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Oracle E-Business Suite 12.2.4 Installation and Upgrade on IBM Power S824

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Redpaper

International Technical Support Organization

Oracle E-Business Suite 12.2.4 Installation and Upgrade on IBM Power S824

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Note: Before using this information and the product it supports, read the information in “Notices” on page v.

First Edition (October 2015)

This edition applies to Version 12.2.0 and 12.2.4 of Oracle E-Business Suite.

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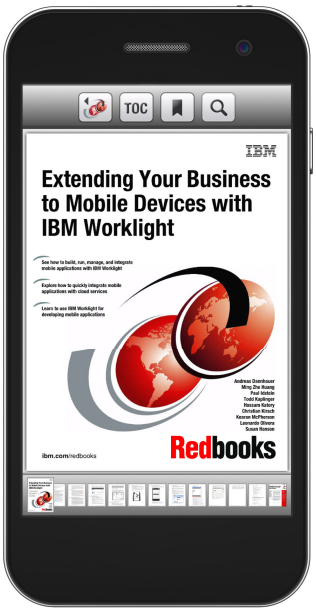

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Preface

This IBM® Redpaper™ publication provides the details for setting up an environment on AIX 7.1 on an IBM Power Systems S824 so you can install and upgrade Oracle E-Business Suite Release 12.2. It provides a step-by-step installation of Oracle E-Business Suite Release 12.2 for AIX 7.1. This document also provides a consolidated list of database and application tier patches to upgrade Oracle E-Business Suite from release 12.2.0 to 12.2.4, and explains how to apply patches.

This document is written for those who are newly installing Oracle E-Business Suite Release 12.2 version 12.2.0 and upgrading to 12.2.4 on an IBM Power Systems™ server with AIX® 7.1. It provides a sample two-tier installation of Oracle E-Business Suite Release 12.2 version 12.2.0 on two AIX logical partitions and steps for upgrading to version 12.2.4. The sample installation of Oracle EBusiness Suite Release 12.2 version 12.2.0 and upgrade to 12.2.4 also proves their interoperability with IBM Power Systems servers with POWER8™ processor technology.

This document assumes that the reader has an in-depth knowledge of IBM AIX, Oracle Database 11*g*, and Oracle E-Business Suite.

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1

Introduction and configuration

This chapter describes Oracle E-Business Suite Release 12.2, and lists the architectural components and system configuration that is needed to install and upgrade it to Release 12.2.4.

This chapter includes the following sections:

- Introduction to Oracle E-Business Suite Release 12.2
- Architecture components
- System configuration
- Additional documentation

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1.1 Introduction to Oracle E-Business Suite Release 12.2

Oracle E-Business Suite Release 12.2 is a fully integrated and comprehensive suite of business applications for your enterprise. Oracle E-Business Suite architecture is a framework for multitiered, distributed computing that supports Oracle E-Business Suite products. The Oracle E-Business Suite's architecture is composed of these tiers:

- The database tier, which supports and manages the Oracle database
- The application tier (middle tier), which supports and manages various Oracle E-Business Suite components
- The client tier, which provides the user interface through an add-on component to a standard web browser

To install all of the components of Oracle E-Business Suite Release 12.2 successfully, there are many details to consider, from preparation of the server to patching the Oracle E-Business Suite components.

This document takes you through an installation procedure of Oracle E-Business Suite Release 12.2 on IBM Power S824 with POWER8 technology architecture and processors and AIX 7.1. After the base version of Oracle E-Business Suite Release 12.2 (version 12.2.0) is installed, it is upgraded to the version 12.2.4.

Oracle E-Business Suite Release 12.2 is the latest version at the time of writing. It has a comprehensive set of business application tools that are designed for a multitier setup. For a detailed description of the Oracle E-Business Suite architecture, see *Oracle E-Business Suite Concepts Release 12.2* at:

https://docs.oracle.com/cd/E51111_01/current/acrobat/122oacg.pdf

1.2 Architecture components

The Oracle E-Business Suite deployment architecture is a three tier architecture that consists of a database tier, the application tier, and the client (desktop) tier.

A "tier" is a logical grouping of services, possibly spread across more than one physical machine. A machine can be referred to as a node, particularly in the context of a group of computers that work closely together in a cluster. Each tier can consist of one or more nodes, and each node can potentially accommodate more than one tier.

1.2.1 Client (desktop) tier

In the client tier, the client interface is provided through HTML for HTML-based applications and a Java applet in a web browser for Forms-based applications. In Oracle E-Business Suite Release 12.2, all users log in to Oracle E-Business Suite through a desktop client web browser. The E-Business Suite home page provides a single point of access to HTML-based applications, Forms-based applications, and business intelligence applications.

After the user is successfully logged in through the Oracle E-Business Suite home page, the user will not be prompted for user name and password again, even if the user navigates to other tools and products.

The client tier contains a Forms client applet and desktop Java client. The Forms client applet must run within a Java virtual machine (JVM) on the desktop client. The Sun JRE Plug-in component allows use of the Oracle JVM on web clients, instead of the browser's own JVM.

1.2.2 Application tier

The application tier is also called the middle tier. It manages communication between the desktop tier and the database tier. It also hosts various servers and service groups that process the business logic. It consists of these elements:

- HTTP or web services
- Java services
- Forms services
- Concurrent Processing server

In Release 12.2, Web and Forms services are provided by Oracle Application Server and Oracle Fusion Middleware. They are no longer servers in the sense of being a single process, as was the case in previous releases.

Note: Avoid using a mixture of different platforms on your application tier. This configuration makes maintenance easier because only one set of patches must be downloaded.

Oracle E-Business Suite Release 12.2 uses two application tier ORACLE_HOMEs:

- An Oracle Application Server 10.1.2 ORACLE_HOME that was used in previous releases
- An Oracle Fusion Middleware ORACLE_HOME that supports WebLogic Server and supersedes the Java (OracleAS 10.1.3) ORACLE_HOME that was used in previous releases

Table 1-1 shows the different versions of Oracle Databases and application components that are used in recent Oracle E-Business Suite versions.

Table 1-1 Component versions of different Oracle E-Business Suite Releases

Oracle E-Business Suite	Release 12.2	Release 12.0	Release 11i
Oracle Database Server	Oracle Database 11*g* Release 2	Oracle Database 10*g* Release 2	Oracle Database 9*i*
Oracle Application Server (Tools, Developer)	Oracle Application Server 10*g* (10.1.2)	Oracle Application Server 10*g* (10.1.2)	Oracle Application Server 9*i* 1.0.2.2.2
Oracle Application Server (Java or Web)	Oracle Fusion Middleware 11*g*	Oracle Application Server 10*g* (10.1.3)	Oracle Application Server 9*i* 1.0.2.2.2

1.2.3 Database tier

The database tier contains Oracle Database Server, which consists of all database files, Oracle application database executable files, and Oracle application online help information. The Oracle Database server communicates with the services and servers on the application tier, which controls the communications between the database and clients. There is no direct communication between the database and clients.

In an Oracle E-Business Suite tiered deployment, mixed platform architectures are possible. The database can be installed on one of the supported operating systems, and the application tier on another operating system.

1.2.4 Single node and multi-node installation

In a single node installation, all of the Oracle E-Business Suite components are installed on the same node. The node can be a logical partition of a server or a virtual server. For small workloads, the single node setup is sufficient. The single node installation is also beneficial for testing and development environments.

In a multi-node installation, a two-node setup is commonly used. Each application tier service can be installed on a separate node. This configuration adds complexity to the management of the application tier. However, multi-node systems facilitate the addition of systems to meet increases in demand for resources and can provide resilience during failures of individual components.

In a multi-node installation, installations always start with the database node. The database node can be a single instance database or an Oracle Real Application Clusters (RAC) environment on multiple nodes. In the example installation, the database server is installed on a single node and the application tier components are installed on another node.

1.2.5 IBM Power S824

IBM Power Systems servers, featuring IBM Power Architecture® technology, enable companies to easily adapt and manage both known and unknown challenges in all areas. These areas include demand for processing resources, memory, scalability, high availability, and virtualization in your day-to-day data processing environment:

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In 2014, IBM introduced POWER8 technology and processor-based servers. The IBM Power S824 is one of the servers introduced. It has up to 24 cores, 1 TB of memory, and 4U size, and supports AIX, IBM i, Linux, and PowerVM. The letter ‘S’ in the name Power S824 stands for “Scale-Out”.

For the Oracle E-Business Suite Release 12.2 installation example, a Power S824 is used that has two logical partitions. One logical partition is used for the Oracle E-Business Suite database server and another for the Oracle E-Business Suite application server.

For more information about IBM Power Systems servers with POWER8 technology and processors, see:

http://www.ibm.com/systems/power/index.html

1.2.6 Benchmarking

IBM has demonstrated unmatched per core scalability for the Oracle E-Business Suite Release 12.1 (version 12.1.3) Extra Large Payroll batch benchmark for the Power S824 server. For more information about this benchmark result, see:

http://www.oracle.com/us/solutions/benchmark/ebs-r12-payora-lrg-ibm-p8-12-core-2195365.pdf

1.3 System configuration

This section details the configuration that is needed before you install and upgrade Oracle E-Business Suite.

1.3.1 Hardware and operating system

The Power S824 server with POWER8 technology and processors used for this example installation was configured as shown in Table 1-2.

Table 1-2 Hardware and Software environment used for Oracle E-Business Suite Release 12.2

Host	**IBM Power S824**	
Tier	Application	Database
Processors	4 Cores	4 Cores
Operating system	AIX 7.1 TL03 SP01[a]	AIX 7.1 TL03 SP01[a]
Memory	32 GB	48 GB
Storage	Local SAS Drives	AIX OS on Local SAS drives DB on IBM FlashSystem™ 840
PowerVM - VIOS	VIOS 2.2.3.3	VIOS 2.2.3.3

a. The minimum operating system requirement (64-bit) for Oracle E-Business Suite Release 12.2 is for AIX 7.1 TL01 SP03 or later (Apply IV36875 for TL02 SP01, SP02), and for AIX 6.1 TL07 SP03 or later (Apply IZ88880 for TL07, IV36851 for TL08 SP01, SP02)

Note: To fully use the new features and capabilities of the latest IBM Power Systems servers, install AIX 7.1 TL03 SP03.

IBM also provides support for earlier technology levels or service packs for AIX 7.1 and AIX 6.1 for Power Systems servers. When running with the lower levels, not all of the new features and capabilities of the POWER8 architecture will be available to use for the applications.

Table 1-3 shows the configuration of the database tier.

Table 1-3 Configuration of Oracle database tier

Hardware resources	Minimum	Recommended
CPU (64-bit system)	Two cores	Two cores or more (Increase based on workload)
Memory	10 GB	10 GB or more
DB Home directory	90 GB	90 GB or more (Add 36 GB more for every active language)
DB Home + Production DB	90 GB	90 GB or more
DB Home + VIS DB	200 GB	200 GB or more
Temp space (TMPDIR)	6 GB	6 GB or more
Staging Space	200 GB	200 GB
Swap Space	Swap space is equal size as RAM if RAM size is 2 GB to 16 GB If RAM is more than 16 GB, then swap space is 16 GB	

Table 1-4 shows the configuration of the application tier.

Table 1-4 Configuration of application tier

Hardware resources	Minimum	Recommended[a]
CPU (64-bit system)	Two cores	Two cores or more (Increase based on workload)
Memory	6 GB	6 GB or more
Apps Home Directory space	144 GB	144 GB or more (Add 16 GB more for every active language)
S/W Stage Area + Log and output files Updates and Patches	48 GB	60 GB or more
Temp space (TMPDIR)	6 GB	6 GB or more
Swap space	Swap space is equal size as RAM if RAM size is 2 GB to 16 GB If RAM is more than 16 GB, then swap space is 16 GB	

a. Based on the installation experience, the recommended values provide enough resources for the installation of Oracle E-Business Suite Release 12.2.

1.3.2 Software

The following software was installed for testing purposes:

- Oracle E-Business Suite Release 12.2
- Update patches for Oracle E-Business Suite Release 12.2 (version 12.2.4)
- VNC and extract packages, downloaded from the AIX Tool Box for Linux Applications at:

  http://www.ibm.com/systems/power/software/aix/linux/toolbox/date.html

1.4 Additional documentation

Oracle software and documentation can be downloaded from the Oracle Software Delivery Cloud website at:

https://edelivery.oracle.com/

You need to have a valid license agreement with Oracle Corporation to download any software from the Oracle E-Delivery location.

The document library for Oracle E-Business Suite Release 12.2 is also publicly available at:

https://docs.oracle.com/cd/E51111_01/current/html/homeset.html

See the My Oracle Support note “Oracle E-Business Suite Installation and Upgrade Notes Release 12 (12.2) for IBM AIX on Power Systems (64-bit): 1330703.1” for AIX system requirements.

The rest of this white paper follows the installation steps in the documents for installing on IBM AIX 7.1 specifically.

2

Install Oracle E-Business Suite Release 12.2

This chapter describes the steps necessary for a complete installation of Oracle E-Business Suite on AIX.

This chapter includes the following sections:

- Pre-configuration steps
- Configure AIX
- Download and extract the installation files

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2.1 Pre-configuration steps

Complete the following steps before beginning the installation of Oracle E-Business Suite on AIX:

1. Download all .zip installation files from the Oracle Software Delivery Cloud. This step requires a valid user name/password and legal agreement with Oracle.
2. Extract all files to a staging location on the AIX server where the space is allocated for staging.

2.2 Configure AIX

Complete the steps in this section to configure AIX.

2.2.1 Required file sets

The following file sets are required:

```
bos.adt.base
bos.adt.lib
bos.adt.libm
bos.perf.libperfstat
bos.perf.perfstat
bos.perf.proctools
rsct.basic.rte
rsct.compat.clients.rte
X11.motif.lib
```

You can check their availability on the nodes by issuing the following command:

```
lslpp -l <fileset name>
```

If any of them are missing, install the missing packages from the AIX7.1 DVD.

2.2.2 Required maintenance tools and their locations

Make sure that you have the following maintenance tools:

```
ar, ld, linkxLC, make, X Display Server
```

The `linkxLC` comes with part of the IBM XL C/C++ for AIX Runtime Environment. This can be downloaded from this website:

http://www.ibm.com/support/docview.wss?uid=swg24035416

Make sure that these utilities are in their listed directory locations:

- ar (`/usr/bin/ar`)
- ld (`/usr/bin/ld`)
- linkxLC (`/usr/vacpp/bin/linkxLC`)
- make (`/usr/bin/make`)
- X Display (`/usr/bin/X11/X`)

Add these directories to the PATH environment variable.

Install the `sudo` RPM package on the database tier and application tier if Oracle E-Business Suite Release 12.2 StartCD (version 12.2.0.49) is used. While installing the database using Rapid Install, the oracle user needs the `sudo (root)` privilege to run the **`/usr/bin/slibclean`** command to remove unused modules in kernel and library memory.

Download the `sudo` package (`sudo-1.6.9p23-2noldap`) from the AIX Toolbox for Linux Applications and install it on both tiers. The AIX Toolbox for Linux Applications is available at:

`http://www.ibm.com/systems/power/software/aix/linux/toolbox/date.html`

2.2.3 OS environment

Using **SMIT** → **System Environments** → **Change / Show Characteristics of Operating System**, set `Maximum number of PROCESSES allowed per user` to `16384`.

2.2.4 Groups and users

As the root user, create the following groups and users:

Application tier:

```
mkgroup  -'A'  id='1000' adms='root'  oinstall
mkgroup  -'A'  id='2000' adms='root'  dba
mkuser  id='1201'  pgrp='oinstall'  groups='dba'  home='/home/applmgr'  applmgr
```

Database tier:

```
mkgroup -'A'  id='1000' adms='root'  oinstall
mkgroup -'A'  id='2000' adms='root'  dba
mkuser  id='1202'  pgrp='oinstall'  groups='dba'  home='/home/oraprod'  oraprod
```

2.2.5 User limits

The user accounts that own the database and application tiers need to be set with the following limits on the nodes.

Edit the file `/etc/security/limits` as follows. The number `-1` represents “unlimited”. The parameter `nofiles` is required to set with a finite number of `65536`. For example, in the database tier node:

```
Oraprod:
         time   = -1
        file   = -1
        data   = -1
        stack  = -1
        memory = -1
        coredump = -1
        nofiles = 65536
```

On the application tier node:

```
applmgr:
         time  = -1
        file  = -1
        data  = -1
        stack = -1
        memory = -1
```

```
coredump = -1
nofiles = 65536
```

The new values are effective when a user establishes a new session. Use the command **ulimit -a** to list the limits that are set for the users.

2.2.6 Kernel settings

Using the **smit chgsys** command, change the following parameters:

- Maximum number of PROCESSES allowed per user = 16384
- ARG/ENV list size in 4 K byte blocks = 1024

2.2.7 Host names

Make sure that localhost is set in the file /etc/hosts:

```
127.0.0.1 localhost.localdomain localhost
```

Ensure the entries in the file /etc/hosts use this format:

```
[IP address][node name].[domain name][node name]
```

For example:

```
129.40.76.134   p232n134.pbm.ihost.com  p232n134   # DB Tier node
129.40.76.133   p232n133.pbm.ihost.com  p232n133   # Aps Tier node
```

2.2.8 /etc/netsvc.conf

To be able to use the host names created above without having corresponding DNS entries, modify the file /etc/netsvc.conf to use the local hosts file to resolve host names before trying DNS lookup with this command:

```
hosts = local,bind
```

2.2.9 Network tuning

Check the values of the following parameters and set the correct values by using the **no** command:

```
no -r -o rfc1323=1
no -r -o sb_max = 4194304
no -r -o tcp_ephemeral_high = 65500
no -r -o tcp_ephemeral_low = 9000
no -r -o udp_ephemeral_high = 65500
no -r -o udp_ephemeral_low = 9000
no -r -o tcp_recvspace=262144
no -r -o tcp_sendspace=262144
no -r -o udp_recvspace=262144
No -r -o udp_sendspace=262144
No -r -o tcp_timewait=1
```

To verify the values, use the command **no -a** (for example: **no -a | egrep ephemeral**).

