Agile e6.0.2

Installation Manual for Oracle 10g for Agile e6.0.2 on Windows

Part Number: INSORAUNIX-602A

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Chapter 1
Introduction

This guide describes how to install Oracle 10g and adapt the Oracle database for the use with Agile e6, running under Windows 2000/XP/2003.

Where to Go for More Information

For additional information, consult the Oracle online installation and administration documentation, which is available on the Oracle DVD, or Agile e6 DVD in the folder Oracle_Win\db\doc. The Oracle Documentation Library, which contains information about Oracle databases, is available on a separate Oracle documentation CD, or on the Agile e6 DVD in the folder Oracle_Win\doc.

For information on installing Oracle 10g and Agile e6 at the same time refer to the document *Installing the Agile e6 on Windows Server (*PLM602_WindowsServer.pdf).

Note: The Agile e6 installation guides are available in the `doc` directory on the product DVD. To view Adobe® Portable Document Format (PDF) files, use Adobe Acrobat Reader® software, which is available at no charge at www.adobe.com.

Chapter 2
Installing Oracle 10g

This chapter provides instructions for installing the Oracle 10gR2 Server for use with Agile e6.

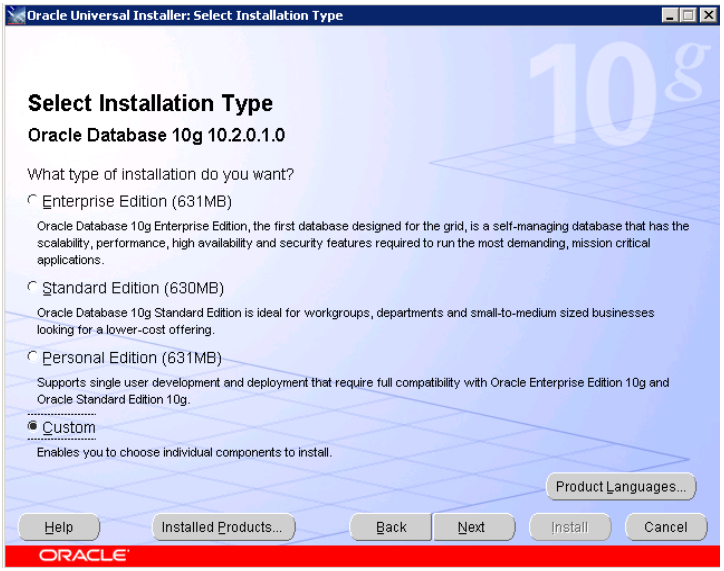
Starting the Oracle Server Installation

1. Insert the Oracle media and start **…\database\setup.exe**. Select **Advanced Installation**.

If you are using the Agile e6 DVD, start setup.exe in the folder Oracle_Win\database.

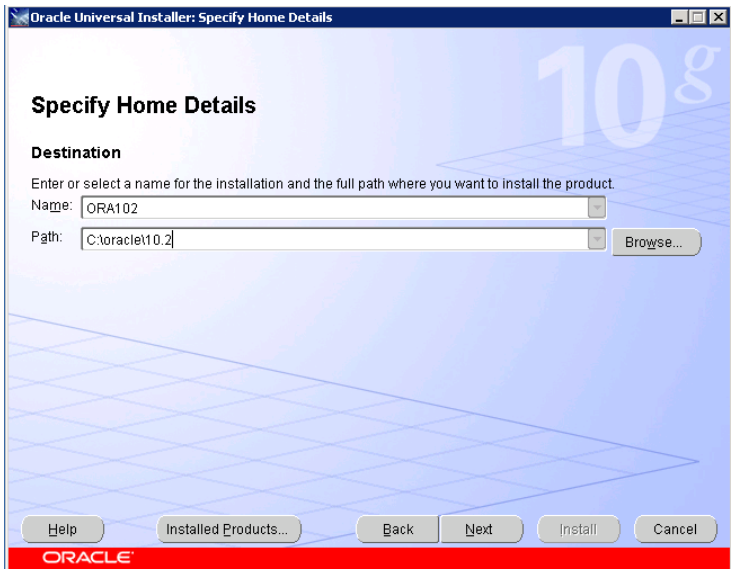
2. Click **Next** to continue.

Choose the **Custom** installation and click **Next**.



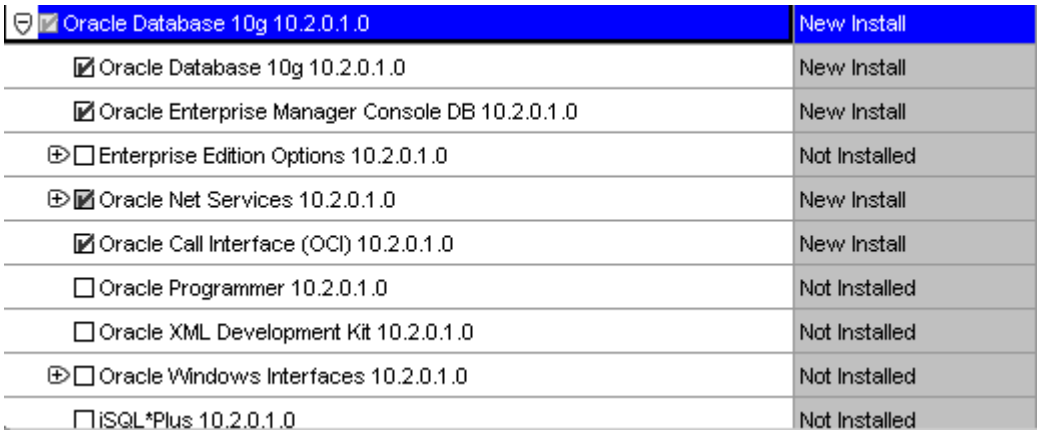
The window for defining the ORACLE_HOME name and path is opened.

3. Enter the full path of your Oracle home directory and click **Next**.

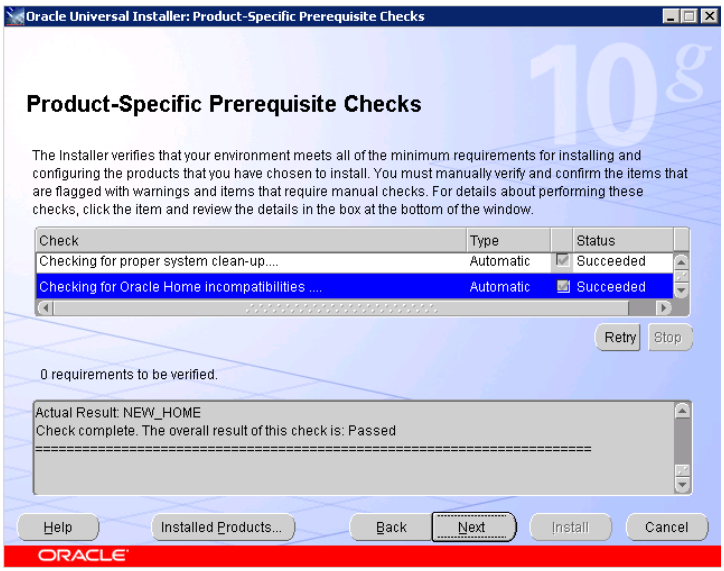


The next window lets you select the components to be installed.

