



Installing your Oracle Software

Objectives

After completing this lesson, you should be able to:

- Describe your role as a database administrator (DBA) and explain typical tasks and tools
- Plan an Oracle software installation
- Install Oracle Grid Infrastructure for a standalone server
- Install the Oracle database software

Tasks of an Oracle Database Administrator

The approach for designing, implementing, and maintaining an Oracle database involves the following tasks:

1. Evaluating the database server hardware
2. Installing the Oracle software
3. Planning the database and security strategy
4. Creating, migrating, and opening the database
5. Backing up the database
6. Enrolling system users and planning for their Oracle Network access
7. Implementing the database design
8. Recovering from database failure
9. Monitoring database performance



ORACLE

Tools for Administering an Oracle Database

- Oracle Universal Installer
- Database Configuration Assistant
- Database Upgrade Assistant
- Oracle Net Manager
- Oracle Net Configuration Assistant
- Oracle Enterprise Manager
- Server Control Utility
- SQL*Plus
- Recovery Manager
- Data Pump
- SQL*Loader

Planning Your Installation

- What Oracle software are you installing?
- Does the hardware involved meet the minimum required specifications?
- Is there a recommended order of installation when multiple products are involved?
- Are there prerequisite steps that must be performed by someone other than the DBA?



Oracle Grid Infrastructure and Oracle Database Installation: System Requirements

- Memory requirements:
 - 1 GB for the database instance with Oracle Enterprise Manager Database Control
 - 1.5 GB for the ASM instance and Oracle Restart
- Disk space requirements:
 - 3 GB of swap space (based on 2 GB RAM)
 - 1 GB of disk space in the /tmp directory
 - 3.8 GB for the Oracle Database software
 - 4.5 GB for the Grid Infrastructure software
 - 1.7 GB for the preconfigured database (optional)
 - 3.4 GB for the fast recovery area (optional)
- Operating system (see documentation)



Preparing the Operating System

Create the required operating system users and groups:

- Groups:
 - `oinstall`
 - `dba`
 - Optional groups (if doing separation of duty across multiple users):
 - `oper`
 - `asmdba`
 - `asmoper`
 - `asmadmin`
- Users:
 - Software owner, usually `oracle`
 - Can create multiple users for multiple product installations

Setting Environment Variables

Oracle environment variables:

- `ORACLE_BASE`: Base of the Oracle directory structure. Recommended to set this before installation.
- `ORACLE_HOME`: The environment in which Oracle products run. Not required before installation if `ORACLE_BASE` is set.
- `ORACLE_SID`: Not required before installation, but useful afterwards for ease of interaction with a particular instance
- `NLS_LANG`: Optional environment variable that controls language, territory, and client character set settings



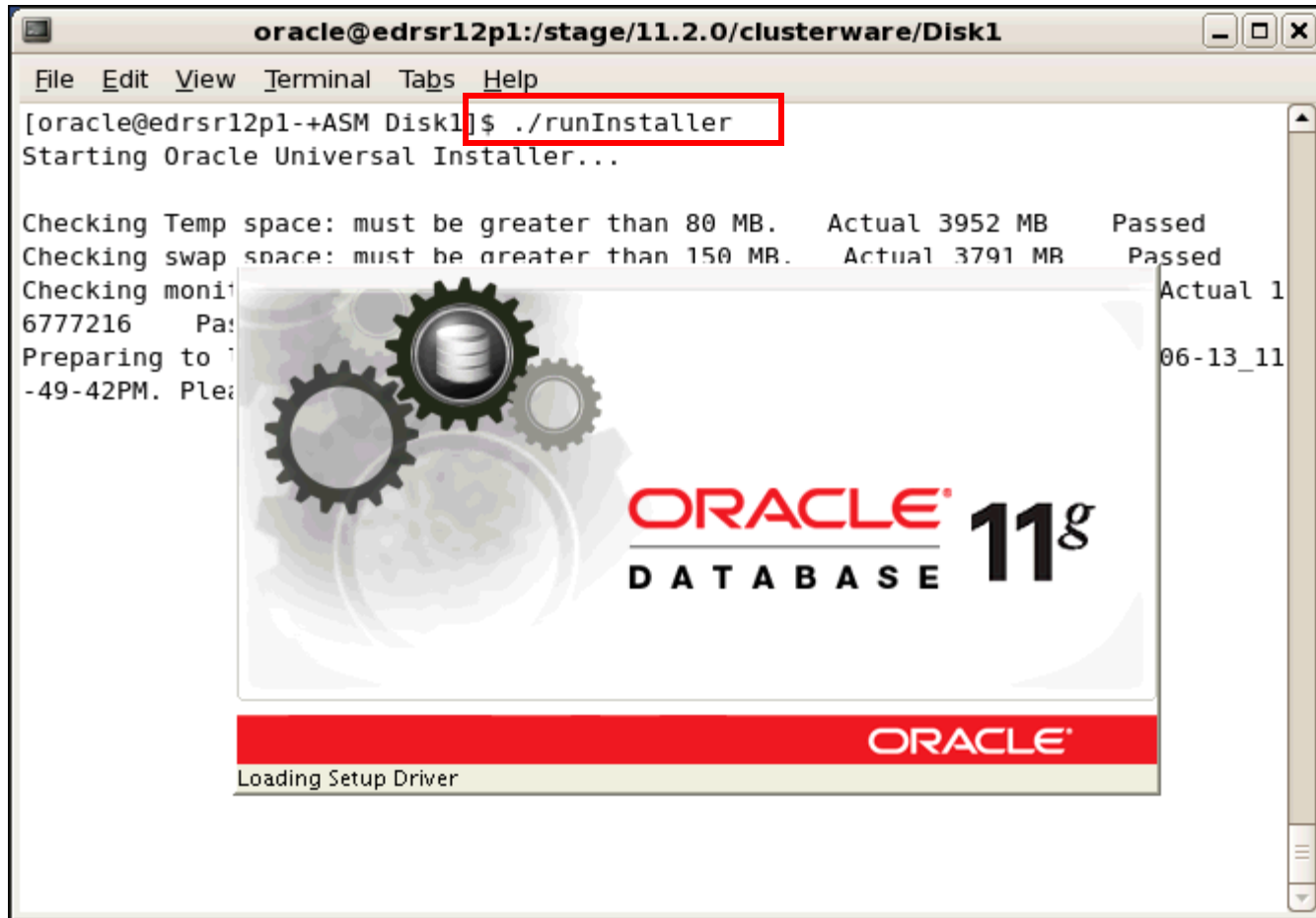
Checking the System Requirements

- Adequate temporary space
- 64-bit versus 32-bit issues
- Correct operating system (OS)
- OS patch level
- System packages
- System and kernel parameters
- X Server permissions
- Sufficient swapping
- ORACLE_HOME status

```
[oracle@edrsr12pl-+ASM Disk1]$ ./runInstaller
Starting Oracle Universal Installer...

Checking Temp space: must be greater than 80 MB.    Actual 15067 MB    Passed
Checking swap space: must be greater than 150 MB.    Actual 4000 MB    Passed
Checking monitor: must be configured to display at least 256 colors.    Actual 65536    Passed
Preparing to launch Oracle Universal Installer from /tmp/OraInstall2009-05-15_12-04-10AM. Please wait ...
```

Oracle Universal Installer (OUI)

