

Installing Oracle E-Business Suite
Release 12 with the Oracle
Exadata Database Machine

*Oracle Maximum Availability Architecture White Paper
February 2013*

Maximum Availability Architecture

Oracle Best Practices For High Availability

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Executive Overview

Oracle Maximum Availability Architecture (MAA) [\[1\]](#) is Oracle's best practices blueprint for implementing Oracle high-availability technologies. Oracle Exadata Database Machine provides an optimal platform for all database workloads.

This paper shows an example of installing a new Oracle E-Business Suite Release 12 system with the database on the Oracle Exadata Database Machine using Oracle Real Application Clusters (Oracle RAC) and Oracle Automated Storage Management (Oracle ASM). The objective is to show a complete example that merges various best practices from different My Oracle Support (MOS) IDs. When the Oracle E-Business Suite rapid install process is able to install directly to Oracle RAC and Oracle ASM then this paper should no longer be necessary.

If you are migrating from an existing Oracle E-Business Suite system to the Oracle Exadata Database Machine system then there are several migration techniques that are outlined in MOS ID [1133355.1](#), "A Roadmap for Migrating Oracle E-Business Suite to the Oracle Exadata Database Machine".

Document Conventions

CONVENTION	MEANING
Application Tier	Machines running Forms, Web, Concurrent Processing and other servers. Sometimes called middle tier.
Database Tier	Machines running an Oracle E-Business Suite database.
oracle	User account that owns the database file system (database ORACLE_HOME and files).
CONTEXT_NAME	The CONTEXT_NAME variable specifies the name of the Applications context that is used by Autoconfig. The default is <SID>_<short hostname>.
CONTEXT_FILE	Full path to the Applications context file on the application tier or database tier. The default locations are as follows. Application tier context file: <INST_TOP>/appl/admin/CONTEXT_NAME.xml Database tier context file: <Database ORACLE_HOME>/appsutil/<CONTEXT_NAME>.xml
Monospace Text	Represents command line text. Type such a command exactly as shown, excluding prompts such as '% '.
< >	Text enclosed in angle brackets represents a variable. Substitute a value for the variable text. Do not type the angle brackets.
\	On UNIX, the backslash character can be entered at the end of a command line to indicate continuation of the command on the next line.

Introduction

This document is not intended to be a comprehensive step-by-step installation guide for all Oracle E-Business Suite releases or configurations. It is intended to be an illustrative guide that experienced EBS system administrators can use as a foundation for developing installation procedures for a new install of the Oracle E-Business Suite database on the Oracle Exadata Database Machine.

This paper is intended for an audience with a working knowledge of the following:

- The Oracle E-Business Suite (If you have never used the Oracle E-Business Suite, we suggest you attend one or more of the Oracle E-Business Suite training classes available through Oracle University.)
- Oracle RAC and Oracle ASM

This paper guides you through installing a new Oracle E-Business Suite Release 12.1 split configuration with the database on the Oracle Exadata Database Machine. The focus is on the database aspects, including upgrading the release 11.1.0.7 database

created with Oracle E-Business Suite Rapid Install Oracle database 11g release 11.2 and configuring the database to work on the Oracle Exadata Database Machine utilizing Oracle RAC and Oracle ASM. This paper also includes the necessary Oracle E-Business Suite autoconfig steps.

The high level steps are:

1. Complete [prerequisites](#)
2. [Install Oracle E-Business Suite Release 12 using the Rapid Install “Standard Installation”](#)
3. [Upgrade Oracle database to 11.2](#)
4. [Using rconfig, convert the database to Oracle RAC with Oracle ASM](#)
5. [Run autoconfig on the database tier](#)
6. [Run autoconfig on the application tier](#)
7. [Post autoconfig Configuration](#)
8. [Further Configuration](#)
 - a. [Clone Application Nodes \(optional\)](#)
 - b. [Setup parallel concurrent manager processing](#)
 - c. [Setup load balancing](#)

The following sections provide the details of these steps and include an example.

Prerequisites

This paper assumes an Oracle Exadata Database Machine has already been set up following the Oracle Exadata Database Machine Configuration best practices. The following preparation steps are also required:

1. [Prepare a Temporary File System](#)
2. [Preparing for the Oracle E-Business Suite Rapid Install](#)

Prepare a Temporary File System

The Oracle E-Business Suite Rapid Install creates a file system based Oracle Database release 11.1.0.7 database, and it cannot install directly to a database that uses Oracle ASM. Therefore it requires non-Exadata storage of about 55 GB and an additional 50 GB of storage for the install staging area for a total of 105 GB. The file system to be used for the database node file system and the stage area can either use the database machine local storage or an NFS mounted file system. In this example an NFS mount, /ebs, was used. This is described in the appendix in the [“Test Environment Details”](#) section.

For an example of using the database machine local storage and how to create that temporary file system see [“Creating a Local File System”](#) in the appendix.

If a Vision database install option will be selected for initial testing purposes then the local file system does not have enough space to accommodate the required 300 GB.

Prepare for Oracle E-Business Suite Rapid Install

The Oracle E-Business Suite Rapid Install automatically installs and configures the required technology stack components for both the database node and the primary applications node. Applications tier processing can be distributed across multiple Applications nodes. You can also specify additional Applications nodes to scale up the Applications tier. Typically, the additional nodes are located on their own machines, to help increase the availability and flexibility of your system.

The Oracle E-Business Suite Rapid Install wizard is used to install a new Standard Installation with a fresh production database (one that is fully configured but contains no transaction data).

In a new Standard installation, you define many aspects of the configuration. The database will be installed on the /ebs file system as listed in the [“Test Environment Details”](#) section of the appendix.

The following actions are also recommended:

- Verify that all application tier nodes are at the same operating system patch level

- Ensure the operating system kernel parameter settings match on all nodes of a particular tier (either application or database). While this is not essential, it simplifies management and maintenance by allowing the machines to be regarded as identical.
- Review and verify that the requirements in support note [761566.1](#) “*Oracle E-Business Suite Installation and Upgrade Notes Release 12 (12.1.1) for Linux x86-64*”.

Use Rapid Install and Perform a Standard Installation

To set up the initial Oracle E-Business Suite database and application node use the Rapid Install wizard (rapidwiz). Rapidwiz guides you through the screens where you enter configuration values for your system. The values are saved in the Oracle E-Business Suite database for later use¹.

This paper uses a Standard Installation. For help performing the installation:

- See MOS [Note:798258.1](#) for information about the latest rapidwiz version
- See the “[Oracle E-Business Suite Installation Guide: Using Rapid Install, Release 12.1 \(12.1.1\)](#)”⁶ documentation for detailed instructions

The high level steps for using the Rapid Install wizard are:

1. Use Rapid Install to install the database first. The database will be installed to the temporary file system that was described earlier in the “[Prepare a Temporary File System](#)” section
2. Use Rapid Install on each application node and reference the installed database in the “Configuration Choice” screen as host:ORACLE_SID:Listener-port. For example, dscgigdb03:FRESH:1521

Upgrade Oracle Database

Upgrade Oracle E-Business Suite to use the SCAN (Optional)

Single Client Access Name (SCAN) is a new Oracle RAC 11g Release 2 feature that provides a single name for clients to access Oracle Databases running in a cluster. See the SCAN paper at

¹ The Rapid Install installs a file-system based database with Oracle Database Enterprise Edition release 11.1.0.7. Rapid Install does not support installing directly to Oracle ASM.

<http://www.oracle.com/technetwork/database/clustering/overview/scan-129069.pdf> for a complete description of this feature. Note that Oracle E-Business Suite does use pre-Oracle Database 11g Release 2 clients and will not fully benefit from the advantages of SCAN. Reason: The Oracle E-Business Suite client will not be able to handle a set of three IPs returned by the DNS for SCAN. Hence, it will try to connect to only the first address returned in the list and will more or less ignore the others. If the SCAN Listener listening on this specific IP is not available or the IP itself is not available, the connection will fail. The chance of the first IP not being available is small, but you should be aware of this risk if you choose to use the SCAN.

Starting with 12.1.3 AutoConfig supports the scan listener. See [Configuration Prerequisites](#) for AutoConfig support for the scan listener. Consult MOS ID [823587.1](#), section “1.2 Configuration Prerequisites” for any updates to these patch requirements.

Apply Application Tier Prerequisite Patches

Prior to executing the upgrade of the database to RDBMS 11.2, the steps in “*Interoperability Notes Oracle E-Business Suite Release 12 with Oracle Database 11g Release 2 (11.2.0)*”, ID [1058763.1](#) were followed.

This MOS ID, “Interoperability Notes Oracle E-Business Suite Release 12 with Oracle Database 11g Release 2 (11.2.0)”, ID [1058763.1](#), should be consulted for any updates as there may be new updates since the publishing of this paper.

The high level steps for applying the patches are:

1. Stop the Application server processes on each application server node
`$INST_TOP/admin/scripts/adstpall.sh`
2. [Enable Maintenance Mode](#) on the administrative application server node
3. Apply each patch above using the `adpatch` utility and following the README.txt for each one
4. Disable Maintenance Mode
5. Start the Application Server processes
`$INST_TOP/admin/scripts/adstrtal.sh`

Prepare the Target Database ORACLE_HOME and Nodes

1. Oracle Exadata Database Machine Best Practices and Health Check

- Review the Oracle Exadata Database Machine best practices in MOS ID [1187674.1](#), “*Master Note for Oracle Database Machine and Exadata Storage Server.*”
- If the Oracle Exadata Database Machine health has not been verified yet then follow MOS ID [1070954.1](#), “*Database Machine Health Check.*”
- Review the MAA paper, “[Oracle E-Business Suite on Exadata](#)”

2. Verify Oracle E-Business Suite Required Packages

For the latest list of required packages also see MOS ID [761566.1](#), “Oracle Applications Installation and Upgrade Notes Release 12 (12.1.1) for Linux x86-64.” The following command is an example use of the rpm command to check for the required packages. For the latest requirements you should still consult MOS ID [761566.1](#).

```
$ rpm -q --qf '%{NAME}-%{VERSION}-%{RELEASE} (%{ARCH})\n' \
  openmotif21 \
  xorg-x11-libs-compat \
  gcc \
  gcc-c++ \
  glibc \
  glibc-common \
  glibc-devel \
  libgcc \
  libstdc++-devel \
  libstdc++ \
  libXi \
  libXp \
  libaio \
  libgomp \
  make \
  gdbm \
  sysstat \
  util-linux \
  compat-libstdc++-296 \
  compat-libstdc++-33 \
  elfutils-libelf-devel \
  elfutils-libelf-devel-static \
  libaio-devel \
  unixODBC \
  unixODBC-devel \
  kernel-uek-headers \
  | grep "not installed"
```

```
package openmotif21 is not installed
package xorg-x11-libs-compat is not installed
```

Note: Exadata uses the `kernel-uek-headers` RPM rather than the `kernel-headers` RPM.

3. Create the target database Oracle 11g Oracle home (optional)

Creating a new ORACLE_HOME is optional since you can use the existing ORACLE_HOME that is installed with the Oracle Exadata Database Machine. Each Oracle E-Business Suite database must have a dedicated ORACLE_HOME and sharing an Oracle E-Business Suite ORACLE_HOME with any other application is not allowed

Starting with the first patch set for Oracle Database 11g Release 2 (11.2.0.2), Oracle Database patch sets are full installations of the Oracle Database software. In past releases, Oracle Database patch sets consisted of a set of files that replaced files in an existing Oracle home. Beginning with Oracle Database 11g Release 2, patch sets are full installations that replace existing installations. See “Important Changes to Oracle Database Patch Sets Starting With 11.2.0.2” [MOS ID [1189783.1](#)] for more details on this.