2.2.10 Environmental variable

Set the following environmental variable on both the application and database tiers:

```
export AIXTHREAD_SCOPE=S
```

2.2.11 File system

Create file systems (/d01) on both the database and application tiers with enough space as mentioned in 1.3.1, “Hardware and operating system” on page 5:

- File system for database software and VIS database on the database tier, for example: /d01:

  ```
  chown oraprod:oinstall  /d01
  chmod 775  /d01
  ```

- File system for application tier components on the application tier, for example: /d01:

  ```
  chown applmgr:oinstall  /d01
  chmod 775  /d01
  ```

- File system for staging and patches on the database tier, for example: /ebsr122:

  ```
  chown oraprod:oinstall /ebsr122
  chmod 775  /ebsr122
  ```

To make the staging file system available to the application tier, set up a remote mount as follows:

```
p232n134   : DB tier
p232n133   : Application tier
```

The file system /ebsr122 needs to be remotely mounted on p232n133. Complete these steps:

1. On p232n134:
   a. Make an entry in the file /etc/exports as follows:

      ```
      /ebsr122 -sec=sys:krb5p:krb5i:krb5:dh,rw
      ```

   b. Start the nfsd and rpc.mountd services:

      ```
      startsrc -s nfsd
      startsrc -s rpc.mountd
      ```

   c. Issue the command **exportfs -a** to export the directory /ebsr122.
2. On p232n133:
   a. Make a directory called /ebsr122.
   b. Issue the command **mount -o rw,bg,hard,rsize=32768,wsize=32768,vers=3,intr,timeo=600,proto=tcp 129.40.76.134:/ebsr122 /ebsr122.**

2.2.12 Inventory location

Create the file /etc/oraInst.loc with the following entries on both tiers:

```
inventory_loc=/u01/oraInventory
inst_group=oinstall
```

2.3 Download and extract the installation files

Complete these steps for a complete installation of Oracle E-Business Suite on AIX:

1. Download all .zip installation files from the Oracle Software Delivery Cloud:

   https://edelivery.oracle.com/

   This website requires a valid user name/password and legal agreement with Oracle.

2. Download the following components to the staging area:
   - Oracle E-Business Suite Release 12.2.0 Rapid Install Start Here
   - Oracle E-Business Suite Release 12.2.0 Rapid Install (All Disks and Parts)
   - Oracle E-Business Suite Release 12.2.0 for AIX Rapid Install Technology One-Off Patches
   - Oracle WebLogic Server 11*g*R1 (10.3.6) Generic and Coherence
   - Oracle Fusion Middleware Web Tier Utilities 11*g* Patch Set 5 (11.1.1.6.0) for AIX

3. Extract all files to a staging location using a script `buildStage.sh`, which comes with the startCD as explained below.

   See My Oracle Support note 1596433.1 for building a stage area in preparation for installing Oracle E-Business Suite Release 12.2.

   Always use the latest startCD for new installations of Oracle E-Business Suite Release 12.2. The base release 12.2.0 comes with startCD 12.2.0.46. The latest startCD version 12.2.0.49 (`p19378467_R12_GENERIC_1of2.zip` and `p19378467_R12_GENERIC_2of2.zip`) can be downloaded by using patch `19378467`.

   The startCD version 12.2.0.46 is in the following three files. These files will not be extracted by the latest startCD version 12.2.0.49:

   ```
   V35215-01_1of3.zip
   V35215-01_2of3.zip
   V35215-01_3of3.zip
   ```

   Manually extract the latest startCD, which creates the directory `startCD`.

   The list of downloaded compressed files is in the directory `/ebsr122/EBSR1220` as shown in Figure 2-1.

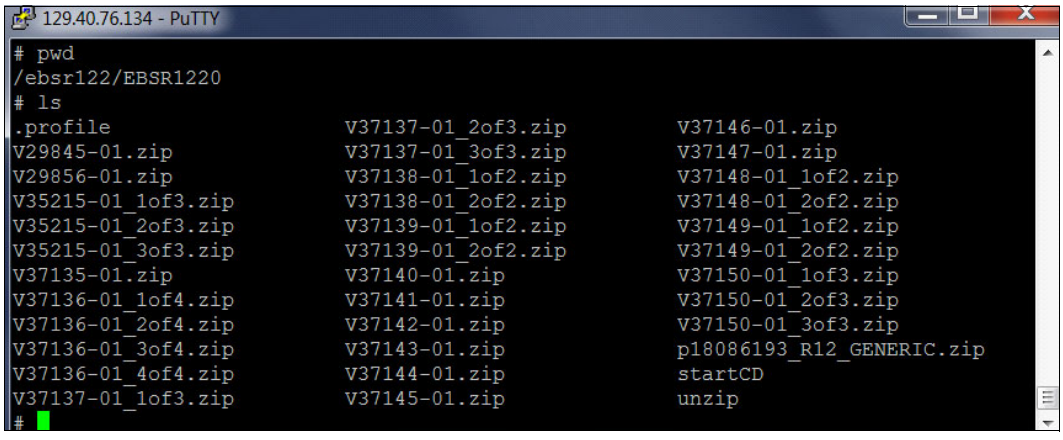

Figure 2-1 Compressed files in /ebsr122/EBSR1220

4. Run the script `buildStage.sh` from the `/ebsr122/EBSR1220/startCD/Disk1/rapidwiz/bin` directory. This script extracts the compressed files for the selected operating system. Figure 2-2 shows the welcome window.

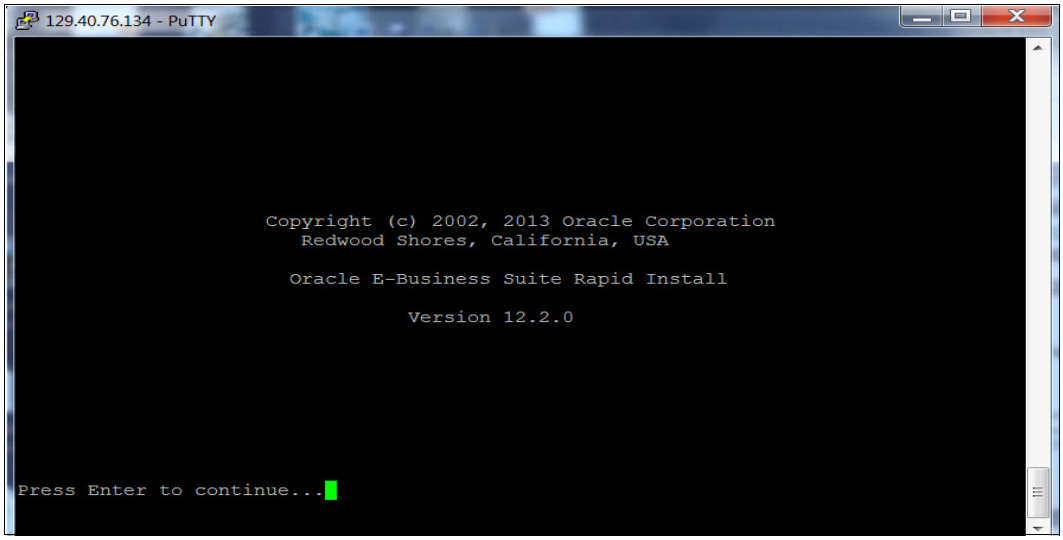

Figure 2-2 Running the buildStage.sh script

5. Select option 1 to create a stage area as shown in Figure 2-3.

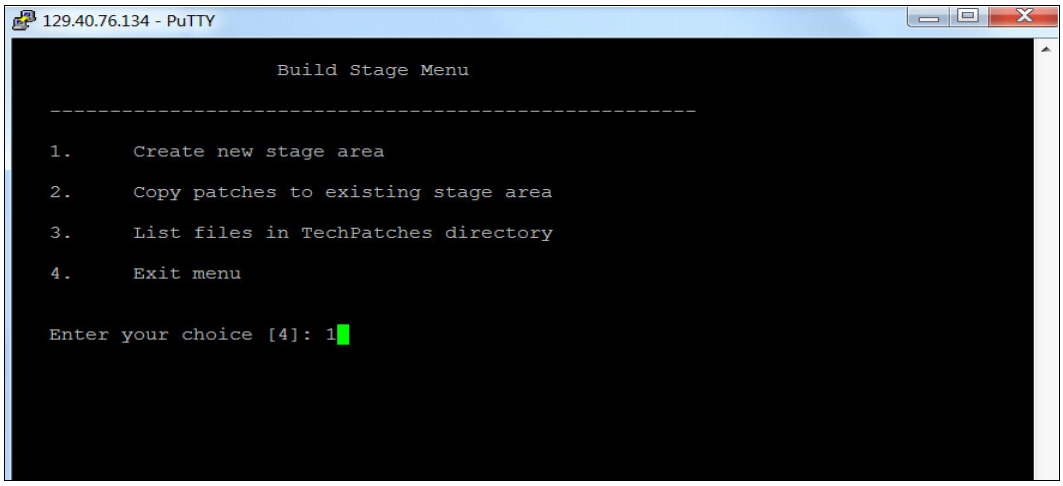

Figure 2-3 Creating a stage area

6. Select option 3 for IBM AIX on Power Systems (64-bit) as shown in Figure 2-4.

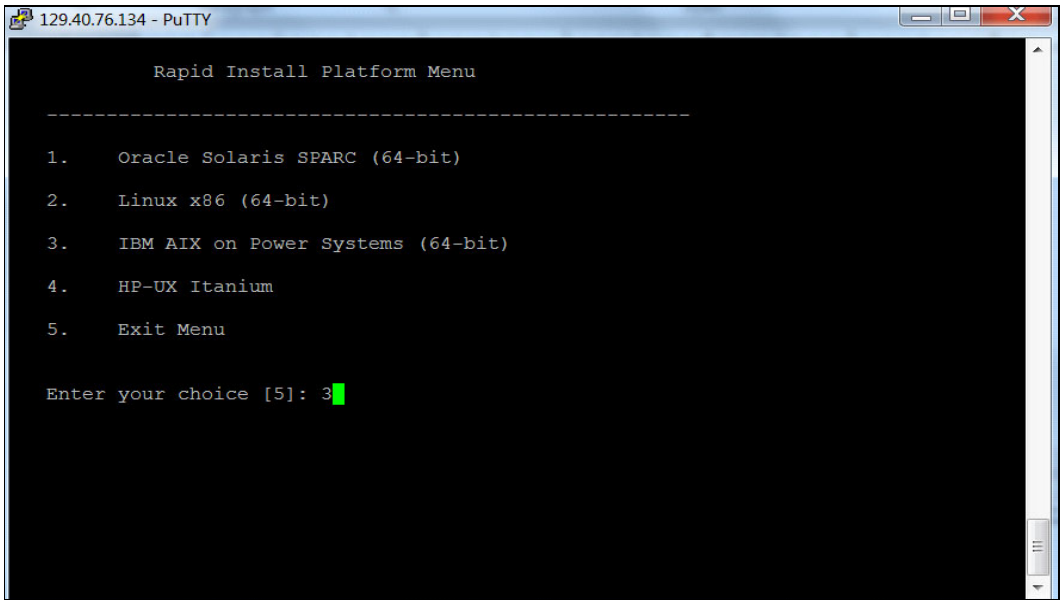

Figure 2-4 Selecting IBM AIX on Power Systems

7. Provide the directory name where the compressed files are stored as shown in Figure 2-5.

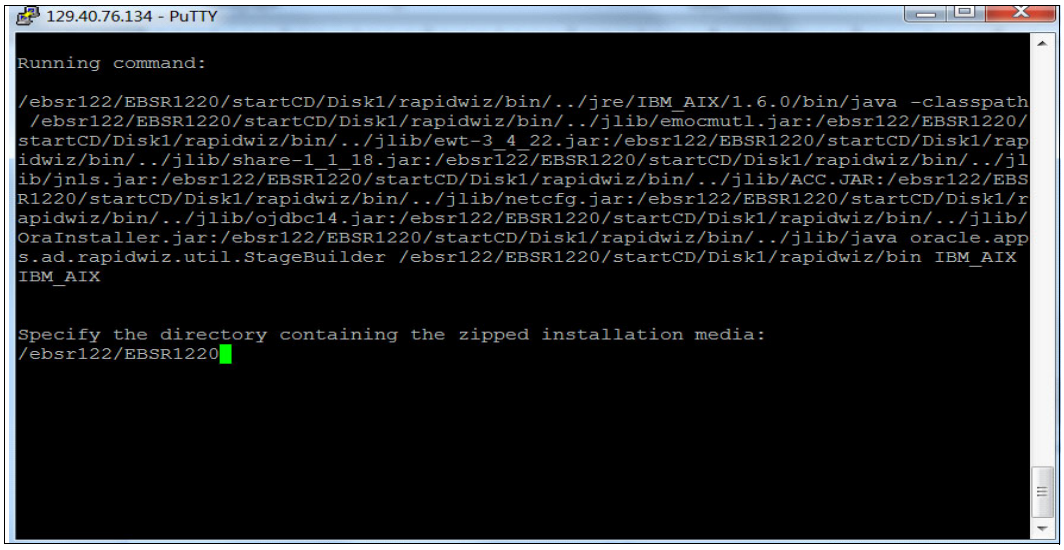

Figure 2-5 Entering the directory name

8. Press **Enter** to continue. The window that is shown in Figure 2-6 is displayed.

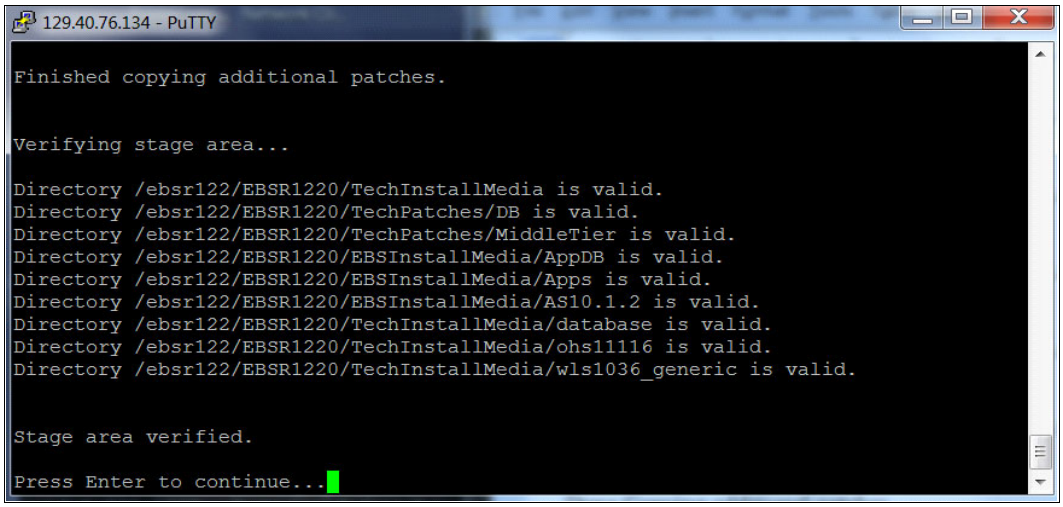

Figure 2-6 Verification of stage area

9. Enter 4 to exit from the menu as shown in Figure 2-7.

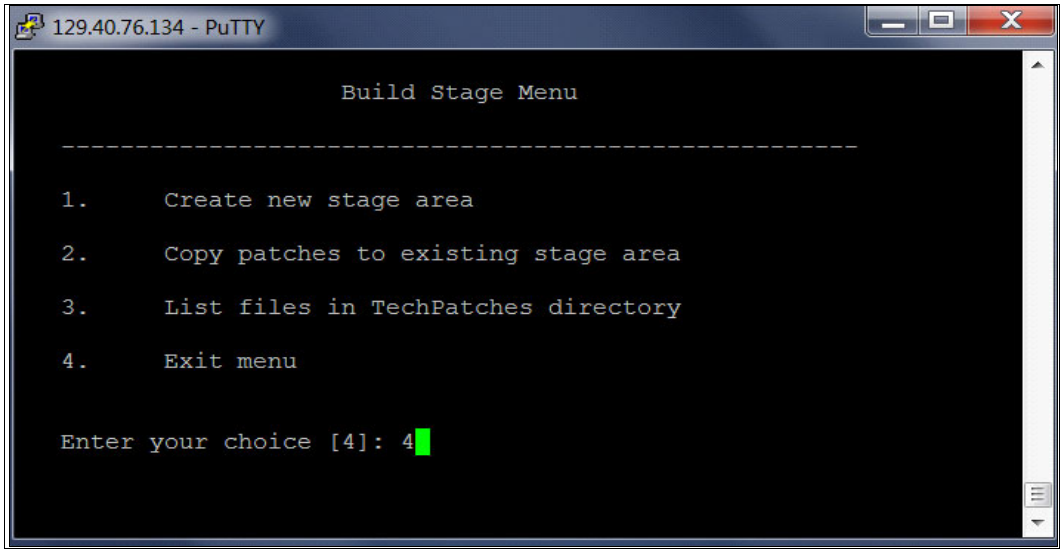

Figure 2-7 Exiting the menu

10. After building the stage area, you will see new directories in the staging area as shown in Figure 2-8.

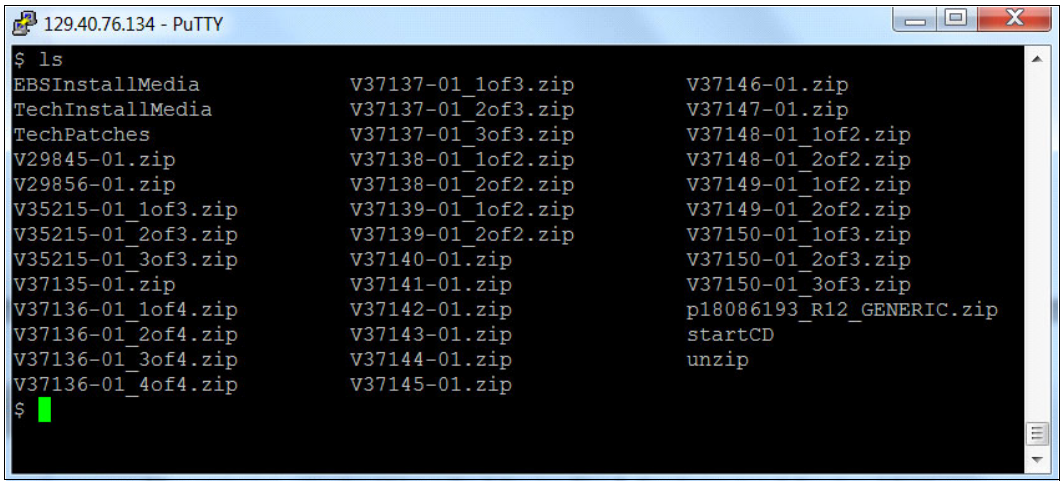

Figure 2-8 Directories shown in the staging area

3

Installing Oracle E-Business Suite using Rapid Install

Rapid Install uses a wizard to install Oracle E-Business Suite in either Express or Standard mode. The example installation is in Standard mode, which prompts for all configuration values and gives a better understanding of the installed components. Express mode uses default settings, so it requires fewer inputs from the user.