4. Select the components you want to install and click **Next**.



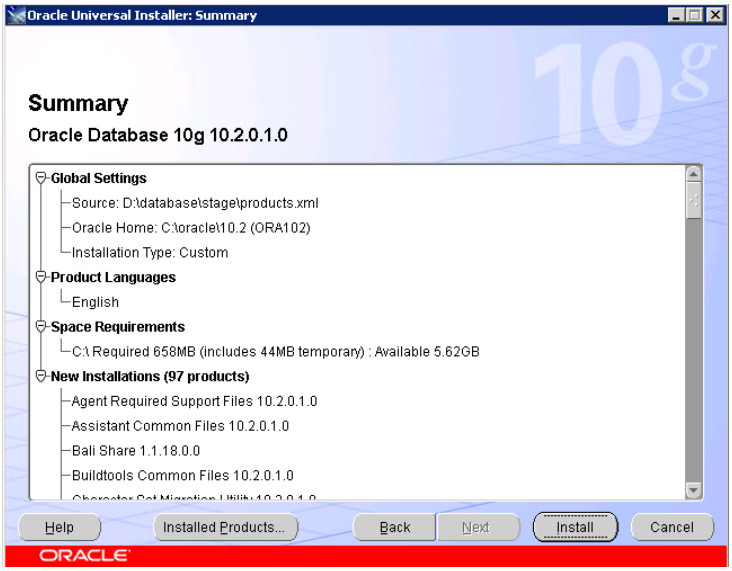
The Installer verifies that your environment meets all of the minimum requirements for 10gR2 installing and configuring. The overall result of the check must be 'Passed'. If some checks have failed, cancel the installation and verify once again if your system satisfies hardware and software requirements. Then start the installation again.



5. In the **Create Database** window, select **Install database Software only** as you will create the database later. Click **Next**.

6. Review the options you have chosen in the **Summary** window.

If necessary, click **Back** to make changes.



7. If the options are correct, click **Install** to start the installation.

Oracle 10g will be installed. This may take some time.

8. Click **Exit** to leave the Oracle Installer.

Installing Patches

The Oracle 10.2.0.2 patch has to be applied on the 10.2.0.1 ORACLE_HOME, the installation you did in the previous steps.

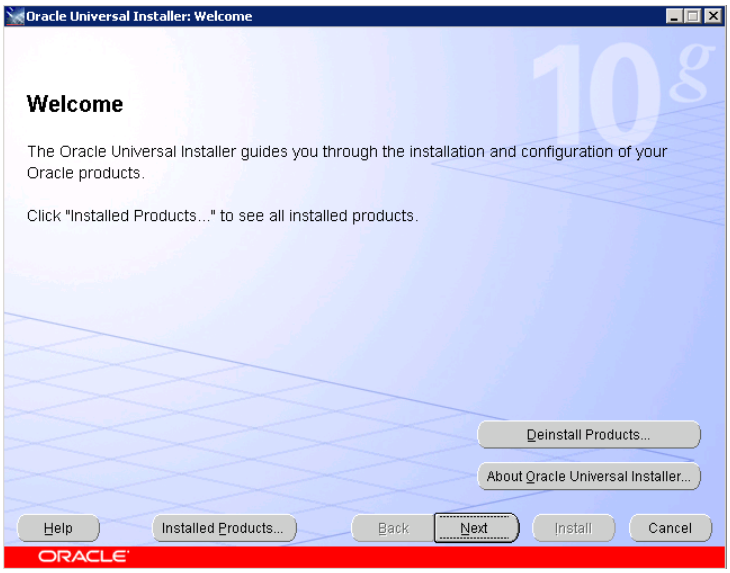
You have to run the setup.exe from the Oracle Patch after you have installed the Oracle Server Software from the original Oracle CDs or DVDs.

If you are using the Agile e6 DVD, start setup.exe in the folder **Oracle_Patch_Win**.

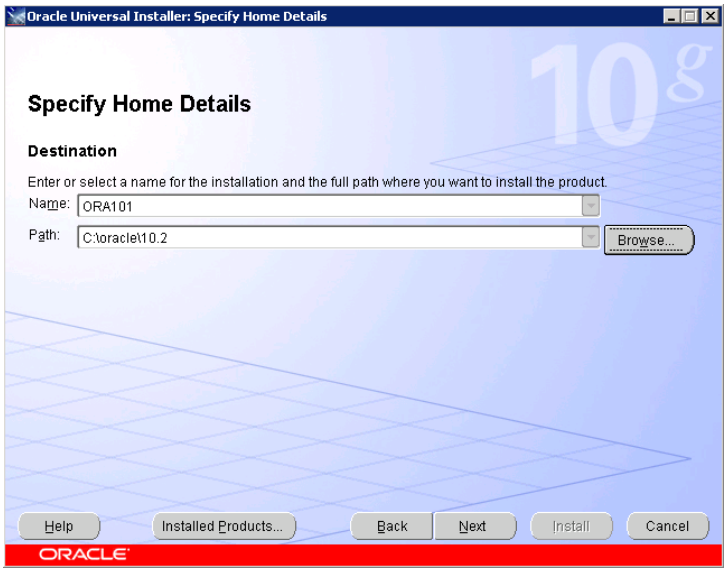
If you are using the Agile Oracle Patch DVD, start setup.exe in the folder **patch\WINNT**.

Make sure all Oracle 10g services are stopped before you start the setup.