The software can be downloaded from My Oracle support: patch [10098816](#), making sure to select the Linux x86-64 platform.

Install the new 11.2.0.2 ORACLE_HOME set of software on the target Oracle Exadata Database Machine and make sure to choose the following options:

- Install Software Only
- Real Application Clusters database installation and select all Oracle RAC nodes

4. Apply Prerequisite Exadata Database Machine Patches

- a. Follow MOS ID [888828.1](#), “Database Machine and Exadata Storage Server 11g Release 2 (11.2) Supported Versions” to ensure the latest Sun Oracle Database machine patches are applied.
- b. Apply the additional database patches listed in MOS ID [1392527.1](#), “Oracle E-Business Suite Release 11i & R12 Patches Required with Oracle Database 11g Release 2 (11.2.0) on Exadata.”
- c. Apply the latest 11.2 database patch set updates and Exadata patches, see “Oracle Recommended Patches -- Oracle Database” [ID [756671.1](#)]. Patch Set Updates (PSU) also include the latest Critical Patch Update (CPU). Note that some of the patches listed in MOS ID [1058763.1](#) may already be part of the latest PSU or CPU and you should follow MOS ID [1392527.1](#).

5. Install the Database Examples

The examples CD install is needed because it contains all the localization files needed for Oracle Text.

1. Download the software from http://download.oracle.com/otn/linux/oracle11g/R2/linux.x64_11gR2_examples.zip
2. Follow the installation steps in the “[Database Examples Installation Guide](#)” in chapter 3 to install in the Oracle Database 11g Release 2 ORACLE_HOME.

6. Create the nls/data/9idata directory

In the target 11.2 ORACLE_HOME execute the following:

```
perl $ORACLE_HOME/nls/data/old/cr9idata.pl
```

Run the Pre-upgrade Information Tool

After you have installed the software for Oracle Database 11g Release 2 (11.2) and any required patches, you should analyze your database before upgrading it to the new release. This is done by running the Pre-Upgrade Information Tool from the environment of the database you are to upgrade. This is a required step if you are upgrading manually; otherwise, the `catupgrd.sql` script terminates with errors. Running the Pre-Upgrade Information Tool is also recommended if

you are using the database upgrade assistant (DBUA) to perform the upgrade, so that you can preview the items that DBUA checks.

For details see “[Run the Pre-Upgrade Information Tool](#)” in the Oracle Upgrade Guide². For example:

```
cd $ORACLE_HOME/rdbms/admin
cp utlu112i.sql /tmp
cd /tmp
SQL> SPOOL upgrade_info.log
SQL> @utlu112i.sql
SQL> SPOOL OFF
```

Check the output of the Pre-Upgrade Information Tool in upgrade_info.log. See the sample output in the appendix at “[Database Preupgrade Tool Output / First Pass](#)”.

React to any Issues Identified by the Pre-upgrade Tool

```
SQL> alter tablespace sysaux add datafile
'/ebs/FRESH/db/apps_st/data/sysaux03.dbf' size 100M;
Tablespace altered.
```

```
SQL> show parameter java_pool_size
```

NAME	TYPE	VALUE
java_pool_size	big integer	0

```
SQL> alter system set java_pool_size=150M;
```

```
System altered.
```

```
SQL> EXEC DBMS_STATS.GATHER_DICTIONARY_STATS;
PL/SQL procedure successfully completed.
```

```
SQL> PURGE DBA_RECYCLEBIN;
```

```
DBA Recyclebin purged.
```

Run the Pre-upgrade Information Tool

If there were any issues identified and repaired, then re-run the tool. Sample output from this execution can be found at “[Database Preupgrade Tool Output / Second Pass](#)”.

Upgrade the Database

You should upgrade the database using the Database Upgrade Assistant (DBUA). You can manually upgrade the database but more post-upgrade steps are required that are not documented in this paper. Both options are detailed in the “[Upgrade Guide](#)” in chapter 3. This white paper uses DBUA. DBUA is the recommended upgrade method and that is what was followed for this paper.

During DBUA:

1. In “Database Upgrade Assistant, Step 1 of 7 : Upgrade Options,” select:
 - a. “Recompile invalid objects at the end of upgrade”

- b. “Upgrade the Time Zone Version and TIMESTAMP WITH TIME ZONE Data”
- c. “Backup Database”, this is optional and can be done before DBUA if desired with your own backup procedures.
2. In “Database Upgrade Assistant, Step 2 of 7 : Move Database Files,” select **“Do Not Move Database Files as Part of Upgrade”**. Do not opt to move the database files to Oracle ASM. This will be taken care of during the [“Convert the Database to Oracle RAC with Oracle ASM”](#) section.
3. Do not select “specify a Fast Recovery Area” in “Database Upgrade Assistant, Step 3 of 6 : Recovery and Diagnostic Locations.” This will also be taken care of during the [“Convert the Database to Oracle RAC with Oracle ASM”](#) section..
4. Do not select “Configure the Database with Enterprise Manager” in “Database Upgrade Assistant, Step 4 of 6 : Management Options.”

Post Database Upgrade

Note that following DBUA the database is now using a server parameter file (spfile) under the new \$ORACLE_HOME/dbs directory, \$ORACLE_HOME/dbs/spfile\${ORACLE_SID}.ora.

Shutdown the Old Listener

The old 11.1.0.7 ORACLE_HOME listener is no longer needed at this point so it should be shut down.

1. Set environment to the old 11.1.0.7 database environment.
2. lsnrctl stop FRESH

Set the new environment

```
export ORACLE_BASE=/u01/app/oracle
export ORACLE_HOME=$ORACLE_BASE/product/11.2.0/dbhome_1
export ORACLE_SID=FRESH
export PATH=$ORACLE_HOME/bin:$ORACLE_HOME/perl/bin:$PATH
```

Set the New Diagnostic Destination

The DIAGNOSTIC_DEST database parameter is derived from the value of the \$ORACLE_BASE environment variable. Since we have ORACLE_BASE set we can just reset this parameter and it will default to ORACLE_BASE.

```
SQL> alter system reset diagnostic_dest;
```

System altered.

```
SQL> show parameter diagnostic_dest
```

NAME	TYPE	VALUE
diagnostic_dest	string	/u01/app/oracle

Convert the Database to Oracle RAC with Oracle ASM

This step converts the upgraded database to an Oracle RAC database and moves the datafiles to Oracle ASM using the rconfig utility. There are other more manual methods for doing this

conversion that can be found in the Oracle documentation but those were not explored because rconfig is the simplest method. For further rconfig references see:

- Using Oracle 11g Release 2 Real Application Clusters with Oracle E-Business Suite Release 12 [ID [823587.1](#)]
- RCONFIG : Frequently Asked Questions [ID [387046.1](#)]
- “Oracle Real Application Clusters Installation Guide 11g Release 2 (11.2) for Linux and UNIX” - [C.4 Converting Databases to Oracle RAC Using RCONFIG](#)

Perform the following steps to use rconfig to convert the freshly installed and upgraded database to use Oracle RAC and Oracle ASM:

1. Create and edit the rconfig XML File

- cd \$ORACLE_HOME/assistants/rconfig/sampleXMLs
- cp ConvertToRAC_AdminManaged.xml ConvertToRAC_AdminManaged_FRESH.xml
- Edit the ConvertToRAC_AdminManaged_FRESH.xml file changing appropriate variables as highlighted in the [rconfig XML file](#)

2. Verify the compatible.rdbms ASM attribute setting.

Run this SQL script

```
SQL>
column diskgroup format a10
column name format a20
column value format a12
set pages 99
select dg.name diskGroup ,a.name,a.value
from V$ASM_DISKGROUP dg,
     V$ASM_ATTRIBUTE a
where dg.group_number = a.group_number
and a.name = 'compatible.rdbms';
```

DISKGROUP	NAME	VALUE
DATA	compatible.rdbms	11.2.0.2
DBFS_DG	compatible.rdbms	11.2.0.2
RECO	compatible.rdbms	11.2.0.2

3. Change the COMPATIBLE database parameter

Change the database parameter, COMPATIBLE, to match the ASM compatible.rdbms setting.

- SQL> show parameter compatible

compatible	string	11.1.0
------------	--------	--------
- Edit the spfile


```
SQL> alter system set compatible="11.2.0.2" scope=spfile;
```
- SQL> shutdown immediate
- SQL> startup

4. Configure RMAN Parallelism

Configure the Oracle Recovery Manager (RMAN) to use parallel channels for disk. Rconfig uses RMAN when moving the datafiles from the file system to ASM and using RMAN parallel channels will improve the performance of that step in rconfig.

- a. `rman target /`
- b. `RMAN> show all;`

```
using target database control file instead of recovery catalog
RMAN configuration parameters for database with db_unique_name FRESH are:
CONFIGURE RETENTION POLICY TO REDUNDANCY 1; # default
CONFIGURE BACKUP OPTIMIZATION OFF; # default
CONFIGURE DEFAULT DEVICE TYPE TO DISK; # default
CONFIGURE CONTROLFILE AUTOBACKUP OFF; # default
CONFIGURE CONTROLFILE AUTOBACKUP FORMAT FOR DEVICE TYPE DISK TO '%F'; # default
CONFIGURE DEVICE TYPE DISK PARALLELISM 1 BACKUP TYPE TO BACKUPSET; # default
. . .
```
- c. `RMAN> CONFIGURE device type DISK parallelism 8;`
- d. `RMAN exit`

This will persistently set the RMAN parallelism for disk devices to 8 and rconfig will use this.

5. Verify the rconfig config file

Verify the rconfig config file by running rconfig first with the `convert verify="ONLY"` setting.

- a. Change the `<n:Convert verify="YES">` line in [rconfig XML file](#) to `<n:Convert verify="ONLY">`
- b. Run rconfig to verify parameters are correct

```
$ rconfig ConvertToRAC_AdminManaged_FRESH.xml
```
- c. You should see:

```
<?xml version="1.0" ?>
<RConfig version="1.1" >
<ConvertToRAC>
  <Convert>
    <Response>
      <Result code="0" >
        Operation Succeeded
      </Result>
    </Response>
    <ReturnValue type="object">
      There is no return value for this step    </ReturnValue>
    </Convert>
  </ConvertToRAC></RConfig>
```

- d. If you do not see the `"Operation Succeeded"`, then fix any issues and rerun rconfig with the ONLY option until the issues are resolved. The log file will be located in the `$ORACLE_BASE/cfgtoollogs/rconfig` directory

6. Run rconfig

Once the verification is ok then change `"Convert verify="` back to `"YES"` and run rconfig again to do the actual conversion. You should see an `"Operation Succeeded"` line, **highlighted** below in the sample output. To monitor rconfig, view the log file it creates at `$ORACLE_BASE/cfgtoollogs/rconfig`

\$ rconfig ConvertToRAC_AdminManaged_FRESH.xml

```

Converting Database "FRESH" to Cluster Database. Target Oracle Home:
/u01/app/oracle/product/11.2.0/dbhome_1. Database Role: PR
IMARY.
Setting Data Files and Control Files
Adding Database Instances
Adding Redo Logs
Enabling threads for all Database Instances
Setting TEMP tablespace
Adding UNDO tablespaces
Adding Trace files
Setting Flash Recovery Area
Updating Oratab
Creating Password file(s)
Configuring Listeners
Configuring related CRS resources
Starting Cluster Database
<?xml version="1.0" ?>
<RConfig version="1.1" >
<ConvertToRAC>
  <Convert>
    <Response>
      <Result code="0" >
        Operation Succeeded
      </Result>
    </Response>
    <ReturnValue type="object">
<Oracle_Home>
  /u01/app/oracle/product/11.2.0/dbhome_1
</Oracle_Home>
  <Database type="ADMIN_MANAGED" >
    <InstanceList>
      <Instance SID="FRESH1" Node="dscgigdb03" >
      </Instance>
      <Instance SID="FRESH2" Node="dscgigdb04" >
      </Instance>
    </InstanceList>
  </Database>    </ReturnValue>
</Convert>
</ConvertToRAC></RConfig>

```

7. Post rconfig

Following rconfig, the SPFILE is now under Oracle ASM and has content similar to the parameter list in the appendix at [“Post rconfig Database Parameter File.”](#)

Set the new environment on each node**dscgigdb03**

```

export ORACLE_BASE=/u01/app/oracle
export ORACLE_HOME=$ORACLE_BASE/product/11.2.0/dbhome_1
export ORACLE_SID=FRESH1
export PATH=$ORACLE_HOME/bin:$ORACLE_HOME/perl/bin:$PATH

```

dscgigdb04

```

export ORACLE_BASE=/u01/app/oracle
export ORACLE_HOME=$ORACLE_BASE/product/11.2.0/dbhome_1
export ORACLE_SID=FRESH2
export PATH=$ORACLE_HOME/bin:$ORACLE_HOME/perl/bin:$PATH

```

Note: do not set the ORA_NLS10 nor ORA_TZFILE environment variables at this point.

