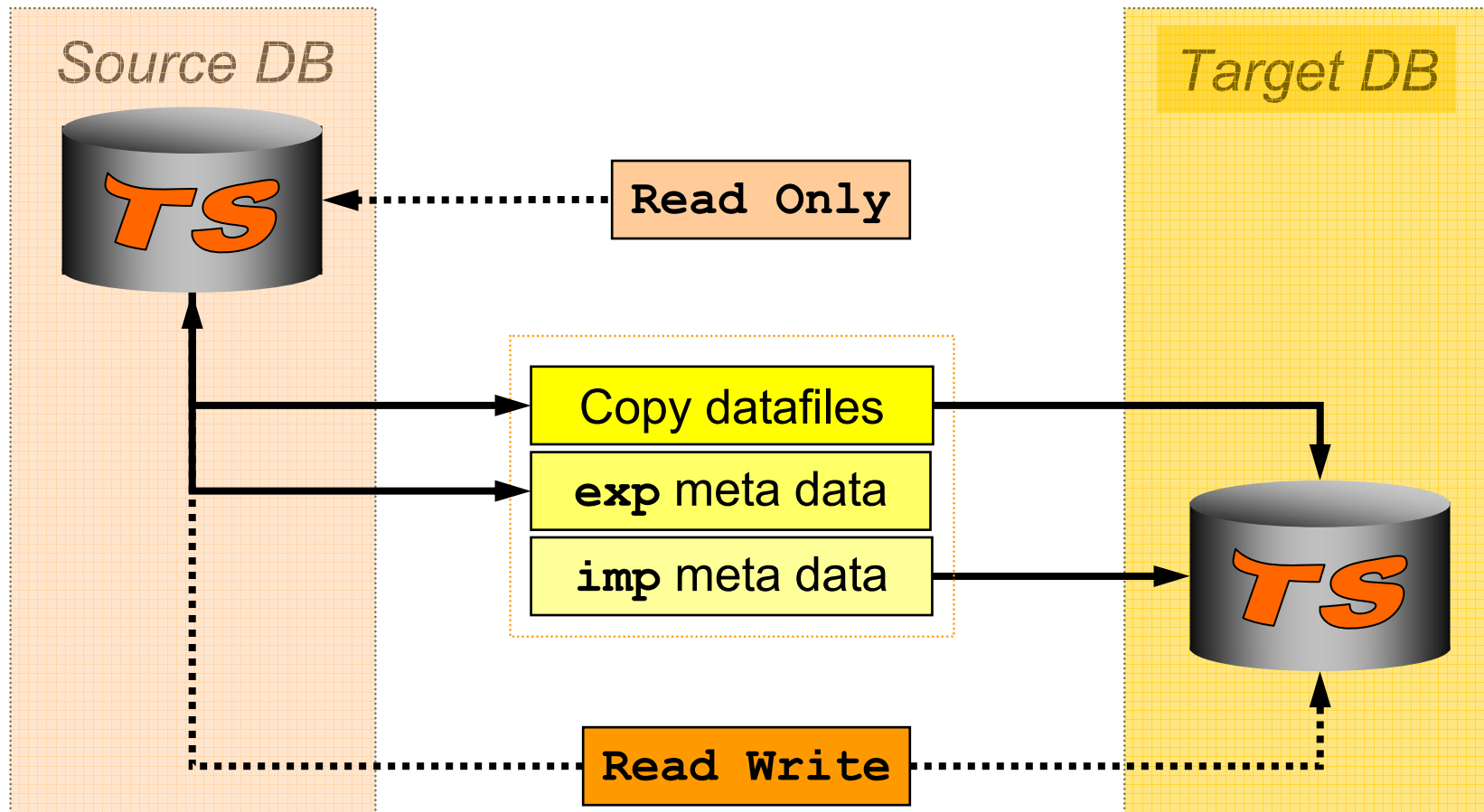


Upgrade Alternatives

- Transportable Tablespaces
 - Преимущество:
 - Время простоя - минимально
 - Как это использовать? :
 - Tablespaces и метаданные переносятся из одной БД в другую и просто подключаются там
 - Это удобно :
 - + Очень быстро
 - Нельзя использовать для SYSTEM+SYSAUX tablespaces.
 - Появляются дополнительные задачи - перенести views, synonyms и т.д. в новую БД
 - Информация с OTN:
 - [Amadeus Customer Case](#)
 - [White Paper: TTS Upgrade 10.2](#)
 - [White Paper: TTS OS-Migration 10.2](#)