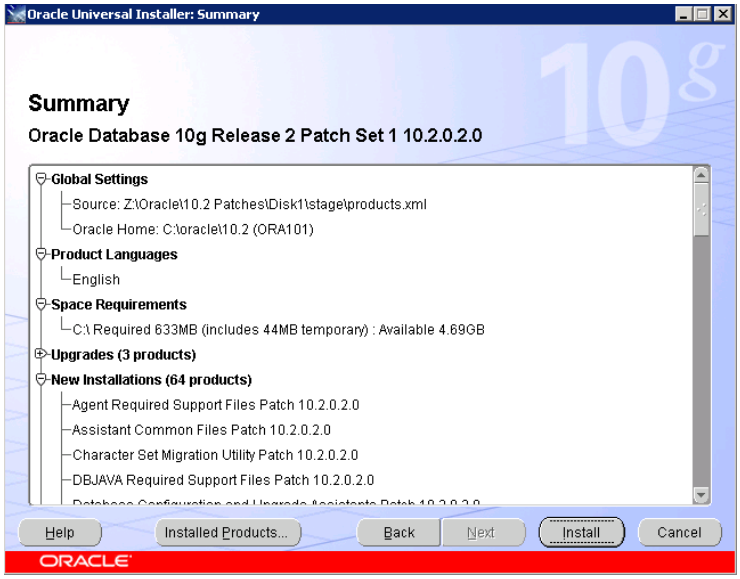
1. Select **Installed Products** on Welcome screen to review already installed Oracle software components.



2. If the list is correct, click **Next.**



3. Review if the Oracle Home name and path are the same as in your previous Oracle 10g installation and click **Next.**



4. Review the list of available components and click **Install** to start the Installation. This may take a while.
5. After successful installation, click **Exit** to leave the Oracle Universal Installer.

If possible, create the database **after** you have installed the patches. If the database was created before the patches were installed the data dictionary has to be recreated.

Note: Refer also to the patch readme file for additional information.

Follow these steps only if you have installed the patch after the database (10.2.0.1) creation!

1. Backup the database !!! (OS Backup is recommended).
2. Startup the Oracle listener with **lsnrctl start**.
3. Startup OracleServicePLM60 service from Services (in folder Control Panel->Administrative Tools->Services).
4. Log in as sysdba using SQL*Plus **sqlplus /nolog .**
5. Connect sys/oracle@plm60 as sysdba.
6. Startup database in migrate mode - **startup upgrade**.
7. Enable spool – **spool patch.log.**
8. Run script catupgrd.sql.

   @{ORACLE_HOME}\rdbms\admin\catupgrd.sql.
9. Disable spooling – **spool off.**
10. Review the log file patch.log for errors.
11. Shutdown database by **shutdown immediate** and start it for normal operation by **startup.**
12. Run the script **utlrp.sql** to recompile invalid PL/SQL packages.

@{ORACLE_HOME}\rdbms\admin\utlrp.sql

Note: Substitute {ORACLE_HOME} with the path of your Oracle home directory.

Installing the Database

The database will be created by using the Database Configuration Assistant (DBCA) templates, which are provided in the folder **doc\OracleAddOn\win\templates** on the Agile e6 DVD. DBCA templates include database options, initialization parameters, and storage information for datafiles, tablespaces, control files and redo logs.

Six different templates are predefined to meet different requirements according to purpose, size and number of the Agile e6 database installations.

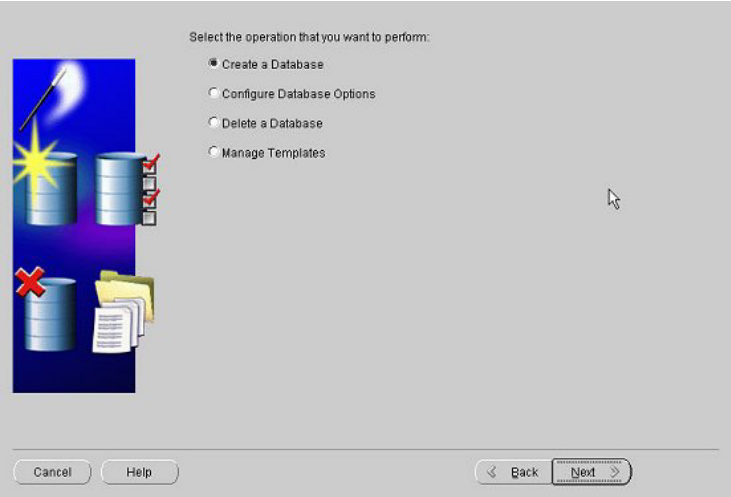
Template Name	Description
plm_laptop	small sized database especially designed for laptop installations
plm_test	database designed for test installations number of concurrent users < 40 no archiving
plm_prod_small	database designed for productive use number of concurrent users < 40 archiving
plm_prod_medium	database designed for productive use number of concurrent users: 40 - 80 archiving
plm_prod_large	database designed for productive use number of concurrent users: 80 – 120 archiving
plm_prod_huge	database designed for productive use number of concurrent users: 120 - 150 archiving

Additional information on significant database parameters and settings of each template can be found in the **Appendix**. Decide which template corresponds approximately to your needs. It is also possible to adapt any of the values during the database creation process.

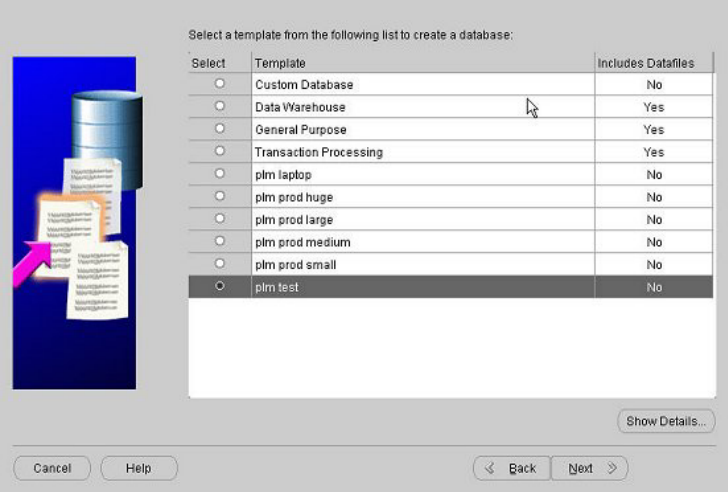
1. Copy the DBCA template file (e.g. plm_test.dbt) to {ORACLE_HOME}\assistants\dbca\templates.
2. Start the Oracle **Database Configuration Assistant** from the Windows start menu. **Start > Oracle – OraHome10 > Configuration and Migration Tool > Database Configuration Assistant**.

An introduction window is opened.