Observe Database is Registered with the SCAN Listener

Also note that at this point the database is now registered with the SCAN listener and is not using the EBS specific listener.

```
$ lsnrctl status
```

```
LSNRCTL for Linux: Version 11.2.0.2.0 - Production on 02-JAN-2011 14:13:20

Copyright (c) 1991, 2010, Oracle. All rights reserved.

Connecting to (ADDRESS=(PROTOCOL=tcp) (HOST=) (PORT=1521))
STATUS of the LISTENER
-----
Alias                LISTENER
Version              TNSLSNR for Linux: Version 11.2.0.2.0 - Production
Start Date           01-JAN-2011 16:58:13
Uptime               2 days 21 hr. 15 min. 6 sec
Trace Level          off
Security             ON: Local OS Authentication
SNMP                 OFF
Listener Parameter File /u01/app/11.2.0/grid/network/admin/listener.ora
Listener Log File    /u01/app/oracle/diag/tnslsnr/dscgigdb03/listener/alert/log.xml
Listening Endpoints Summary...
  (DESCRIPTION=(ADDRESS=(PROTOCOL=ipc) (KEY=LISTENER)))
  (DESCRIPTION=(ADDRESS=(PROTOCOL=tcp) (HOST=10.204.74.168) (PORT=1521)))
  (DESCRIPTION=(ADDRESS=(PROTOCOL=tcp) (HOST=10.204.77.181) (PORT=1521)))
Services Summary...
Service "+ASM" has 1 instance(s).
  Instance "+ASM1", status READY, has 1 handler(s) for this service...
Service "FRESH" has 1 instance(s).
  Instance "FRESH1", status READY, has 1 handler(s) for this service...
The command completed successfully
```

```
$ srvctl config scan_listener
```

```
SCAN Listener LISTENER_SCAN1 exists. Port: TCP:1521
SCAN Listener LISTENER_SCAN2 exists. Port: TCP:1521
SCAN Listener LISTENER_SCAN3 exists. Port: TCP:1521
```

Remove the old SPFILE

The old spfile from the node where rconfig was run will still be under \$ORACLE_HOME/dbs/spfile\${ORACLE_SID}.ora. To eliminate any confusion,, remove that file.

```
$ rm $ORACLE_HOME/dbs/spfile${ORACLE_SID}.ora
```

Update the spfile

Refer to, “*Database Initialization Parameters for Oracle Applications Release 12*” [MOS ID [396009.1](#)] and update the spfile with any necessary changes.

For this example, DBUA removed the Oracle E-Business required underscore parameters, so it is now necessary to restore them to the spfile. Execute the following in sqlplus:

```
alter system set "_b_tree_bitmap_plans"=FALSE scope=spfile;
```

```
alter system set "_disable_fast_validate"=TRUE scope=spfile;
alter system set "_fast_full_scan_enabled"=FALSE scope=spfile;
alter system set "_like_with_bind_as_equality"=TRUE scope=spfile;
alter system set "_optimizer_autostats_job"=FALSE scope=spfile;
alter system set "_sort_elimination_cost_ratio"=5 scope=spfile;
alter system set "_system_trig_enabled"=true scope=spfile;
alter system set "_trace_files_public"=TRUE scope=spfile;
```

Note that this is an example and you should still review “*Database Initialization Parameters for Oracle Applications Release 12*” [MOS ID [396009.1](#)].

Restart the Database

```
$ srvctl stop database -d FRESH
$ srvctl start database -d FRESH
```

Run Autoconfig on the Database Tier

Prepare the Database Tier Nodes for Autoconfig

Make sure the environment is set for the new ORACLE_HOME

```
export ORACLE_BASE=/u01/app/oracle
export ORACLE_HOME=$ORACLE_BASE/product/11.2.0/dbhome_1
export ORACLE_SID=FRESH1
export PATH=/usr/kerberos/bin:/usr/local/bin:/bin:/usr/bin:/home/oracle/bin
```

Set up the \$ORACLE_HOME/appsutil directory tree.

On application administration node:

1. Generate the appsutil.zip for the database tier, run the following command:

```
perl $AD_TOP/bin/admkappsutil.pl
```

2. Copy the appsutil.zip file to each DB server node ORACLE_HOME

```
scp /ebs/FRESH/inst/apps/FRESH_haovm021/admin/out/appsutil.zip
dscgigdb03:/u01/app/oracle/product/11.2.0/dbhome_1
scp /ebs/FRESH/inst/apps/FRESH_haovm021/admin/out/appsutil.zip
dscgigdb04:/u01/app/oracle/product/11.2.0/dbhome_1
```

On each database node:

3. cd \$ORACLE_HOME
4. unzip -o appsutil.zip
5. Copy the jre directory from the initial FRESH install ORACLE_HOME
cp -r /ebs/FRESH/db/tech_st/11.1.0/appsutil/jre .
6. Copy the jre directory to other database node(s) \$ORACLE_HOME/appsutil
scp -r appsutil/jre dscgigdb04:`pwd`/appsutil

Deregister the current configuration

As the APPS user, run the following command on the primary database node to de-register the current configuration:

```
sqlplus apps/apps
```

```

Connected.
SQL> exec fnd_conc_clone.setup_clean;

PL/SQL procedure successfully completed.

```

Prepare for use of the Single Client Access Name (SCAN)

As stated earlier under section, “[Upgrade Oracle E-Business Suite to use the SCAN \(Optional\)](#)”, the use of the SCAN is optional and there is a small availability risk. If this risk is not acceptable and you choose not to use the SCAN listener then consult MOS ID [823587.1](#), “*Using Oracle 11g Release 2 Real Application Clusters with Oracle E-Business Suite Release 12*” and follow section 3.3.

Get SCAN Information

Continuing with this example and using the SCAN, when generating the database context file you will be prompted for whether to enable the SCAN addresses for the Oracle E-Business Suite database. You can get the necessary information with the following commands:

```

$ srvctl config scan_listener
SCAN Listener LISTENER_SCAN1 exists. Port: TCP:1521
SCAN Listener LISTENER_SCAN2 exists. Port: TCP:1521
SCAN Listener LISTENER_SCAN3 exists. Port: TCP:1521
$ srvctl config scan
SCAN name: dscgig-scan, Network: 1/10.204.77.0/255.255.255.0/
SCAN VIP name: scan1, IP: /dscgig-scan.example.com/10.204.77.177
SCAN VIP name: scan2, IP: /dscgig-scan.example.com/10.204.77.178
SCAN VIP name: scan3, IP: /dscgig-scan.example.com/10.204.77.179

```

Add a Static SID to the Grid Infrastructure listener.ora

To run the initial database context file generation, the addition of a static Oracle System Identifier (SID) to the grid infrastructure (GI) listener.ora is required to avoid a “ORA-12505, TNS:listener does not currently know of SID given in connect descriptor” error. This is only required on the first database node since the other database nodes will be able to utilize the first database nodes newly defined network configuration.

1. Edit the GI listener.ora (/u01/app/11.2.0/grid/network/admin/listener.ora) and add the following:

```

SID_LIST_LISTENER =
  (SID_LIST =
    (SID_DESC =
      (ORACLE_HOME= /u01/app/oracle/product/11.2.0/dbhome_1)
      (SID_NAME = FRESH1)
    )
  )

```

2. Reload the listener

```

$ lsnrctl reload
LSNRCTL for Linux: Version 11.2.0.2.0 - Production on 02-JAN-2011 07:25:34

Copyright (c) 1991, 2010, Oracle. All rights reserved.

Connecting to (ADDRESS=(PROTOCOL=tcp)(HOST=)(PORT=1521))
The command completed successfully

```

Generate the Context File

Generate the context file **on each database node** (example steps and output are shown for only dscgigdb03). Note that you need the SCAN information from “[Get SCAN Information](#)” above to reply to some prompts.

- generate the new context file


```
$ perl $ORACLE_HOME/appsutil/bin/adbldxml.pl
Starting context file generation for db tier..
Using JVM from /u01/app/oracle/product/11.2.0/dbhome_1/jdk/jre/bin/java to
execute java programs..
APPS Password: apps

The log file for this adbldxml session is located at:
/u01/app/oracle/product/11.2.0/dbhome_1/appsutil/log/adbldxml_08170633.log
AC-20010: Error: File - listener.ora could not be found at the location:

/u01/app/oracle/product/11.2.0/dbhome_1/network/admin/FRESH_dscgigdb03/listene
r.ora
indicated by TNS_ADMIN. Context file cannot be generated.

Could not Connect to the Database with the above parameters, Please answer the
Questions below

Enter Hostname of Database server: dscgigdb03

Enter Port of Database server: 1521

Enter SID of Database server: FRESH1

Do you want to enable SCAN addresses[N]:Y

Specify value for s_scan_name: dscgig-scan

Specify value for s_scan_port: 1521

Enter the value for Display Variable: dscgigdb03:1

The context file has been created at:
/u01/app/oracle/product/11.2.0/dbhome_1/appsutil/FRESH1_dscgigdb03.xml
```
- Review the log at \$ORACLE_HOME/appsutil/log/adbldxml_<timestamp, MMDDHHMI>.log
- Edit the context file \$ORACLE_HOME/appsutil/FRESH1_dscgigdb03.xml


```
Set the value of s_virtual host_name to point to the virtual hostname for the database host
<host oa_var="s_virtual_hostname">dscgig03-vip</host>
```

Run Autoconfig on the First Database Node

- Run autoconfig


```
$ $ORACLE_HOME/appsutil/bin/adconfig.sh
contextfile=/u01/app/oracle/product/11.2.0/dbhome_1/appsutil/FRESH1_dscgigdb03
.xml
Enter the APPS user password:
```

The log file for this session is located at:
/u01/app/oracle/product/11.2.0/dbhome_1/appsutil/log/FRESH1_dscgigdb03/0817063
5/adconfig.log

AutoConfig is configuring the Database environment...