This chapter includes the following sections:

- Rapid Install: Standard
- Rapid Install: Database tier
- Rapid Install: Application tier

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3.1 Rapid Install: Standard

Rapid install in Standard mode installs the following technology products:

- Oracle Database Enterprise Edition 11*g* (11.2.0.3)
- Oracle Applications Server 10*g* - Forms and Reports
- Oracle Fusion middleware 11*g* - WebLogic Server
- Oracle Fusion middleware 11*g* - Web tier
- Java development kit

3.2 Rapid Install: Database tier

To install Oracle E-Business Suite on the database tier, complete these steps:

1. As a root user, run the **`/usr/sbin/slibclean`** command to remove any currently unused modules in kernel and library memory.
2. Start the Virtual Network Computing (VNC) server on the database tier node as an Oracle user. In the example installation, the user is named `oraprod`.
3. Using the VNC client on your desktop or notebook, start a session for connecting to the VNC server.
4. Go to `/ebsr122/ebsr1220/startCD/Disk1/rapidwiz` and enter the following command in the prompt:

   ```
   $ ./rapidwiz
   ```

   This action opens the following graphical user interface (GUI) window that is shown in Figure 3-1. Click **Next**.

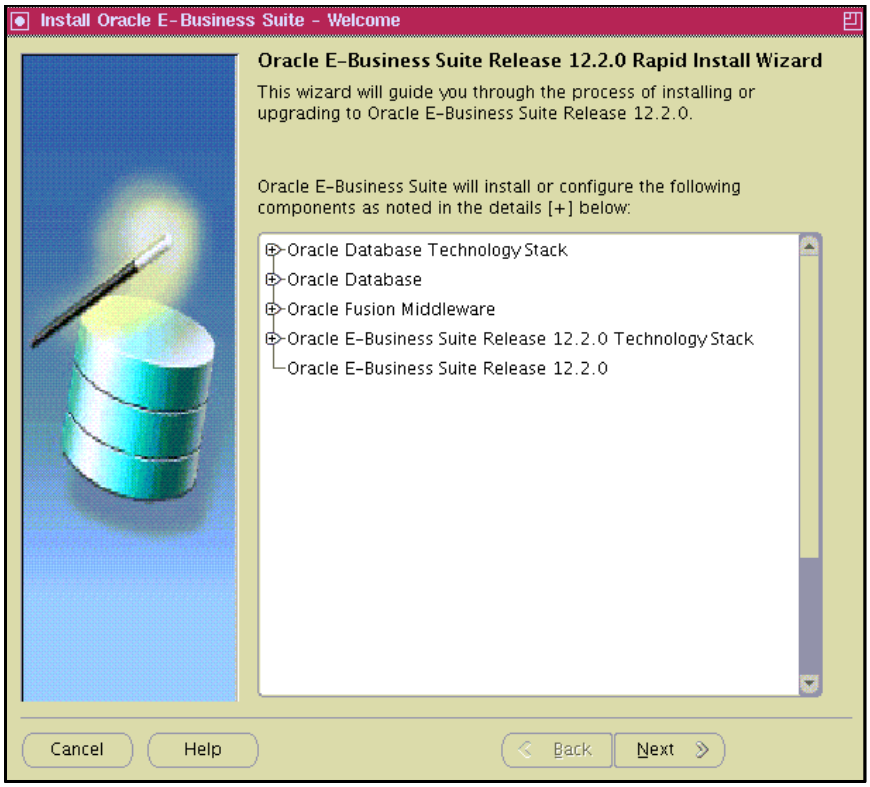

Figure 3-1 Rapid Install wizard

5. Select **Install Oracle E-Business Suite Release 12.2.0** as shown in Figure 3-2, which is a standard installation option, and click **Next**.

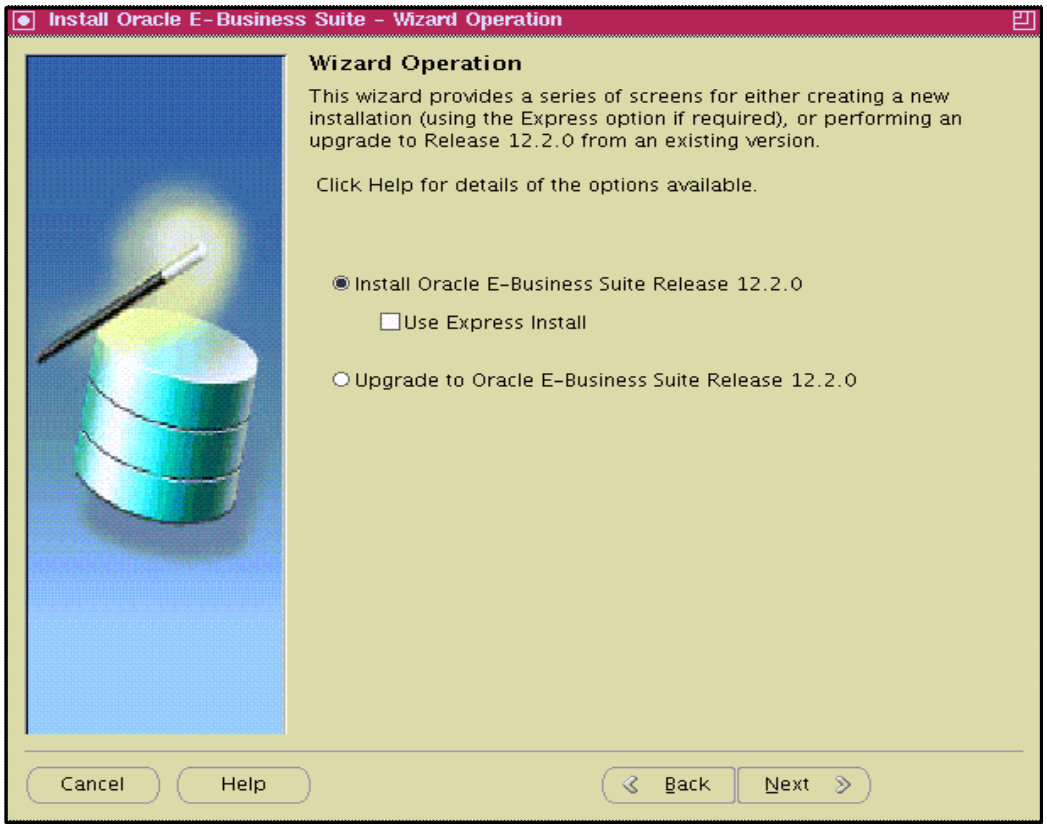

Figure 3-2 Selecting Install Oracle E-Business Suite

6. Provide the relevant information to be notified if there is an update on this software such as security patch updates as shown in Figure 3-3. Click **Next**.

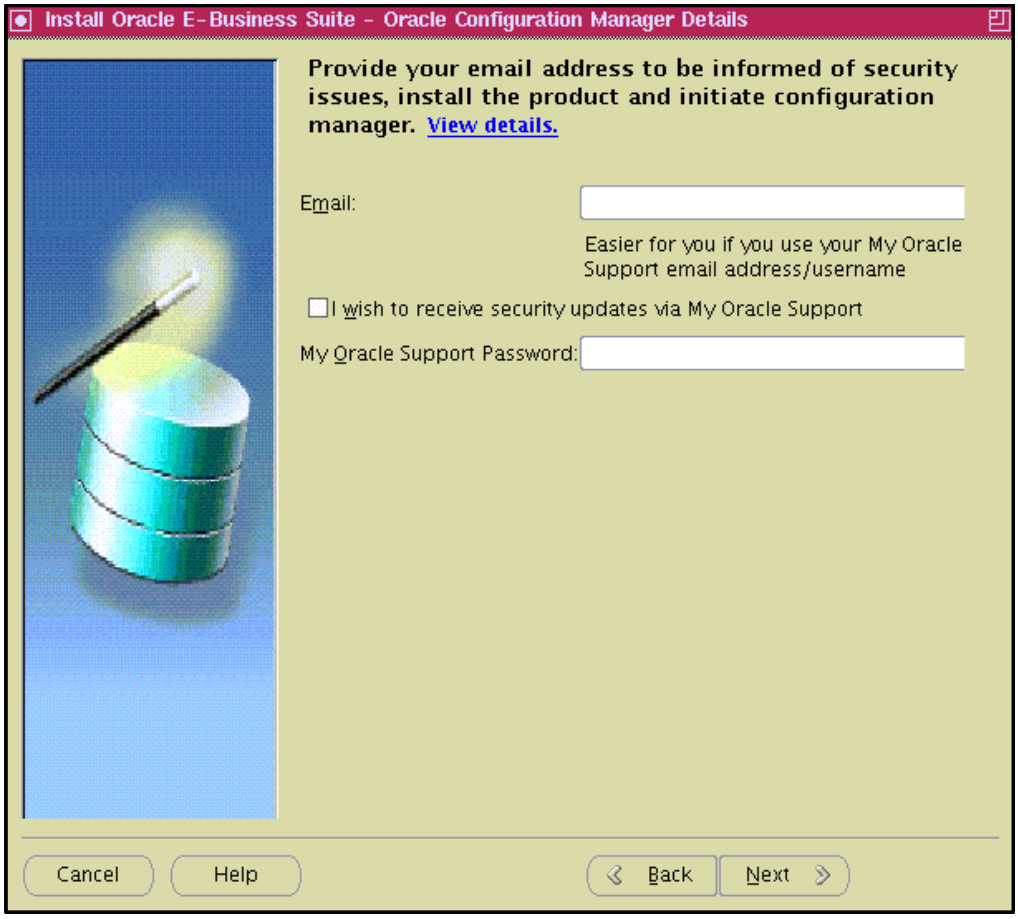

Figure 3-3 Entering relevant information

If you do not fill in the fields, a window opens that asks you to confirm to proceed without providing the information as shown in Figure 3-4. Based on criticality of this installation, click **Yes** and continue, or click **No**, enter the information, and proceed to the next window.

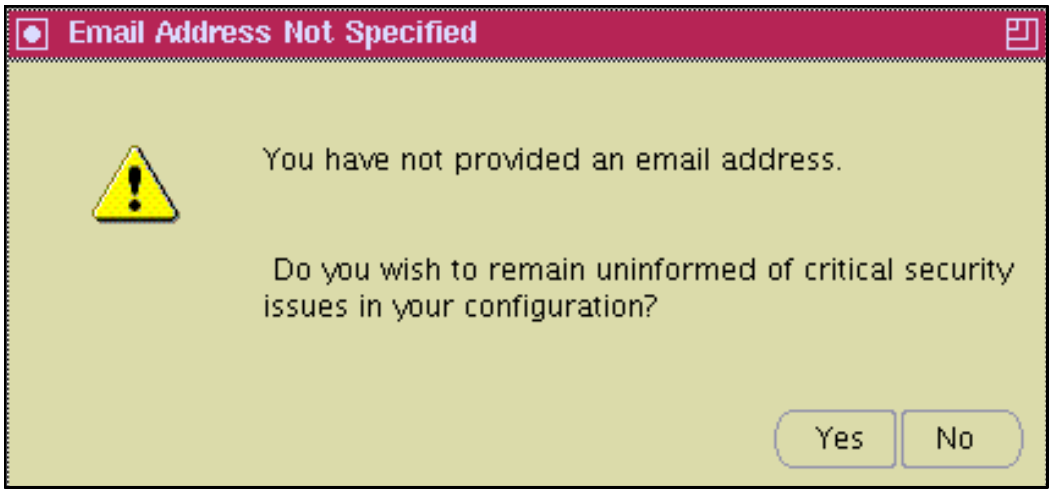

Figure 3-4 Confirm not specifying an email address

7. Select **Create a new configuration** because this is a new installation as shown in Figure 3-5. This configuration file is used while installing the application tier on another node. Click **Next**.

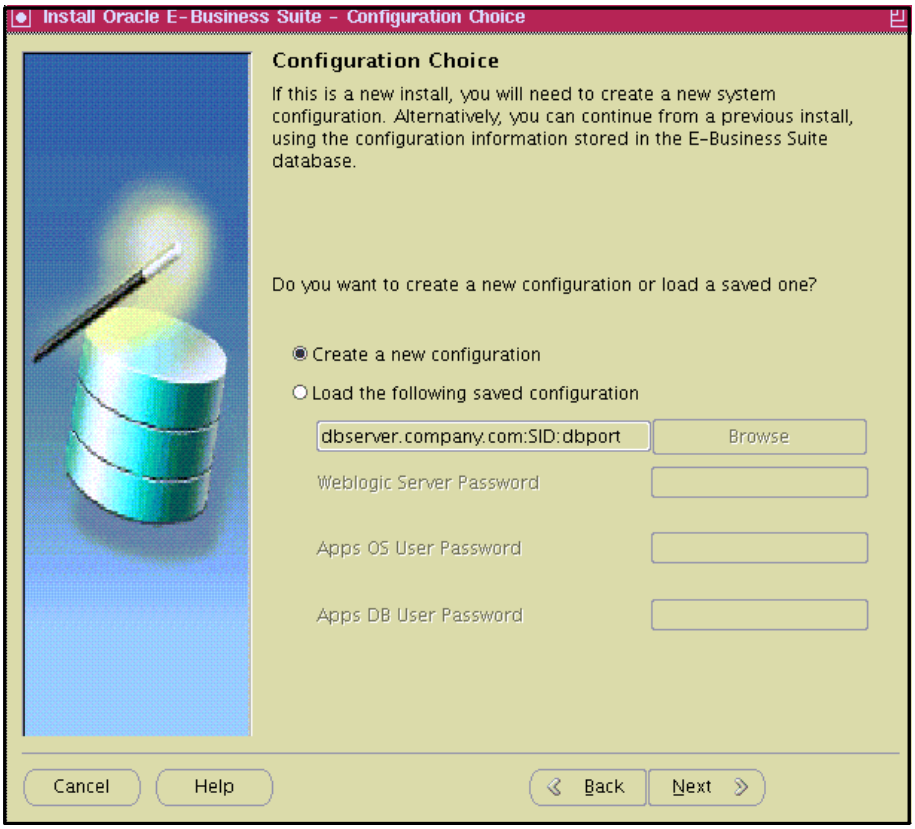

Figure 3-5 Creating a configuration

8. Figure 3-6 shows a list of default ports selected for different components. You can change these port numbers if wanted. Click **Next**.

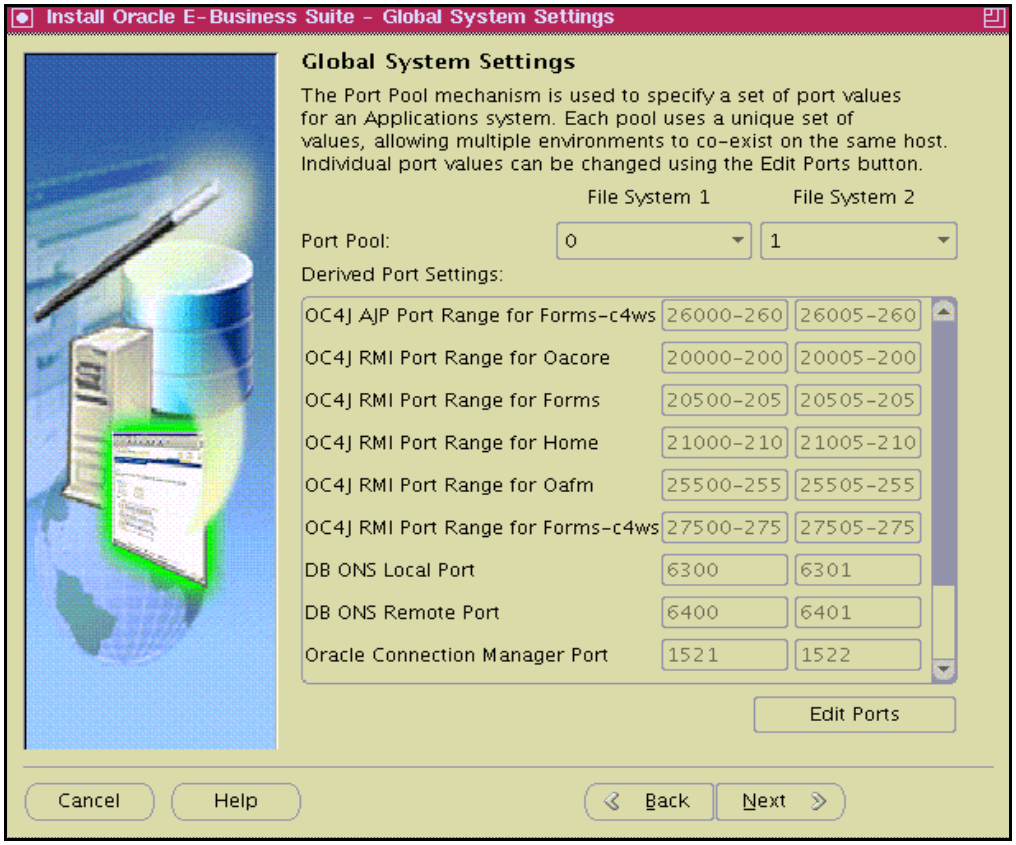

Figure 3-6 Default ports

9. Provide input to configure the database tier `p232n134` (Figure 3-7). In this installation, the default single instance database is used. Click **Next**.

