

# Installation Guide

## Oracle Enterprise Manager Grid Control 11g on RHEL 5.5 x86-32

This document contains a step-by-step guide on how to install Oracle Enterprise Manager Grid Control. It starts with Installation of RHEL, Weblogic Server, Repository Database and finally the Enterprise Manager Installation itself. The installation takes around 60-120 minutes and can be accomplished on a system with 2 GB RAM.

For production systems, I recommend 8 GB of memory and at least 4 CPU Cores.

### 1) Installation RHEL OS 5.5 default software packages

Install RHEL (or CentOS for testing purposes). Do not modify the package list, just take the default packages.

### 2) Upgrade with yum

After OS installation, upgrade to the latest patches.

```
yum upgrade
```

### 3) OS requirements

The next step is to install the necessary RHEL packages, which are required for Weblogic / Oracle RDBMS / Oracle Enterprise Manager.

It is easiest with yum:

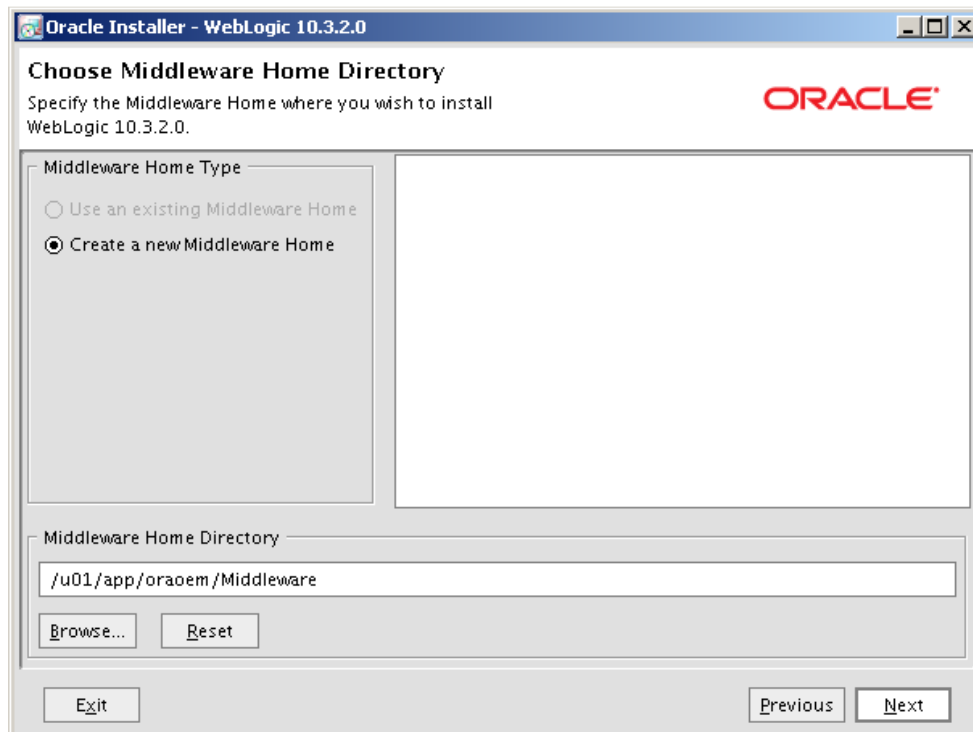
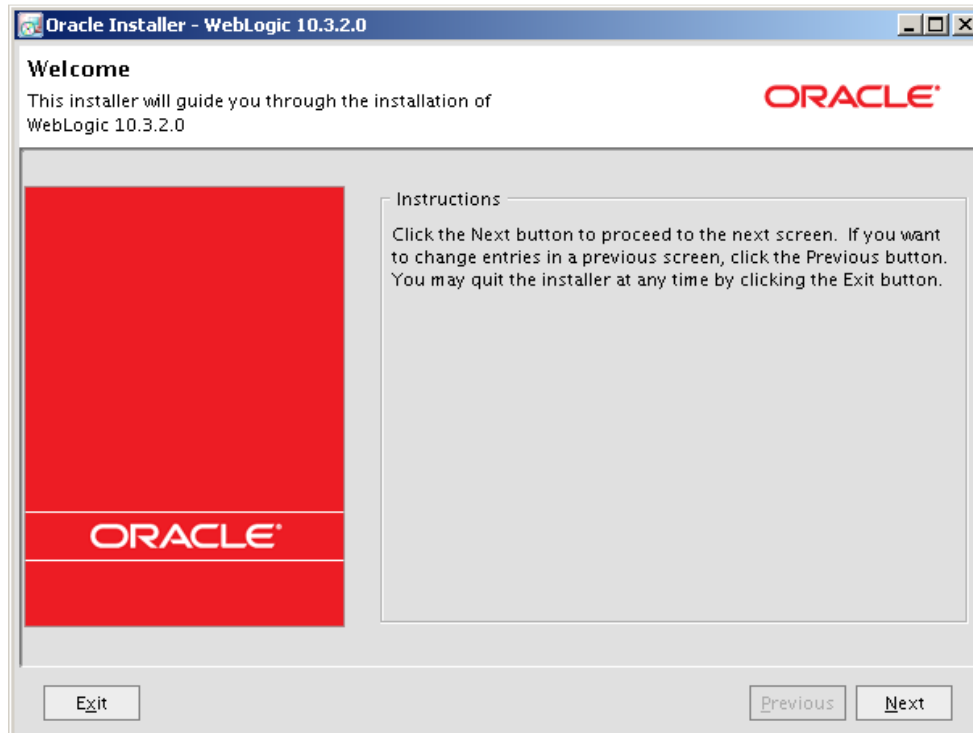
```
yum install binutils compat-libstdc++ elfutils-libelf glibc-  
2.5-12 glibc-2.5-24 ksh libaio libgcc libstdc++ make elfutils-  
libelf-devel elfutils-libelf-devel-static kernel-headers glibc-  
headers glibc-devel libstdc++-devel libgomp gcc gcc-c++ libaio-  
devel sysstat unixODBC unixODBC-devel rng-utils setarch compat-  
db pdksh compat-libstdc++-33 compat-libstdc++-296 lsof strace  
wget system-config-lvm
```

### 4) Installation Oracle WebLogic Server 11gR1 (10.3.2)

We continue with the installation of WebLogic Server 11gR1 (i.e. 10.3.2) It can be downloaded from OTN. Before installing, we create OS users and group.

```
groupadd dba
useradd -g dba -G oinstall oraem
mkdir /u01/app/oraem/Middleware
chown -R oraem:dba /u01/app/oraem/Middleware

./wls1032_linux32.bin
```



Oracle Installer - WebLogic 10.3.2.0

### Register for Security Updates

Provide your email address to be informed of security issues, install the product, and initiate configuration manager. <http://www.oracle.com/support/policies.html>

Email:

Easier for you if you use your My Oracle Support email address/username.

☐ I wish to receive security updates via My Oracle Support

My Oracle Support Password:


Exit Previous Next

Oracle Installer - WebLogic 10.3.2.0

### Choose Install Type


Select the type of installation you wish to perform.

☒ **Typical**

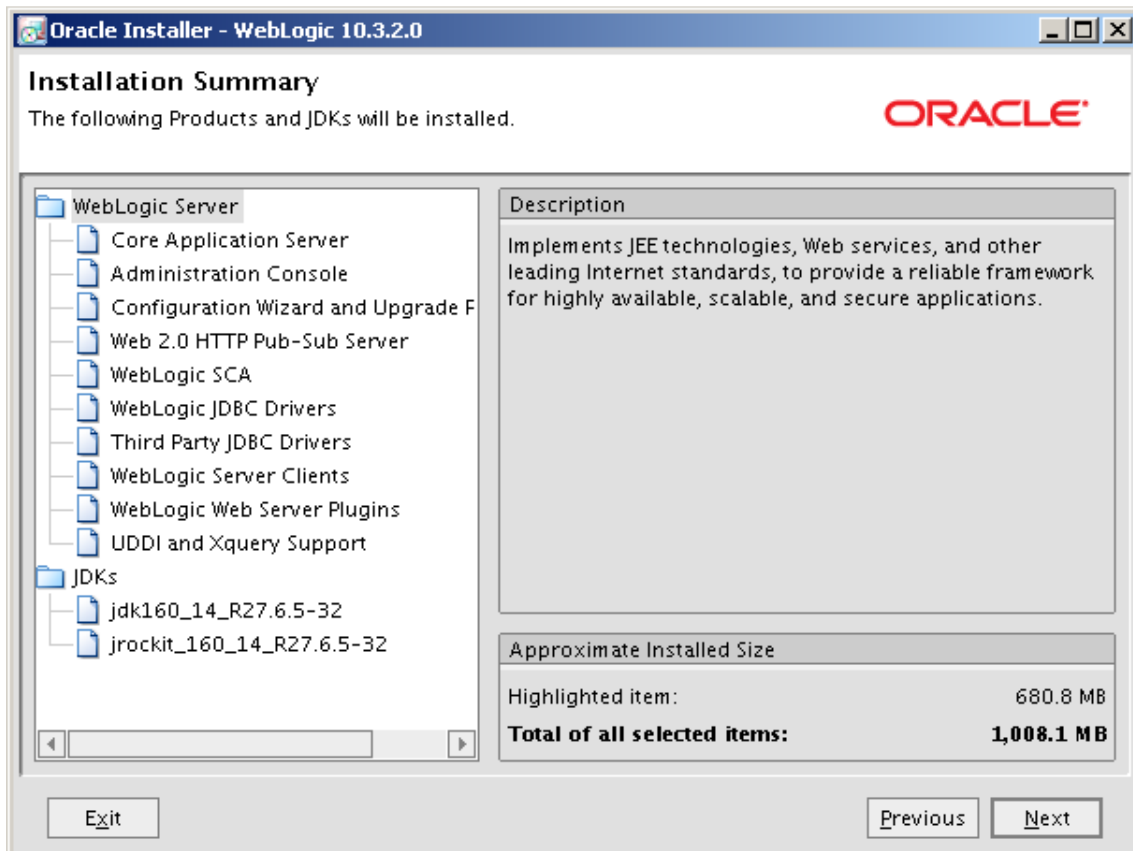
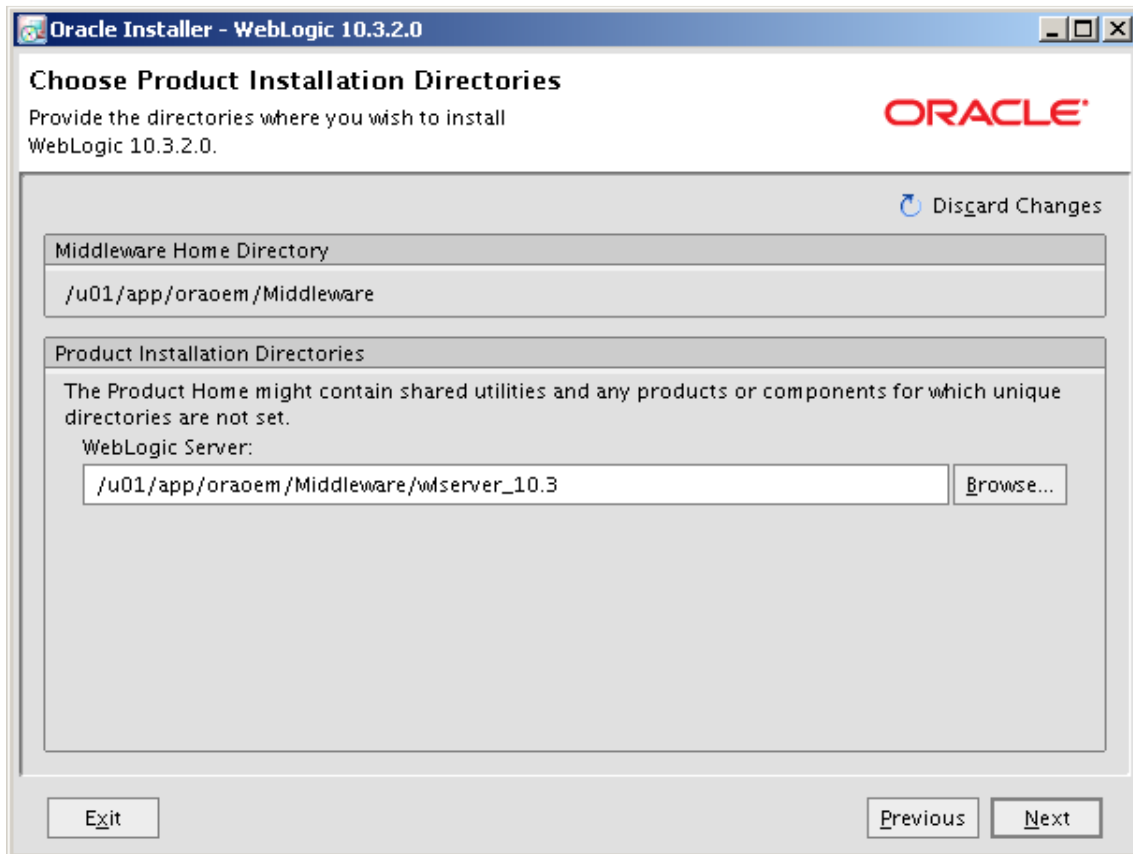
 Install the following product(s) and component(s):

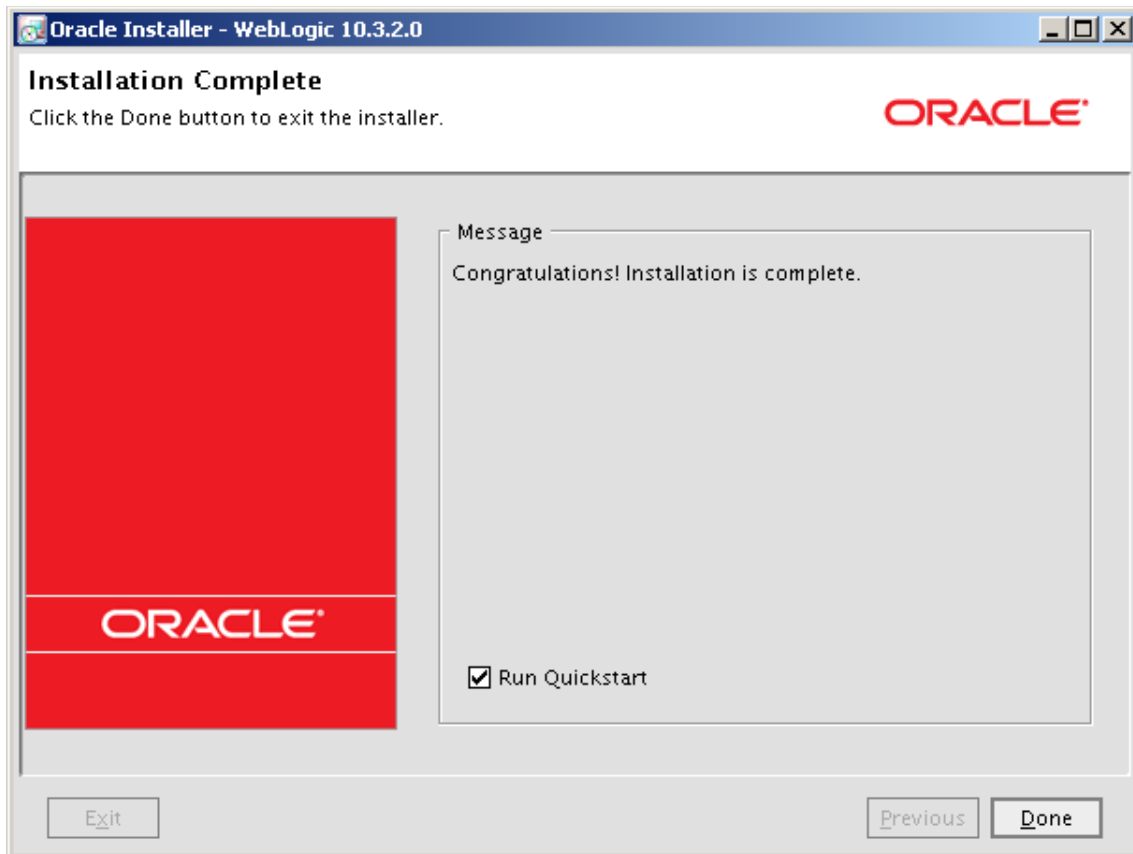
- WebLogic Server

☐ **Custom**

 Choose software products and components to install and perform optional configuration.

