

# Oracle® Database

Quick Installation Guide

11g Release 1 (11.1) for Linux x86

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This guide describes how to quickly install Oracle Database 11g on Linux x86 systems. It includes information about the following:

- [Reviewing Information About This Guide](#)
- [Logging In to the System as root](#)
- [Checking the Hardware Requirements](#)
- [Checking the Software Requirements](#)
- [Creating Required Operating System Groups and Users](#)
- [Configuring Kernel Parameters](#)
- [Creating Required Directories](#)
- [Configuring the oracle User's Environment](#)
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## 1 Reviewing Information About This Guide

This guide describes how to install Oracle Database by using the default installation options.

### Tasks Described in This Guide

The procedures in this guide describe how to:

- Configure your system to support Oracle Database
- Install Oracle Database on a local file system by using the Basic Installation option
- Configure a general-purpose Oracle Database installation that uses the local file system for database file storage

### Results of a Successful Installation

After you successfully install Oracle Database:

- The database that you created and the default Oracle Net listener process run on the system.
- Oracle Enterprise Manager Database Control run on the system and can be accessed by using a Web browser.

### Tasks Not Described in This Guide

This guide covers the Basic Installation scenario and does *not* describe how to complete the following tasks:

- Using the Advanced Installation option to install the software
- Installing the software on a system that has an existing Oracle software installation
- Installing Oracle Clusterware and Oracle Real Application Clusters on a cluster
- Enabling Enterprise Manager e-mail notifications or automated backups
- Using alternative storage options such as Automatic Storage Management

### Where to Get Additional Installation Information

For more information about installing Oracle Database, including information about the tasks not described in this guide, refer to one of the following guides:

- To install the software on a single system, then refer to *Oracle Database Installation Guide for Linux*.
- To perform a Oracle Real Application Clusters installation, then refer to *Oracle Clusterware Installation Guide for Linux* and *Oracle Real Application Clusters Installation Guide for Linux and UNIX*. These guides describe how to install Oracle Clusterware and Oracle Real Application Clusters. Oracle clusterware is a prerequisite for Oracle Real Application Clusters installations.

All these guides are available on the product disc. To access them, use a Web browser to open the `welcome.htm` file located in the top-level directory of the installation media, and then select the **Documentation** tab.

## 2 Logging In to the System as root

Before you install the Oracle software, you must complete several tasks as the `root` user. To log in as the `root` user, complete one of the following procedures:

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**Note:** You must install the software from an X Window System workstation, an X terminal, or a PC or other system with X server software installed

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- Following are the steps for installing the software from an X Window System workstation or X terminal:
  1. Start a local terminal session, for example, an X terminal (`xterm`).
  2. If you are not installing the software on the local system, then enter the following command to enable the remote host to display X applications on the local X server:

```
$ xhost fully_qualified_remote_host_name
```

For example:

```
$ xhost somehost.us.example.com
```

3. If you are not installing the software on the local system, then use the `ssh`, `rlogin`, or `telnet` command to connect to the system where you want to install the software:

```
$ telnet fully_qualified_remote_host_name
```

4. If you are not logged in as the `root` user, then enter the following command to switch user to `root`:

```
$ sudo sh
password:
#
```

- Following are the steps for installing the software from a PC or other system with X server software:

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**Note:** If necessary, refer to your X server documentation for more information about completing this procedure. Depending on the X server software that you are using, you may need to complete the tasks in a different order.

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1. Start the X server software.
2. Configure the security settings of the X server software to permit remote hosts to display X applications on the local system.
3. Connect to the remote system where you want to install the software and start a terminal session on that system, for example, an X terminal (`xterm`).
4. If you are not logged in as the `root` user on the remote system, then enter the following command to switch user to `root`:

```
$ sudo sh
password:
#
```

## 3 Checking the Hardware Requirements

The system must meet the following minimum hardware requirements:

- [Memory Requirements](#)
- [Disk Space Requirements](#)

### 3.1 Memory Requirements

The following are the memory requirements for installing Oracle Database 11g release 1:

- At least 1 GB of physical RAM

To determine the physical RAM size, enter the following command:

```
# grep MemTotal /proc/meminfo
```

If the size of the physical RAM is less than the required size, then you must install more memory before continuing.

- The following table describes the relationship between installed RAM and the configured swap space requirement:

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**Note:** On Linux, the Hugepages feature allocates non-swappable memory for large page tables using memory-mapped files. If you enable Hugepages, then you should deduct the memory allocated to Hugepages from the available RAM before calculating swap space.

