

ORACLE 10G Version 2

HDB Installation Guidelines for Redhat Rel4

Author: Mark A. Bogner
CADSWES HDB Project Leader

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Section 1.0 Introduction

There are numerous ways to install an ORACLE database and still be able to get a working system. It is basically the responsibility of the system and database administrators to decide what is best for the organizational needs as well as take in consideration standard business practices and unique organizational practices to determine what is the best strategy to take to be able to install and provide a working HDB database.

Section 1.1 Scope

The scope of this document is for the installation of an HDB database on a Linux operating system. The basic installation has been thoroughly tested on a REDHAT REL4 version. Other Linux systems other than REDHAT REL4 that are supported by ORACLE will generally work with some minimal changes but it is up to the individual sites that prefer any of these operating systems to address any particular operating system issues. At the time of the writing of this document, there has been a successful ORACLE 10g HDB installations on REDHAT and SUSE operating systems, so HDB installations on various LINUX operating systems are achievable.

This document does not address the installation of the ORACLE software itself. The installation of ORACLE software is beyond the scope of this document. The installation of ORACLE software is very specific to the machine hardware and software, and is generally handled by the system administrators of the computer. Additionally there is ample documentation from ORACLE Technology web site and from other websites that do a far more adequate job detailing any issues for software installation and system specific settings. It is advised that great attention to detail is given during the software installation process. Many system specifics need to be set accordingly or eventually the database installation will fail or the database will fail on start up.

WARNING: During ORACLE software installation, the ORACLE installer from the ORACLE installation disks, will ask if a default database should be installed. DO NOT choose this option. The HDB database creation will be accomplished at a

later time and will be addressed in this document separately.

Section 1.2 System prerequisites

The ORACLE software installation program is designed to check the needed parameters to get a successful database running. The ORACLE software installation guides will be helpful in solving any installation issues. After the ORACLE software has been installed you should edit the correct profile file according to the shell environment you have set for the ORACLE account. At the minimum, the ORACLE_BASE, ORACLE_HOME, ORACLE_SID, HDB_LOCAL, PATH, and LD_LIBRARY_PATH environment variables should be set. Assuming one uses c or t shell as the default shell, the following is a basic example of the commands placed in the .cshrc file that sets the required environment variables:

```
setenv ORACLE_BASE /ora01/oracle
setenv ORACLE_SID your_db_name
setenv HDB_LOCAL your_db_name
setenv ORACLE_HOME /ora01/oracle/product/10.2.0
setenv LD_LIBRARY_PATH "$ORACLE_HOME"/lib
setenv PATH "$PATH":"$ORACLE_HOME"/bin
```

NOTE: The default choice of the ORACLE account shell is entirely up to the preferences of the administrator. The commands necessary to set the environment variables will vary with the choice of the shell. For example the above commands will not work if utilizing the BASH shell.

To create the HDB database you need the most current schema creation scripts. They can be downloaded from the HDB portion of the CADSWES web site at cadswes.colorado.edu. Under the HDB User access section of the website, you will download three files. The installation guide is text file with a very generic description of the tasks that are necessary to get an HDB database up and running at your location. This file also outlines the basic steps and the supporting documentation that is available for each step. The installation tar file is a compressed file of all the scripts, documentation,

application executables and support files that you may need to access. The installation script is the script that will correctly un-tar the installations scripts in the required directory structure. Optionally, the source code can be downloaded if you wish to either modify the code for your specific needs or to recompile the software so that the executables are compatible with your particular operating system.

Once you do the download and properly execute the installation script, go to the doc directory of the release download and copy the file `HDB_database.dbt` to the `$ORACLE_HOME/assistants/dbca/templates` directory. This file is the HDB template that defines the database for the Database Configuration Assistant (DBCA) application.

NOTE: Failure to copy the HDB template to the proper directory will result in the DBCA not having an HDB database creation option and will require you to perform additional work unnecessarily to create the database as is needed.

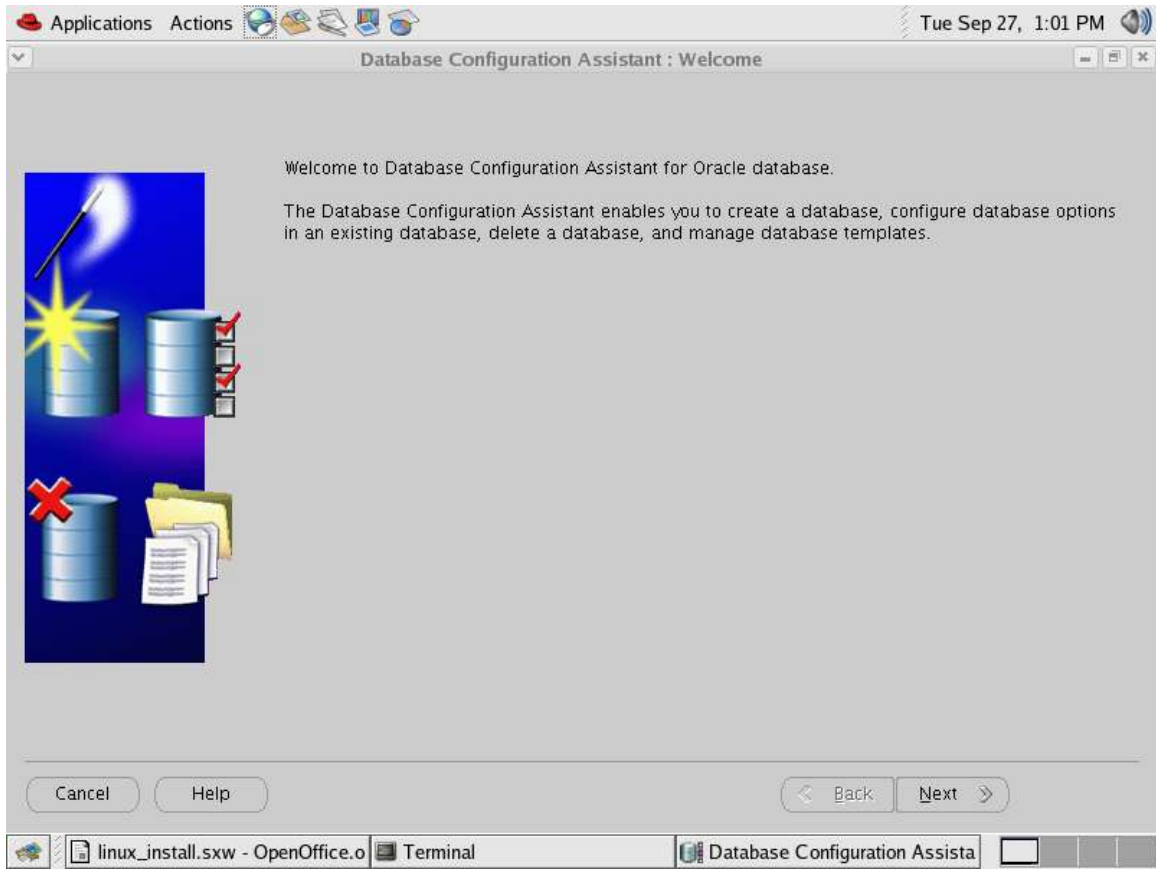
Section 2.0 HDB Database Installation

ORACLE provides a GUI tool that is easy to use and fairly easy to reconfigure its defaults so that you can create and configure your HDB database. This GUI application is known as the Database Configuration Assistant or DBCA for short. To start the creation of the HDB database, log into your ORACLE account, assume you have set your default path to include `$ORACLE_HOME/bin` and execute:

```
dbca
```

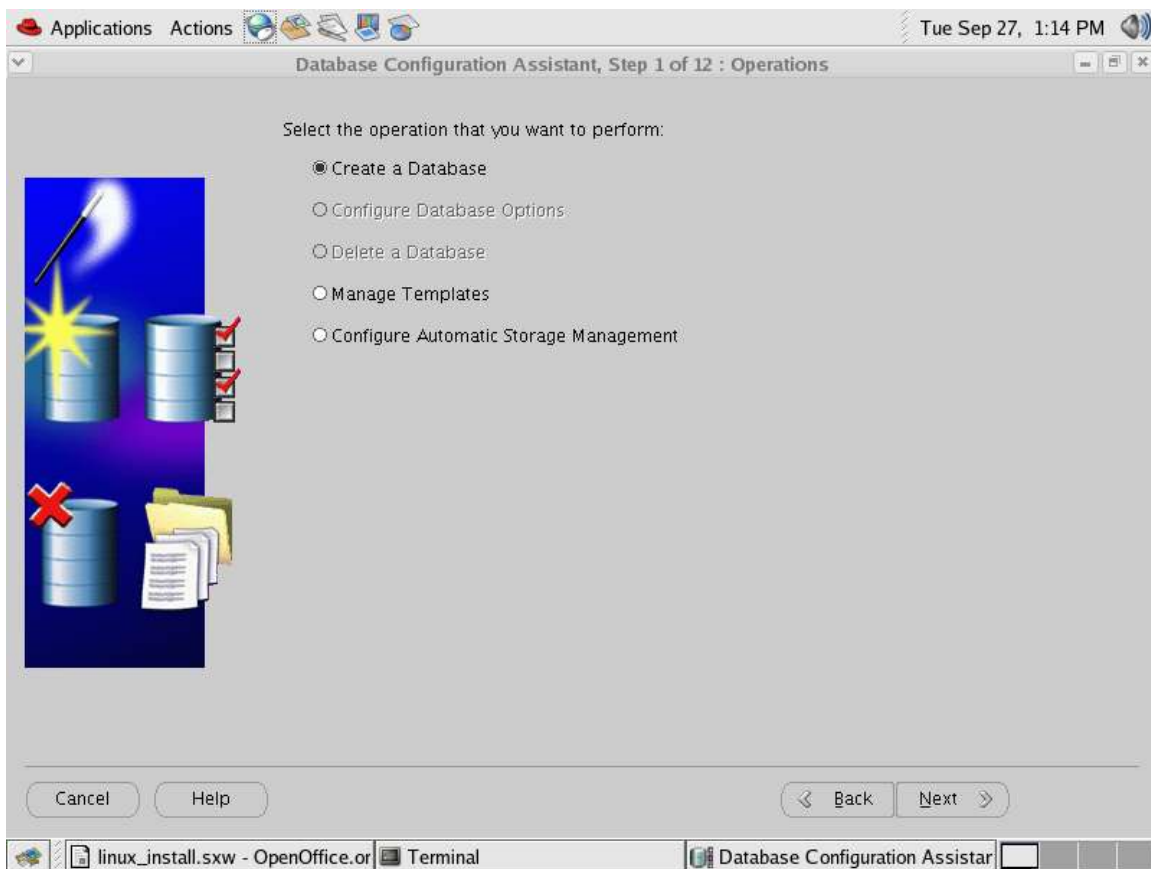
Section 2.1 Step 0 Database Configuration Assistant- Welcome screen

If you have successfully executed the DBCA application, the following welcome screen will appear. Choose either the cancel to exit the application or choose the next button to go to the next screen.