Exit Previous Next





You can either deselect "Run Quickstart" or cancel it. We don't need that step.

## 5) Install Repository Database 11gR2

We proceed with the installation of the Repository Oracle Database 11gR2. (11.2.0.1)  
Additionally, we patch the database to the most current recommended patches.

The following requirements are necessary:

```
/etc/sysctl.conf:

kernel.shmni = 4096
kernel.sem = 250 32000 100 128
fs.file-max = 6815744
fs.aio-max-nr = 1048576
net.ipv4.ip_local_port_range = 9000 65500
net.core.rmem_default = 262144
net.core.rmem_max = 4194304
net.core.wmem_default = 262144
net.core.wmem_max = 1048576
```

```
/etc/security/limits.conf:
ora11gr2 soft nproc 2047
ora11gr2 hard nproc 16384
ora11gr2 soft nofile 1024
ora11gr2 hard nofile 65536
```

```
ora0em soft nproc 2047
ora0em hard nproc 16384
ora0em soft nofile 1024
ora0em hard nofile 65536
```

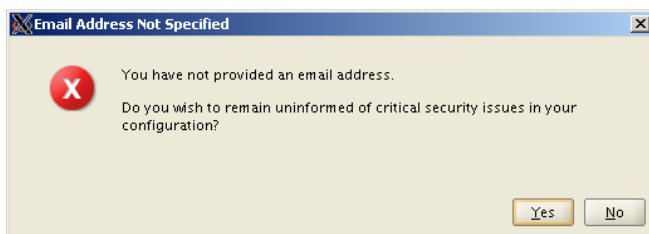
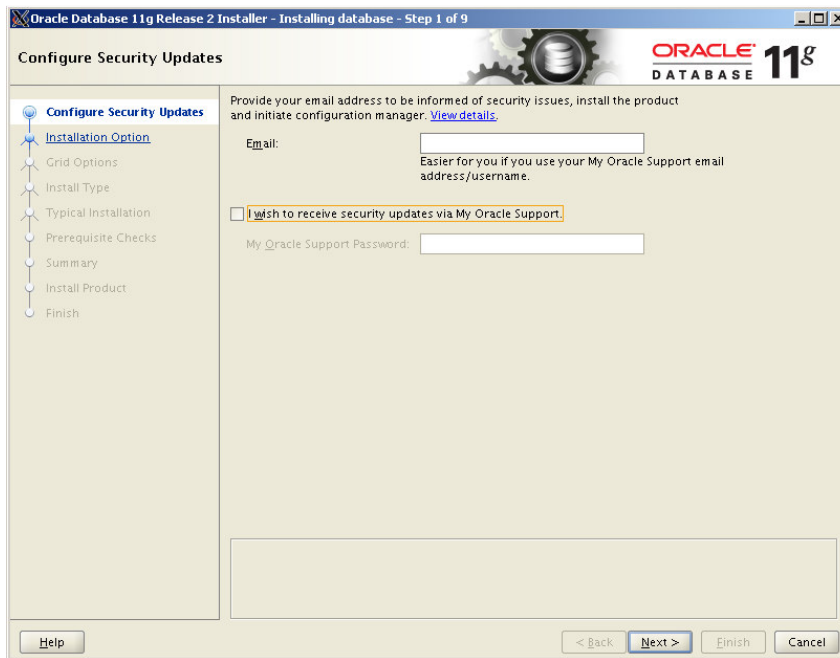
```
/etc/profile:
if [ $USER = "ora11gr2" ]; then
    if [ $SHELL = "/bin/ksh" ]; then
        ulimit -u 16384
        ulimit -n 65536
    else
        ulimit -u 16384 -n 65536
    fi
fi

if [ $USER = "ora0em" ]; then
    if [ $SHELL = "/bin/ksh" ]; then
        ulimit -u 16384
        ulimit -n 65536
    else
        ulimit -u 16384 -n 65536
    fi
fi
```

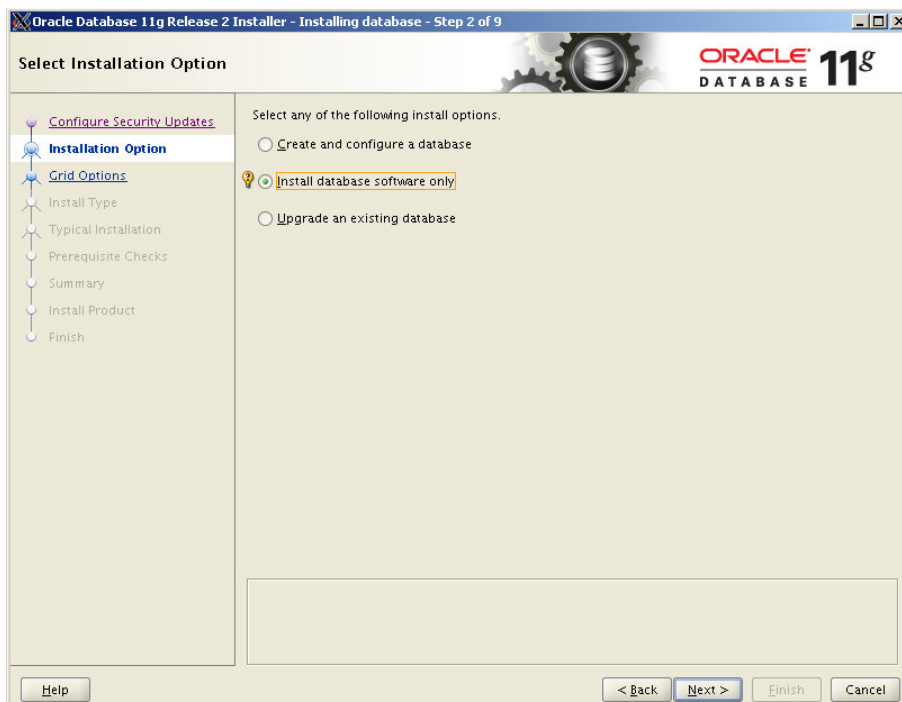
```
useradd -g dba ora11gr2

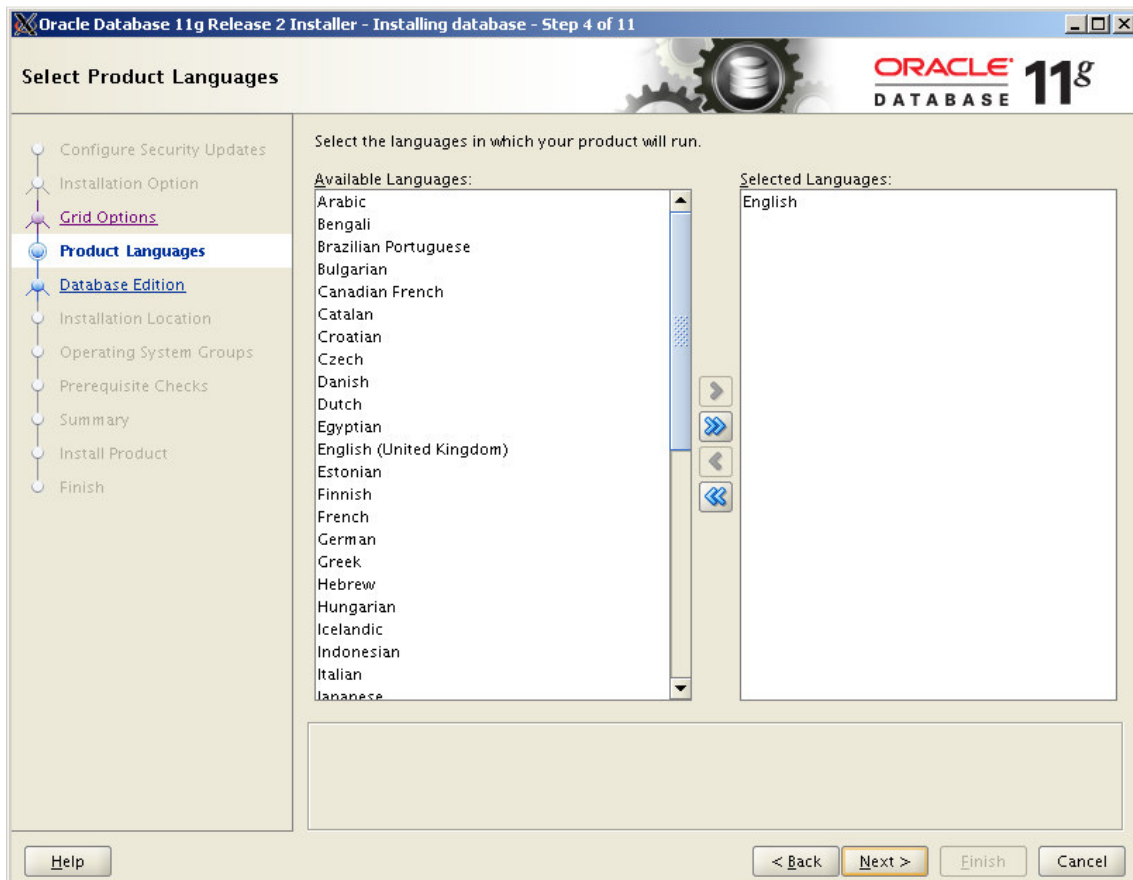
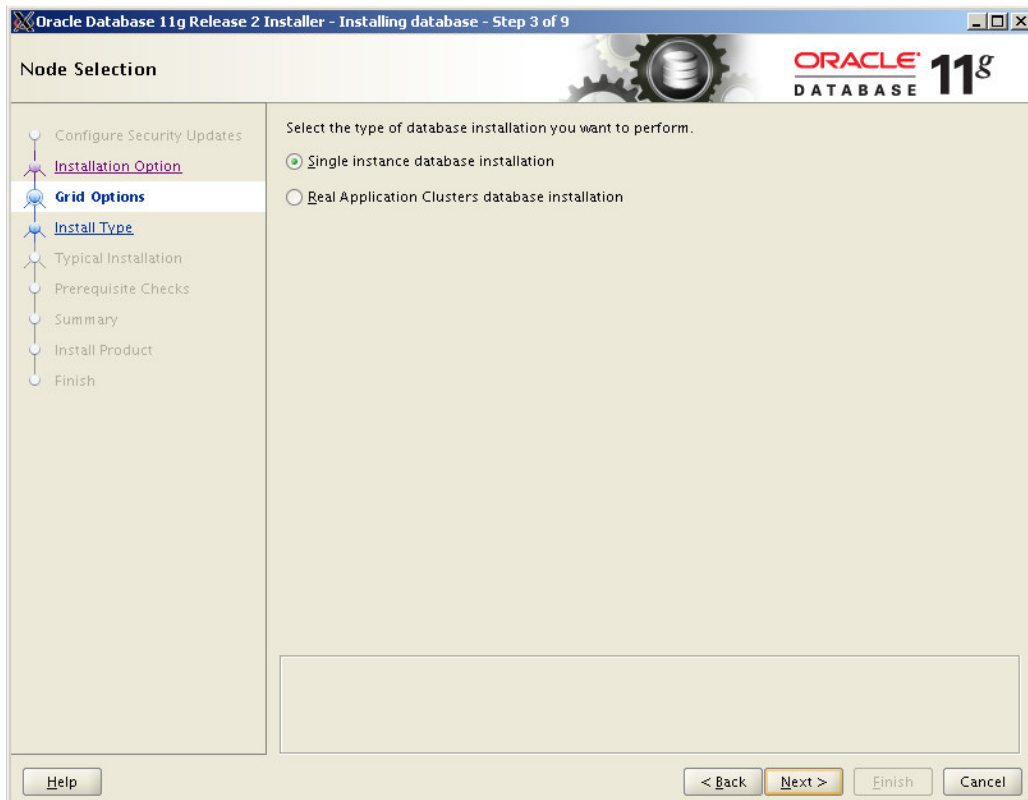
mkdir -p /u01/app/ora11gr2
chown -R ora11gr2:dba /u01/app/ora11gr2

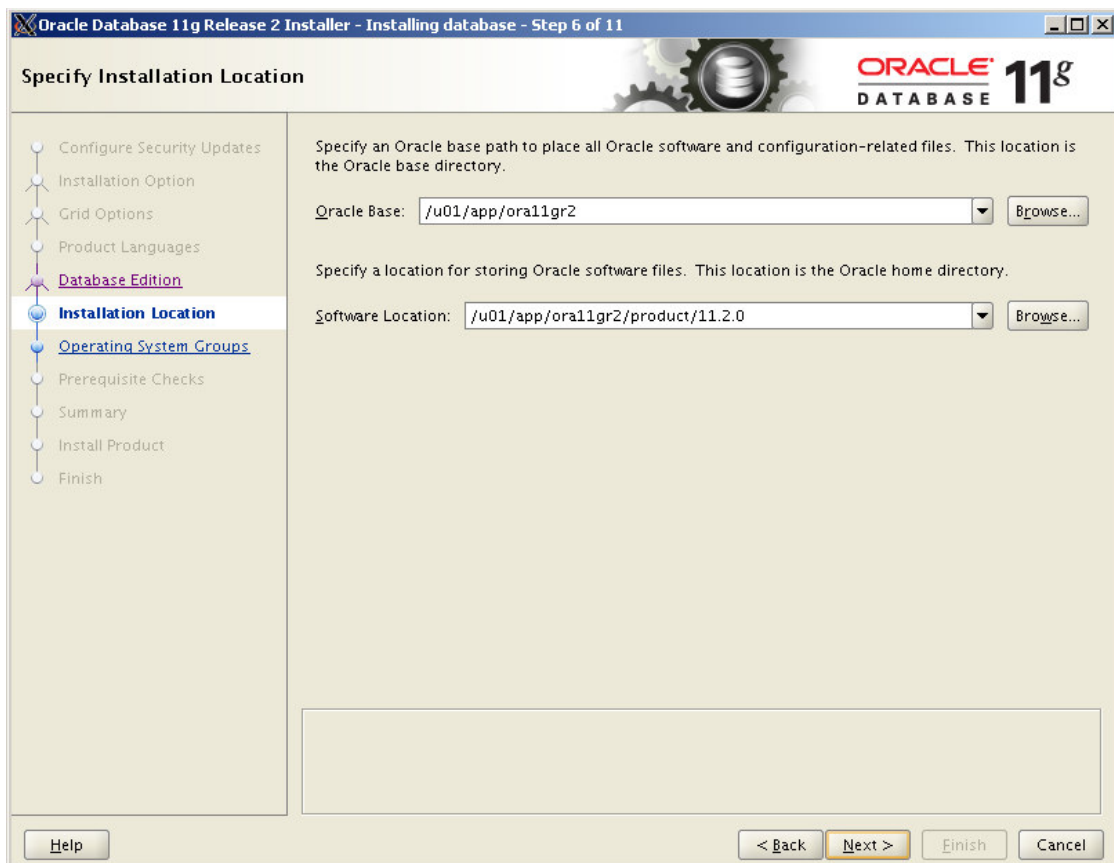
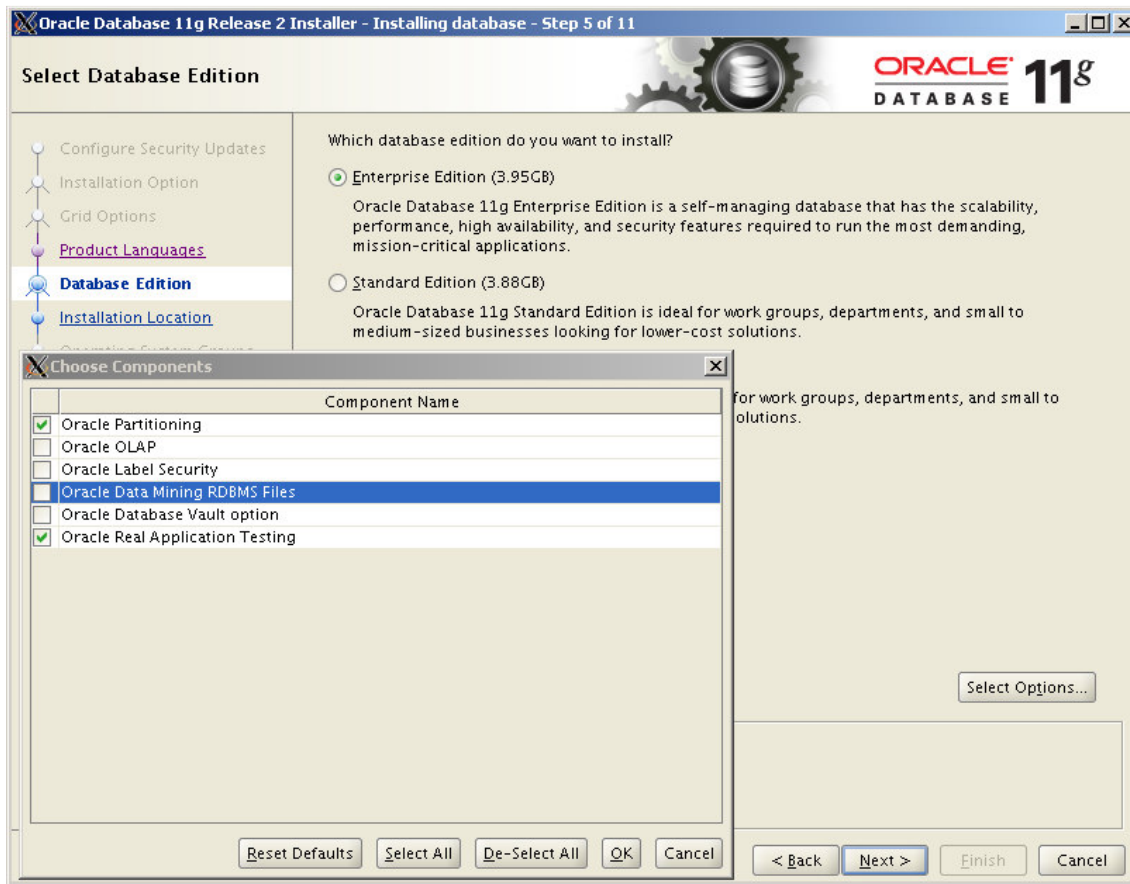
unzip linux_11gR2_database_1of2.zip
unzip linux_11gR2_database_2of2.zip
export ORACLE_BASE=/u01/app/ora11gr2
./runInstaller
```