3. Click **Next** to start the database configuration.
4. Select **Create a database** and click **Next**.



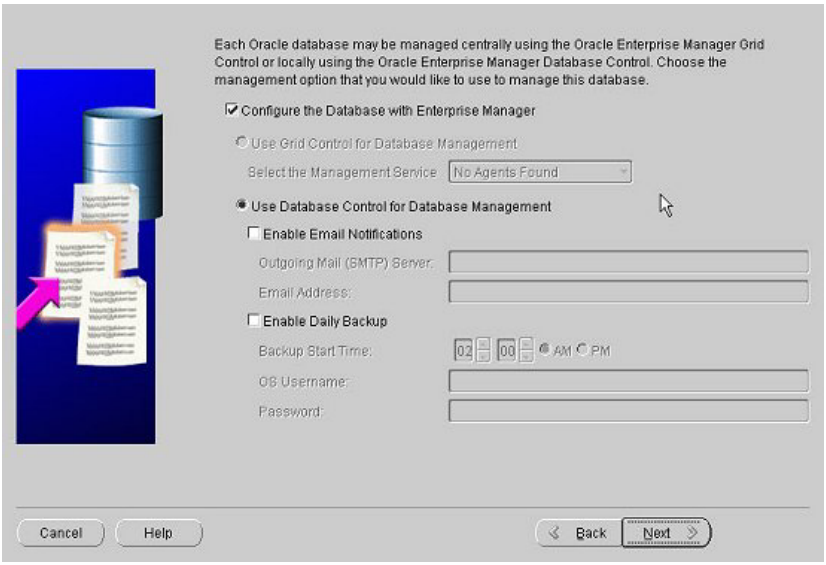
A list of different templates is provided. You should also see the template that you have chosen and copied in step 1.



5. Select the template you want to use and click **Next**.
6. Enter the global database name and SID (default: plm60) and click **Next**.

The next window provides the possibility to centrally manage Oracle databases using **Oracle Enterprise Manager Database Control**.

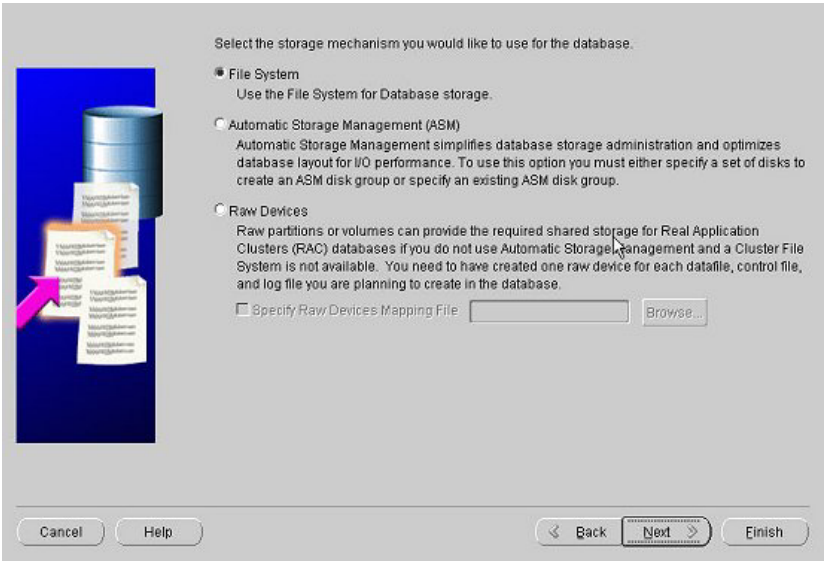
7. Select this option and click **Next**.



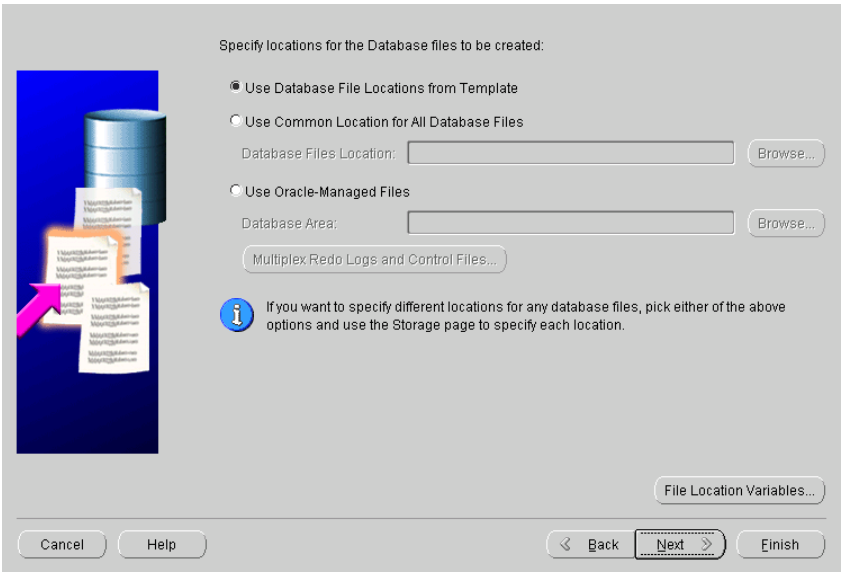
8. Enter passwords for SYS, SYSTEM, SYSMAN and DBSNMP. It is highly recommended to use different passwords for these accounts. Click **Next**.

The next window allows registering your database with a directory service.

9. Select **No**, do not register the database and click **Next**.
10. Select **File System** for database storage and click **Next**.



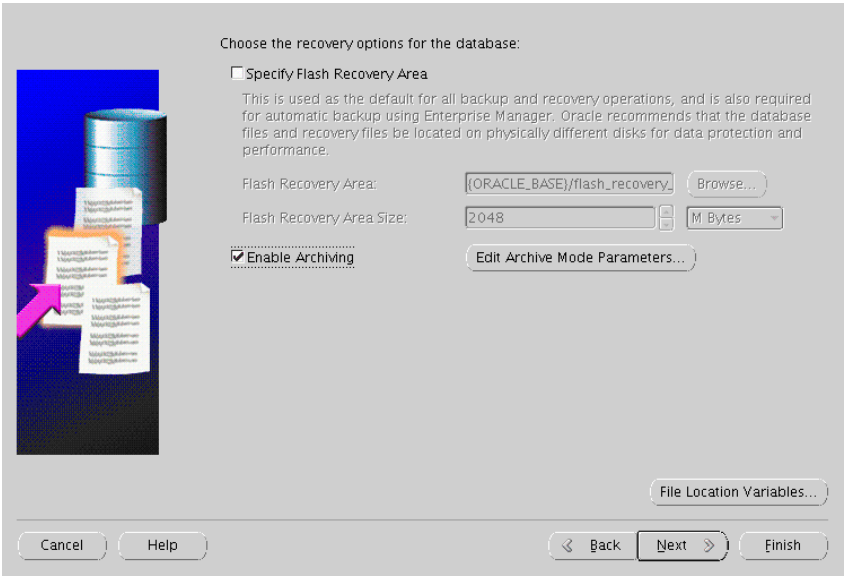
11. In the next window, choose **Use Database File Locations from Template** and click **Next**.