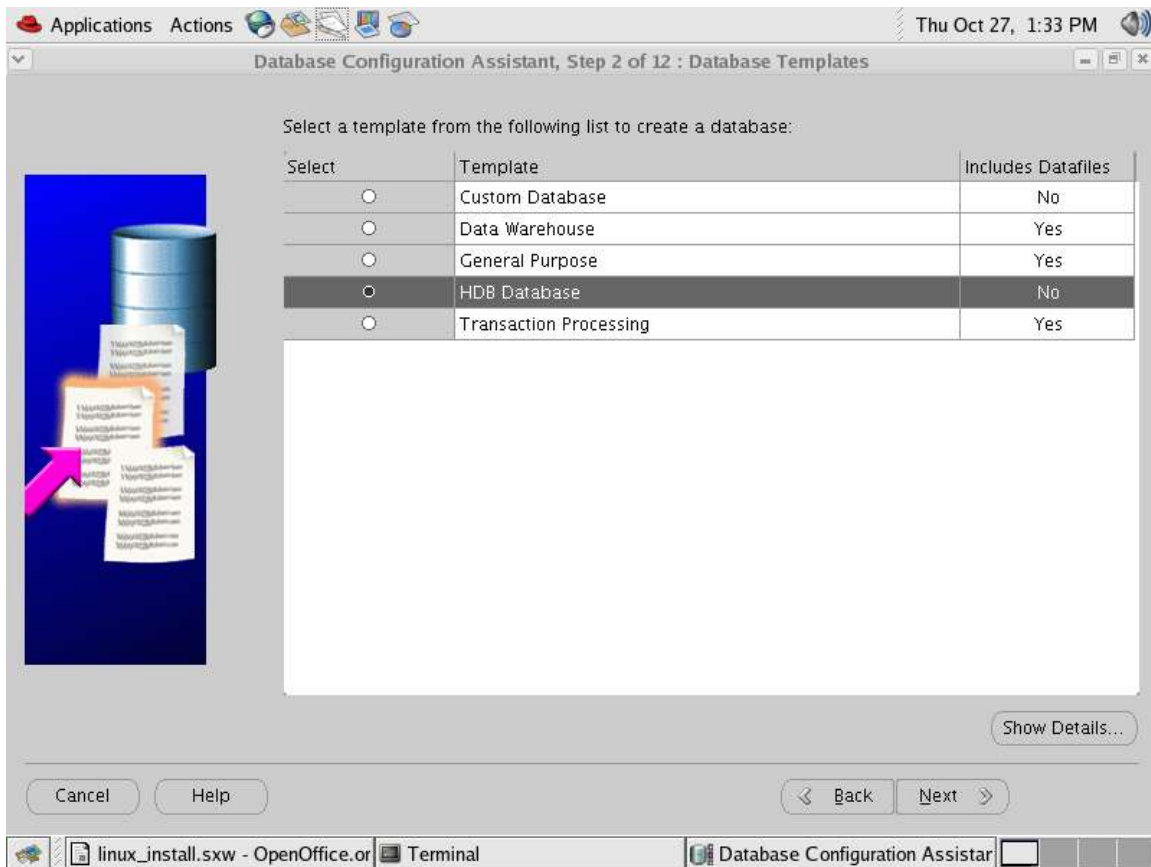
Section 2.2 Step1 Database Configuration Assistant – Operations

The DBCA provides multiple choices of operations you may want to perform on your database. You can delete or modify existing databases or modify parameters with this application. To create a new HDB database you would choose the first option of this screen. After you choose the Create a Database option, click on the next button to continue.



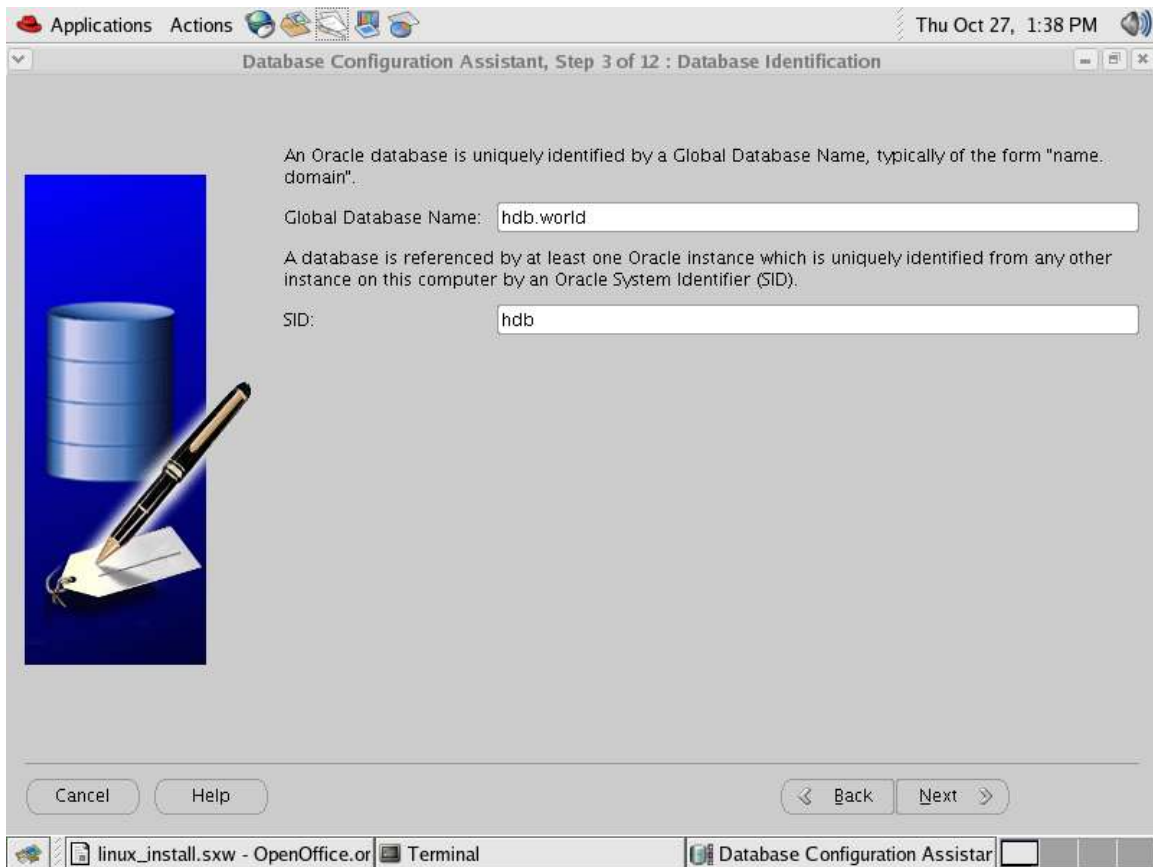
Section 2.3 Step 2 Database Configuration Assistant – Database Templates

The DBCA application provides several options for database templates when creating a database. Assuming you are creating a brand new HDB database, it is advised you select the HDB Database template option. This will allow you to additionally customize your database configuration and allow the capability to add custom data files to this database that are necessary for a properly configured HDB. Choose the next button to continue once you have selected the HDB database option.



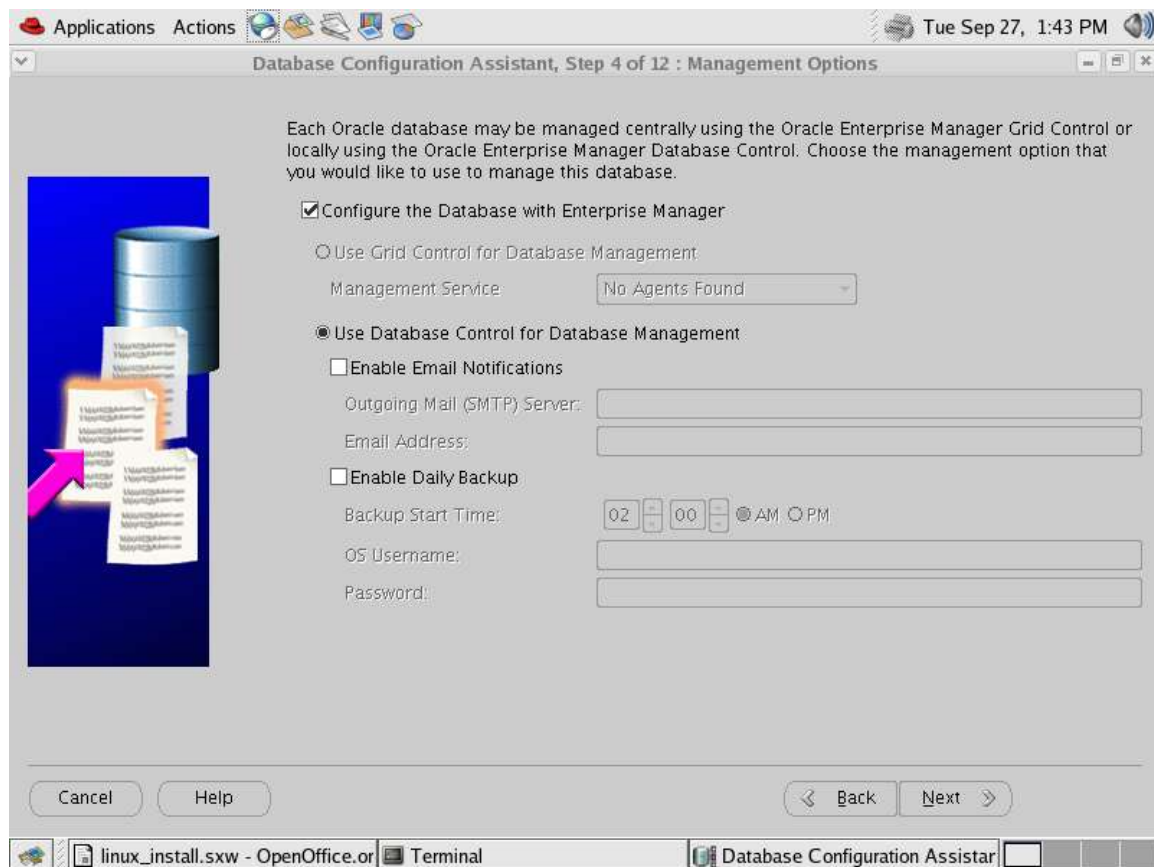
Section 2.4 Step 3 Database Configuration Assistant – Database Identification

You will want to utilize this screen to identify your HDB database. You have already previously set your ORACLE_SID environment variable to a certain name. It is recommended that you also use this name exactly in the two provided spaces and replace where it says “hdb”. After you enter the database name hit the next button to continue.



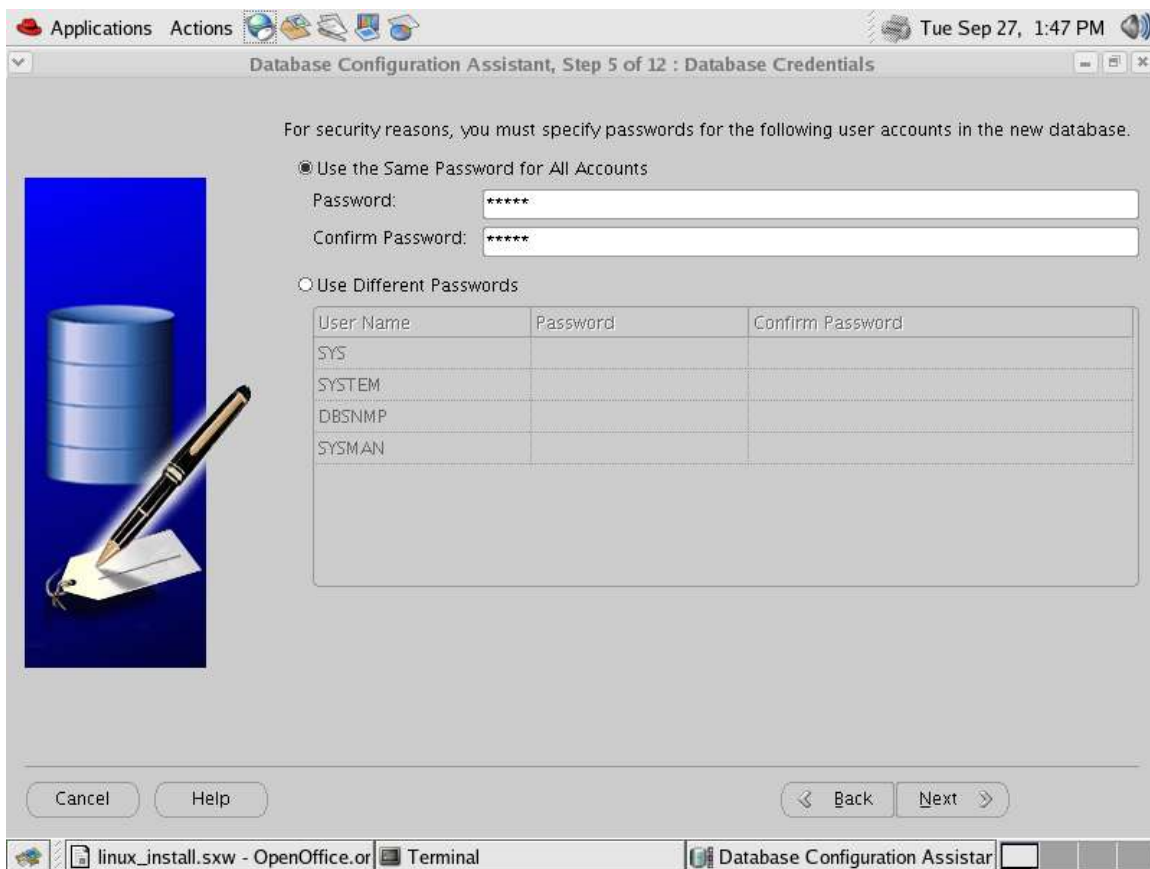
Section 2.5 Step 4 Database Configuration Assistant – Management Options

Unless you specifically have reasons for choosing other than the defaults of this screen and you intend to manage the HDB database in some other preconceived manner, it is recommended that you just choose the defaults of this screen and hit the next button to continue.



