Installing Oracle9*i*
on
IBM @server xSeries 450
with
Red Hat Enterprise Linux AS 2.1 for the Itanium Processor

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Contents

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INTRODUCTION

The IBM ^ xSeries 450 is IBM's new 64-bit Itanium Processor Family (IPF) Architecture server. It is the first full implementation of the 64-bit IBM XA-64 chipset, part of IBM's Enterprise X-Architecture (EXA) that combines industry-standard features with IBM mainframe-inspired capabilities to produce revolutionary advances in the I/O, memory and performance of IBM xSeries servers.

The Itamium-2 based x450 is ideally suited for optimized applications that require large memory footprints and high floating point performance such as large databases, business intelligence applications, scientific and technical computing. The x450's 64-bit addressing capability enables it to handle massive memory resources, increasing performance for database and memory intensive applications.

The purpose of this paper is to help those who are installing Linux and Oracle9*i* database on an IBM ^ xSeries 450. This is done by describing a basic installation of Oracle9*i* database on the x450 running Red Hat Enterprise Linux AS 2.1 for the Itanium Processor (Red Hat Advanced Server 2.1 for the Itanium Processor). The description in this paper is based on tests done at the IBM/Oracle International Competency Center and serves as a proof point for the installation of Oracle9*i* on the x450.

In the following sections, we describe the steps to install Red Hat and Oracle9*i* on the x450, including planning, actual installation of Red Hat Enterprise Linux AS 2.1 and Oracle9*i,* and simple verification of the installation.

Note that this installation is a single-node instance and does not include Real Application Clusters (RAC).

INSTALLATION PLANNING

MATERIALS USED

Hardware

Our test system was a pre-production x450 with the following:

- Four Itanium 2 processors running at 1.0GHz
- 26GB of RAM
- Two 36.4GB hard disks
- EFI Version 1.10

Red Hat Enterprise Linux AS 2.1 operating system

When we started this project, Red Hat Enterprise Linux AS 2.1 (ELAS, formerly named Red Hat Advanced Server 2.1) was not yet available for the Itanium processor. Our test was done using the 3/10 beta release of Red Hat Advanced Server 2.1 for the Itanium Processor. Prior to completing this paper, Red Hat Enterprise Linux AS 2.1 for the Itanium Processor was released as part of Quarterly Update 2 (QU2). However, we were unable to install it in time for this paper.

For information regarding Red Hat certification, refer to:

http://hardware.redhat.com/hcl/?pagename=hcl&view=certified&vendor=4&class=8#list

As this product has just recently been renamed, you will find some of the documentation and reference sources have not yet been updated with the new names. For this reason, there are still references to "Advanced Server" in this paper, such as the name of Red Hat's Installation Guide, Oracle9*i* 's product name, screenshots, etc.

For the latest information on supported operating systems, refer to:

http://www.pc.ibm.com/us/compat/nos/matrix.shtml

Oracle9i Release 2 Release 2 (9.2.0.2) for Linux IA/64

The xSeries 450 is currently certified by Red Hat, SuSE, SCO and Turbolinux for:

- Red Hat Enterprise Linux AS 2.1 for the Itanium Processor
- SuSE Linux Enterprise Server 8.0 for Itanium (SLES8)
- SCO Linux Server 4.0 for the Itanium Processor Family
- Turbolinux Enterprise Server 8.0 for the Itanium Processor

When we started this project, Oracle had just announced certification of their database product for Linux/IA64. Currently, the only 64-bit Linux distribution certified with Oracle9*i* is Red Hat Enterprise Linux AS 2.1. For the latest information on Oracle product certification, refer to:

http://otn.oracle.com/support/metalink/content.html

BEFORE STARTING THE INSTALLATION

To prepare for this installation, review the following sources of information. These sources are either available online or may be downloaded at the URLs listed in the References section

1. Oracle9*i* Release Notes, Release 2 (9.2.0.2.0) for Linux Intel on Itanium (64-bit), February 2003, Part No. B10567-02.

2. Oracle9*i* Installation Guide, Release 2 (9.2.0.1.0) for UNIX Systems: AIX-Based Systems, Compaq Tru64 UNIX, HP 9000 Series HP-UX, Linux Intel and Sun Solaris, May 2002, Part No. A96167-01.

3. Red Hat Linux Advanced Server 2.1, The Official Red Hat Linux Advanced Server Installation Guide for the Itanium® Processor

   This document can be accessed online from Red Hat's website. See the References section on page 35, item # 4 for the URL. This document is the reference manual for Red Hat Enterprise Linux AS installation and includes a section on troubleshooting your installation.

4. IBM Redbook, "IBM ^ xSeries 450 Planning and Installation Guide", (References, # 1)
   This document is a comprehensive source for technical details on the xSeries 450 and provides helpful information for preparing and performing an installation. These include sections describing the x450 hardware, Extensible Firmware Interface (EFI), and installation of SuSE Linux Enterprise Server on the x450.

The aforementioned Redbook (References, #1) describes an issue with the RXE-100 expansion enclosure and an LS-120 drive unit, encountered during the installation of SLES8. The circumvention actions were:

- Disconnect the RXE-100 during installation and reconnect it after the system is installed.
- Remove the LS-120 unit from the spare media bay in front of the x450 (secondary bus of the primary IDE interface)

Our test server did not have these components, thus we were unable to test installation of Red Hat Enterprise Linux AS (ELAS) with these components. We note however, that the Red Hat ELAS Installation Guide also describes the installation from an LS-120, so it may not be an issue with Red Hat ELAS.

INSTALLATION

INSTALLING RED HAT ENTERPRISE LINUX AS

To install Red Hat Enterprise Linux AS, perform the following steps:

1. Power on the x450 and insert the first Red Hat CD into the CD-ROM drive. The EFI Boot Manager menu, as shown in Figure 1, is displayed.

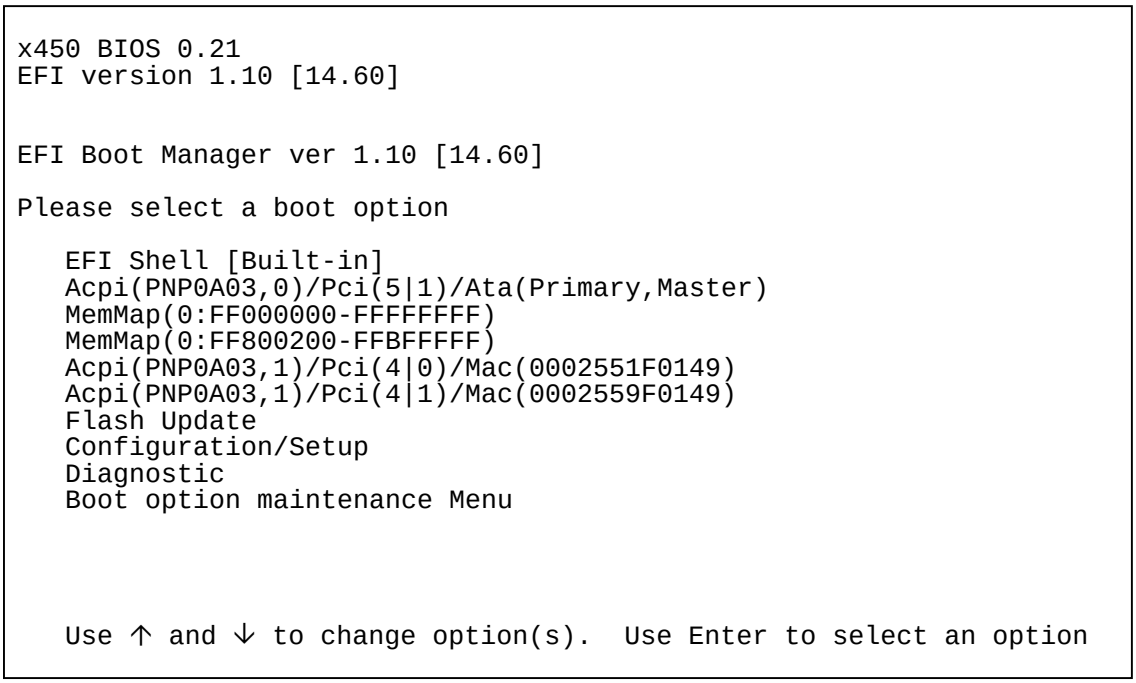

Figure 1. EFI Boot Manager

Verify that the EFI Boot Manager has detected the CD. Do this by selecting the EFI Shell, using the arrow (↑↓) keys if needed and pressing the Enter key.

2. The information shown in Figure 2 is displayed. Note the line beginning with fs2. "CDROM/(Entry0)" at the end of this line indicates that the CD has been detected. If not, type `map` at the shell prompt to redisplay the mapping table. If the mapping does not appear, use "map –r" to force EFI to refresh the device mapping table.

   When the mapping has been created for the CDROM, type `exit` at the shell prompt to return to the EFI Boot Manager menu.

```
Loading.: EFI Shell [Built-in]
EFI Shell version 1.10 [14.60]
Device Mapping Table
 fs0  : MemMap(0:FF000000-FFFFFFFF)
 fs1  : MemMap(0:FF800200-FFBFFFFF)
 fs2  : Acpi(PNP0A03,0)/Pci(5|1)/Ata(Primary,Master)/CDROM(Entry0)
 fs3  : Acpi(PNP0A03,1)/Pci(3|0)/Scsi(Pun0,Lun0)/HD(Part1,SigD350A1B8-66E2-
11D7-908C-DBA394519D32)
 blk0 : MemMap(0:FF000000-FFFFFFFF)
 blk1 : MemMap(0:FF800200-FFBFFFFF)
 blk2 : Acpi(PNP0A03,0)/Pci(5|1)/Ata(Primary,Master)
 blk3 : Acpi(PNP0A03,0)/Pci(5|1)/Ata(Primary,Master)/CDROM(Entry0)
 blk4 : Acpi(PNP0A03,1)/Pci(3|0)/Scsi(Pun0,Lun0)
 blk5 : Acpi(PNP0A03,1)/Pci(3|0)/Scsi(Pun0,Lun0)/HD(Part1,SigD350A1B8-66E2-
11D7-908C-DBA394519D32)
  blk6 : Acpi(PNP0A03,1)/Pci(3|0)/Scsi(Pun0,Lun0)/HD(Part2,Sig72675FC2-771D-
11D7-9B4F-E7444EC4AC35)
  blk7 : Acpi(PNP0A03,1)/Pci(3|0)/Scsi(Pun0,Lun0)/HD(Part3,Sig7267CF98,771D-
11D7-9B4F-E7444EC4AC35)
  blk8 : Acpi(PNP0A03,1)/Pci(3|0)/Scsi(Pun1,Lun0)
  blk9 : Acpi(Pnp0A03,1)/Pci(3|0)/Scsi(Pun1,Lun0)/HD(Part1,Sig1F815096-317D-
44DC-89BC-A54C63E45A66)
  blkA : Acpi(PNP0A03,1)/Pci(3|0)/Scsi(Pun1,Lun0)/HD(Part2,Sig8EA7C282-B618-
4ECD-BFA0-512724111A9B)
Shell>
```

Figure 2. EFI Device Mapping Table

3. Select "`Acpi(PNP0A03,0)/Pci(5|1)/Ata(Primary,Master)`" from the EFI Boot Manager menu (second line on Figure 1) and press Enter.

4. The Red Hat GUI welcome screen appears. From this point on, the installation is very similar to that for Red Hat Enterprise Linux AS 2.1 on the 32-bit Intel servers. Proceed with the installation as described in the Red Hat Advanced Server Installation Guide (References, #4).

5. We will not describe all the steps to install Red Hat ELAS here, but rather refer you to The Red Hat Enterprise Linux AS Installation Guide (**Error! Reference source not found.**, 4). However, a number of steps were important to our installation, and these were as follows:

   a. On the Install Options screen, choose Advanced Server, shown in Figure 3. You will have an opportunity to modify the default selections on a later step.