At this point, we are installing Oracle Binaries only, without creating a database.







Oracle Database 11g Release 2 Installer - Installing database - Step 7 of 11

### Create Inventory

You are starting your first installation on this host. Specify a directory for installation files. This directory is called the "inventory directory". The installer automatically sets up subdirectories for each product to contain inventory data. The subdirectory for each product typically requires 150 kilobytes of disk space.

Inventory Directory:

Specify an operating system group whose members have write permission to the inventory directory (orainventory).

orainventory Group Name:

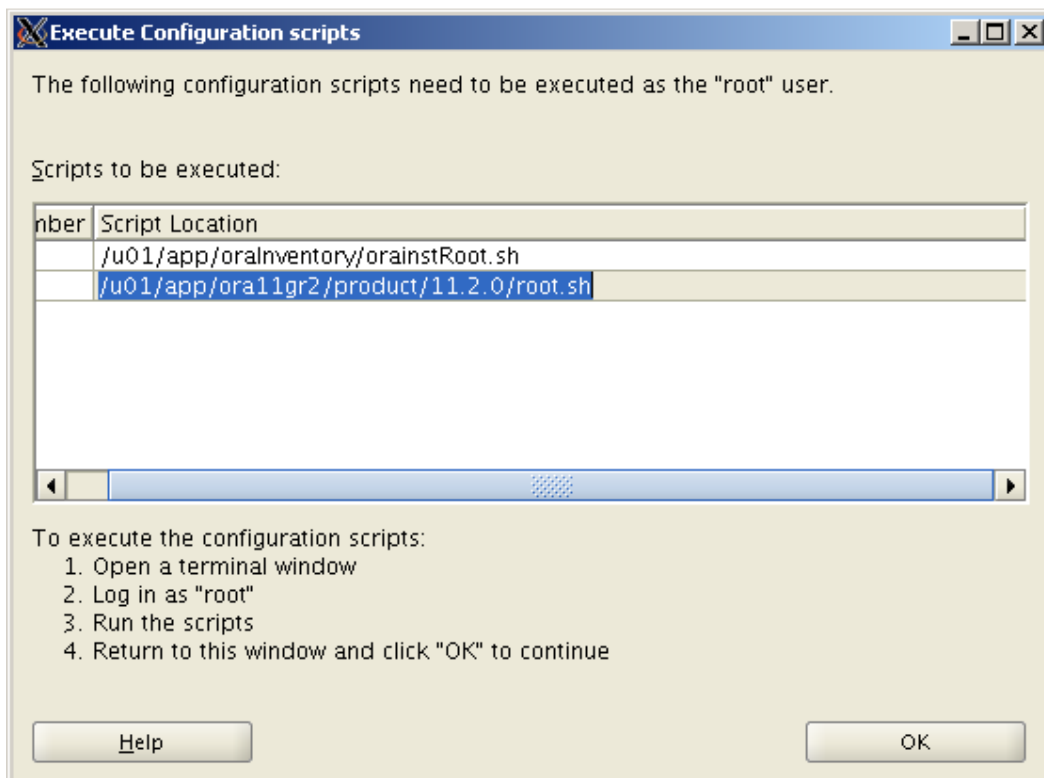
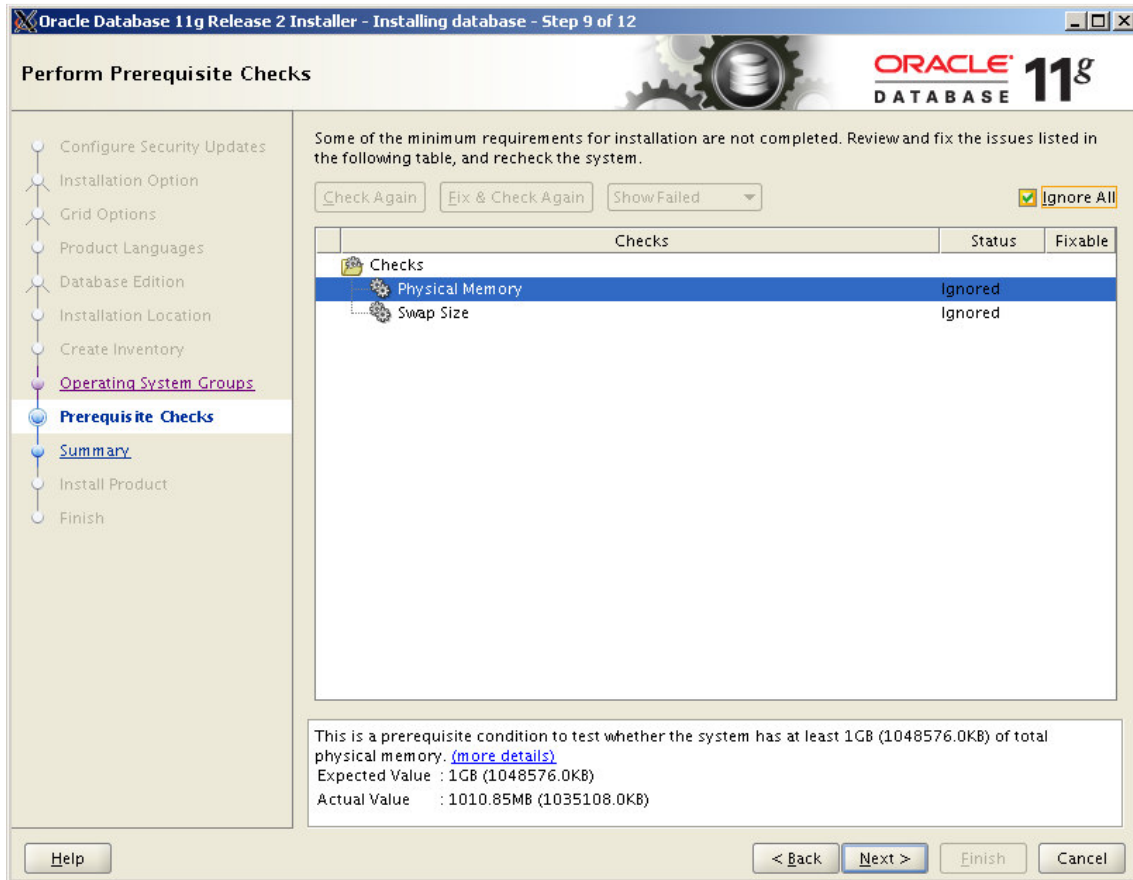
Oracle Database 11g Release 2 Installer - Installing database - Step 8 of 12

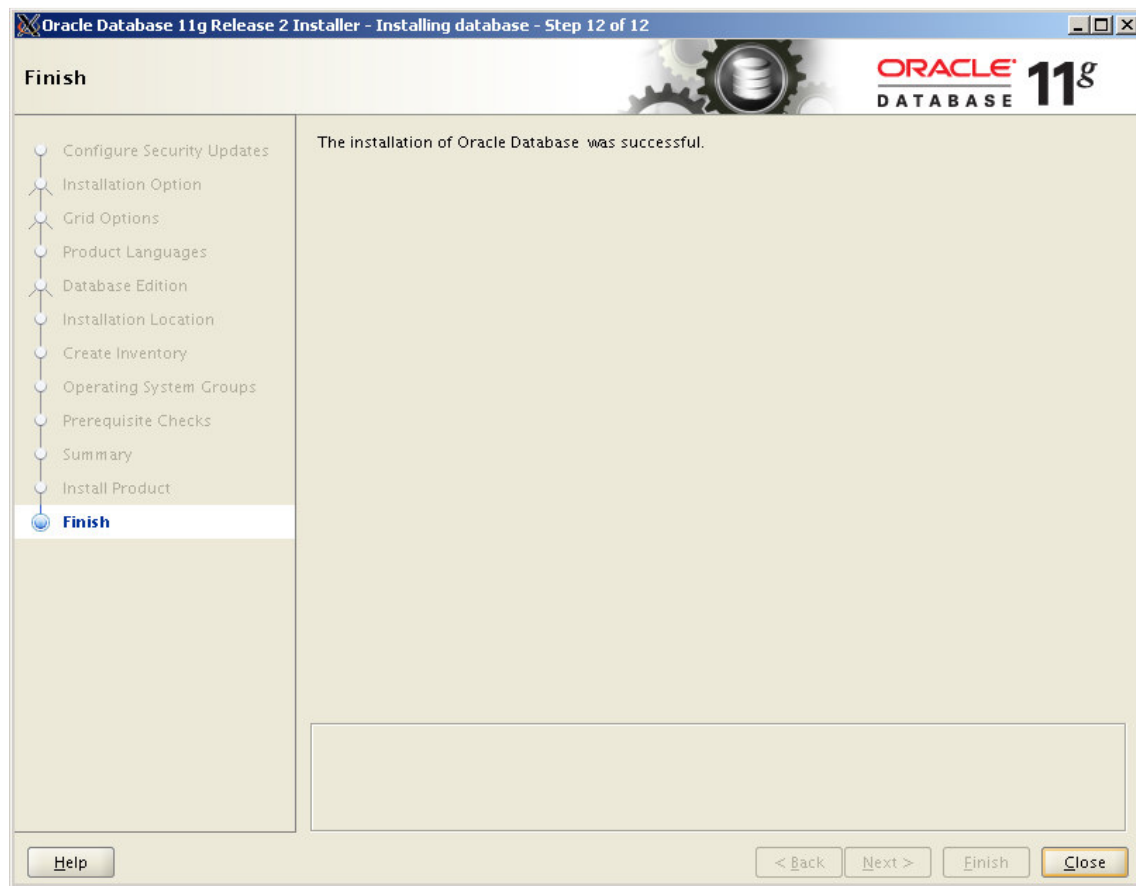
### Privileged Operating System Groups

SYSDBA and SYSOPER privileges are required to create a database using operating system (OS) authentication. Membership in OSDBA grants the SYSDBA privilege, and membership in OSOPER grants the SYSOPER privilege, which is a subset of SYSDBA privileges. Select the name of the OSDBA group to grant the SYSDBA privilege. You must be a member of this group.