AutoConfig will consider the custom templates if present.

```
Using ORACLE_HOME location : /u01/app/oracle/product/11.2.0/dbhome_1
Classpath                  :
:/u01/app/oracle/product/11.2.0/dbhome_1/jdbc/lib/ojdbc5.jar:/u01/app/oracle/p
roduct/11.2.0/dbhome_1/appsutil/java/xmlparserv2.jar:/u01/app/oracle/product/1
1.2.0/dbhome_1/appsutil/java:/u01/app/oracle/product/11.2.0/dbhome_1/jlib/netc
fg.jar:/u01/app/oracle/product/11.2.0/dbhome_1/jlib/ldapjclnt11.jar
```

```
Using Context file         :
/u01/app/oracle/product/11.2.0/dbhome_1/appsutil/FRESH1_dscgigdb03.xml
```

Context Value Management will now update the Context file

Updating Context file...COMPLETED

Attempting upload of Context file and templates to
database...COMPLETED

```
Updating rdbms version in Context file to db112
Updating rdbms type in Context file to 64 bits
Configuring templates from ORACLE_HOME ...
```

AutoConfig completed successfully.

Post Autoconfig Steps on First Database Node

Setup to Use SRVCTL

This example does use the Real Applications Cluster server control utility (srvctl) to manage the database cluster. To use srvctl to manage the database in conjunction with the database-side autoconfig-generated network files requires the TNS_ADMIN directory path to be the same on all nodes. This is accomplished by using the IFILE option in the generic network files under the Grid Infrastructure ORACLE_HOME. As is recommended, we use the network files under the Grid Infrastructure ORACLE_HOME, /u01/app/11.2.0/grid/network/admin and then set the environment for the database in the Oracle Cluster Registry (OCR) with srvctl. Here are the steps:

1. In the Grid Infrastructure ORACLE_HOME on each database node, set the default network files to include (IFILE) the appropriate autoconfig generated network files under the \$ORACLE_HOME/network/admin/<CONTEXT_NAME> directory:
dscgigdb03
:::~
listener.ora
:::~
ifile=/u01/app/oracle/product/11.2.0/dbhome_1/network/admin/FRESH1_dscgigdb03/
listener.ora
:::~
sqlnet.ora
:::~
IFILE=/u01/app/oracle/product/11.2.0/dbhome_1/network/admin/FRESH1_dscgigdb03/
sqlnet.ora


```
$ $ORACLE_HOME/apputil/bin/adconfig.sh
contextfile=/u01/app/oracle/product/11.2.0/dbhome_1/apputil/FRESH1_dscgigdb03
.xml
```

Run Autoconfig on the Application Tier

1. Run adgrants.sql
 - a. Copy \$APPL_TOP/admin/adgrants.sql from the administration server node to the database server node.
 - b. Use SQL*Plus to connect to the database as SYSDBA and run the script using the following command:


```
$ sqlplus "/ as sysdba" @adgrants.sql [APPS schema name]
```
2. Grant create procedure privilege on CTXSYS
 - a. Copy \$AD_TOP/patch/115/sql/adctxprv.sql from the administration server node to the database server node.
 - b. Use SQL*Plus to connect to the database as APPS and run the script using the following command:


```
$ sqlplus apps/[APPS password] @adctxprv.sql [SYSTEM password] CTXSYS
```
3. Set CTXSYS parameter

Use SQL*Plus to connect to the database as SYSDBA and run the following command:

```
$ sqlplus "/ as sysdba"
SQL> exec ctxsys.ctx_adm.set_parameter('file_access_role', 'public');
```

On each application tier server node

4. Edit SID=<Instance 1> and PORT=<New listener port > in \$TNS_ADMIN/tnsnames.ora file, to set up a connection to one of the instances in the Oracle RAC environment.


```
FRESH=
      (DESCRIPTION=
        (ADDRESS=(PROTOCOL=tcp)(HOST=dscgig03-vip.us.oracle.com)(PORT=1521))
        (CONNECT_DATA=
          (SERVICE_NAME=FRESH)
          (INSTANCE_NAME=FRESH1)
        )
      )
```
5. Verify the connection from the applications tier node. This will use the TWO_TASK setting.


```
sqlplus system/welcome1
```
6. Validate Workflow Rules Set

On the administration server node, use SQL*Plus to connect to the database as APPS and run the \$FND_TOP/patch/115/sql/wfaqupfix.sql script using the following command:

```
$ sqlplus [APPS user]/[APPS password] @wfaqupfix.sql [APPLSYS user] [APPS user]
```

On each application tier server node

7. Edit the context variable `jdbc_url` in `$CONTEXT_FILE`, changing the `HOST`, `PORT`, `SERVICE_NAME` and adding the `INSTANCE_NAME` to the `CONNECT_DATA` parameter.

Before

```
<jdbc_url
oa_var="s_apps_jdbc_connect_descriptor">jdbc:oracle:thin:@(DESCRIPTION=(ADDRESS_LIST=(LOAD_BALANCE=YES) (FAILOVER=YES) (ADDRESS=(PROTOCOL=tcp) (HOST=dscgigdb03.us.oracle.com) (PORT=1523))) (CONNECT_DATA=(SID=FRESH)))</jdbc_url>
```

After

```
<jdbc_url
oa_var="s_apps_jdbc_connect_descriptor">jdbc:oracle:thin:@(DESCRIPTION=(ADDRESS_LIST=(LOAD_BALANCE=YES) (FAILOVER=YES) (ADDRESS=(PROTOCOL=tcp) (HOST= dscgig-scan.us.oracle.com) (PORT=1521))) (CONNECT_DATA=(SERVICE_NAME=FRESH) (INSTANCE_NAME=FRESH1)))</jdbc_url>
```

8. Run `autoconfig`

```
[oracle@haovm021 ~]$ $INST_TOP/admin/scripts/adautocfg.sh
Enter the APPS user password:
```

```
The log file for this session is located at:
/ebs/FRESH/inst/apps/FRESH_haovm021
/admin/log/08160836/adconfig.log
```

```
AutoConfig is configuring the Applications environment...
```

```
AutoConfig will consider the custom templates if present.
```

```
Using CONFIG_HOME location      : /ebs/FRESH/inst/apps/FRESH_haovm021
Classpath                       :
/ebs/FRESH/apps/apps_st/comn/java/lib/apps
borg2.zip:/ebs/FRESH/apps/apps_st/comn/java/classes
```

```
Using Context file              :
/ebs/FRESH/inst/apps/FRESH_haovm021/appl/admin/FRESH_haovm021.xml
```

```
Context Value Management will now update the Context file
```

```
Updating Context file...COMPLETED
```

```
Attempting upload of Context file and templates to
database...COMPLETED
```

```
Configuring templates from all of the product tops...
```

```
Configuring AD_TOP.....COMPLETED
Configuring FND_TOP.....COMPLETED
Configuring ICX_TOP.....COMPLETED
Configuring MSC_TOP.....COMPLETED
Configuring IEO_TOP.....COMPLETED
Configuring BIS_TOP.....COMPLETED
Configuring AMS_TOP.....COMPLETED
Configuring CCT_TOP.....COMPLETED
Configuring WSH_TOP.....COMPLETED
Configuring CLN_TOP.....COMPLETED
Configuring OKE_TOP.....COMPLETED
Configuring OKL_TOP.....COMPLETED
Configuring OKS_TOP.....COMPLETED
Configuring CSF_TOP.....COMPLETED
Configuring IGS_TOP.....COMPLETED
Configuring IBY_TOP.....COMPLETED
Configuring JTF_TOP.....COMPLETED
Configuring MWA_TOP.....COMPLETED
```

```

Configuring CN_TOP.....COMPLETED
Configuring CSI_TOP.....COMPLETED
Configuring WIP_TOP.....COMPLETED
Configuring CSE_TOP.....COMPLETED
Configuring EAM_TOP.....COMPLETED
Configuring FTE_TOP.....COMPLETED
Configuring ONT_TOP.....COMPLETED
Configuring AR_TOP.....COMPLETED
Configuring AHL_TOP.....COMPLETED
Configuring OZF_TOP.....COMPLETED
Configuring IES_TOP.....COMPLETED
Configuring CSD_TOP.....COMPLETED
Configuring IGC_TOP.....COMPLETED

```

AutoConfig completed successfully.

Post autoconfig Configuration

Configure HugePages on Each Database Node

HugePages is a Linux-only feature. HugePages are not configured by default on the Oracle Exadata Database Machine.

Follow MOS ID [361468.1](#), “HugePages on Oracle Linux 64-bit”. Ensure that when running the recommended script provided with MOS ID [401749.1](#) that the database is started.

Note that to ensure the entire SGA uses HugePages the USE_LARGE_PAGES database parameter should be set to ‘ONLY’. This is illustrated in the “[Post rconfig Database Parameter File](#)” section. Also see MOS [1392497.1](#).

Starting with Oracle Database 11.2.0.2, a message is logged to the database alert log when HugePages are being used, for example:

```

***** Huge Pages Information *****
Huge Pages memory pool detected (total: 18482 free: 17994)
DFLT Huge Pages allocation successful (allocated: 4609)
*****

```

Gather Statistics for SYS Schema

1. Copy \$APPL_TOP/admin/adstats.sql from the administration server node to the database server node work directory:

```
cp $APPL_TOP/admin/adstats.sql /ebs/expimp
```

2. Run the script.

```
sqlplus "/ as sysdba"
alter system enable restricted session;
@adstats.sql
```

```
sqlplus "/ as sysdba"
alter system disable restricted session;
```

Re-Create Grants and Synonyms

On the APPS node: execute `adadmin` and then select “4. Maintain Applications Database Entities menu” and then select “2. Re-create grants and synonyms for APPS schema”

Recompile the APPS Schema

On the APPS node: execute `adadmin` and then select “Compile/Reload Applications Database Entities and then select “1. Compile APPS schema”

Start Applications Tier Processes

```
$INST_TOP/admin/scripts/adstrtal.sh
```

Synchronize Workflow Views

1. Log on to Oracle E-Business Suite with the "System Administrator" responsibility.
1. Select **Requests > Run > Single Request** and click the **OK** button. Enter the following parameters:
 - Request Name = Workflow Directory Services User/Role Validation
 - Batch size = 10000
 - Fix Dangling Users = Yes
 - Add missing user/role assignments = Yes
 - Update WHO columns in WF tables = No
2. Click **OK** and **Submit**.
3. View the log file. A successful run should contain the following:

```
+-----+
Application Object Library: Version : 12.0.0

Copyright (c) 1979, 1999, Oracle Corporation. All rights reserved.

FNDWFDSURV module: Workflow Directory Services User/Role Validation
+-----+

Current system time is 02-JAN-2011 11:27:34

+-----+

**Starts**02-JAN-2011 11:27:34
**Ends**02-JAN-2011 11:28:07

+-----+
Executing request completion options...

Output file size:
0

+----- 1) PRINT -----+
Disabling requested Output Post Processing. Nothing to process. The output
of the request is zero byte.
+-----+

Finished executing request completion options.

+-----+
```


Conclusion

A successful installation of the Oracle E-Business Suite database on the Oracle Exadata Database Machine is dependent upon thorough preparation that includes planning, testing, and review of all the steps involved. The intent of this paper was to illustrate the steps to install Oracle E-Business Suite R12 with Oracle Database 11g release 11.2 using Oracle RAC and Oracle ASM on the Oracle Exadata Database Machine. The process entails referring to multiple Oracle MOS IDs that are referenced herein with explicit examples included. Any improvements to this process will be updated in this paper and reposted to the Maximum Availability Architecture website at <http://www.oracle.com/goto/maa>.