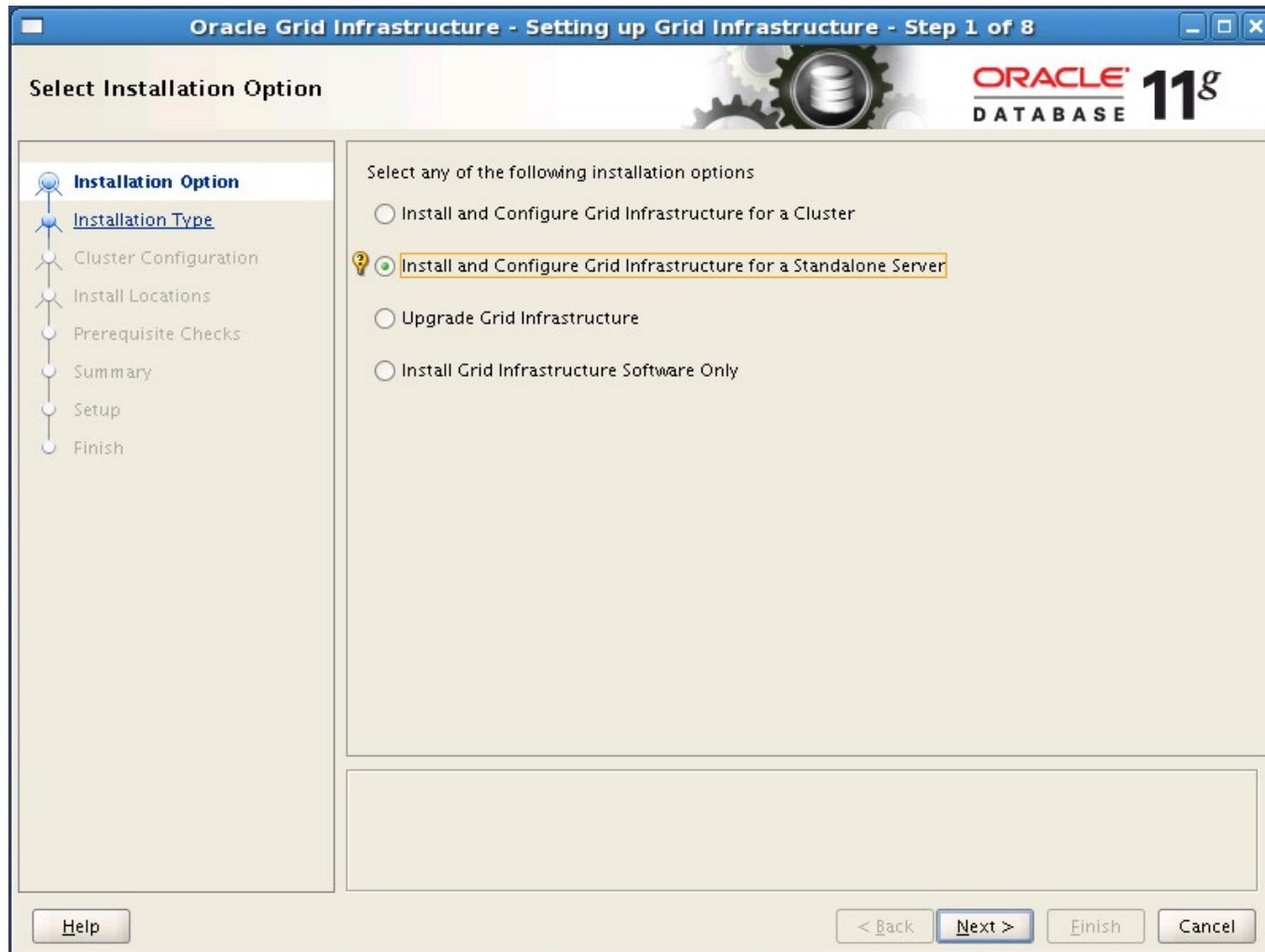


Example: Installation Scenario

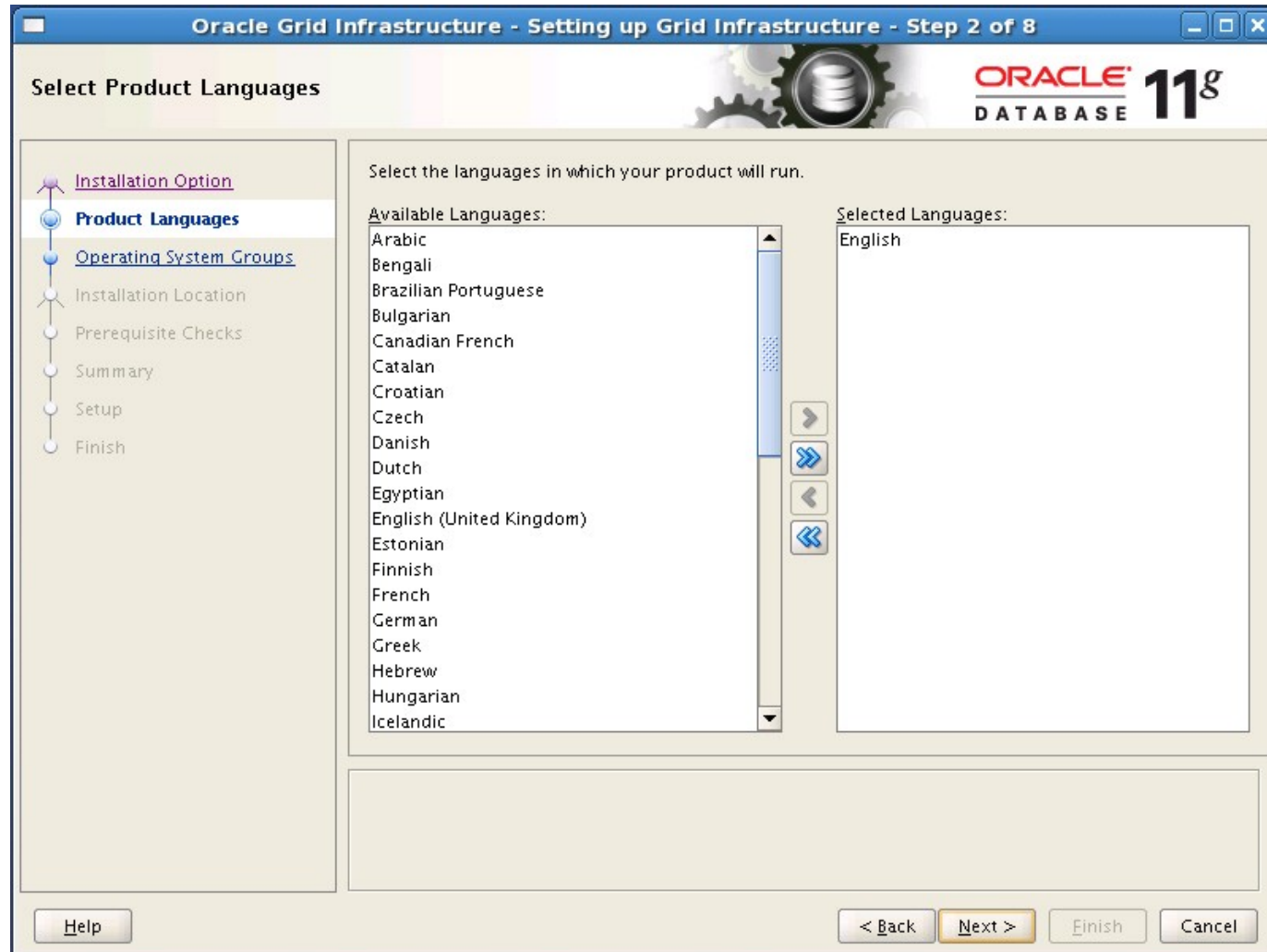
The installation scenario being presented in this lesson is divided into two parts:

- Part One: Install Oracle Grid Infrastructure for standalone server
- Part Two: Install Oracle Database software

Part One: Installing the Oracle Grid Infrastructure for Standalone Server



Selecting Product Languages



Creating an ASM Disk Group

Oracle Grid Infrastructure - Setting up Grid Infrastructure - Step 3 of 10

Create ASM Disk Group

ORACLE DATABASE 11g

Installation Option
Product Languages
Create ASM Disk Group
ASM Password
Operating System Groups
Installation Location
Prerequisite Checks
Summary
Setup
Finish

Select Disk Group Characteristics and select disks

Disk Group Name:

Redundancy: ☐ High ☒ Normal ☐ External

Add Disks

☒ Candidate Disks ☐ All Disks

<input type="checkbox"/>	Disk Path	Size (in MB)	Status
<input checked="" type="checkbox"/>	ORCL:ASMDISK1	2304	Candidate
<input type="checkbox"/>	ORCL:ASMDISK10	2304	Candidate
<input type="checkbox"/>	ORCL:ASMDISK11	2304	Candidate
<input type="checkbox"/>	ORCL:ASMDISK12	2304	Candidate
<input type="checkbox"/>	ORCL:ASMDISK13	2304	Candidate
<input checked="" type="checkbox"/>	ORCL:ASMDISK2	2304	Candidate
<input checked="" type="checkbox"/>	ORCL:ASMDISK3	2304	Candidate
<input checked="" type="checkbox"/>	ORCL:ASMDISK4	2304	Candidate
<input type="checkbox"/>	ORCL:ASMDISK5	2304	Candidate

Defining ASM Passwords

Oracle Grid Infrastructure - Setting up Grid Infrastructure - Step 4 of 10

Specify ASM Password

The new Automatic Storage Management (ASM) instance requires its own SYS user with SYSASM privileges for administration. Oracle recommends that you create a less privileged ASMSNMP user with SYSDBA privileges to monitor the ASM instance.

Specify the password for these user accounts.

☒ Use different passwords for these accounts

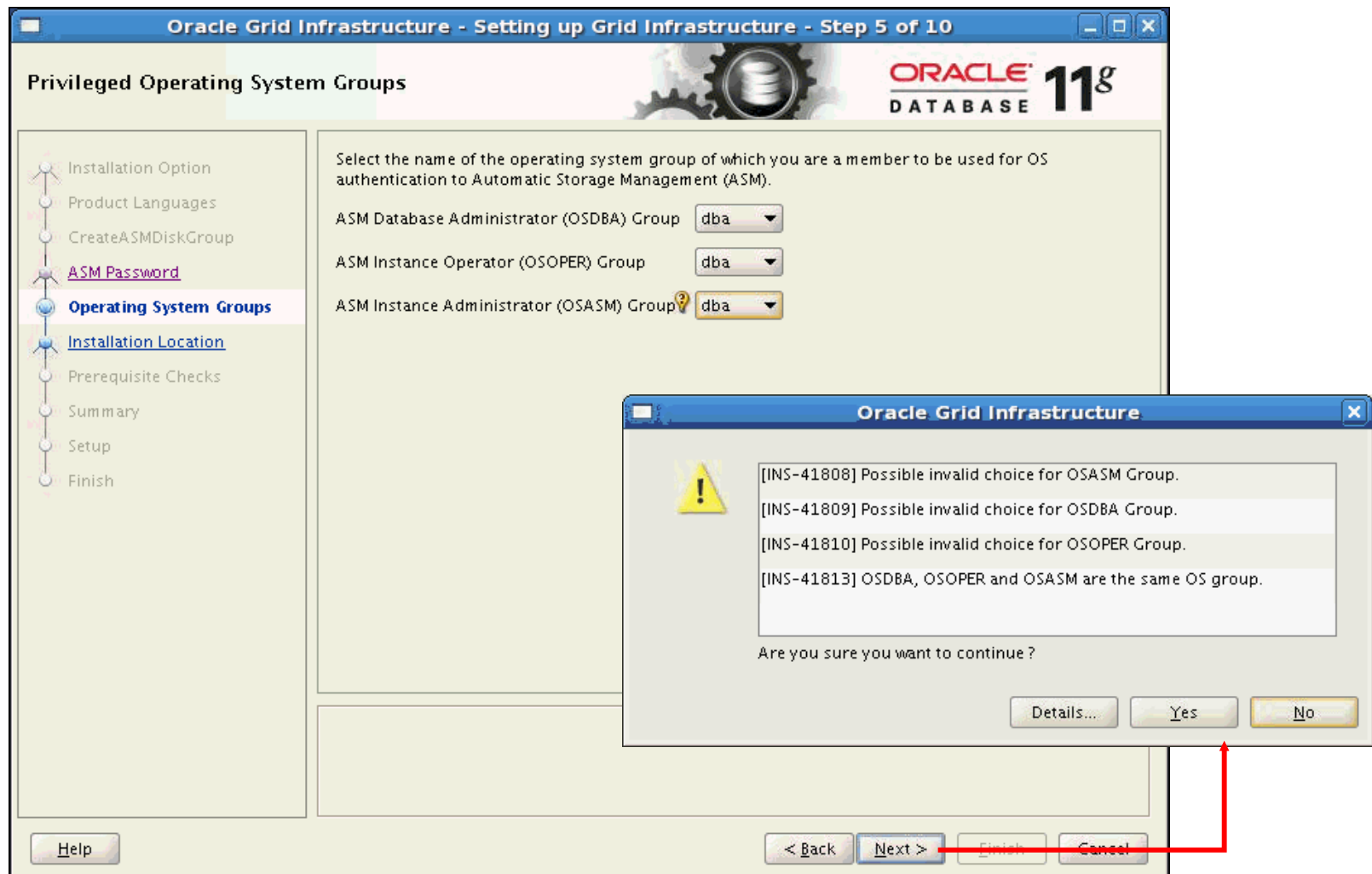
	Password	Confirm Password
SYS	*****	*****
ASMSNMP	*****	*****