Section 2.6 Step 5 Database Configuration Assistant – Database Credentials

You have the option to manage your ORACLE accounts passwords from this screen. These passwords will be for initial ORACLE accounts creation and may be modified in the future also. So you may choose to set all your passwords the same or set them individually through this screen. Once you have chosen your action path and set the passwords accordingly, press the next button to continue.



Applications Actions Tue Sep 27, 1:47 PM

Database Configuration Assistant, Step 5 of 12 : Database Credentials

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

☒ Use the Same Password for All Accounts

Password: *****

Confirm Password: *****

☐ Use Different Passwords

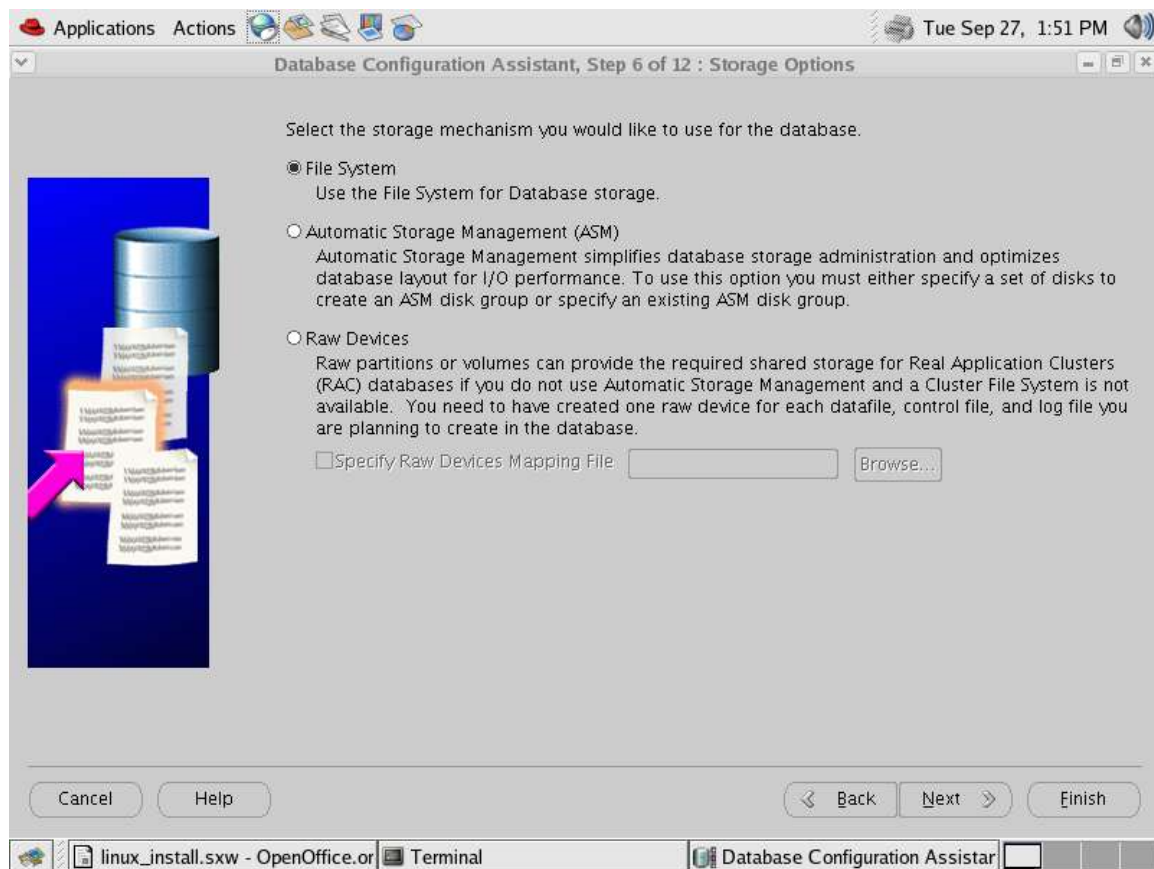
User Name	Password	Confirm Password
SYS		
SYSTEM		
DBSNMP		
SYSMAN		

Cancel Help Back Next

linux_install.sxw - OpenOffice.or Terminal Database Configuration Assistar

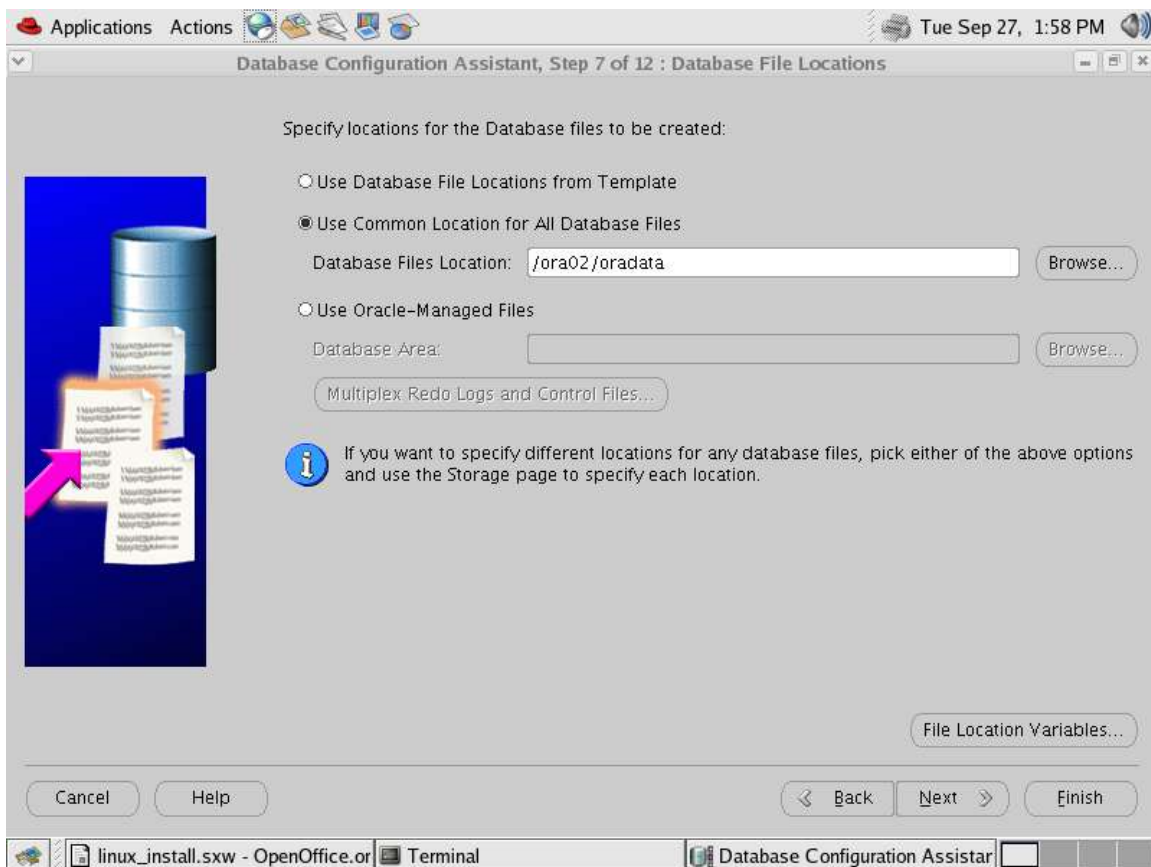
Section 2.7 Step 6 Database Configuration Assistant – Storage options

You have the option from this screen to choose the type of storage mechanism your database will use to store its data. Very little experience in the HDB world has been encountered about utilizing either the ASM or the raw devices. Historically, HDB has used the file system option exclusively. It is recommended that you use the File System option unless you have specific reasons not to. Once you choose your storage option press next to continue.



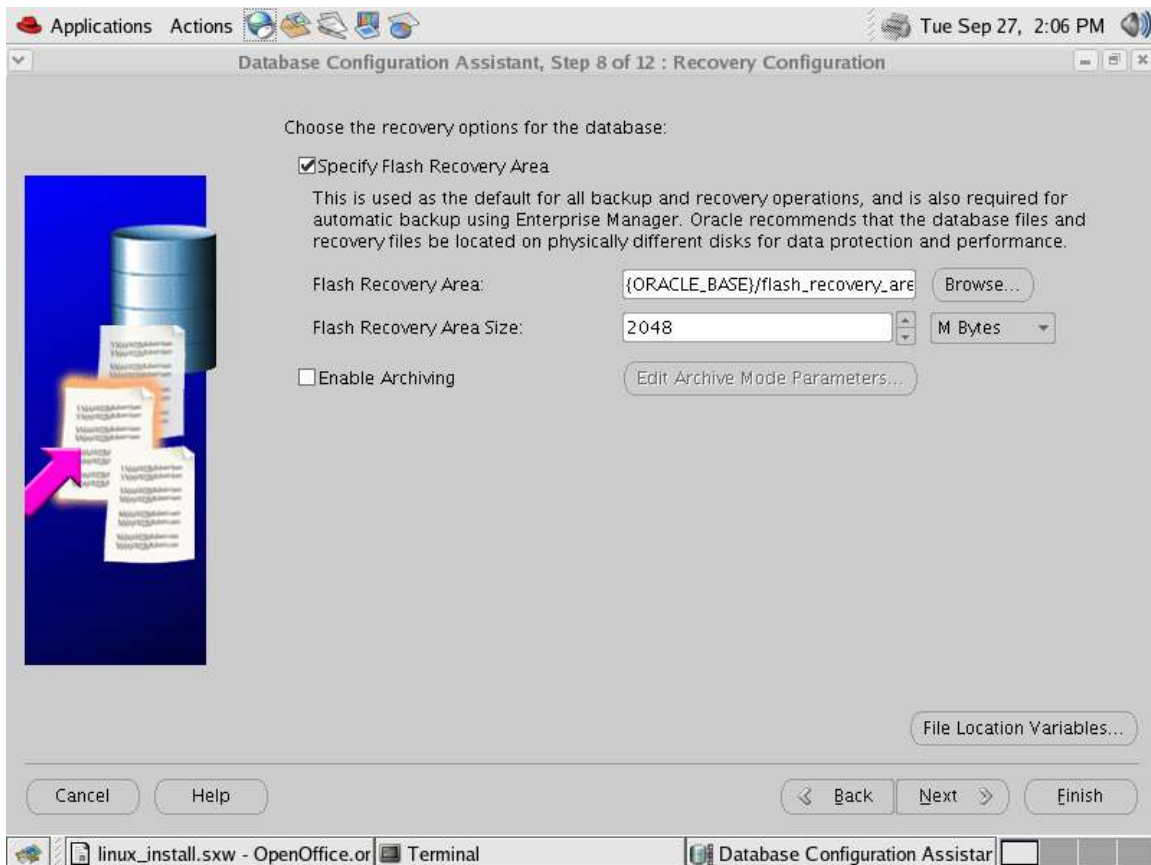
Section 2.8 Step 7 Database Configuration Assistant – Database File Locations

The database file locations screen allows you to choose the location of your database data files. However, in general, you should choose the best option for your installation and your available disk storage capabilities. It is recommended that on this screen you choose a general location and modify each data files specification accordingly on the Step 11 storage screen. Once you have picked your option here and specified the datafile location, press the next button to continue.