Appendix

Test Environment Details

The hardware and software details for the test environment are as follows:

Application Tier Node

- Name: haovm021.us.oracle.com
- Oracle Enterprise Linux 2.6.18-194.3.1.0.2.el5 x86_64
- E_Business Suite Version 12.1.1
- ORACLE_HOME /ebs/FRESH/apps/tech_st/10.1.2
- \$APPL_TOP /ebs/FRESH/apps/apps_st/appl
- \$INST_TOP /ebs/FRESH/inst/apps/FRESH_haovm021
- NFS mounted storage from dscbbg03:/export2/ on /ebs

Target Database System

Oracle Exadata Database Machine quarter rack

- Compute Nodes
 - Names: dscgigdb03 and dscgigdb04
 - IP Addresses
 - dscgigdb03 10.204.74.168
 - dscgig03-vip 10.204.77.181
 - dscgigdb04 10.204.74.169
 - dscgig04-vip 10.204.77.182
 - dscgig-scan 10.204.77.177, 10.204.77.178, 10.204.77.179

```
$ nslookup dscgig-scan
Server: 144.20.190.70
Address: 144.20.190.70#53

Name: dscgig-scan.us.oracle.com
Address: 10.204.77.177
Name: dscgig-scan.us.oracle.com
Address: 10.204.77.178
Name: dscgig-scan.us.oracle.com
Address: 10.204.77.179
See http://www.oracle.com/technetwork/database/clustering/overview/scan-129069.pdf for understanding the Oracle RAC Single Client Access Name (SCAN) configuration.
```
- Initial Database Rapid Install ORACLE_HOME
 - /ebs/FRESH/db/tech_st/11.1.0

- ORACLE_SID=FRESH
- DB_NAME=FRESH
- Listener name = FRESH
- Target Database ORACLE_HOME
 - 11.2.0.2
/u01/app/oracle/product/11.2.0/dbhome_1
 - ORACLE_SID=FRESH1 and FRESH2 respectively
 - DB_NAME=FRESH
- Grid ORACLE_HOME 11.2.0.2
/u01/app/11.2.0/grid
- ASM ORACLE_SID=+ASM1 and +ASM2 respectively
- ASM Diskgroups: +DATA and +RECO
DB_NAME=FRESH Each with:
 - Oracle Enterprise Linux 2.6.18-194.3.1.0.2.el5 x86_64
 - Oracle Enterprise Edition 11.2.0.2
 - 2 Quad-Core Intel Xeon® E5540 Processors (2.53 GHz)
 - 72 GB memory
 - Disk Controller HBA with 512MB Battery Backed Write Cache
 - 4 x 146 GB SAS 10,000 RPM disks
 - Dual-Port QDR InfiniBand Host Channel Adapter
 - 4 Embedded Gigabit Ethernet Ports
- Storage:
 - NFS mounted storage from dscbbg03:/export2/ on /ebs

```
mount dscbbg03:/export2/ebs /ebs -o rw,bg,hard,nointr, \
  rsize=32768,wsiz=32768,tcp,noac,vers=3,timeo=600,nolock
```

See “*How to Optimize NFS Performance with NFS options*. [ID [397194.1](#)]” for NFS mount option details
 - 3 Exadata Cells (dscgigcel05-07)
Each cell with:
 - 2 Quad-core Intel Xeon E5540 (2.53GHz) processors
 - Exadata Smart Flash Cache 384 GB
 - 12 x 1TB 7,200 RPM SATA drives

Create a Local File System

These are the steps for creating a local file system on the database machine.

1. Display the logical volume group:

```
[root@dscgigdb03 ~]# vgdisplay
--- Volume group ---
```

```

VG Name                VGExaDb
System ID
Format                 lvm2
Metadata Areas        1
Metadata Sequence No  4
VG Access              read/write
VG Status              resizable
MAX LV                 0
Cur LV                3
Open LV                3
Max PV                 0
Cur PV                1
Act PV                 1
VG Size                278.34 GB
PE Size                4.00 MB
Total PE               71255
Alloc PE / Size       39424 / 154.00 GB
Free PE / Size        31831 / 124.34 GB
VG UUID                Lvh7nE-o6z1-TloU-5APF-SKYz-U8nL-sZMvfX

```

2. Create a logical volume in an existing volume group:

```
[root@dscgigdb03 ~]# lvcreate -L 110G -n /dev/VGExaDb/EBSpar
Logical volume "EBSpar" created
```

3. Create the file system:

```
[root@dscgigdb03 ~]# mkfs.ext3 -m 0 -b 4096 /dev/VGExaDb/EBSpar
mke2fs 1.39 (29-May-2006)
Filesystem label=
OS type: Linux
Block size=4096 (log=2)
Fragment size=4096 (log=2)
14417920 inodes, 28835840 blocks
0 blocks (0.00%) reserved for the super user
First data block=0
Maximum filesystem blocks=4294967296
880 block groups
32768 blocks per group, 32768 fragments per group
16384 inodes per group
Superblock backups stored on blocks:
    32768, 98304, 163840, 229376, 294912, 819200, 884736, 1605632,
2654208,
    4096000, 7962624, 11239424, 20480000, 23887872

Writing inode tables: done
Creating journal (32768 blocks): done
Writing superblocks and filesystem accounting information: done

This filesystem will be automatically checked every 31 mounts or
180 days, whichever comes first.  Use tune2fs -c or -i to override.
```

4. Mount the file system:

```
[root@dscgigdb03 ~]# mkdir -p /ebs/stage
[root@dscgigdb03 ~]# mount /dev/VGExaDb/EBSpar /ebs/stage
```

Rapid Install Standard Installation Database Parameter File

This file was the initial single-instance Rapid Install Standard Installation database parameter file that is Oracle Database 11g release 11.1.0.7.

```
#####
```

```

# $Header: afinit_db111.ora 120.4 2008/07/03 07:12:03 upinjark noship $
#
#       Oracle Applications 11i - init.ora
#
#       This file contains a listing of init.ora parameters for 11.1.
#
#       This is a reference file and contains the major initialization
#       parameters used in Oracle Applications.
#
#       It is divided into two main sections:
#
#           General Parameters
#           Optimizer Parameters
#
#       General Parameters
#
#           Some of the general parameters are mandatory and are noted
#           as such. All others provide good initial values but may need
#           to be increased depending on the number of users.
#
#       Optimizer Parameters
#
#           All optimizer parameters are mandatory. Parameters starting
#           with a leading underscore are defined as undocumented. No
#           undocumented optimizer parameter must be set other than those
#           listed in this section.
#
#####
#####
#
#       Database parameters
#
#       The database parameters define the name of the database and the names
#       of the control files.
#
#       The database name is established when the database is built, and for
#       most customers matches the instance name. It should not normally be
#       necessary to change the database name, except for the purposes of
#       database cloning.
#
#       There should be at least two control files, preferably three,
#       located on different disks. The control files can dynamically grow,
#       so allow at least 20M per file for growth.
#
#####
db_name                = FRESH
control_files          =
                       /ebs/FRESH/db/apps_st/data/cntrl01.dbf,/ebs/FRESH/db/apps_st/data/cntrl02.dbf,
                       /ebs/FRESH/db/apps_st/data/cntrl03.dbf
#####
#
#       Database block size
#
#       The required block size for Oracle Applications is 8K.
#
#####
db_block_size          = 8192
#####