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RAM	Swap Space
Between 1 GB and 2 GB	1.5 times the size of RAM
Between 2 GB and 16 GB	Equal to the size of RAM
More than 16 GB	16 GB

- To determine whether the system architecture can run the software, enter the following command:

```
# grep "model name" /proc/cpuinfo
```

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**Note:** This command displays the processor type. Verify that the processor architecture matches the Oracle software release that you want to install. If you do not see the expected output, then you cannot install the software on this system.

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To determine the size of the configured swap space, enter the following command:

```
# grep SwapTotal /proc/meminfo
```

If necessary, refer to the operating system documentation for information about how to configure additional swap space.

To determine the available RAM and swap space, enter the following command:

```
# free
```

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**Note:** Oracle recommends that you take multiple values for the available RAM and swap space before finalizing a value. This is because the available RAM and swap space keep changing depending on the user interactions with the computer.

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### Automatic Memory Management

Starting with Oracle Database 11g, the Automatic Memory Management feature requires more shared memory (`/dev/shm`) and file descriptors. The shared memory should be sized to be at least the greater of `MEMORY_MAX_TARGET` and `MEMORY_TARGET` for each Oracle instance on the computer.

To determine the amount of shared memory available, enter the following command:

```
# df -k /dev/shm/
```

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**Note:** MEMORY\_MAX\_TARGET and MEMORY\_TARGET cannot be used when LOCK\_SGA is enabled or with huge pages on Linux

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## 3.2 Disk Space Requirements

The following are the disk space requirements for installing Oracle Database 11g release 1:

- Between 150 and 200 MB of disk space in the /tmp directory

To determine the amount of disk space available in the /tmp directory, enter the following command:

```
# df -k /tmp
```

If there is less than 400 MB of free disk space available in the /tmp directory, then complete one of the following steps:

- Delete unnecessary files from the /tmp directory to meet the disk space requirement.
  - Set the TMP and TMPDIR environment variables when setting the oracle user's environment (described later).
  - Extend the file system that contains the /tmp directory. If necessary, contact the system administrator for information about extending file systems.
- Between 1.5 GB and 3.5 GB of disk space for the Oracle software, depending on the installation type

To determine the amount of free disk space on the system, enter the following command:

```
# df -k
```

Installation typr	Requirement for Software Files (GB)
Enterprise Edition	3.47
Standard Edition	3.22
Custom (maximum)	3.37

- Enterprise Edition and Standard Edition require 1.5 GB of disk space for datafiles. However, Custom DB requires 1.81 GB.

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**Note:** The disk space requirement for databases that use Automatic Storage Management is described later in this chapter.

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Additional disk space, either on a file system or in an Automatic Storage Management disk group, is required for the flash recovery area if you choose to configure automated backups.

## 4 Checking the Software Requirements

Depending on the products that you intend to install, verify that the following softwares are installed on the system.

- [Operating System Requirements](#)
- [Kernel Requirements](#)
- [Package Requirements](#)
- [Compiler Requirements](#)
- [Additional Software Requirements](#)

## 4.1 Operating System Requirements

The following are the operating system requirements for Oracle Database 11g release 1:

- Asianux 2 SP2
- Asianux 3
- Oracle Linux 4
- Oracle Linux 5
- Red Hat Enterprise Linux 4
- Red Hat Enterprise Linux 5
- SUSE Enterprise Linux 10

To determine the distribution and version of Linux installed, enter the following command:

```
# cat /proc/version
```

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**Note:** Only the distributions and versions listed in the earlier itemized list are supported. Do not install the software on other versions of Linux.

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## 4.2 Kernel Requirements

The following are the Kernel requirements for Oracle Database 11g release 1:

- For Asianux 2, Oracle Linux 4, and Red Hat Enterprise Linux 4:  
2.6.9 or later
- For Asianux 3, Oracle Linux 5, and Red Hat Enterprise Linux 5:  
2.6.18 or later
- For SUSE 10:  
2.6.16.21 or later

To determine whether the required kernel is installed, enter the following command:

```
# uname -r
```

The following is a sample output displayed by running this command on a Red Hat Enterprise Linux 4.0 system:

```
2.6.9-55.0.0.0.2.EL
```

In this example, the output shows the kernel version (2.6.9) and errata level (55.0.0.0.2.EL) on the system.

If the kernel version does not meet the requirement specified earlier in this section, then contact the operating system vendor for information about obtaining and installing kernel updates.