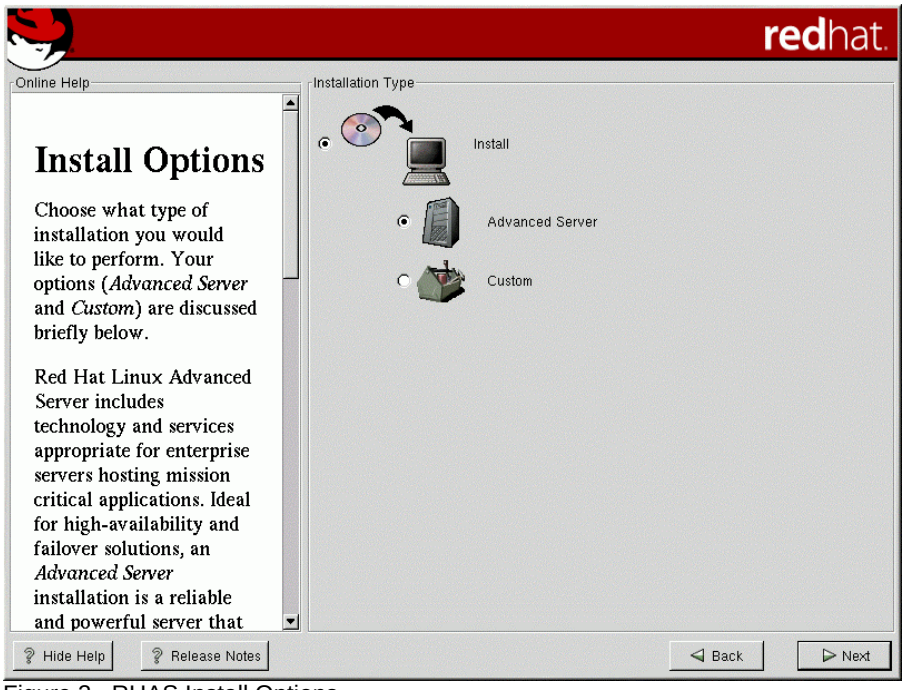

Figure 3. RHAS Install Options

b. On the Disk Partitioning Setup screen (sample shown in Figure 4), we chose to have the installer automatically partition for us. We chose to install the operating system on one of our two disks and use the second disk for Oracle binaries and test database. Note that the installer creates ext3 filesystems by default, we chose to use ext2.

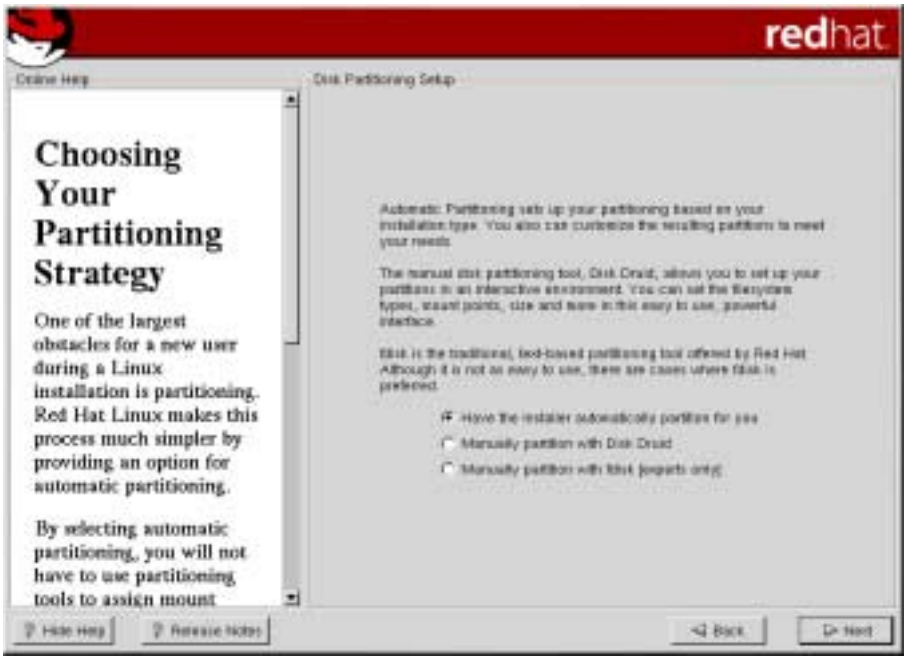

Figure 4. Disk Partitioning Setup

c. On the Firewall Configuration screen, take note of the default selections, shown in Figure 5. Leaving the default settings will interfere with setup activities later on that require network communications. Either configure the firewall at this time, or defer it for later by choosing No firewall. To simplify our installation, we chose No firewall.

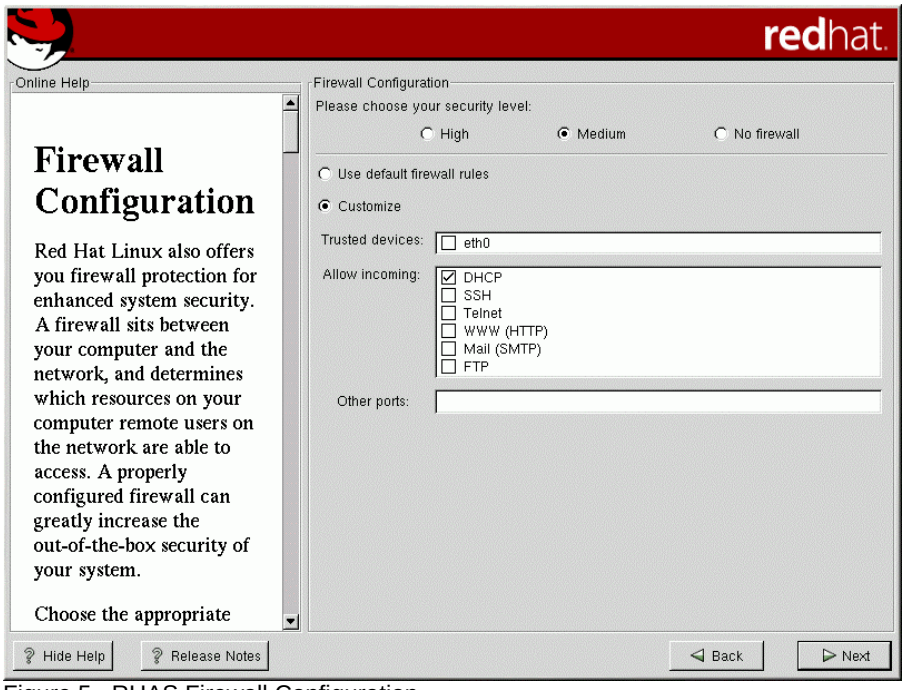

Figure 5. RHAS Firewall Configuration

d. When the Selecting Package Groups screen is displayed (Figure 6), select Software Development, which you will need for the Oracle9*i* installation. Check Select individual packages to review and modify selections as needed.

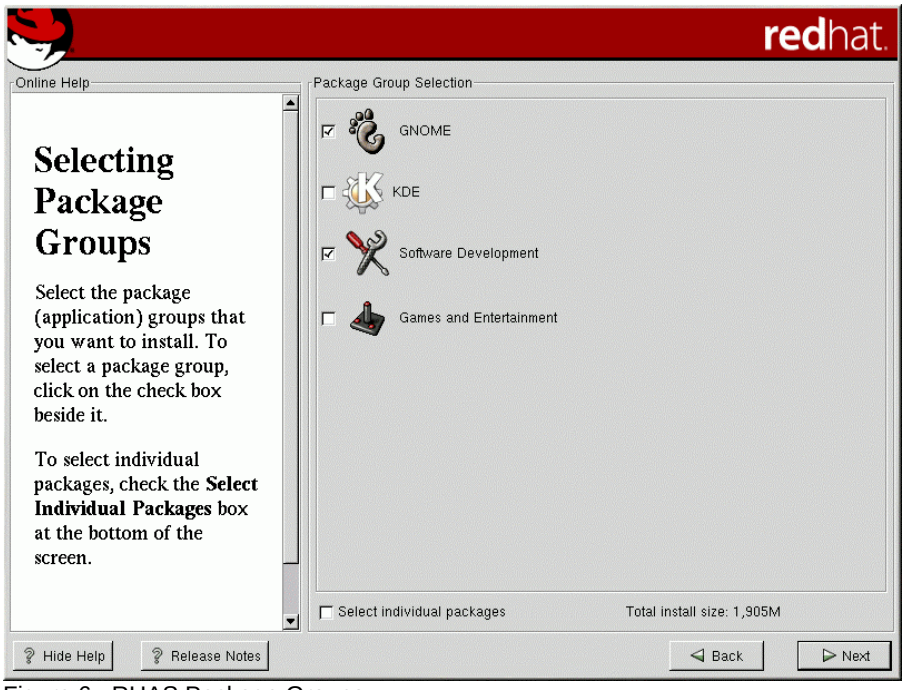

Figure 6. RHAS Package Groups

e. A sample of the Individual Package Selection screen is shown in Figure 7. On this screen, you may select additional packages or remove selected packages. For example, by default, the installation program does not install the ftp server. On the left hand panel, click **System Environment → Daemons**. Scroll down on the right hand panel and select the wu-ftp daemon, wu-ftpd.

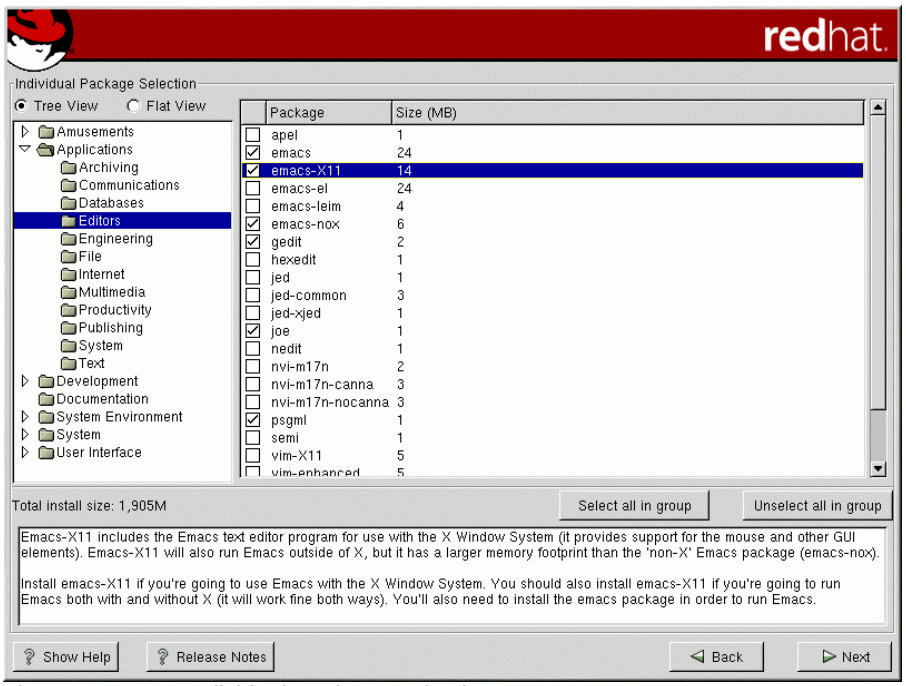

Figure 7. RHAS Individual Package Selection

6. When the x450 is rebooted after Red Hat ELAS installation, the first entry on the EFI Boot Manager menu will be `Red Hat Linux Advanced Server`. This entry is also the default boot selection, and will be booted automatically if you do not press any key.

Post-installation

Creating Partitions

By default, Red Hat ELAS creates EFI GUID partition tables on disks that are partitioned during installation. To look at these partitions or to create new partitions, you will need to use the `parted` utility, included with Red Hat ELAS. The `fdisk` utility does not currently support EFI GUID partition tables. Refer to the man pages for more information on the `parted` utility.