Database Administrator (OSDBA) Group:

Database Operator (OSOPER) Group:





### Installation of RDBMS patches:

I recommend to download and install these patches:

**OPatch p6880880\_112000\_LINUX.zip**

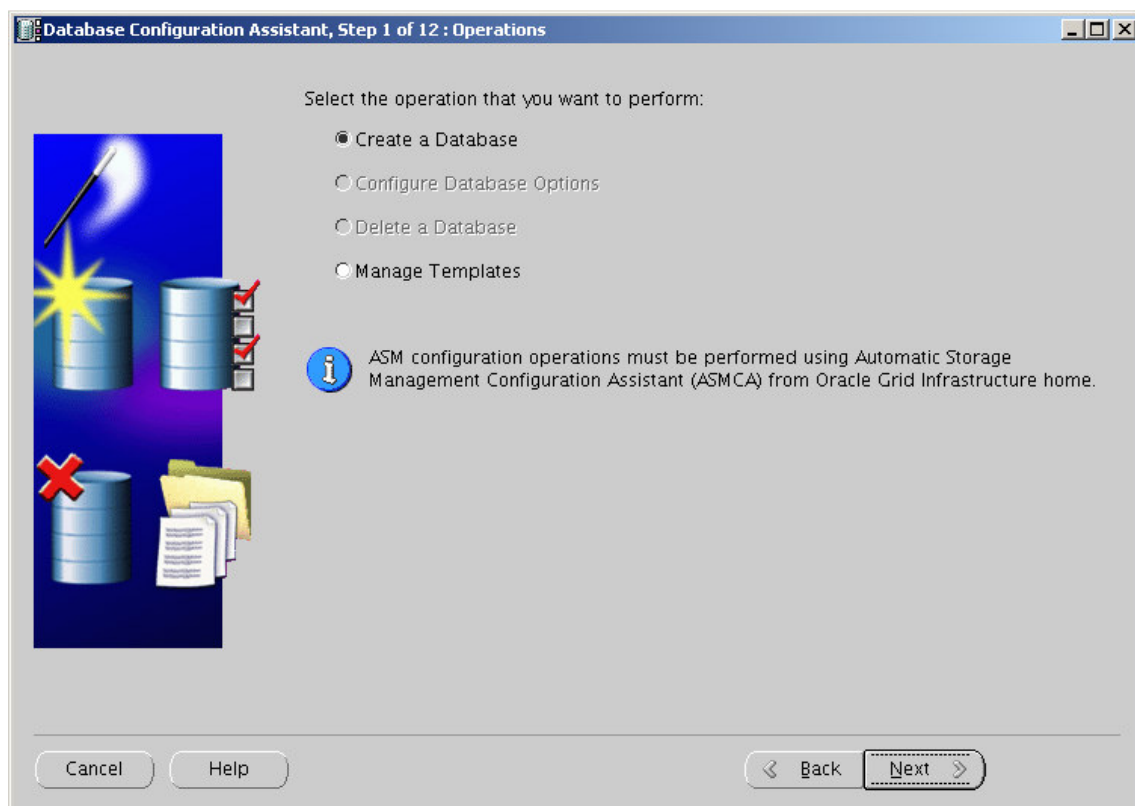
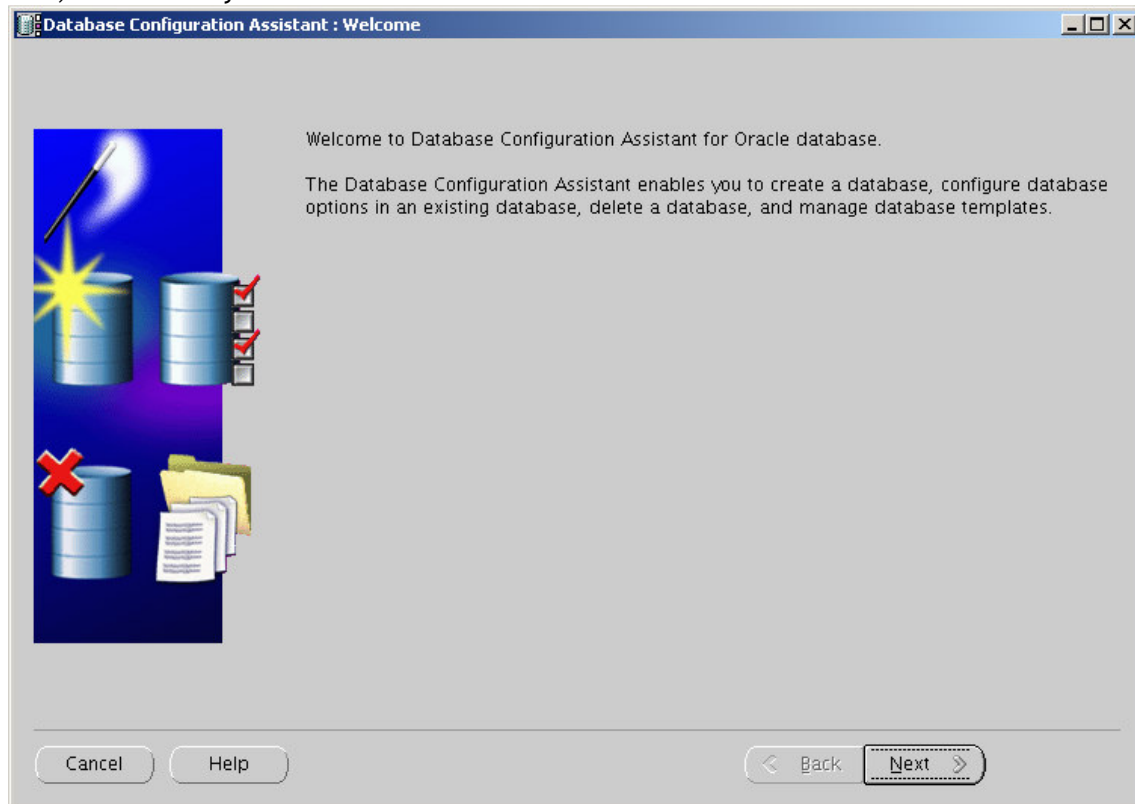
**p6880880\_112000\_LINUX.zip**

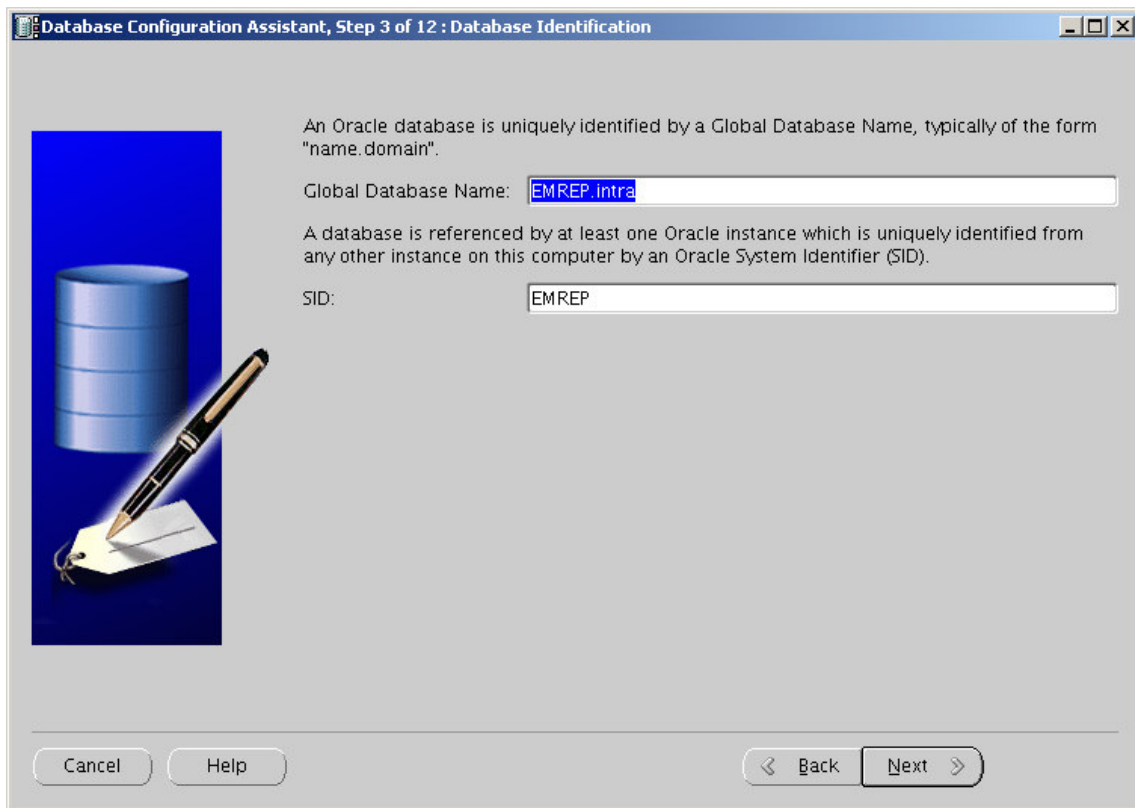
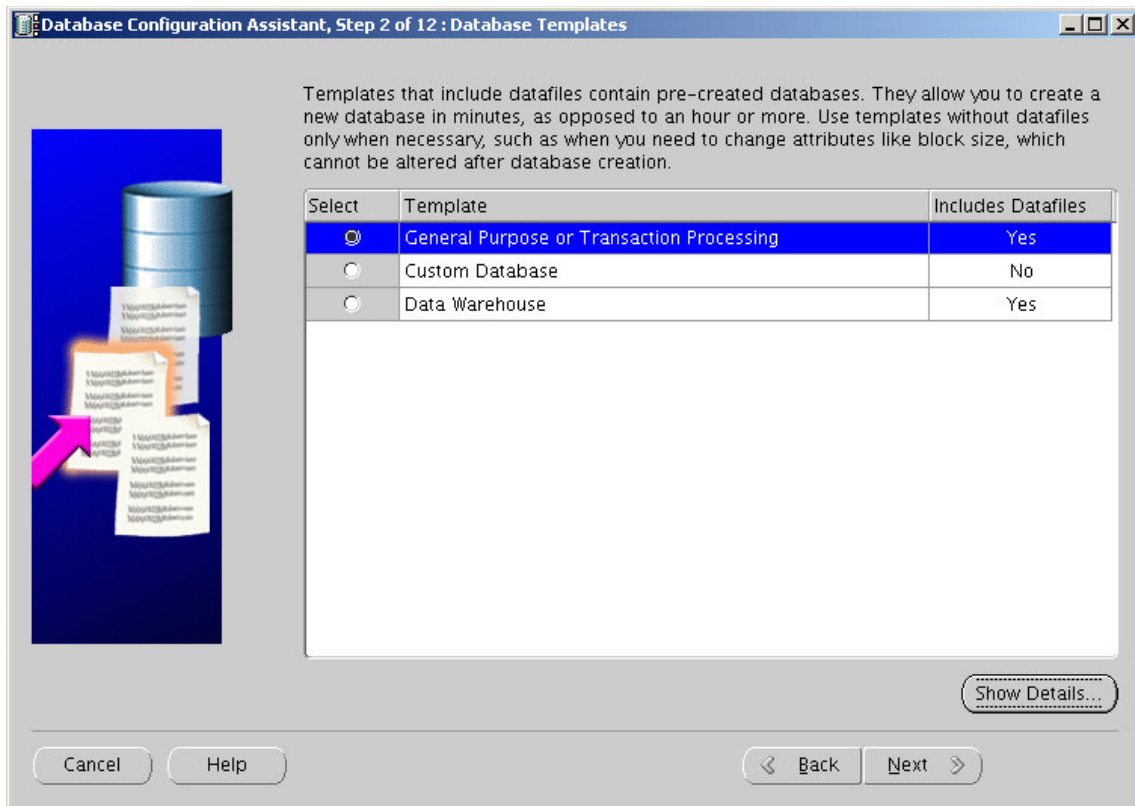
**p9165206\_112010\_LINUX.zip**

**p9352237\_112010\_LINUX.zip**


## 6) DBCA Repository Database

Now, we are ready to create the EMREP database.





**Database Configuration Assistant, Step 4 of 12: Management Options**



☒
☒
☒
☐

**Enterprise Manager** | Automatic Maintenance Tasks


☐ **Configure Enterprise Manager**

☐ Register with Grid Control for centralized management  
 Management Service: No Agents Found

☒ **Configure Database Control for local management**  
☐ Enable Alert Notifications  
 Outgoing Mail (SMTP) Server:   
 Recipient Email Address:   
☐ Enable Daily Disk Backup to Recovery Area  
 Backup Start Time: 02 00 AM PM  
 OS Username:   
 OS Password:

**Database Configuration Assistant, Step 5 of 12: Database Credentials**

For security reasons, you must specify passwords for the following user accounts in the new database.



☐ Use Different Administrative Passwords

User Name	Password	Confirm Password
SYS		
SYSTEM		

☒ Use the Same Administrative Password for All Accounts

Password:   
 Confirm Password:

**Database Configuration Assistant, Step 6 of 12 : Database File Locations**

Specify storage type and locations for database files.

Storage Type: File System

Storage Locations:

☒ Use Database File Locations from Template


☐ Use Common Location for All Database Files

Database Files Location:  Browse...

☐ Use Oracle-Managed Files

Database Area:  Browse...

Multiplex Redo Logs and Control Files...

 If you want to specify different locations for any database files, pick any of the above options except Oracle-Managed Files and use the Storage page later to customize each file location. If you use Oracle-Managed Files, Oracle automatically generates the names for database files, which can not be changed on the Storage page.

File Location Variables...

Cancel Help Back Next Finish

**Database Configuration Assistant, Step 7 of 12 : Recovery Configuration**

Choose the recovery options for the database:

☒ Specify Flash Recovery Area

This is used as the default for all disk based backup and recovery operations, and is also required for automatic disk based backup using Enterprise Manager. Oracle recommends that the database files and recovery files be located on physically different disks for data protection and performance.

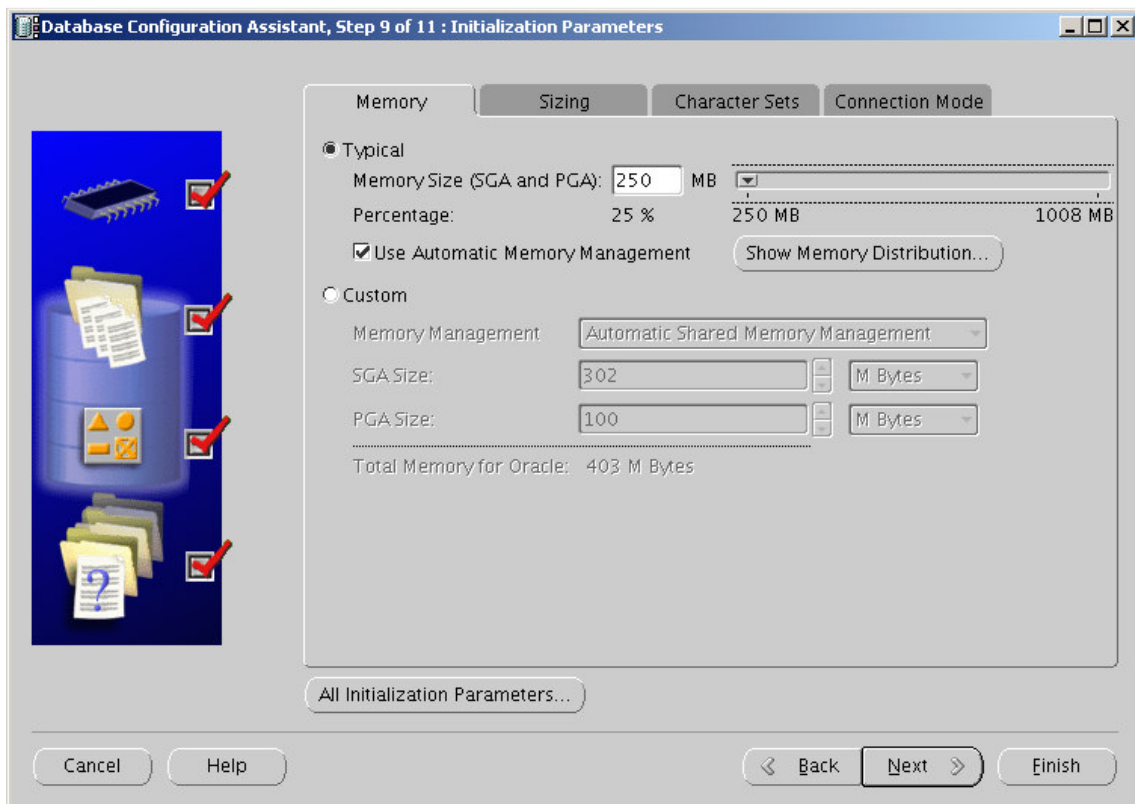
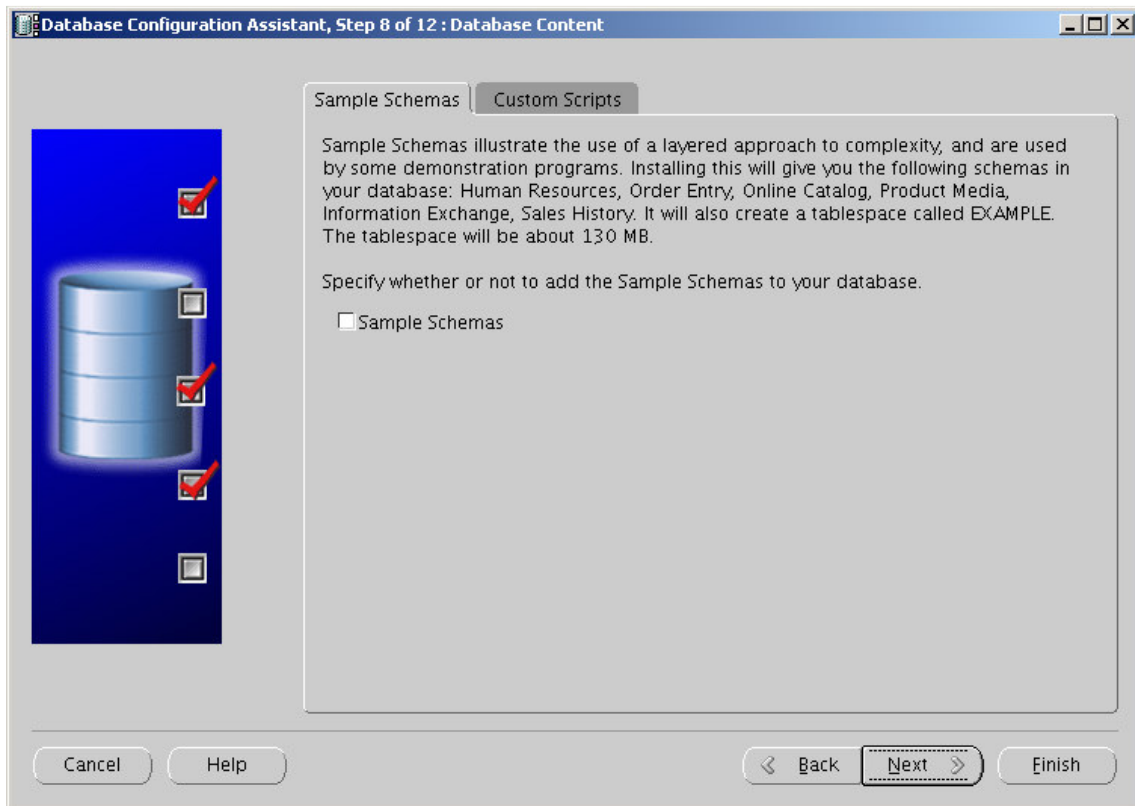
Flash Recovery Area: {ORACLE\_BASE}/flash\_recovery\_ Browse...