☐ Use same passwords for these accounts

Specify Password: Confirm Password:

Help < Back Next > Finish Cancel

Defining Privileged Operating System Groups



Specifying Installation Location

Oracle Grid Infrastructure - Setting up Grid Infrastructure - Step 6 of 10

Specify Installation Location

ORACLE 11g
DATABASE

Installation Option
Product Languages
Create ASM Disk Group
ASM Password
Operating System Groups
Installation Location
Prerequisite Checks
Summary
Setup
Finish

Specify a base location for storing all Oracle software and configuration-related files. This location is the Oracle base directory. Create one Oracle base for each operating system user. By default, software and configuration files are installed by version and database name in the Oracle base directory.

Oracle Base: Browse...

This software directory is the Oracle Grid Infrastructure home directory. Change the defaults below either to specify an alternative location, or to select an existing grid infrastructure home.

Software Location  Browse...

Help < Back Next > Finish Cancel

Creating Inventory

Oracle Grid Infrastructure - Setting up Grid Infrastructure - Step 7 of 11

Create Inventory



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

Inventory Directory:

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

orainventory Group Name:

Performing Prerequisite Checks

Oracle Grid Infrastructure - Setting up Grid Infrastructure - Step 8 of 11

Perform Prerequisite Checks

Some of the minimum requirements for installation are not completed. Review and fix the issues listed in the following table, and recheck the system.

☐ Ignore All

Checks	Status	Fixable
OS Kernel Parameters		
OS Kernel Parameter: file-max	Failed	Yes
OS Kernel Parameter: ip_local_port_range	Failed	Yes
OS Kernel Parameter: vmem_max	Failed	Yes

Execute Fixup Scripts

Some of the prerequisites have failed on following nodes. Installer has generated a fixup script that can be run outside the installer to fix the issues. The following fixup script needs to be executed as the "root" user on the given nodes*.

Script: /tmp/CVU_11.2.0.0.2_oracle/runfixup.sh

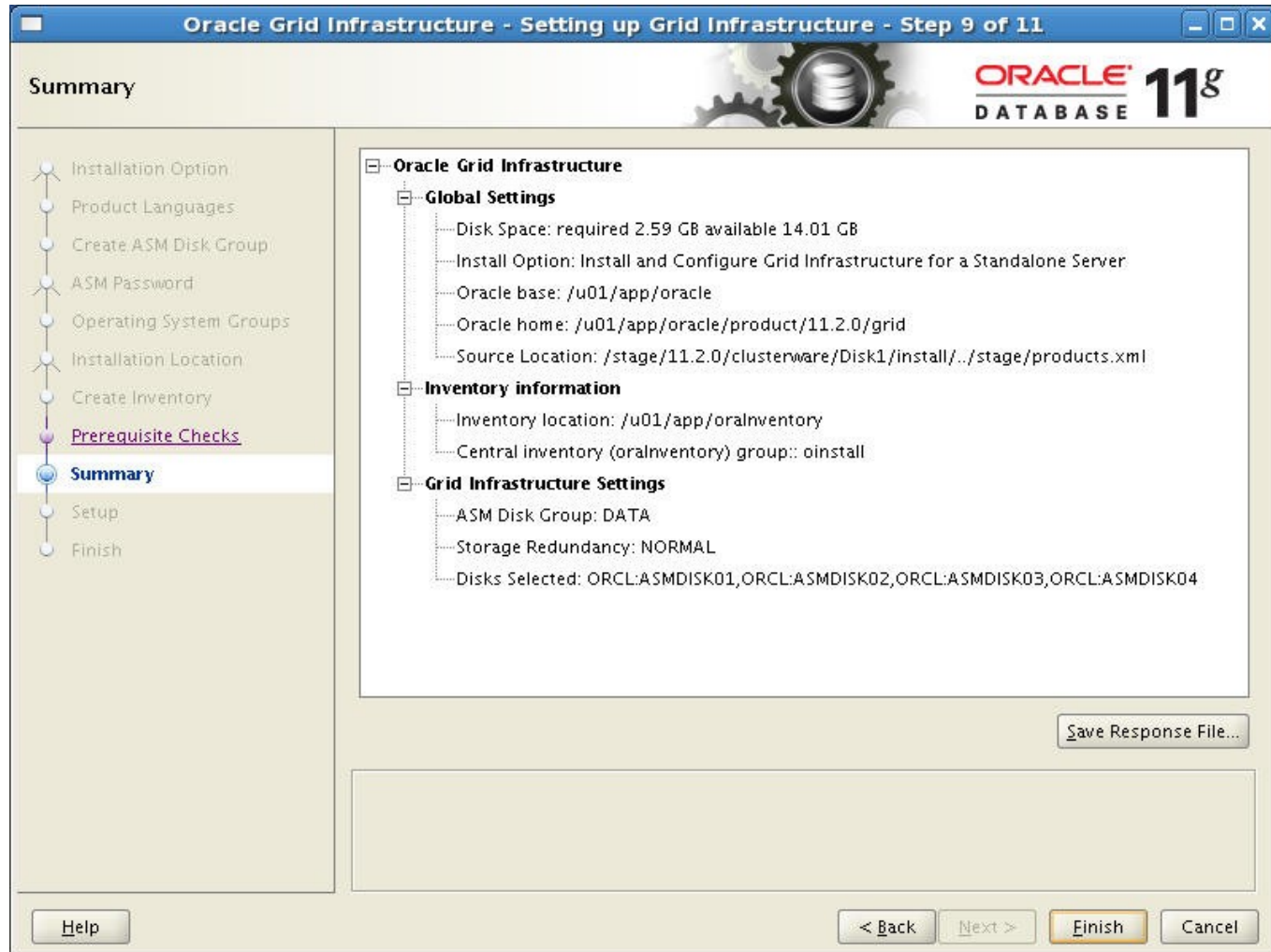
Nodes: edrsr12p1

To execute the fixup scripts:

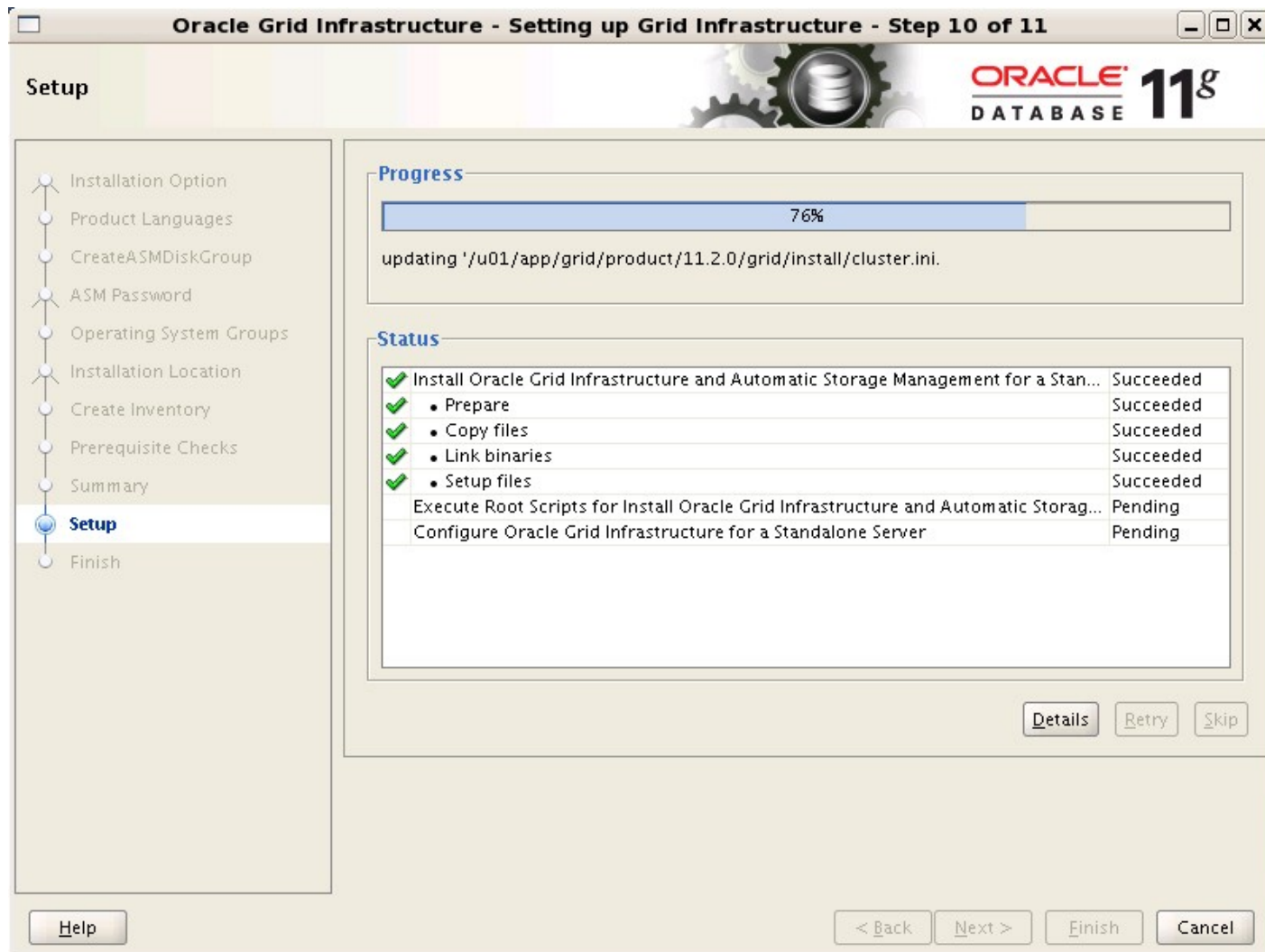
1. Open a terminal window
2. Login as "root"
3. Run the scripts
4. Return to this window and click "OK" to continue

whether the OS kernel parameter "file-max" is properly set. [more](#)