Issues

After installing ELAS, we encountered severely degraded system performance after logging into the graphical desktop environment. We encountered this issue with both KDE and GNOME environments. Using the `top` command, we found that in KDE, the `autorun` program was the largest CPU user and in GNOME, it was a program named `magicdev`. These programs detect when a CD is inserted or removed in the CD-ROM drive.

We circumvented the issue by switching to a virtual console (using [Ctrl-Alt-Fn], where n=1 through 6), logging in as root and performing the following:

a. For KDE, rename or remove the file named `.kde/Autostart/Autorun.`desktop in each user's home directory.
b. For GNOME – remove the magicdev package. As root, type the command:

```
rpm –e magicdev
```

As we were using a beta version of ELAS, it is possible that this issue has been resolved in the generally available (GA) version.

INSTALLING ORACLE9*I*

Pre-installation Tasks

To prepare the system for Oracle9*i* installation, perform the following:

1. Create the operating system group for the Oracle Universal Installer Inventory and the user ID that will be used to install, configure and run Oracle. In our test, we named the group oinstall and the user ID oracle. You will need to be root user to do this. From a shell prompt, type the following commands:

```
groupadd oinstall
useradd -g oinstall -m oracle
```

   Change oracle's password to enable login. Type the following command:

```
passwd oracle
< type the desired oracle password when prompted>
```

   If you plan to use KDE with the oracle user, remember to delete or rename `/home/oracle/.kde/Autostart/Autorun.desktop`, as described above.

2. Download JDK 1.4.1 from http://java.sun.com/j2se/1.4.1/download.html. For Itanium processors, JDK 1.4.1 is labeled J2SE Itanium Developer Release v 1.4.1. The download file is named j2sdk-1_4_1-linux-ia64.bin.
   a. Put the download file in the directory into which you want to install the Java 2 SDK. Launch the downloaded file with the following commands:

```
chmod +x j2sdk-1_4_1-linux-ia64.bin
./j2sdk-1_4_1-linux-ia64.bin
```

b. The script displays a binary license agreement and asks for your agreement before installation can proceed. Once you agree to the license, the install script installs the Java 2 SDK in a subdirectory named j2sdk1.4.1 in the current directory. You will be asked for this directory during the installation of Oracle9*i*. In our test, we installed into the /usr directory.

3. Oracle 9*i* Release 2 for Red Hat Advanced Server 2.1 Itanium 2 is supplied on three CDs, so it is necessary to switch product CDs during installation. Oracle Universal Installer (OUI) will manage the switching between CDs and ask you for the CD location when necessary.

   For our installation, we copied the Oracle9*i* product CDs to the hard disk. The three product CDs were copied to three directories on the server named /oracle/stage9i/Disk*n*. These directories were named /oracle/stage9i/Disk1, /oracle/stage9i/Disk2 and /oracle/stage9i/Disk3.

   If you chose to install from the CDs, do not run OUI while the CD is the current directory, or you will not be able to switch CDs when prompted.

4. Modify the kernel parameters that affect resources used by Oracle9*i*: This task must be performed as root user.
   a. Review kernel parameter recommendations in Reference 2 and 3. Use the `sysctl` command to do look at the current settings. For example, the default values for kernel.sem are shown below in Figure 8.

```
[root@x450db root]# sysctl kernel.sem
kernel.sem = 250        32000   32      128   ← semmsl semmns semopm semmni
[root@x450db root]#
```

   Figure 8. Displaying kernel parameters

   b. In our test, we modified the kernel parameters shown in Figure 9, which may be different for your environment. Add the statements shown to /etc/sysctl.conf, which will cause the parameters to be set upon reboot. Set the parameters now using the `sysctl –p` command.

```
kernel.sem = 250 32000 100 128
kernel.shmmax = 8192000000
kernel.shmmni = 4096
vm.nr_hugepages = 8
```

   Figure 9. Modified kernel parameters

5. Create ORACLE_HOME directory and make oracle user the owner. Issue the commands shown in Figure 10 as root user:

```
[root@x450db root]# mkdir /oracle
[root@x450db root]# mkdir /oracle/9202
[root@x450db root]# chown –R oracle:oinstall /oracle
```

   Figure 10. Creating ORACLE_HOME

6. Set up environmental variables for the oracle user. Do this as oracle user.
   a. Modify .bash_profile in oracle's home directory, adding the statements shown in Figure 11.

```
export ORACLE_BASE=/oracle/9202
export ORACLE_HOME=$ORACLE_BASE
export ORA_NLS33=$ORACLE_HOME/ocommon/nls/admin/data

PATH=.:$ORACLE_HOME/bin:$PATH:$HOME/bin
export PATH
```

   Figure 11. oracle user environmental variables

b. Verify that the environmental variables are set correctly by logging in as oracle user and echoing an environmental variable to the console. For example:

```
[oracle@x450db oracle]$ echo $ORACLE_HOME
/oracle/9202
[oracle@x450db oracle]$
```

Oracle9i Installation Tasks

1. Log in as oracle and invoke the Oracle9*i* Universal Installer as follows:

```
cd /oracle/stage9i/Disk1
./runInstaller
```

2. The Welcome screen in Figure 12 is displayed. Click **Next** to continue.

Figure 12. Welcome Screen

3. Since this is the first installation, the Inventory Location screen is displayed, as shown in Figure 13. The default directory for installation files is a subdirectory under ORACLE_HOME. Leave the default setting and click **OK** to continue.

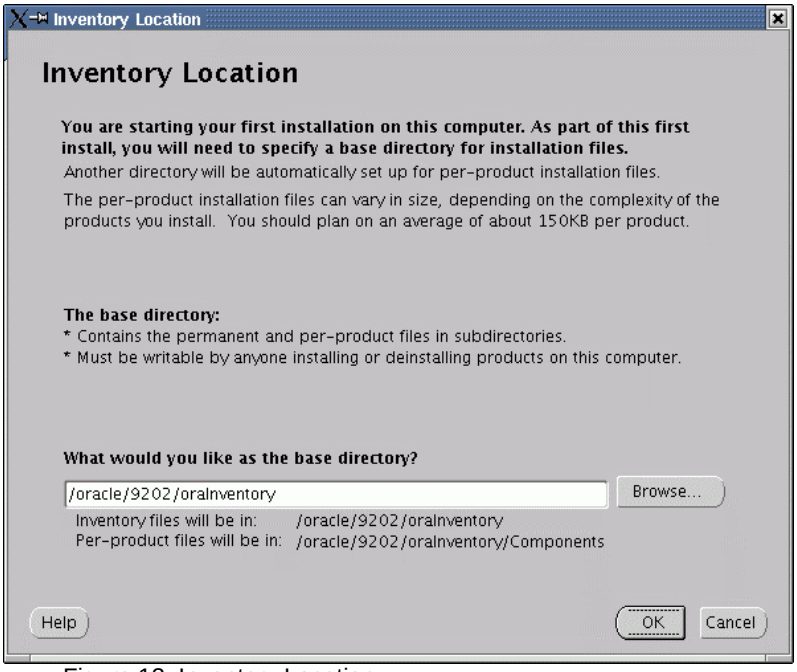

Figure 13. Inventory Location

Note: There are several files that are used to keep track of choices you make when using OUI. If you have to restart the installation process, information in these files will direct the OUI to default values. The best way to restart is to use OUI to de-install, then restart. However, if you have to manually restart the installation, look at these files and remove or modify the entries.

- /var/opt/oracle/oraInst.loc contains the following:

```
inventory_loc=/oracle/9202/oraInventory
inst_group=oinstall
```

- /etc/oratab has entries for ORACLE_HOME and ORACLE_SID

4. The screen entitled UNIX Group Name, Figure 14, is displayed. Enter `oinstall` (from Post-installation, # 1, page 11) as shown. Click **Next** to continue.

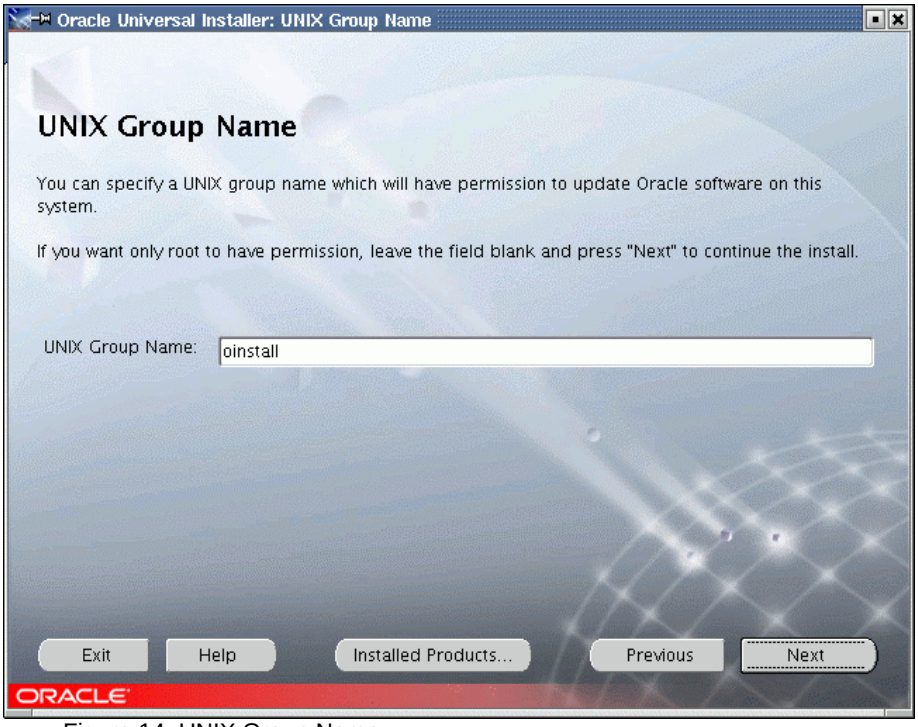

Figure 14. UNIX Group Name

5. A popup window appears, asking to execute a shell script as root. Go to another window, switch to root and execute the specified shell script. When completed, return to the popup window and click **Continue**.

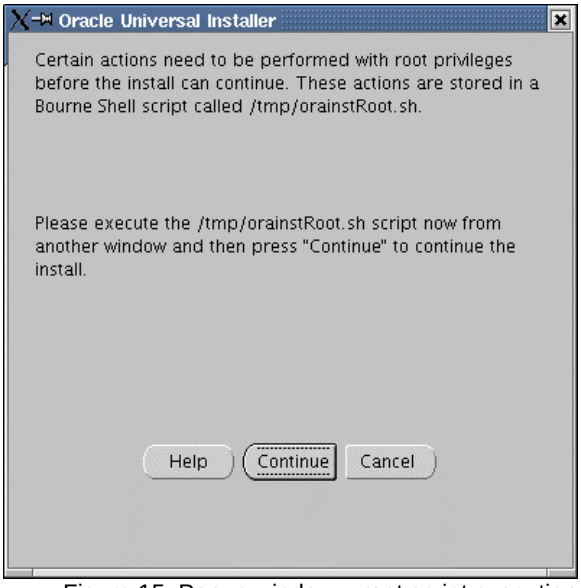

Figure 15. Popup window – root script execution

6. Verify information on the File Locations screen, shown in Figure 16. Click **Next** to continue.

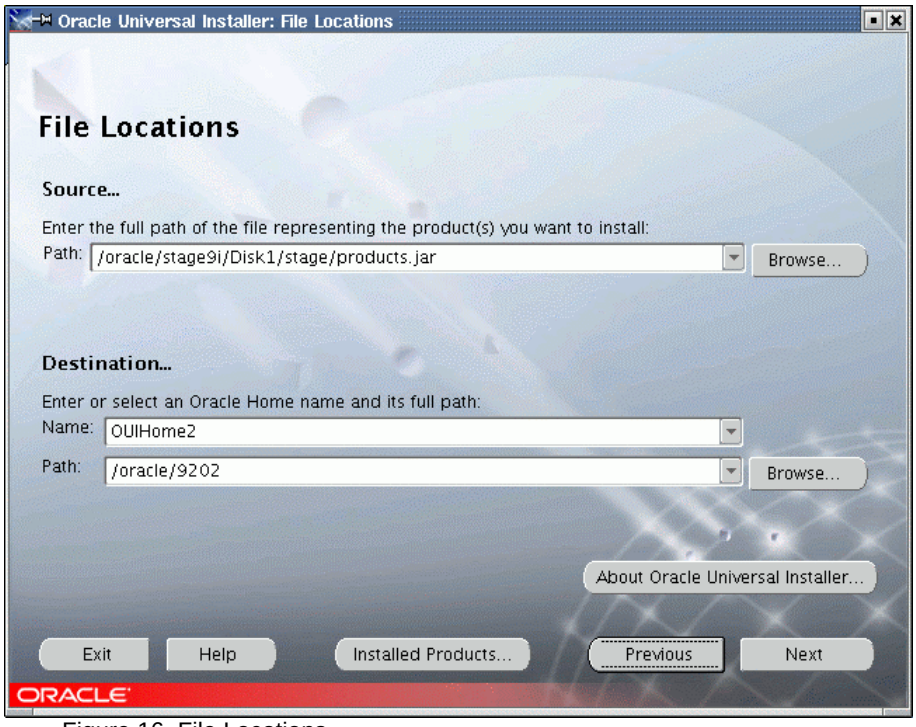

Figure 16. File Locations

7. Select Oracle9*i* Database 9.2.0.2.0 on the Available Products screen shown in Figure 17. Click **Next** to continue.

Figure 17. OUI Available Products

8. The Installation Types screen is displayed, shown in Figure 18. If you select Custom, the installer will display additional screens for more detailed product selection. For our example, we selected Enterprise Edition to install all the available products. Click **Next** to continue.