Flash Recovery Area Size: 512 M Bytes

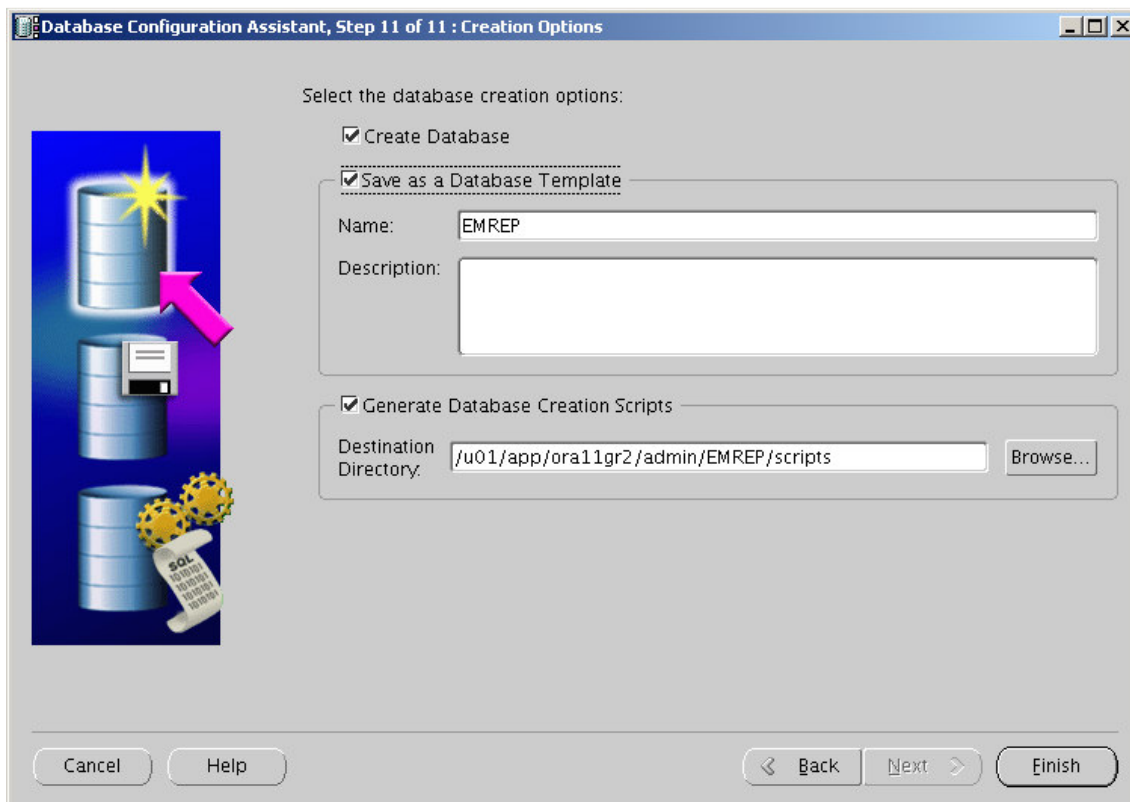
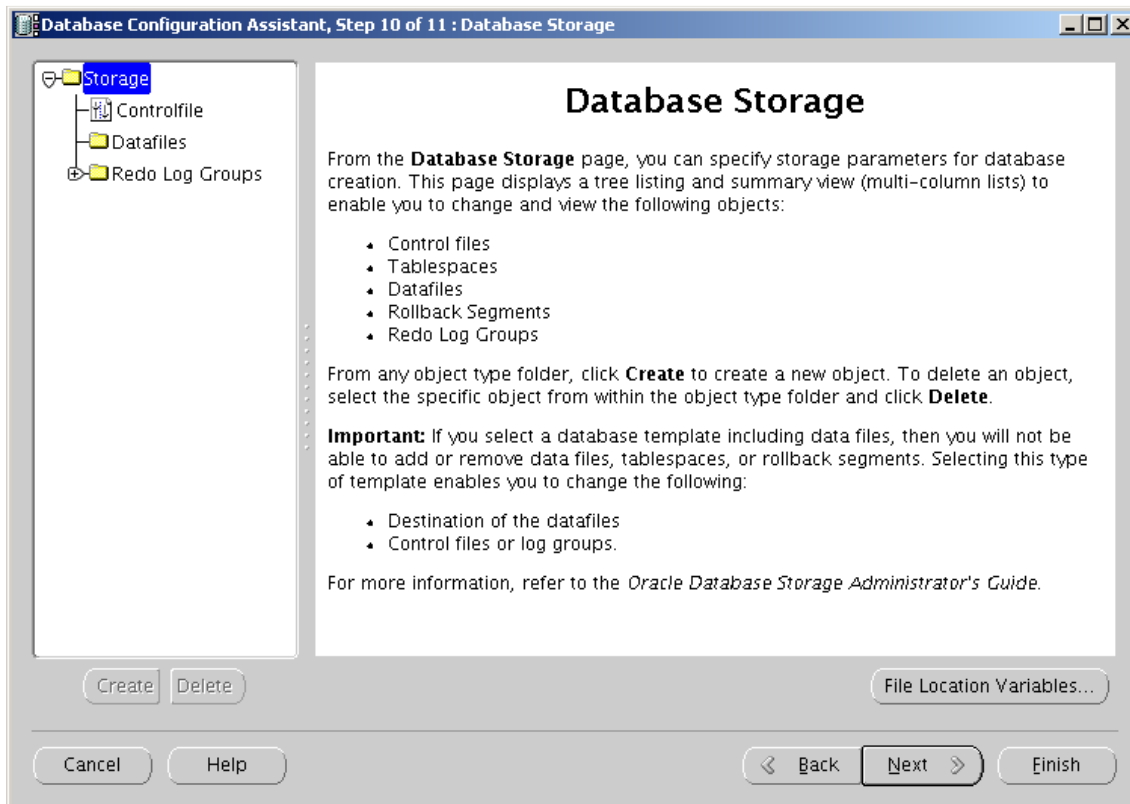
☐ Enable Archiving Edit Archive Mode Parameters...

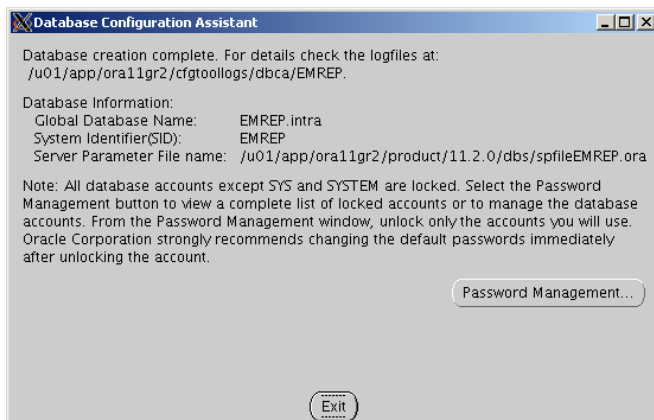
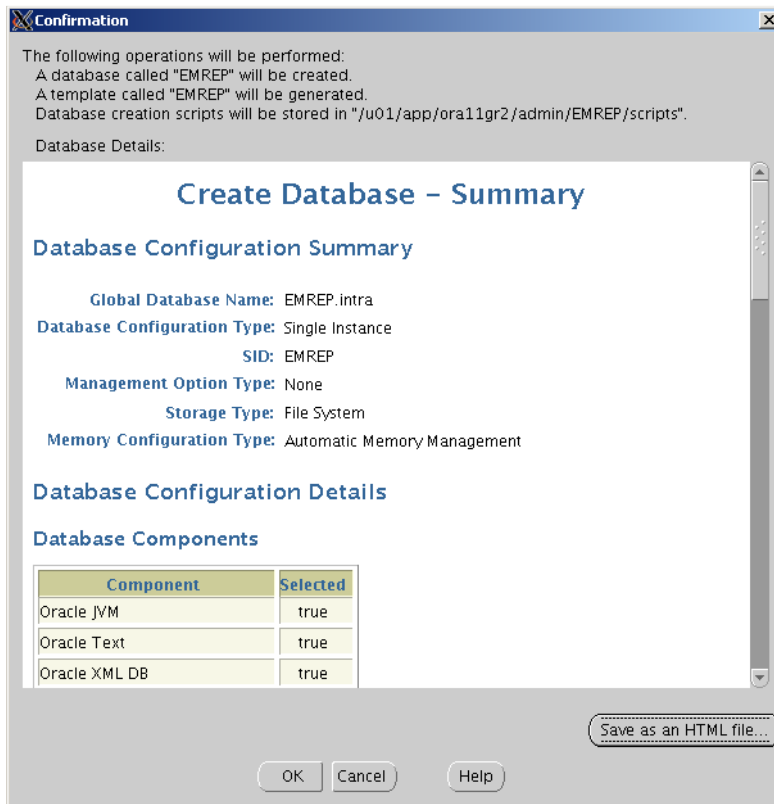
File Location Variables...

Cancel Help Back Next Finish

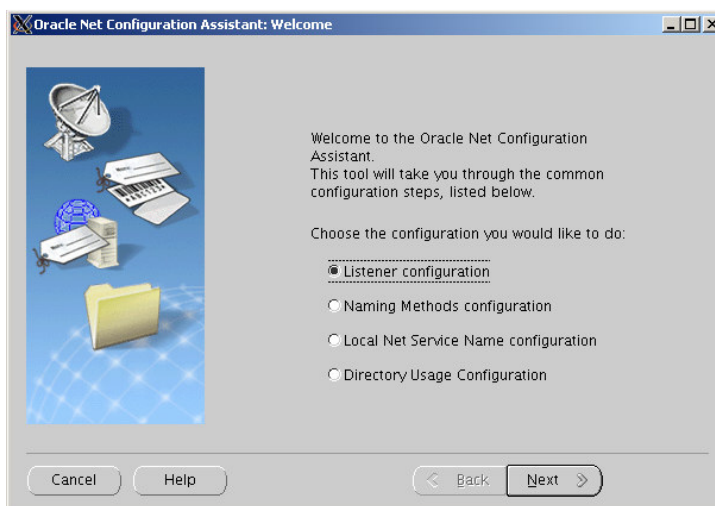
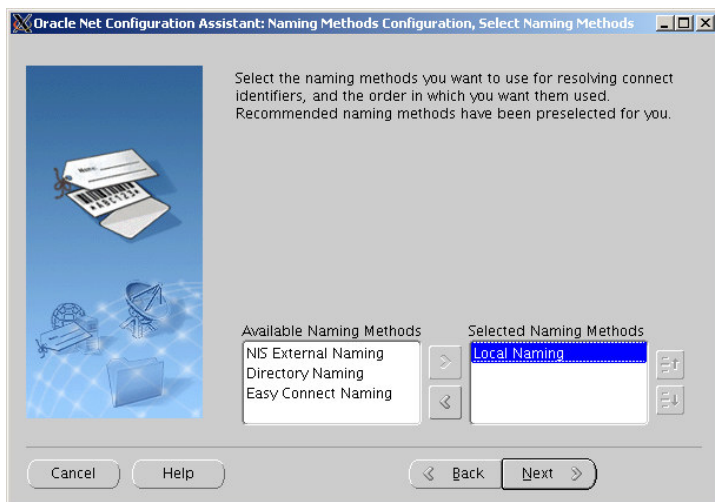
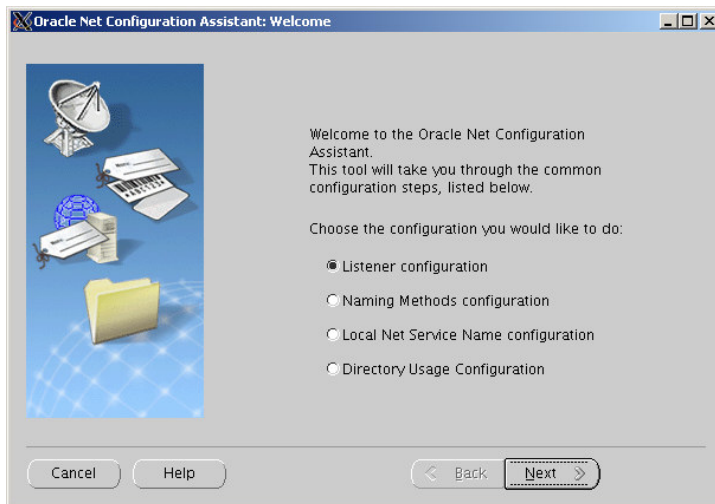


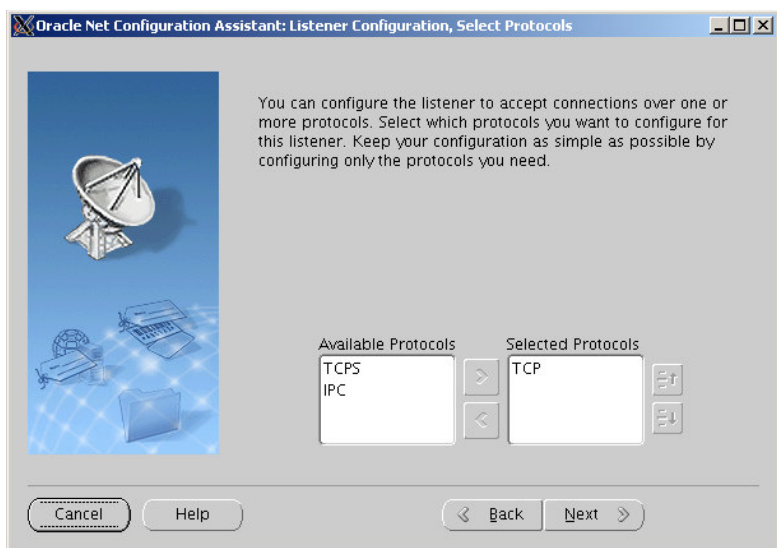
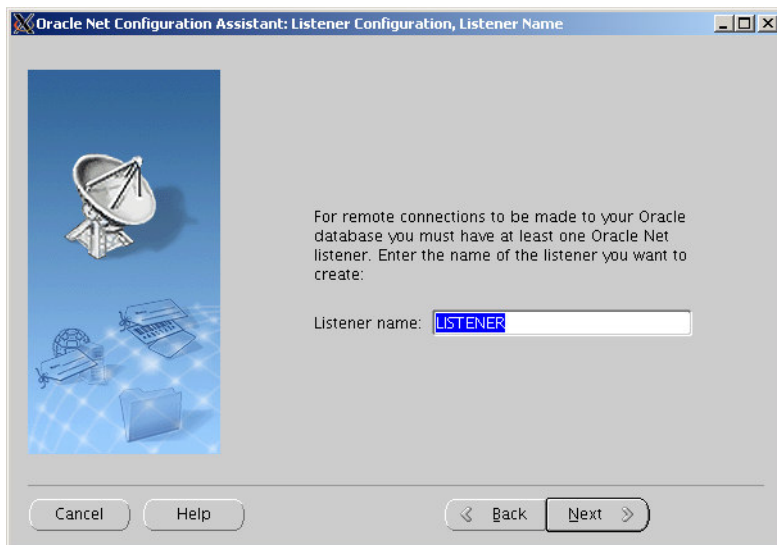
Please choose at least 350M of memory here. In my test, 250M was insufficient and caused ORA-4031 errors.