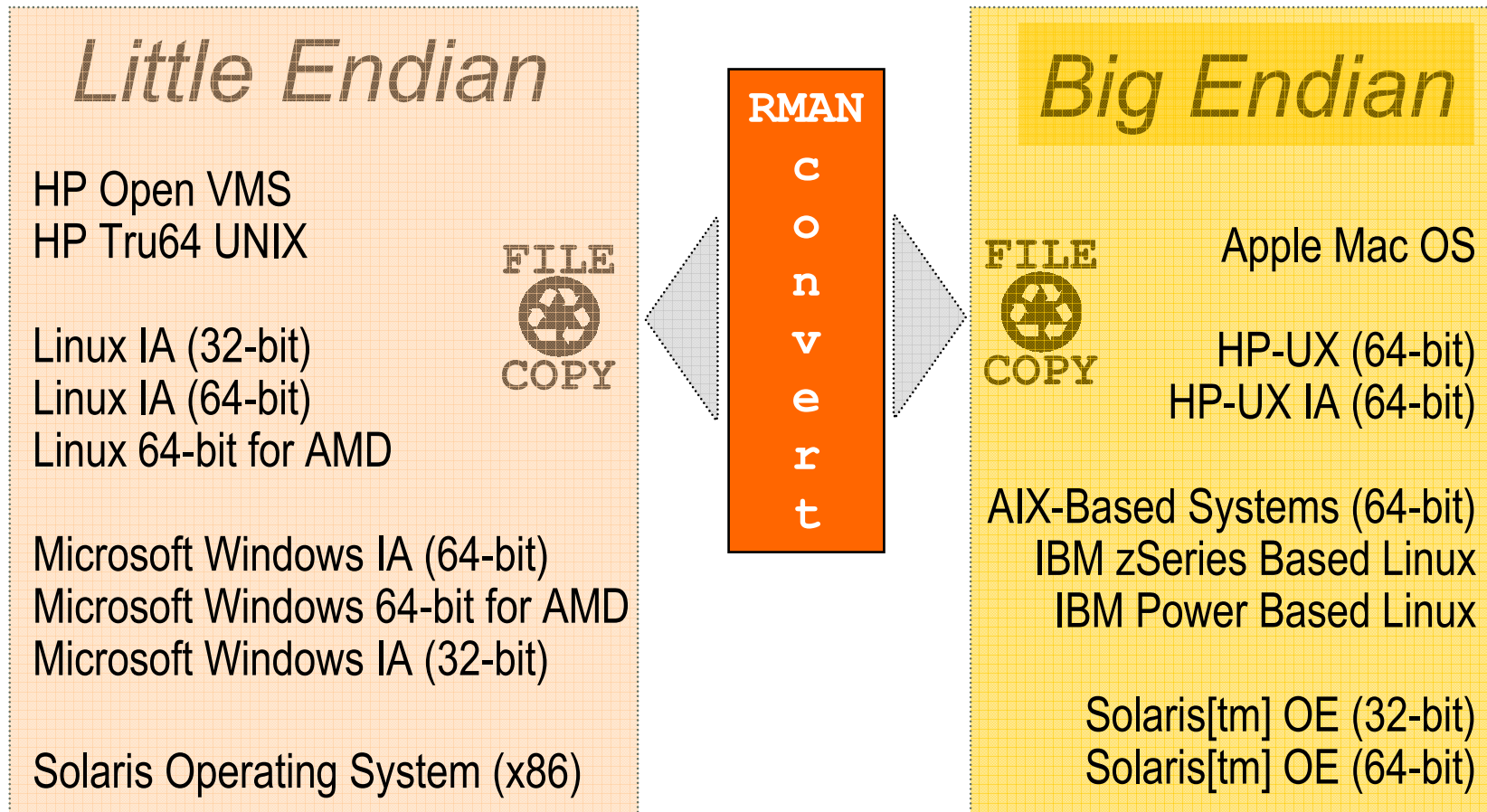
Upgrade Alternatives

- TTS concept since Oracle 8i

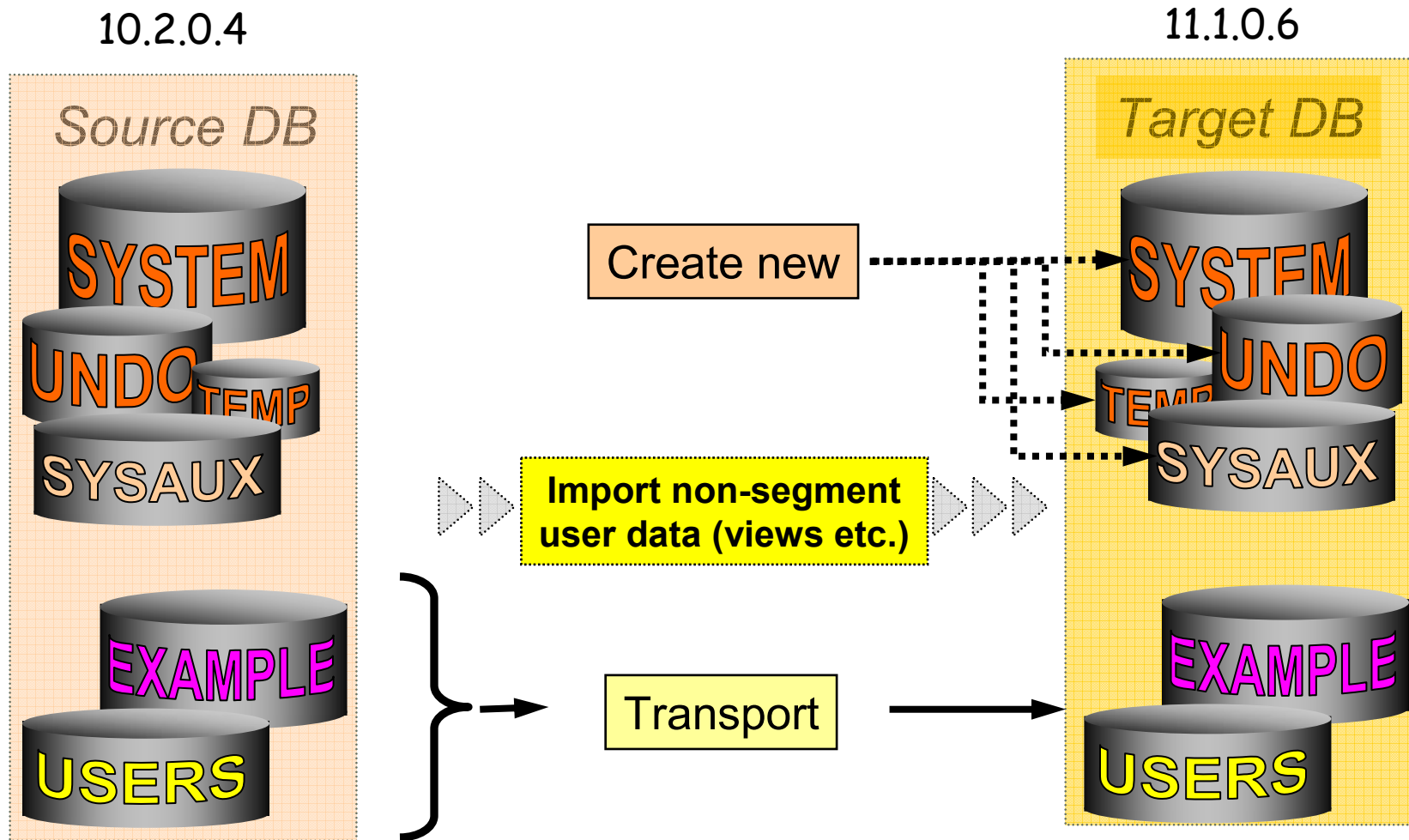


Upgrade Alternatives

- TTS x-platform (v\$transportable_platform):



Upgrade Alternatives

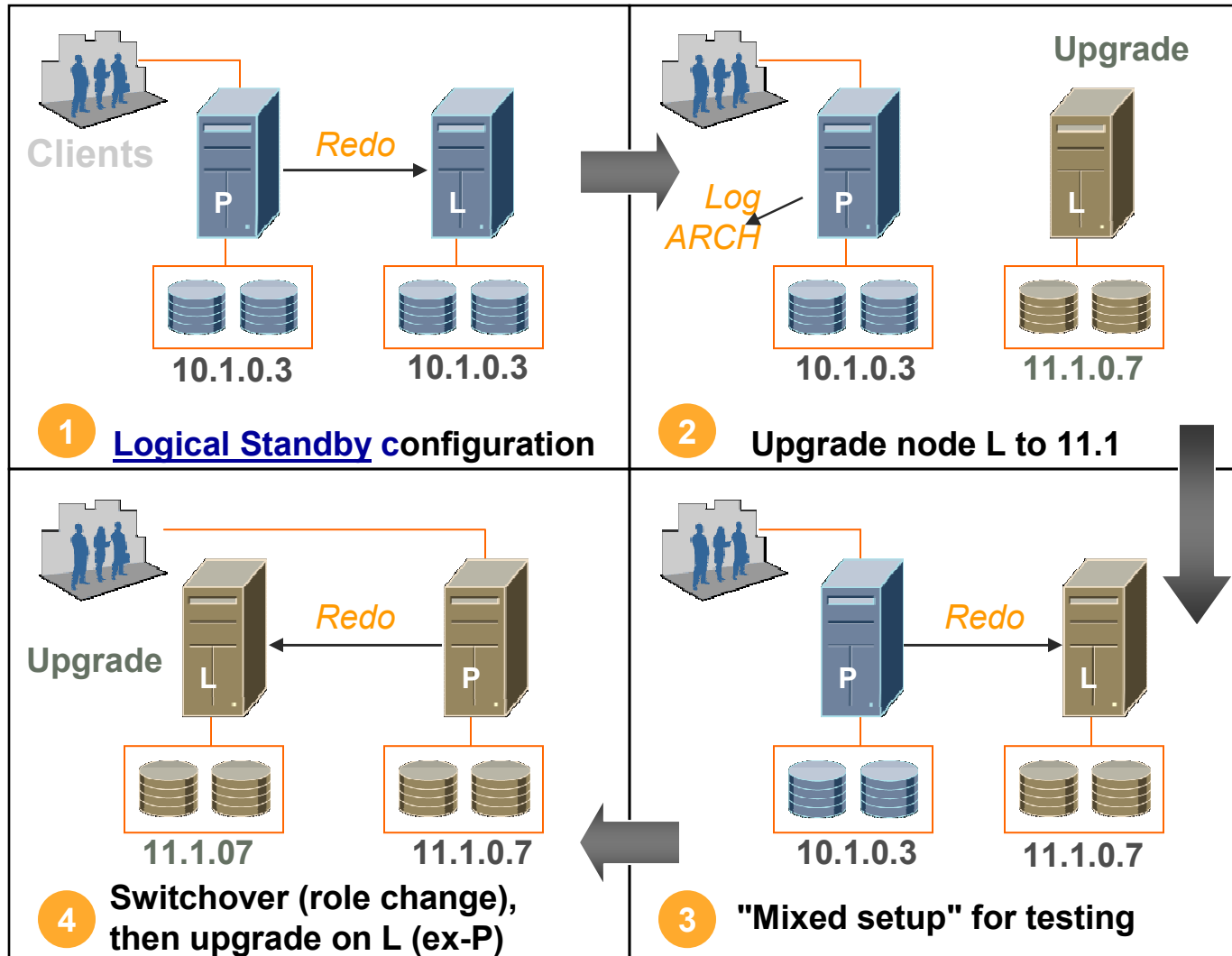




Upgrade Alternatives

- Logical Standby (Data Guard)
 - Преимущество :
 - Минимальное время простоя
 - Как это использовать? :
 - Сначала Upgrade делается на standby
 - Далее: Switchover - standby становится production
 - Upgrade ex-production - switchover обратно
 - Это удобно :
 - + Время простоя ~2min на оба переключения
 - Нельзя сменить платформу или ОС
 - Ограничения Logminer на некоторые типы данных
 - Требуется первоначальная настройка, версия релиза production должна быть $\geq 10.1.0.3$