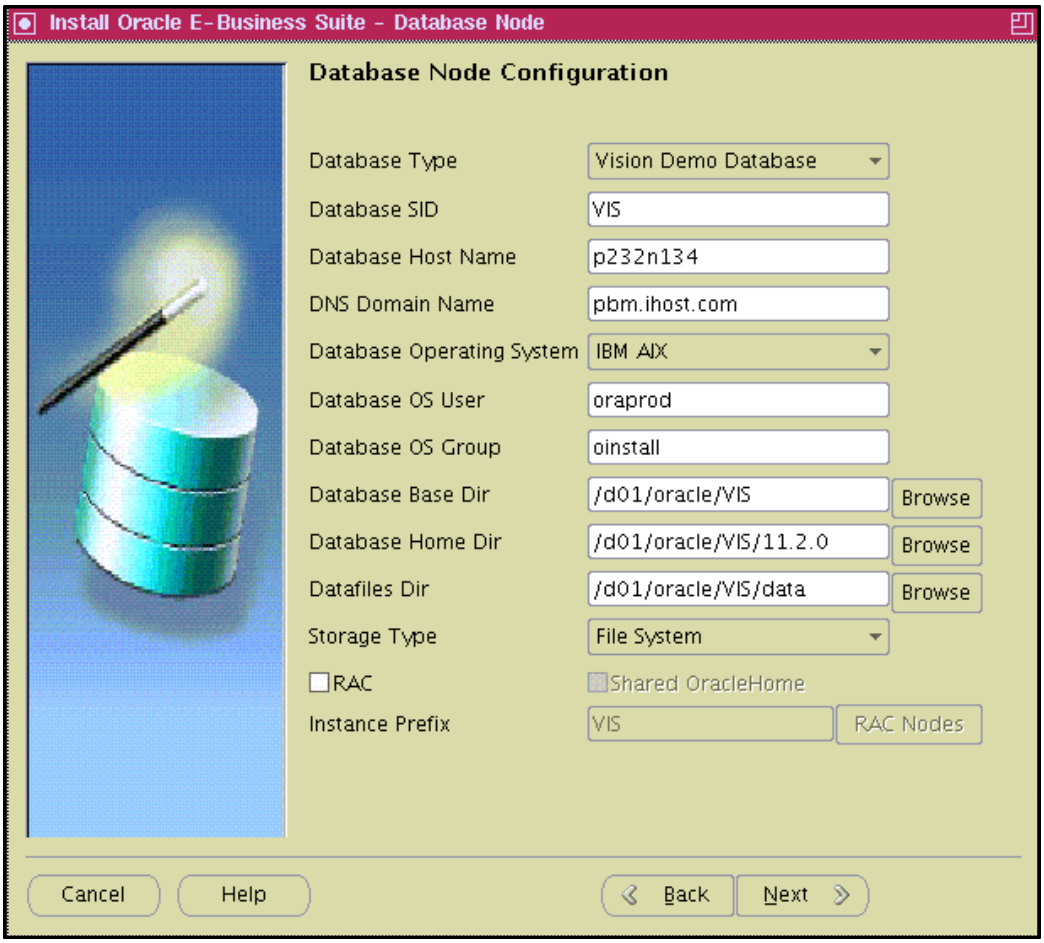

Figure 3-7 Configuring the database node p232n134

10. Provide input to configure application tier on another node, `p232n133` (Figure 3-8). Click **Next**.

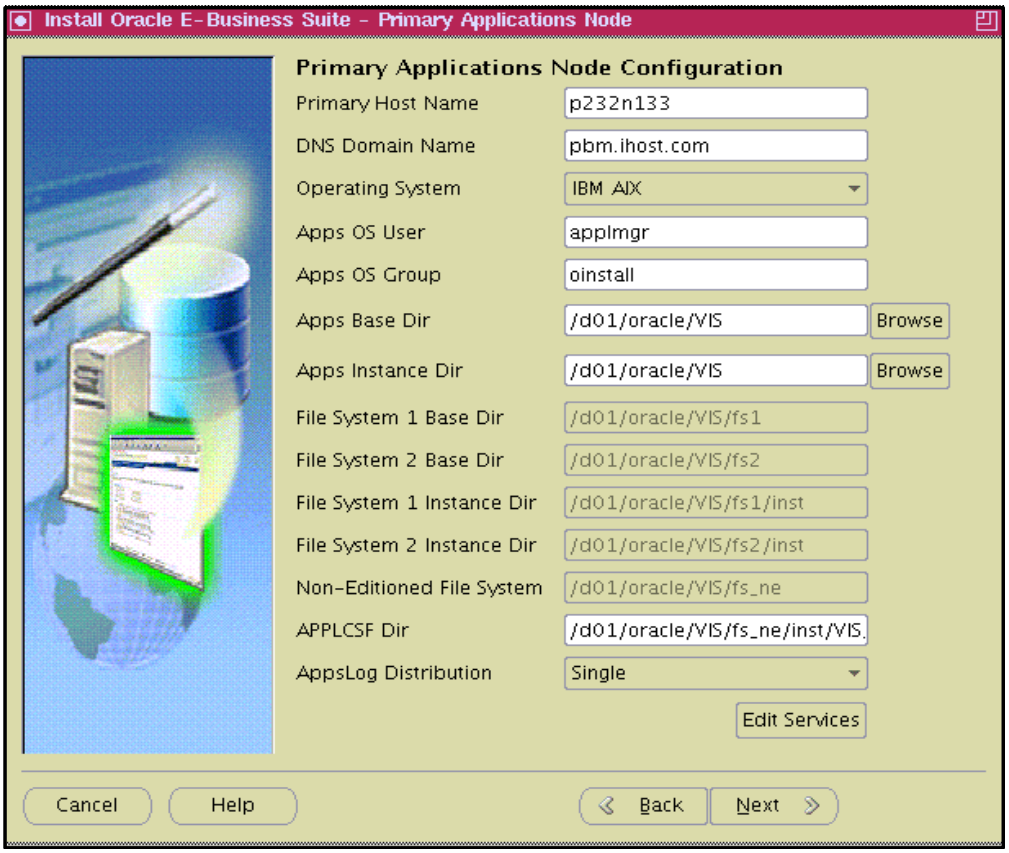

Figure 3-8 Configuring the database node p232n133

11. Figure 3-9 shows a field with the default WLS Admin User. You can use this name or modify it. Click **Next**.

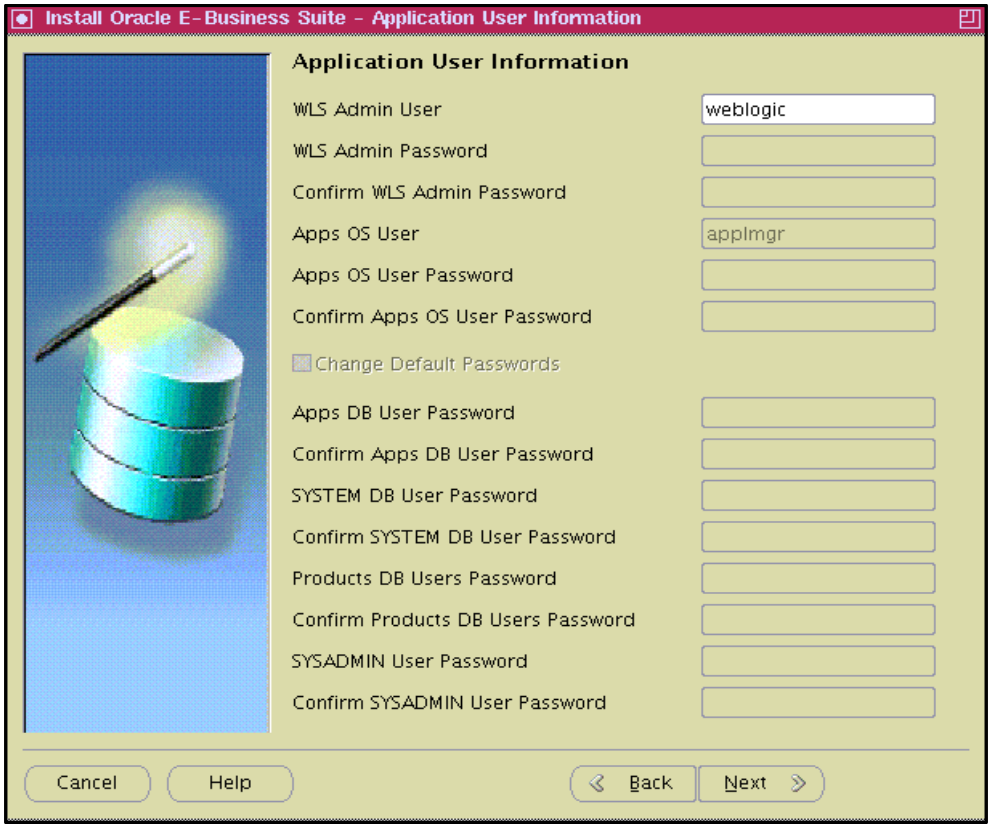

Figure 3-9 Application User Information window

12. Figure 3-10 shows node information for the database and application tiers. Validate them and then click **Next**.

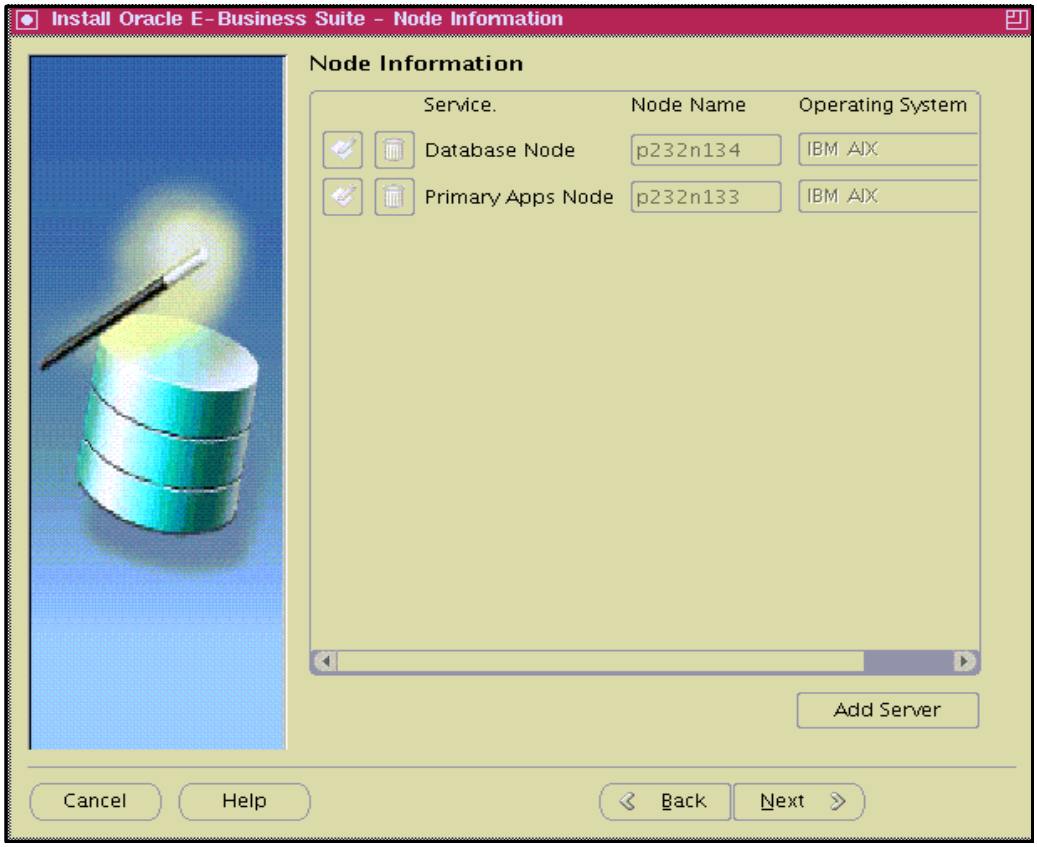

Figure 3-10 Node information for database and application tiers

A progress window is displayed as shown in Figure 3-11.

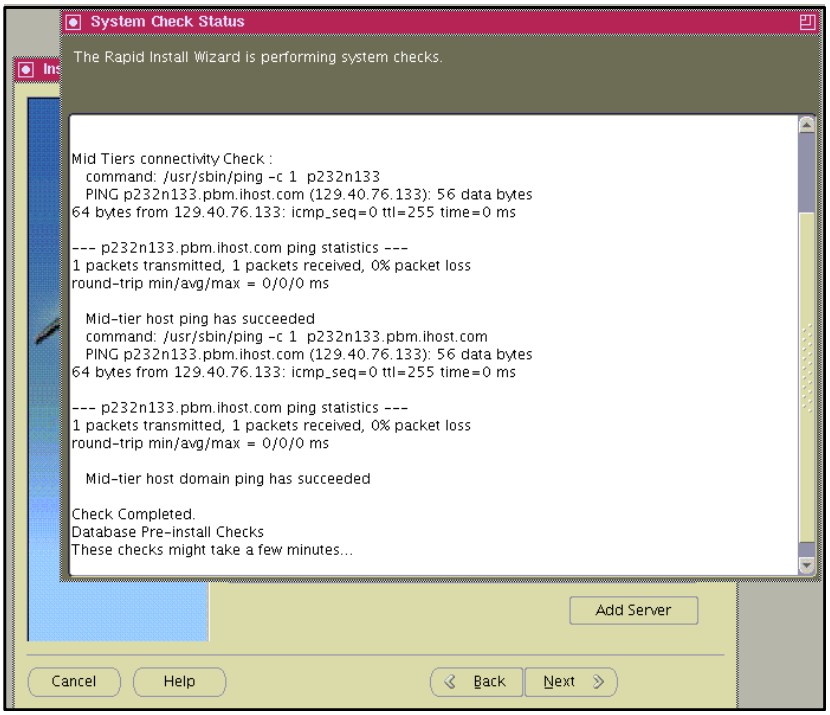

Figure 3-11 Validating parameters

13. The validation results are shown in Figure 3-12. If there is an issue with any of the validations, it shows here. Click **Next**.

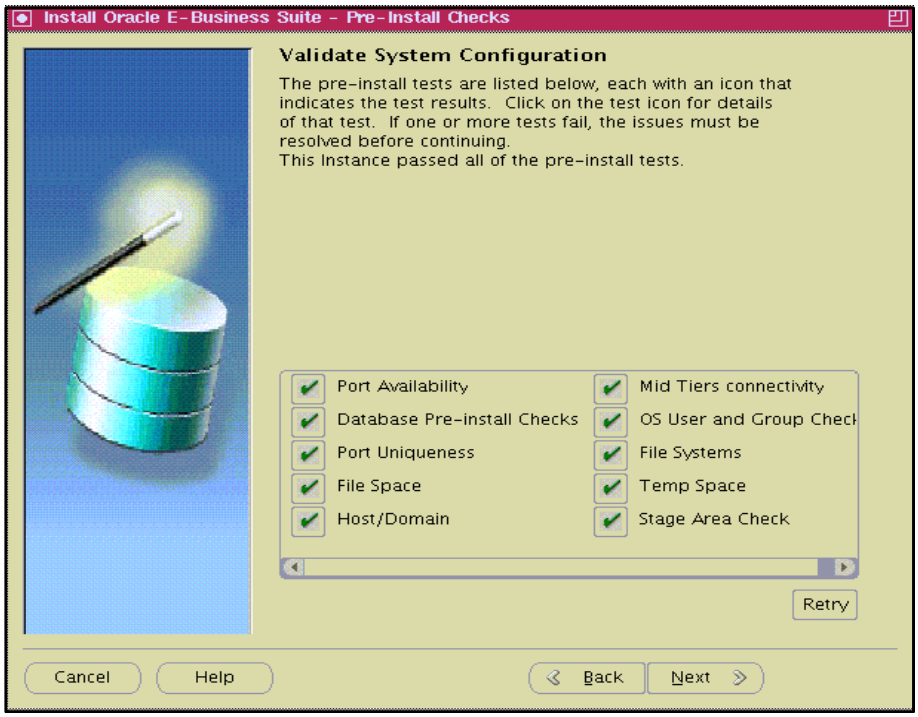

Figure 3-12 Validating the system configuration

14. After all the validation is successfully done, the software and nodes are ready for the installation as shown in Figure 3-13.