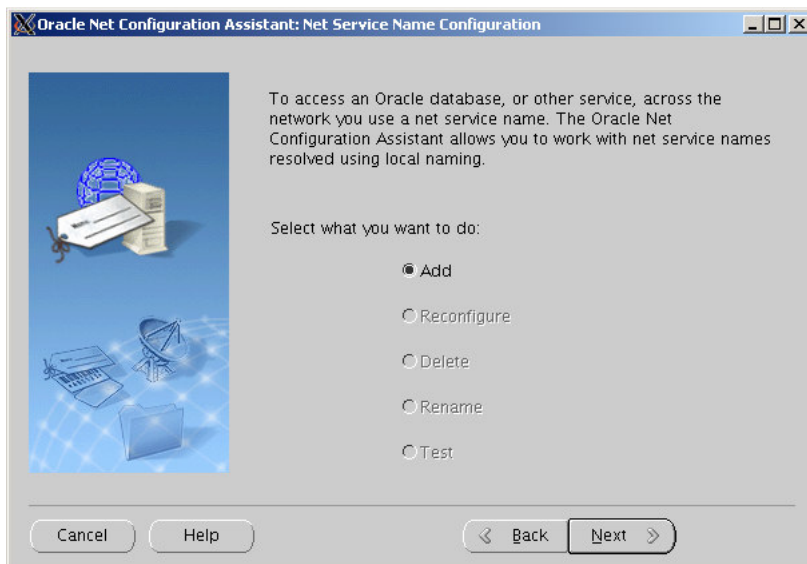
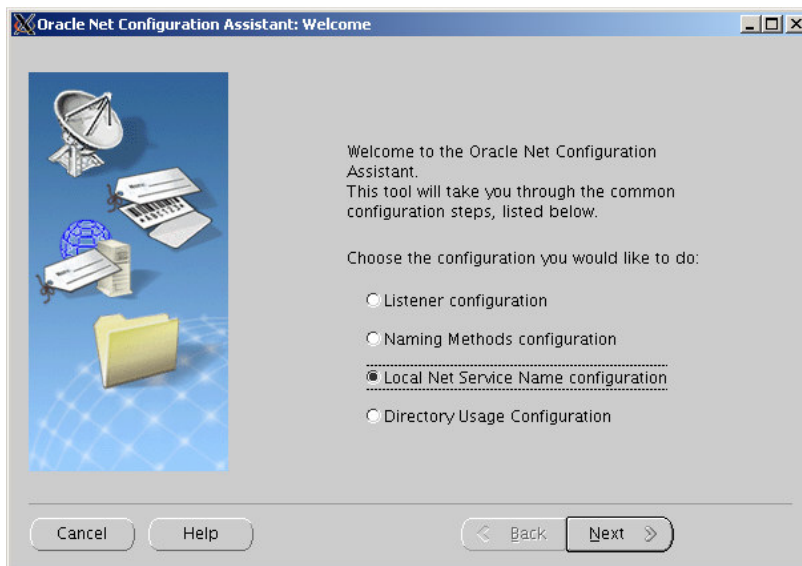
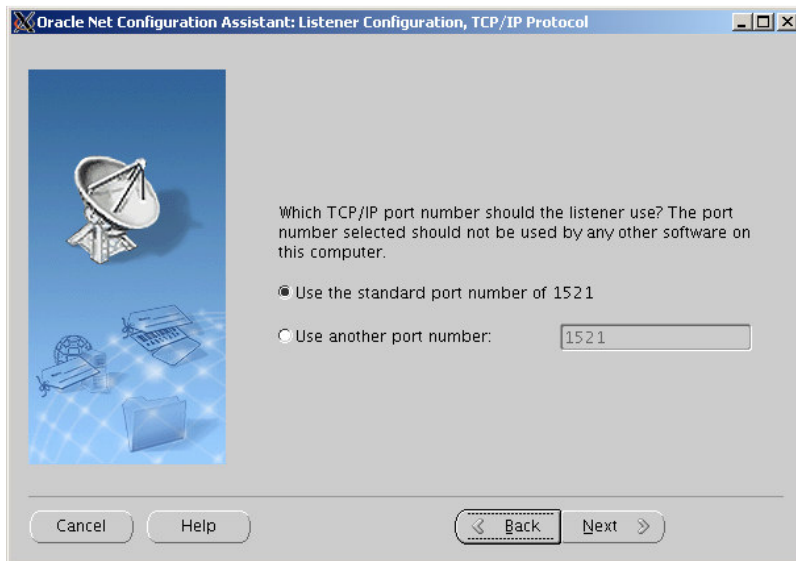




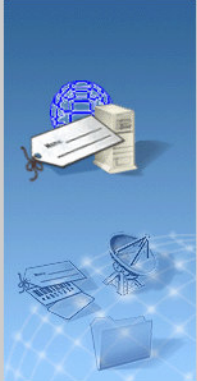
## Network Configuration (Listener, TNS)







Oracle Net Configuration Assistant: Net Service Name Configuration, Service Name




Each Oracle database or service has a service name. An Oracle database's service name is normally its global database name. Enter the service name of the database or other service you want to access.

Service Name:

Cancel Help < Back Next >

Oracle Net Configuration Assistant: Net Service Name Configuration, Select Protocols




To communicate with the database across a network, a network protocol is used. Select the protocol used for the database you want to access.

☒ TCP  
☐ TCPS  
☐ IPC

Cancel Help < Back Next >

Oracle Net Configuration Assistant: Net Service Name Configuration, TCP/IP Protocol



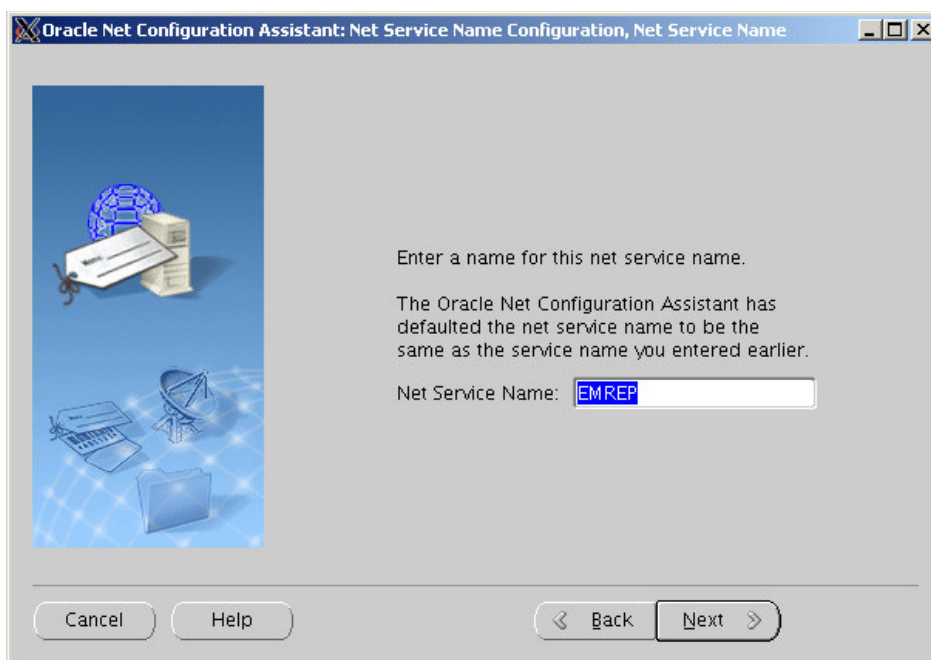
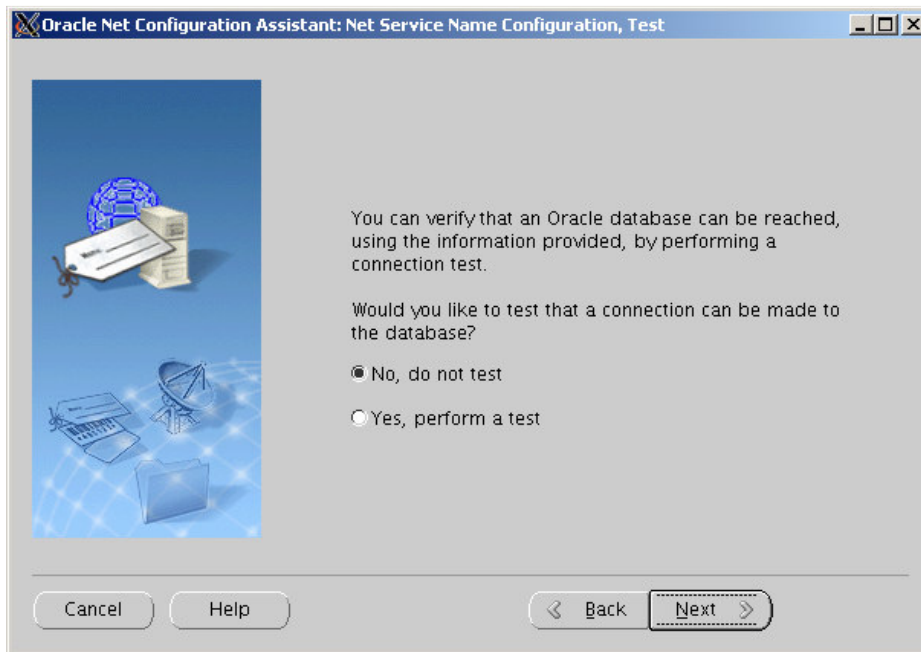
To communicate with the database using the TCP/IP protocol, the database computer's host name is required. Enter the host name for the computer where the database is located.

Host name:

A TCP/IP port number is also required. In most cases the standard port number should be used.

☒ Use the standard port number of 1521  
☐ Use another port number:

Cancel Help < Back Next >



### Database Preparations

Ensure that the UNDO tablespace and the TEMP tablespace are autoextensible in the existing, certified Oracle Database. Moreover, resize UNDO tablespace to >200M.

Documentation mentions that for RDBMS 11.2.0.1 as Grid Control Repository, patch for bug# 9002336 and 9067282 should be installed. I prefer to install PSU 11.2.0.1.1, which contains bugfix 9067282. Bug 9002336 can be addressed by underscore parameter `"_optimizer_distinct_agg_transform = false"`

```
SQL> alter system set "_optimizer_distinct_agg_transform"=false  
scope=spfile;  
SQL> alter system set log_buffer=10485760 scope=spfile;  
SQL> alter system set processes = 500 scope=spfile;  
SQL> alter system set session_cached_cursors=200 scope=spfile;  
SQL> alter database datafile  
'/u01/app/ora11gr2/oradata/EMREP/undotbs01.dbf' resize 256M;
```

Check whether fine grained access control is installed:

```
select value from v$option where parameter = 'Fine-grained  
access control';
```

At this point, deinstall DB Control:

```
./emca -deconfig dbcontrol db -repos drop
```

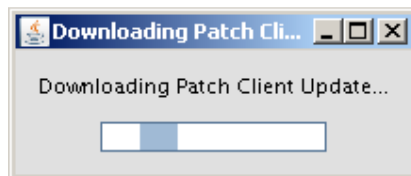
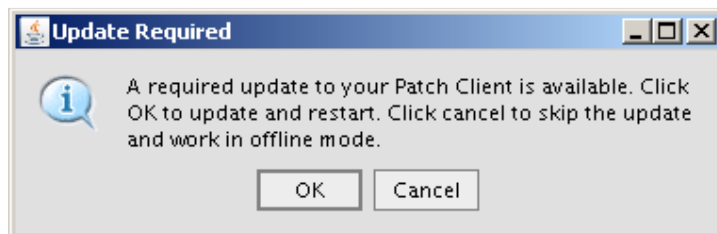
Note:

**My Oracle Support Node 561429.1** mentions that 11.2.0.1 can only be used as repository, if DNS is used. For my demo installation, I prefer usage of /etc/hosts. I have tested and found no issues without DNS.

## 7) WebLogic Server Patch Installation

Grid Control documentation mentions that WebLogic Patch WDJ7 is mandatory. Therefore we install it:

```
cd /u01/app/oraoem/Middleware  
cd utils/bsu  
./bsu.sh
```





Oracle Smart Update

Log in to Oracle Smart Update with your Support ID to download patches and Maintenance Packs. Work offline to just manage existing maintenance.