Upgrade Alternatives



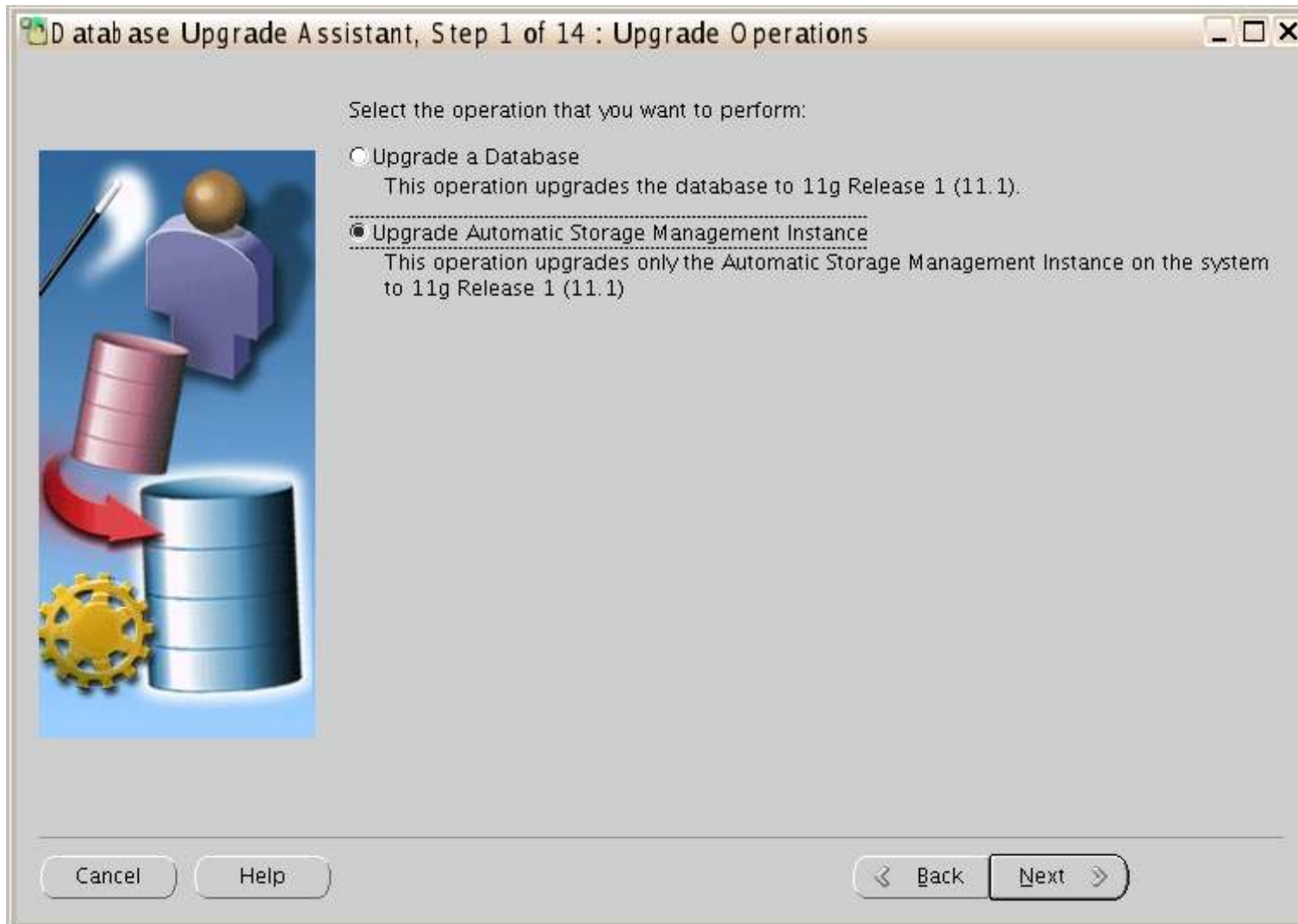
План

- Подготовка
- Upgrade
- Новое в 11g
- Полезные советы

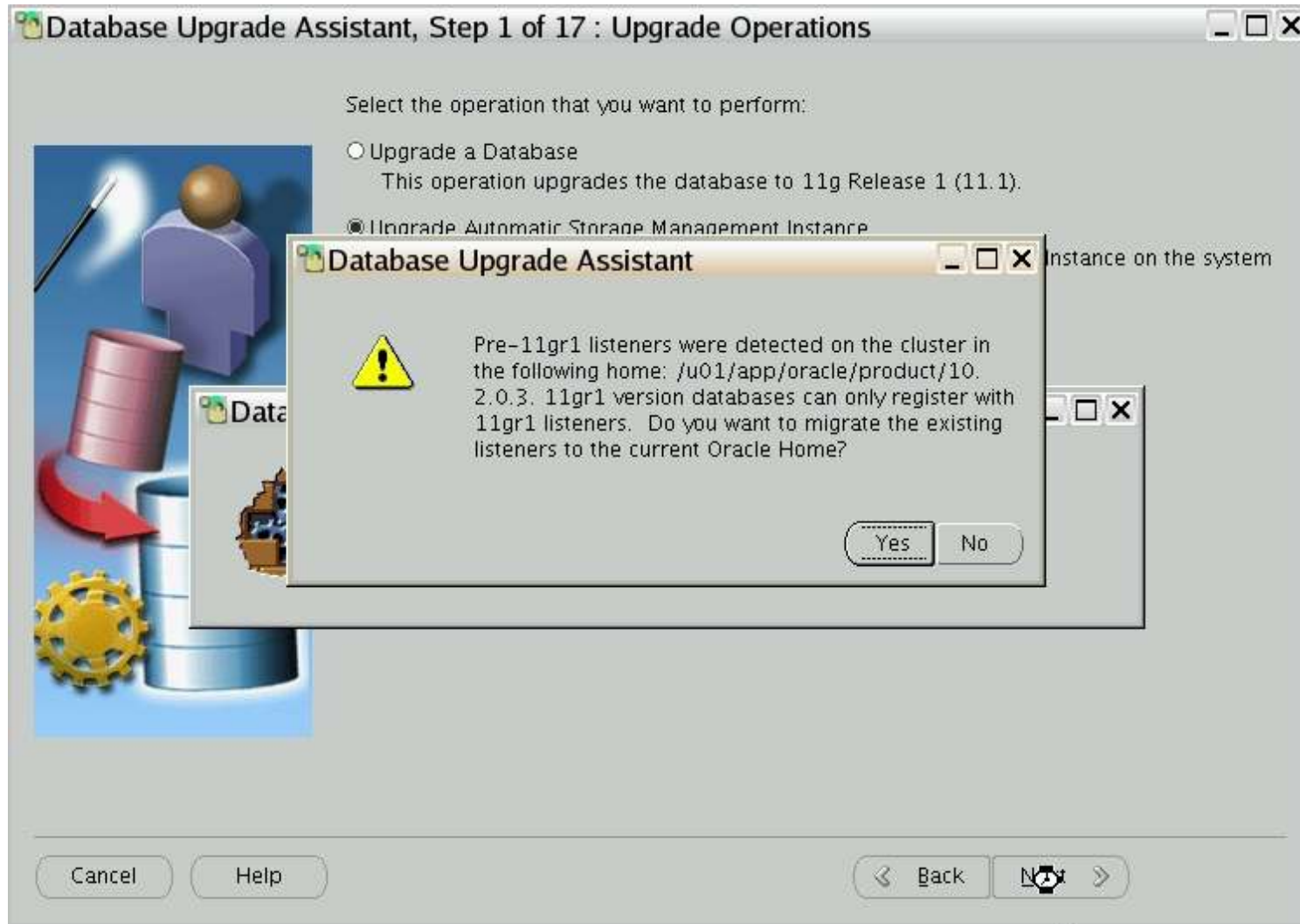
Методы Upgrade
Database Upgrade Assistant
Command Line Upgrade
Alternatives
ASM Upgrade



