

Migrating/Upgrading to Oracle Version 8.1.5: UNIX (BC-DB- ORA



HELP.BCDBORA

Release 4.6C



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Symbole

Symbol	Bedeutung
	Achtung
	Beispiel
	Empfehlung
	Hinweis
	Syntax
	Tip

Inhalt

Migrating/Upgrading to Oracle Version 8.1.5: UNIX (BC-DB-ORA)	5
Requirements.....	6
Preparations.....	8
Required Memory Space	9
Write Authorization for the Directory /oracle	10
Setting umask for ora<sapsid>.....	11
Changing Database Administration Rights	12
Operating System Requirements.....	14
Importing Migration Data.....	15
Checking the Requirements Within the Database	16
Modifying the Oracle Initialization Parameters	17
For R/3 Kernel Release 4.5A, Copy the Oracle Client Library	18
Backing Up the Oracle Database	19
Importing the Software	20
Shutting Down the R/3 System	21
Extending the Tablespace	22
Calling the Script PREMIG.SQL	23
Shutting Down the Database.....	24
Shutting Down the Listener Process	25
Checking and Setting the Environment Variables	26
Starting the ORACLE Universal Installer	28
Migrating the Database.....	30
Checking the oratab Entry.....	31
Calling the Oracle Data Migration Assistant	32
Calling the script POSTMIG.SQL	34
Follow-up Tasks	35
Copying the File init<SAPSID>.sap	36
Modifying the Oracle Initialization Parameters	37
Copying *.ora Files.....	38
Modifying the File listener.ora	39
Checking the Read Authorization of the User <sapsid>adm.....	40
Importing the Current Patchset	41
Starting the Listener Process	42
Importing Oracle Client Software	43
Creating the SAPDBA Role	44
Importing the Current SAP Tools	45
Installing the SAP Backup Library and/or the Legato Storage Manager.....	46

Migrating/Upgrading to Oracle Version 8.1.5: UNIX (BC-DB-ORA)

The following document describes database migration and upgrade from Oracle versions 7.3.x, 8.0.4 and 8.0.5 to Oracle version 8.1.5.

Oracle's menu-driven tool, *Universal Installer*, is used for database migration.

The document consists of the following sections:

[Requirements \[Seite 6\]](#)

[Preparations \[Seite 8\]](#)

[Importing the Software \[Seite 20\]](#)

[Migrating the Database \[Seite 30\]](#)

[Follow-up Tasks \[Seite 35\]](#)

[Installing the SAP Backup Library and/or the Legato Storage Manager \[Seite 46\]](#)

Requirements

Requirements

Before you begin, make sure your system complies with the requirements specified in this section.

SAP Notes

This document refers to the following SAP Notes:

Number	Topic	Remarks
181192	Supplements for migration/upgrade to 8.1.5	This Note is required.
181195	Current patchset 8.1.5	This Note is required for follow-up activities.
181201	Problems during migration to 8.1.X	This Note is required if problems arise.
180430	Client software ORACLI.CAR for Oracle 8.1.5 UNIX	This Note is required for import of client software following migration.
98228	Transport after database upgrade to Oracle 8.1.X	This Note is required for live operation of R/3 3.0x/3.1x and Oracle 8.1.5.
142635	Installation of the SAP backup library	This Note is required for installation of the SAP backup library and the Legato Storage Manager.

You can request the required Notes in SAPNet - R/3 Frontend before you start migration and upgrade. If you do not have a connection to SAPNet, you can use the fax request form included in the software package.

Software Requirements

Operating System Version

Make sure your operating system version complies with SAP requirements. SAP has approved specific combinations of operating system version, database version, R/3 Release, and R/3 kernel release. The approved software combinations are described in the following Notes:

Approved operating systems for Oracle

R/3 Release	Note Number
3.0x/3.1x	23875
4.0x/4.5x	85838
4.6x	156548

Oracle Version

Your database must have software version 7.3.x, 8.0.4 or 8.0.5.

If you are migrating from **32-bit** to **64-bit** Oracle **software**, you must first perform all the tasks that will enable you to run 64-bit applications on your operating system.

Then, you can migrate your Oracle database to version 8.1.5 (64-bit) as described in this chapter.