### 4.3 Package Requirements

The following are the list of packages required for Oracle Database 11g release 1:

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**Note:** ■

- Oracle recommends that you install your Linux operating system with the default software packages (RPMs), unless you specifically intend to perform a minimal installation, and follow the directions for performing such an installation to ensure that you have all required packages for Oracle software.
  - Oracle recommends that you do not customize RPMs during a default operating system installation. A default installation includes most required packages, and will help you to limit manual checks of package dependencies.
  - If you did not perform a default Linux installation, you intend to use LDAP, and you want to use the scripts `odisrvreg`, `oidca`, or `schemasync`, then install the Korn shell RPM for the Linux distribution.
  - You must install the packages (or later versions) listed in the following table. Also, ensure that the list of RPMs and all of the prerequisites for these RPMs are installed.
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- The following or later version of packages for Asianux 2, Oracle Linux 4, and Red Hat Enterprise Linux 4 should be installed:

```
binutils-2.15.92.0.2-18
compat-libstdc++-33.2.3-47.3
elfutils-libelf-0.97-5
elfutils-libelf-devel-0.97-5
glibc-2.3.4-2.19
glibc-common-2.3.4-2.19
glibc-devel-2.3.4-2.19
glibc-headers-2.3.4-2.19
gcc-3.4.5-2
gcc-c++-3.4.5-2
libaio-devel-0.3.105-2
libaio-0.3.105-2
libgcc-3.4.5
libstdc++-3.4.5-2
libstdc++-devel-3.4.5-2
make-3.80-5
numactl-0.6.4.i386
sysstat-5.0.5
```

- The following or later version of packages for Asianux 3, Oracle Linux 5, and Red Hat Enterprise Linux 5 should be installed:

```
binutils-2.17.50.0.6-2.el5
compat-libstdc++-33-3.2.3-61
elfutils-libelf-0.125-3.el5
```

```
elfutils-libelf-devel-0.125
glibc-2.5-12
glibc-common-2.5-12
glibc-devel-2.5-12
glibc-headers-2.5-12
gcc-4.1.1-52
gcc-c++-4.1.1-52
libaio-0.3.106
libaio-devel-0.3.106
libgcc-4.1.1-52
libstdc++-4.1.1
libstdc++-devel-4.1.1-52.e15
make-3.81-1.1
numactl-devel-0.9.8.i386
sysstat-7.0.0
```

- The following or later version of packages for SUSE Linux Enterprise Server 10 should be installed:

```
binutils-2.16.91.0.5
compat-libstdc++-5.0.7
glibc-2.4-31.2
glibc-devel-2.4-31.2
gcc-4.1.0
ksh-93r-12.9
libaio-0.3.104
libaio-devel-0.3.104
libelf-0.8.5
libgcc-4.1.0
libstdc++-4.1.0
libstdc++-devel-4.1.0
make-3.80
sysstat-6.0.2
```

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**Note:** If you did not perform a default Linux installation, you intend to use LDAP, and you want to use the scripts `odisrvreg`, `oidca`, or `schemasync`, then install the Korn shell RPM for your Linux distribution.

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To determine whether the required packages are installed, enter commands similar to the following:

```
# rpm -q package_name
```

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**Note:** The numa package link for Linux x86 is `/usr/lib/`.

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If a package is not installed, then install it from the Linux distribution media or download the required package version from the Linux vendor's Web site.

## 4.4 Compiler Requirements

The following are the compiler requirements for Pro\*C/C++, Oracle Call Interface, Oracle C++ Call Interface, and Oracle XML Developer's Kit (XDK) with Oracle Database 11g release 1:

Intel C++ Compiler 9.1 or later and the version of GNU C and C++ compilers listed under "[Package Requirements](#)" on page 7 are supported with these products.

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**Note:** Intel Compiler v9.1 can be used only with gcc 3.4.5 or gcc 4.0 or gcc 4.1 standard template libraries to build Oracle C++ Call Interface (OCCI) applications.

Oracle XML Developer's Kit is supported with the same compilers as OCCI.