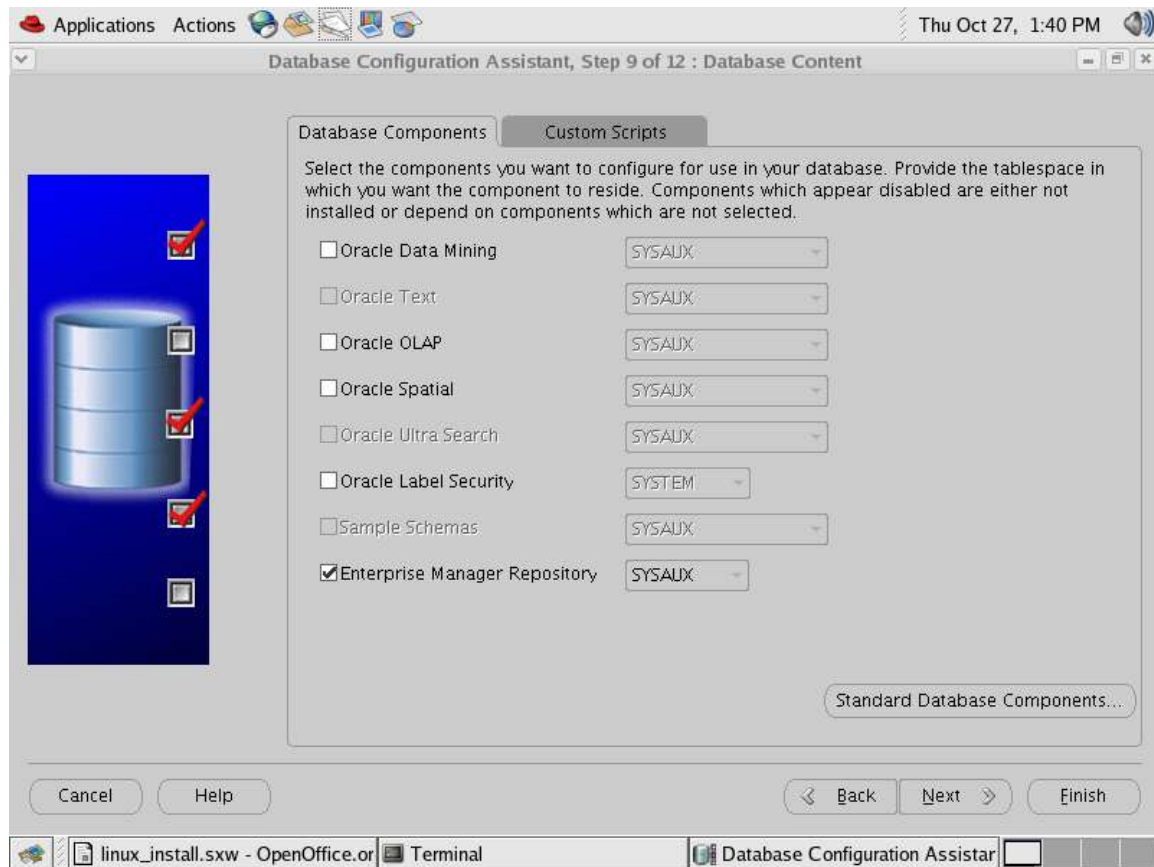
Section 2.9 Step 8 Database Configuration Assistant – Recovery configurations

This screen is used to decide what recovery methods you want to utilize for your database. It can be modified at a later time once you really decide how you want the recovery mechanism to operate. At this time it is advised to go with the default. Press the next button to continue.



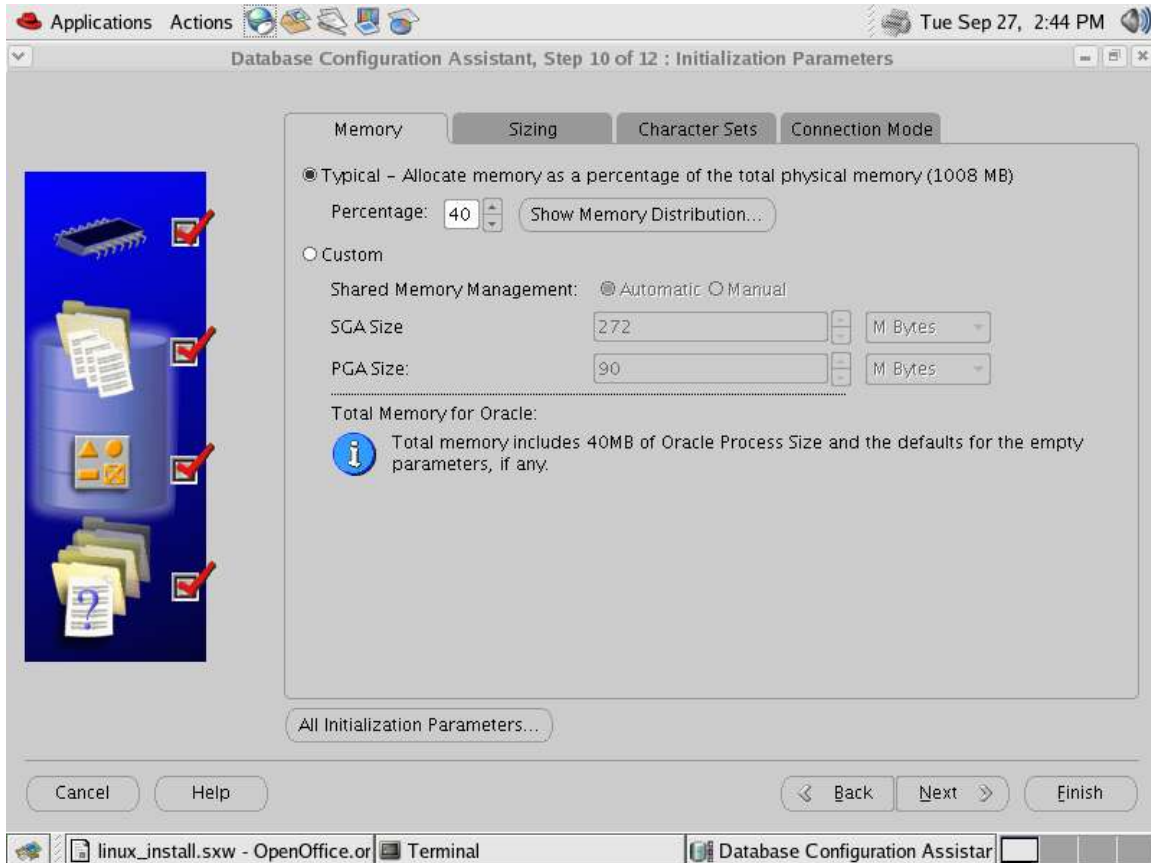
Section 2.10 Step 9 Database Configuration Assistant – Database Content

The HDB database currently does not require the installation any of these specific database components. It is recommended that you allow the defaults as they came from the template or individually select any needed options, and then press the next button to continue.



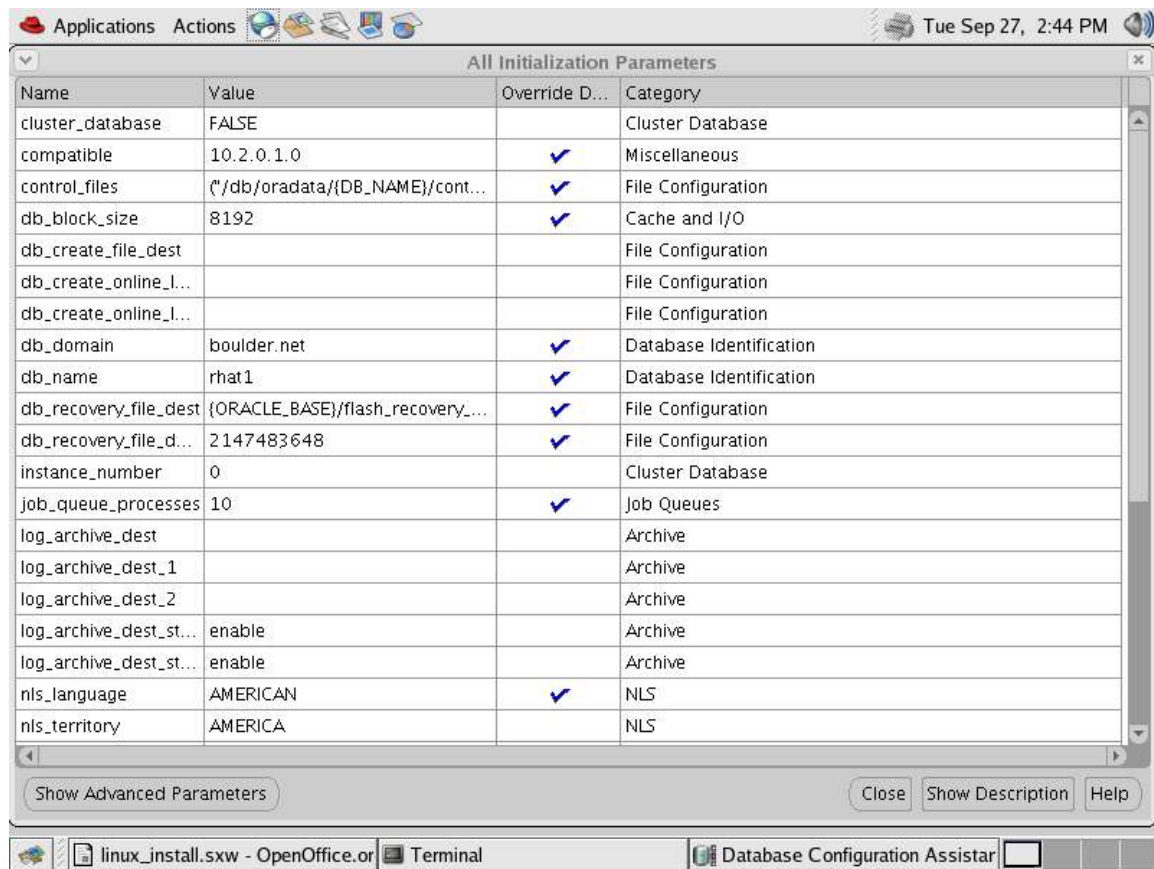
Section 2.11 Step 10 Database Configuration Assistant – Initialization Parameters

In general the defaults on this screen and all the initialization parameters set during this application will suffice. Press the next button to continue.