The procedure for migration to Oracle 8.1.5 is identical for 32-bit and 64-bit software.

Preparations

Preparations

The following preparations have to be performed:

[Required Memory Space \[Seite 9\]](#)

[Write Authorization for the Directory /oracle \[Seite 10\]](#)

[Setting umask for ora<sapsid> \[Seite 11\]](#)

[Changing Database Administration Rights \[Seite 12\]](#)

[Operating System Requirements \[Seite 14\]](#)

[Importing Migration Data \[Seite 15\]](#)

[Checking the Requirements Within the Database \[Seite 16\]](#)

[Modifying the Oracle Initialization Parameters \[Seite 17\]](#)

[For R/3 Kernel Release 4.5A, Copy the Oracle Client Library \[Seite 18\]](#)

[Backing Up the Oracle Database \[Seite 19\]](#)

Required Memory Space

Use

The memory space required for the directories `/oracle/<SAPSID>`, `/oracle/stage` and `/tmp` is specified in **Note 181192**.

Procedure

Make sure the required memory space is available. A large portion of file system space can be reserved for administrative information or for the user `root`!

Write Authorization for the Directory /oracle

Write Authorization for the Directory /oracle

The user `ora<sapsid>` must have a write authorization for the directory `/oracle`.

To check if this authorization exists, proceed as follows:

1. Log on to your system with the user `ora<sapsid>`.
2. Enter the following commands:

```
touch /oracle/write_test
rm /oracle/write_test
```

If the user `ora<sapsid>` does not have a write authorization, log on to your system with the user `root` and enter the command:

```
chmod 775 /oracle
```

Setting umask for ora<sapsid>

Enter the following commands with the user ora<sapsid>:

```
umask
```

If umask does not return the value '022', set umask:

```
umask 022
```

Changing Database Administration Rights

Changing Database Administration Rights



You must perform the following step only if you have ORACLE start release 7.x.

To increase the security of your R/3 System, only the database user `SYSTEM` may be given the role `DEA` in release 4.x. The user `<sapsid>adm` must therefore be assigned the authorizations `SYSOPER` and `SYSDBA`, and the role `SAPDBA`.

The `SYSDBA` authorization allows the user `<sapsid>adm` to create backups with the Oracle Recovery Manager in the SAP Computing Center Management System (CCMS).

If you want to change the database administration rights, you must perform certain actions in your operating system:

1. Change the UNIX groups and UNIX users

Instructions on how to create UNIX groups and assign UNIX users can be found in the chapters on operating systems in the section *OS Dependencies* of the installation documentation. Log on to your system with the user `root` and proceed as follows:

- i. Create a new UNIX group called `oper`.
- ii. Assign the users `<sapsid>adm` and `ora<sapsid>` to this group.

Enter the assignments as follows:

```
<sapsid>adm:  sapsys, oper, dba
ora<sapsid>:  dba, oper
```

2. Set up the OPS\$ connect mechanism

When you set up the OPS\$ connect mechanism, the new database user `OPS$<SAPSID>ADM` and the table `SAPUSER` are created. All R/3 programs first log on to the database by means of the OPS\$ connect mechanism and obtain the current password from the table `SAPUSER`. This password is then used to logon with the SAP database user `SAPR3`.

The tool `chdbpass` is used to set up the connect mechanism. This tool writes the log `$ORACLE_HOME/sapreorg/chdbpass.log`.

Proceed as follows:

- i. Mount the CD *SAP Kernel* (current R/3 kernel release).
Instructions on how to mount the CD can be found in the chapters on operating systems in the section *OS Dependencies* of the installation documentation.
- ii. Log on at the UNIX level with the user `ora<sapsid >`.
- iii. Make sure that the database is started and that the R/3 System is shut down.
- iv. Copy the tool `chdbpass` from the CD to the directory `$ORACLE_HOME/dbs` by entering:

```
cd $ORACLE_HOME/dbs
```

Changing Database Administration Rights

```
cp /<CD-Dir>/UNIX/COMMON/INSTALL/CHDBPASS chdbpass
```

Replace <CD-Dir> with the name of mount directory on the CD.