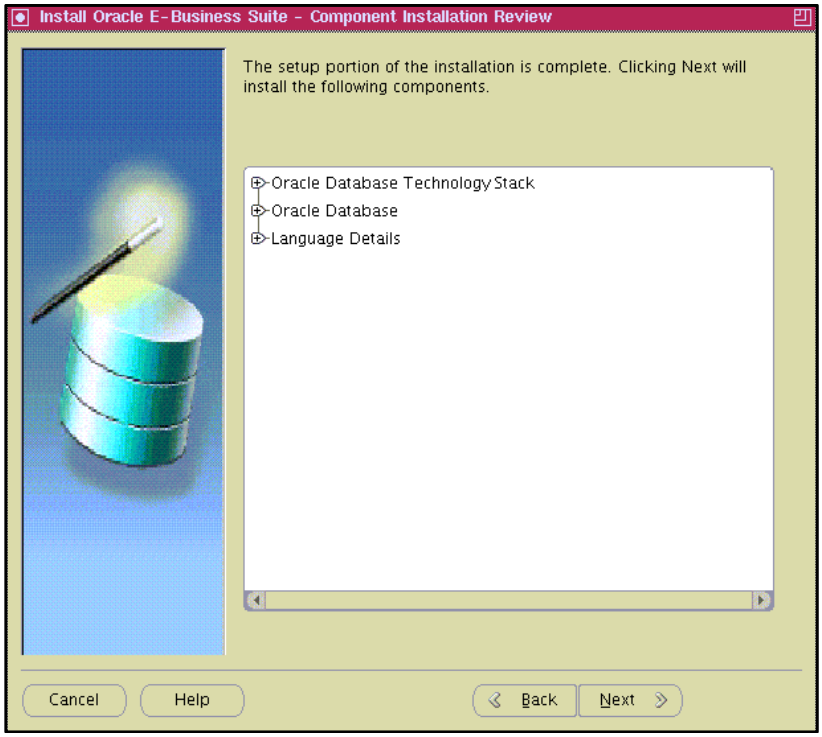

Figure 3-13 Installation window

You can expand the list to see what software is going to be installed on the database tier as shown in Figure 3-14. Click **Next**.

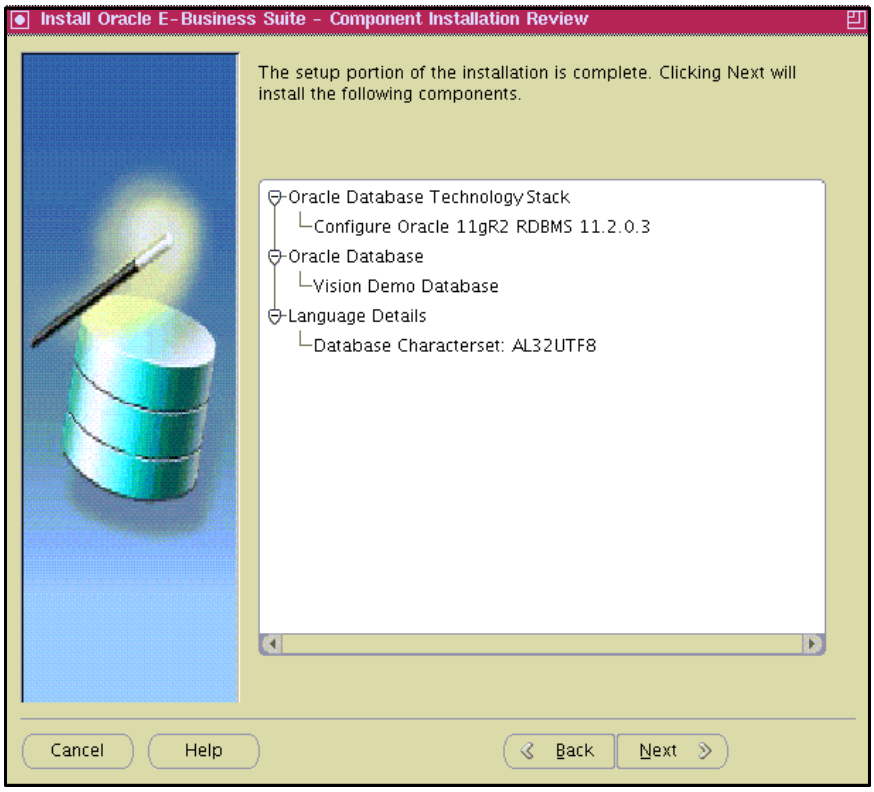

Figure 3-14 Expanding the list to see the software being installed

15. The database software is installed with VIS database. The log file location of the installation is displayed on the operator console. For this installation, the log file can be seen at `/d01/oracle/VIS/11.2.0/appsutil/log/VIS_p232n134`.

After the completion of the installation, the window shown in Figure 3-15 displays the successful validation. Click **Next** to complete the database tier installation.

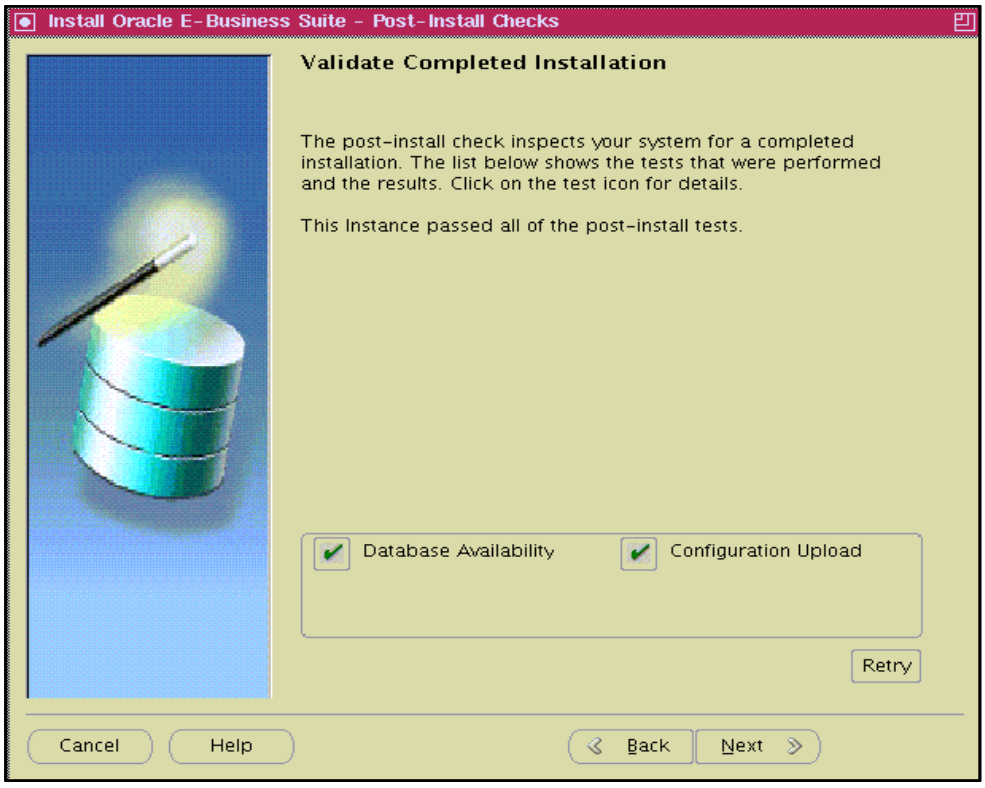

Figure 3-15 Validating the completed installation

16. The database tier installation is now complete (Figure 3-16).

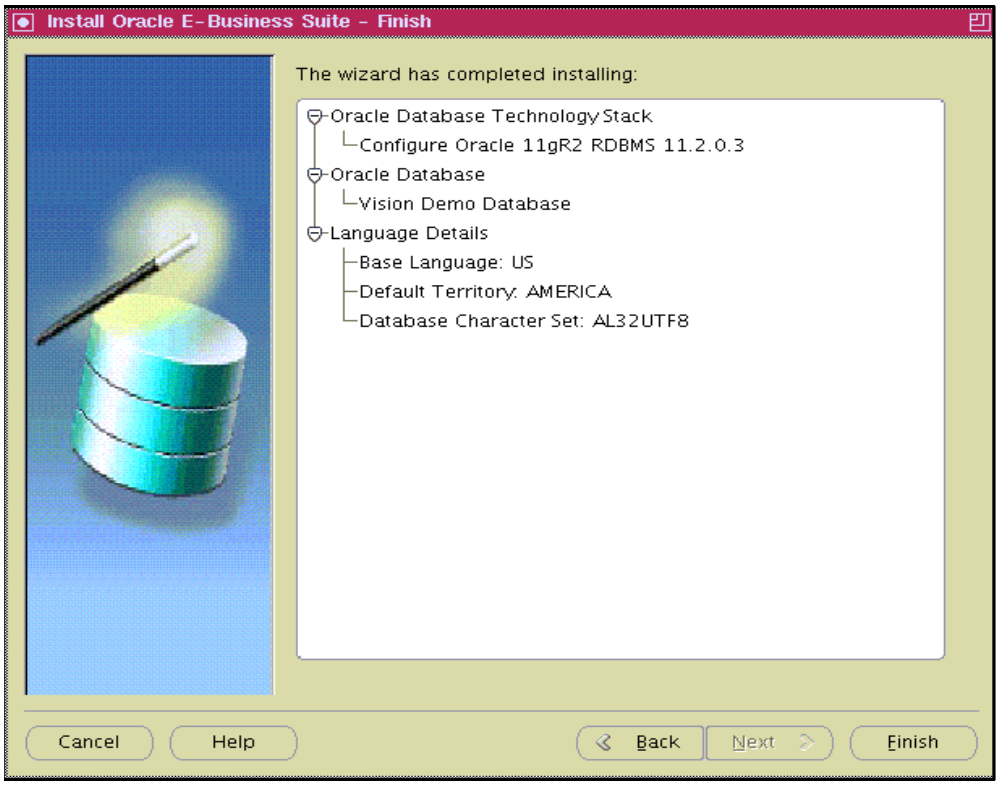

Figure 3-16 Installation complete window

3.3 Rapid Install: Application tier

After successful installation of the database tier, install the application tier. The software staging area `/ebsr122` was remotely mounted on the application tier node as mentioned in the 2.2.11, “File system” on page 13.

To install the Oracle E-Business Suite on the application tier, complete these steps:

1. Log in to the application tier node as the user that will be installing the application tier components. In the example installation, `applmgr` is the user to install the application tier components using the `rapidwiz` wizard.
2. Make sure the executable files of the tools mentioned in 2.2.2, “Required maintenance tools and their locations” on page 10 are added to the PATH environment variable.
3. Start a VNC server for accessing the application tier node in GUI mode. From a VNC client, connect to the VNC server and change the directory to `/ebsr122/EBSR1220/startCD/Disk1/rapidwiz`.

4. Run the **rapidwiz** command at the prompt, which opens the installation window as shown in Figure 3-17. Click **Next** to begin.

```
$ ./rapidwiz
```

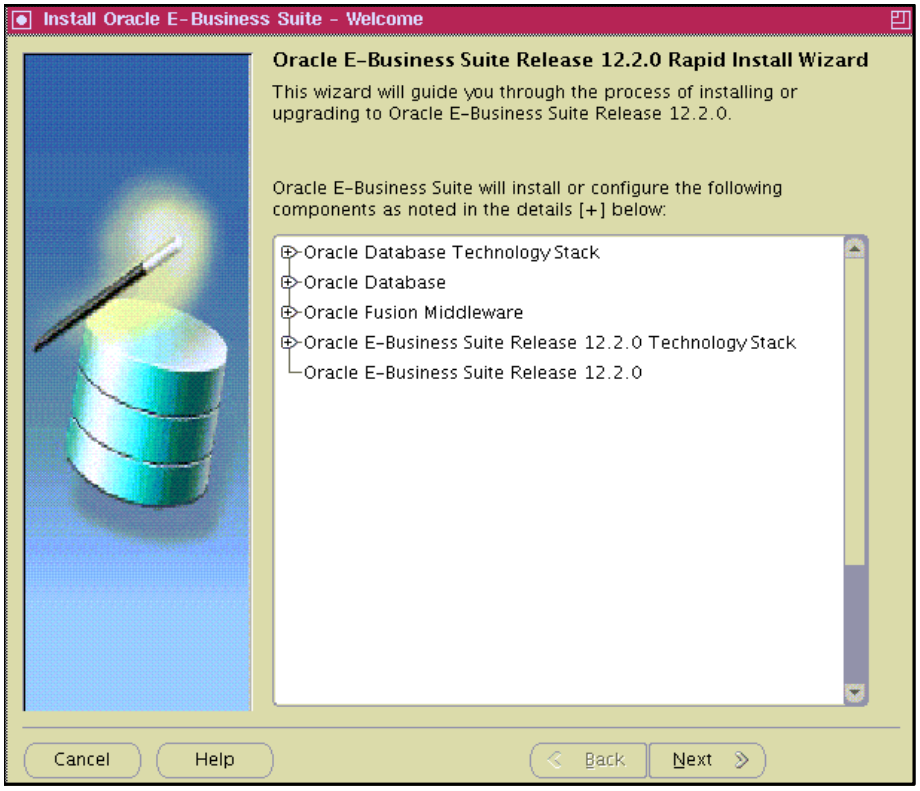

Figure 3-17 Rapid Install wizard welcome window

5. Select the same type of installation that was chosen during the database tier installation (Figure 3-18). Click **Next**.

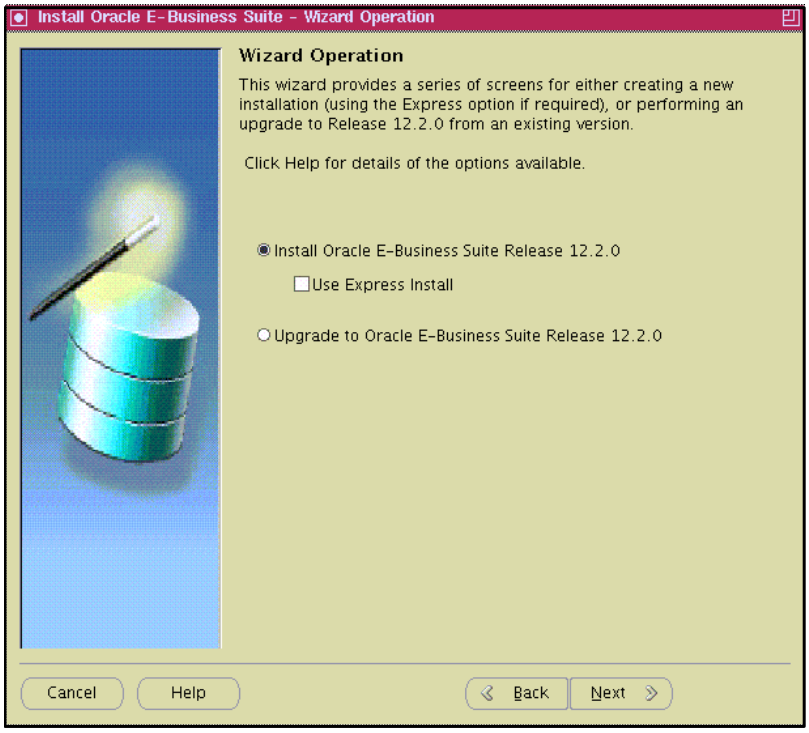

Figure 3-18 Selecting to install Oracle E-Business Suite

6. Complete the fields in Figure 3-19 based on your requirements. For the example installation, the fields were left blank. Click **Next**.

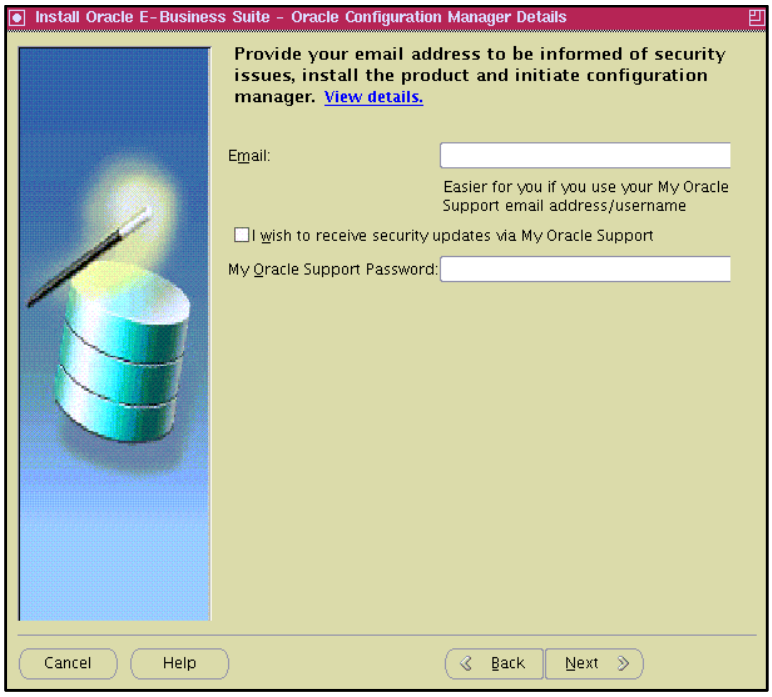

Figure 3-19 Providing email address for security alerts

A warning message is displayed if you left the email blank. If you did so deliberately, click **Yes**. Otherwise, click **No** and enter the email address in the previous window.

7. Figure 3-20 shows the configuration window. This is preloaded with the configuration input that was provided at the time of the database tier installation. Enter the database server host name, instance ID, and port number separated by colons (:).

   Alternatively, a configuration file can be copied from the database tier (`/d01/oracle/VIS/11.2.0/appsutil/conf_VIS.txt`) to the application tier location such as `/home/applmgr` by clicking **Browse** and navigating to it.

   Enter the following passwords:

   – WebLogic server: Enter a new password
   – Apps OS user (applmgr): Enter the password that was created for the OS user
   – Apps DB user (apps): Enter the default password `apps` for the DB user.