```

```
#
#   Compatible
#
#   Compatibility should be set to the current release.
#
#####

compatible                = 11.1.0

#####
#
#   _system_trig_enabled
#
#   The _system_trig_enabled should normally be set to TRUE.
#   If the _system_trig_enabled parameter is set to FALSE it will
#   disable system triggers from being executed.
#
#####

_system_trig_enabled      = true

#####
#
#   O7_DICTIONARY_ACCESSIBILITY
#
#   O7_DICTIONARY_ACCESSIBILITY should be left to its default value
#   of FALSE in 10g Database. (Bug 4768492).
#
#####

#####
#
#   Required parameters.
#
#   These parameters are required for Oracle Applications and MUST NOT
#   be changed.
#
#####

#####
# NLS parameters
#
# Some NLS parameter values are marked as being required 11i settings.
# These are the only supported settings for these parameters for
# Applications 11i and must not be modified to other values.
# Other NLS parameters have been given default values.
#####
nls_language              = american
nls_territory             = america
nls_date_format           = DD-MON-RR
nls_numeric_characters    = ".,"
nls_sort                  = binary # Required 11i setting
nls_comp                  = binary # Required 11i setting
nls_length_semantics     = BYTE   # Required 11i setting

#####
#
#   Multi-threaded Server (MTS)
#
#   Most Oracle Applications customers DO NOT need to use MTS, and the
#   default is to leave it disabled.
#
```

```
#      If MTS is used, it can have a dramatic effect on the SGA, as session
#      memory, including sort and cursor areas, is taken from the SGA.
#
#      Configuring MTS requires the large pool to be allocated. The
#      minimum size for the large pool is 50M.
#
#####
#####
#
#      Auditing and Security
#
#      Logon auditing is very useful in determining the I/O profile of
#      batch ( concurrent manager ) processes. This information will be
#      available in FND_CONCURRENT_REQUESTS in a later release of Oracle
#      Applications.
#
#      The cost of log on auditing is minimal, and the only additional
#      requirement is for a housekeeping procedure to periodically
#      purge the SYS.AUD$ table. Statement level auditing is not recommended.
#
#      Some products require max_enabled_roles to be set. This should be set
#      to a minimum of 40, although higher values are quite acceptable.
#
#####
#audit_trail                = true                # if you want auditing
#####
#
#      Dump parameters
#
#      These specify the destination of the trace and core files, and would
#      normally point into the appropriate OFA trace directories.
#      The maximum size of a dump file can be changed at the session level,
#      and prevents a trace file using an excessive amount of disk space.
#
#####
#user_dump_dest              =
#                           /ebs/FRESH/db/tech_st/11.1.0/admin/FRESH_dscgigdb03/udump
#background_dump_dest       =
#                           /ebs/FRESH/db/tech_st/11.1.0/admin/FRESH_dscgigdb03/bdump
#core_dump_dest              =
#                           /ebs/FRESH/db/tech_st/11.1.0/admin/FRESH_dscgigdb03/cdump
#diagnostic_dest             =
#                           /ebs/FRESH/db/tech_st/11.1.0/admin/FRESH_dscgigdb03
#
#max_dump_file_size         = 20480 # trace file size
#####
#
#      Timed statistics
#
#      On most platforms, enabling timed statistics has minimal effect on
#      performance. There are a handful of exceptions. It can be
#      enabled/disabled dynamically at both the system and session level.
#
#      This information is used by many options, including SQL_TRACE,
#      Oracle Trace,statspack and Oracle Enterprise Manager.
#
#####
```

```
timed_statistics          = true

#####
#
#       Trace parameters
#
#####

#       _trace_files_public
#
#       As the data server machine should be in a secure environment,
#       setting to true enables trace file analysis.

_trace_files_public      = TRUE

#####
#
#       Fixed SGA
#
#       The fixed SGA parameters represent resources that have their size
#       fixed on startup. If the maximum size is reached ( e.g. no of
#       sessions ), then the resource is unavailable until freed by the
#       instance.
#
#####

#       Processes/sessions
#
#       A database process can be associated with one or more database
#       sessions. For all technologies other than FORMS, you can assume
#       a 1-to-1 mapping between sessions and processes.
#
#       For FORMS processes, there will be one database session per open form,
#       with a minimum of two open forms(sessions).
#
#       Either explicitly set sessions accordingly or just double the
#       number of processes.
#
#       The other parameters will depend on the specific installation, but the
#       values given are not untypical of many Oracle Applications customers.

processes                 = 200      # Max. no. of users x 2
sessions                 = 400      # 2 X processes
db_files                 = 512      # Max. no. of database files
dml_locks                = 10000
cursor_sharing           = EXACT    # Required lli setting
open_cursors             = 600      # Consumes process memory, unless using
                               MTS.
session_cached_cursors   = 500

#####
#
#       Cache Sizes
#
#       For 10g, the automatic SGA tuning option is required.
#       This avoids the need to individually tune the different
#       SGA caches such as the buffer cache, shared pool, large
#       pool, etc.. The automatic SGA tuning option improves
#       overall performance and improves manageability.
#
#       SGA target refers to the total size of the SGA including
#       all the sub-caches such as the buffer cache, log buffer,
#       shared pool, large pool, etc.. Refer to the sizing table
```

```
#      in the section Database Initialization Parameter Sizing for
#      sizing recommendations for sga_target.
#
#      Also, it is recommended to use a Server Parameter file
#      (i.e. SPFILE) to store the initialization parameter
#      values when sga_target is being used.  The Automatic
#      SGA tuning option (sga_target) dynamically sizes the
#      individual caches such as the buffer cache and shared pool.
#      Using an SPFILE allows the dynamically adjusted values to
#      persist across restarts.  Please refer to the
#      Database Administrator's Guide for information on how
#      to create and maintain an SPFILE.
#
#
#####
sga_target                = 1G
#####
#
# Shared Pool
#
# It is important to tune the shared pool so as to minimize
# contention for SQL and PL/SQL objects.  A value of 400M is a
# reasonable starting point for lli, and automatic SGA
# tuning will adjust the caches as per the workload.
# The values below for the shared pool related caches
# are simply minimum values (i.e. starting values).
#
#####
shared_pool_size = 400M
shared_pool_reserved_size = 40M
#####
#
#
# Db Block Checking
#
#
#####
db_block_checking          = FALSE
db_block_checksum         = TRUE
#####
#
#      Log Writer
#
#      The log writer parameters control the size of the log buffer
#      within the SGA and how frequently the redo logs are check
#      pointed ( all dirty buffers written to disk to create a new
#      recovery point).
#
#      The checkpoint interval and timeout control the frequency of
#      checkpoints.
#
#####
log_checkpoint_timeout     = 1200 # Checkpoint at least every 20 mins.
log_checkpoint_interval    = 100000
log_checkpoints_to_alert   = TRUE
```

```
log_buffer                = 10485760

#####
#
#       Rollback segments
#
#       As of 9iR2, Oracle Applications requires the use of System Managed Undo.
#       System Managed Undo is much more efficient, and reduces the chances
#       of snapshot too old errors.  In addition, it is much easier to
#       manage and administer system managed undo than manually managing
#       rollback segments.
#
#       Note:
#
#       Oracle Applications will function correctly using rollback segments
#       but Oracle recommends that customers move to System Managed Undo.
#
#       To use System Managed Undo, you must create an UNDO tablespace.
#
#####

#rollback_segments      = (_sysssmu16_1232623801$, _sysssmu17_1232623801$,
  _sysssmu18_1232623801$, _sysssmu19_1232623801$, _sysssmu20_1232623801$,
  _sysssmu21_1232623801$, _sysssmu22_1232623801$, _sysssmu23_1232623801$,
  _sysssmu24_1232623801$, _sysssmu25_1232623801$, _sysssmu26_1232623801$,
  _sysssmu27_1232623801$, _sysssmu28_1232623801$, _sysssmu29_1232623801$)

# undo_management
#
# Set to AUTO to enable System Managed Undo

undo_management=AUTO          # Required 11i setting

#
# undo_tablespace
#
# The name of the System Managed Undo tablespace.
#

undo_tablespace=APPS_UNDOTS1  # Required 11i setting

#####
#
#       Sort Area / Hash Area Size
#
#       As of 9iR2, the auto. memory manager is being used.  This avoids the
#       need to manually tune sort_area_size and hash_area_size.
#       Auto. Memory Manager also improves performance and scalability
#       as the memory is released to the OS after the call.
#
#       Although manual tuning via sort_area_size/hash_area_size is still
#       supported, it is strongly recommended that customers convert to
#       automatic workarea management.
#
#####

#
# workarea_size_policy
#
# Set to AUTO to enable automatic workarea management.
#

workarea_size_policy=AUTO          # Required 11i setting
```

```
olap_page_pool_size      =          4194304

#
#   pga_aggregate_target
#
#   pga_aggregate_target is the total memory available for work area
#   operations ( predominantly sorts ). The available memory will grow
#   and shrink as the workload changes.
#
#   Set to low, it will have a dramatic effect on performance, as
#   sort operations will be forced to disk. The recommended minimum
#   is 1G, although for small test or demo systems, 500M is acceptable.
#
#   The upper bound is determined by the available memory allocated to
#   the instance. Once you've subtracted O/S overhead, and memory used
#   by other systems, 95% of instance memory is accounted for by:
#
#       SGA Pools - shared_pool,java_pool and large_pool
#       db_block_buffers
#       pga_aggregate_target
#
#   Never set pga_aggregate_target such that total allocated memory will be
#   greater than physical memory, or the server will swap and cause
#   severe performance problems.
#
#   Use statspack to determine the optimum target. However, a simple rule
#   of thumb would be 2M per database session.

pga_aggregate_target=1G

#       cursor_space_for_time
#
#       Reduces contention within the shared pool but requires at least a 50%
#       increase in the shared pool. Only set on the advice of Oracle Support
#       or Development.

#####
#
#   PL/SQL Parameters
#
#   The following parameters are used to enable the PL/SQL
#   global optimizer as well as native compilation.
#
#   Oracle Applications uses PL/SQL Interpreted
#   compilation as default for 10g based Apps environments.
#   To use PL/SQL Native compilation set plsql_code_type to
#   NATIVE and the parameter (plsql_native_library_dir) should
#   be set to the directory path which will be used to store
#   the shared libraries generated as part of native
#   compilation. Oracle Corporation recommends that you
#   create the shared library directory as a subdirectory
#   where the data files are located.
#
#
#   The utl_file_dir must be set as per the installation manuals.
#   utl_file_dir = <dir1>,<dir2> ...
#
#####

plsql_optimize_level      = 2          # Required 11i setting
```

```
plsql_code_type          = INTERPRETED      # Default 11i setting

plsql_native_library_dir = /ebs/FRESH/db/tech_st/11.1.0/plsql/nativelib

plsql_native_library_subdir_count = 149

utl_file_dir =
  /usr/tmp,/usr/tmp,/ebs/FRESH/db/tech_st/11.1.0/apputil/outbound/FRESH_dscgigd
  b03,/usr/tmp

#####
#
#   Advanced Queuing (AQ) and Job Queues
#
#   AQ requires the TM process to handle delayed messages. A number
#   of Application modules use AQ, including workflow.  Job Queues
#   enable advanced queue to submit background jobs.
#
#   job_queue_interval is obsolete and should no longer be required.
#   It is now an undocumented parameter ( _job_queue_interval ).
#####

aq_tm_processes          = 1
job_queue_processes     = 2

#####
#
#   Archiving
#
#   Archiving parameters, including destination ( optionally multiple
#   destinations in 9i ) need to be specified.
#####

# log_archive_start      = true           # if you want automatic archiving

#####
#
#   Parallel Query
#
#   Not normally required for OLTP systems. If enabled, tables/indexes
#   MUST NOT have degree set. Use hints to enable parallel query.
#
#   To use the parallel option with DBMS_STATS ( FND_STATS ) in 11i,
#   parallel_max_servers must be set - it is not a dynamic parameter. It
#   should be set based on the number of available CPUs.  Examples are
#   given below but may need to be altered. These are reasonable values
#   for DBMS_STATS.
#
#   Parallel Query uses the large_pool for message buffers and the
#   large_pool_size may therefore need to be specified
#   - see above for guidelines.
#####

parallel_max_servers = 8
parallel_min_servers = 0

#####
#
#   Events
#
```

```

#      Events are used by Oracle Support and Development. They should only be
#      set as requested.
#
#      The following events (if any) should be set.
#
#####

#####
#
#      Platform specific parameters
#
#####

#
#      spin_count
#
#      This parameter is used on SMP platforms. It determines how long to
#      spin trying to acquire exclusive access to low-level SGA data
#      structures.
#
#      With 8i, this parameter is undocumented and SHOULD NEVER be set except
#      at the request of Oracle Support.

#####
#
#      Database Passwords - Case Sensitivity (11g feature)
#
#      Database password case sensitivity is a new feature available with 11g
#      But as Applications tier do not support case sensitive database passwords,
#      till then this feature cannot be used by default and set to FALSE.
#
#      To Enable/ Disable set SEC_CASE_SENSITIVE_LOGON to TRUE/ FALSE
#
#####

sec_case_sensitive_logon = FALSE

# ----- MANDATORY OPTIMIZER PARAMETERS -----
#####
#
#      CBO parameters
#####

#####
#
#      Optimizer
#
#      Release 11i uses the Cost Based Optimizer (CBO). The
#      following optimizer parameters MUST be set as below, and should not
#      be changed.
#
#####

_b_tree_bitmap_plans = FALSE      # Required 11i setting

_index_join_enabled = FALSE      # Required 11i setting

#####
#
#      _like_with_bind_as_equality

```

```

#
#   This parameter forces the optimizer to treat expressions of the form
#   [indexed-column like :b1] similar to [index-column = :b1].
#   Oracle Apps has many queries which use the LIKE operator on indexed
#   columns with binds. Since binds are involved, the CBO assigns
#   internal default selectivity estimates for the LIKE operator (5%),
#   and hence does not consider the index selective.
#####
_ like_with_bind_as_equality      = TRUE

#####
#   _sort_elimination_cost_ratio
#
#   Setting it to five forces the optimizer to only eliminate the
#   sort when it is 1/5th the cost of the index probe (or conversely the
#   index probe is 5 times as costly as the sort).
#####

_sort_elimination_cost_ratio=5

#####
#   _fast_full_scan_enabled
#
#   This parameter is used to disable fast full scans.
#####

_fast_full_scan_enabled          = FALSE

#####
#   query_rewrite_enabled
#
#   Required for materialised views and function based indexes, which are
#   used in some 11products. The recommended value is true.
#####

query_rewrite_enabled = true

#####
#   _sqlxexec_progression_cost
#
#   This parameter specifies the cost threshold for the
#   progress meter. Non-zero values can prevent cursors
#   from being shared when timed_statistics=TRUE.
#
#####

_sqlxexec_progression_cost=2147483647

optimizer_secure_view_merging=false

_optimizer_autostats_job=false # Turning off auto statistics

#####
#
#   END OF CBO PARAMETERS SECTION
#
#####

# ----- END OF MANDATORY OPTIMIZER PARAMETERS -----
#

```

```
# Customer Settings.
#
IFILE=/ebs/FRESH/db/tech_st/11.1.0/dbs/FRESH_dscgigdb03_ifile.ora
```

Enable Maintenance Mode

1. Start the Oracle Application Administration utility, adadmin:

```
[ebs@haovm021 ~]$ adadmin
Copyright (c) 2002 Oracle Corporation
Redwood Shores, California, USA

Oracle Applications AD Administration

Version 12.0.0

NOTE: You may not use this utility for custom development
      unless you have written permission from Oracle Corporation.

Your default directory is '/ebs/app/oracle/apps/apps_st/appl'.
Is this the correct APPL_TOP [Yes] ?
AD Administration records your AD Administration session in a text file
you specify. Enter your AD Administration log file name or press [Return]
to accept the default file name shown in brackets.

Filename [adadmin.log] :
***** Start of AD Administration session *****
AD Administration version: 12.0.0
AD Administration started at: Thu Apr 29 2010 12:17:09

APPL_TOP is set to /ebs/app/oracle/apps/apps_st/appl

Backing up restart files, if any.....Done.

Your previous AD Administration session did not run to completion.
Do you wish to continue with your previous AD Administration session [Yes] ?

You are about to use or modify Oracle Applications product tables
in your ORACLE database 'FRESH'
using ORACLE executables in '/ebs/app/oracle/apps/tech_st/10.1.2'.

Is this the correct database [Yes] ?
AD Administration needs the password for your 'SYSTEM' ORACLE schema
in order to determine your installation configuration.

Enter the password for your 'SYSTEM' ORACLE schema:

The ORACLE username specified below for Application Object Library
uniquely identifies your existing product group: APPLSYS

Enter the ORACLE password of Application Object Library [APPS] :

AD Administration is verifying your username/password.
The status of various features in this run of AD Administration is:
```

Feature	Active?	<-Feature version in->		Flags
		APPLTOP	Data model	
CHECKFILE	Yes	1	1	Y N N Y N Y
PREREQ	Yes	6	6	Y N N Y N Y
CONCURRENT_SESSIONS	No	2	2	Y Y N Y Y N
PATCH_TIMING	Yes	2	2	Y N N Y N Y
PATCH_HIST_IN_DB	Yes	6	6	Y N N Y N Y

```

SCHEMA_SWAP          Yes          1          1          Y N N Y Y Y
JAVA_WORKER          Yes          1          1          Y N N Y N Y
CODELEVEL            Yes          1          1          Y N N Y N Y
    
```

Identifier for the current session is 540204

Reading product information from file...