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## 4.5 Additional Software Requirements

Depending on the components you want to use, you must ensure that the following software are installed:

- [Oracle ODBC Drivers](#)
- [Oracle JDBC/OCI Drivers](#)
- [Oracle Messaging Gateway](#)
- [Browser Requirements](#)

### 4.5.1 Oracle ODBC Drivers

You should install ODBC Driver Manager for UNIX. You can download and install the Driver Manager from the following URL:

<http://www.unixodbc.org>

Linux RPMs are available on the site. You do not require ODBC Driver Manager to install Oracle Database. To use ODBC, you must also install the following additional 32-bit ODBC RPMs, depending on your operating system:

- On Asianux 2, Oracle Linux 4, and Red Hat Enterprise Linux 4:  
unixODBC-2.2.11 (32 bit) or later  
unixODBC-devel-2.2.11 (32 bit) or later
- On Asianux 3, Oracle Linux 5, and Red Hat Enterprise Linux 5:  
unixODBC-2.2.11 (32 bit) or later  
unixODBC-devel-2.2.11 (32 bit) or later
- On SUSE 10:  
unixODBC-32bit-2.2.11 (32 bit) or later  
unixODBC-devel-32bit-2.2.11 (32 bit) or later

### 4.5.2 Oracle JDBC/OCI Drivers

You can use Sun JDK 1.5.0-06 with the JNDI extension with the Oracle Java Database Connectivity and Oracle Call Interface drivers. However, these are not mandatory for the database installation.

### 4.5.3 Oracle Messaging Gateway

Oracle Messaging Gateway supports the integration of Oracle Streams Advanced Queuing (AQ) with the following software:

- IBM WebSphere MQ V5.3, client and server, with corrective service diskette 5 (CSD05) or later:

```
MQSeriesClient
MQSeriesServer
MQSeriesRuntime
```

- TIBCO Rendezvous 7.2

If you require a CSD for WebSphere MQ, then refer to the following Web site for download and installation information:

<http://www-306.ibm.com/software/integration/wmq/support>

### 4.5.4 Browser Requirements

Web browsers must support Java Script and the HTML 4.0 and CSS 1.0 standards. The following Web browsers are supported for Oracle Enterprise Manager Database Control:

- Netscape Navigator 7.2
- Netscape Navigator 8.1
- Mozilla version 1.7
- Microsoft Internet Explorer 6.0 SP2
- Microsoft Internet Explorer 7.0
- Firefox 1.0.4
- Firefox 1.5
- Firefox 2.0

## 5 Creating Required Operating System Groups and Users

The following local operating system groups and users are required if you are installing Oracle Database:

- The Oracle Inventory group (`oinstall`)
- The OSDBA group (`dba`)
- The Oracle software owner (`oracle`)

To determine whether these groups and users already exist, and if necessary, to create them, follow these steps:

1. To determine whether the `oinstall` group exists, enter the following command:

```
# more /etc/oraInst.loc
```

If the output of this command shows the `oinstall` group name, then the group already exists.

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**Note:** In Oracle documentation, Oracle Inventory group is called `oinstall`. However, it is not mandatory to use the same name, you can enter a different name for the group.

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If the `oraInst.loc` file exists, then the output from this command is similar to the following:

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

The `inst_group` parameter shows the name of the Oracle Inventory group, `oinstall`.

2. To determine whether the `dba` group exists, enter the following command:

```
# grep dba /etc/group
```

If the output from this command shows the `dba` group name, then the group already exists.

3. If necessary, enter the following commands to create the `oinstall` and `dba` groups:

```
# /usr/sbin/groupadd oinstall
# /usr/sbin/groupadd dba
```

4. To determine whether the `oracle` user exists and belongs to the correct groups, enter the following command:

```
# id oracle
```

If the `oracle` user exists, then this command displays information about the groups to which the user belongs. The output should be similar to the following, indicating that `oinstall` is the primary group and `dba` is a secondary group:

```
uid=440(oracle) gid=200(oinstall) groups=201(dba),202(oper)
```

5. If necessary, complete one of the following actions:

- If the `oracle` user exists, but its primary group is not `oinstall` or it is not a member of the `dba` group, then enter the following command:

```
# /usr/sbin/usermod -g oinstall -G dba oracle
```

- If the `oracle` user does not exist, enter the following command to create it:

```
# /usr/sbin/useradd -g oinstall -G dba oracle
```

This command creates the `oracle` user and specifies `oinstall` as the primary group and `dba` as the secondary group.

6. Enter the following command to set the password of the `oracle` user:

```
# passwd oracle
```

## 6 Configuring Kernel Parameters

Verify that the kernel parameters shown in the following table are set to values greater than or equal to the minimum value shown. The procedure following the table describes how to verify and set the values.