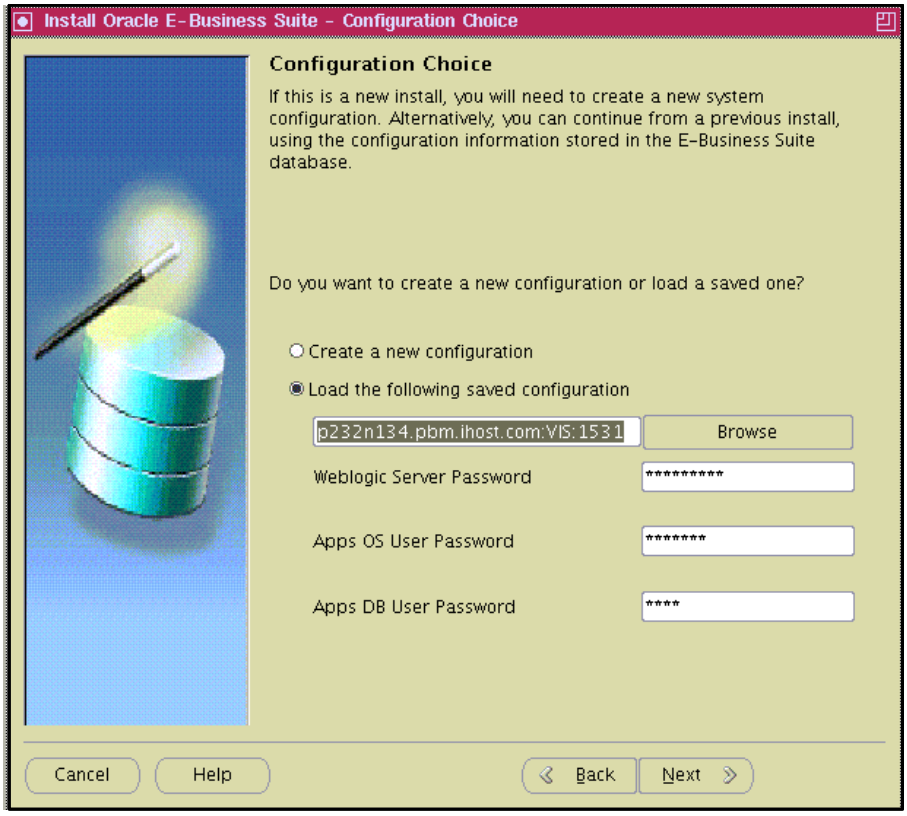

Figure 3-20 Configuration Choice window

8. If the saved configuration is accessed as mentioned above, the system checks are performed. After the system checks are completed, the pre-installation validation window is shown (Figure 3-21). Fix any errors and warnings on the system. The details of the errors and warnings can be seen by clicking the appropriate button. Click **Next** to continue.

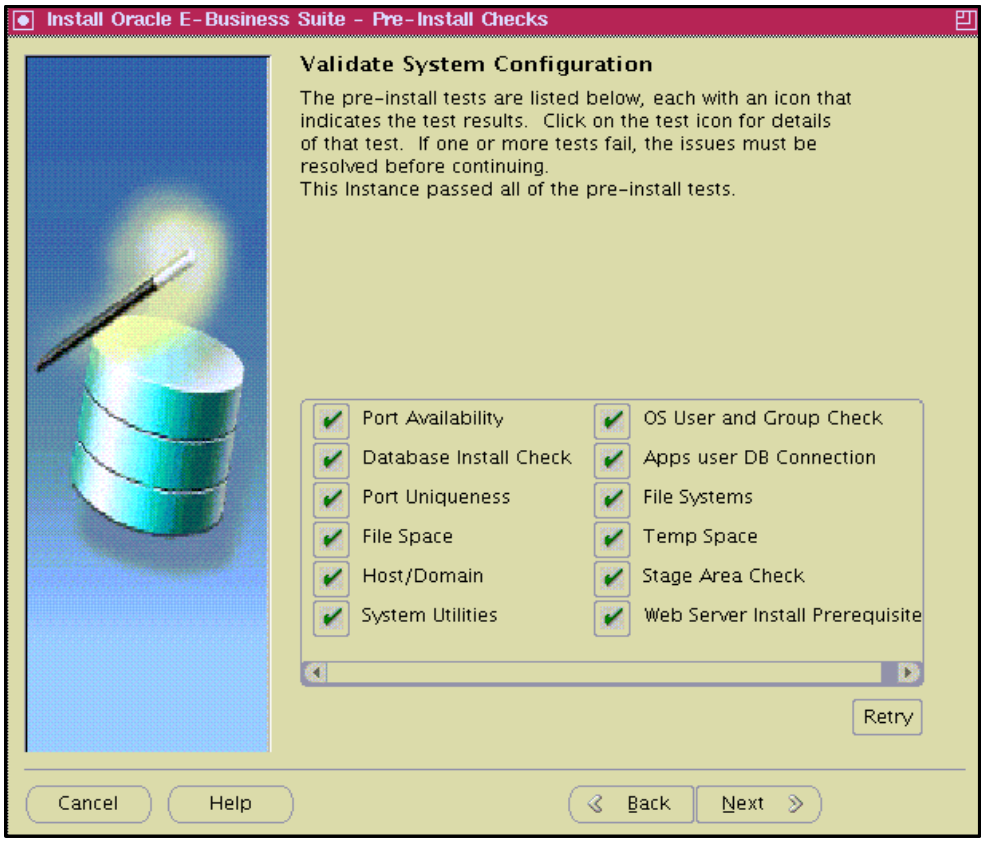

Figure 3-21 Validating the system configuration

9. Figure 3-22 shows a list of the software components that are going to be installed on the application tier node. Click **Next** to begin the installation.

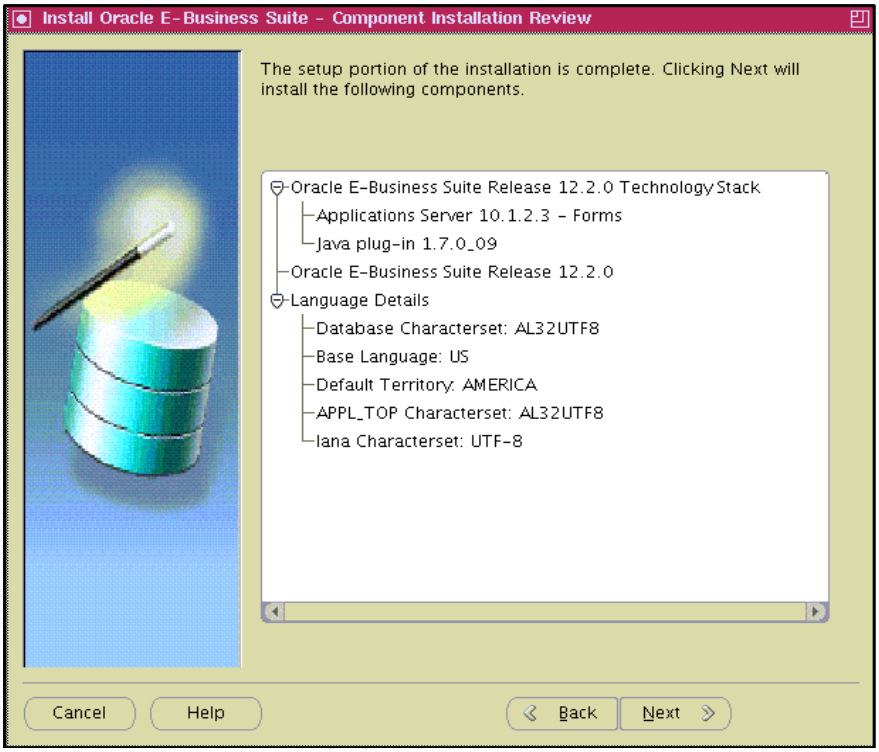

Figure 3-22 List of software components to be installed

The window shown in Figure 3-23 shows the progress status of the installation.

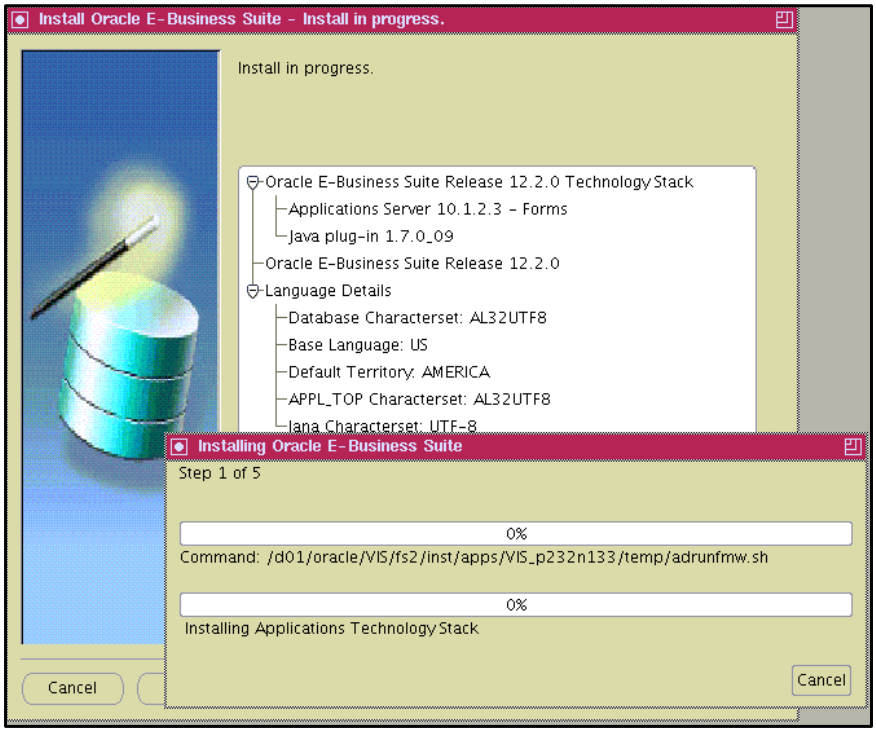

Figure 3-23 Installation progress window

10. When the installation is completed, the post-install checks windows (Figure 3-24) is shown. If there are any “!” marks or “x” marks shown on the buttons, resolve each one and rerun the postinstallation validation. Click **Next** when this process is complete.

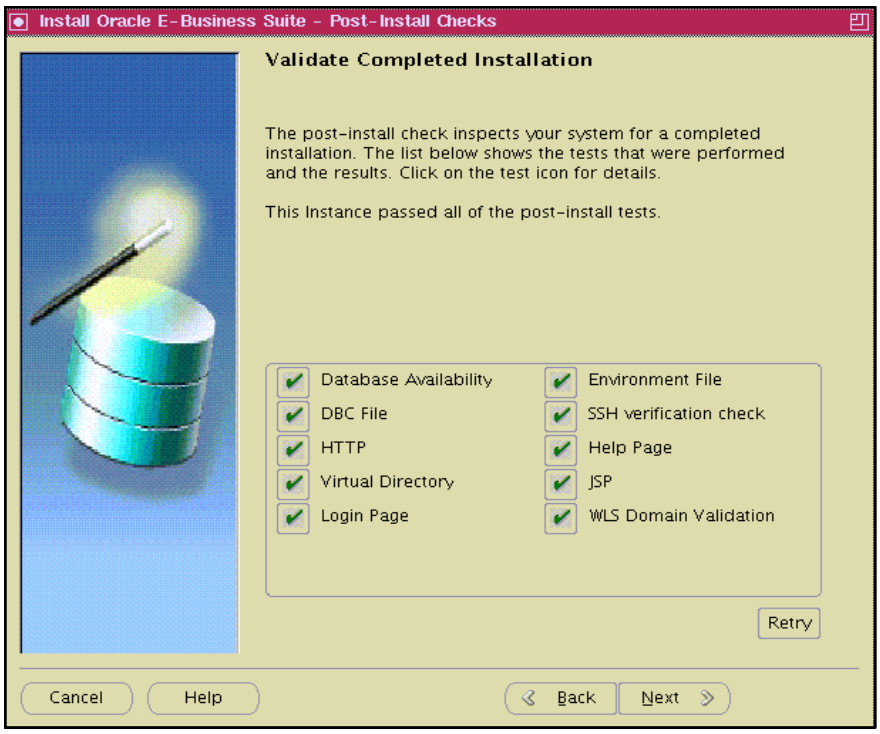

Figure 3-24 Validate Completed Installation window

11. Figure 3-25 shows the list of components that are installed on the application tier node. Click **Connect to Oracle E-Business Suite Release 12.2**.

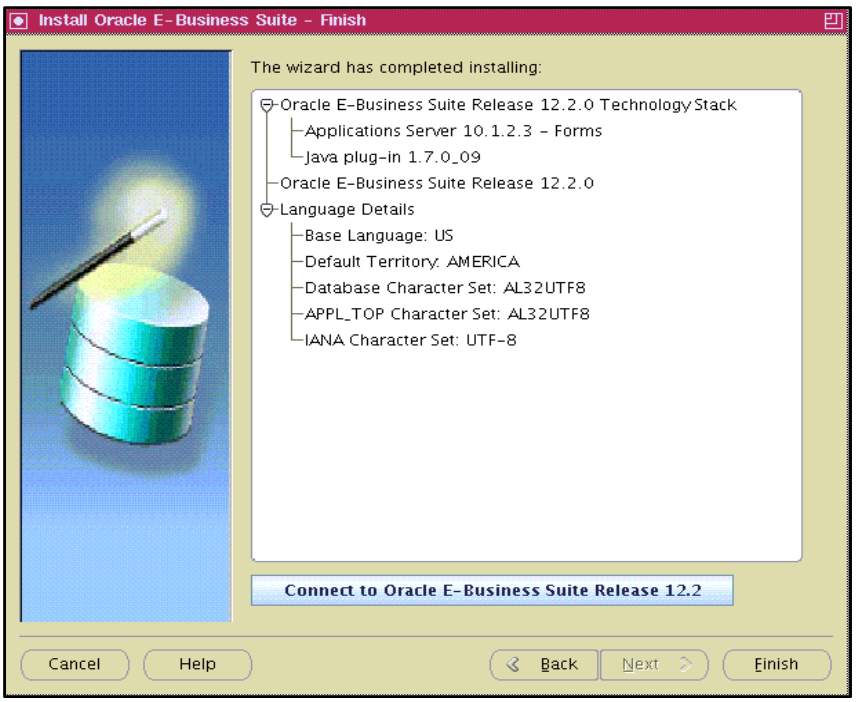

Figure 3-25 List of components installed on the application tier node

This requires that a browser is installed on your application tier node and the browser program set in the PATH. The Oracle E-Business Suite Release 12.2 environment can be accessed from another node, such as a Windows or a Linux server that has a web browser installed:

`http://p232n133.pbm.ihost.com:8000/OA_HTML/AppsLogin`

12. In the login window (Figure 3-26), use the default user name of SYSADMIN, and the password `sysadmin`.

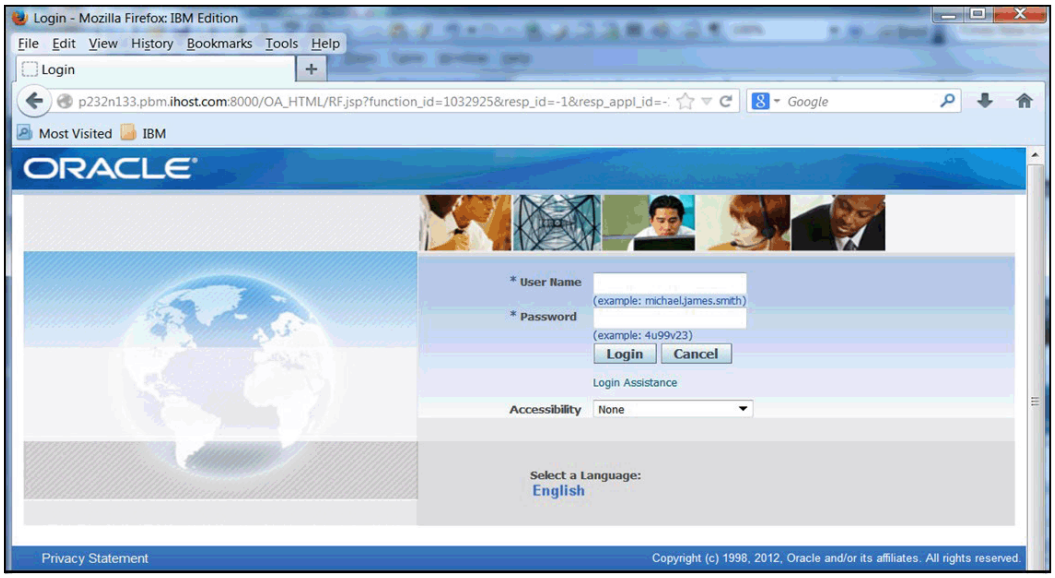

Figure 3-26 Login window

13. After login, the default window is displayed as shown in Figure 3-27. It is recommended to change the default password and create new users.

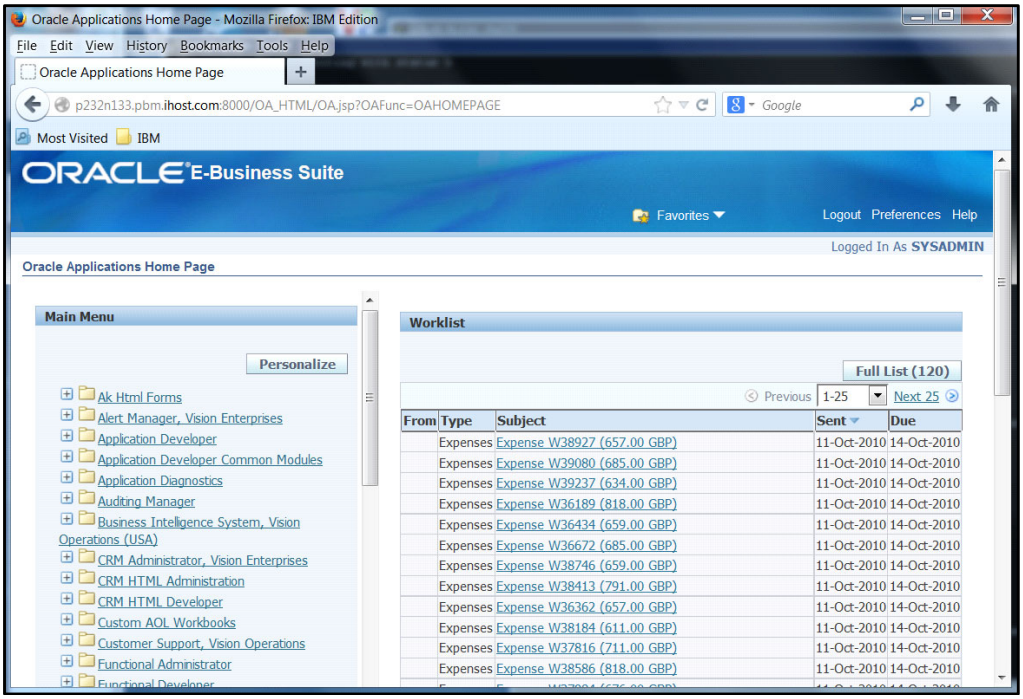

Figure 3-27 Oracle E-Business Suite default window

This completes the installation of Oracle E-Business Suite Release 12.2.0 on IBM AIX 7.1. TL3.