- v. Start `chdbpass` by entering:

```
./chdbpass
```

This tool checks that the settings of the environment variables `ORACLE_HOME` and `ORACLE_SID` are correct.

Confirm the settings.

- vi. Enter the current password of the Oracle user `SYSTEM`.

`chdbpass` performs all database actions with this user.

- vii. From the `chdbpass` menu, choose the option
Initialize OPS-Connect and change password of SAPR3.

You will first be requested to enter the password for the new user `OPS$<sapsid>adm` and then the new password for the user `SAPR3`. You can also enter the old password for `SAPR3`.

- viii. If you want to, you can change the passwords for the users `SYS` and `SYSTEM`.

To do so, choose the options *c)* and *d)* from the `chdbpass` menu



Make sure that the users `<sapsid>adm` and `ora<sapsid>` are assigned to the group `dba`.

Operating System Requirements

Operating System Requirements

ReliantUNIX

Make sure that the language variable is set to `En_US.ASCII`. This is the only permissible value for Oracle migration.

You can be sure that this value is set if the file `/etc/default/language` contains only the one line:

```
LANG=En_US.ASCII
```

Solaris

1. Make sure that the program `ld` is called via the path `/usr/ccs/bin`.

Check the path using the UNIX command **which ld**.

The system response must be: `/usr/ccs/bin/ld`

If the system indicates a different path, for example, `/usr/ucb/bin/ld`, you must change the content of the `PATH` variables to the specified path.

To check if this action was successfully performed, enter **which ld** again.

2. Check the environment of the user `ora<sapsid>`:

The environment variable `OPT` must not be set!

If it is, you must delete it from the environment before calling the `Universal Installer` by entering the following command (C shell):

```
unsetenv OPT
```

Importing Migration Data



You must import the data from the CD *ORACLE RDBMS 8.1.5*

To import the data and make the preparations required for execution of the *Universal Installer*, proceed as follows:

1. Create a staging area.



If you are updating several Oracle systems, you must create only one staging area.

Log on to your system with the user `ora<sapsid>`.

The directory `/oracle/stage` may still contain the staging areas of the old Oracle release:

```
/oracle/stage/stage_723  
/oracle/stage/stage_733  
/oracle/stage/stage_734  
/oracle/stage/stage_804  
/oracle/stage/stage_805
```

These directories can be used to reset the system if an error occurs during migration.

If your system has sufficient memory space, SAP recommends that you delete the old staging areas only **after** successful migration or when you no longer need them.

If your system does not have sufficient memory space, you can now delete the **contents** of these directories.

2. Create an empty directory called `/oracle/stage/815_32`: “32” stands for a 32-bit installation. For a 64-bit installation, create an empty directory called `/oracle/stage/815_64`.

To create this directory, enter the commands:

```
cd /oracle/stage  
mkdir 815_32 bzw. mkdir 815_64
```

Import the data from the CD to the staging area.

Enter the commands:

```
cd /<CD-Dir>/UNIX  
./UPGRADE.ORA
```

Replace `<CD-Dir>` with the name of the mount directory on the *RDBMS* CD, for example, `sapcd`.

The data is then imported into the directory `/oracle/stage/815_32` or `/oracle/stage/815_64`.

Checking the Requirements Within the Database

Checking the Requirements Within the Database

The following script checks the requirements within the ORACLE database. Log on with the user ora<sapsid> and execute the commands:

```
cd /oracle/stage/815_32/SAP bzw. 815_64/SAP
sqlplus system/<password>
>@CHECKS.SQL
>exit
```

Carry out all the instructions in this script before you begin migration. The final instruction in the script explains how to set the environment variable NLS_LANG.



Note the value of the environment variable NLS_LANG – you have to set this value later.

Modifying the Oracle Initialization Parameters

Modify the file `$ORACLE_HOME/dbs/init<SAPSID>.ora` as follows:

1. Replace all question marks with `/oracle/<SAPSID>`. The following parameters are affected:

```
background_dump_dest
user_dump_dest
core_dump_dest
log_archive_dest
```

2. If the parameters listed below are available, delete them.

As parameter names can contain upper-case and lower-case letters, you must first deactivate the case-sensitive search function in the editor.

```
compatible
optimizer_features_enable
checkpoint_process
ccf_io_size
_lgwr_async_write
async_write
use_readv
```

3. Insert the following parameters. If they already exist, modify the values as required:

```
log_checkpoint_interval = 300000
db_file_multiblock_read_count = 8
```

4. Rename `db_writers` to `dbwr_io_slaves`.

If `db_writers` is commented out:

Leave it as such but rename it anyway because the parameter `db_writers` does not exist in version 8.1.5.