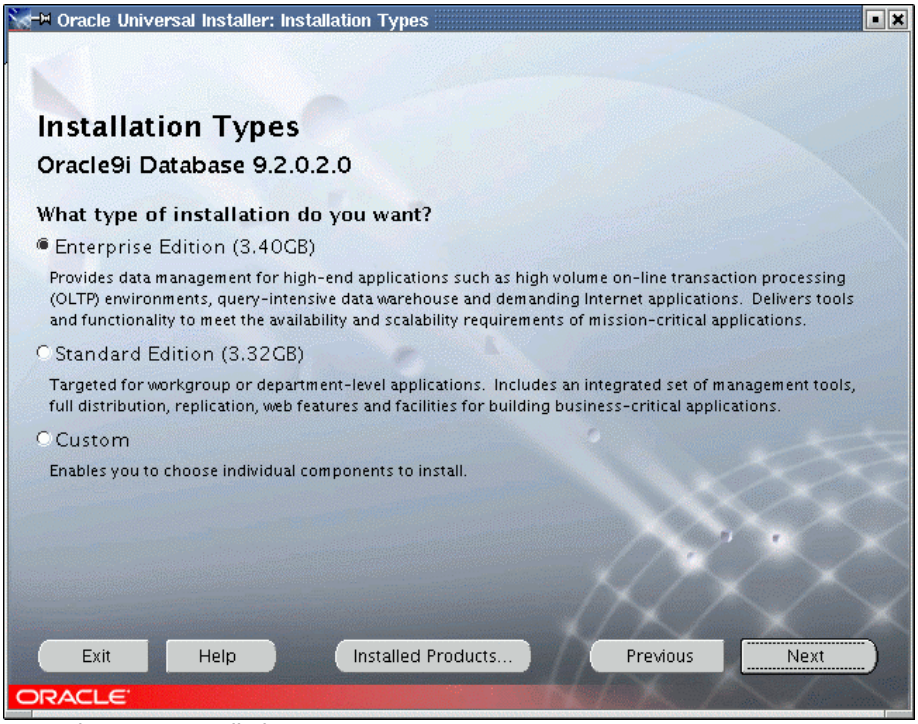

Figure 18. Installation Types

9. On the Database Configuration screen (Figure 19), we chose Software Only. Later on, we will manually invoke other Oracle configuration tools, or assistants. If you choose one of the other selections, OUI will automatically invoke the appropriate Oracle assistants. Click **Next** to continue to the next step.

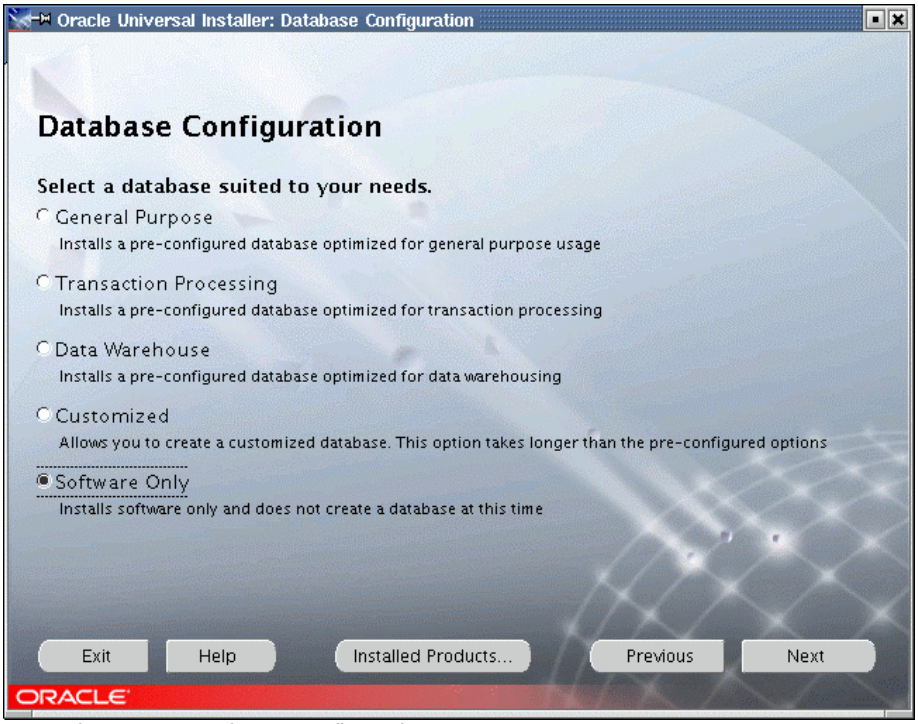

Figure 19. Database Configuration

10. On the next screen, shown in Figure 20, use the Browse button to select the jdk home directory. This is the directory from step 2, Post-installation on page 11. Click **Next** to continue.

Figure 20. JDK Home Directory

11. The Summary screen in Figure 21 is displayed. Review the products being installed. If you want to change the products to be installed, click **Previous** and modify your selections. Otherwise, click **Install** to continue.

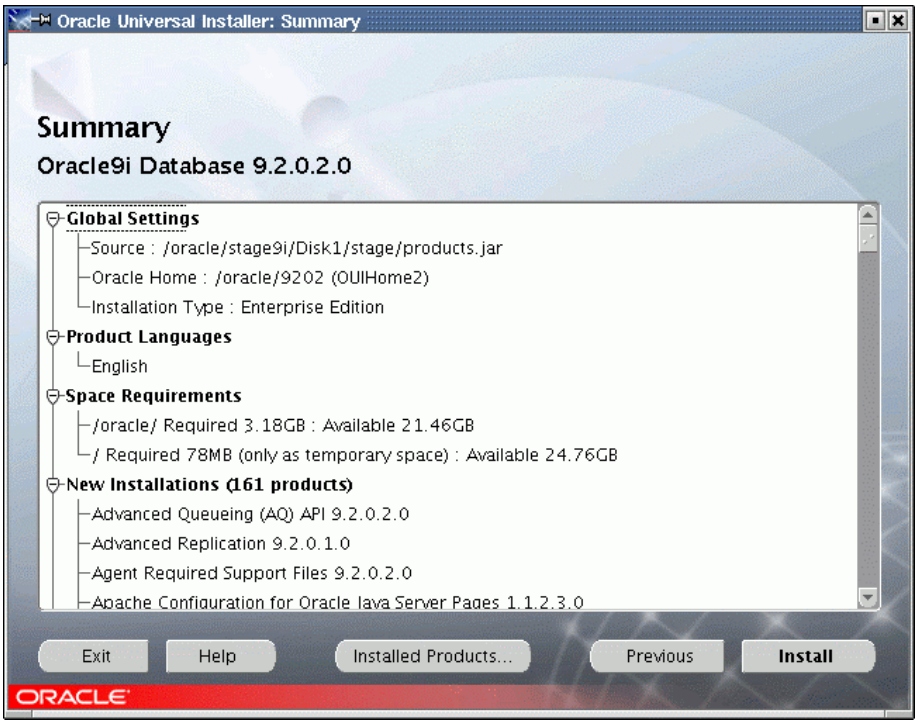

Figure 21. Summary

12. The Install window in Figure 22 shows progress of the installation.

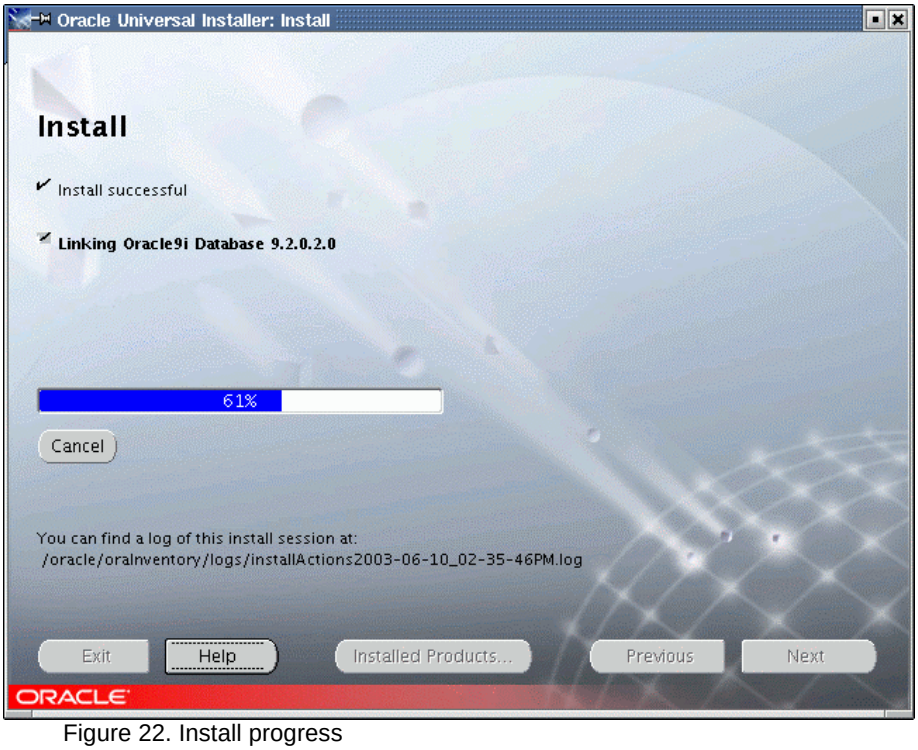

Figure 22. Install progress

13. When the installation is complete, a popup window is displayed, shown in Figure 23. Go to another window and execute the requested shell script as root. When done, return to the popup window and click **OK** to continue.

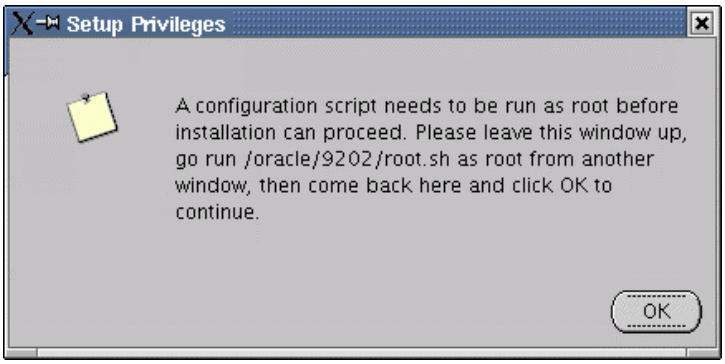

Figure 23. Popup window - Setup Privileges

14. The End of Installation screen, Figure 24, completes Oracle product installation. Click **Exit** to end the Oracle Universal Installer.