12. Deselect the option **Specify Flash Recovery Area** in the next window. Depending on your backup strategy and used template, archiving could be enabled.

Note: For productive installations it is highly recommended to archive the database. The archive log mode and the destination of the archive directory can be specified by clicking on the **Edit Archive Mode Parameters** button.

13. Click **Next**.

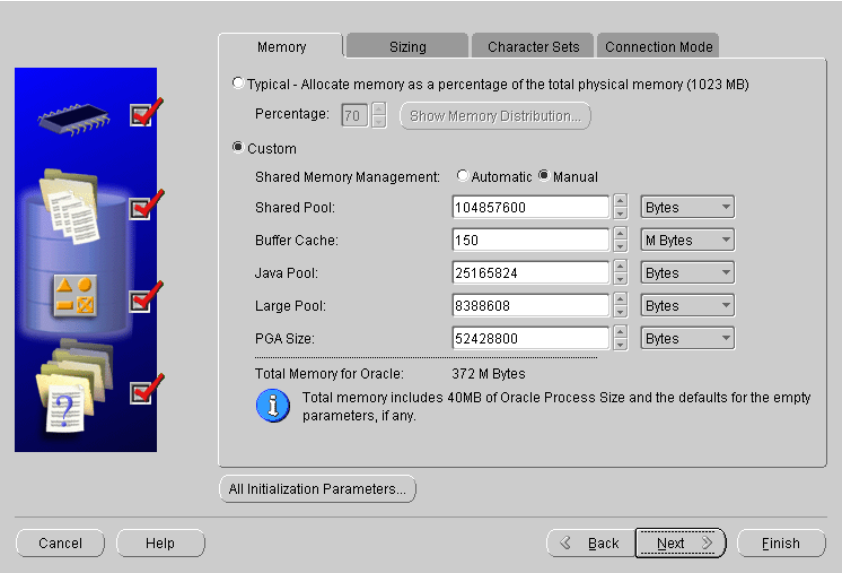


The next window provides database features as well as the possibility to run custom scripts after database creation. It is not recommended to change the settings provided by the template.

14. Click **Next**.

The next window provides diverse database parameters. You can navigate to the setting of memory, character sets, database sizing, and connection mode.

15. Check if the connection mode is set to **Dedicated Server Mode** in the folder **Connection Mode**.



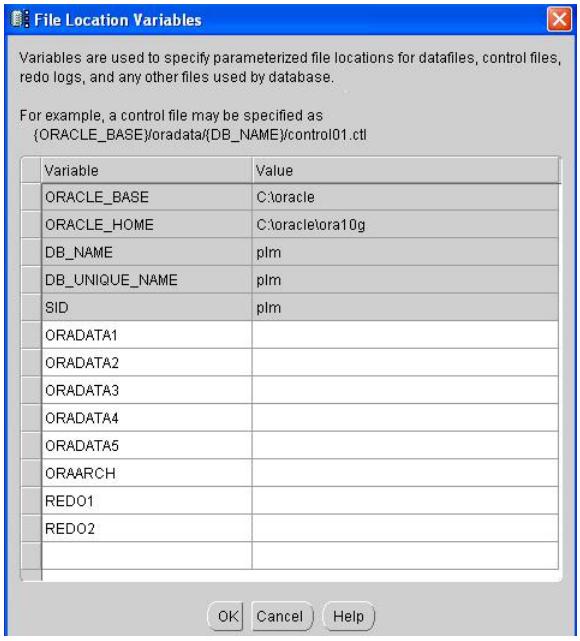
The values are recommended by Agile for the selected kind of database installation.

16. Click **Next**.

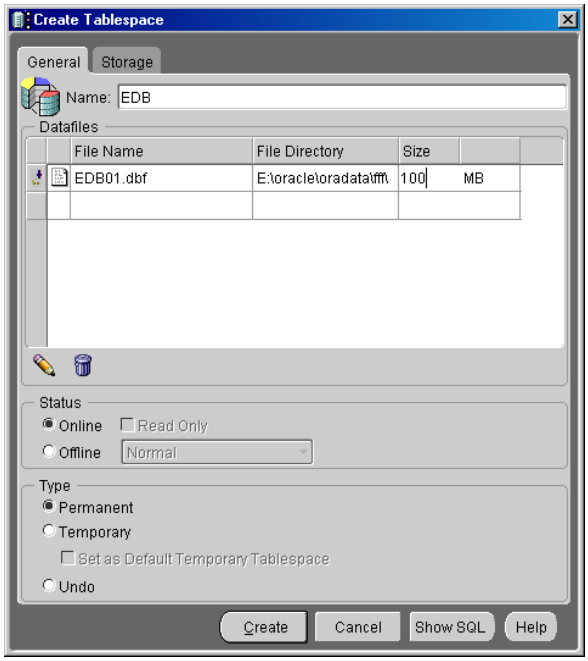
17. Click **File Location Variables** on the next window.

Review and adapt the file location for your system. Enter variables mentioned in the table below, as well as the values for them.
See the table for detailed information on predefined file destination variables.

Variable	Description
ORADATA1	Data files for tablespaces EDB, EDB_LOB, EDB_TMPIDX
ORADATA2	Data files for tablespaces EDB_IDX, EDB_TMP
ORADATA3	Data files for temporary tablespace TEMP
ORADATA4	Data files for undo tablespace
ORADATA5	Data files for tablespaces SYSTEM, TOOLS, USERS
ORAARCH	archive log files
REDO1	redo log files
REDO2	redo log files



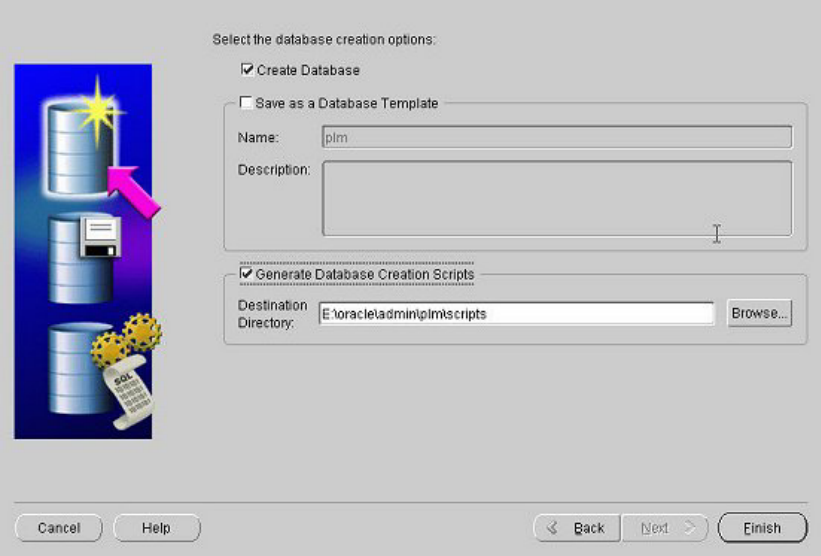
The storage parameters for control files, tablespaces, data files, rollback segments, and redo log files can be reviewed and modified. Double-click an object in the left window section if you want to edit and modify the settings in the right window section. The required new tablespaces can be created.