For R/3 Kernel Release 4.5A, Copy the Oracle Client Library

For R/3 Kernel Release 4.5A, Copy the Oracle Client Library

If the database runs on the same computer as an R/3 instance of this database with R/3 kernel release 4.5A, proceed as follows:

1. Log on to the database computer with the user <sapsid>adm.
2. Copy the Oracle client library to the R/3 kernel directory by entering:

```
cp $ORACLE_HOME/lib/libclntsh.* /usr/sap/<SAPSID>/SYS/exe/run
```

Backing Up the Oracle Database

Before you start the upgrade or migration, create a complete backup of your database.



If you do not create a database backup before you start the upgrade or migration, you could lose data!

Importing the Software

Importing the Software

You have to perform the following steps in order to import the required software.

[Shutting Down the R/3 System \[Seite 21\]](#)

[Extending the Tablespace \[Seite 22\]](#)

[Calling the Script PREMIG.SQL \[Seite 23\]](#)

[Shutting Down the Database \[Seite 24\]](#)

[Shutting Down the Listener Process \[Seite 25\]](#)

[Checking and Setting the Environment Variables \[Seite 26\]](#)

[Starting the ORACLE Universal Installer \[Seite 28\]](#)

Shutting Down the R/3 System

Shut down the R/3 System **with the user** <sapsid>adm.



The R/3 System must be shut down before you begin the import procedure.

Enter the following command using the user <sapsid>adm:

```
stopsap r3
```

If you use a Standalone Database Server, use the Service Manager to shut down the R/3 System on Windows NT application servers.

Extending the Tablespace

Extending the Tablespace



You only have to perform this step if you have Oracle start release 7.x.

Log on to the system again with `ora<sapsid>`.

Extend the tablespace `SYSTEM` by 300 MB using the program `sapdba`.

Calling the Script PREMIG.SQL

Call the script `PREMIG.SQL` by entering:

```
cd /oracle/stage/815_32/SAP bzw. 815_64/SAP
sqlplus system/<password>
>@PREMIG.SQL
>exit
```

Shutting Down the Database

Shutting Down the Database

To shut down the database, enter the command:

```
svrmgrl  
>connect internal  
>shutdown  
>exit
```

Shutting Down the Listener Process

The listener process must be shut down by the user that started it. This is usually `ora<sapsid>`. Check this using the command:

```
ps -ef | grep tnslnsr    or    ps -axu | grep tnslnsr
```

To shut down the listener process, enter the command:

```
$ORACLE_HOME/bin/lsnrctl stop
```

Determine whether any Oracle processes are still active for this SAPSID by entering the command:

```
ps -afe | fgrep <SAPSID>
```

Terminate any Oracle processes that may still be active.



Make sure that processes which log on to the database, like CRON jobs, are not active during migration.

Reschedule these processes!

Checking and Setting the Environment Variables

Checking and Setting the Environment Variables

1. Make sure the following environment variables are **not** set:

```
TWO_TASK
ENV
```

2. Set the following environment variables:

Environment variable	Value
DISPLAY	<Computer name>:0
ORACLE_BASE	/oracle
ORACLE_SID	<SAPSID>
ORACLE_HOME	/oracle/<SAPSID>/815_32 or 815_64
NLS_LANG	<Use the value in the script CHECKS.SQL>
ORA_NLS33	\$ORACLE_HOME/ocommon/nls/admin/data
STAGING_AREA	/oracle/stage/815_32 bzw. 815_64
LIBRARY_PATH	\$ORACLE_HOME
SAPDATA_HOME	/oracle/<SAPSID>

Set the environment variables to `$ORACLE_HOME/lib` or `$ORACLE_HOME/lib64` depending on your operating system. When importing 32-bit Oracle software, set the environment variable to `$ORACLE_HOME/lib`. When importing 64-bit Oracle software, set the environment variable to `$ORACLE_HOME/lib64`. The Digital UNIX operating system is an exception to this rule. For Digital UNIX, always set the environment variable to `$ORACLE_HOME/lib`.