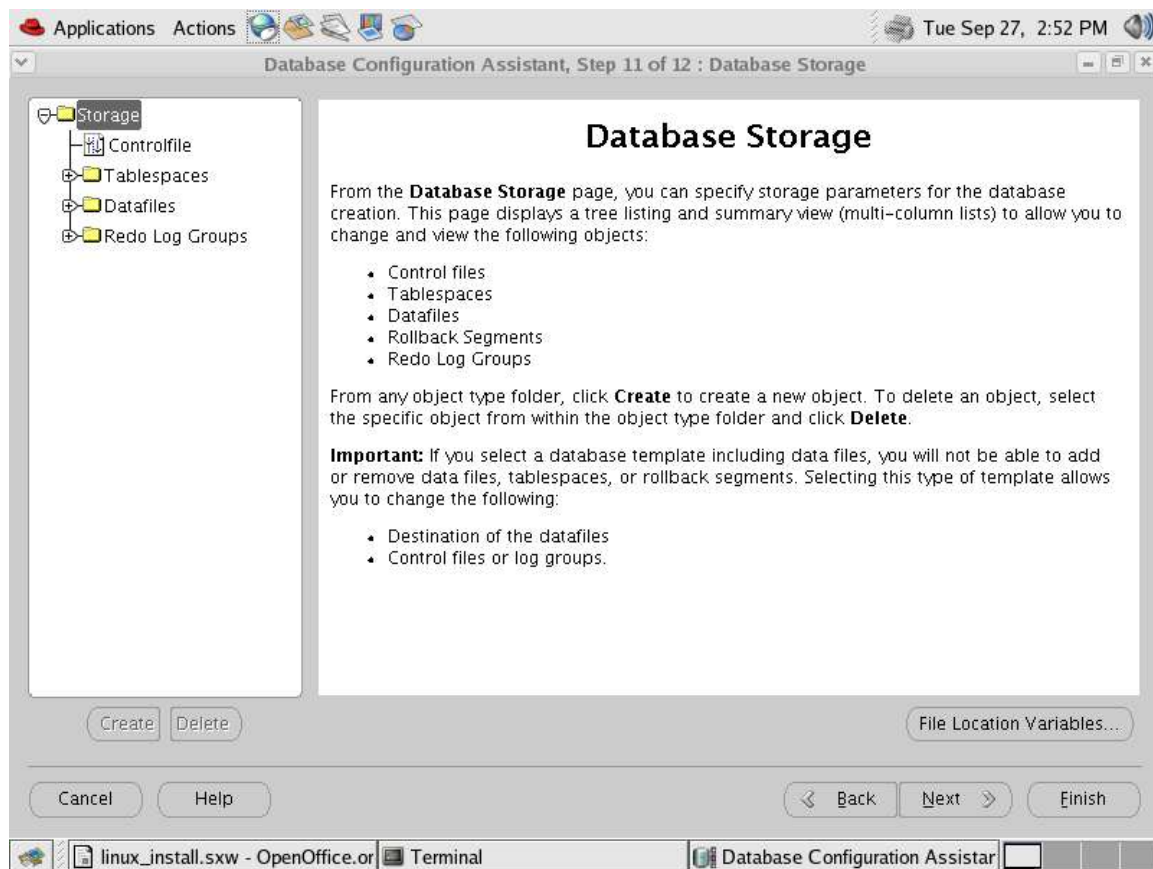
NOTE: If you choose the defaults then one side affect to this would be a weird global name for your database. It is advised that if you desire that your HDB database to be network accessible, then you may wish to set the db_domain name attribute now instead of later by looking at the following parameter screen and setting that default value and any other initialization parameters to their desired values.

The following screen is the screen presented by the Database Configuration Assistant. Utilize this screen to set any database parameters you know you wish to specifically set. There are more advanced parameters that may be set and can be listed if you press the “show Advanced Parameters” button located on the bottom left section of this screen.

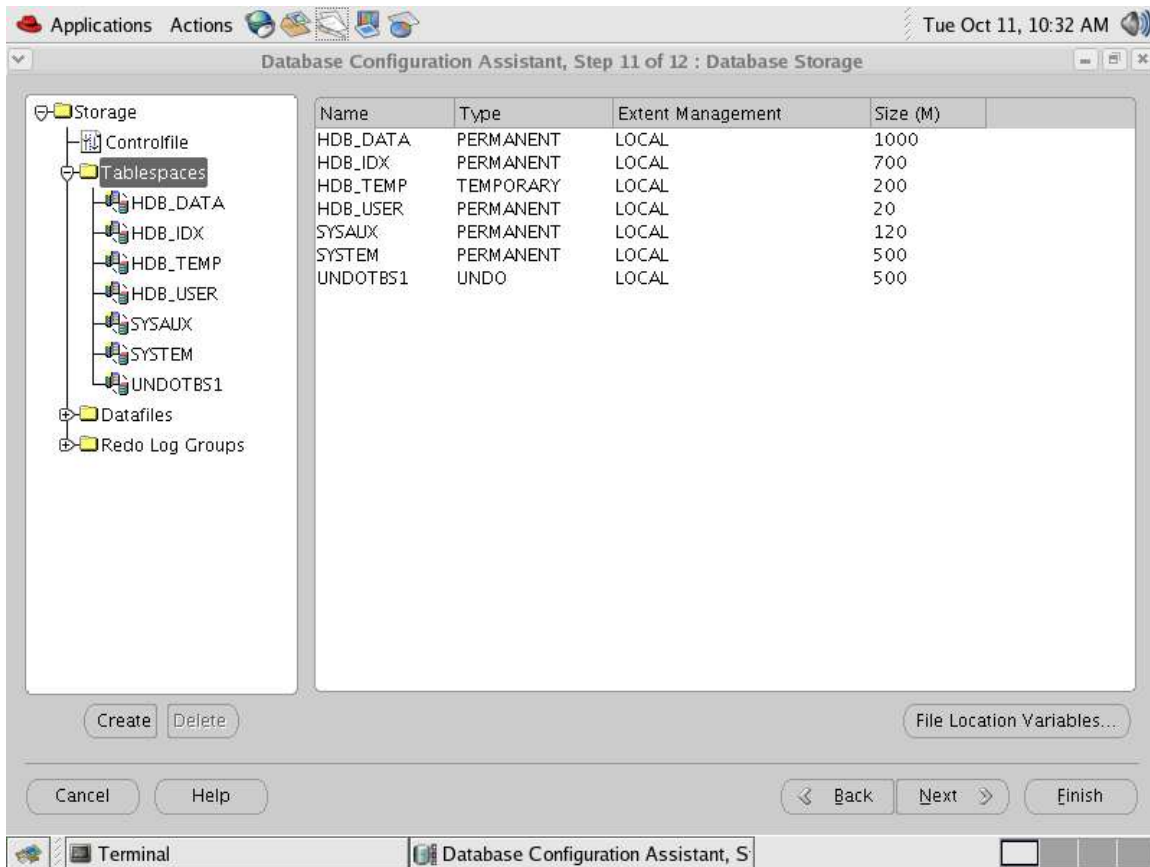


Section 2.12 Step 11 Database Configuration Assistant – Database Storage

This step is one of the most important steps in the creation of the HDB database. It is here where you will define the size and identify the data files your database will be using. It is important that you follow these directions exactly or the the supplied HDB schema creation scripts supplied create your HDB database schema and database objects will not function correctly.

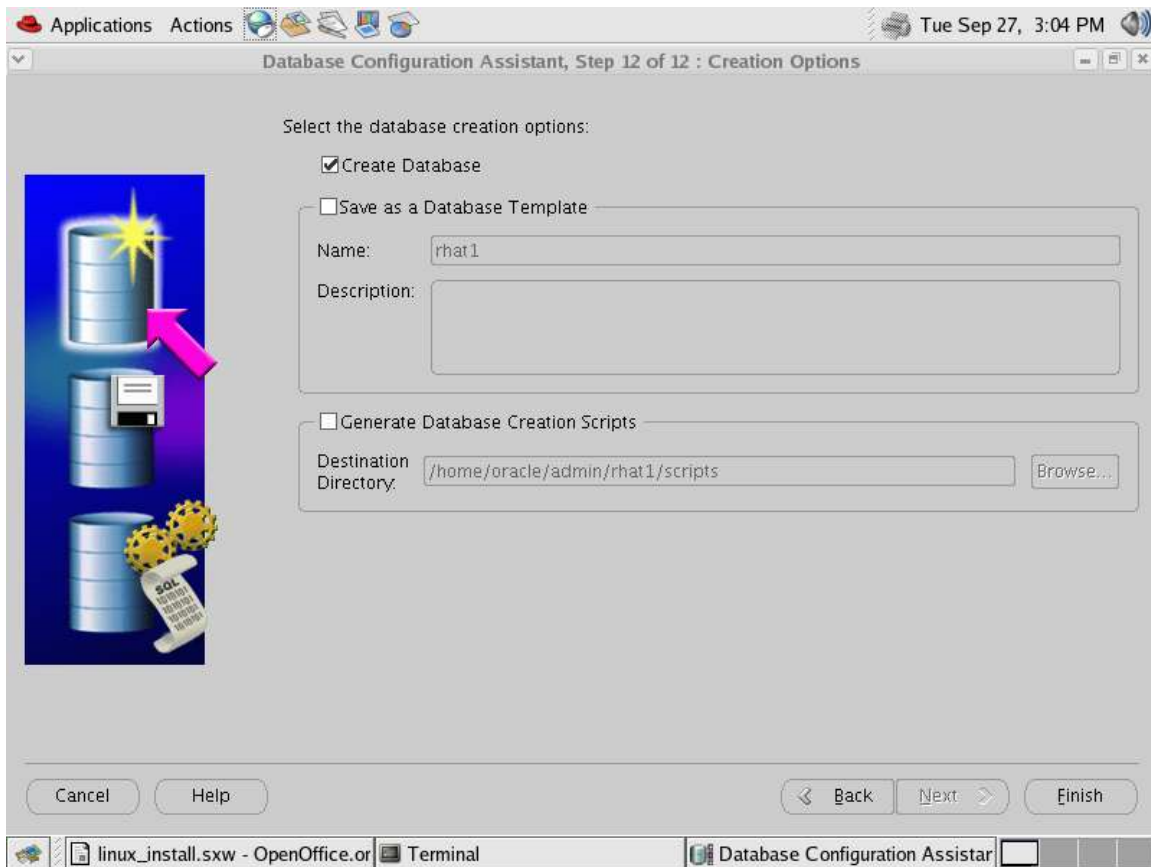


The following screen shot shows the HDB Database Tablespaces as they need to exist. The size of these tablespaces is site dependent and are set entirely up to your desires. The location of the data files is also site dependent and are up to the discretion of the database administrator. In general though, the use of the template should have the correct tablespaces but please insure that you have the following tablespaces: HDB_DATA, HDB_IDX, HDB_TEMP, and HDB_USER. HDB_TEMP is the only temporary tablespace and should be flagged to be used as the default temporary space. HDB_USER is usually the default tablespace for any additional users you want to give database capabilities to so size it accordingly. Once you are satisfied with the tablespaces and set the data files for these tablespaces appropriately, then press the next button to continue.



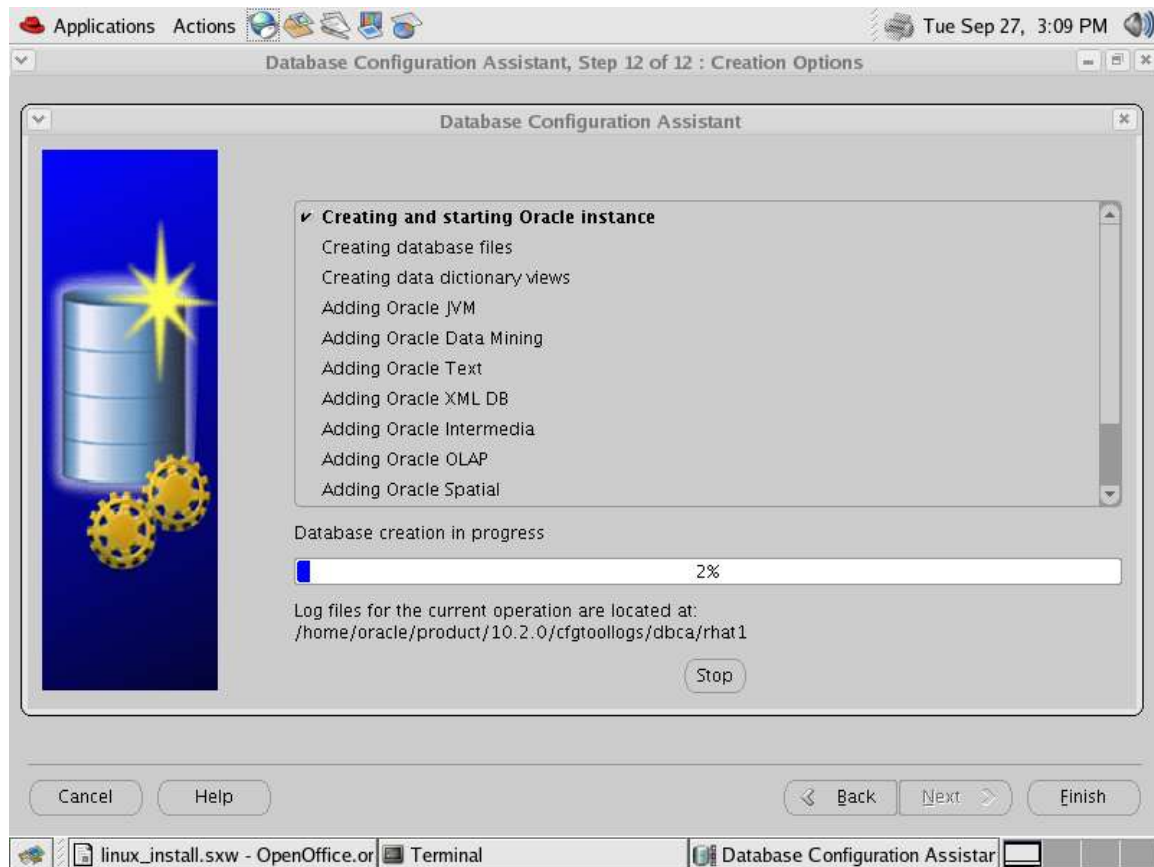
Section 2.13 Step 12 Database Configuration Assistant – Creation Options

Generally, you have now done all that is necessary to create a bare bones ORACLE database. This screen just wants to confirm if you want the database created or have the creation scripts just generated. Usually under normal circumstances, you will now want to create the database so just press the finish button to continue.