Reading language and territory information from file...

Reading language information from applUS.txt ...

AD Administration warning:
 Product Data File
 /ebs/app/oracle/apps/apps_st/appl/admin/zfaprod.txt
 does not exist for product "zfa".
 This product is registered in the database but the
 above file does not exist in APPL_TOP. The product
 will be ignored without error.

AD Administration warning:
 Product Data File
 /ebs/app/oracle/apps/apps_st/appl/admin/zsaprod.txt
 does not exist for product "zsa".
 This product is registered in the database but the
 above file does not exist in APPL_TOP. The product
 will be ignored without error.

AD Administration warning:
 Product Data File
 /ebs/app/oracle/apps/apps_st/appl/admin/jtsprod.txt
 does not exist for product "jts".
 This product is registered in the database but the
 above file does not exist in APPL_TOP. The product
 will be ignored without error.

Reading database to see what industry is currently installed.

Reading FND_LANGUAGES to see what is currently installed.
 Currently, the following language is installed:

Code	Language	Status
US	American English	Base

Your base language will be AMERICAN.

Setting up module information.
 Reading database for information about the modules.
 Saving module information.
 Reading database for information about the products.
 Reading database for information about how products depend on each other.
 Reading topfile.txt ...

Saving product information.

AD code level : [B.1]

AD Administration Main Menu

1. Generate Applications Files menu
2. Maintain Applications Files menu
3. Compile/Reload Applications Database Entities menu

4. Maintain Applications Database Entities menu
5. **Change Maintenance Mode**
6. Exit AD Administration

Enter your choice [6] : 5

2. Select option 5, **Change Maintenance Mode**

```

Change Maintenance Mode
-----
Maintenance Mode is currently: [Disabled].

Maintenance mode should normally be enabled when patching
Oracle Applications and disabled when users are logged on
to the system. See the Oracle Applications Maintenance
Utilities manual for more information about maintenance mode.
```

Please select an option:

1. **Enable Maintenance Mode**
2. Disable Maintenance Mode
3. Return to Main Menu

Enter your choice [3] : 1

3. Select option 1, **Enable Maintenance Mode**

```

sqlplus -s &un_apps/*****
@/ebs/FRESH/apps/apps_st/appl/ad/12.0.0/patch/115/sql/
adsetmmd.sql ENABLE
```

Successfully enabled Maintenance Mode.

Review the messages above, then press [Return] to continue.

Backing up restart files, if any.....Done.

```

Change Maintenance Mode
-----
Maintenance Mode is currently: [Enabled].

Maintenance mode should normally be enabled when patching
Oracle Applications and disabled when users are logged on
to the system. See the Oracle Applications Maintenance
Utilities manual for more information about maintenance mode.
```

Database Pre-upgrade Tool Output

First Pass

```

SQL> @utlul12i
Oracle Database 11.2 Pre-Upgrade Information Tool    08-05-2010 05:03:26
```

```

.
*****
Database:
*****
--> name:          FRESH
--> version:       11.1.0.7.0
--> compatible:   11.1.0
--> blocksize:    8192
--> platform:     Linux x86 64-bit
--> timezone file: V10
.
*****
Tablespaces: [make adjustments in the current environment]
*****
--> SYSTEM tablespace is adequate for the upgrade.
.... minimum required size: 11011 MB
--> CTXD tablespace is adequate for the upgrade.
.... minimum required size: 16 MB
--> ODM tablespace is adequate for the upgrade.
.... minimum required size: 10 MB
--> APPS_UNDOTS1 tablespace is adequate for the upgrade.
.... minimum required size: 1366 MB
--> APPS_TS_TX_DATA tablespace is adequate for the upgrade.
.... minimum required size: 5210 MB
--> APPS_TS_QUEUES tablespace is adequate for the upgrade.
.... minimum required size: 86 MB
WARNING: --> SYSAUX tablespace is not large enough for the upgrade.
.... currently allocated size: 446 MB
.... minimum required size: 494 MB
.... increase current size by: 48 MB
.... tablespace is NOT AUTOEXTEND ENABLED.
.
*****
Flashback: OFF
*****
Update Parameters: [Update Oracle Database 11.2 init.ora or spfile]
*****
WARNING: --> "java_pool_size" needs to be increased to at least 128 MB
.
*****
Renamed Parameters: [Update Oracle Database 11.2 init.ora or spfile]
*****
-- No renamed parameters found. No changes are required.
.
*****
Obsolete/Deprecated Parameters: [Update Oracle Database 11.2 init.ora or
spfile]
*****
--> plsql_native_library_dir      11.2      OBSOLETE
--> plsql_native_library_subdir_ 11.2      OBSOLETE
.
*****
Components: [The following database components will be upgraded or installed]
*****
--> Oracle Catalog Views          [upgrade] VALID
--> Oracle Packages and Types     [upgrade] VALID
--> JServer JAVA Virtual Machine [upgrade] VALID
--> Oracle XDK for Java           [upgrade] VALID
--> Real Application Clusters     [upgrade] INVALID
--> OLAP Analytic Workspace       [upgrade] VALID
--> OLAP Catalog                  [upgrade] VALID
--> Oracle Text                   [upgrade] VALID

```

```

--> Oracle XML Database           [upgrade] VALID
--> Oracle Java Packages          [upgrade] VALID
--> Oracle interMedia             [upgrade] VALID
--> Spatial                        [upgrade] VALID
--> Data Mining                   [upgrade] VALID
--> Oracle OLAP API               [upgrade] VALID
.
*****
Miscellaneous Warnings
*****
WARNING: --> Database is using a timezone file older than version 11.
.... After the release migration, it is recommended that DBMS_DST package
.... be used to upgrade the 11.1.0.7.0 database timezone version
.... to the latest version which comes with the new release.
WARNING: --> Database contains schemas with stale optimizer statistics.
.... Refer to the Upgrade Guide for instructions to update
.... schema statistics prior to upgrading the database.
.... Component Schemas with stale statistics:
....   SYS
....   OLAPSYS
....   CTXSYS
....   XDB
....   ORDSYS
....   MDSYS
WARNING:--> recycle bin in use.
.... Your recycle bin is turned on and it contains
.... 2 object(s). It is REQUIRED
.... that the recycle bin is empty prior to upgrading
.... your database.
.... The command: PURGE DBA_RECYCLEBIN
.... must be executed immediately prior to executing your upgrade.
.

PL/SQL procedure successfully completed.

```

Second Pass

This is the output after fixing the items highlighted above under [“First Pass.”](#)

```

SQL> @utlul12i
Oracle Database 11.2 Pre-Upgrade Information Tool    08-09-2010 06:41:20
.
*****
Database:
*****
--> name:           FRESH
--> version:        11.1.0.7.0
--> compatible:     11.1.0
--> blocksize:      8192
--> platform:       Linux x86 64-bit
--> timezone file:  V10
.
*****
Tablespaces: [make adjustments in the current environment]
*****
--> SYSTEM tablespace is adequate for the upgrade.
.... minimum required size: 11011 MB
--> CTXD tablespace is adequate for the upgrade.
.... minimum required size: 16 MB
--> ODM tablespace is adequate for the upgrade.
.... minimum required size: 10 MB
--> APPS_UNDOTS1 tablespace is adequate for the upgrade.
.... minimum required size: 1379 MB

```

```

--> APPS_TS_TX_DATA tablespace is adequate for the upgrade.
... minimum required size: 5210 MB
--> APPS_TS_QUEUES tablespace is adequate for the upgrade.
... minimum required size: 86 MB
--> SYSAUX tablespace is adequate for the upgrade.
... minimum required size: 497 MB
.
*****
Flashback: OFF
*****
Update Parameters: [Update Oracle Database 11.2 init.ora or spfile]
*****
-- No update parameter changes are required.
.
*****
Renamed Parameters: [Update Oracle Database 11.2 init.ora or spfile]
*****
-- No renamed parameters found. No changes are required.
.
*****
Obsolete/Deprecated Parameters: [Update Oracle Database 11.2 init.ora or
spfile]
*****
-- No obsolete parameters found. No changes are required
.
*****
Components: [The following database components will be upgraded or installed]
*****
--> Oracle Catalog Views           [upgrade]  VALID
--> Oracle Packages and Types      [upgrade]  VALID
--> JServer JAVA Virtual Machine   [upgrade]  VALID
--> Oracle XDK for Java            [upgrade]  VALID
--> Real Application Clusters      [upgrade]  INVALID
--> OLAP Analytic Workspace        [upgrade]  VALID
--> OLAP Catalog                   [upgrade]  VALID
--> Oracle Text                    [upgrade]  VALID
--> Oracle XML Database            [upgrade]  VALID
--> Oracle Java Packages           [upgrade]  VALID
--> Oracle interMedia              [upgrade]  VALID
--> Spatial                        [upgrade]  VALID
--> Data Mining                    [upgrade]  VALID
--> Oracle OLAP API                [upgrade]  VALID
.
*****
Miscellaneous Warnings
*****
WARNING: --> Database is using a timezone file older than version 11.
... After the release migration, it is recommended that DBMS_DST package
... be used to upgrade the 11.1.0.7.0 database timezone version
... to the latest version which comes with the new release.
WARNING: --> Database contains schemas with stale optimizer statistics.
... Refer to the Upgrade Guide for instructions to update
... schema statistics prior to upgrading the database.
... Component Schemas with stale statistics:
...   SYS
WARNING:--> recycle bin in use.
... Your recycle bin turned on.
... It is REQUIRED
... that the recycle bin is empty prior to upgrading
... your database.
... The command: PURGE DBA_RECYCLEBIN
... must be executed immediately prior to executing your upgrade.