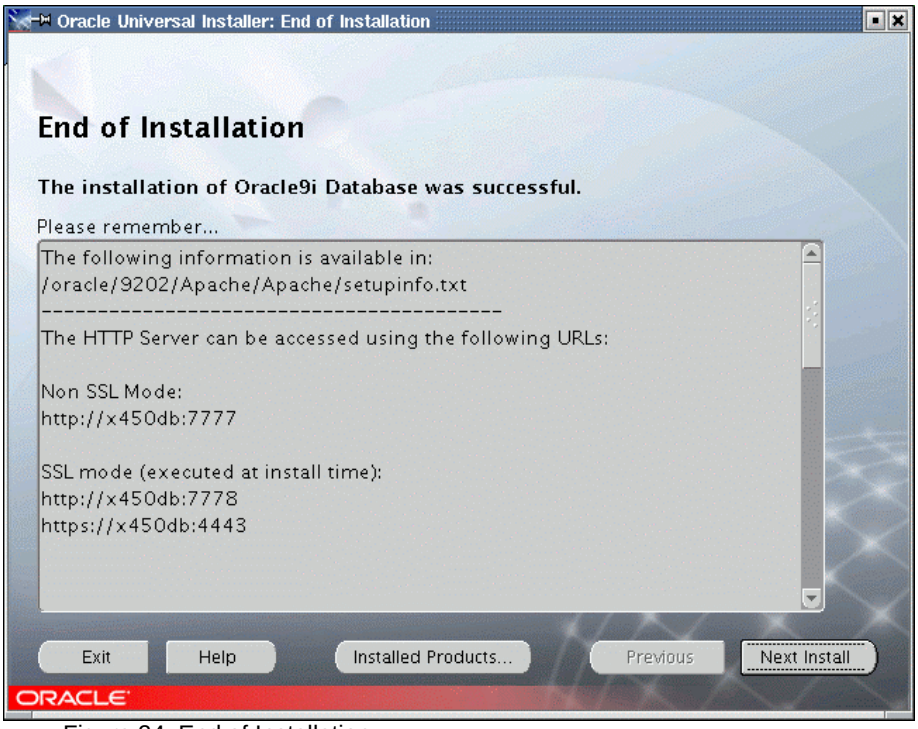

Figure 24. End of Installation

Creating a Test Database

To test our installation of Oracle9*i*, we created a database using Oracle's Database Configuration Assistant, dbca. Do this as follows:

1. Log in as oracle and type the dbca command from a shell prompt. The dbca welcome screen is displayed, as shown in Figure 25.

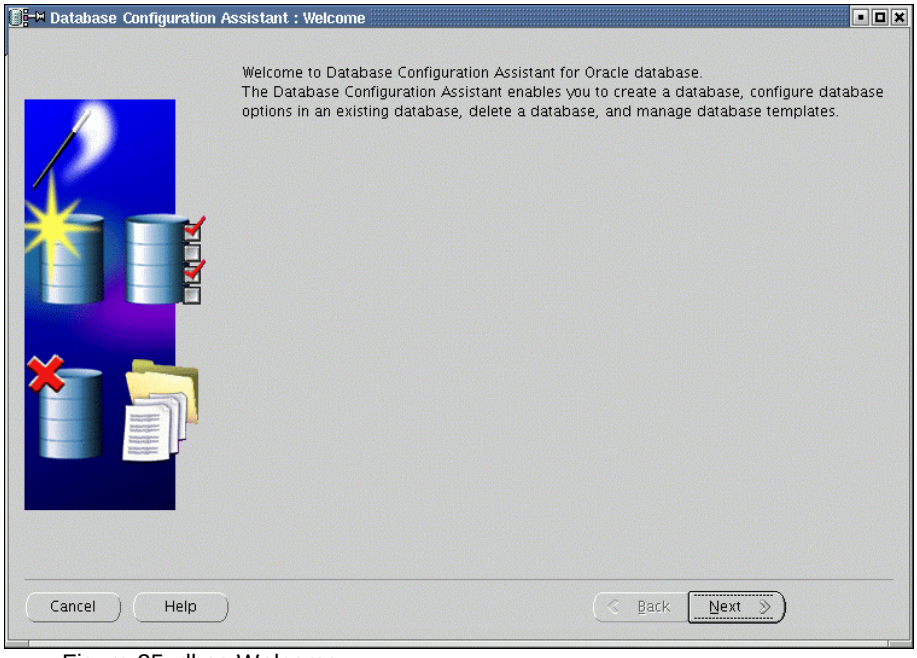

Figure 25. dbca Welcome

2. Select Create a database as shown in Figure 26. Click **Next** to continue.

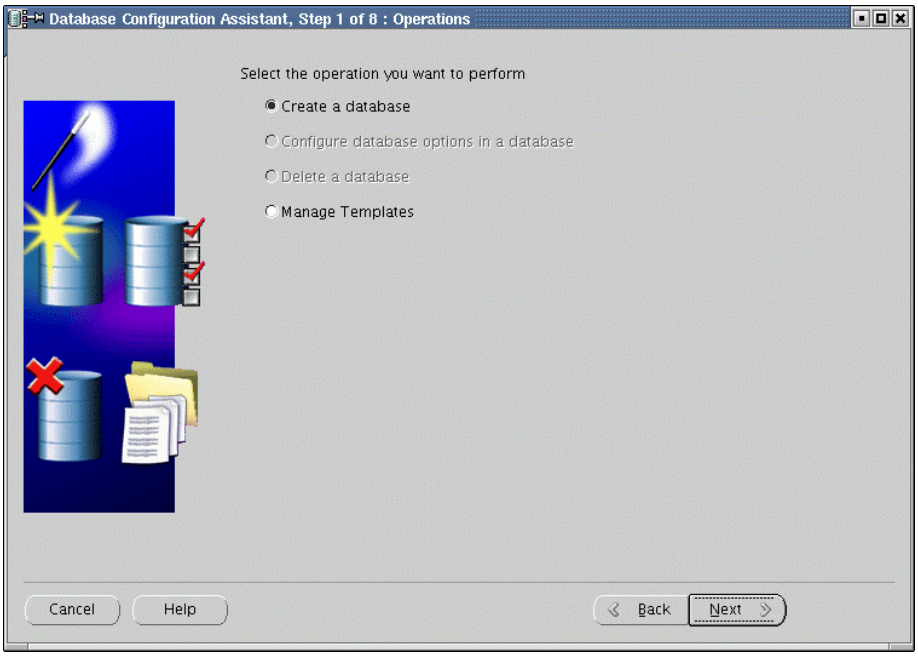

Figure 26. dbca Operations

3. Select a database template, shown in Figure 27. Click **Next** to continue.

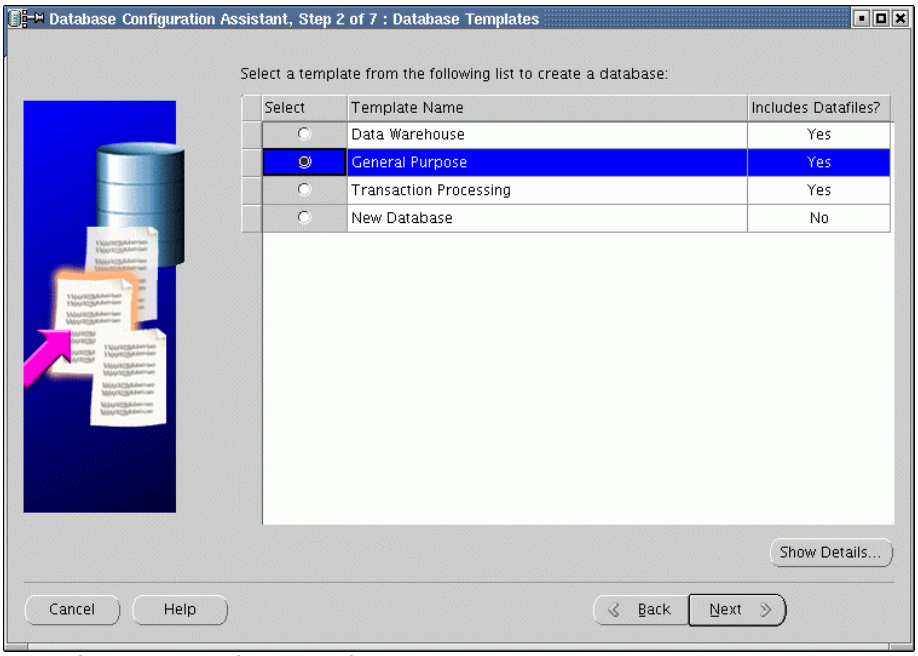

Figure 27. Database templates

4. Enter the global database name and Oracle System Identifier (SID). In our example, we used the name TEST, as shown in Figure 28.

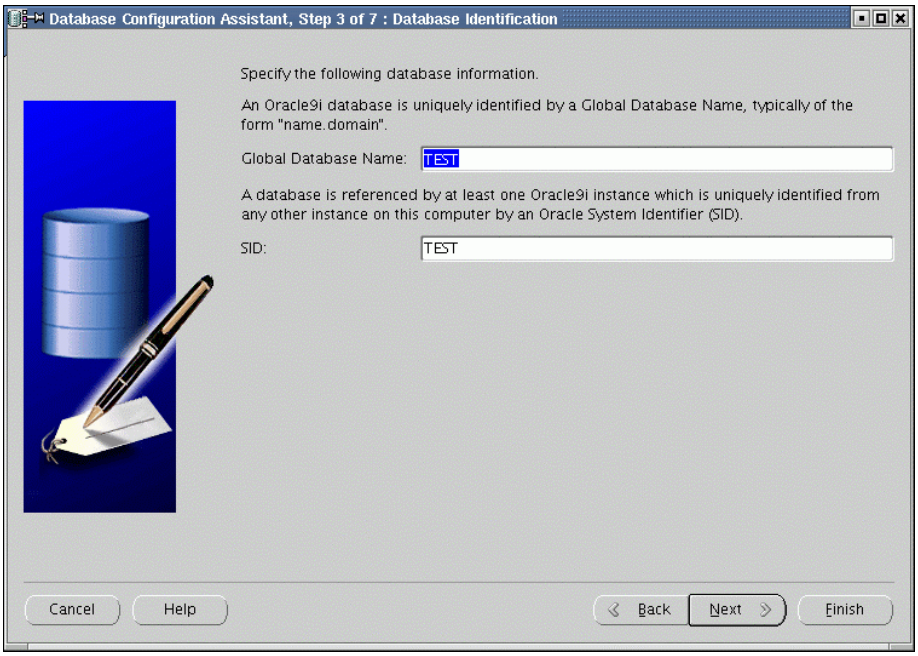

Figure 28. Database identification

5. The Database Connection Options screen is displayed. Select Dedicated Server Mode as shown in Figure 29 and click **Next** to continue.