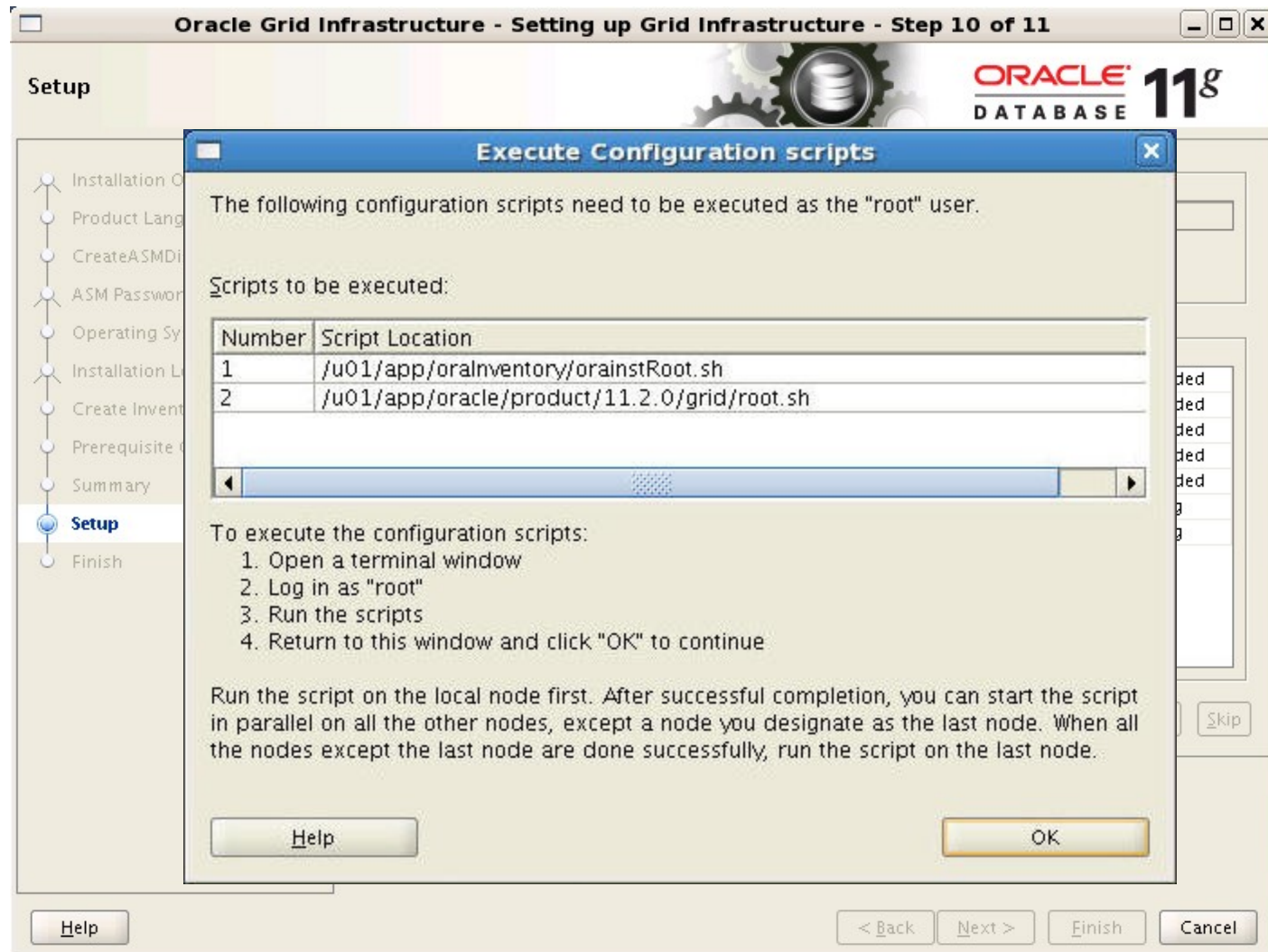
Verifying Installation Summary Data



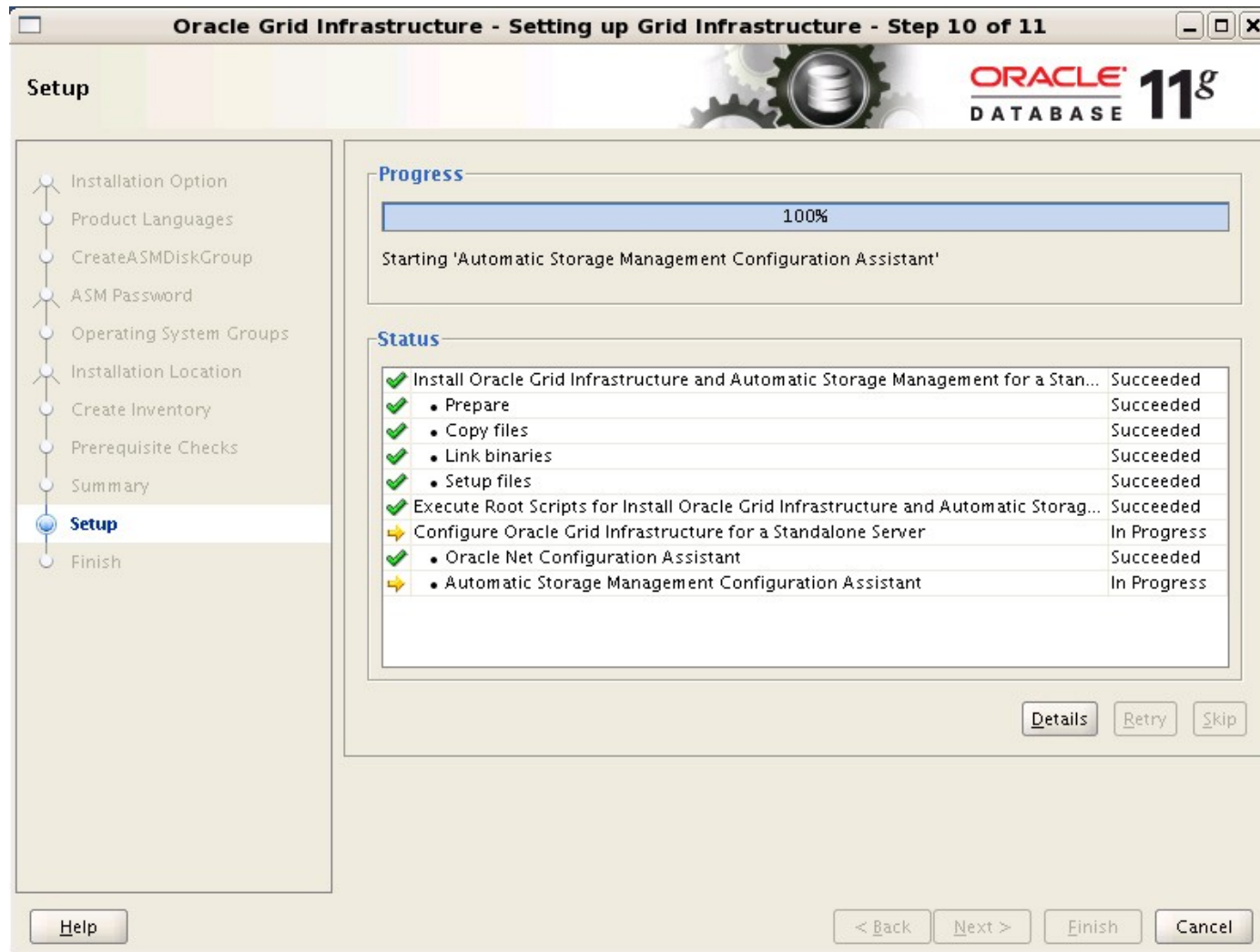
Monitoring Installation Progress



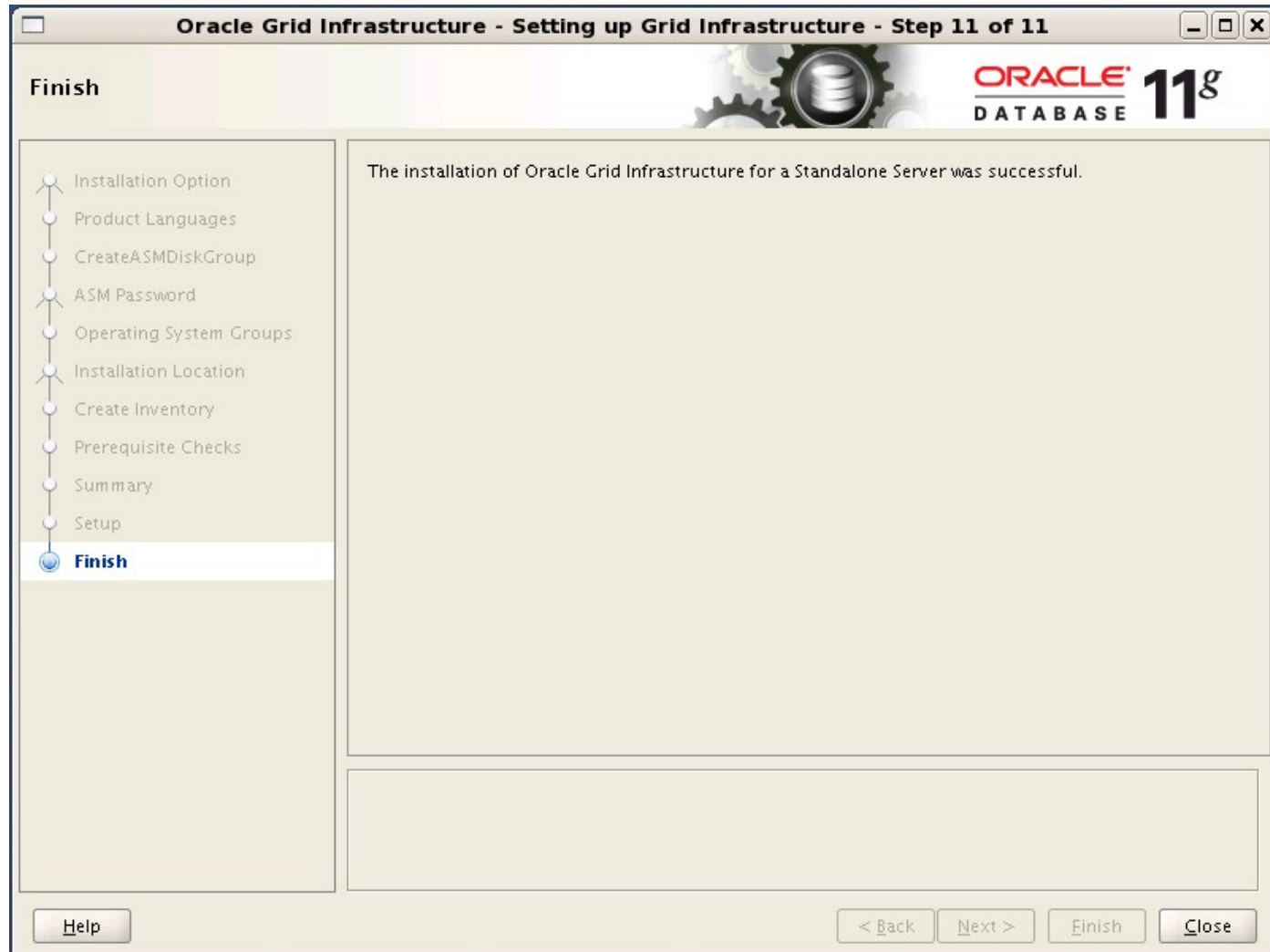
Executing root Configuration Scripts



Executing Configuration Assistants



Finishing Installation



Configuring the FRA Disk Group

ASM Configuration Assistant: Configure ASM: Disk Groups

ASM Instance: +ASM

Tab: Disk Groups | Volumes | ASM Cluster File Systems

You can choose to create a new disk group or add disks to an existing disk group. To create dynamic volumes, you need disk groups with 11.2 ASM compatibility.

Tip: To perform operations on a disk group, right mouse click on the row.

Disk Group Name	Size (GB)	Free (GB)	Usable (GB)	Redundancy	State
DATA	9.00	8.82	3.29	NORMAL	MOUNTED

Buttons: Create | Mount All | Dismount

Help

Create Disk Group

Disk Group Name: FRA

Redundancy:
Redundancy is achieved by storing multiple copies of the data on different failure groups. Normal redundancy needs disks from at least two different failure groups, and high redundancy from at least three different failure groups.
☐ High ☐ Normal ☒ External (None)

Select Member Disks:
☒ Show Eligible ☐ Show All

<input type="checkbox"/>	Disk Path	Header Status	Disk Name	Size (MB)
<input type="checkbox"/>	ORCL:ASMDISK12	PROVISIONED		2304
<input type="checkbox"/>	ORCL:ASMDISK13	PROVISIONED		2304
<input checked="" type="checkbox"/>	ORCL:ASMDISK5	PROVISIONED		2304
<input checked="" type="checkbox"/>	ORCL:ASMDISK6	PROVISIONED		2304