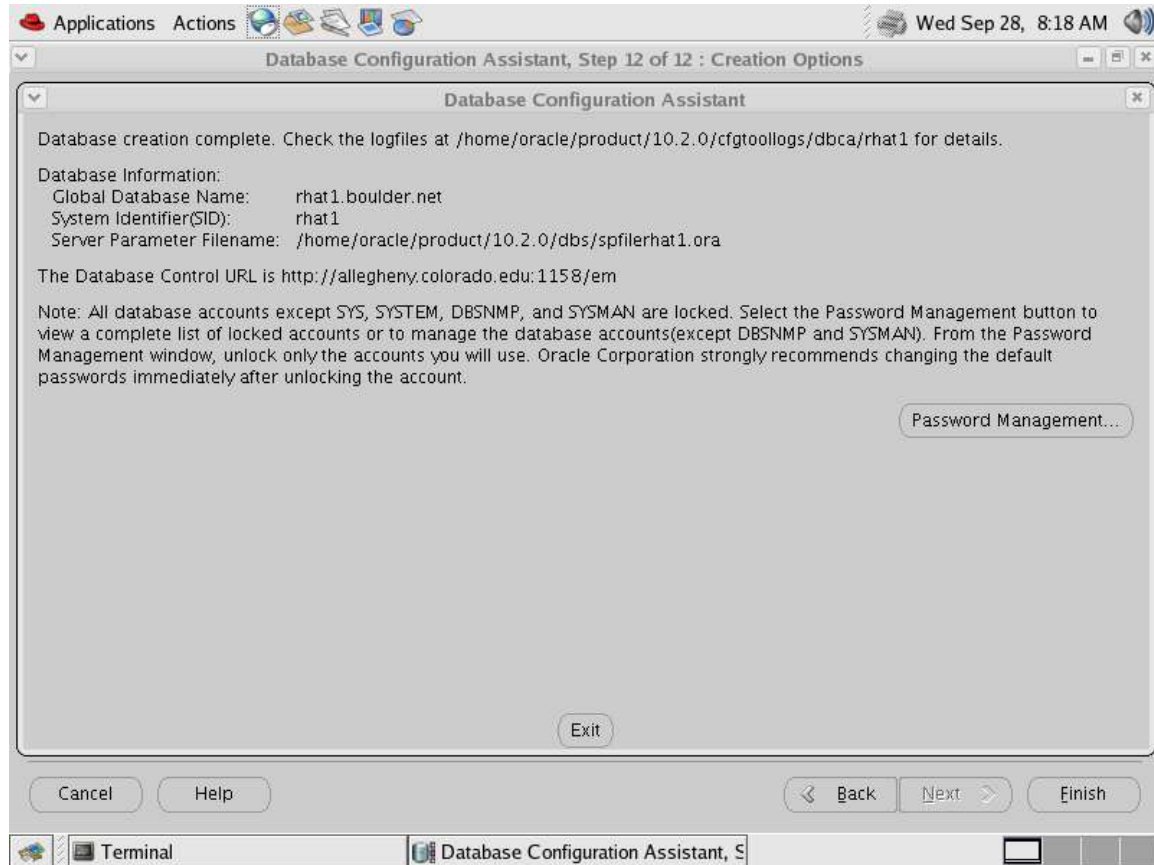
Section 2.14 Database Configuration Assistant – Database Creation

Once you have set all the necessary parameters and declared the additional database data files then the program will create the database. You will see this screen. The Database Configuration Assistant application will be performing many task that create and add additional modules to the database. It is possible that this process will take an extended amount of time so be patient.



Section 2.15 Database Configuration Assistant - - Completion

After some time, the DBCA will return with the following screen that verifies that you have successfully created an ORACLE database. If you encounter any errors, return to the steps that generated the errors and attempt the process again.



Section 3.0 ORACLE Post-installation Tasks

The DBCA application will have created the database but it leaves the database in an idle state. No SQL or database connections can be accomplished until the database is started.

Section 3.1 Startup of the HDB ORACLE 10g Database

To start up the database, from the Linux oracle account enter :

```
oracle$ sqlplus /nolog
SQL> connect / as sysdba
SQL> startup
```

you should now get several messages on the screen that generally look like the following:

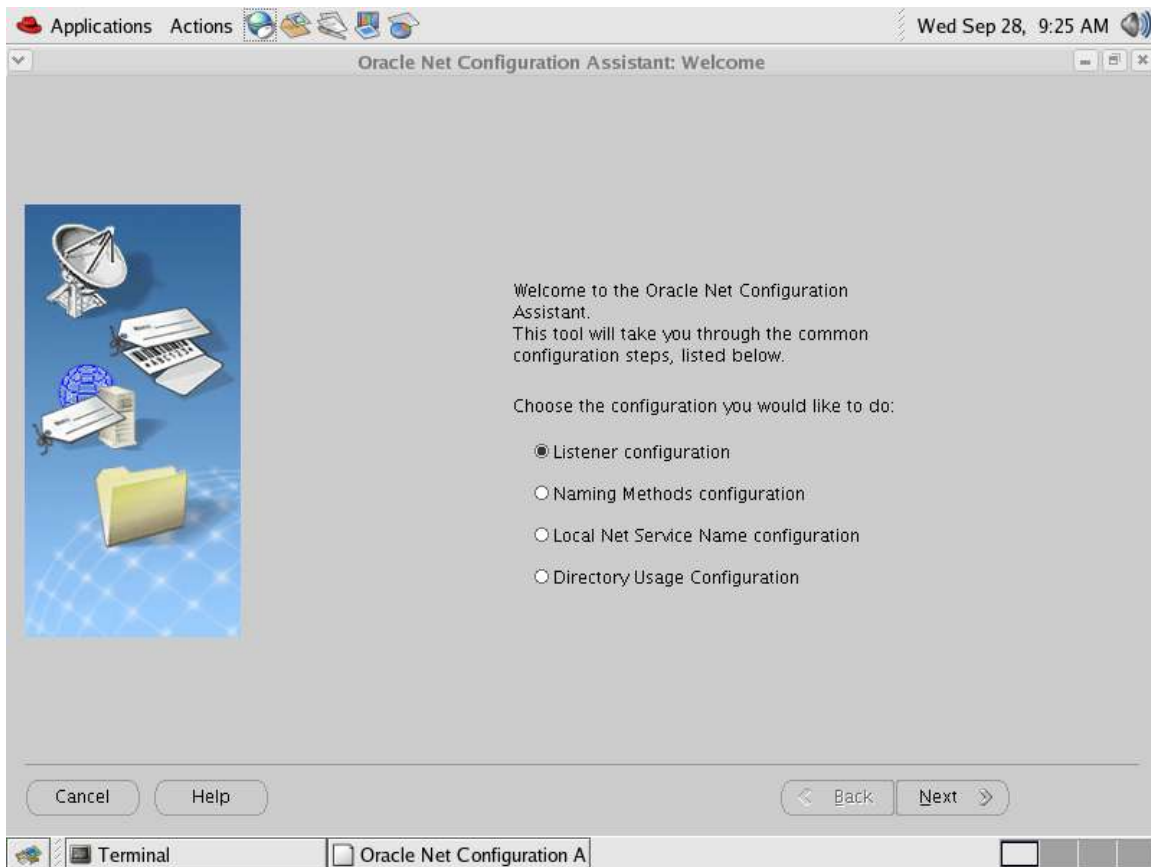
ORACLE instance started.

```
Total System Global Area 285212672 bytes
Fixed Size                  1218992 bytes
Variable Size               92276304 bytes
Database Buffers            188743680 bytes
Redo Buffers                 2973696 bytes
Database mounted.
Database opened.
SQL>
```

If you receive these types of messages then your database is now up and running. Otherwise, note the startup errors, fix the problem and attempt the restart.

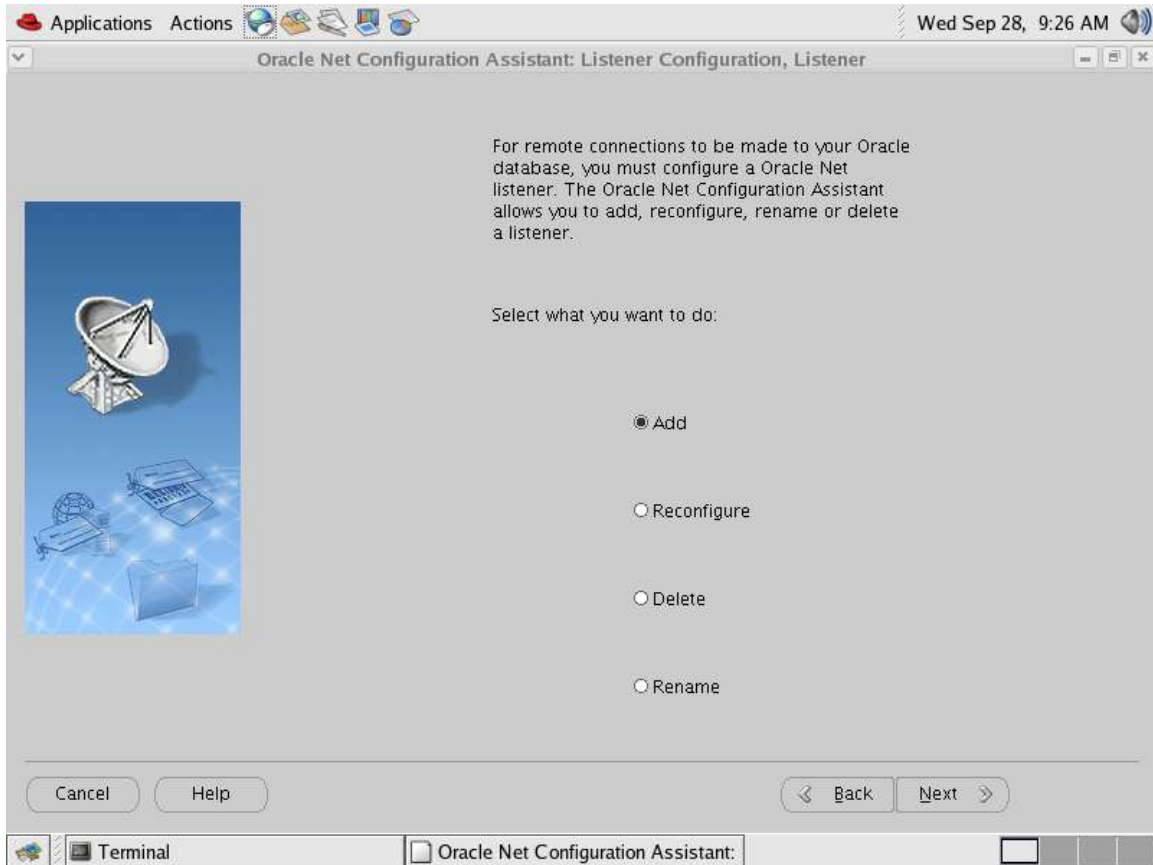
Section 3.2 ORACLE Net Configuration Assistant

Generally, you want your database to be network accessible. For this to be possible, you need to start an ORACLE process that listens for network database access requests. This process is called the listener. ORACLE provides a GUI that sets up and starts the listener. This GUI is known as the Net Configuration Assistant or NETCA. To run NETCA from the oracle terminal account enter netca. This application optionally performs four tasks. Listener is the task you want to perform. Choose the Listener Configuration option and then press the next button.