```

.
PL/SQL procedure successfully completed.

rconfig XML File

The changes from the original file are highlighted in red typeface in the following output.

```

ConvertToRAC_AdminManaged_FRESH.xml
<?xml version="1.0" encoding="UTF-8"?>
<n:RConfig xmlns:n="http://www.oracle.com/rconfig"
          xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
          xsi:schemaLocation="http://www.oracle.com/rconfig">
  <n:ConvertToRAC>
    <!-- Verify does a precheck to ensure all pre-requisites are met, before the
    conversion is attempted. Allowable values are: YES|NO|ONLY -->
    <n:Convert verify="YES">
    <!--Specify current OracleHome of non-rac database for SourceDBHome -->

    <n:SourceDBHome>/u01/app/oracle/product/11.2.0/dbhome_1</n:SourceDBHome>
    <!--Specify OracleHome where the rac database should be configured. It can be same
    as SourceDBHome -->

    <n:TargetDBHome>/u01/app/oracle/product/11.2.0/dbhome_1</n:TargetDBHome>
    <!--Specify SID of non-rac database and credential. User with sysdba role is
    required to perform conversion -->
    <n:SourceDBInfo SID="FRESH">
      <n:Credentials>
        <n:User>sys</n:User>
        <n:Password>welcome1</n:Password>
        <n:Role>sysdba</n:Role>
      </n:Credentials>
    </n:SourceDBInfo>
    <!--Specify the list of nodes that should have rac instances running for the Admin
    Managed Cluster Database. LocalNode should be the first node in this nodelist. -->
    <n:NodeList>
      <n:Node name="dscgigdb03"/>
      <n:Node name="dscgigdb04"/>
    </n:NodeList>
    <!--Instance Prefix tag is optional starting with 11.2. If left empty, it is
    derived from db_unique_name.-->
    <n:InstancePrefix>FRESH</n:InstancePrefix>
    <!-- Listener details are no longer needed starting 11.2. Database is registered
    with default listener and SCAN listener running from Oracle Grid Infrastructure
    home. -->
    <!--Specify the type of storage to be used by rac database. Allowable values are
    CFS|ASM. The non-rac database should have same storage type. ASM credentials are
    no needed for conversion. -->
    <n:SharedStorage type="ASM">
    <!--Specify Database Area Location to be configured for rac database. If this
    field is left empty, current storage will be used for rac database. For CFS, this
    field will have directory path. -->
    <n:TargetDatabaseArea>+DATA</n:TargetDatabaseArea>
    <!--Specify Flash Recovery Area to be configured for rac database. If this field
    is left empty, current recovery area of non-rac database will be configured for
    rac database. If current database is not using recovery Area, the resulting rac
    database will not have a recovery area. -->
    <n:TargetFlashRecoveryArea>+RECO</n:TargetFlashRecoveryArea>
    </n:SharedStorage>
  </n:Convert>
</n:ConvertToRAC>
</n:RConfig>

```

Post rconfig Database Parameter File

This file was derived from a copy of the initial single-instance Rapid Install Standard Installation database parameter file except the COMPATIBLE parameter was changed to 11.2.0.2. The file was then modified automatically by rconfig to accommodate the new Oracle ASM and Oracle RAC setup. The changes from the original file are highlighted in **red** typeface and also have a comment for the “Old setting” and the “New target”. Consult, “*Database Initialization Parameters for Oracle Applications Release 12,*” MOS ID [396009.1](#) to review any other changes or sizing guidelines.

Note that the Automatic Memory Management feature, enabled by the MEMORY_TARGET / MEMORY_MAX_TARGET database parameters, is incompatible with the use of HugePages. **DO NOT SET THESE PARAMETERS.** The Automatic Shared Memory Management feature, enabled by setting SGA_TARGET, *is* compatible with [HugePages](#) and there are sizing recommendations for SGA_TARGET in MOS ID [396009.1](#).

```
*.aq_tm_processes=1
*.compatible='11.2.0.2'
# Old setting
*.*.control_files='/ebs/FRESH/db/apps_st/data/cntrl01.dbf,/ebs/FRESH/db/apps_st
/data/cntrl02.dbf,/ebs/FRESH/db/apps_st/data/cntrl03.dbf'
# New target
*.*.control_files='+DATA/FRESH/CONTROLFILE/cntrl01.dbf','+DATA/FRESH/CONTROLFILE
/cntrl02.dbf','+RECO/FRESH/CONTROLFILE/cntrl03.dbf'
*.cursor_sharing='EXACT'
*.db_block_checking='FALSE'
*.db_block_checksum='TRUE'
*.db_block_size=8192
*.db_files=512
*.db_name='FRESH'
*.diagnostic_dest='/u01/app/oracle'
*.dml_locks=10000
*.event=''
*.java_pool_size=209715200
*.job_queue_processes=2
*.log_buffer=10485760
*.log_checkpoint_interval=100000
*.log_checkpoint_timeout=1200
*.log_checkpoints_to_alert=TRUE
*.max_dump_file_size='20480'
*.nls_comp='binary'
*.nls_date_format='DD-MON-RR'
*.nls_language='american'
*.nls_length_semantics='BYTE'
*.nls_numeric_characters='.,'
*.nls_sort='binary'
*.nls_territory='america'
*.olap_page_pool_size=4194304
*.open_cursors=600
*.optimizer_secure_view_merging=FALSE
*.parallel_max_servers=8
*.parallel_min_servers=0
*.pga_aggregate_target=1073741824
*.plsql_code_type='INTERPRETED'
*.plsql_optimize_level=2
```

```

*.processes=200
*.query_rewrite_enabled='true'
*.recyclebin='OFF'
*.sec_case_sensitive_logon=FALSE
*.session_cached_cursors=500
*.sessions=400
*.sga_target=1073741824
# Added for ensuring HugePages are used, see MOS 1392497.1
*.use_large_pages='ONLY'
*.shared_pool_reserved_size=41943040
*.shared_pool_size=41943040
*.timed_statistics=TRUE
*.undo_management='AUTO'
# Old setting
# utl_file_dir = '/usr/tmp,/usr/tmp',
# '/ebs/FRESH/db/tech_st/11.1.0/appsutil/outbound/FRESH_dscgigdb03', '/usr/tmp'
# New target
FRESH1.utl_file_dir='/usr/tmp','/usr/tmp','/u01/app/oracle/product/11.2.0/ebsmig/appsutil/outbound/FRESH_dscgigdb03','/usr/tmp'
FRESH2.utl_file_dir='/usr/tmp','/usr/tmp','/u01/app/oracle/product/11.2.0/ebsmig/appsutil/outbound/FRESH_dscgigdb04','/usr/tmp'
*.workarea_size_policy='AUTO'
#
# Added for Oracle ASM and Oracle Managed Files
*.db_recovery_file_dest='+RECO'
*.db_recovery_file_dest_size=500G
*.db_create_file_dest='+DATA'
# RAC Additions
#*.cluster_database=true
FRESH1.instance_number=1
FRESH2.instance_number=2
*.remote_listener=dscgig-scan:1521
FRESH1.thread=1
FRESH2.thread=2
# Old setting
#undo_tablespace=APPS_UNDOTS1
FRESH1.undo_tablespace='APPS_UNDOTS1'
FRESH2.undo_tablespace='UNDO_TBS2'
# Added for issues with NFS for import, MOS ID 739570.1
*.event="10298 trace name context forever, level 32"

```

Database Node Post Autoconfig Environment File

dscgigdb03

```

export ORACLE_BASE=/u01/app/oracle
export ORACLE_HOME=$ORACLE_BASE/product/11.2.0/dbhome_1
export ORACLE_SID=FRESH1

export PATH=/usr/kerberos/bin:/usr/local/bin:/bin:/usr/bin:/home/oracle/bin
export PATH$ORACLE_HOME/bin:$ORACLE_HOME/perl/bin:$PATH
# Setup EBS DB env
source $ORACLE_HOME/FRESH1_dscgigdb03.env

```

dscgigdb04

```

export ORACLE_BASE=/u01/app/oracle
export ORACLE_HOME=$ORACLE_BASE/product/11.2.0/dbhome_1
export ORACLE_SID=FRESH2

export PATH=/usr/kerberos/bin:/usr/local/bin:/bin:/usr/bin:/home/oracle/bin
export PATH$ORACLE_HOME/bin:$ORACLE_HOME/perl/bin:$PATH

```

```
# Setup EBS DB env
source $ORACLE_HOME/FRESH2_dscgigdb04.env
```

Applications Tier tnsnames.ora File

```
FRESH=
  (DESCRIPTION=
    (ADDRESS=(PROTOCOL=tcp) (HOST=dscgig-scan.us.oracle.com) (PORT=1521))
    (CONNECT_DATA=
      (SERVICE_NAME=FRESH)
      (INSTANCE_NAME=FRESH2)
    )
  )

FRESH1=
  (DESCRIPTION=
    (ADDRESS=(PROTOCOL=tcp) (HOST=dscgig-scan.us.oracle.com) (PORT=1521))
    (CONNECT_DATA=
      (SERVICE_NAME=FRESH)
      (INSTANCE_NAME=FRESH1)
    )
  )

FRESH1_FO=
  (DESCRIPTION=
    (ADDRESS=(PROTOCOL=tcp) (HOST=dscgig-scan.us.oracle.com) (PORT=1521))
    (CONNECT_DATA=
      (SERVICE_NAME=FRESH)
      (INSTANCE_NAME=FRESH1)
    )
  )

FRESH2=
  (DESCRIPTION=
    (ADDRESS=(PROTOCOL=tcp) (HOST=dscgig-scan.us.oracle.com) (PORT=1521))
    (CONNECT_DATA=
      (SERVICE_NAME=FRESH)
      (INSTANCE_NAME=FRESH2)
    )
  )

FRESH2_FO=
  (DESCRIPTION=
    (ADDRESS=(PROTOCOL=tcp) (HOST=dscgig-scan.us.oracle.com) (PORT=1521))
    (CONNECT_DATA=
      (SERVICE_NAME=FRESH)
      (INSTANCE_NAME=FRESH2)
    )
  )

FRESH_FO=
  (DESCRIPTION=
    (ADDRESS=(PROTOCOL=tcp) (HOST=dscgig-scan.us.oracle.com) (PORT=1521))
    (CONNECT_DATA=
      (SERVICE_NAME=FRESH)
      (INSTANCE_NAME=FRESH2)
    )
  )

FRESH_BALANCE=
  (DESCRIPTION=
    (ADDRESS_LIST=
      (LOAD_BALANCE=YES)
```

```
(FAILOVER=YES)
(FAILOVER=YES)
  (ADDRESS=(PROTOCOL=tcp) (HOST=dscgig03-vip.us.oracle.com) (PORT=1521))
  (ADDRESS=(PROTOCOL=tcp) (HOST=dscgig04-vip.us.oracle.com) (PORT=1521))
)
(CONNECT_DATA=
  (SERVICE_NAME=FRESH)
)
)
```

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10. *Oracle Upgrade Guide*
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11. *Single Client Access Name (SCAN)*
<http://www.oracle.com/technetwork/database/clustering/overview/scan-129069.pdf>

Change Record

Date	Summary of Changes
1/7/13	<ul style="list-style-type: none"> • Added an example of verifying the required packages under “Verify Oracle E-Business Suite Required Packages”.
10/12/12	<ul style="list-style-type: none"> • Added use of the USE_LARGE_PAGES database parameter in conjunction with setting HugePages. See the following sections: <ul style="list-style-type: none"> ○ “Configure HugePages on Each Database Node” ○ “Post rconfig Database Parameter File” • Removed reference to MOS ID 983715.1 in the “Configure HugePages on Each Database Node” section since it is no longer relevant from 11.2.0.3/BP5 and 11.2.0.2/BP16 onward.
2/6/12	<ul style="list-style-type: none"> • Reversed the order of this table • Added reference to new MOS note Oracle E-Business Suite Release 11i & R12 Patches Required with Oracle Database 11g Release 2 (11.2.0) on Exadata [ID 1392527.1]
3/24/11	<ul style="list-style-type: none"> • Updated the Hugepages MOS note to 361468.1
2/9/2011	<ul style="list-style-type: none"> • Added the rationale for installing the Database Examples CD • Added a pointer to the MAA paper, “Oracle E-Business Suite on Exadata” • Revised the Executive Overview
1/2011	Published



Installing Oracle E-Business Suite Release 12
with the Oracle Exadata Database Machine
February 2013

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