<input checked="" type="checkbox"/>	ORCL:ASMDISK7	PROVISIONED		2304
<input checked="" type="checkbox"/>	ORCL:ASMDISK8	PROVISIONED		2304
<input type="checkbox"/>	ORCL:ASMDISK9	PROVISIONED		2304

Note: If you do not see the disks which you believe are available, check Disk Discovery Path and read/write permissions on the disks. The Disk Discovery Path limits set of disks considered for discovery.

Disk Discovery Path: <default> Change Disk Discovery Path

Click on the Show Advanced Options button to change the default Diskgroup Compatibility attributes.

Buttons: Show Advanced Options | OK | Cancel | Help

Quiz

The universal installer performs all required configuration for installing Oracle software.

1. True
2. False

Quiz

During Grid infrastructure setup it is a possible to:

1. Specify exact location of datafiles for ASM instance
2. Create only one DISKGROUP
3. Specify size of SGA for ASM instance
4. Create several DISKGROUPS

Part Two: Installing the Oracle Database Software

Oracle Database 11g Release 2 Installer - Installing Database - Step 1 of 9

Specify Oracle Direct Connect Identification

ORACLE DATABASE 11g

Oracle Direct Connect

Installation Option

Grid Options

Install Type

Typical Installation

Prerequisite Checks

Summary

Install Product

Finish

Provide your email address to be informed of security issues, install the product and initiate configuration manager. [View details.](#)

Email:

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

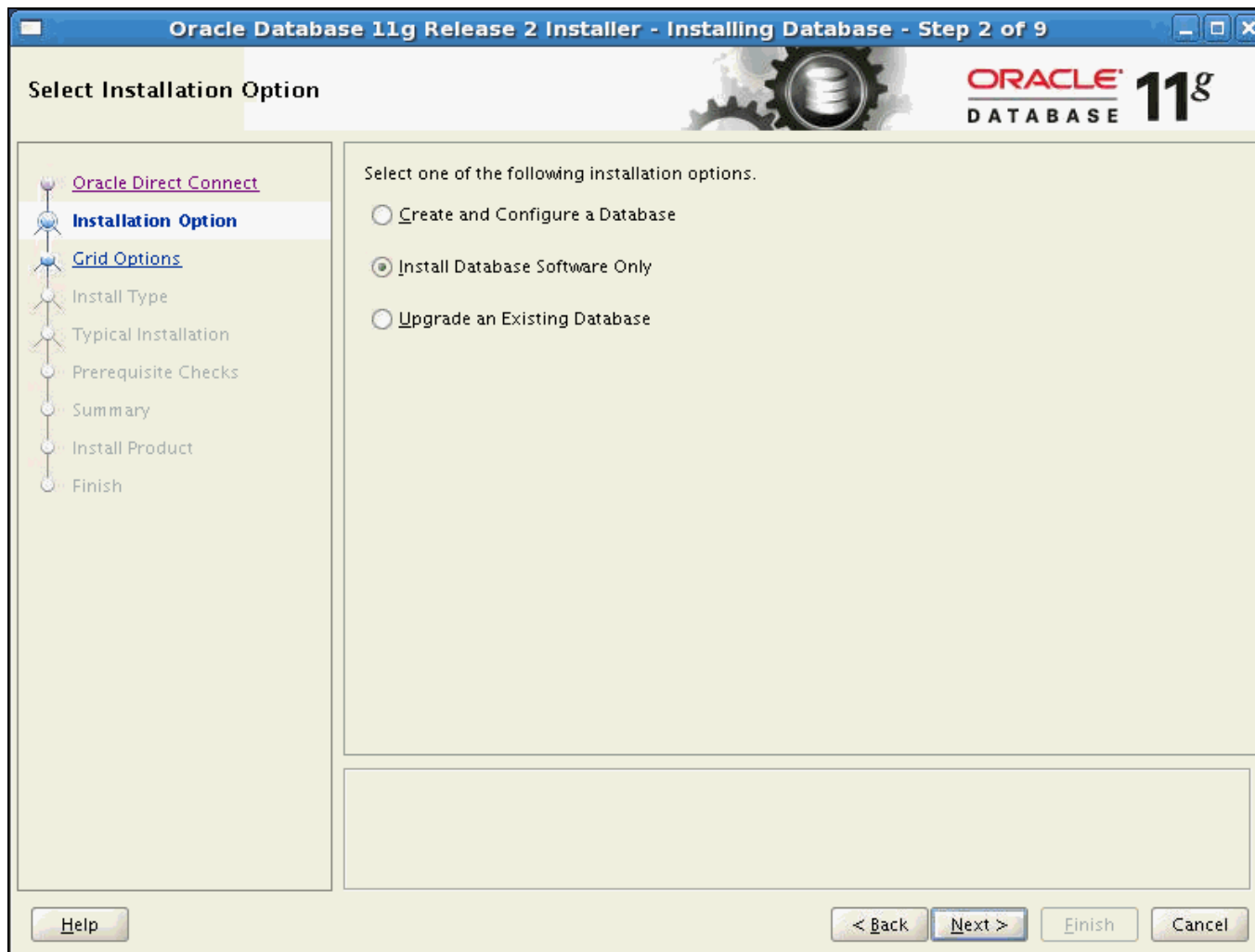
☒ I wish to receive security updates via My Oracle Support.