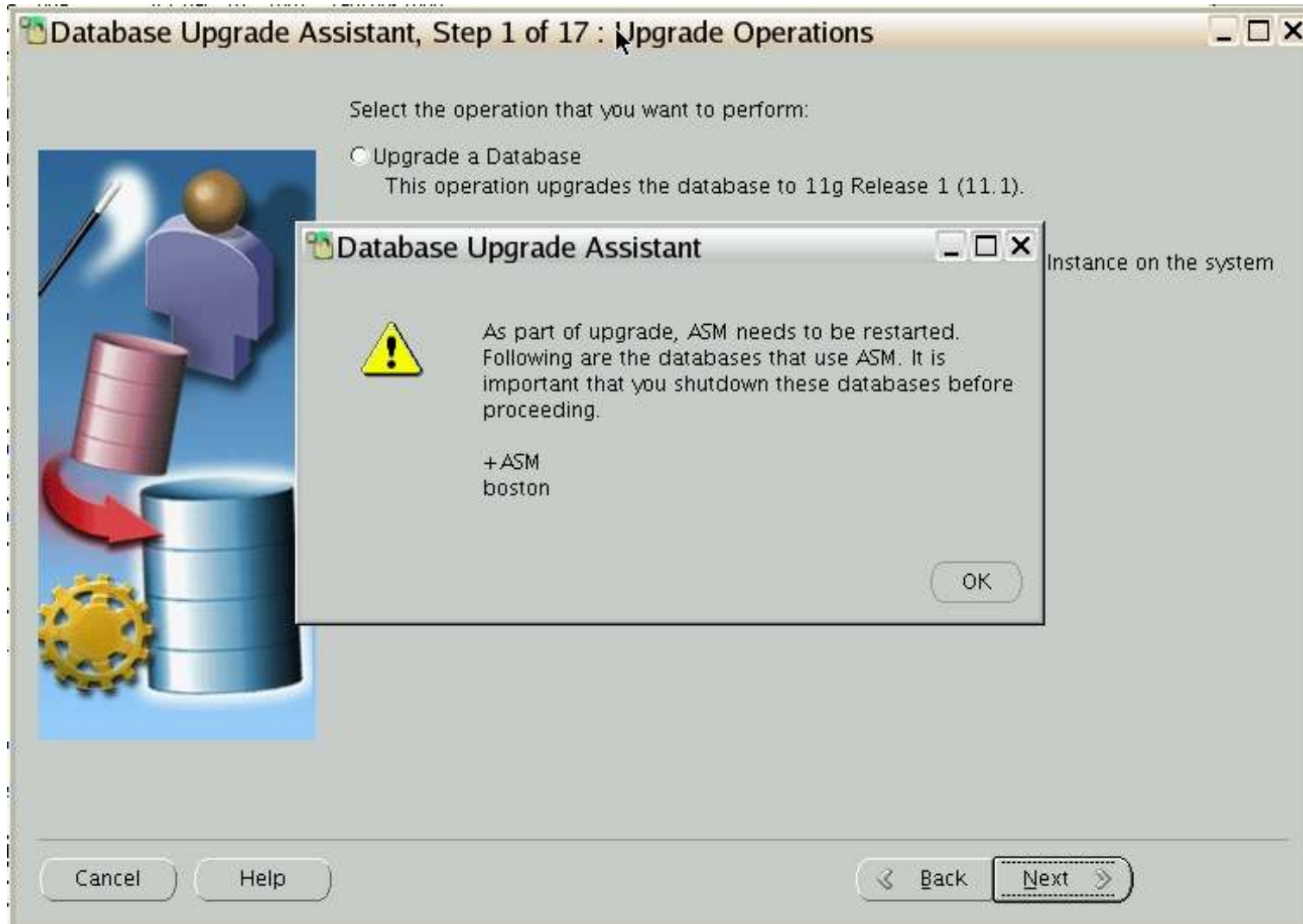
ASM Upgrade using DBUA



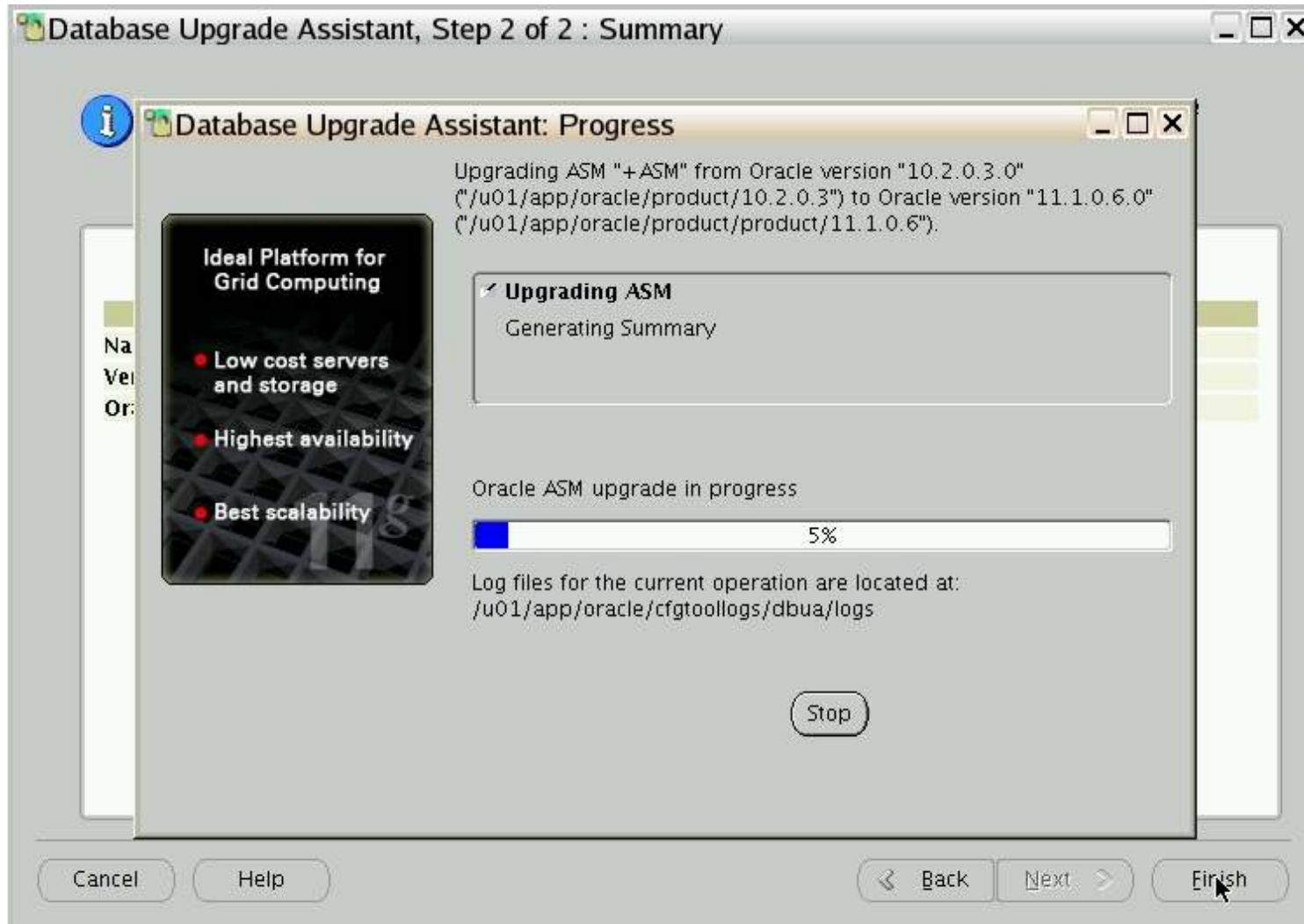
ASM Upgrade using DBUA



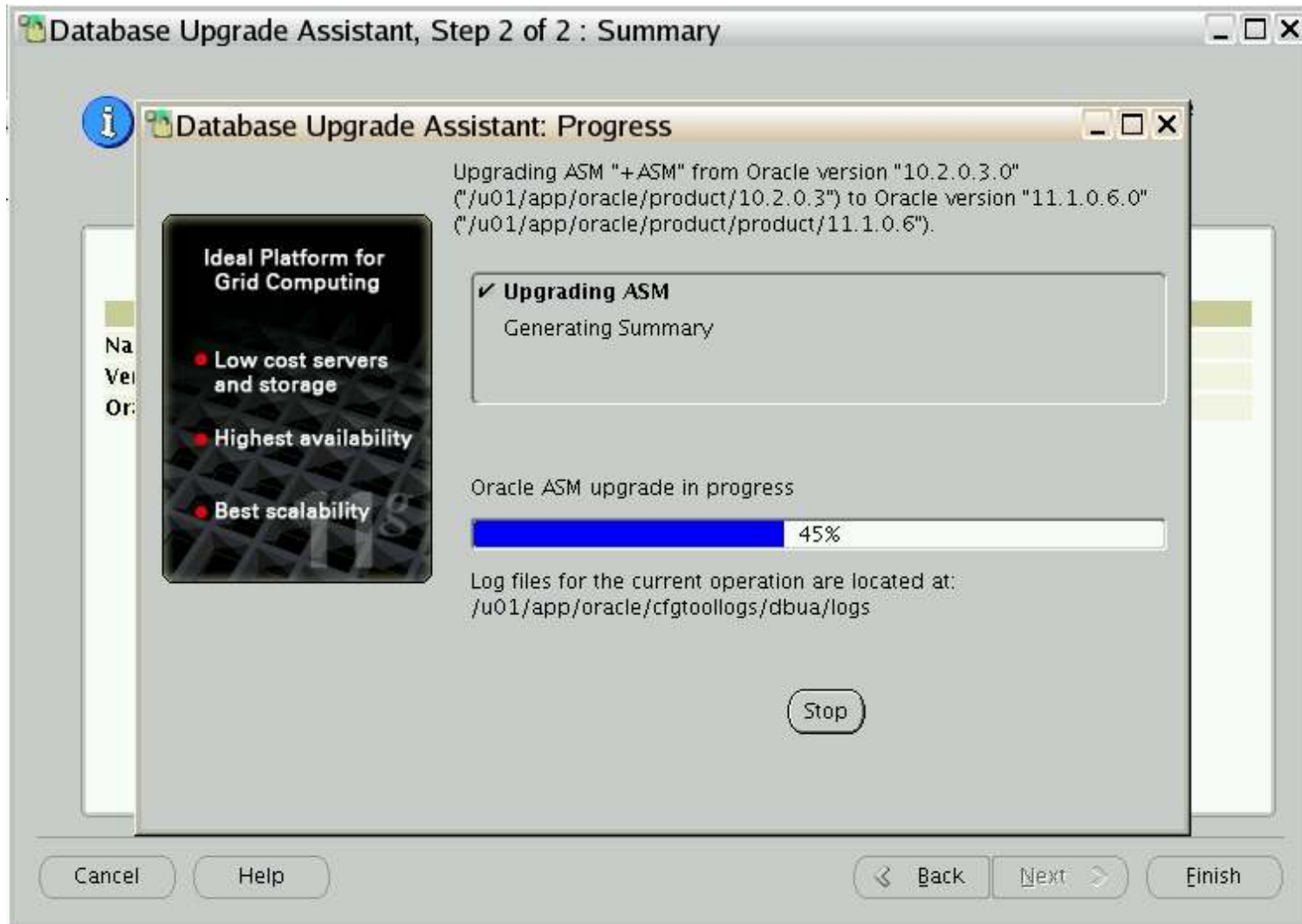
ASM Upgrade using DBUA



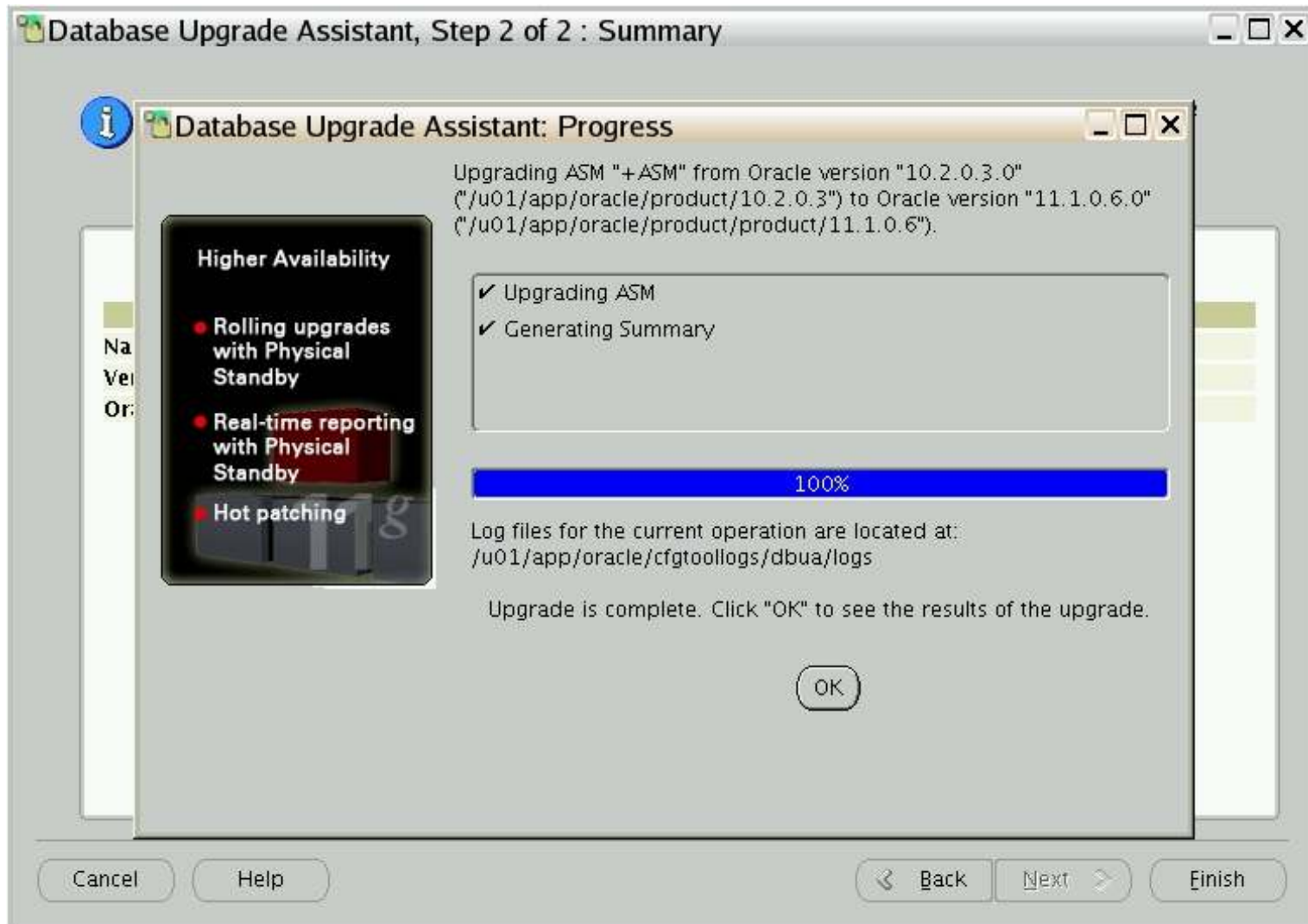
ASM Upgrade using DBUA



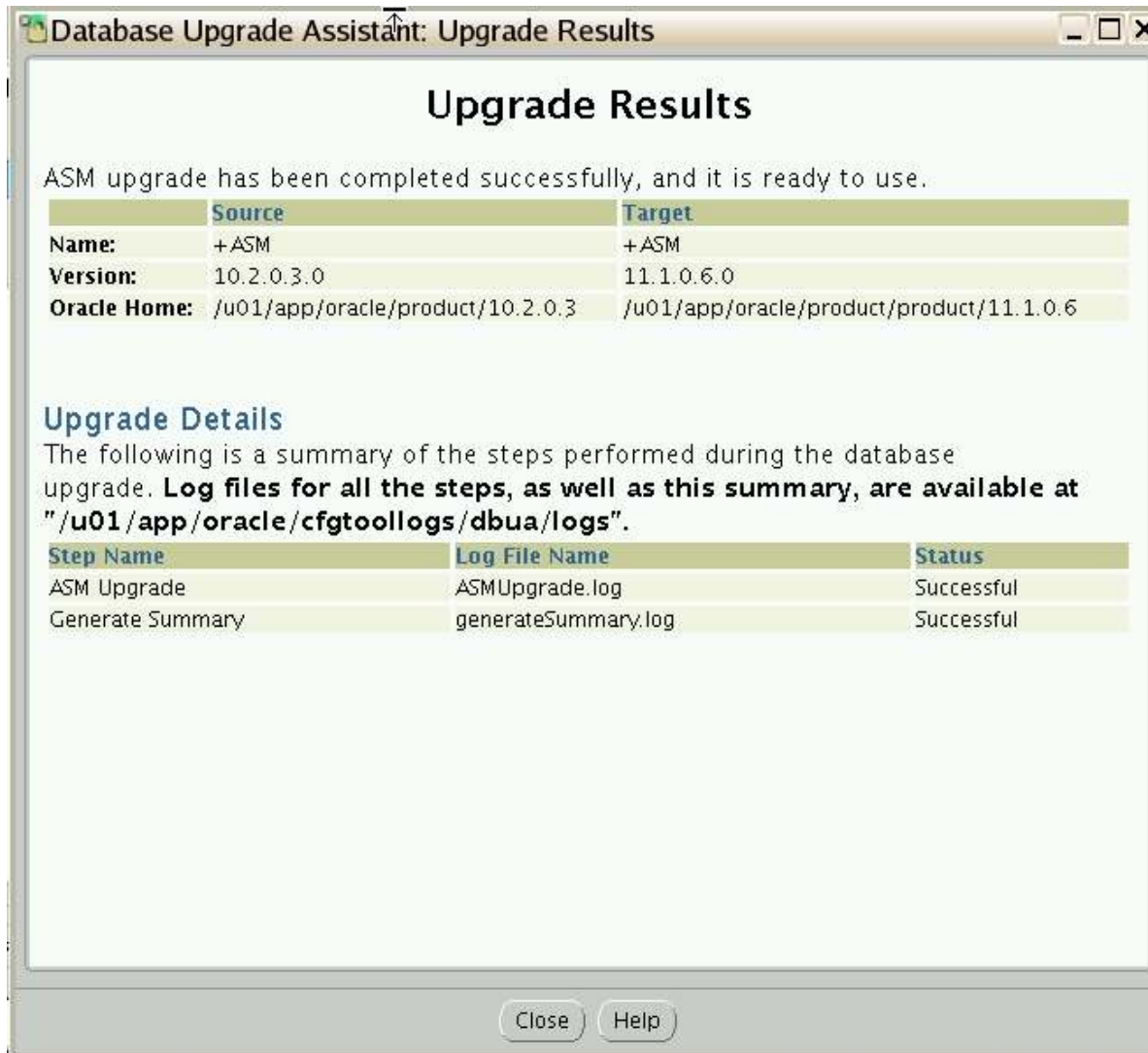
ASM Upgrade using DBUA



ASM Upgrade using DBUA



ASM Upgrade using DBUA



Database Upgrade Assistant: Upgrade Results

Upgrade Results

ASM upgrade has been completed successfully, and it is ready to use.

	Source	Target
Name:	+ASM	+ASM
Version:	10.2.0.3.0	11.1.0.6.0
Oracle Home:	/u01/app/oracle/product/10.2.0.3	/u01/app/oracle/product/product/11.1.0.6

Upgrade Details

The following is a summary of the steps performed during the database upgrade. **Log files for all the steps, as well as this summary, are available at "/u01/app/oracle/cfgtoollogs/dbua/logs".**

Step Name	Log File Name	Status
ASM Upgrade	ASMUpgrade.log	Successful