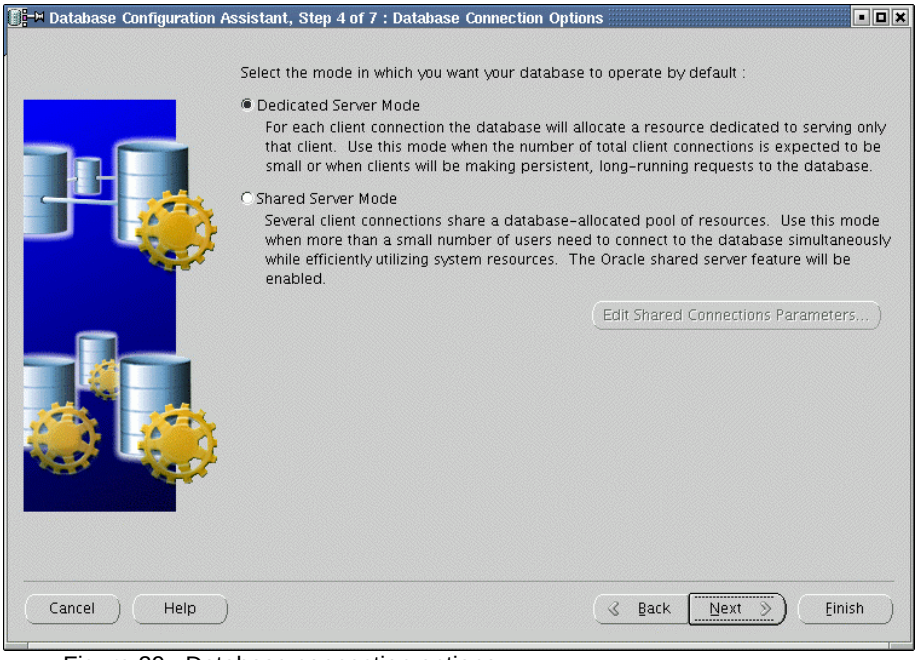

Figure 29. Database connection options

6. The Initialization Parameters screen is displayed (Figure 30). Since we are just testing our installation, accept the default settings. Click on the different tabs to view the default settings. For example, clicking **File Locations**, Figure 31 shows the names of the initialization and trace files, and that an spfile will be used for the initialization file. Click **Next** to continue.

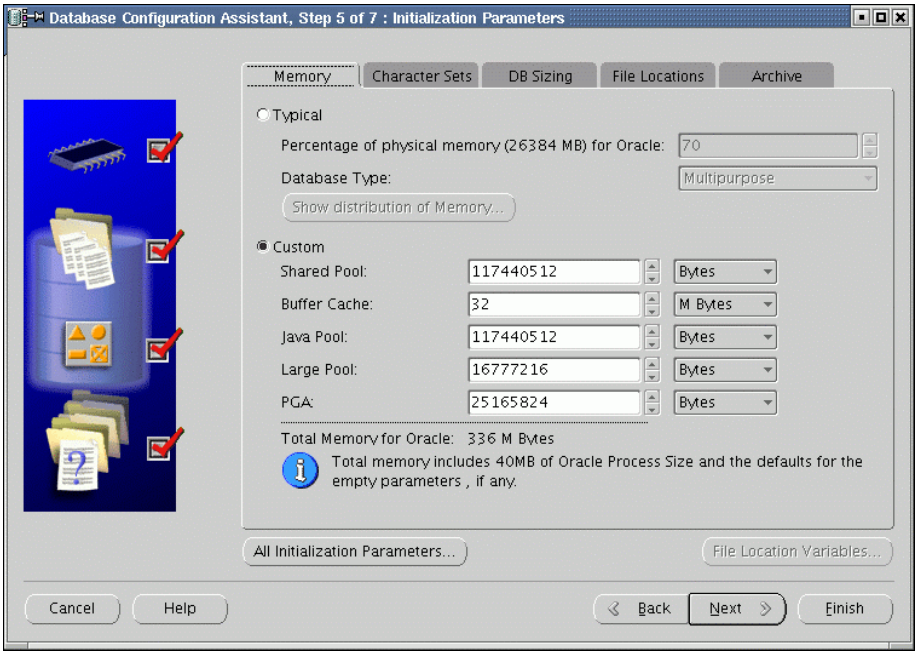

Figure 30. Database initialization parameters – memory settings

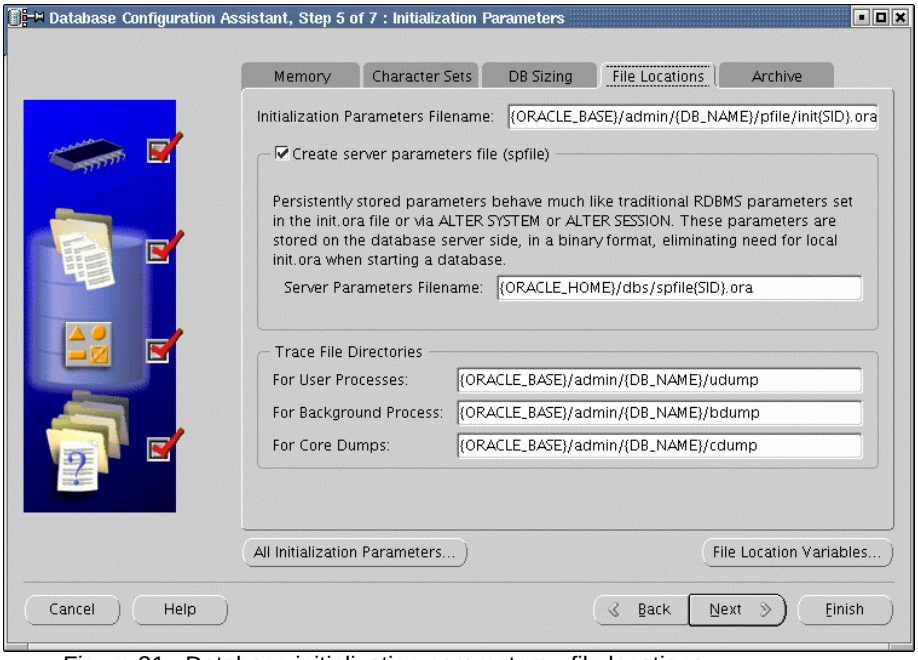

Figure 31. Database initialization parameters - file locations

7. The next screen shows the file names and locations of the database storage. Select the entries on the left hand panel to view more detail on the right hand panel. Click **Next** to continue.

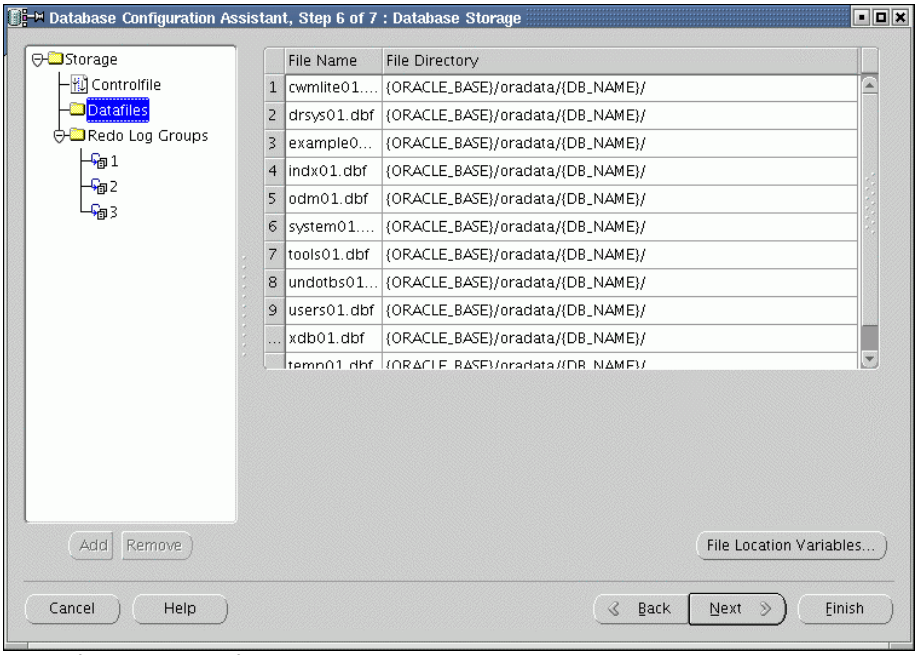

Figure 32. Database storage

8. The screen entitled Creation Options is displayed. Check Create Database and click **Next** to continue.

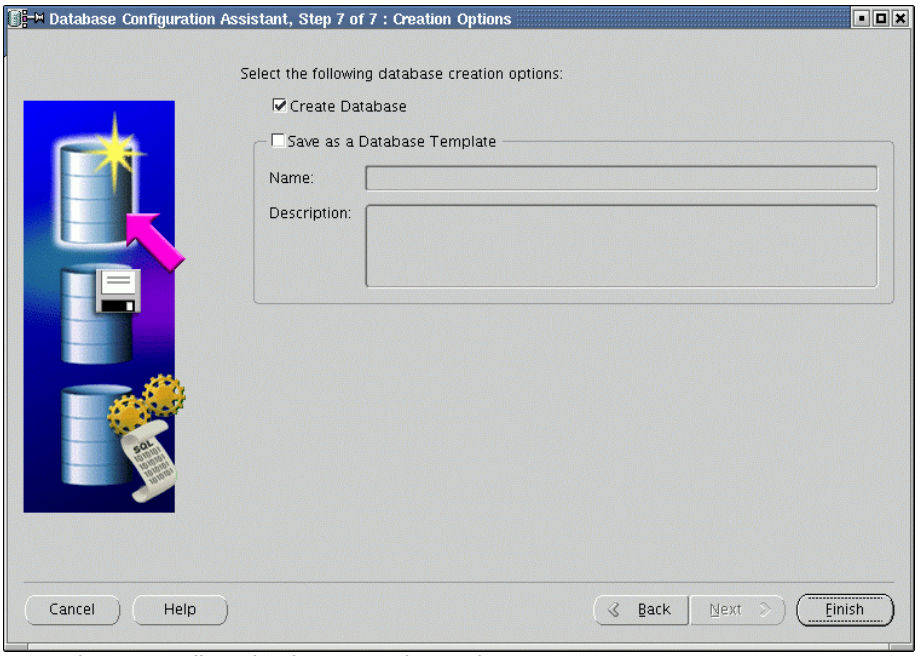

Figure 33. dbca database creation options

9. The Summary screen shown in Figure 34 is the last screen before actual creation of the database. Click **OK** to start database creation.

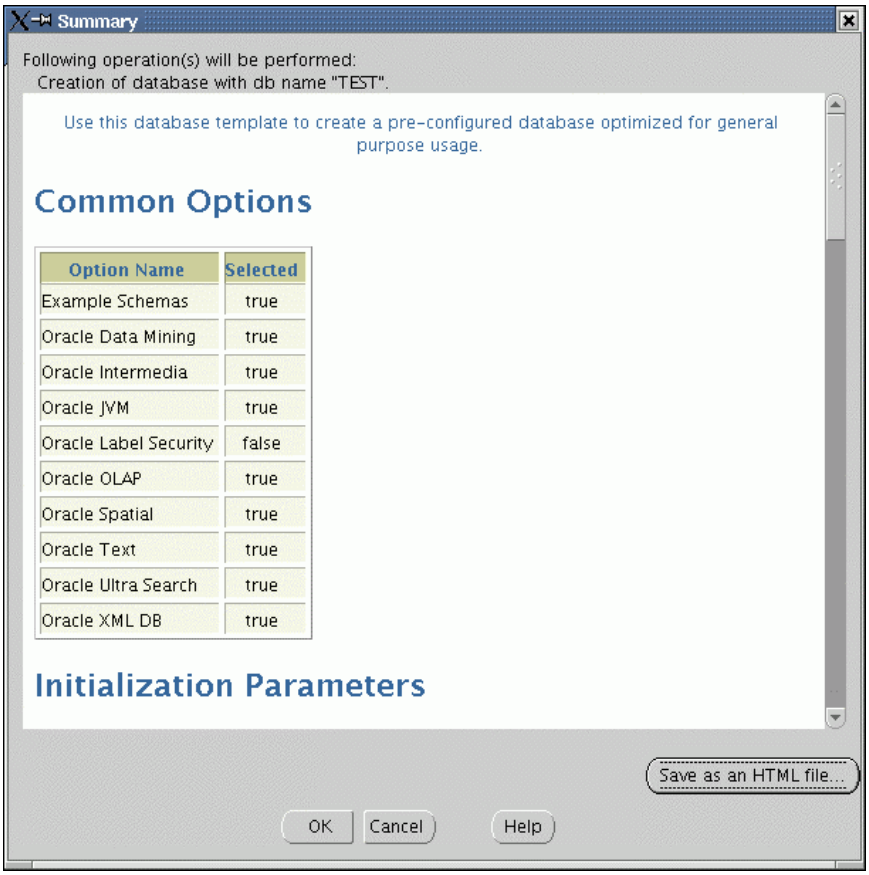

Figure 34. dbca Summary

10. A screen showing progress of database creation is displayed, shown in Figure 35. When dbca has completed database creation, the screen shown in Figure 36 prompts you to change the passwords for the SYS and SYSTEM. After changing the passwords, click **Exit** to end dbca.