My Oracle Support Password:

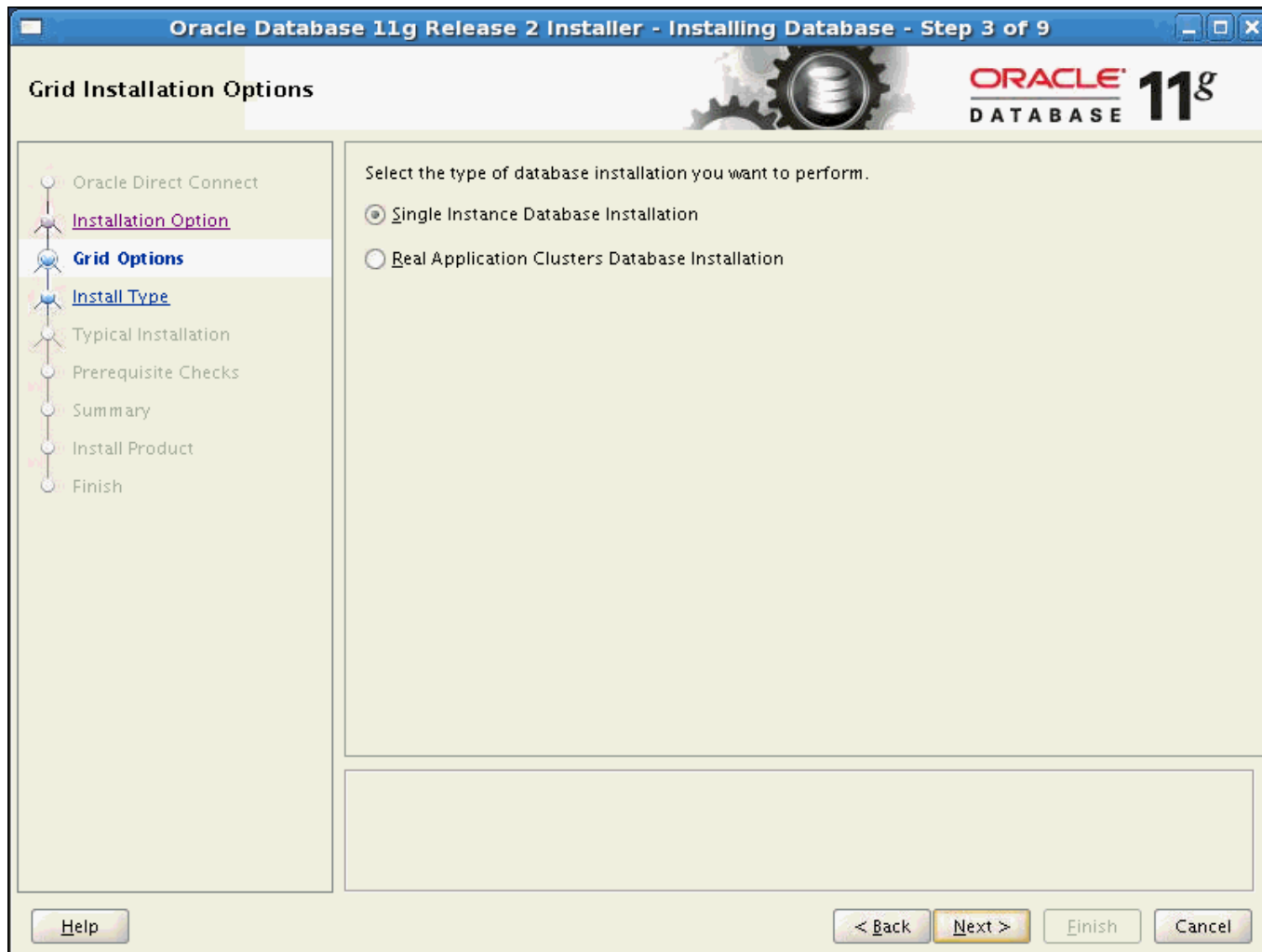
Help

< Back Next > Finish Cancel

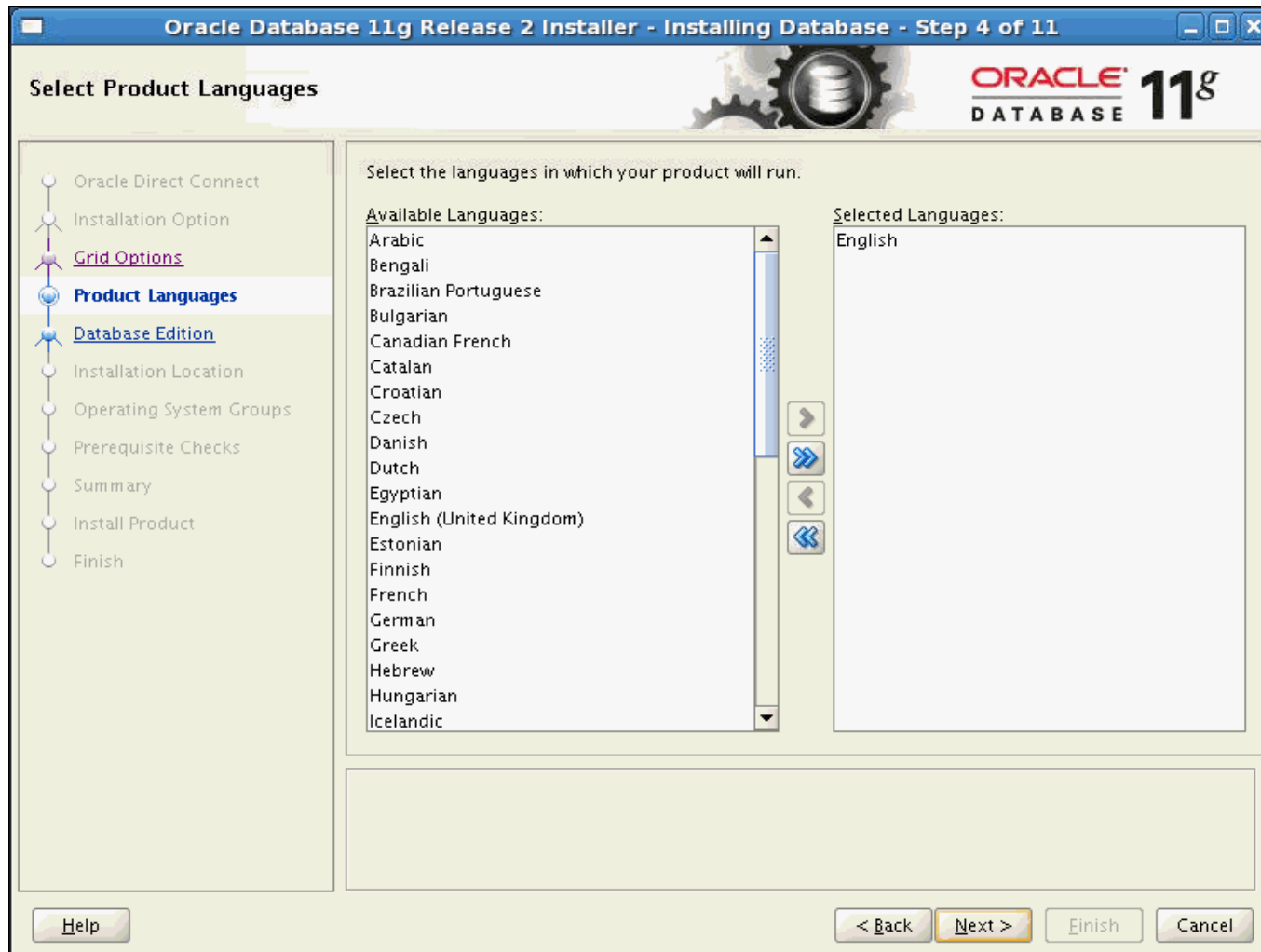
Choosing the Type of Installation



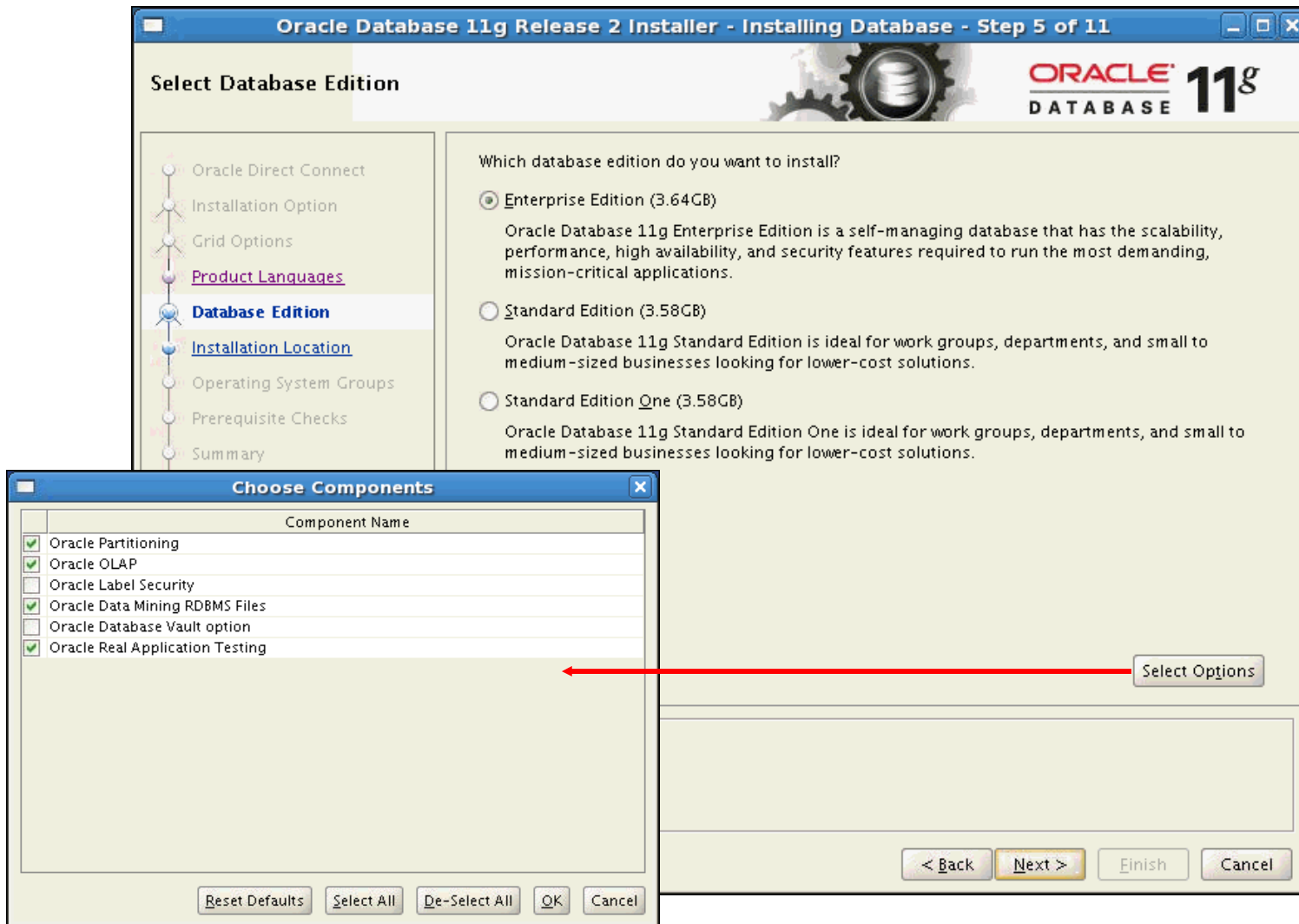
Choosing Grid Installation Options



Choosing Language Settings



Choosing the Database Edition



Specifying Installation Location

Oracle Database 11g Release 2 Installer - Installing database - Step 6 of 11

Specify Installation Location

Configure Security Updates