Note: You have now installed the VISION demo database. Use the same process to install the PROD clean database.

4

Upgrade to Oracle E-Business Suite version 12.2.4

This chapter describes the process of upgrading Oracle E-Business Suite to version 12.2.4.

This chapter includes the following sections:

- Prerequisites
- Patching the database tier
- Patching the application tier

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4.1 Prerequisites

Oracle E-Business Suite version 12.2.4 is the latest available version at the time of writing. Follow My Oracle Support note 1617458.1 for applying version 12.2.4 on top of 12.2.0. This note points to other notes for information about applying various patches for certain components of Oracle E-Business Suite Release 12.2.

In Release 12.2.0 and higher, patching is performed by running the new `adop` (AD Online Patching) utility. Do not use `adpatch` tool that was provided in previous releases.

For more information about the `adop` utility and its command line options, see:

`http://docs.oracle.com/cd/E26401_01/doc.122/e22954/T202991T531062.htm#5281339`

Table 4-1 lists all of the required patches to upgrade Oracle E-Business Suite Release 12.2.0 to 12.2.4. These patches are for the database, latest AD and TXK delta releases, and application tier components.

Refer to the following extra My Oracle Support documents for detailed instructions to upgrade the base version 12.2.0 to 12.2.4:

- 1594274.1: Oracle E-Business Suite Release 12.2: Consolidated List of Patches and Technology Bug Fixes
- 1617461.1: Applying the latest AD and TXK Release Update Packs to EBS R12.2

Download all these patches and the latest startCD version (12.2.0.49), and save them in a separate directory that can be accessed on both tiers. Table 4-1 lists all of these components.

Note: At this stage, create a backup of the existing 12.2.0 installation.

Table 4-1 Components to download

Component	Patch number	Comment
Database tier		
DB version: 11.2.0.3 MOS note: 1594247.1	14046443, 16989137, 17875948, 18828868, 18260550, 18419770, 18614015, 18685209, 18689530 19393542, 19472320, 19791273, 19896336, 19949371, 20488551, 20558445.	Must run their postinstall.sql after installing each of the following patches: 16989137, 17875948, 18614015, 20558445
EBS Technology Code Level Checker	17537119	The script checkDBpatch.sh in this patch needs to be run in the DB tier
Application tier		
Forms and reports Version: 10.1.2.3	19434967, 18620223	
Consolidated Seed Table Upgrade patch(es)	17204589	

Component	Patch number	Comment
Fusion Middleware Version: 11.1.1.6	Webtier: 17555224, 17639414, 20816425 Oracle_common: 13490778, 14754223, 13826887, 14803792, 16298679, 17442957, 18989444, 20642039. 19462638 (Required for AD-TXK)	
WebLogic server Version: 10.3.6.0	17893334, 17572726, 11781879, 13337000, 13729611, 17319481, 19687084, 19600486, 20474010.	
AD and TXK Release Update Packs	The AD and TXK patches are updated periodically. Refer to MOS note 1617461.1 Patch 19197270:R12.AD.C.Delta.6 Patch 19330775:R12.TXK.C.Delta.6 Patch 20677045:R12.TXK.C Patch 20864702:R12.TXK.C Patch 21132723:R12.AD.C	Skip the patch 19259764:R12.FND.C for new installation of 12.2 or upgrade to 12.2.4.
EBS 12.2.4 RUP	17919161	This patch upgrades EBS R12 version 12.2.0 to 12.2.4 using PATH A method.
Post-Update	17919162, 19290141	EBS 12.2.4 Online Help patch

4.2 Patching the database tier

Download and keep the database patches in a directory as mentioned in Table 4-1 on page 44, and install them by using the latest OPatch utility `Patch 6880880`, which can be downloaded from My Oracle Support site. Before extracting the downloaded file `p6880880_112000_AIX64-5L.zip` in the database $ORACLE_HOME, rename the old OPatch directory to another name and extract the compressed file as the `oracle` user. Extract the compressed file in $ORACLE_HOME and add $ORACLE_HOME/OPatch into $PATH.

Follow the README.txt for each of the patches and install the patches by issuing the **`opatch apply`** command. Some of them have postinstallation patch scripts that must be run. If they are missed, the application tier patches will fail.

Download the Oracle E-Business Suite technology code level checker `p17537119_R12_GENERIC.zip` from My Oracle Support and extract the file in a directory as the `oracle` user as shown in Figure 4-1.

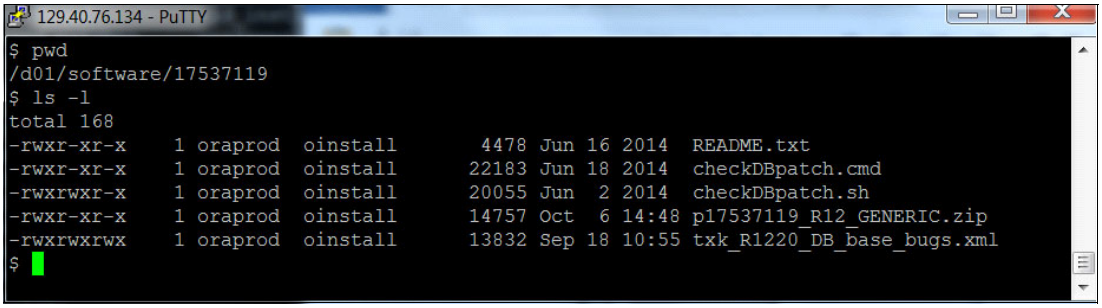

Figure 4-1 Downloading p17537119_R12_GENERIC.zip

Run the script `checkDBpatch.sh` as the `oracle` user and input values such as ORACLE_HOME and SID. If all of the required patches are applied, the following lines appear at end of the output (Figure 4-2).

```
Opatch is at the required version.

Found patch records in the inventory.

All the required one-offs are present in Oracle Database Home

Stored Technology Codelevel Checker results in the database successfully.
```

Figure 4-2 Output of checkDBpatch.sh script

If this script is not run and not applied, the required patches are listed as output of this script, and the Oracle E-Business Suite Release 12.2.4 upgrade will fail.

4.3 Patching the application tier

Before applying the main patch that upgrades the Oracle E-Business Suite to 12.2.4, many patches need to be applied on the Application tier as pre-upgrade tasks on various components.

In Application tier, switch to the application manager user, for example `applmgr`.

4.3.1 Patching forms and reports

To patch the forms and reports, complete these steps:

1. Set the environment by running the `EBSapps.env` file:

   ```
   $ . /d01/oracle/VIS/EBSapps.env  run
   ```

   This script sets the environment for the RUN file system.

   ```
   $ echo $ORACLE_HOME
   /d01/oracle/VIS/fs1/EBSapps/10.1.2
   ```

   The Forms and Report patches are applied to `/d01/oracle/VIS/fs1/EBSapps/10.1.2`.

2. Go to the directory where the patches for Forms and Reports are downloaded and extracted. The following is the `opatch` tool location:

   `"/d01/oracle/VIS/fs1/EBSapps/10.1.2/OPatch/opatch"`

3. Apply patches `19434967` and `18620223` using `opatch apply` by changing the directory into each of them.

4.3.2 Patching Oracle Fusion Middleware 11.1.1.6

To patch Oracle Fusion Middleware, complete these steps:

1. Set the Oracle Home to `FMW_Home/webtier` and add the path of opatch of web tier into PATH:

   ```
   $ export ORACLE_HOME= /d01/oracle/VIS/fs1/FMW_Home/webtier
   $ export PATH=$ORACLE_HOME/OPatch:$PATH
   $ which opatch
   /d01/oracle/VIS/fs1/FMW_Home/webtier/OPatch/opatch
   ```

   Web tier patches: `17555224`, `17639414`, `20816425`

2. Go to the directory where Oracle Fusion Middleware patches are extracted. See the README.txt file and install each one using the **`opatch apply`** command.
3. After successfully applying the web tier patches, install patches for the `Oracle_common` directory.
4. Set Oracle Home to `FMW_Home/oracle_common` and add the path of OPatch of oracle_common into PATH:

   ```
   $ export ORACLE_HOME= /d01/oracle/VIS/fs1/FMW_Home/oracle_common
   $ export PATH=$ORACLE_HOME/OPatch:$PATH
   $ which opatch
   /d01/oracle/VIS/fs1/FMW_Home/oracle_common/OPatch/opatch
   ```

5. Install the patches for the `Oracle_common` directory.
6. Set Oracle Home to `FMW_Home/oracle_common` and add the path of OPatch of `oracle_common` into PATH.

   Oracle_common: `13490778`, `18989444`, `14754223`, `13826887`, `14803792`, `16298679`, `17442957`, `20642039`

7. Go to each of these patches and read the `README.txt` files.
8. Apply patches by using the **`opatch apply`** command.

4.3.3 Patching Oracle WebLogic Server (10.3.6.0)

Download and copy the following Oracle WebLogic Server patches to `/d01/oracle/VIS/fs1/FMW_Home/utils/bsu/cache_dir directory` and extract them:

`17572726`, `11781879`, `13337000`, `13729611`, `17319481`, `19687084`, `17893334`, `19600486`, `20474010`

Connect to the application tier using GUI tools such as VNC client and set the environment variables for the `applmgr` user by running the following commands:

```
$ . /d01/oracle/VIS/EBSapps.env  run
$ /d01/oracle/VIS/fs1/FMW_Home /utils/bsu/bsu.sh
```

These commands open a GUI of the Smart Update tool as shown in Figure 4-3.

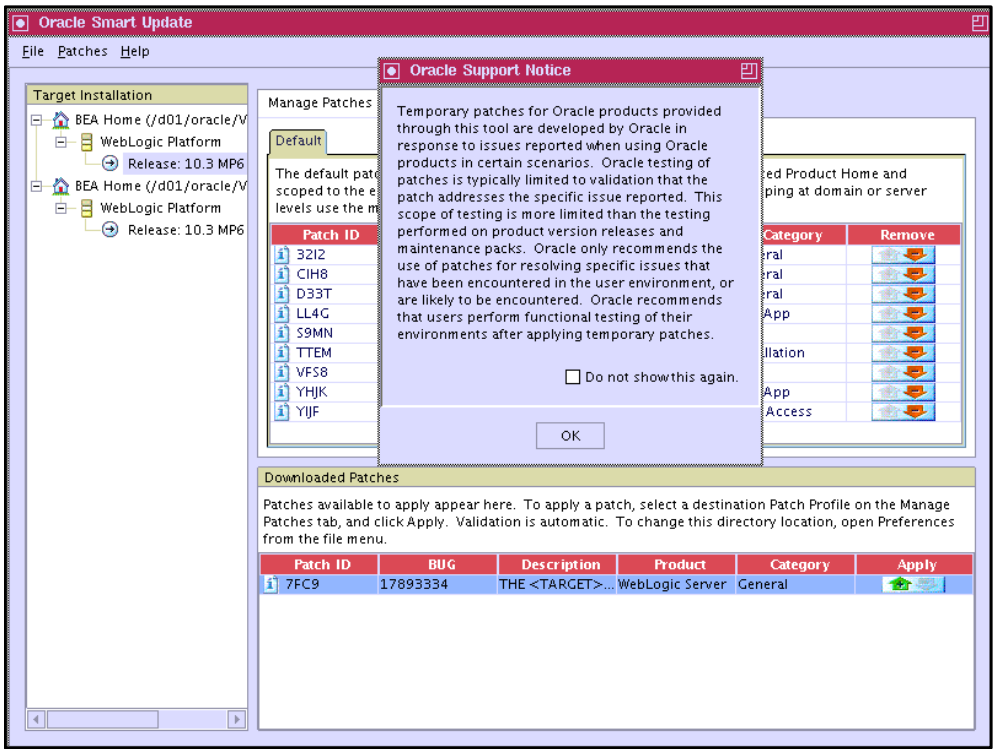

Figure 4-3 Smart Update GUI

At bottom of the window, it shows the new patches that were copied to `cache_dir`. Click **OK** in the confirmation window.

Click the green arrow that points upward, which applies the patch. After the patch is successfully applied, the entry for the new patch will be added to the list of applied patches.

If there are any conflicts while applying a patch, the Smart Update tool suggests that you to remove the conflicting patch. Remove the conflicting patch and apply the patch again as shown in Figure 4-4.

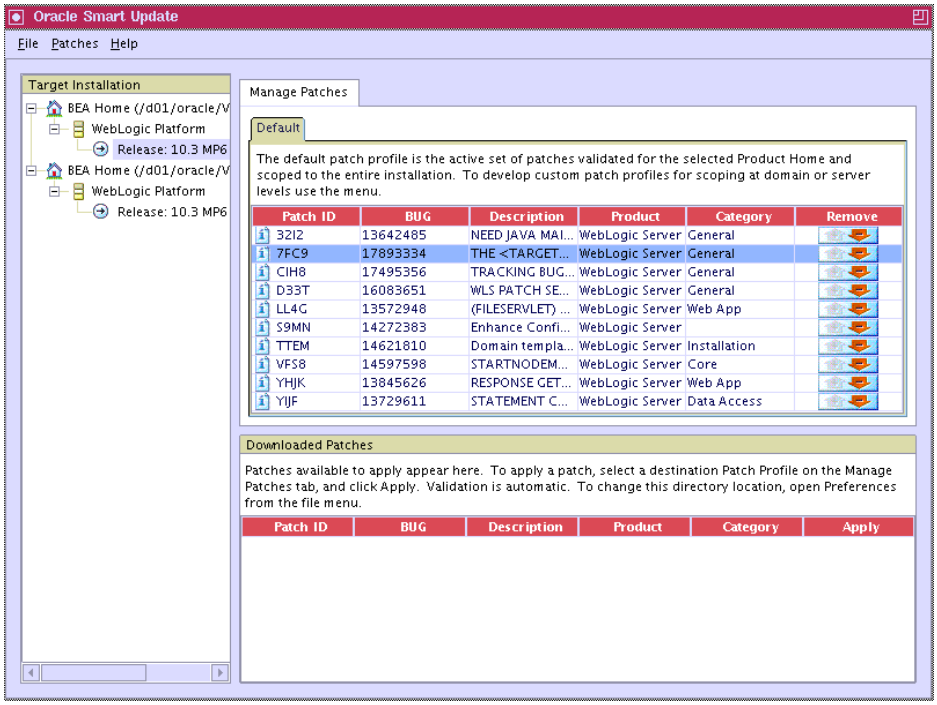

Figure 4-4 Manage Patches tab

4.3.4 Apply Consolidated Seed Table upgrade patch

The application of the Consolidated Seed Table upgrade patch is required on a new installation of Oracle E-Business Suite Release 12.2.0. All of the application patches need to be applied by using the `adop` utility.

Stop all Application tier services on the “run” file system:

```
$ adstpall.sh
```

Start only WebLogic AdminServer service on the “run” file system:

```
$ adadminsrvctl.sh  start
```

Copy the patch `17204589` into `/d01/oracle/VIS/fs_ne/EBSapps/patch` directory and apply it using the `adop` utility:

```
$ adop phase=apply patches=17204589 hotpatch=yes
```

After successfully installing the patch, it will show the status “0”.

4.3.5 Apply the latest AD and TXK Delta Release Update Packs

The list of AD and TXK Delta patches are updated periodically in MOS note 1617461.1. In the example installation of Oracle E-Business Suite Release 12.2, the following patches were listed:

- Patch 19197270:R12.AD.C.Delta.6
- Patch 19330775:R12.TXK.C.Delta.6

- Patch 20677045:R12.TXK.C
- Patch 20864702:R12.TXK.C

The latest AD-TXK code-level has a dependency on Oracle Fusion Middleware Patch 19462638.

Copy the AD and TXK patches to the `/d01/oracle/VIS/fs_ne/EBSapps/patch` directory.

Copy the file `19197270/admin/adgrants.sql` to database tier's `ORACLE_HOME/appsutil/admin` directory. Rename it to `19197270_adgrants.sql`.

Connect to the database from database tier using `sqlplus` and run `19197270_adgrants.sql`:

```
$ sqlplus /nolog
SQL*Plus: Release 11.2.0.3.0 Production on Mon Dec 04 16:52:59 2014
Copyright (c) 1982, 2011, Oracle.  All rights reserved
SQL> @/d01/oracle/VIS/11.2.0/appsutil/admin/19197270_adgrants.sql   APPS
SQL> quit
```

After running these scripts successfully, go back to the application tier and install the patches as follows:

```
$ adop phase=apply patches=19197270
```

This utility asks for the APPS, SYSTEM, and WLSADMIN passwords. The default password for SYSTEM is `manager` and `apps` for APPS. The password for WLSADMIN was set at the time of installing the application tier components.

Apply Patch `19330775:R12.TXK.C.Delta.6` merged with Patch `20677045:R12.TXK.C` and Patch `20864702:R12.TXK.C` (plus an additional critical patch: Patch `21132723:R12.AD.C`)

Always refer to MOS Doc ID 1617461.1 Sec. 4 for latest critical patches and include them as follows:

```
$ adop phase=apply patches=19330775,20677045,20864702,21132723 merge=yes
```

If any one of these **`adop`** commands is unsuccessful, fix the problems and run it again with the additional option **`abandon=yes`**:

```
$ adop phase=apply patches=19330775,20677045,20864702,21132723 merge=yes
abandon=yes
Apply Patch 19259764:R12.FND.C
$ adop phase=apply patches=19259764
```

If the patches are successfully applied, the command exits with the status “0”, as shown here:

“`adop exiting with status = 0 (Success)`**”**

So far, the required patches were installed on both the database and application tiers as preparation tasks before applying the main patch that upgrades Oracle E-Business Suite to version 12.2.4.