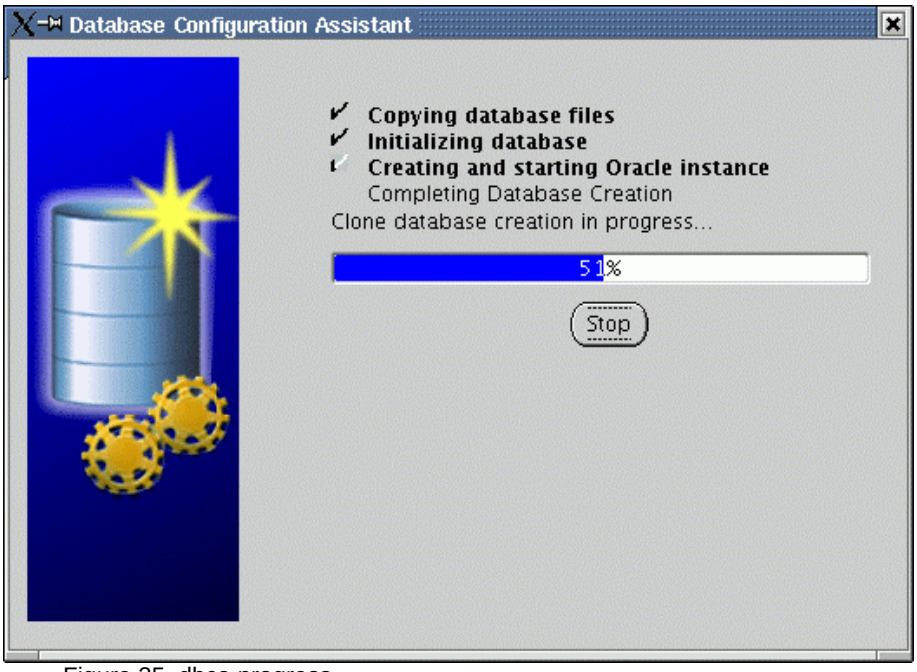

Figure 35. dbca progress

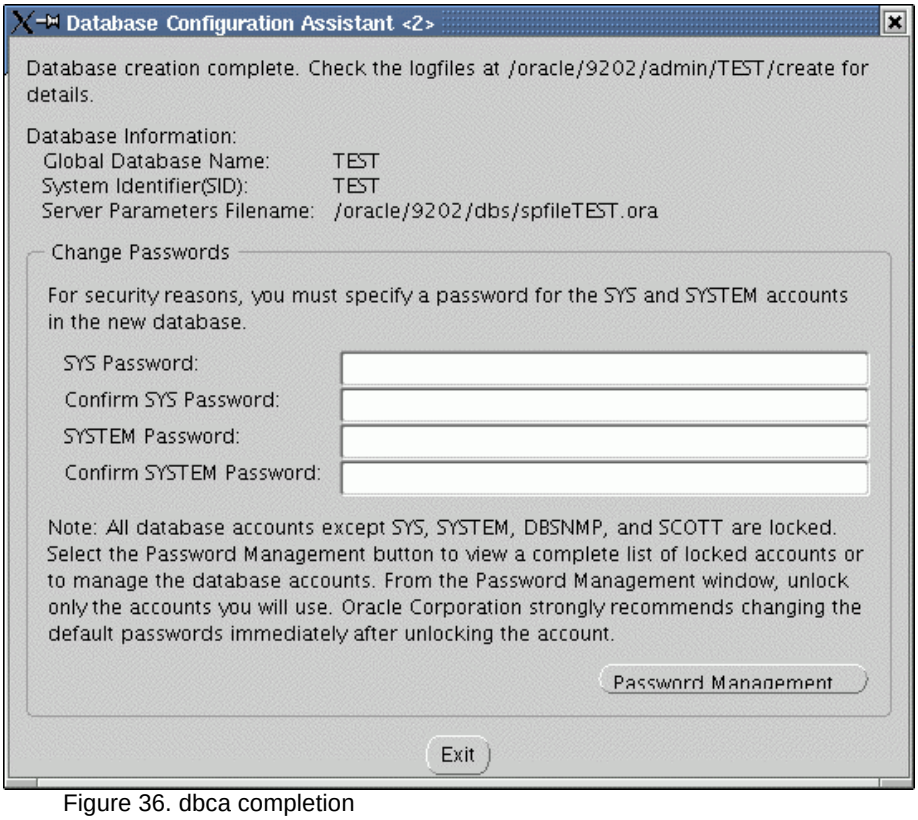

Figure 36. dbca completion

Creating Test Listener

At this point, we have completed the steps necessary to install and create a standalone, single-node database instance. However, database server environments typically include applications or users that access the database server from workstations or remote servers using Oracle client software. To enable client access to the database server, we need to configure a listener on the database server.

To test remote connections, we used a second xSeries server, one on which we had Oracle8*i* installed previously for a different purpose.

To create a listener for the test database, we used Oracle's Net Configuration Assistant (netca) as follows:

1. As oracle user, type `netca` from a shell prompt. The netca welcome screen is displayed, shown in Figure 37. Select Listener configuration and click **Next** to continue.

Figure 37. netca welcome screen

2. Select Add on the next screen, shown in Figure 38. Click **Next** to continue.

Figure 38. netca - add listener

3. Type the listener name on the screen shown in Figure 39. We named our listener TEST. Click **Next** to continue.

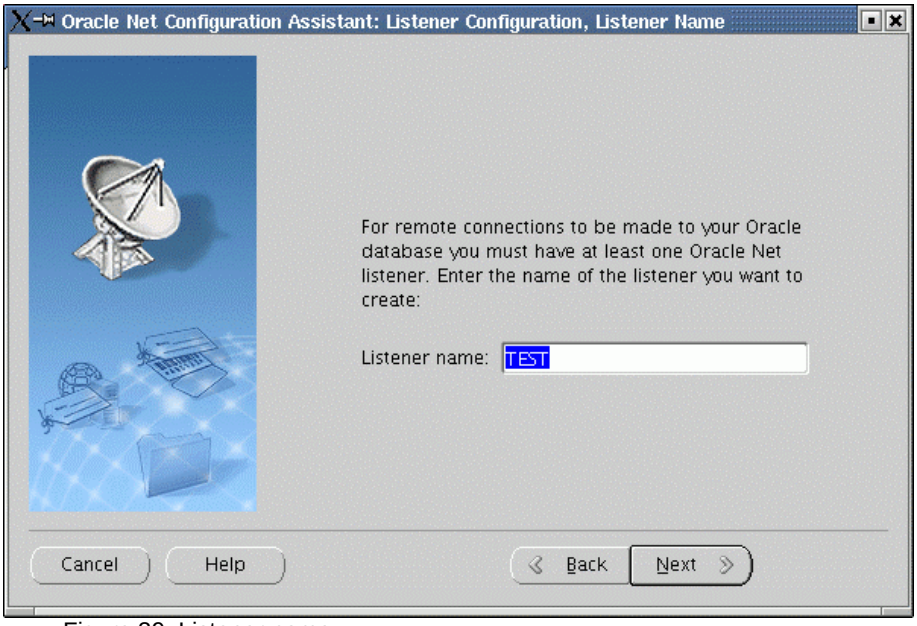

Figure 39. Listener name

4. For our test, we left the defaults (TCP) on the Select Protocols screen, shown in Figure 41. Click **Next** to continue.

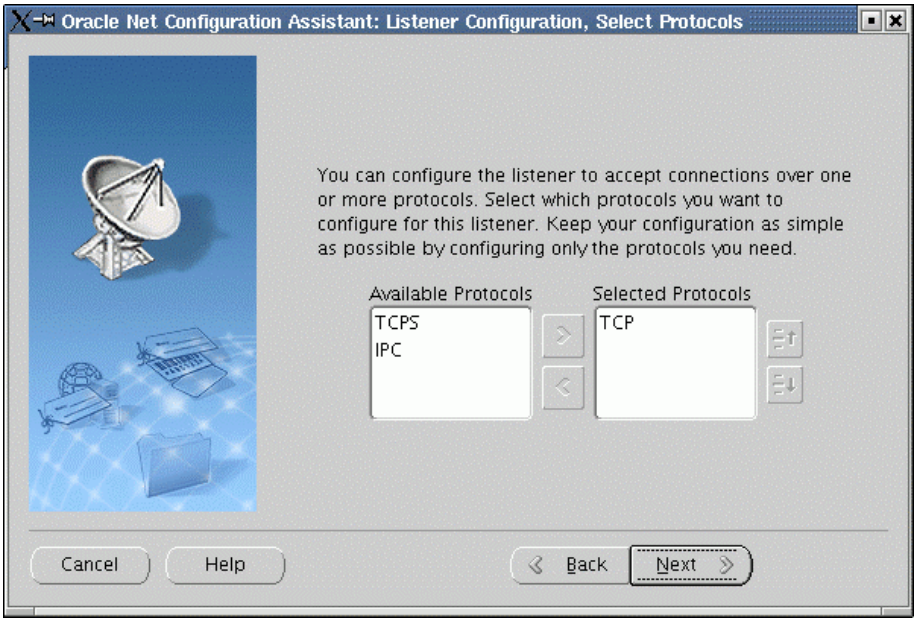

Figure 40. Listener protocols

5. Leave the default selection of standard port number on the TCP/IP configuration screen (Figure 41). Click **Next** to continue.

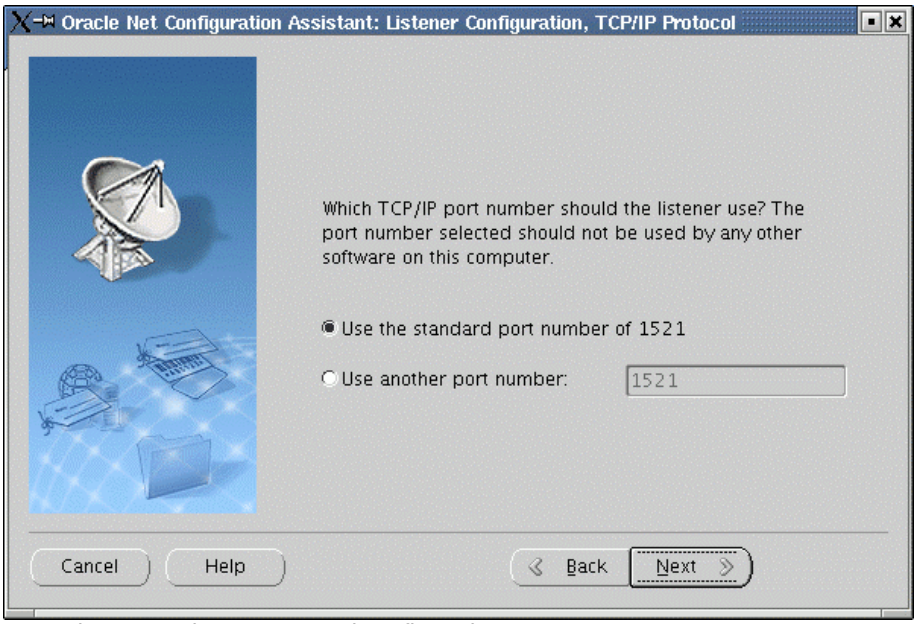

Figure 41. Listener protocol configuration

6. At this point, we're done with listener configuration. Select No on the More Listeners screen (Figure 42) and click **Next** to continue to the completion screen, shown in Figure 43.