Generate Summary	generateSummary.log	Successful

Close Help

План

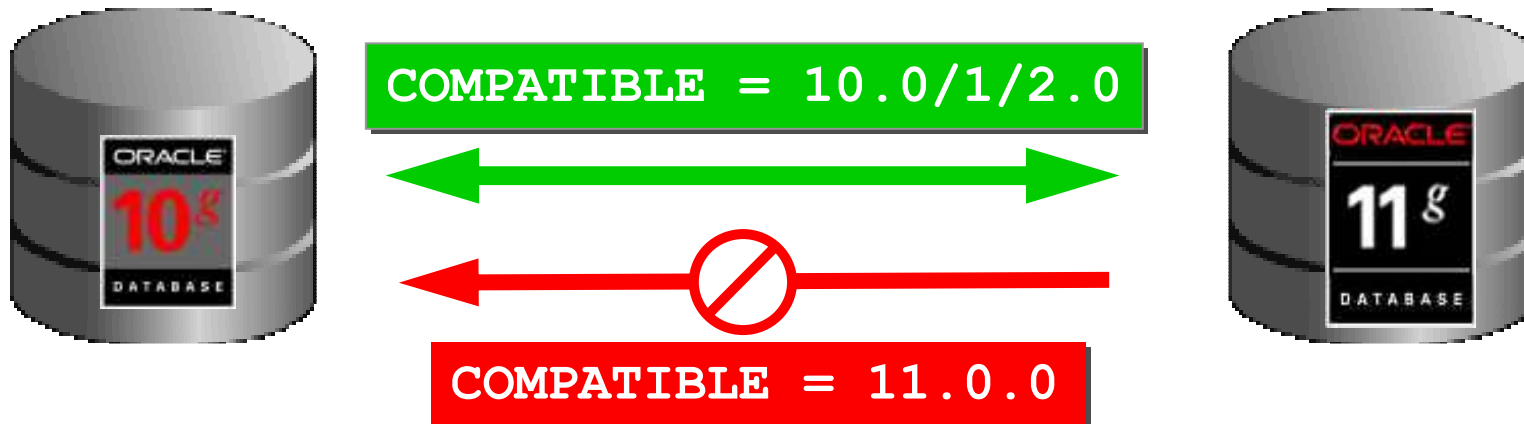
- Подготовка
- Upgrade
- Новое в 11g
- Полезные советы

Параметры
Процессы
Прочее
Инструменты



Параметр COMPATIBLE

- COMPATIBLE has to be at least 10.0.0 for an 11g database
- No way back once $\geq 11.0.0$ has been enabled
 - Supported release downgrade only down to 10.0.0
 - Supported patch downgrade only down to 11.0.0
 - No ALTER DATABASE RESET COMPATIBILITY command anymore





Параметр COMPATIBLE

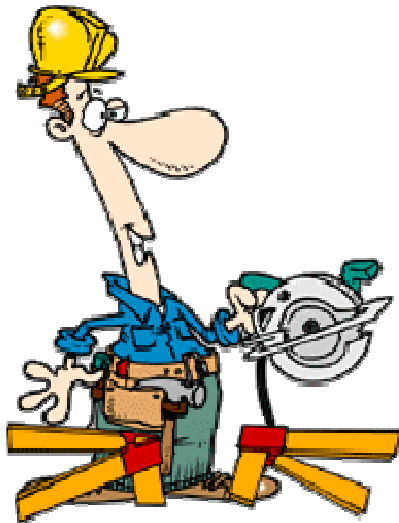
- DBUA raises COMPATIBLE only for 9i databases to 10.0.0
- To enable Oracle 11g features:

```
SQL> alter system  
      set compatible='11.1.0' scope=spfile;
```

- Afterwards restart the database
 - New features will be enabled
 - Datafile headers will be adjusted
 - Redologfiles will be adjusted during first access

Параметры

- Number of init parameter having changed:



	10g ¹⁺²	11g
Deprecated	17	11
Obsolete	30	3
New	30	34

Новые параметры 11g

New in 11g

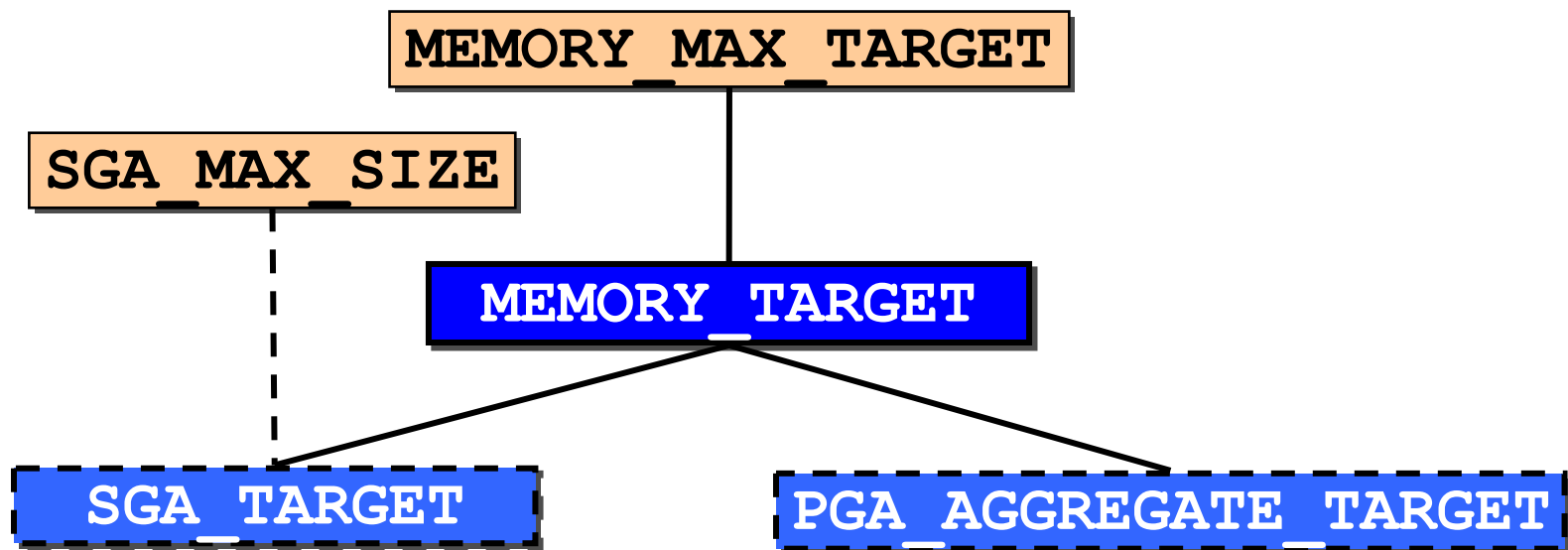
see: [Oracle® Database Reference](#)

ASM_PREFERRED_READ_FAILURE_GROUPS
CLIENT_RESULT_CACHE_LAG
CLIENT_RESULT_CACHE_SIZE
COMMIT_LOGGING
COMMIT_WAIT
CONTROL_MANAGEMENT_PACK_ACCESS
DB_LOST_WRITE_PROTECT
DB_SECUREFILE
DB_ULTRA_SAFE
DDL_LOCK_TIMEOUT
DIAGNOSTIC_DEST
GLOBAL_TXN_PROCESSES
JAVA_JIT_ENABLED
LDAP_DIRECTORY_SYSAUTH
MEMORY_MAX_TARGET
MEMORY_TARGET
OPTIMIZER_CAPTURE_SQL_PLAN_BASELINES

OPTIMIZER_USE_INVISIBLE_INDEXES
OPTIMIZER_USE_PENDING_STATISTICS
OPTIMIZER_USE_SQL_PLAN_BASELINES
PARALLEL_IO_CAP_ENABLED
PLSCOPE_SETTINGS
REDO_TRANSPORT_USER
RESOURCE_MANAGER_CPU_ALLOCATION
RESULT_CACHE_MAX_RESULT
RESULT_CACHE_MAX_SIZE
RESULT_CACHE_MODE
RESULT_CACHE_REMOTE_EXPIRATION
SEC_CASE_SENSITIVE_LOGON
SEC_MAX_FAILED_LOGIN_ATTEMPTS
SEC_PROTOCOL_ERROR_FURTHER_ACTION
SEC_PROTOCOL_ERROR_TRACE_ACTION
SEC_RETURN_SERVER_RELEASE_BANNER
XML_DB_EVENTS

Новые параметры - Selection

- MEMORY TARGET and MEMORY MAX TARGET
 - Default: 0
 - Value: *integer* [K | M | G]
 - Purpose: Specifies the complete plus the maximum memory available to the Oracle server





План

- Подготовка
- Upgrade
- Новое в 11g
- Полезные советы

- Параметры
- Процессы
- Прочее
- Инструменты



Новые фоновые процессы

Process Name	Description	Found
ACMS	In an RAC environment, this per-instance process (Atomic Controlfile to Memory Service) is an agent which contributes to ensuring a distributed SGA memory update is either globally committed on success or globally aborted in the event of a failure.	RAC
DIA0	Responsible for hang detection and deadlock resolution.	ALL
DIAG	Performs diagnostic dumps and executes global oradebug commands.	ALL
DBRM	The Resource Manager process is responsible for setting Resource Plans and other Resource Manager related tasks.	ALL
EMNC / e0xx	The Event Monitor Coordinator coordinates the event management and notification activity in the database which includes Streams Event Notifications, Continuous Query Notifications and Fast Application Notifications.	ALL with any registered event activity (optional non-fatal)
FBDA	The process archives historical rows for tracked tables into flashback data archives and manages the flashback archives.	ALL.
GMON	Maintains disk membership in ASM disk groups	ASM
GTX0-j	Provides transparent support for XA global transactions in a RAC environment. The database autotunes the number of these processes based on the workload of XA global transactions.	RAC only

Новые фоновые процессы

Process Name	Description	Found
KATE	Performs proxy I/O to an ASM metafile when a disk becomes offline.	ASM, spawned on demand.
MARK	Marks ASM Allocation Units as stale following a missed write to an offline disk.	ASM, spawned on demand.
PSP0	Spawns Oracle processes.	ALL
RMSn	The RAC Management Processes perform manageability tasks for RAC, e.g. creation of RAC related resources when new instances are added to the clusters	RAC only
RMSN	In a RACenvironment, this process manages background slave process creation and communication on remote instances. These background slave processes perform tasks on behalf of a coordinating process running in another instance.	RAC only
SMCO / Wnnn	The space management coordinator process coordinates the execution of various space management related tasks, such as proactive space allocation and space reclamation. It dynamically spawns slave processes (Wnnn) to implement the task.	ALL (optional non-fatal)
VKTM	The Virtual Keeper of TiMe ² is responsible for providing a Wall-Clock time (updated every second) and Reference-Time Counter (updated every 20ms and available only when running at elevated priority).	ALL

Background Processes

- Example:

```
select name, description from v$bgprocess, v$process
where paddr=addr;
```

NAME	DESCRIPTION	NAME	DESCRIPTION
ARC0	Archival Process 0	MMNL	Manageability Monitor Pr 2
ARC1	Archival Process 1	MMON	Manageability Monitor Pr
ARC2	Archival Process 2	PMON	process cleanup
ARC3	Archival Process 3	PSP0	process spawner 0
CJQ0	Job Queue Coordinator	QMNC	AQ Coordinator
CKPT	checkpoint	RECO	distributed recovery
DBRM	Resource Manager process	SMCO	Space Manager Process
DBW0	db writer process 0	SMON	System Monitor Process
DIA0	diagnosibility process 0	VKTM	Virtual Keeper of Time pr
DIAG	diagnosibility process		
DSKM	slave DiSKMon process		
FBDA	Flashback Data Archiver Pr.		
LGWR	Redo etc.		
MMAN	Memory Manager		

План

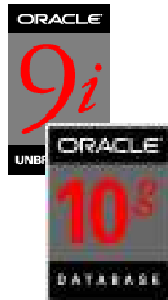
- Подготовка
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Параметры
Процессы
Прочее
Инструменты



CONNECT Role

- The CONNECT Role has been changed since 10g^{R2}:



GRANTEE	PRIVILEGE
CONNECT	CREATE VIEW
CONNECT	CREATE TABLE
CONNECT	ALTER SESSION
CONNECT	CREATE CLUSTER
CONNECT	CREATE SESSION
CONNECT	CREATE SYNONYM
CONNECT	CREATE SEQUENCE
CONNECT	CREATE DATABASE LINK



GRANTEE	PRIVILEGE
CONNECT	CREATE SESSION

CONNECT Role

- Find out affected database users:

```
SELECT grantee
FROM dba_role_privs
WHERE granted_role = 'CONNECT' and
grantee NOT IN ('SYS', 'OUTLN', 'SYSTEM',
               'CTXSYS', 'DBSNMP',
               'LOGSTDBY_ADMINISTRATOR',
               'ORDSYS', 'ORDPLUGINS',
               'OEM_MONITOR', 'WKSYS',
               'WKPROXY', 'WK_TEST',
               'WKUSER', 'MDSYS',
               'LBACSYS', 'DMSYS', 'WMSYS',
               'EXFSYS', 'SYSMAN',
               'MDDATA', 'XDB', 'ODM',
               'SI_INFORMTN_SCHEMA');
```



SYSAUX

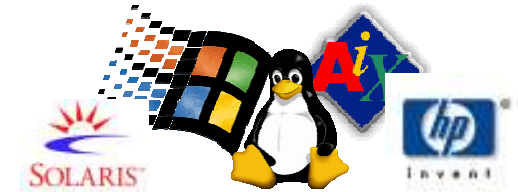
- SYSAUX-Tablespace
 - SYSAUX служит для хранения системных репозиторий
 - SYSAUX не может быть удалено или переименовано
 - SYSAUX не может быть переведено в read-only
 - SYSAUX - обязательный компонент
 - Recommended size: 500 MB
 - ASSM and Locally Managed
 - Size estimation: `?/rdbms/admin/utlsyxsz.sql`
- View V\$SYSAUX_OCCUPANTS shows:
 - Repositories and their owner
 - Space usage
 - Procedures for moving repositories



Instant Client

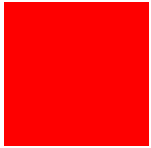
- Universal. small footprint Oracle client
 - Works with OCI, OCCI, Pro*C, ODBC and JDBC applications
 - No OUI Oracle Client installation necessary anymore
- Easy and simple deployment
 - Download it from OTN
 - Copy it to the target/client system(s)
 - Add its directory to `PATH/LD_LIBRARY_PATH` and set `TNS_ADMIN`
 - For ODBC run the provided batch script
- <http://www.oracle.com/technology/tech/oci/instantclient/instantclient.html>