Support ID: martin.decker@xxxxxxxxxx

Password: \*\*\*\*\*

☒ Remember this

Cancel Help Work Offline Login



Register for security updates

Please provide your email address to be informed of the security issues and initiate configuration manager. <http://www.oracle.com/support/policies.html>

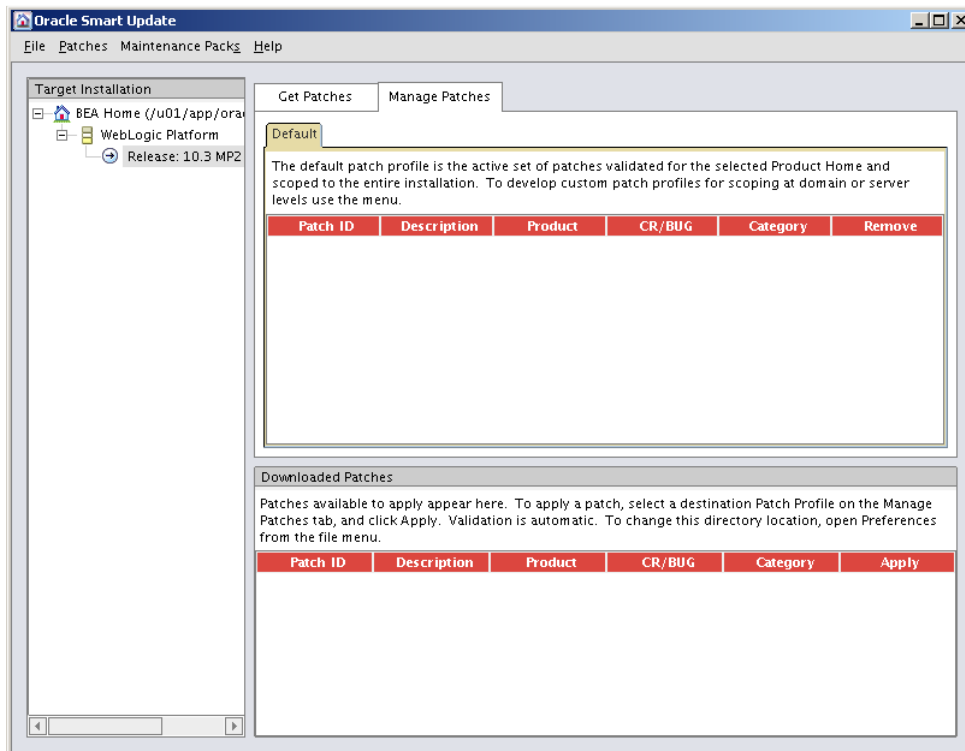
Email:

Easier for you if you use your My Oracle Support email address/u...

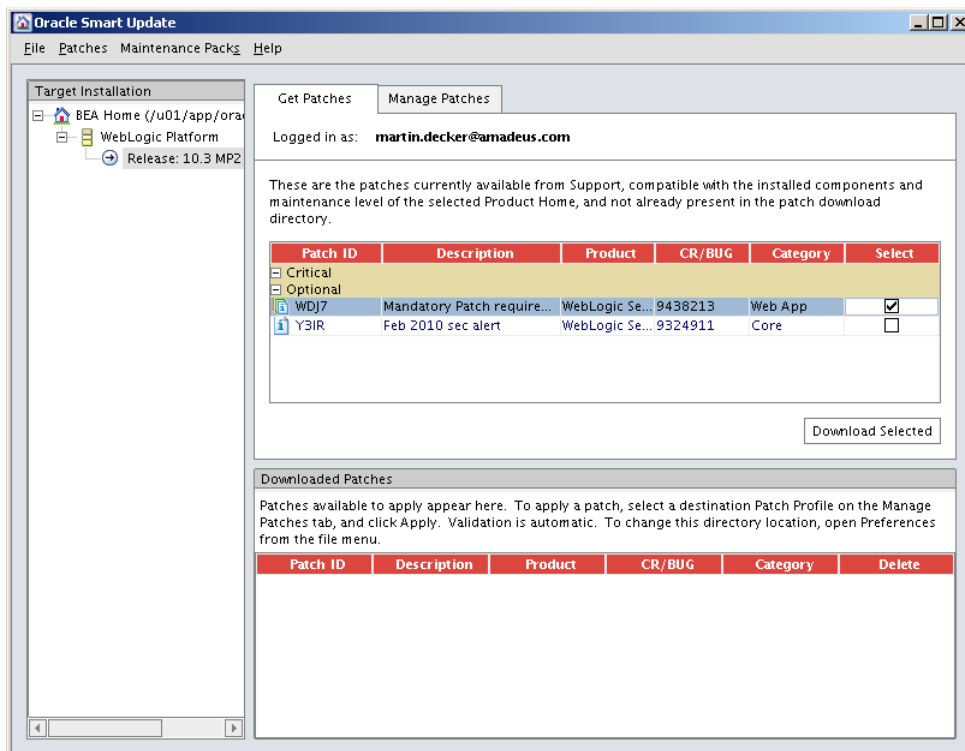
☐ I wish to receive security updates via My Oracle Support.

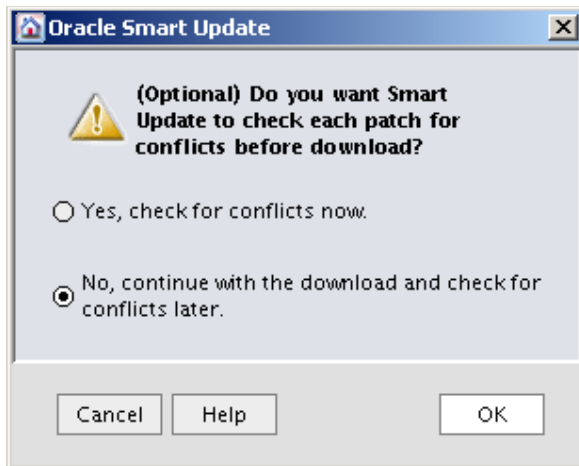
My Oracle Support password:

Continue

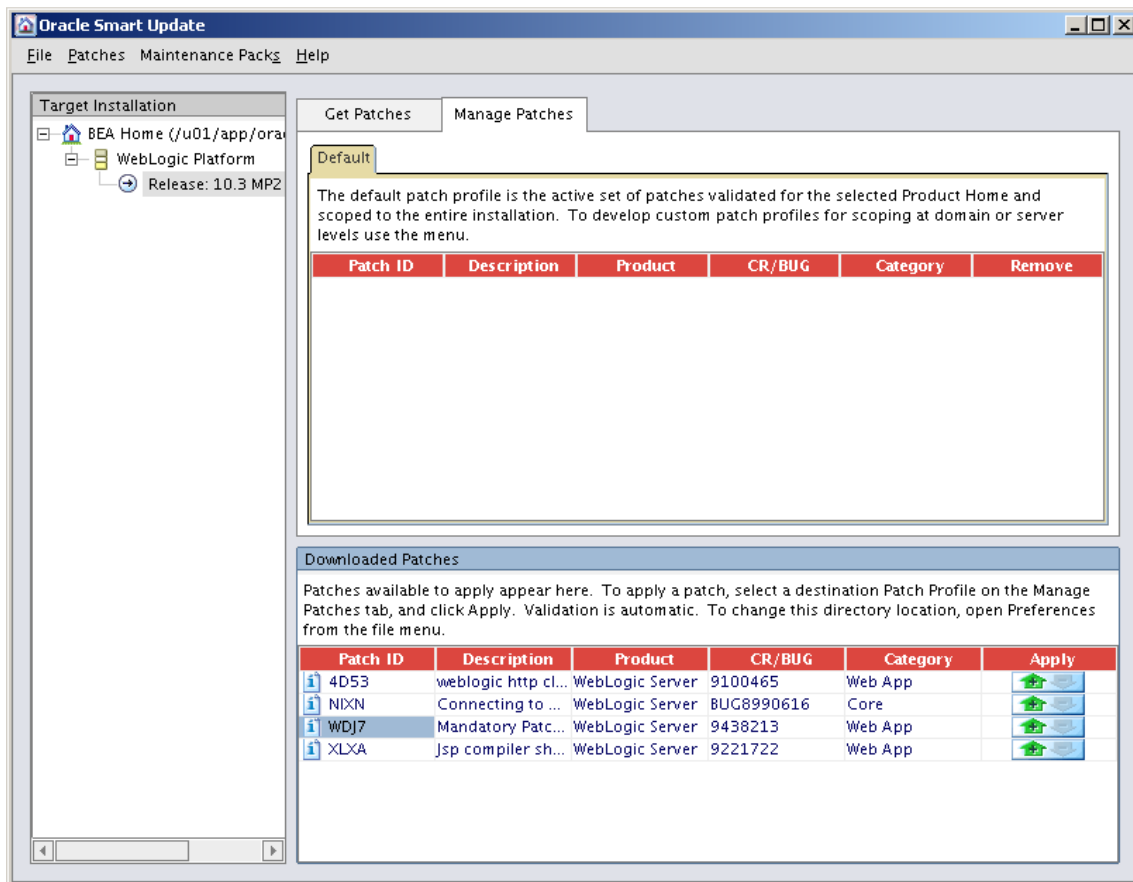


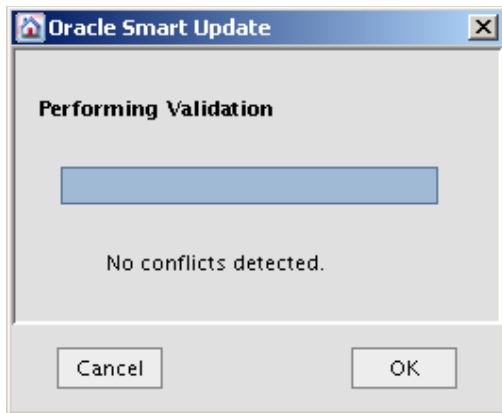
Click Tab "Get Patches", Select WDJ7 and click "Download Selected".





Next, click "Apply" for WDJ7.



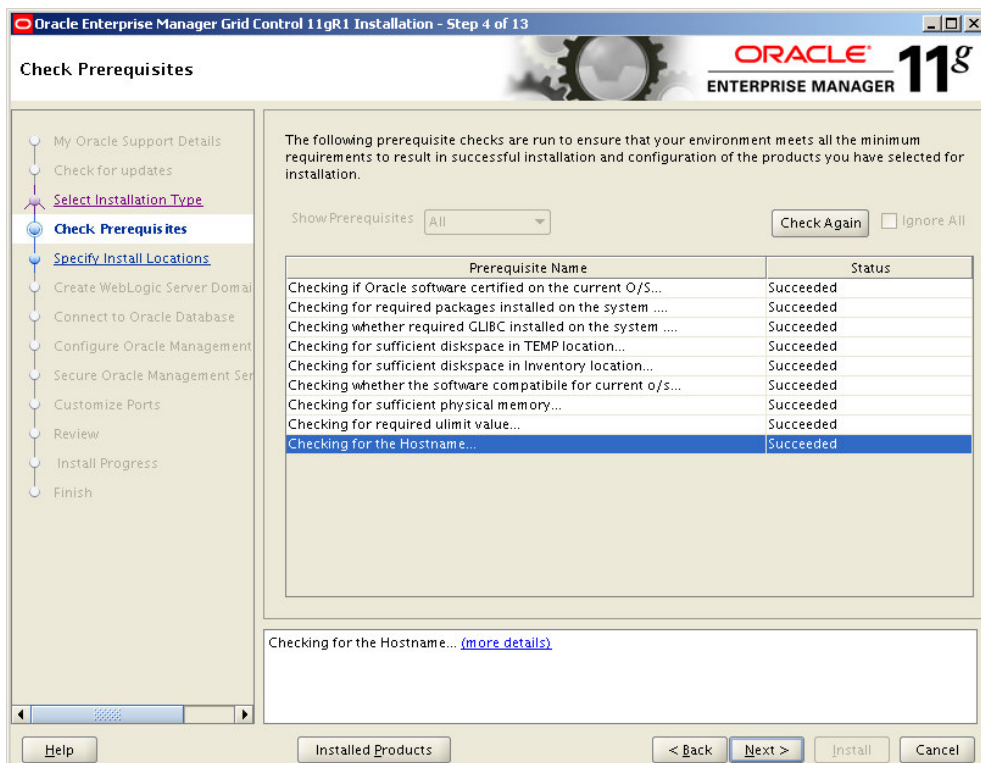
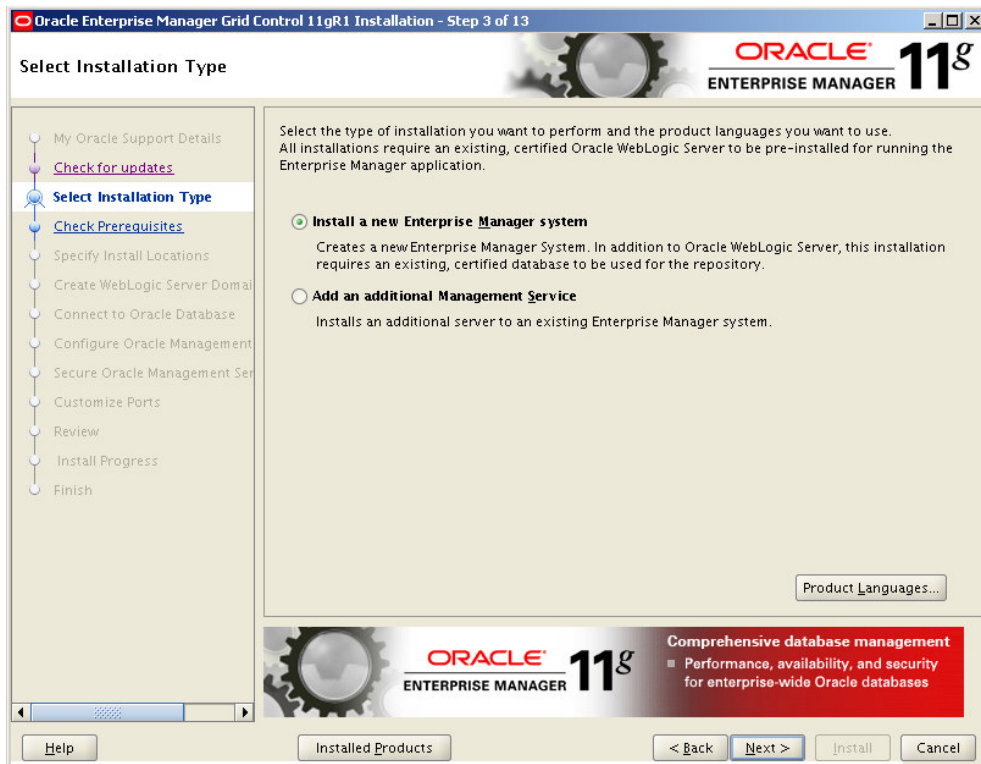


## 8) Installation Enterprise Manager Grid Control 11g

Download and unpack Grid Control:

```
./runInstaller
```





Oracle Enterprise Manager Grid Control 11gR1 Installation - Step 6 of 13

### Create WebLogic Server Domain

As part of the configuration of Enterprise Manager a new WebLogic domain will be created. Specify the domain details.

WebLogic Domain Name: GCDomain

WebLogic User Name: weblogic

WebLogic Password: ..... Confirm Password: .....

A node manager allows you to start, shutdown, and restart WebLogic Server instances remotely and is recommended for applications with high availability requirements. As part of the configuration of Enterprise Manager a new node manager instance will be configured. Specify the node manager details.

Node Manager User Name: nodemanager

Node Manager Password: ..... Confirm Password: .....

Application performance management

- Monitor end-user issues, and deep diagnostics and remediation of application performance problems

Help Installed Products < Back Next > Install Cancel

Oracle Enterprise Manager Grid Control 11gR1 Installation - Step 7 of 13

### Connect to Oracle Database

Specify connection details for the existing, certified Oracle database where Oracle Management Repository will be created.

Database Host Name: 192.168.1.211

Port: 1521

Service/SID: EMREP.intra

SYS Password: .....

Deployment lifecycle management

- Rapid provisioning of entire application stack

Help Installed Products < Back Next > Install Cancel

Oracle Enterprise Manager Grid Control 11gR1 Installation - Step 5 of 13

### Specify Install Locations

To install the Oracle Management Service (OMS), specify the middleware home that was created when installing Oracle WebLogic Server. In addition, specify the instance base directory for storing configuration information pertaining to the OMS.

Middleware home location:  Browse...

OMS instance base location:  Browse...