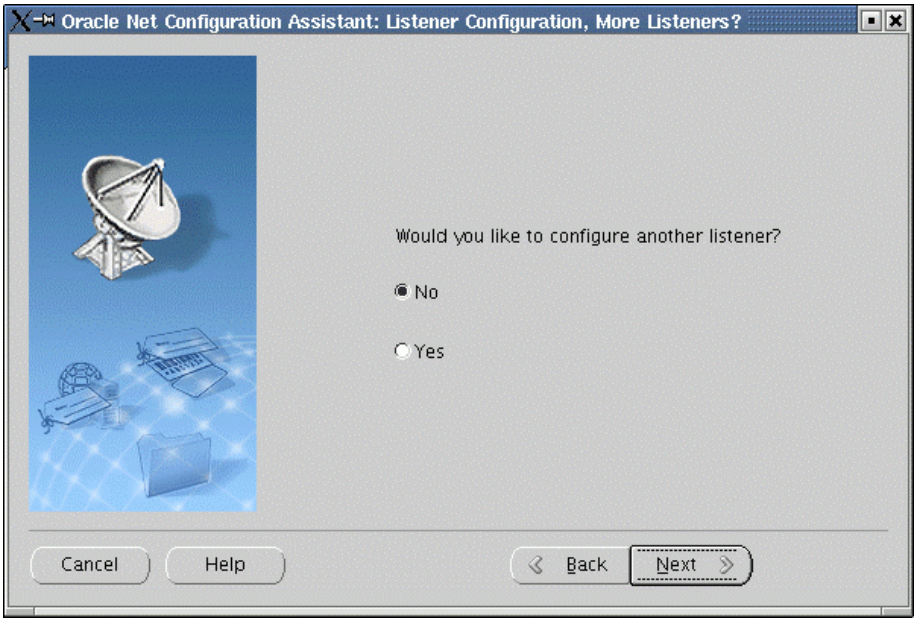

Figure 42. netca more listeners

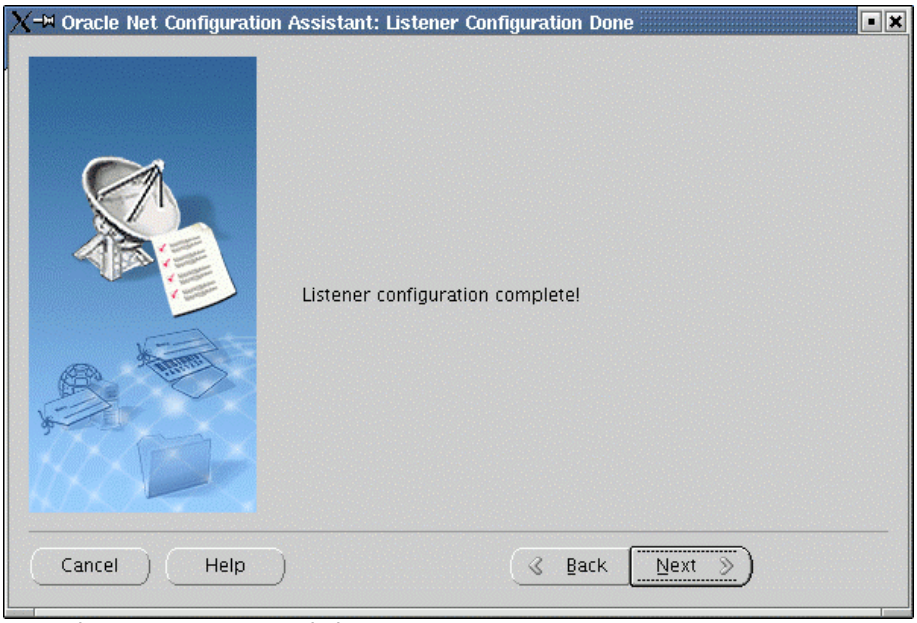

Figure 43. netca completion

INSTALLATION VERIFICATION

Verify the installation as follows:

1. Connect to the database using sqlplus as shown in Figure 44. Do this on the x450 as oracle user.

```
[oracle@x450db oracle]$ sqlplus

SQL*Plus: Release 9.2.0.2.0 - Production on Sun Jun 13 13:18:03 2003

Copyright (c) 1982, 2002, Oracle Corporation.  All rights reserved.

Enter user-name: system
Enter password:

Connected to:
Oracle9i Enterprise Edition Release 9.2.0.2.0 - 64bit Production
With the Partitioning, OLAP and Oracle Data Mining options
JServer Release 9.2.0.2.0 - Production

SQL>
```

Figure 44. Connecting using sqlplus

2. Query some of the standard Oracle database views, for example, v$instance

```
SQL> select * from v$instance;

INSTANCE_NUMBER INSTANCE_NAME
--------------- ----------------
HOST_NAME
----------------------------------------------------------------
VERSION           STARTUP_T STATUS       PAR    THREAD# ARCHIVE LOG_SWITCH_
----------------- --------- ------------ --- ---------- ------- -----------
LOGINS     SHU DATABASE_STATUS   INSTANCE_ROLE      ACTIVE_ST
---------- --- ----------------- ------------------ ---------
              1 TEST
x450db
9.2.0.2.0         13-JUN-03 OPEN         NO           1 STOPPED
ALLOWED    NO  ACTIVE            PRIMARY_INSTANCE   NORMAL


SQL>
```

Figure 45. Query results of v$instance

3. Check whether your listener is running. Do this as oracle user using the `lsnrctl stat` command. Figure 46 shows the output from the `lsnrctl stat` command when the listener is not started.

```
[oracle@x450db oracle]$ lsnrctl stat TEST

LSNRCTL for Linux IA64: Version 9.2.0.2.0 - Production on 13-JUN-2003 12:47:13

Copyright (c) 1991, 2002, Oracle Corporation.  All rights reserved.

Connecting to (ADDRESS=(PROTOCOL=TCP)(Host=x450db)(Port=1521))
TNS-12541: TNS:no listener
 TNS-12560: TNS:protocol adapter error
  TNS-00511: No listener
   Linux IA64 Error: 111: Connection refused
[oracle@x450db oracle]$
```

Figure 46. Output from `lsnrctl` command when listener is not started

4. If the listener is not running, start it using the `lsnrctl start` command (Figure 47)

```
[oracle@x450db oracle]$ lsnrctl start TEST

LSNRCTL for Linux IA64: Version 9.2.0.2.0 - Production on 13-JUN-2003 12:51:36

Copyright (c) 1991, 2002, Oracle Corporation.  All rights reserved.

Starting /oracle/9202/bin/tnslsnr: please wait...

TNSLSNR for Linux IA64: Version 9.2.0.2.0 - Production
System parameter file is /oracle/9202/network/admin/listener.ora
Log messages written to /oracle/9202/network/admin/test.log
Listening on: (DESCRIPTION=(ADDRESS=(PROTOCOL=tcp)(HOST=x450db)(PORT=1521)))

Connecting to (ADDRESS=(PROTOCOL=TCP)(Host=x450db)(Port=1521))
STATUS of the LISTENER
------------------------
Alias                     TEST
Version                   TNSLSNR for Linux IA64: Version 9.2.0.2.0 - Production
Start Date                13-JUN-2003 12:51:36
Uptime                    0 days 0 hr. 0 min. 0 sec
Trace Level               off
Security                  OFF
SNMP                      OFF
Listener Parameter File   /oracle/9202/network/admin/listener.ora
Listener Log File         /oracle/9202/network/admin/test.log
Listening Endpoints Summary...
  (DESCRIPTION=(ADDRESS=(PROTOCOL=tcp)(HOST=x450db)(PORT=1521)))
Services Summary...
Service "PLSExtProc" has 1 instance(s).
  Instance "PLSExtProc", status UNKNOWN, has 1 handler(s) for this service...
Service "x450db.sanmateo.ibm.com" has 1 instance(s).
  Instance "TEST", status UNKNOWN, has 1 handler(s) for this service...
The command completed successfully
[oracle@x450db oracle]$
```

Figure 47. Starting the listener

5. Check listener status again. Figure 48 shows the results when the listener is started.

```
[oracle@x450db oracle]$ lsnrctl stat TEST

LSNRCTL for Linux IA64: Version 9.2.0.2.0 - Production on 13-JUN-2003 13:09:54

Copyright (c) 1991, 2002, Oracle Corporation.  All rights reserved.

Connecting to (ADDRESS=(PROTOCOL=TCP)(Host=x450db)(Port=1521))
STATUS of the LISTENER
------------------------
Alias                     TEST
Version                   TNSLSNR for Linux IA64: Version 9.2.0.2.0 - Production
Start Date                13-JUN-2003 13:08:44
Uptime                    0 days 0 hr. 1 min. 10 sec
Trace Level               off
Security                  OFF
SNMP                      OFF
Listener Parameter File   /oracle/9202/network/admin/listener.ora
Listener Log File         /oracle/9202/network/admin/test.log
Listening Endpoints Summary...
  (DESCRIPTION=(ADDRESS=(PROTOCOL=tcp)(HOST=x450db)(PORT=1521)))
Services Summary...
Service "PLSExtProc" has 1 instance(s).
  Instance "PLSExtProc", status UNKNOWN, has 1 handler(s) for this service...
Service "x450db.sanmateo.ibm.com" has 1 instance(s).
  Instance "TEST", status UNKNOWN, has 1 handler(s) for this service...
The command completed successfully
[oracle@x450db oracle]$
```

Figure 48. Output from lsnrctl when listener is started

6. As previously mentioned, to test the listener, we used an xSeries with Oracle8*i* as a client system. We added the statements shown in Figure 49 to the file named $ORACLE_HOME/network/admin/tnsnames.ora in the client system.

```
TEST = (DESCRIPTION=
         (ADDRESS=(PROTOCOL=tcp)(HOST=x450db)(PORT=1521))
         (CONNECT_DATA=(SID=TEST))
       )
```

Figure 49. tnsnames.ora entry

7. To connect from the xSeries client, set the environmental variable ORACLE_SID to TEST and invoke sqlplus. Figure 50 shows the connection dialogue between the xSeries client (hostname xclient) and the x450 (hostname x450db).

```
applmgr@xclient:~ > export ORACLE_SID=TEST
applmgr@xclient:~ > sqlplus system/manager

SQL*Plus: Release 8.0.6.0.0 - Production on Sun Jun 13 12:55:24 2003

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


Connected to:
Oracle9i Enterprise Edition Release 9.2.0.2.0 - 64bit Production
With the Partitioning, OLAP and Oracle Data Mining options
JServer Release 9.2.0.2.0 - Production

SQL>

SQL> select * from v$instance;

INSTANCE_NUMBER INSTANCE_NAME
--------------- ----------------
HOST_NAME
----------------------------------------------------------------
VERSION           STARTUP_T STATUS       PAR    THREAD# ARCHIVE LOG_SWITCH_
----------------- --------- ------------ --- ---------- ------- -----------
LOGINS     SHU DATABASE_STATUS   INSTANCE_ROLE      ACTIVE_ST
---------- --- ----------------- ------------------ ---------
             1 TEST
x450db
9.2.0.2.0         13-JUN-03 OPEN         NO           1 STOPPED
ALLOWED    NO  ACTIVE            PRIMARY_INSTANCE   NORMAL


SQL>
```

Figure 50. Connecting from the client system

SUMMARY

This concludes our installation test of Oracle9*i* on the IBM xSeries 450. If you have any questions or comments, please send an email note to ibmoracl@us.ibm.com.

REFERENCES

1. IBM ^ xSeries 450 Planning and Installation Guide, IBM Redbook, March 2003, David Watts, Gerry McGettigan, Michael L. Nelson, Lubos Nikolini, Jose Rodriguez Ruibal, SG24-6927-00.

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   URL: http://www.redhat.com/docs/manuals/enterprise/