Instant Client



- Instant Client Download

- Instant Client for Microsoft Windows (32-bit)
- Instant Client for Microsoft Windows 64-bit Itanium
- Instant Client for Microsoft Windows (x64)
- Instant Client for Linux x86
- Instant Client for Linux x86-64
- Instant Client for Linux Itanium
- Instant Client for Linux AMD64 (32-bit and 64-bit)
- Instant Client for Linux on Power (32-bit)
- Instant Client for Linux on Power (64-bit)
- Instant Client for z/Linux (32-bit and 64-bit)
- Instant Client for Mac OS X (PPC only)
- Instant Client for Solaris Operating System (SPARC) (64-bit)
- Instant Client for Solaris Operating System (SPARC) (32-bit)
- Instant Client for Solaris x86
- Instant Client for Solaris x86-64
- Instant Client for HP-UX PA-RISC (64-bit)
- Instant Client for HP-UX PA-RISC (32-bit)
- Instant Client for AIX5L (64-bit)
- Instant Client for AIX5L (32-bit)
- Instant Client for HP Tru64 UNIX
- Instant Client for HP-UX Itanium (64-bit)
- Instant Client for HP-UX Itanium (32-bit)



Clients & Net

- Client certification - Note: 207303.1

		Database Release					
		11.1.0	10.2.0	10.1.0	9.2.0	9.0.1	8.1.7
C l i e n t	11.1.0	✓	✓	✓	✓		
	10.2.0	✓	✓	✓	✓		✓
	10.1.0	✓	✓	✓	✓		✓
	9.2.0	✓	✓	✓	✓	✓	✓
	9.0.1				✓	✓	✓
	8.1.7		✓	✓	✓	✓	✓

 Certified

 Supported but EHS

 Not supported anymore

 Never supported



Clients & Net

- Database links
 - Only supported if matrix shows ‚Supported‘ in both directions
 - Not supported means: Use it on your own risk
- JDBC certification
 - [Note:203849.1](#)
- Forms/Reports certification
 - Metalink ⇨ *Certify Tab* ⇨ *Development Tools*



Смена редакции XE, SE и EE

- SE ⇒ EE see [Note:117048.1](#)
 - Take a full backup
 - Uninstall SE
 - Install EE
 - Run `catalog.sql` and `catproc.sql` in the EE environment
- EE ⇒ SE see [Note:139642.1](#)
 - Only Export/Import with `exp/imp` or `expdp/impdp` will be supported
- XE ⇒ SE/SEone/EE
 - [Oracle® Database Express Edition Upgrade Guide 10.2.0.3](#)



Features not supported anymore in 11g

- Oracle Ultra Search
- Java Development Kit (JDK) 1.4
 - Oracle recommends JDK 5.0, but JDK 1.5 is fully supported, too
- CTXXPATH Index
 - Recommendation: use an XMLIndex instead

Feature Usage Overview

- Either use: `DBA_FEATURE_USAGE_STATISTICS`
- Or check in DatabaseControl:

The screenshot displays the Oracle Enterprise Manager 11g Database Control interface for a database instance named ORCL. The navigation tabs include Home, Performance, Alerts, **Server**, Schema, and Data Movement. The **Server** tab is highlighted with a red arrow and the number 1. Below the navigation tabs, the interface is divided into two main sections: Storage and Database Configuration. The Storage section lists various database components like Control Files, Tablespaces, and Datafiles. The Database Configuration section lists Memory Advisors, Automatic Undo Management, and Initialization Parameters. The **View Database Feature Usage** link is highlighted with a red arrow and the number 2.



План

- Подготовка
- Upgrade
- Новое в 11g
- Полезные советы

- Параметры
- Процессы
- Прочее
- Инструменты**



Enterprise Manager 11g

- Upgrading the EM configuration

- Creation per command line:

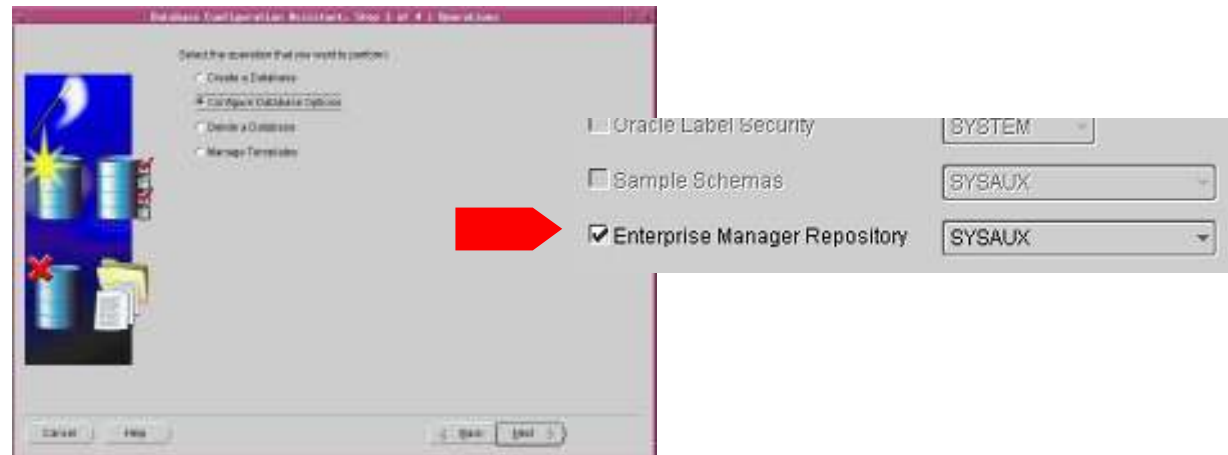
- **emca -upgrade**

```
emca -upgrade (db |  
asm | db_asm)  
[-cluster] [-silent]  
[parameters]
```

Upgrades the configuration of an earlier version of Enterprise Manager to the current version. This operation can be performed for database, ASM, or database and ASM instances together simultaneously. This does not upgrade the actual database or ASM instances, nor does it upgrade the Enterprise Manager software. Instead, it upgrades the configuration files for the specified instance so that they are compatible with the current version of the Enterprise Manager software. EMCA will attempt to upgrade all instances of the specified database and/or ASM target on the host, across all Oracle Homes (since it is likely that certain target properties, such as listener port or Oracle Home, have changed).

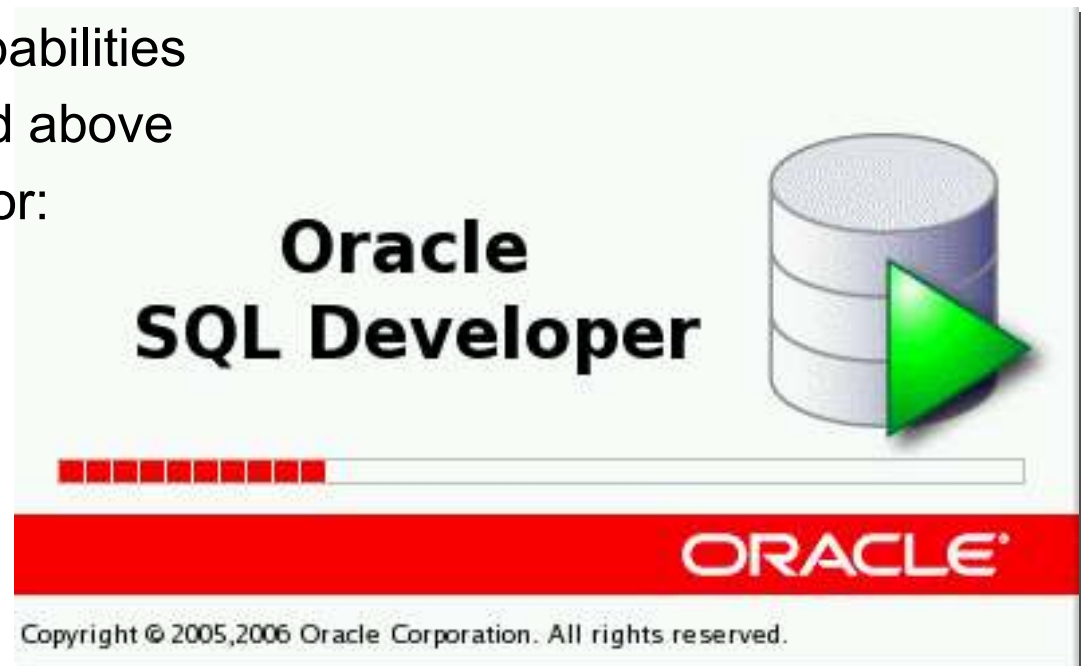
- Create an EM repository:

- **dbca**



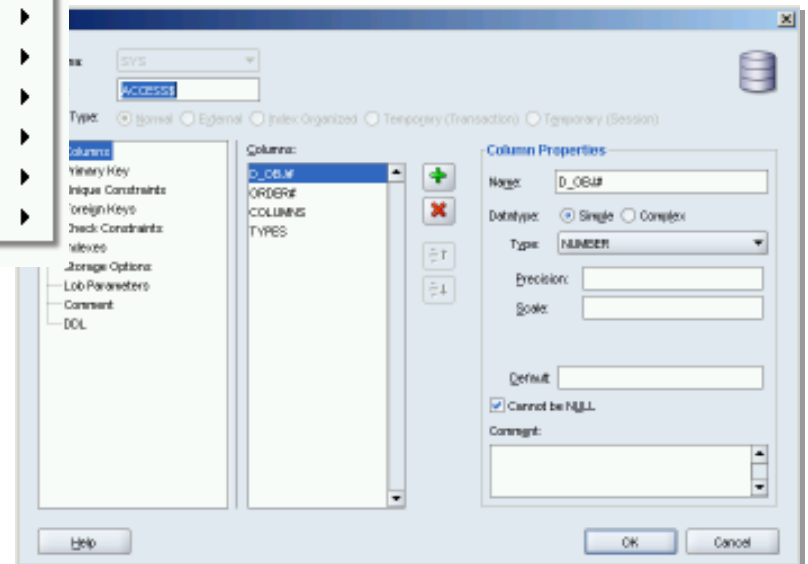
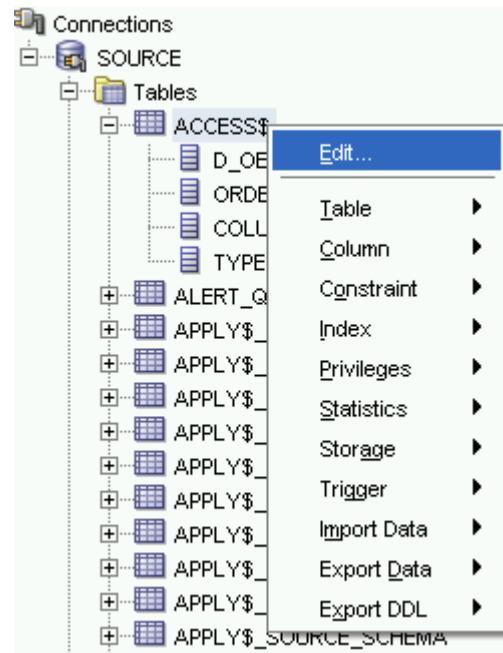
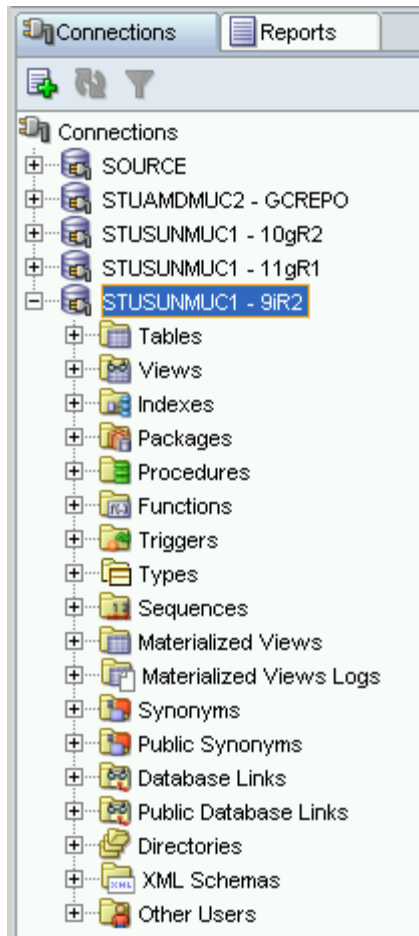
SQL Developer 1.5

- Developer tool at no extra cost
(Installation deploys V.1.1.3 - Update [available via OTN](#))
- Key-Features:
 - PL/SQL development and debugging
 - Extremely fast object browser
 - Excellent reporting capabilities
 - Supports Oracle 9i and above
 - Migration workbench for:
 - MS SQL-Server
 - MS Access
 - MySQL
 - APEX monitor



SQL Developer 1.5

- Connections and object browser



SQL Developer 1.5

- Reports

Version 1.2.1

Connections Reports Tables without Indexes Refresh: 0

3

2

1

Owner	Table Name
SYS	AQ\$_PUBLISHER
SYS	AQ\$_REPLAY_INFO
SYS	BOOTSTRAP\$
SYS	CDC_SYSTEM\$
SYS	CLU\$
SYS	COLLECTION\$
SYS	DBMS_DBUPGRADE_SOURCE\$
SYS	DBMS_DBUPGRADE_USERCAT\$
SYS	DBMS_UPG_ACTION_QUEUE
SYS	DBMS_UPG_CON_MAPPING
SYS	DBMS_UPG_DEBUG
SYS	DBMS_UPG_LOG\$
SYS	DBMS_UPG_OBJAUTH_C0\$
SYS	DBMS_UPG_OBJAUTH_CS\$
SYS	DBMS_UPG_OBJAUTH_CT\$
SYS	DBMS_UPG_OBJECT\$
SYS	DBMS_UPG_RLS_C0\$
SYS	DBMS_UPG_RLS_CS\$
SYS	DBMS_UPG_RLS_CT\$
SYS	DBMS_UPG_STATUS\$

APEX 3.0

- APEX = Application Express = ex-HTLMDB
 - GUI development environment
 - Easy to use - wizard driven
- APEX is available by default
 - No additional installation or license necessary
 - Current release: 3.1.1
- Two configuration steps:
 - `$ORACLE_HOME/apex/apxconf.sql`
 - `ALTER USER anonymous ACCOUNT UNLOCK;`



APEX

- APEX web page: apex.oracle.com

ORACLE Application Express

Welcome to apex.oracle.com

Evaluate Oracle Application Express by using the apex.oracle.com online service.

Oracle Application Express (Oracle APEX) is a rapid web application development tool for the Oracle database. Using only a web browser and limited programming experience, you can develop and deploy professional applications that are both fast and secure.

Login
apex.oracle.com
[Sign up for an account](#)

[What is Oracle APEX?](#) [Forum](#) [Community and Partners](#) [Podcasts and Viewlets](#)

[Packaged Applications](#) [Documentation](#) [Oracle by Example \(OBE\)](#) [Oracle Magazine Articles](#)

- ▶ [Getting Started Guide](#)
- ▶ [Application Express on OTN](#)
- ▶ [Release 3.0 New Features](#)
- ▶ [Download](#) Application Express
- ▶ [Configure PDF Printing](#)
- ▶ [Application Express and Web 2.0](#)
- ▶ [Application Express for Forms Developers](#)
- ▶ [Migrate your MS Access Applications](#)

Oracle Application Express is a supported feature of the Oracle database.

ORACLE DATABASE **10^g**

Data Pump

- Преимущества
 - Замена export/import
 - Поддерживается 10g и 11g
 - Не совместим с exp/imp
 - Синтаксис похож на exp/imp
 - Существенно быстрее exp/imp – за счет параллельной обработки!!!
 - Работает на стороне сервера
- Интерфейс
 - Command line: `expdp` and `impdp`
 - Package DBMS_DATAPUMP
 - API
- Documentation:
 - [Database Utilities](#) and [Note:553337.1](#)

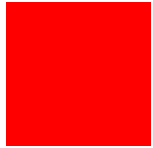


Data Pump in Enterprise Manager

The screenshot displays the Oracle Enterprise Manager 11g Database Control interface. At the top, the Oracle logo and 'Enterprise Manager 11g Database Control' are visible on the left, and navigation links for 'Setup', 'Preferences', 'Help', and 'Logout' are on the right. A 'Database' tab is active in the top right corner, and the user is logged in as 'SYS'. The main content area is titled 'Database Instance: SOURCE' and features a navigation bar with links for 'Home', 'Performance', 'Availability', 'Services', 'Data Movement', and 'Software and Support'. The 'Data Movement' link is highlighted with a red arrow and the number '1'. Below this, a 'Move Row Data' menu is highlighted with a red arrow and the number '2'. This menu includes options: 'Export to Export Files', 'Import from Export Files', 'Import from Database', 'Load Data from User Files', and 'Monitor Export and Import Jobs'. Other menu categories include 'Move Database Files' (Clone Database, Transport Tablespaces), 'Streams' (Setup, Manage), and 'Advanced Replication' (Setup, Manage). A 'Related Links' section at the bottom provides various utility links such as 'Access', 'Alert Log Contents', 'Blackouts', 'Metric and Policy Settings', 'Monitor in Memory Access Mode', 'SQL Worksheet', 'Advisor Central', 'All Metrics', 'EM SQL History', 'Metric Collection Errors', 'Policy Groups', 'Target Properties', 'Alert History', 'Baseline Metric Thresholds', 'Jobs', 'Monitoring Configuration', 'Scheduler Central', and 'User-Defined Metrics'. A footer bar at the bottom contains the 'Database' link and the same navigation links as the top right.

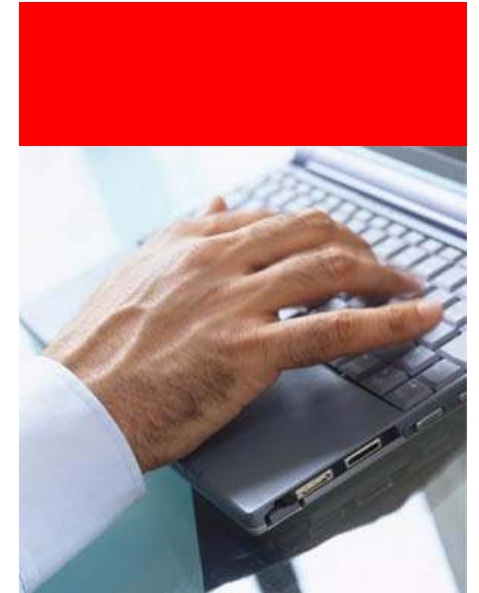
Data Pump Capabilities

- Полезно знать
 - Перемещает данные в tablespaces
 - Возможность извлекать DDLs из файла дампа
 - Можно включить/исключить определенные объекты/схемы с помощью EXCLUDE или INCLUDE
 - Импорт через сеть, без создания дампа-файла
 - ```
impdp system/orc NETWORK_LINK=db_link1 FULL=Y
```
  - Сжатие – уменьшение dump file  $\geq 50\%$ 
    - ```
expdp system/orc DUMPFILE=DPDIR:full.dmp  
FULL=y NOLOGFILE=y COMPRESSION=all
```
 - Шифрование – можно шифровать дампа-файлы - requires Advanced Security Option
 - ```
expdp system/orc DUMPFILE=DPDIR:enc.dmp
ENCRYPTION_PASSWORD=secret ENCRYPTION_ALGORITHM=AES128
```



# План

- Подготовка
- Upgrade
- Новое в 11g
- Полезные советы





## Полезные советы

- **Никогда** не делайте множество изменений одновременно!
- Фиксируйте **все** изменения!
- **Всегда (!!!)** используйте реальные данные для тестирования!
- Уделяйте достаточное внимание тестам.
- Создавайте стратегию отката!
- **Важно!** Протестируйте вашу стратегию – она действительно работает??
- Please remember:  
**Upgrade never has been easier - but you still have to test!!!**



# Информация

- Общая информация:  
[www.oracle.com/database](http://www.oracle.com/database)
- Технологическая информация:  
Oracle Technology Network  
[otn.oracle.com](http://otn.oracle.com)
- Metalink:  
[metalink.oracle.com](http://metalink.oracle.com)