Operating system	Environment variable	Value
AIX	LIBPATH	<code>\$ORACLE_HOME/lib</code> or <code>lib64</code>
Reliant UNIX, Solaris	LD_LIBRARY_PATH	<code>\$ORACLE_HOME/lib</code> or <code>lib64</code>
Digital UNIX	LD_LIBRARY_PATH	<code>\$ORACLE_HOME/lib</code>
HP-UX	SHLIB_PATH	<code>\$ORACLE_HOME/lib</code> or <code>lib64</code>

Enter the command:

```
set path = ($ORACLE_HOME/bin $path)
```

Make sure that the new variables are permanently set in the profiles of the users `<sapsid>adm` and `ora<sapsid>`.

Checking and Setting the Environment Variables

You can set these variables by editing the files `.dbenv_<host>.sh` and `.dbenv_<host>.csh` in the home directories of `<sapsid>adm` and `ora<sapsid>` using any editor.

**Only for AIX:** Adapting the AIX kernel

If several Oracle instances run on one computer, you must shut these down before adapting the kernel!

To adapt the kernel, proceed as follows:

1. Log on to the system with user `ora<sapsid>` if you are not already logged on.
2. Change to the directory `/oracle/stage/815_32` or `/oracle/stage/815_64/pre-install` using the command:
`cd /oracle/stage/815_32` or
`cd /oracle/stage/815_64/pre-install .`
3. Enter the following `su` command to ensure that the user `root` is assigned the environment of `ora<sapsid>`:
`su root`
4. Call the script `rootpre.sh` by entering:
`./rootpre.sh`
5. Log off with the user `root` by entering:
`exit`

Starting the ORACLE Universal Installer

Starting the ORACLE Universal Installer




Before you continue with the migration/upgrade procedure, make sure that you have completed all of the above steps correctly!

Start the ORACLE Universal Installer with the user ora<sapsid>:

```
cd /oracle/stage/815_32 bzw. 815_64
./runInstaller
```

When you start the Universal Installer, a series of windows appears:

1. “Welcome”
Continue by choosing *Next*.
2. “File Locations Destination...”
Check that the variable `$ORACLE_HOME` is correctly set. The relevant directory must be empty! Continue by choosing *Next*.
3. When you run the Universal Installer for the first time, the following menu appears:
“UNIX Group Name”
Enter `dba` as the group name and confirm your entry by choosing *Next*.
A dialog box appears.
Execute the file `/tmp/Orainstall/orainstRoot.sh` with the user `root`, and confirm the dialog box by choosing *Retry*.
4. “Available Products”
Select **Oracle 8i Enterprise Edition 8.1.5.0.0** and confirm your selection choosing *Next*.
5. “Installation Types”
Select Custom as the installation type and continue by choosing *Next*.
6. “Available Product Components”
Select the products as follows: Deactivate Oracle Product Options and activate **all** options in **all** other categories. Confirm your selections by choosing *Next*.
7. “Component Locations”
Confirm this window by choosing *Next*.
8. “Upgrading or Migrating an Existing Database”

If this step does not appear, continue with the next step.
Upgrading or Migrating an Existing Database Database must **not** be activated.

Continue by choosing *Next*.

9. "Create Database"

Select No and continue by choosing *Next*.

10. "Installing Legato Storage Manager"



If this step does not appear, continue with the next step.

Select No and confirm your selection by choosing *Next*.

11. "Oracle Protocol Support"

Select TCP/IP and continue by choosing *Next*.

12. "Summary"

Check the entries under Summary. If all entries are correct, choose *Install*.

13. When the Install step has been completed, a dialog box appears.

Execute the file `$ORACLE_HOME/root.sh` with the user `root`, and confirm the dialog box by choosing *Ok*. Then continue by choosing *Next*.

14. Cancel **all** other tools that the system automatically calls by choosing *Cancel* and then *Ok*.

15. Exit the ORACLE Universal Installer by choosing *Exit* and then *Yes*.

Migrating the Database

Migrating the Database



The steps in this chapter must be performed before any type of release upgrade. They also apply to upgrades from 8.0.x to 8.1.x.