Parameter	Value	File
semmsl	250	/proc/sys/kernel/sem
semms	32000	
semopm	100	
semnmi	128	
shmall	2097152	/proc/sys/kernel/shmall
shmmax	Minimum of the following values: <ul style="list-style-type: none"> <li>■ Half the size of the physical memory</li> <li>■ 4GB - 1 byte</li> </ul>	/proc/sys/kernel/shmmax
shmmni	4096	/proc/sys/kernel/shmmni
file-max	6815744	/proc/sys/fs/file-max
ip_local_port_range	Minimum: 9000 Maximum: 65500  <b>Note:</b> Ignore any Oracle Universal Installer warnings related to this parameter.	/proc/sys/net/ipv4/ip_local_port_range
rmem_default	262144	/proc/sys/net/core/rmem_default
rmem_max	4194304	/proc/sys/net/core/rmem_max
wmem_default	262144	/proc/sys/net/core/wmem_default
wmem_max	1048576	/proc/sys/net/core/wmem_max
aio-max-nr	Maximum: 1048576  <b>Note:</b> This value limits concurrent outstanding requests and should be set to avoid I/O subsystem failures.	/sbin/sysctl

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**Note:** If the current value of any parameter is higher than the value listed in this table, then do not change the value of that parameter.

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To view the current value specified for these kernel parameters, and to change them if necessary:

- Enter commands similar to the following to view the current values of the kernel parameters:

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**Note:** Make a note of the current values and identify any values that you must change.

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Parameter	Command
semmsl, semmns, semopm, and semmni	# /sbin/sysctl -a   grep sem This command displays the value of the semaphore parameters in the order listed.
shmall, shmmax, and shmmni	# /sbin/sysctl -a   grep shm
file-max	# /sbin/sysctl -a   grep file-max
ip_local_port_range	# /sbin/sysctl -a   grep ip_local_port_range
rmem_default	# /sbin/sysctl -a   grep rmem_default
rmem_max	# /sbin/sysctl -a   grep rmem_max
wmem_default	# /sbin/sysctl -a   grep wmem_default
wmem_max	# /sbin/sysctl -a   grep wmem_max

- If the value of any kernel parameter is different from the recommended value, then complete the following steps:
  1. Using any text editor, create or edit the `/etc/sysctl.conf` file, and add or edit lines similar to the following:

---

**Note:** Include lines only for the kernel parameter values that you want to change. For the semaphore parameters (`kernel.sem`), you must specify all four values. However, if any of the current values are larger than the minimum value, then specify the larger value.

---

```
fs.file-max = 6815744
kernel.shmall = 2097152
kernel.shmmax = 2147483648
kernel.shmmni = 4096
kernel.sem = 250 32000 100 128
net.ipv4.ip_local_port_range = 9000 65500
net.core.rmem_default = 262144
net.core.rmem_max = 4194304
net.core.wmem_default = 262144
net.core.wmem_max = 1048576
```

---

**Note:** The minimum value required for `shmmax` is 0.5 GB. However, Oracle recommends that you set the value of `shmmax` to 2.0 GB for optimum performance of the system.

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By specifying the values in the `/etc/sysctl.conf` file, they persist when you restart the system.

2. Enter the following command to change the current values of the kernel parameters:

```
# /sbin/sysctl -p
```

Review the output from this command to verify that the values are correct. If the values are incorrect, edit the `/etc/sysctl.conf` file, then enter this command again.

3. Enter the command `/sbin/sysctl -a` to confirm that the values are set correctly.
4. On SUSE systems only, enter the following command to cause the system to read the `/etc/sysctl.conf` file when it restarts:

```
# /sbin/chkconfig boot.sysctl on
```

5. On SUSE systems only, you must enter the GID of the `oinstall` group as the value for the parameter `/proc/sys/vm/hugetlb_shm_group`. Doing this grants members of `oinstall` a group permission to create shared memory segments.

For example, where the `oinstall` group GID is 501:

```
# echo 501 > /proc/sys/vm/hugetlb_shm_group
```

After running this command, use `vi` to add the following text to `/etc/sysctl.conf`, and enable the `boot.sysctl` script to run on system restart:

```
vm.hugetlb_shm_group=501
```

---

---

**Note:** Only one group can be defined as the `vm.hugetlb_shm_group`.

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6. After updating the values of kernel parameters in the `/etc/sysctl.conf` file, either restart the computer, or run the command `sysctl -p` to make the changes in the `/etc/sysctl.conf` file available in the active kernel memory.

### Setting Shell Limits for the oracle User

To improve the performance of the software, you must increase the following shell limits for the `oracle` user:

Shell Limit	Item in limits.conf	Hard Limit
Maximum number of open file descriptors	<code>nofile</code>	65536
Maximum number of processes available to a single user	<code>nproc</code>	16384

To increase the shell limits:

Add the following lines in the `/etc/security/limits.conf` file:

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

---

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**Note:** All the shell limit changes that you make to the `limits.conf` file is updated into the file, and is available the next time you log in to the system.