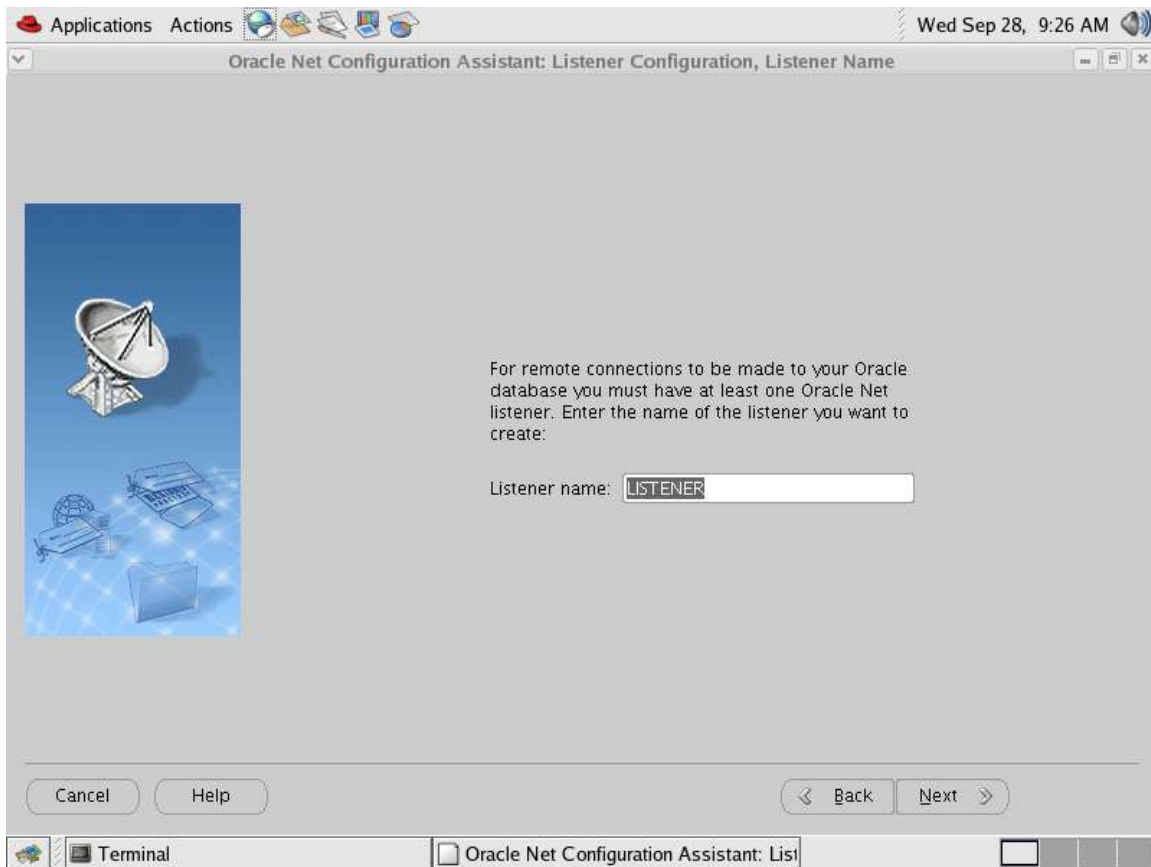
Section 3.2.1 ORACLE Net Configuration Assistant -- Listener

At this stage of the database installation process, you will want to add a listener process. So select the Add option and press the next button.



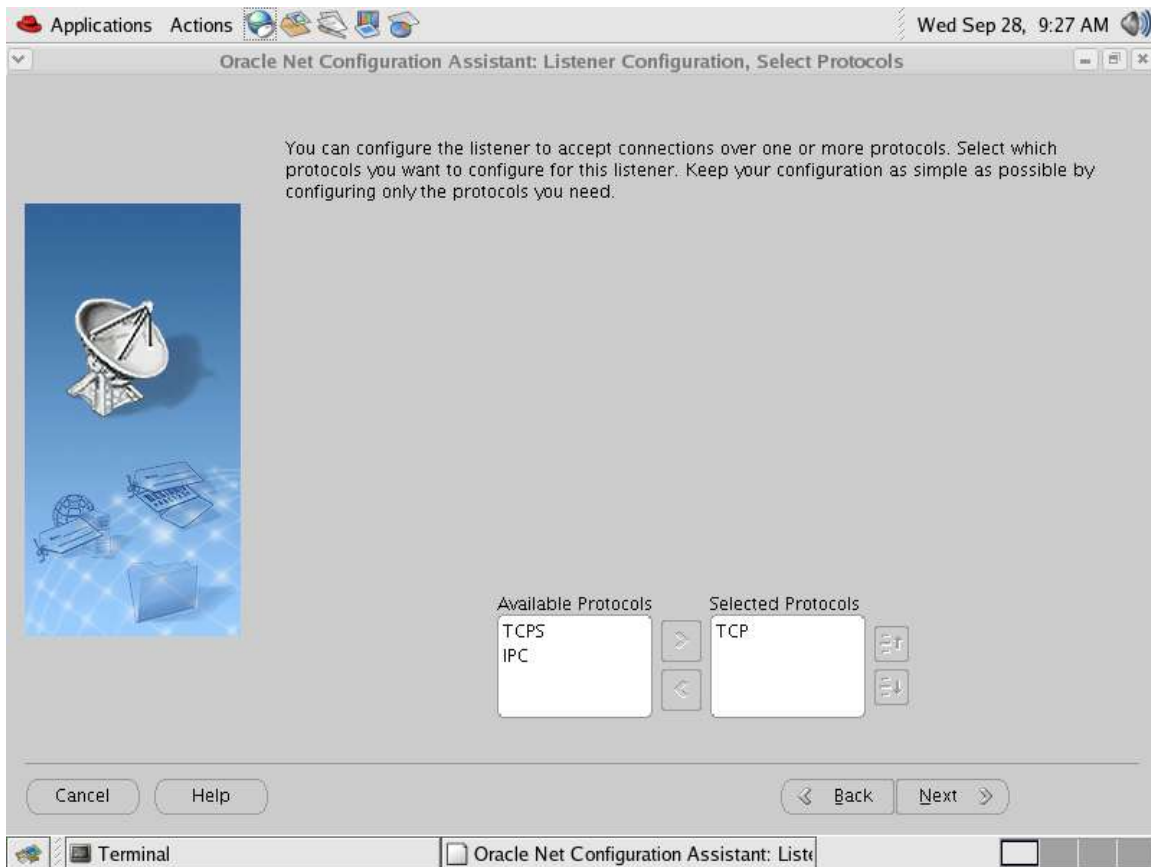
Section 3.2.2 ORACLE Net Configuration Assistant – Listener Name

This screen allows you to individually name the listener you are creating. You may wish to uniquely name this listener if you intend to have several databases on this system. Otherwise just use the default name given and then press the next button to continue.



Section 3.2.3 ORACLE Net Configuration Assistant – Select Protocols

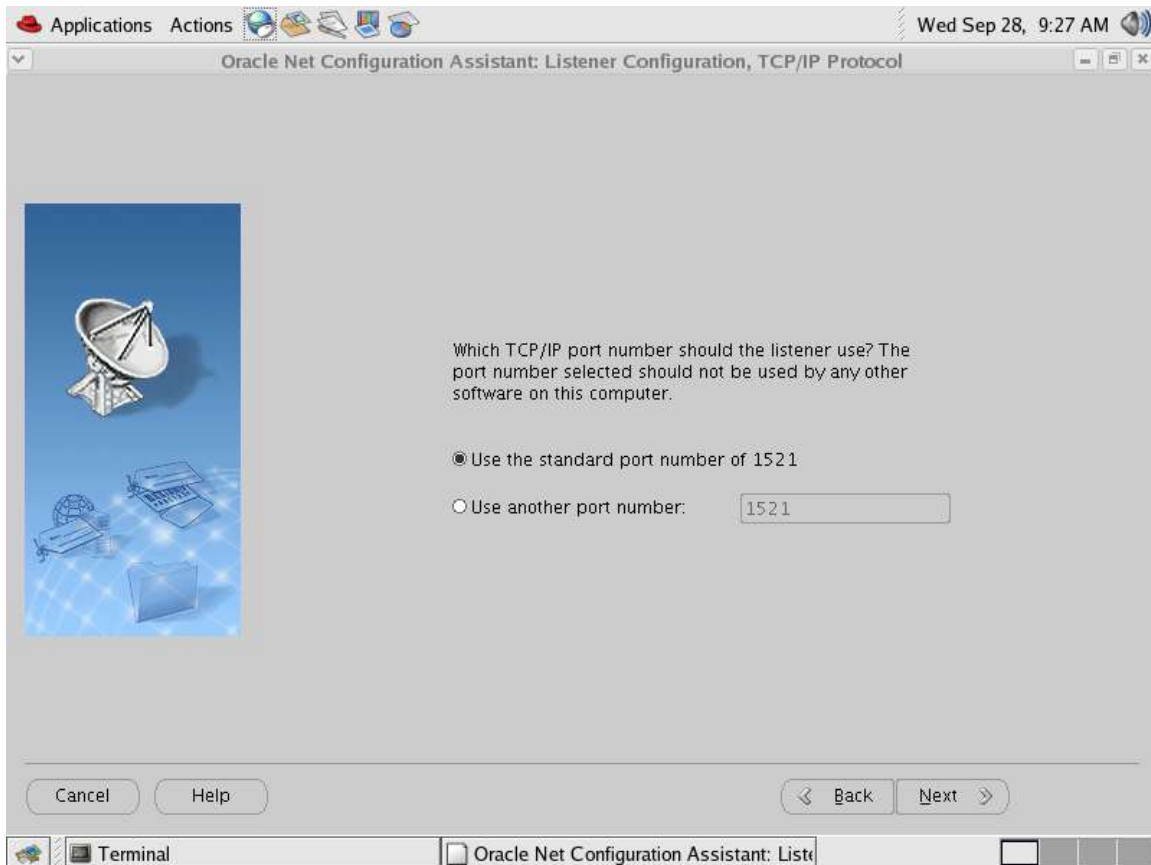
This screen allows the listener to service several network protocols. Unless you have specific needs, the default TCP should suffice. Alter the selected protocols to you desired ones and then press the next button to continue.