To patch file system `fs2` to be consistent with run file system `fs1`, run **`adop`** with the **`fs_clone`** option:

```
$ cd  /d01/oracle/VIS
$ .  EBSapps.env  run
$ adop phase=fs_clone
```

After the **`adop`** command successfully synchronizes the file systems, apply the main patch as shown in the next section.

4.3.6 Upgrade to E-Business Suite Release 12.2.4

Copy the patch `17919161` into the `/d01/oracle/VIS/fs_ne/EBSapps/patch` directory.

Bring down all of the application services, including WebLogic AdminServer and Node manager:

```
$ adadminsrvctl.sh stop
$ adnodemgrctl.sh stop
```

Note: Create a full backup of the application and database tiers at this stage.

Apply the patch 17919161 in `downtime` mode using **`adop`** utility:

```
$ adop phase=apply apply_mode=downtime patches=17919161
```

Watch the progress from the log file that this command shows. At end of the **`adop`** command execution, if the patch is successfully applied, it displays the following line:

```
"adop exiting with status = 0 (Success)".
```

If the command failed for some reason, refer to the log files and fix the problems.

Run the **`adop`** command again with **`abandon=yes`**.

Start all of the Application tier services on the run file system:

```
$ adstrtal.sh
```

All of the services should come up online without any issues.

4.3.7 Cleanup and clone

Use **`adop`** command to clean up old objects, obsolete cross-edition triggers, and seed data. There are three available cleanup modes: Quick, standard, and full. The default is standard:

```
$ adop phase=cleanup
```

After the cleanup task is successfully completed, start the final synchronization of the file systems:

```
$ adop phase=fs_clone
```

After the clone phase is completed, both run `fs1` and patch `fs2` file systems are consistent.

If the clone phase has failed, see the log files and fix the problems. Then rerun the failed clone task by using the option **`force=yes`**.

This concludes the upgrade of Oracle E-Business Suite Release 12.2.0 to 12.2.4.

4.3.8 Verify the upgrade

In the database tier, connect to the database with the user `apps` to verify that the version has been updated to 12.2.4. Run the following SQL statement and check the output:

```
$ . /d01/oracle/VIS/11.2.0/VIS_p232n134.env
$ sqlplus apps/apps
SQL> select release_name from fnd_product_groups;
```

```
RELEASE_NAME
----------------------------------------------------
12.2.4
```

Log in to application manager using a web browser as follows:

`p232n133.pbm.ihost.com:8000/OA_HTML/AppsLogin`

Log in with user SYSADMIN and default password `sysadmin` as shown in Figure 4-5.

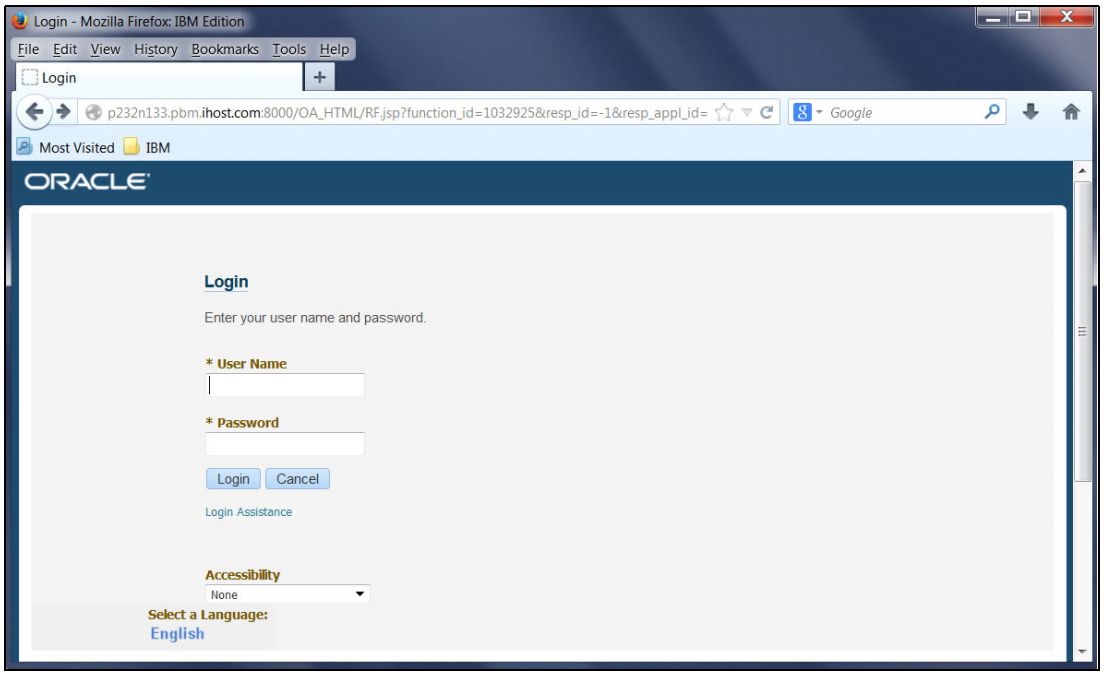

Figure 4-5 Oracle login window

The default window opens as shown in Figure 4-6.

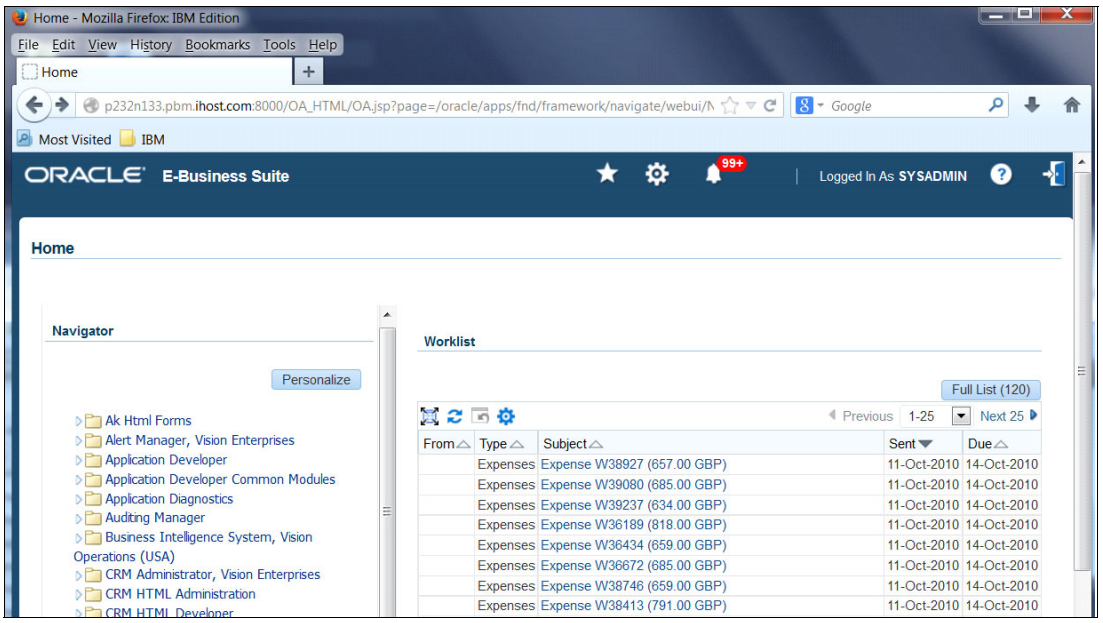

Figure 4-6 Default E-Business Suite window

Click **System Administration** → **Applications System status**, which opens the Applications Dashboard and shows systems status of both the database and application tiers. By clicking **Host Server** for the database tier or application tier, you can view the status, configuration, and more as shown in Figure 4-7.

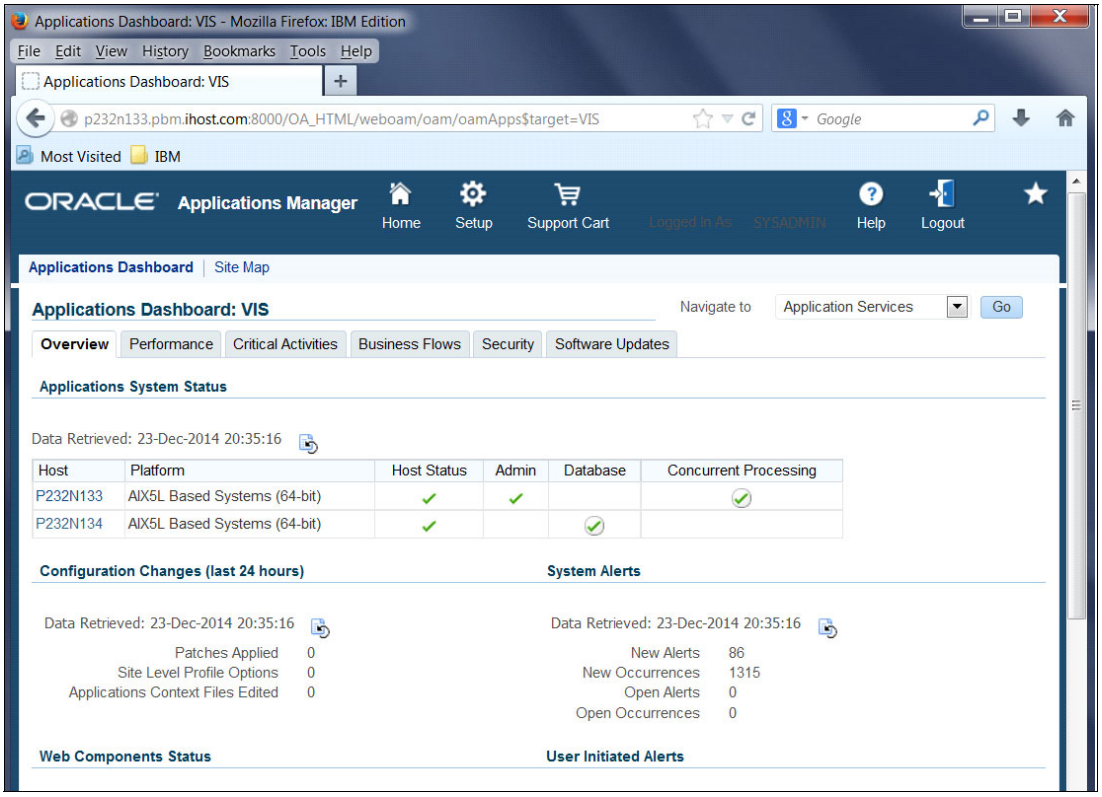

Figure 4-7 Details window

Click **Software Updates**, which shows the application system version 12.2.4 and all of the auto patches applied. You can also connect to the Oracle WebLogic Server by using the browser:

`p232n133.pbm.ihost.com:7001/console/`

Use the default user name `weblogic` and the password that you set for the `WLSAdmin` user when installing Oracle E-Business Suite as shown in Figure 4-8.

Figure 4-8 Sign in for updates

The Summary of Servers window is displayed as shown in Figure 4-9.

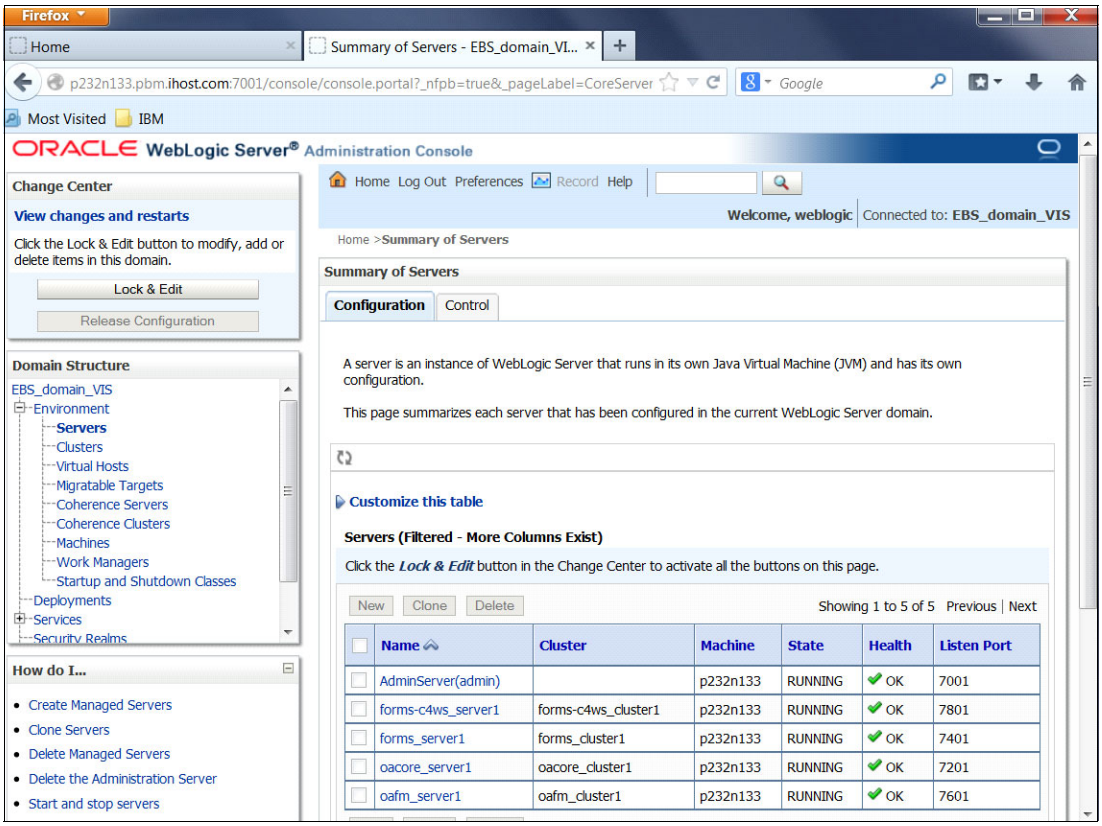

Figure 4-9 Summary of Servers window

The services and servers can be managed by Oracle WebLogic Server. For more about Oracle WebLogic server for Oracle E-Business suite Release 12.2, see the *Oracle E-Business Suite Setup Guide release 12.2*, available at:

http://docs.oracle.com/cd/E51111_01/current/acrobat/122ebssu.pdf

5

Starting and stopping all services

This chapter describes the final phase of the upgrade, which involves starting and stopping all of the services.

This chapter includes the following sections:

- In the database tier
- In the application tier

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5.1 In the database tier

Set the environment file at `/d01/oracle/VIS/11.2.0/VIS_p232n134.env`.

The scripts are available in the `$ORACLE_HOME/appsutil/scripts/VIS_p232n134` directory.

- Start the DB listener:

  ```
  addlnctl.sh start VIS
  ```

- Start the database:

  ```
  addbctl.sh start
  ```

- Stop the database:

  ```
  addbctl.sh stop
  ```

- Stop the DB listener:

  ```
  addlnctl.sh stop
  ```

5.2 In the application tier

Source the environment file `EBSapps.env` at `/d01/oracle/VIS` with the `run` file system.

Start all the application servers:

```
adstrtal.sh
```

Provide APPS user name and password (Default: apps/apps). The WebLogic Admin Server password is set at the time of installation.

Stop all the application servers:

```
adstpall.sh
```

For all other scripts for starting and stopping Node manager, Admin server, and others, see the scripts in the following directory:

`/d01/oracle/VIS/fs1/inst/apps/VIS_p232n133/admin/scripts.`

Related publications

The publications listed in this section are considered particularly suitable for a more detailed discussion of the topics covered in this paper.

IBM Redbooks

The following IBM Redbooks publications provide additional information about the topic in this document. Note that some publications referenced in this list might be available in softcopy only.

- *IBM Power Systems S814 and S824 Technical Overview and Introduction*, REDP-5097

You can search for, view, download or order these documents and other Redbooks, Redpapers, Web Docs, draft and additional materials, at the following website:

ibm.com/redbooks

Other publications

These publications are also relevant as further information sources:

- *Applying the latest AD and TXK Release Update Packs to EBS R12.2,* 1617461.1
- *Oracle E-Business Suite Concepts Release 12.2,* E232949-09
- *Oracle E-Business Suite Release 12.2: Consolidated List of Patches and Technology Bug Fixes,* 1594274.1
- *Oracle E-Business Suite Setup Guide release 12.2*, E22953-10

Online resources

These websites are also relevant as further information sources:

- *Oracle E-Business Suite Concepts Release 12.2*

  https://docs.oracle.com/cd/E51111_01/current/acrobat/122oacg.pdf
- IBM Power Systems servers with POWER8 technology and processors

  http://www.ibm.com/systems/power/index.html
- *E-Business Suite Application R12 (12.1.3) Extra-Large Payroll (Batch) Benchmark - Using Oracle11g on an IBM Power System S824*

  http://www.oracle.com/us/solutions/benchmark/ebs-r12-payora-lrg-ibm-p8-12-core-2195365.pdf
- AIX Tool Box for Linux Applications

  http://www.ibm.com/systems/power/software/aix/linux/toolbox/date.html
- Document library for Oracle E-Business Suite Release 12.2

  https://docs.oracle.com/cd/E51111_01/current/html/homeset.html

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- Download sudo-1.6.9p23-2noldap from AIX Toolbox for Linux Applications
  http://www.ibm.com/systems/power/software/aix/linux/toolbox/date.html
- Download Oracle E-Business Suite from the Oracle Software Delivery Cloud
  https://edelivery.oracle.com/
- IBM XL C++ Runtime for AIX Fix Pack 2 (July 2013 PTF) for 12.1
  http://www.ibm.com/support/docview.wss?uid=swg24035416
- adop utility
  http://docs.oracle.com/cd/E26401_01/doc.122/e22954/T202991T531062.htm#5281339

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