Please perform the following steps to migrate the database.

[Checking the oratab Entry \[Seite 31\]](#)

[Calling the Oracle Data Migration Assistant \[Seite 32\]](#)

[Calling the script POSTMIG.SQL \[Seite 34\]](#)

Checking the oratab Entry

The file `/var/opt/oracle/oratab` must contain the following entry:

```
<SAPSID>:<ORACLE_HOME>:N
```

If this entry does not exist, insert it using a text editor.



<\$ORACLE_HOME> must refer to the old ORACLE_HOME directory and not to the new one!

Calling the Oracle Data Migration Assistant

Calling the Oracle Data Migration Assistant

Call the Oracle Data Migration Assistant with the user ora<sapsid>:

```
odma
```

When you start the Oracle Data Migration Assistant, a series of windows appears:

1. “Welcome”

Continue by choosing *Next*.

2. “Before You Migrate or Upgrade”

Check the requirements and continue by choosing *Next*.

3. “Select a Database Instance”

Select an instance and continue by choosing *Next*.

4. “Database Password and INIT.ORA File”

Check the entries and continue by choosing *Next*.

5. “Choose Migration Type”



If this step does not appear, continue with the next step.

Select Default and confirm your selection by choosing *Next*.

6. “Back Up Your Database”

Confirm this window by choosing *Next*.

7. “Start the Migration or Upgrade”

Continue by choosing *Next*.

8. Confirm all the status dialog boxes that appear by choosing *Ok* or *Next*.

9. “Finish”

Check the file <SAPSID>SUMMARY.log by choosing *Results Summary*.

Start release 7.3.x must contain **four** “No Errors” entries; start release 8.0.x must contain **one** “No Errors” entry.

You can display the following files by choosing *View Log File*:

- For start release 7.3.x:
 - <SAPSID>altdbs.log
 - <SAPSID>cat.log
 - <SAPSID>checkspc.log
 - <SAPSID>mig.log
- For start release 8.0.x:
 - <SAPSID>update8unix.log

Calling the Oracle Data Migration Assistant



The log files are stored in the directory `$ORACLE_HOME/assistants/dbma`

When you have checked the log files, confirm the “*Finish*” window by choosing *Finish*.

Calling the script POSTMIG.SQL**Calling the script POSTMIG.SQL**

You can call the script POSTMIG.SQL by entering:

```
cd /oracle/stage/815_32/SAP bzw. 815_64/SAP
sqlplus internal
>@POSTMIG.SQL
>exit
```

Follow-up Tasks

This section describes what you have to do after having migrated the database:

[Copying the File init<SAPSID>.sap \[Seite 36\]](#)

[Modifying the Oracle Initialization Parameters \[Seite 37\]](#)

[Copying *.ora Files \[Seite 38\]](#)

[Modifying the File listener.ora \[Seite 39\]](#)

[Checking the Read Authorization of the User <sapsid>adm \[Seite 40\]](#)

[Importing the Current Patchset \[Seite 41\]](#)

[Starting the Listener Process \[Seite 42\]](#)

[Importing Oracle Client Software \[Seite 43\]](#)

[Creating the SAPDBA Role \[Seite 44\]](#)

[Importing the Current SAP Tools \[Seite 45\]](#)

Copying the File init<SAPSID>.sap

Copying the File init<SAPSID>.sap

Copy the files `init<SAPSID>.sap` and `init<SAPSID>.dba` from the old `$ORACLE_HOME/dbs` directory into the new one by entering:

```
cd /<old ORACLE_HOME>/dbs
cp init<SAPSID>.sap $ORACLE_HOME/dbs
cp init<SAPSID>.dba $ORACLE_HOME/dbs
```

Modifying the Oracle Initialization Parameters

Modify the file `$ORACLE_HOME/dbs/init<SAPSID>.ora` by inserting the parameter:

```
optimizer_index_cost_adj = 10
```

If this parameter already exists, modify the value accordingly

Copying *.ora Files

Copying *.ora Files

Copy files with the extension *.ora from the old/\$ORACLE_HOME/network/admin directory into the new one by entering:

```
cd /<altes ORACLE_HOME>/network/admin  
cp *.ora $ORACLE_HOME/network/admin
```

Modifying the File listener.ora

In the file `listener.ora`, change the line `ORACLE_HOME = /oracle/<SAPSID>` to `ORACLE_HOME = /oracle/<SAPSID>/815_32` or `815_64`. To make this change, enter:

```
cd $ORACLE_HOME/network/admin
```

Then call the text editor by entering

```
vi listener.ora
```

and change the specified line accordingly.