Note: The predefined values are recommended by Agile according to the chosen kind of database installation.

18. When you have finished click **Next**.

19. Select **Create Database** to start the database creation immediately.



It is recommended to choose also the option **Generate Database Creation Scripts** and to define a destination directory (default: {ORACLE_BASE}\admin\plm60\scripts). Those scripts are useful for future reference or use.

20. Click **Finish**.

A summary of the database parameter is displayed.

Click **Save as HTML file** for future reference and click **OK**.
The database creation process is started.

21. Click **Exit** to finish the process.

Configuring the Oracle Listener

1. Copy the listener configuration files from Agile e6 DVD to the **doc\OracleAddOn\win** directory to your installation.

- ❑ cp listener.ora {ORACLE_HOME}\network\admin
- ❑ cp tnsnames.ora {ORACLE_HOME}\network\admin
- ❑ cp tnsnav.ora {ORACLE_HOME}\network\admin
- ❑ cp sqlnet.ora {ORACLE_HOME}\network\admin

2. Adapt the configuration files (especially **tnsnames.ora** and **listener.ora** to reflect the correct hostname, database id and other information).

3. Start listener and test the database connection.

```
lsnrctl start
tnsping plm60
sqlplus system@plm60
```

Note: As the listener service doesn't exist yet, the following error message will be displayed by executing lsnrctl start:

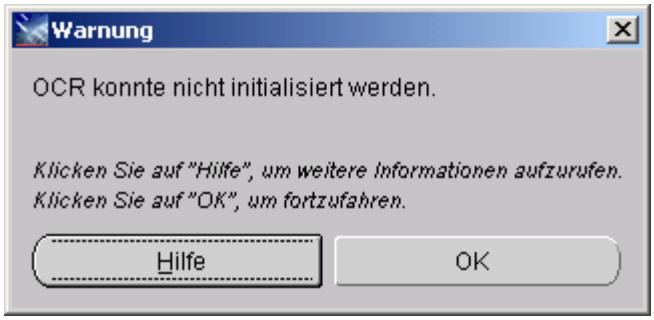
Failed to open service <OracleORA102TNSListener>, error 1060.

You can ignore it – it just shows that the requested service doesn't exist and this service will be created now.

Troubleshooting

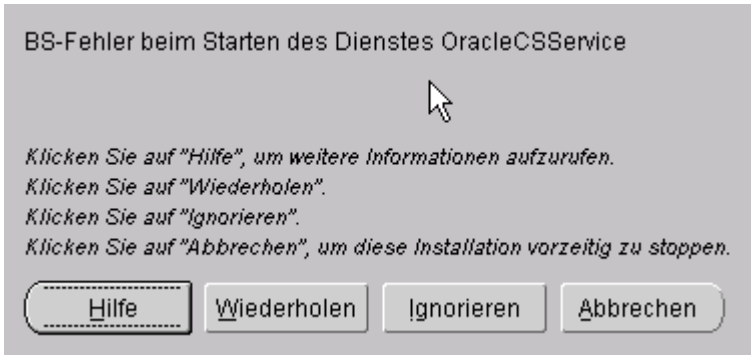
When installing Oracle Server manually on Windows 2000 German Edition, errors might occur. Follow the instructions for a work around:

During the installation, the following error appears:



1. Click OK and ignore the message.

The installations continue and later another error message appears:



2. Click "Ignorieren" and finish the installation.
3. When the installation is finished, open a Windows command prompt and execute

```
localconfig ldel
```

This will remove the Oracle CSS service from your machine.

Chapter 3
Modifying the Oracle Database

Creating a Database User and Role

You will need to create the Agile e6 database user and role and provide the necessary privileges and quotas. You can do this using the commands in the following section or using the Oracle Enterprise Manager Database Control as described in the section below.

Using SQL to Create a Role

Check if the plm role exists – open sqlplus session, connect as SYSTEM and execute

Select role from dba_roles where role='AGILE_E_ROLE'. If string 'AGILE_E_ROLE' is returned, the role exists. Then skip the role creation and continue with the user creation. Otherwise the role doesn't exist and has to be created by

Create role AGILE_E_ROLE;

```
GRANT CONNECT TO AGILE_E_ROLE;
GRANT CREATE TABLE TO AGILE_E_ROLE;
GRANT CREATE VIEW TO AGILE_E_ROLE;
GRANT CREATE SYNONYM TO AGILE_E_ROLE;
GRANT CREATE DATABASE LINK TO AGILE_E_ROLE;
GRANT CREATE CLUSTER TO AGILE_E_ROLE;
GRANT CREATE SEQUENCE TO AGILE_E_ROLE;
GRANT ALTER SESSION TO AGILE_E_ROLE;
GRANT CREATE PROCEDURE TO AGILE_E_ROLE;
GRANT CREATE TRIGGER TO AGILE_E_ROLE;
GRANT ALL ON DIRECTORY ORA_DMP TO AGILE_E_ROLE;
```

Using SQL to create a user

1. Create a database user (named, e.g. plm):

   CREATE USER PLM

   IDENTIFIED BY <PASSWORD>

   DEFAULT TABLESPACE "EDB"

   TEMPORARY TABLESPACE "TEMP"

   PROFILE DEFAULT

   QUOTA UNLIMITED ON "EDB"

   QUOTA UNLIMITED ON "EDB_IDX"

   QUOTA UNLIMITED ON "EDB_TMP"

   QUOTA UNLIMITED ON "EDB_TMPIDX"

   QUOTA UNLIMITED ON "EDB_LOB"

   ACCOUNT UNLOCK;