Installation Option
Grid Options
Product Languages
Database Edition
Installation Location
Operating System Groups
Prerequisite Checks
Summary
Install Product
Finish

Specify an Oracle base path to place all Oracle software and configuration-related files. This location is the Oracle base directory.

Oracle Base: Browse...

Specify a location for storing Oracle software files. This location is the Oracle home directory.

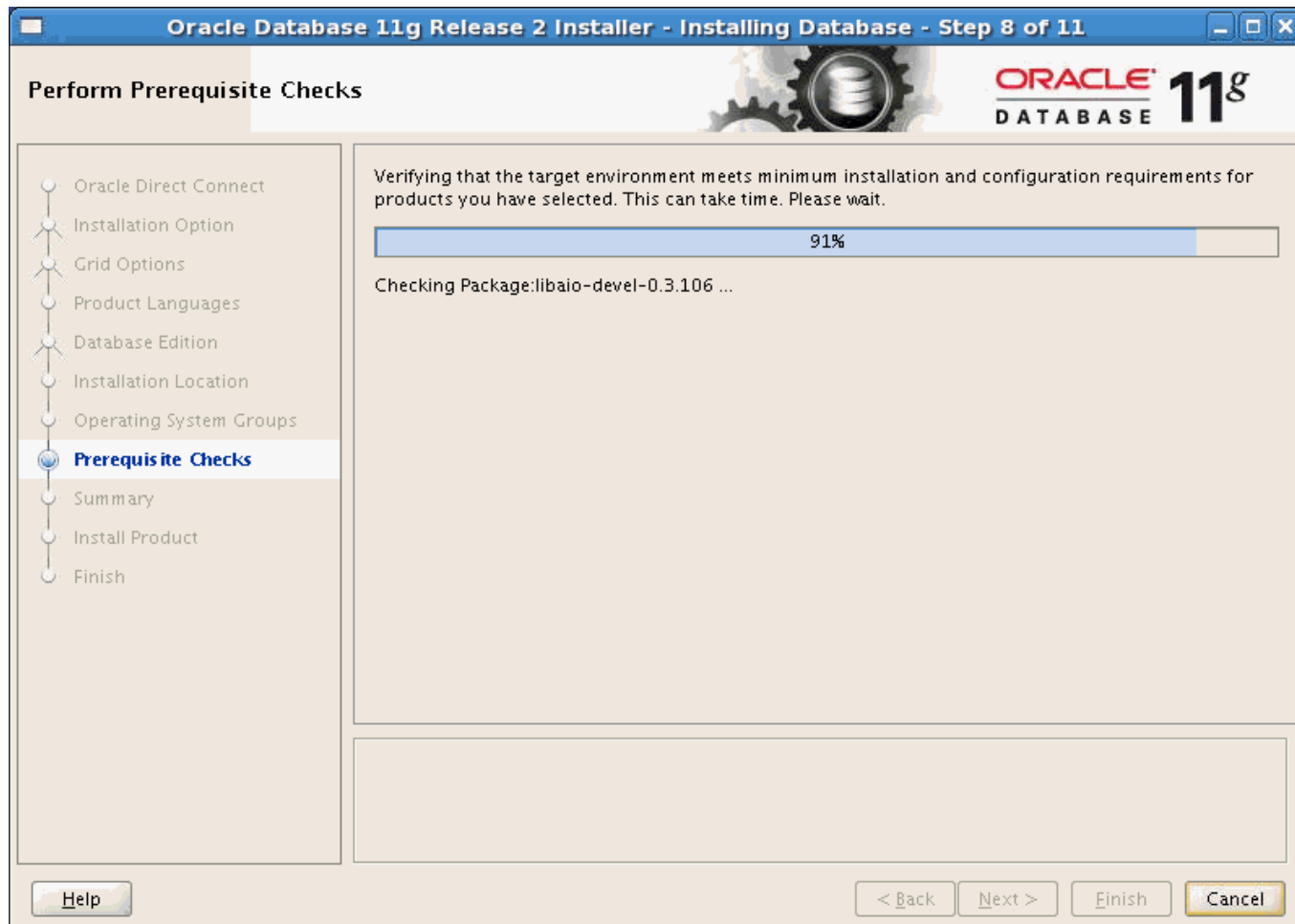
Software Location: Browse...