Checking the Read Authorization of the User <sapsid>adm

Checking the Read Authorization of the User <sapsid>adm

Make sure that the user <sapsid>adm has a read authorization for the files in the directory \$ORACLE_HOME/ocommon/nls/admin/data/* and for the directory \$ORACLE_HOME.

If this is not the case, enter the following commands with the user ora<sapsid>:

```
chmod 755 $ORACLE_HOME/ocommon/nls/admin/data/*
```

```
chmod 755 $ORACLE_HOME
```

Importing the Current Patchset

Log on at the operating system level with the user `ora<sapsid>`. Refer to **Note 181195** for the number of the current patchset and the import instructions.



If the Oracle RDBMS CD already contains the patchset, it can be found under `/oracle/stage/815_32/PATCH` or `/815_64/PATCH`. If it does not, copy it from `sapserv(x)` as described in **Note 181195**.

Starting the Listener Process

Starting the Listener Process

Log on with the user `ora<sapsid>` and enter the command:

```
$ORACLE_HOME/bin/lsnrctl start
```

Importing Oracle Client Software

Import the Oracle client software as described in **Note 180430**.

Creating the SAPDBA Role

Creating the SAPDBA Role

You need the SQL script `DBA_ROLE.SQL` on the *ORACLE RDBMS 8.1.5* CD to create the SAPDBA role.

1. Make sure this CD is mounted.
2. Copy the SQL script `DBA_ROLE.SQL` from the CD to the directory

`$ORACLE_HOME/dbs` by entering:

```
cd $ORACLE_HOME/dbs
```

```
cp /<CD-Dir>/UNIX/COMMON/DBA_ROLE.SQL sapdba_role.sql
```

3. Start the script with the user `ora<sapsid>` by entering:

```
cd $ORACLE_HOME/dbs
```

```
sqlplus internal @sapdba_role <SAPSID> UNIX
```

If the following error message appears, ignore it:

```
Error accessing PRODUCT_USER_PROFILE
Warning: Product user profile information not loaded!
You may need to run PUBLD.SQL as SYSTEM.
```

Importing the Current SAP Tools

Procedure

Import the current SAP database administration tools from the *ORACLE RDBMS 8.1.5* CD.

1. Make sure this CD is mounted.
2. Log on with the user `<sapsid>adm`.
3. Change to the R/3 executable directory by entering:

```
cd /usr/sap/<SAPSID>/SYS/exe/run
```

Delete the following old programs:

```
sapdba
```

```
brarchive
```

```
brbackup
```

```
brconnect
```

```
brrestore
```

```
brtools
```

Unpack the current programs using the call:

```
CAR -xvf <CD-Mount>/UNIX/<OS>/DBATOOLS.CAR .
```

4. Change the authorization for all programs **except** `brrestore` by entering:

```
su root
```

```
chown ora<sapsid> sapdba brarchive brbackup
```

```
chown ora<sapsid> brconnect brtools
```

```
chmod 775 sapdba brarchive brbackup brconnect brtools
```

```
exit
```

Result

Oracle version 8.1.5 is now installed on your database.

Installing the SAP Backup Library and/or the Legato Storage Manager

Installing the SAP Backup Library and/or the Legato Storage Manager

If you want to extend the backup functionality, like incremental backup, of your system, you must use one of the following backup libraries:

- SAP backup library
- Legato Storage Manager
- Backup tool of a third-party vendor that implements the backup interface of the Oracle Recovery Manager

The use of a backup library is optional. You can install a backup library any time after Oracle migration or upgrade.

For more information on how to install and use the SAP backup library and the Legato Storage Manager, see **Note 142635**.

When installing third-party backup software, follow the vendor's instructions.