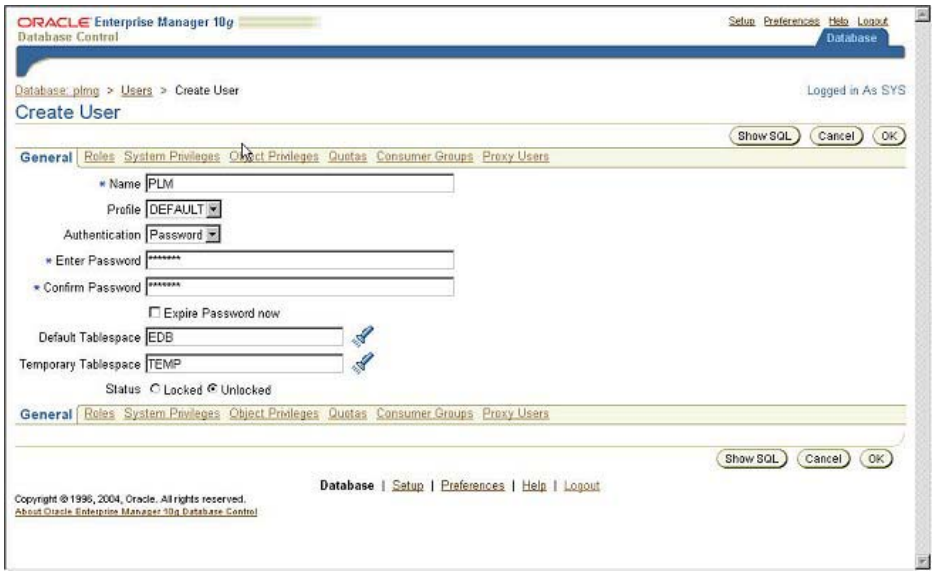
```
GRANT "AGILE_E_ROLE" TO PLM;

ALTER USER PLM DEFAULT ROLE AGILE_E_ROLE;
```

A default script (cre_plm_usr.sql) with these commands can be found on the Agile e6 DVD in the **doc\OracleAddOn\sql** directory.

Using Enterprise Manager Database Control to create User

1. Start the Enterprise Manager Database Control. By default it can be invoked on localhost:1158/em, but it can be configured manually to use another port. Click on **Login.**

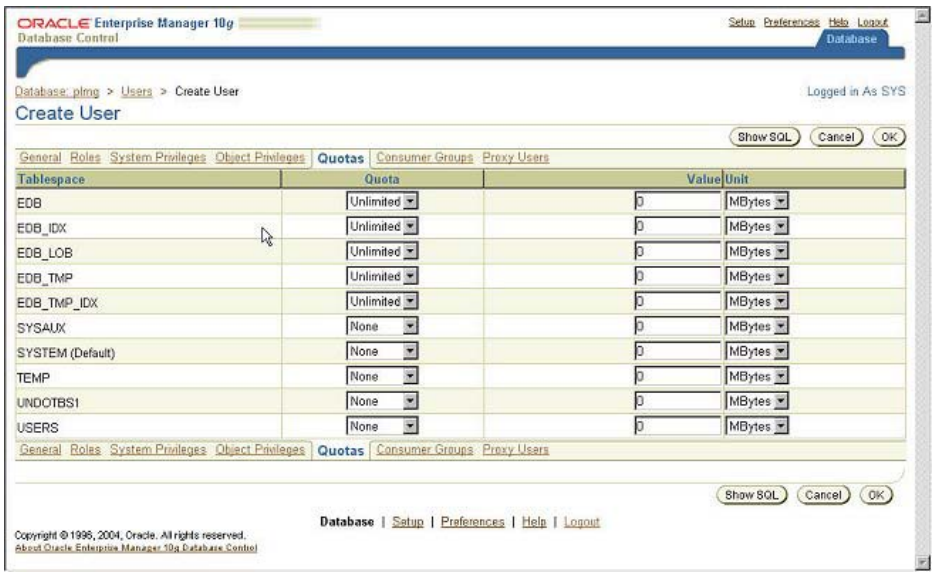
2. Click on **Administration** and in the security section on **Users.**
3. Click **Create.**



4. Click on the **General** tab and insert a user name and password and assign default and temporary tablespace.
5. Click the **Roles** tab, then **Modify** button, select role AGILE_E_ROLE from the list with available roles and by clicking the **Move** button move it to the Selected Roles. Click **OK.**

(Role AGILE_E_ROLE should exists or be created in a previous section)

6. Click the **Quota** tab and assign unlimited quota on EDB, EDB_IDX, EDB_LOB, EDB_TMP and EDB_TMPIDX.



7. Click **OK** to finish the database user creation.

Importing the Database Dump

Import the Agile e6 dump using the following commands, and then check the logfile for errors.

```
imp plm/plm@plm60 file=plm60.dmp log=plm60.log buffer=132000 commit=y statistics=none full=y
```

commit=y	rollback segments cannot get too small
analyze=n	no statistics will be created
buffer=132000	necessary for lobs, better performance
full=y	imports full dump even if the dump was exported by different user

Create directories for Oracle Data Pump Utility

1. Create directory which will be used for Oracle Data Pump Export/Import Utility with two subdirectories - system and user (for instance d:\ora_dmp\system; d:\ora_dmp\user).
2. Open a sqlplus session and connect as system.

   ```
   sqlplus system/<system password>
   ```

3. Run the script ddl_pump_dir.sql. This script can be found on the Agile e6 DVD in the **doc\OracleAddOn\sql** directory.

   ```
   SQL>@<full path to the file ddl_pump_dir.sql>
   ```

4. Enter the path to the main directory created in 1. (for instance d:\ora_dmp).

The script will create two directory objects – one for system users and one for normal users and will give rights on the second directory to user PLM.

Compile all invalid objects in schema PLM

After importing the Agile e6 dump some objects might be invalid. This could be verified by the following way:

1. Open a sqlplus session and connect as system.

   ```
   sqlplus system/<system password>SQL>select * from dba_objects where status <> 'VALID' and owner='PLM';
   ```

If the returned message is 'no rows selected', then you have no invalid objects. Otherwise you have to run the script compile_all.sql, which can be found on the Agile e6 DVD in the **doc\OracleAddOn\sql** directory.

```
SQL>@<full path to the file compile_all.sql> <parameter>
```

Note: Parameter = SQL user; e.g. PLM. The parameter has to be entered in upper case only.

2. Verify once again that there are no invalid objects by

```
SQL>select  * from dba_objects where status <>  'VALID' and owner='PLM';
```

Create Statistics

In Oracle 10g the default value for the OPTIMIZER_MODE initialization parameter is ALL_ROWS, which means that a cost-based approach will be used for all SQL statements. Agile highly recommends creating statistics in order to avoid performance loss. This should be done after the dump import and has to be repeated periodically.