Section 3.2.4 ORACLE Net Configuration Assistant – TCP/IP Protocol

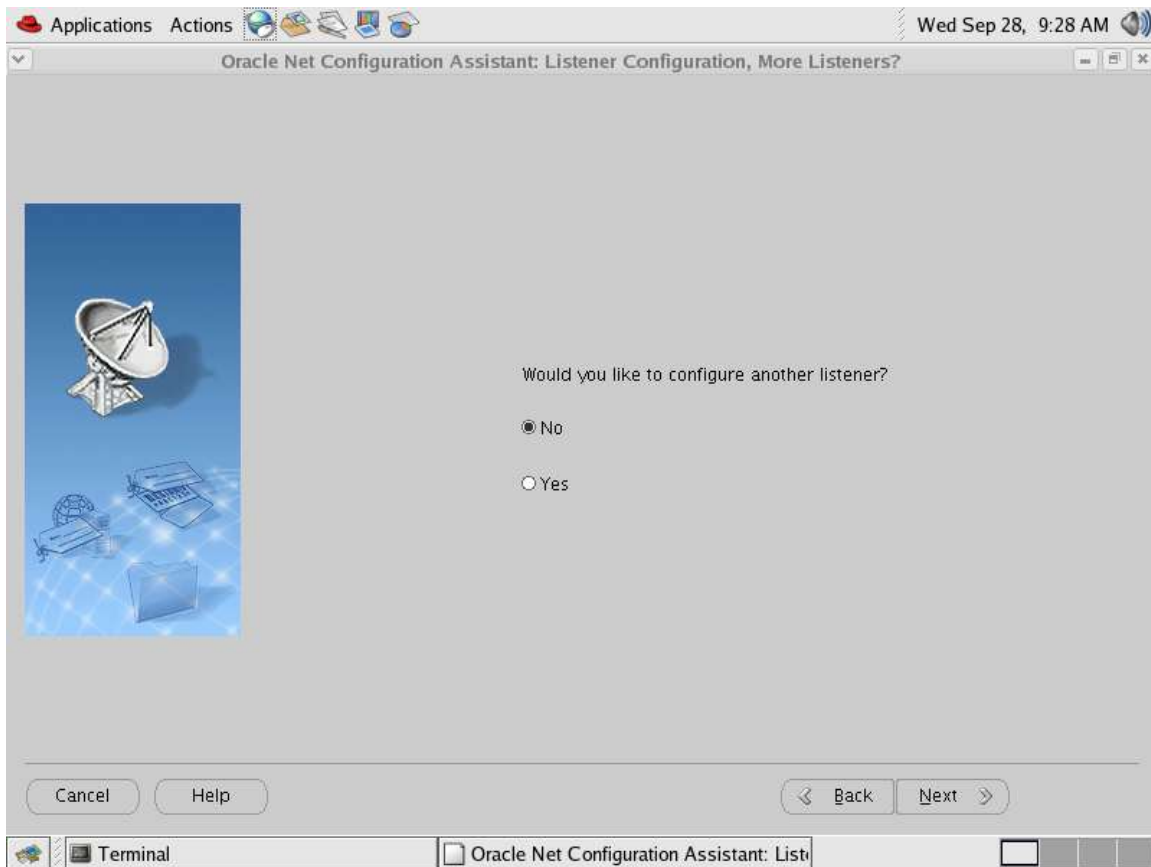
Now enter the port that you want the listener to listen from. The default port 1521 is the standard port number. Enter a different port number if your installation has special needs. To continue, press the next button.

WARNING: Please assure that the 1521 port or the optional port that you choose is network accessible and that this port presents no fire wall issues. Otherwise, the database software will not be able to communicate through this selected port to other users and systems.



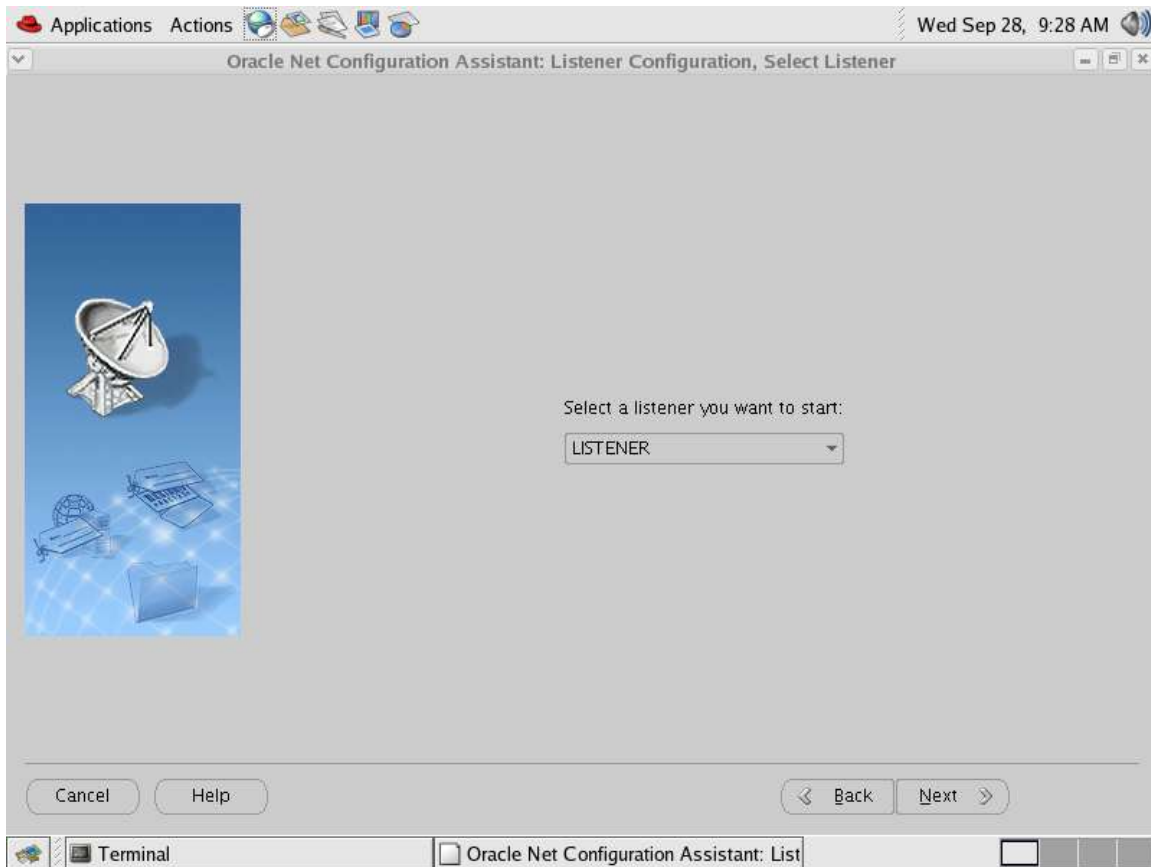
Section 3.2.5 Network Configuration Assistant – More Listeners?

The listener has now been configured and NETCA is asking if you want to configure another listener. This is usually not necessary so select the No option and press the next button to continue.



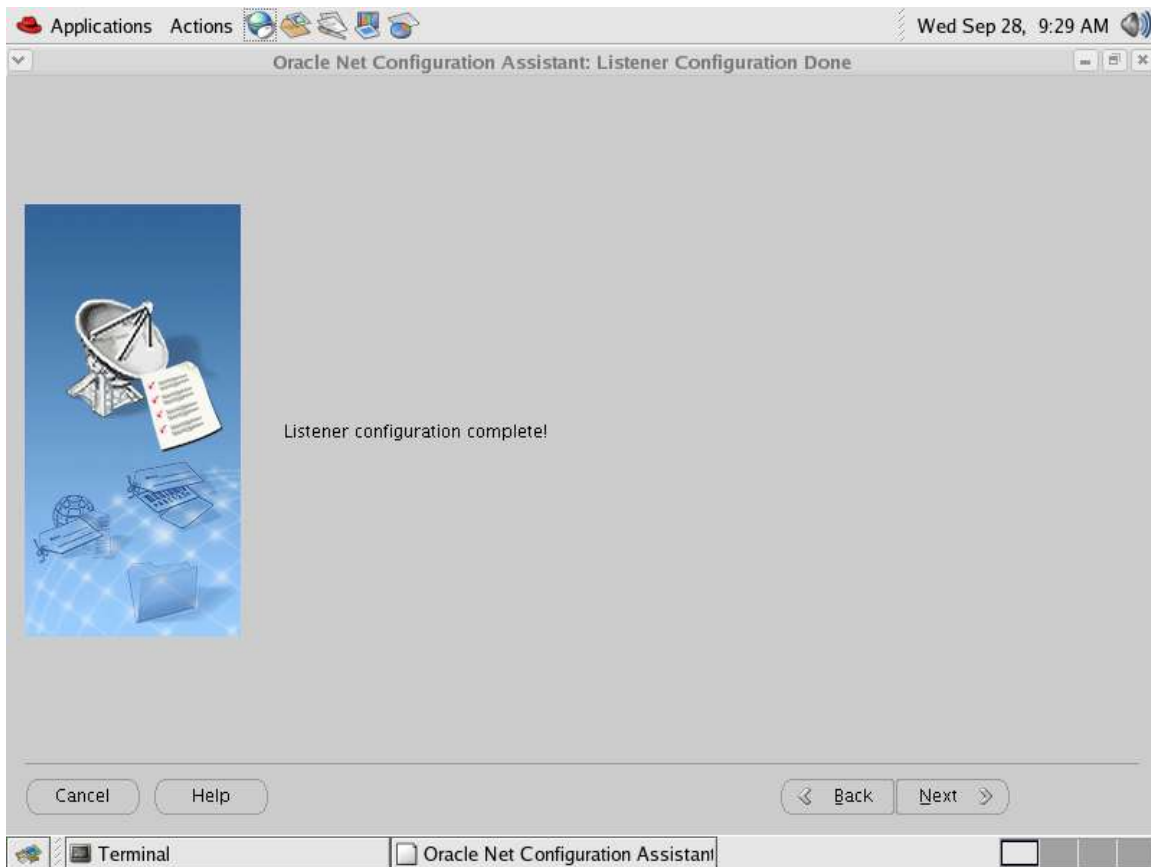
Section 3.2.6 ORACLE Net Configuration Assistant – Select Listener

Once you have defined the parameters of the listener it is time to select this listener from the drop down box and press the next button. This application will then complete the listener starting process and come back with a screen verifying that the listener was indeed started.



Section 3.2.7 ORACLE Net Configuration Assistant – Listener Configuration Done

This screen appears and notifies you that the listener starting process successfully completed. If you receive any error messages, fix the errors and attempt the process again. You are now completed the listener setup process so you will exit the NETCA application when it prompts you.



Section 3.3 HDB Time series table size estimation

The database administrator of the new HDB database must have a good idea about the types and amount of data that will be placed into the database. The amount of data and what database tables that this data will be placed in makes it imperative the the DBA takes some time and consider the tables and their respective default table sizes. The DBA should take a look at the file timeseries.ddl locates in the directory : “RELEASE Directory”/oracle_script/SCHEMA/BASESCRIPTS. This ddl file is used to create all the tables in the HDB schema and the default sizes are generally set to basic minimum values that would not perform well for a production database with lots of input data that accumulate over time. After this initial consideration, the DBA should edit this file and change the default table sizes where appropriate.

Section 3.4 HDB Schema creation

The ORACLE database should have been created and running normally. It is now time to create the specific database schemas and database objects that make your database a uniquely HDB database. If you followed the directions correctly from section 1.2 and the paragraphs proceeding this section, the system should be ready and the right environment variables should already exist so that all you need to do is run the schema creation scripts. Go to the directory that you specified for the release directory and set your current default to the oracle_script sub-directory. Run the create.script script. This script will first ask you for the dba schema and the password you want for it. Appropriately select the dba schema name you want and answer the password prompt with a meaningful password.

The create script will generate various output from all the tasks it performs. In the same directory as the create script, verify the output from each of these output files. The output files are named out* as well as *.out. Additionally, go to the STANDARD_DATA subdirectory and look at any log and out files. If anything in these out files appears unusual or in error, determine which script generated the error output, fix the problem and attempt to rerun the statements that failed.

At this point, you should have a fully created but empty HDB database. You now must run the MetaData installation scripts. See the Meta Data Application Documentation for instructions on using these scripts. Once you run the appropriate Metadata installation

scripts, the database is ready for the loading of all your specific site data.