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## 7 Creating Required Directories

Create directories with names similar to the following, and specify the correct owner, group, and permissions for them:

- The Oracle base directory
- An optional Oracle data file directory

The Oracle base directory must have 3 GB of free disk space, or 4 GB of free disk space if you choose not to create a separate Oracle data file directory.

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**Note:** If you do not want to create a separate Oracle data file directory, then you can install the data files in a subdirectory of the Oracle base directory. However, this is not recommended for production databases.

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To create the Oracle base directory:

1. Enter the following command to display information about all mounted file systems:

```
# df -k
```

This command displays information about all the file systems mounted on the system, including:

- The physical device name
  - The total amount, used amount, and available amount of disk space
  - The mount point directory for that file system
2. From the display, identify either one or two file systems that meet the disk space requirements mentioned earlier in this section.
  3. Note the name of the mount point directory for each file system that you identified.
  4. Enter commands similar to the following to create the recommended subdirectories in the mount point directory that you identified and set the appropriate owner, group, and permissions on them:

```
# mkdir -p /mount_point/app/  
# chown -R oracle:oinstall /mount_point/app/  
# chmod -R 775 /mount_point/app/
```

For example:

```
# mkdir -p /u01/app/  
# chown -R oracle:oinstall /u01/app/  
# chmod -R 775 /u01/app/
```

## 8 Configuring the oracle User's Environment

You run Oracle Universal Installer from the `oracle` account. However, before you start Oracle Universal Installer you must configure the environment of the `oracle` user. To configure the environment, you must:

- Set the default file mode creation mask (`umask`) to 022 in the shell startup file.
- Set the `DISPLAY` environment variable.

To set the `oracle` user's environment:

1. Start a new terminal session, for example, an X terminal (`xterm`).
2. Enter the following command to ensure that X Window applications can display on this system:

```
$ xhost fully_qualified_remote_host_name
```

For example:

```
$ xhost somehost.us.example.com
```

3. If you are not already logged in to the system where you want to install the software, then log in to that system as the `oracle` user.
4. If you are not logged in as the `oracle` user, then switch user to `oracle`:

```
$ su - oracle
```

5. To determine the default shell for the `oracle` user, enter the following command:

```
$ echo $SHELL
```

6. To run the shell startup script, enter one of the following commands:

- Bash shell:

```
$ . ~/.bash_profile
```

- Bourne or Korn shell:

```
$ . ~/.profile
```

- C shell:

```
% source ~/.login
```

7. If you are not installing the software on the local computer, then run the following command on the remote machine to set the `DISPLAY` variable:

- Bourne, Bash or Korn shell:

```
$ export DISPLAY=local_host:0.0
```

- C shell:

```
% setenv DISPLAY local_host:0.0
```

In this example, `local_host` is the host name or IP address of the local computer that you want to use to display Oracle Universal Installer.

Run the following command on the remote machine to check if the shell and the `DISPLAY` environmental variable are set correctly:

```
echo $SHELL
```

```
echo $DISPLAY
```

Now to enable X applications, run the following commands on the local computer:

```
$ xhost + fully_qualified_remote_host_name
```

To verify that X applications display is set properly, run a X11 based program that comes with the operating system such as `xclock`:

```
$ xclock_path
```

In this example, `xclock_path` is the directory path. For example, you can find `xclock` at `/usr/X11R6/bin/xclocks`. If the `DISPLAY` variable is set properly, then you can see `xclock` on your computer screen.

**See Also:** PC-X Server or Operating System vendor documents for further assistance.

8. If you determined that the `/tmp` directory has less than 400 MB of free disk space, then identify a file system with at least 400 MB of free space and set the `TMP` and `TMPDIR` environment variables to specify a temporary directory on this file system:

- a. To determine the free disk space on each mounted file system use the following command:

```
# df -k /tmp
```

- b. If necessary, enter commands similar to the following to create a temporary directory on the file system that you identified, and set the appropriate permissions on the directory:

```
$ sudo mkdir /mount_point/tmp
$ sudo chmod a+wr /mount_point/tmp
# exit
```

- c. Enter commands similar to the following to set the `TMP` and `TMPDIR` environment variables:

- \* Bourne, Bash, or Korn shell:

```
$ TMP=mount_point/tmp
$ TMPDIR=mount_point/tmp
$ export TMP TMPDIR
```

- \* C shell:

```
% setenv TMP mount_point/tmp
% setenv TMPDIR mount_point/tmp
```

9. Enter commands similar to the following to set the `ORACLE_BASE` and `ORACLE_SID` environment variables:

- Bourne, Bash, or Korn shell:

```
$ ORACLE_BASE=u01/app/oracle
$ ORACLE_SID=sales
$ export ORACLE_BASE ORACLE_SID
```

- C shell:

```
% setenv ORACLE_BASE u01/app/oracle
```

```
% setenv ORACLE_SID sales
```

In these examples, `/u01/app/oracle` is the Oracle base directory that you created or identified earlier and `sales` is the name that you want to call the database (typically no more than five characters).