1. Calculate statistics of all tables and indexes in db schema PLM:

```
SQL> EXECUTE DBMS_STATS.GATHER_SCHEMA_STATS('PLM',CASCADE =>true);
```

2. Calculate statistics of all tables and indexes in db schema PLM with 5% of the rows:

```
SQL> EXECUTE DBMS_STATS.GATHER_SCHEMA_STATS('PLM', estimate_percent => 5, CASCADE
=>true);
```

3. Drop all statistics of PLM schema objects. Optimizer is now running in rule mode.

```
SQL> EXECUTE DBMS_STATS.DELETE_SCHEMA_STATS('PLM');
```

For all schema objects, statistics have to be available to support the cost based optimizer. If tables and indexes are modified or created, statistics must be established.

1. Calculate statistics on all tables without statistics and their indexes in db schema PLM with 5% of the rows:

```
SQL> EXECUTE DBMS_STATS.GATHER_SCHEMA_STATS(ownname => 'PLM',options => 'GATHER
EMPTY', estimate_percent => 5, CASCADE =>true);
```

2. Calculate statistics on tables t_master_dat and their indexes in db schema PLM_ENTW with 10% of the rows:

```
SQL> exec sys.dbms_stats.gather_table_stats(ownname=> 'PLM_ENTW', tabname=> 'T_MASTER_DAT',
partname=> NULL , estimate_percent=> 10 ,cascade=> true);
```

Statistic information can be viewed, e.g. in user_tables and user_indexes. These views provide information about e.g. average width of the row and number of rows.

Set access rights for axalantrt

The Agile e6 runtime user needs read permission on the Oracle software.

You can either use the Explorer:

1. Select the Oracle software folder and
2. Select properties.
3. Give local user axalantrt read access.

Or you can use the following command:

```
cd e:\oracle
cacls ora10 /c /t /e /g axalantrt:R
```

Deinstall Oracle for Windows

If you have an improper Oracle installation, a second installation will fail. You have to uninstall Oracle and then try from beginning. The automatic Oracle installation performed by Agile e6 or axalant setup is only possible if Oracle is not installed on the system.

Uninstall Oracle:

1. If you want to uninstall Windows Service entries for databases use oradim
   `oradim -delete -SID plm60`
2. Shutdown all Oracle Services.
3. Start Oracle Installer.
4. Select all packs except the Oracle Installer itself.
5. Press **Remove.**
6. Drop Oracle folders

   (Oracle Home: e:\oracle\ora10.2, Oracle Installer: C:\Program Files\Oracle)
7. Drop the registry leave HKEY_LOCAL_MACHINE\SOFTWARE\ORACLE.
8. If Windows services still exist, drop the special registry sections in HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\Oracle*.
9. Reboot the computer.

Oracle installation on Windows failed

If the software is installed (E:\oracle\ora10.2*) and registry entries are created (HKEY_LOCAL_MACHINE\SOFTWARE\ORACLE), the creation of the database may fail due to the following reasons:

- Insufficient memory (Oracle parameters to high, small RAM size)
- Incorrect internal password
- No administrative rights on the machine
- Wrong path definition
- Not enough disk space for datafiles

Check the following:

- **Database create logs:** {ORACLE_BASE}\admin\plm60\create\cre*.log
- **Instance Parameter file:** {ORACLE_BASE}\admin\plm60\pfile\init*.ora
- **Instance SPFILE:** {ORACLE_HOME}\dbs\spfileplm60.ora
- **Database log file:** {ORACLE_BASE}\admin\plm60\bdump\alert_plm60.log
- **Network configuration:** {ORACLE_HOME}\network\admin*.ora

Chapter 4
Appendix A

The most significant parameters of the predefined Database Configuration Assistant templates are referenced in the following.

Template “plm_laptop”

Parameter/Setting	Value
db_block_size	4 k
db_cache_size (buffer)	48 MB
db_file_multiblock_read_count	8
shared_pool_size	80 MB
open_cursors	600
processes	40
pga_aggregate_target	50 MB
Tablespaces	locally managed
EDB	25 MB
EDB_IDX	25 MB
EDB_LOB	5 MB
EDB_TMP	1 MB
EDB_TMP_IDX	1 MB
Redolog file size	5 MB
archiveLogMode	FALSE

Template “plm_test”

Parameter/Setting	Value
db_block_size	8 k
db_cache_size (buffer)	150 MB
db_file_multiblock_read_count	8

shared_pool_size	100 MB
open_cursors	600
processes	80
pga_aggregate_target	50 MB
Tablespaces	locally managed
EDB	100 MB
EDB_IDX	100 MB
EDB_LOB	5 MB
EDB_TMP	5 MB
EDB_TMP_IDX	5 MB
Redolog file size	10 MB
archiveLogMode	FALSE

Template “plm_prod_small” 40 users max

Parameter/Setting	Value
db_block_size	8 k
db_cache_size (buffer)	200 MB
db_file_multiblock_read_count	8
shared_pool_size	100 MB
open_cursors	600
processes	100
pga_aggregate_target	50 MB
Tablespaces	locally managed
EDB	300 MB
EDB_IDX	300 MB
EDB_LOB	5 MB
EDB_TMP	5 MB
EDB_TMP_IDX	5 MB

Redolog file size	10 MB
archiveLogMode	TRUE

Template “plm_prod_medium” 80 users max

Parameter/Setting	Value
db_block_size	8 k
db_cache_size (buffer)	500 MB
db_file_multiblock_read_count	8
shared_pool_size	120 MB
open_cursors	600
processes	180
pga_aggregate_target	110 MB
Tablespaces	locally managed
EDB	1,5 GB
EDB_IDX	1,5 GB
EDB_LOB	5 MB
EDB_TMP	5 MB
EDB_TMP_IDX	5 MB
Redolog file size	10 MB
archiveLogMode	TRUE

Template “plm_prod_large” 120 user max

Parameter/Setting	Value
db_block_size	8 k
db_cache_size (buffer)	1 GB
db_file_multiblock_read_count	8
shared_pool_size	160 MB
open_cursors	600
processes	260

pga_aggregate_target	160 MB
Tablespaces	locally managed
EDB	2 data files, each 1,5 GB
EDB_IDX	2 data files, each 1,5 GB
EDB_LOB	5 MB
EDB_TMP	10 MB
EDB_TMP_IDX	10 MB
Redolog file size	10 MB
archiveLogMode	TRUE

Template “plm_prod_huge” 150 users max

Parameter/Setting	Value
db_block_size	8 k
db_cache_size (buffer)	1 GB
db_file_multiblock_read_count	8
shared_pool_size	200 MB
open_cursors	600
processes	320
pga_aggregate_target	200
Tablespaces	locally managed
EDB	2 data files, each 1,5 GB
EDB_IDX	2 data files, each 1,5 GB
EDB_LOB	5 MB
EDB_TMP	10 MB
EDB_TMP_IDX	10 MB
Redolog file size	10 MB
archiveLogMode	TRUE