Help < Back Next > Finish Cancel

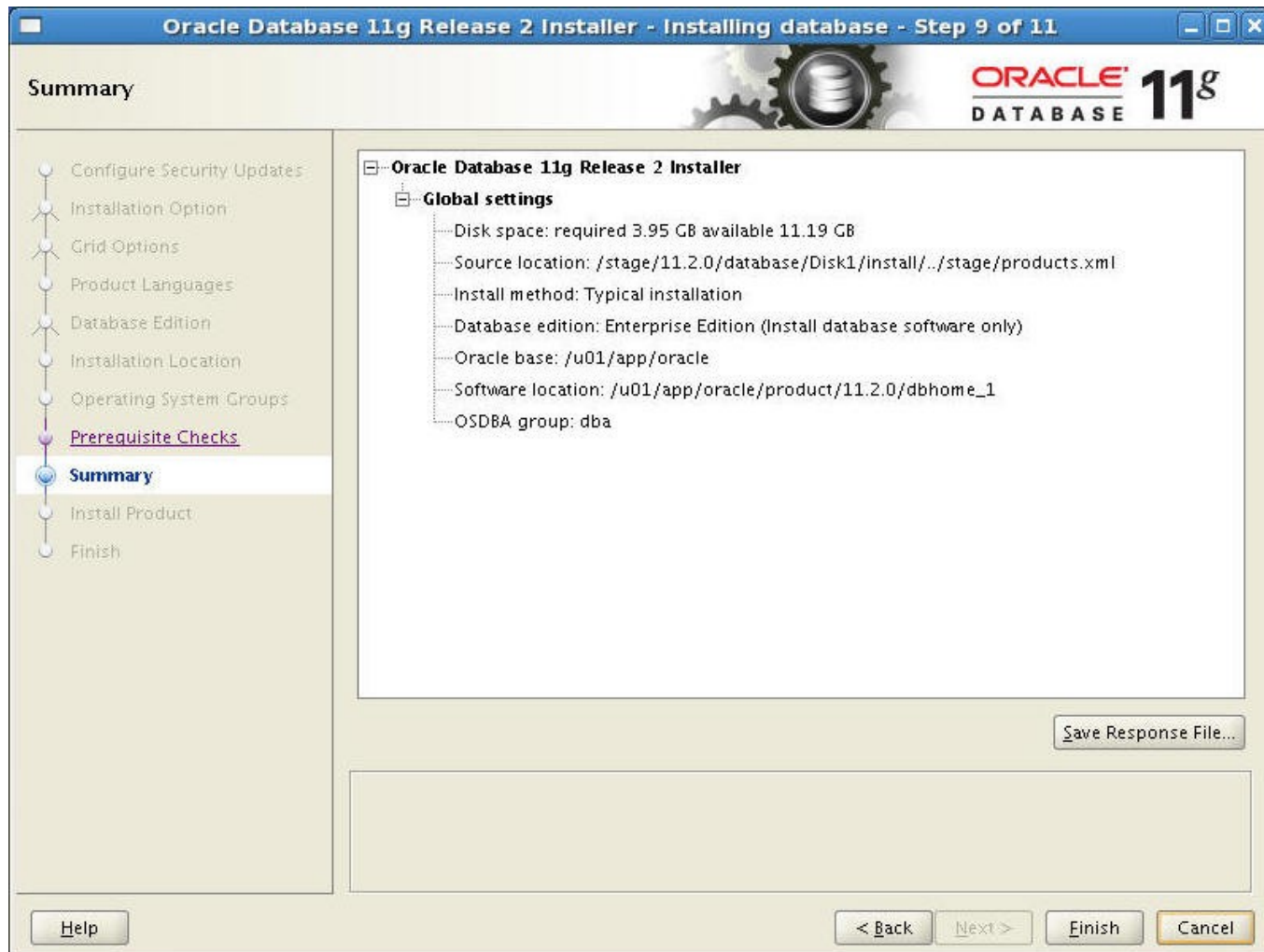
Choosing Operating System Groups



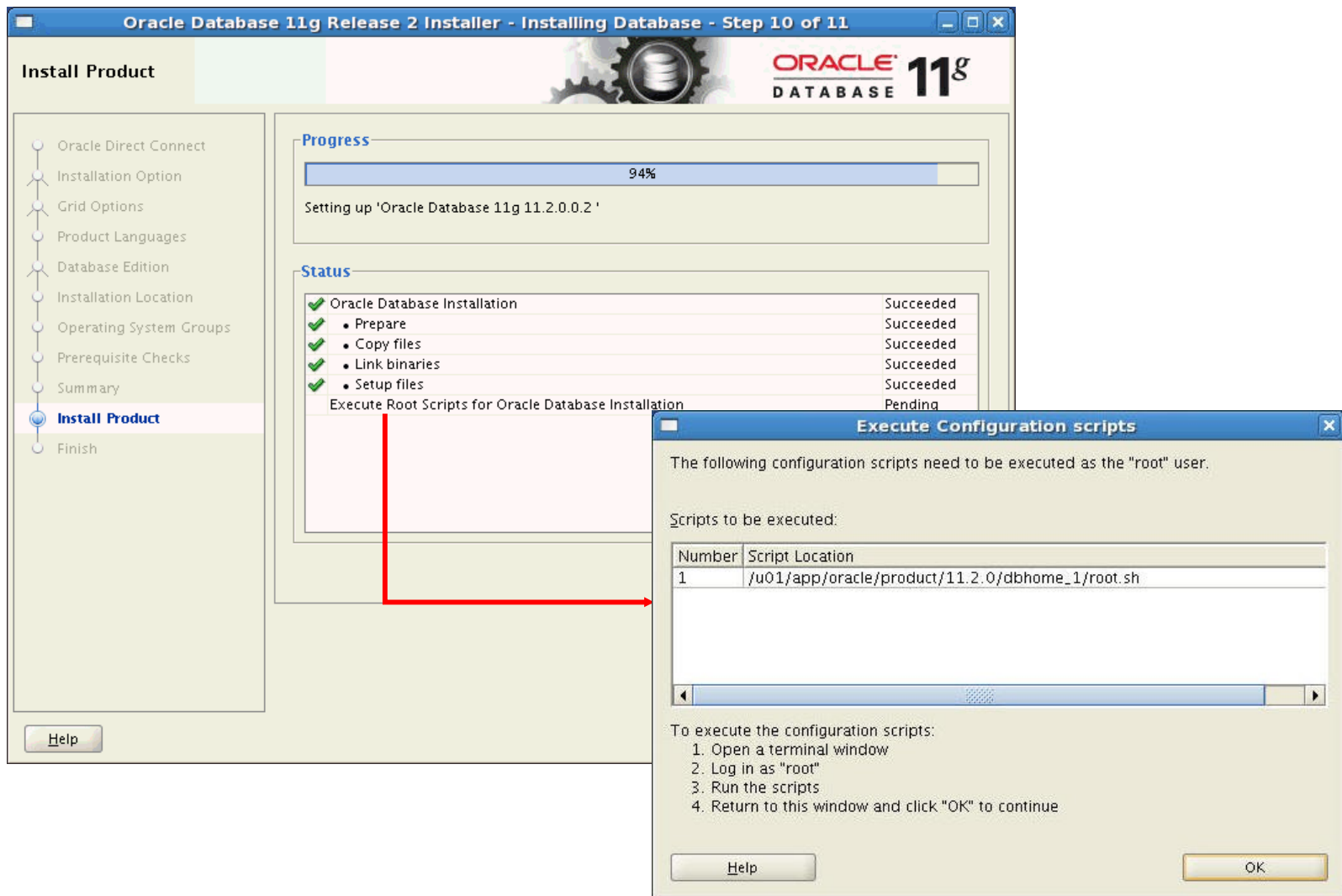
Performing Prerequisite Checks



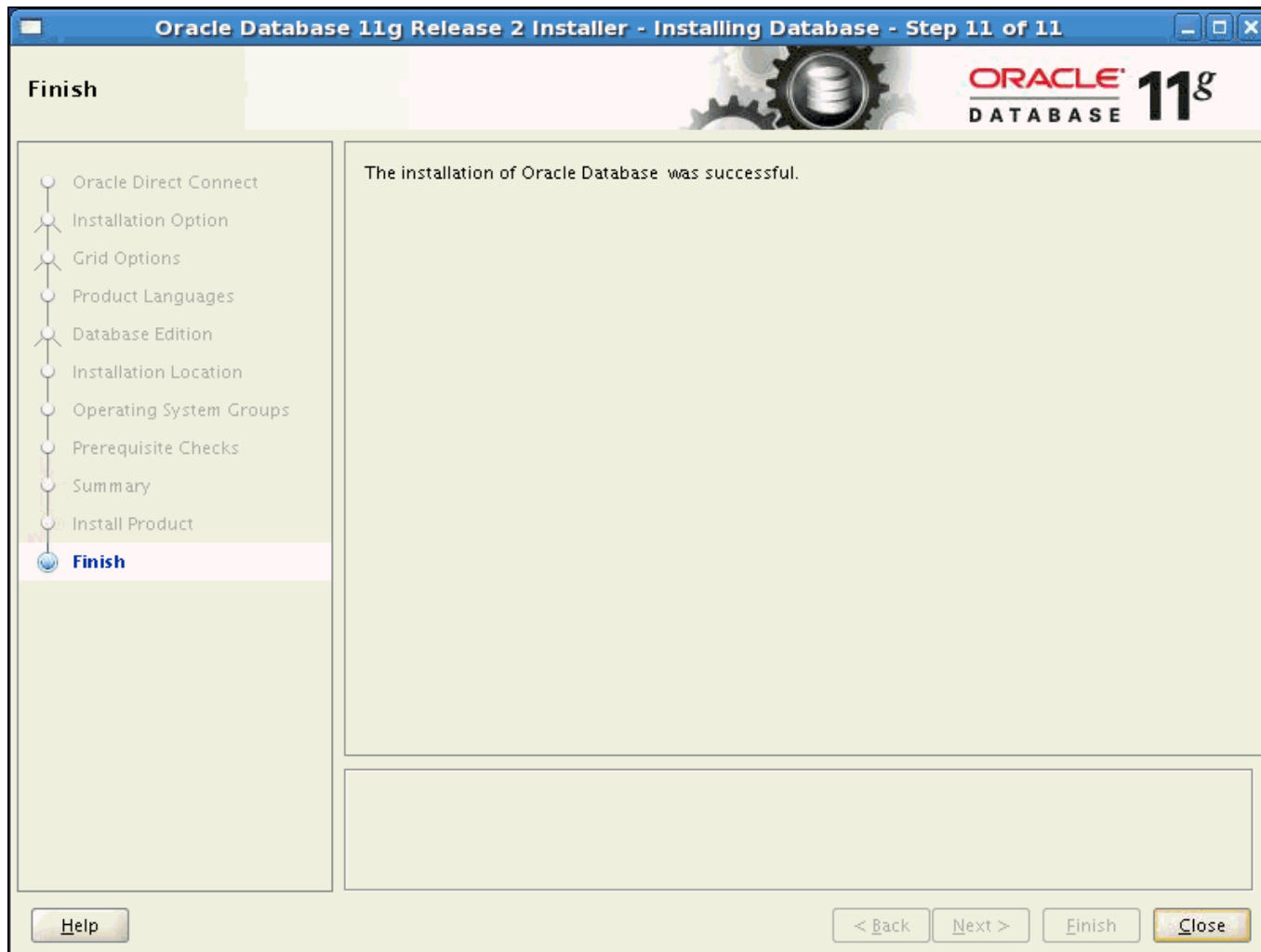
Installation Summary Page



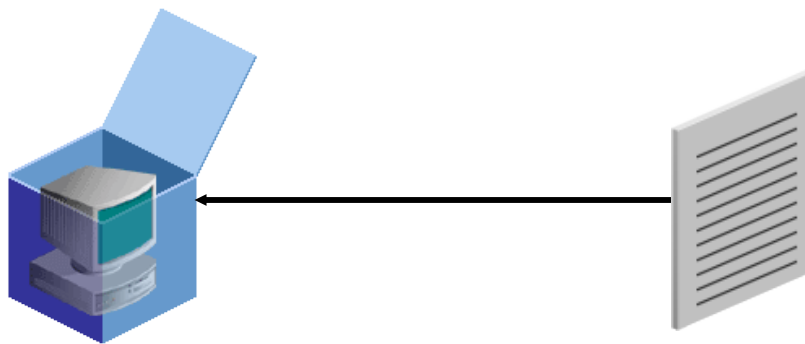
The Install Product Page



Installation Finished



Installation Option: Silent Mode



To install and configure Oracle products with OUI in silent mode, perform the following steps:

1. Prepare a response file:

- Using one of the file templates that are delivered with the Oracle software
- By recording a response file during an installation process using the OUI by clicking Save Response File on the summary page

2. Run OUI in silent or suppressed mode.

```
./runInstaller -silent -responsefile <filename>
```

If required, run NetCA and the DBCA in silent mode.

Quiz

A response file is:

1. A binary file that can be edited using a binary editing program
2. A binary file that can be created by the installer program
3. A text file that cannot be edited, but can be created by the installer program
4. A text file that can be edited with a text editor

Quiz

During Database software installation you can specify groups for:

1. the `osoper` group
2. the `osasm` group
3. the `osdba` group
4. the `osadmin` group

Summary

In this lesson, you should have learned how to:

- Describe your role as a database administrator (DBA) and explain typical tasks and tools
- Plan an Oracle software installation
- Install Oracle Grid Infrastructure for a standalone server
- Install the Oracle database software

Practice 2 Overview: Preparing the Database Environment

This practice covers installing the Oracle software by using Oracle Universal Installer.

Note: Completing this practice is critical for all subsequent practices.