My Oracle Support Details  
Check for updates  
Select Installation Type  
Check Prerequisites  
**Specify Install Locations**  
Create WebLogic Server Domain  
Connect to Oracle Database  
Configure Oracle Management  
Secure Oracle Management Service  
Customize Ports  
Review  
Install Progress  
Finish

ORACLE 11g ENTERPRISE MANAGER

Deployment lifecycle management

- Promote application and schema changes from test to production
- Integrated with My Oracle Support

Help Installed Products < Back Next > Install Cancel

Oracle Enterprise Manager Grid Control 11gR1 Installation - Step 8 of 13

### Configure Oracle Management Repository

Configuration of Enterprise Manager creates SYSMAN schema that holds most of the relational data used in managing your enterprise manager and SYSMAN is the super administrator user for Enterprise Manager. Specify the password for SYSMAN user.

SYSMAN Password:  Confirm Password:

Configuration of Enterprise Manager creates three new tablespaces and associated data files: Management Tablespace for targets-related monitoring and metrics data, Configuration Data Tablespace for configuration data, and JVM Diagnostics Data Tablespace for JVM-related monitoring data. Specify the locations for the data files.

Management Tablespace:

Configuration Data Tablespace:

JVM Diagnostics Data Tablespace:

Restore Default Data File Locations

My Oracle Support Details  
Check for updates  
Select Installation Type  
Check Prerequisites  
Specify Install Locations  
Create WebLogic Server Domain  
Connect to Oracle Database  
**Configure Oracle Management Repository**  
Secure Oracle Management Service  
Customize Ports  
Review  
Install Progress  
Finish

ORACLE 11g ENTERPRISE MANAGER

Comprehensive database management

- Support for Oracle Database 11g Release 2 and Exadata V2

Help Installed Products < Back Next > Install Cancel

Oracle Enterprise Manager Grid Control 11gR1 Installation - Step 9 of 13

## Secure Oracle Management Service

By default, communication between the Oracle Management Service and the Management Agents uses a secure protocol. Securing the communication channel requires a registration password for authenticating new agents into the Enterprise Manager(EM) system. This password is created and stored when EM is first configured, and it is specified later when configuring the agent software to add new managed hosts. Specify the agent registration password.

Registration Password: ..... Confirm Password: .....

Management Agents can send and receive data from the OMS using either HTTP or HTTPS protocols. If you want to secure the communication, you can choose to allow only secure Management Agents to communicate with the OMS.

☒ Allow only secure agents to communicate with the OMS

You can access the Enterprise Manager Grid Control console using either HTTP or HTTPS protocols. If you want to secure the console, you can choose to restrict the access only to the HTTPS protocol.

☒ Allow only secure access to the console

ORACLE 11g ENTERPRISE MANAGER

Comprehensive database management  
■ Performance, availability, and security for enterprise-wide Oracle databases

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Oracle Enterprise Manager Grid Control 11gR1 Installation - Step 10 of 13

## Customize Ports

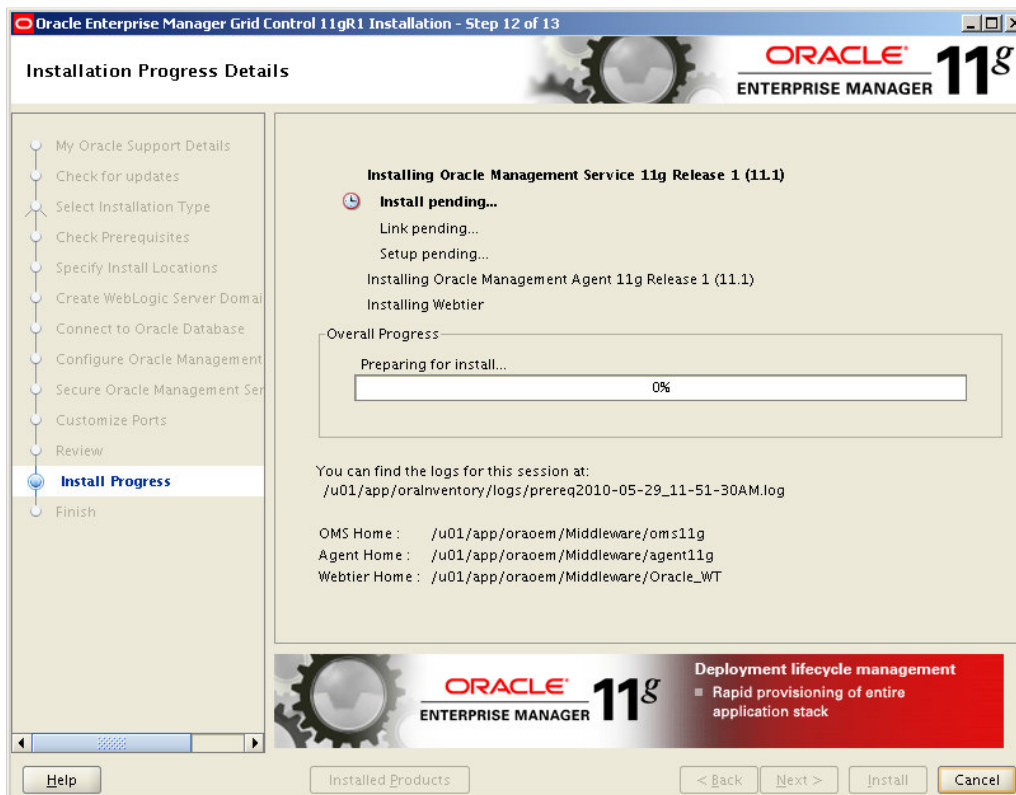
Configuration of the Enterprise Manager system requires the allocation of several ports to facilitate internal communication between system components as well as to provide access to the console via a browser. The table below contains the ports that will be allocated, along with the recommended port ranges, for each component. By default, the first available port in the specified port range has been chosen.

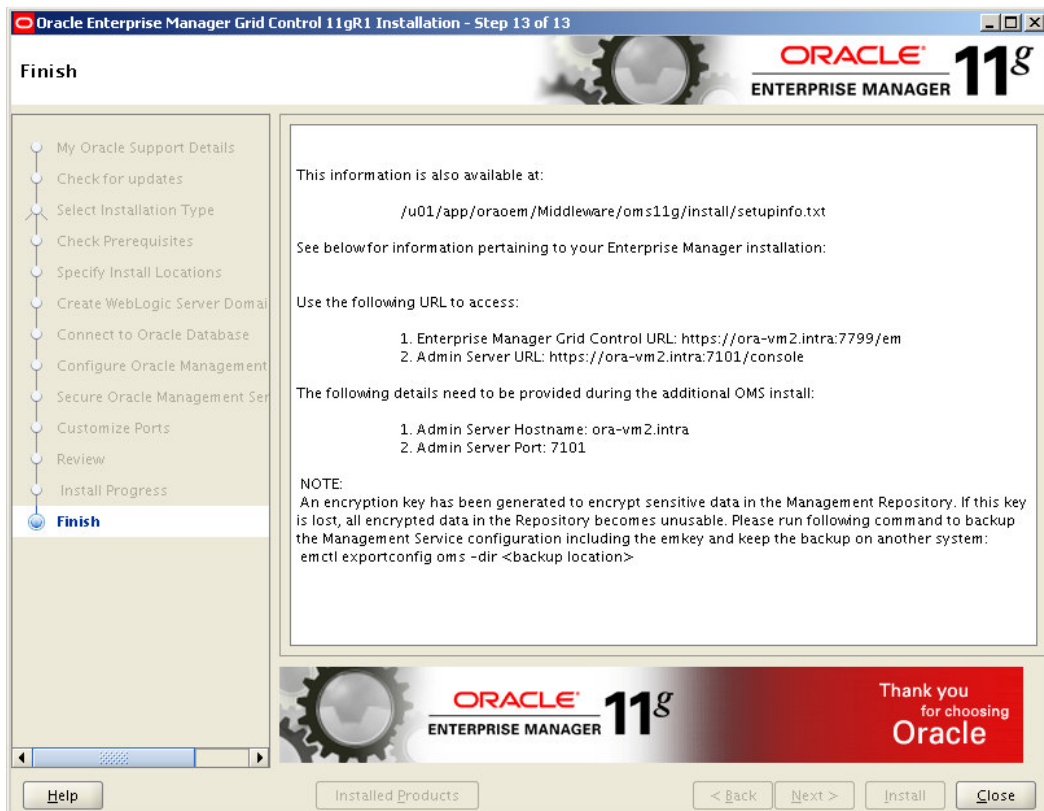
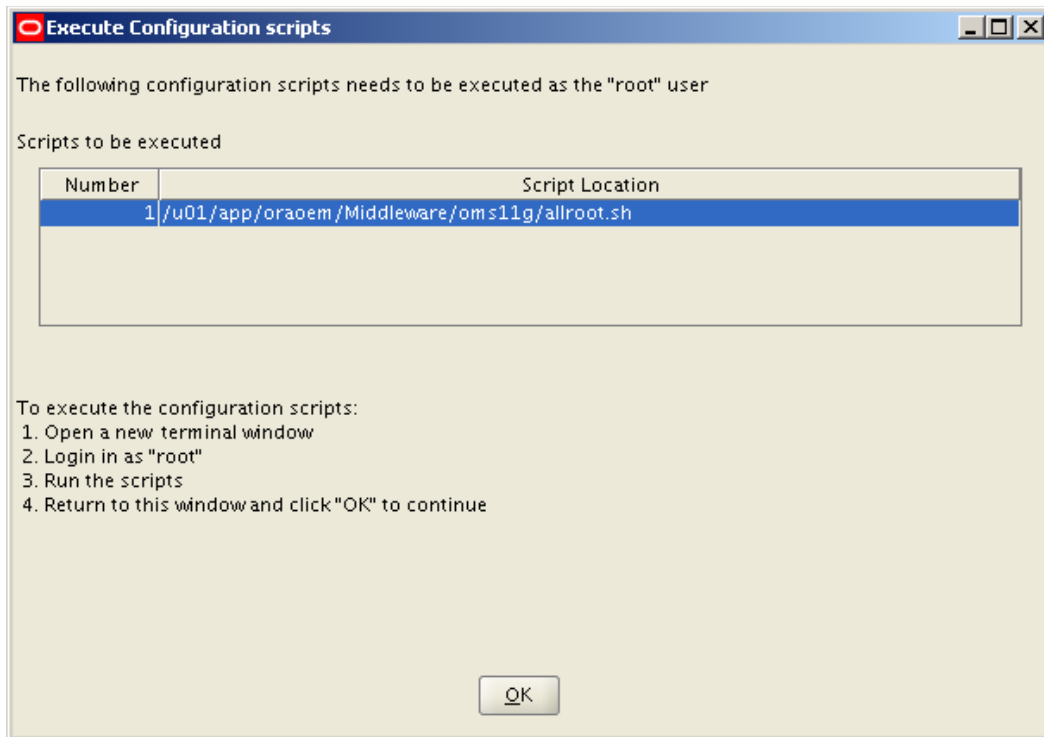
Component Name	Recommended Port Range	Port
Enterprise Manager Upload Http Port	4889-4898	4889
Enterprise Manager Upload Http SSL Port	1159,4899-4908	4900
Enterprise Manager Central Console Http SSL Port	7799-7809	7799
Node Manager Http SSL Port	7401-7500	7403
Managed Server Http Port	7201-7300	7202
Enterprise Manager Central Console Http Port	7788-7798	7788
Oracle Management Agent Port	3872,1830-1849	3872
Admin Server Http SSL Port	7101-7200	7101
Managed Server Http SSL Port	7301-7400	7301

ORACLE 11g ENTERPRISE MANAGER

Application performance management  
■ Monitor end-user issues, and deep diagnostics and remediation of application performance problems

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Installation is now complete and Grid Control can be accessed via browser:

<https://ora-vm2.intra:7799/em/>

The screenshot shows the Oracle Enterprise Manager Grid Control 11g interface. The top navigation bar includes links for Home, Targets, Deployments, Alerts, Compliance, Jobs, Reports, Setup, Preferences, Help, and Logout. The 'Setup' tab is currently selected. The main content area displays an overview of monitored targets, a pie chart showing target status (82% Up, 9% Down, 9% Unknown), and various alerts and policy violations. The 'Setup' tab is highlighted in the top navigation bar.

Click on "Setup" Tab, then Agents, then ora-vm2:3872. Then you see that EMREP database is not configured yet.

The screenshot shows the Oracle Enterprise Manager Grid Control 11g 'Agents' page for target ora-vm2.intra:3872. The page displays general information about the target, including its status (Up), host (ora-vm2.intra), and version (11.1.0.1.0). It also shows resource utilization and a list of monitored targets. The 'EMREP.intra' target is highlighted as 'Unconfigured'.

Unlock and set the password:

```
SQL> user dbsnmp identified by xxx account unlock;
```

Configure the respective password for dbsnmp and finish.

**Oracle Enterprise Manager**  
Grid Control 11g

Home | **Targets** | Deployments | Alerts | Compliance | Jobs | Reports | Setup | Preferences | Help | Logout

Hosts | Databases | Middleware | Web Applications | Services | Systems | Groups | Virtual Servers | **All Targets**

**Success**  
The connection test was successful.

Configure Database Instance: Properties

Name: EMREP.intra  
Type: Database Instance  
Group(s): None  
TIP: This target is a member of the Group(s) listed above.

Name	Value
Oracle home path	/u01/app/ora11g2/product/11g
Monitor Username	dbnmp
Monitor Password	*****
Role	Normal
Listener Machine Name	ora-vm2.intra
Port	1521
Database SID	EMREP

Preferred Connect String  
Enter the connection string that OMS should use when connecting to the target database. If blank, the OMS would automatically construct one using the host, port, SID provided above.

Test Connection

Home | **Targets** | Deployments | Alerts | Compliance | Jobs | Reports | My Oracle Support | Setup | Preferences | Help | Logout

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[About Oracle Enterprise Manager](#)

## 8) Enterprise Manager Grid Control 11g Patches

Environment-Files:

/home/oraoem/OMS.env:

```
export ORACLE_HOME=/u01/app/oraoem/Middleware/oms11g
export PATH=$ORACLE_HOME/bin:$PATH
```

/home/oraoem/AGENT.env:

```
export ORACLE_HOME=/u01/app/oraoem/Middleware/agent11g
export PATH=$ORACLE_HOME/bin:$PATH
```

Stoppen von OMS und Agent

```
as root: /etc/init.d/gcstartup stop
```

OMS Patch: (as oraoem)

```
. /home/oraoem/OMS.env
unzip p9659466_111010_Generic.zip
cd 9659466
/u01/app/oraoem/Middleware/oms11g/OPatch/patch apply
/u01/app/oraoem/Middleware/oms11g/bin/rcuJDBCEngine
sys/xxx@ora-vm2.intra:1521:EMREP JDBC_SCRIPT
post_install_script.sql $PWD $ORACLE_HOME
```

Agent Patch: (as oraodem)

```
. /home/oraodem/AGENT.env
unzip p9738008_111010_LINUX.zip
cd 9738008
/u01/app/oraodem/Middleware/agent11g/OPatch/patch apply

unzip p9676134_111010_Generic.zip
cd 9676134
/u01/app/oraodem/Middleware/agent11g/OPatch/patch apply
```

Starten von OMS und Agent

```
as root: /etc/init.d/gcstartup start
```

## 9) Stopping/Starting of Grid Control

Grid Control Components can be stopped like described here:

OMS:

```
. /home/oraodem/OMS.env
emctl stop oms
```

Agent:

```
. /home/oraodem/AGENT.env
emctl stop agent
```