10. Enter the following commands to ensure that the `ORACLE_HOME` and `TNS_ADMIN` environment variables are not set:

- Bourne, Bash, or Korn shell:

```
$ unset ORACLE_HOME
$ unset TNS_ADMIN
```

- C shell:

```
% unsetenv ORACLE_HOME
% unsetenv TNS_ADMIN
```

---

---

**Note:** If the `ORACLE_HOME` environment variable is set, then Oracle Universal Installer uses the value that it specifies as the default path for the Oracle home directory. However, if you set the `ORACLE_BASE` environment variable, then Oracle recommends that you unset the `ORACLE_HOME` environment variable and choose the default path suggested by Oracle Universal Installer.

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## 9 Mounting the Product Disc

On most Linux systems, the product disc mounts automatically when you insert it into the drive. If the disc does not mount automatically, then follow these steps to mount it:

1. Enter a command similar to the following to eject the currently mounted disc, then remove it from the drive:

- Asianux, Oracle Linux, and Red Hat Enterprise Linux:

```
$ sudo eject /mnt/dvd
```

- SUSE:

```
# eject /media/dvd
```

In these examples, `/mnt/dvd` and `/media/dvd` are the mount point directories for the disc drive.

2. Insert the DVD into the disc drive.
3. To verify that the disc mounted automatically, enter a command similar to the following:

- Asianux, Oracle Linux, and Red Hat Enterprise Linux:

```
# ls /mnt/dvd
```

- SUSE:

```
# ls /media/dvd
```

4. If this command fails to display the contents of the disc, then enter a command similar to the following:

- Asianux, Oracle Linux, and Red Hat Enterprise Linux:

```
# mount -t iso9660 /dev/dvd /mnt/dvd
```

- SUSE:

```
# mount -t iso9660 /dev/dvd /media/dvd
```

In these examples, `/mnt/dvd` and `/media/dvd` are the mount point directories for the disc drive.

## 10 Installing Oracle Database

After configuring the `oracle` user's environment, start Oracle Universal Installer and install Oracle Database as follows:

1. To start Oracle Universal Installer, enter the following command:

```
$ /mount_point/db/runInstaller
```

If Oracle Universal Installer does not start, then refer to *Oracle Database Installation Guide for Linux* for information about how to troubleshoot X Window display problems.

2. The following table describes the recommended action for each Oracle Universal Installer screen. Use the following guidelines to complete the installation:

- If you need more assistance, or to choose an option that is not a default, then click **Help** for additional information.
- If you encounter errors while installing or linking the software, then refer to *Oracle Database Installation Guide for Linux* for information about troubleshooting.

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### Note:

- If you have completed the tasks listed previously, then you can complete the installation by choosing the default values on most screens.
  - In Oracle documentation, Oracle Inventory group is called `oinstall`. However, it is not mandatory to use the same name, you can enter a different name for the group.
- 
- 

Screen	Recommended Action
Select a Product to Install	This screen enables you to install any one for the following products: <ul style="list-style-type: none"> <li>■ Oracle Database 11g</li> <li>■ Oracle Client</li> <li>■ Oracle Clusterware</li> </ul> Click <b>Next</b> .
Select Installation Method	The Basic Installation option is selected by default. Specify the directory path of the Oracle home. Ensure that the <code>oinstall</code> group is selected. To create a starter database, then specify a name and password for it. Then, click <b>Next</b> .

Screen	Recommended Action
Specify Inventory Directory and Credentials	<p>This screen is displayed only during the first installation of Oracle products on a system.</p> <p>Specify the full path of the Oracle Inventory directory. Ensure that the operating system group selected is <code>oinstall</code>. Then, click <b>Next</b>.</p>
Product-Specific Prerequisite Checks	<p>Verify that all of the prerequisite checks succeed, and then click <b>Next</b>.</p> <p>Oracle Universal Installer checks the system to verify that it is configured correctly to run Oracle software. If you have completed all of the preinstallation steps in this guide, all of the checks should pass.</p> <p>If a check fails, then review the cause of the failure listed for that check on the screen. If possible, rectify the problem and rerun the check. Alternatively, if you are satisfied that your system meets the requirements, then you can select the check box for the failed check to manually verify the requirement.</p>
Oracle Configuration Manager	<p>Enter the Customer Identification Number, Metalink User Name, Country code, and Click <b>Next</b>. The new screen prompts you to accept the license agreement. Click <b>Accept license Agreement</b> to accept the agreement.</p> <p>If you decline this agreement, then Oracle Configuration Manager is installed but not configured.</p>
Summary	<p>Review the information displayed on this screen, and then click <b>Install</b>.</p>
Install	<p>This screen displays status information while the product is installed.</p>
Configuration Assistants	<p>This screen displays status information for the configuration assistants that configure the software and create a database. When the message is displayed at the end of this process, click <b>OK</b> to continue.</p>
Execute Configuration Scripts	<p>When prompted, read the instructions and then run the scripts mentioned on this screen. Click <b>OK</b> to continue.</p>
End of Installation	<p>The configuration assistants configure several Web-based applications, including Oracle Enterprise Manager Database Control. This screen displays the URLs configured for these applications. Make a note of the URLs used. The port numbers used in these URLs are also recorded in the following file:</p> <p><code>oracle_home/install/portlist.ini</code></p> <p>To exit from Oracle Universal Installer, click <b>Exit</b> and then click <b>Yes</b>.</p>

## 11 Installing Oracle Database Examples

If you plan to use the following products or features, then download and install the products from the Oracle Database Examples media:

- Oracle JDBC Development Drivers
- Oracle Database Examples
- Oracle Context Companion
- Various Oracle product demonstrations

For information about installing software and various Oracle product demonstrations from the Oracle Database Examples media, refer to *Oracle Database Examples Installation Guide*.

## 12 What to Do Next?

To become familiar with this release of Oracle Database, it is recommended that you complete the following tasks:

- Log in to Oracle Enterprise Manager Database Control using a Web browser.  
Oracle Enterprise Manager Database Control is a Web-based application that you can use to manage a single Oracle Database installation. The default URL for Database Control is similar to the following:

```
http://host.domain:1158/em/
```

To log in, use the user name `SYS` and connect as `SYSDBA`. Use the password that you specified for this user during the Oracle Database 11g installation.

- Refer to *Oracle Database Installation Guide for Linux* for information about required and optional postinstallation tasks, depending on the products that you want to use.
- Refer to *Oracle Database Installation Guide for Linux* for information about how to use Database Control to learn about the configuration of your installed database.
- To learn more about using Oracle Enterprise Manager Database Control to administer a database, refer to *Oracle Database 2 Day DBA*.

This guide, designed for new Oracle DBAs, describes how to use Database Control to manage all aspects of an Oracle Database installation. It also provides information about how to enable e-mail notifications and automated backups, which you might not have configured during the installation.

## 13 Additional Information

This section contains information about the following:

- [Product Licenses](#)
- [Purchasing Licenses, Version Updates, and Documentation](#)
- [Contacting Oracle Support Services](#)
- [Locating Product Documentation](#)

### Product Licenses

You are welcome to install and evaluate the products included in this media pack for 30 days under the terms of the Trial License Agreement. However, you must purchase a program license to continue using any product after the 30 day evaluation period. See the following section for information about purchasing program licenses.

### Purchasing Licenses, Version Updates, and Documentation

You can purchase program licenses, updated versions of Oracle products, and printed versions of Oracle documentation from the Oracle Store Web site:

<http://shop.oracle.com>

### Contacting Oracle Support Services

If you have purchased Oracle Product Support, you can call Oracle Support Services for assistance 24 hours a day, seven days a week. For information about purchasing

Oracle Product Support or contacting Oracle Support Services, go to the Oracle Support Services Web site:

<http://www.oracle.com/support>

### **Locating Product Documentation**

Product documentation includes information about configuring, using, or administering Oracle products on any platform. The product documentation for Oracle Database 11g products is available in both HTML and PDF formats in the following locations:

- On the Oracle Database Documentation Library media  
Use a Web browser to view or open the `index.htm` file in the top-level directory on the media.
- Online on the Oracle Technology Network (OTN) Web site:  
<http://www.oracle.com/technology/documentation/index.html>

## **14 Documentation Accessibility**

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Oracle Database Quick Installation Guide, 11g Release 1 (11.1) for Linux x86  
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