

# Oracle® Secure Enterprise Search

Quick Installation Guide

10g Release 1 (10.1.6) for Linux x86-64

**B28690-02**

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This document describes how to install Oracle Secure Enterprise Search (SES). It includes the following sections:

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## System Requirements

Following are the software requirements:

1. Oracle SES can be installed on one of the following operating system versions:
  - Red Hat Linux 3
  - Red Hat Linux 4
  - SuSE Linux Enterprise Server 9
2. The system must be running the following kernel version (or a later version):
  - Red Hat Enterprise Linux 3 (Update 2): 2.4.21-15.EL
  - Red Hat Enterprise Linux 4 (Update 1): 2.6.9-11.EL smp
  - SuSE Linux Enterprise Server 9: 2.6.5-7.97
3. The following packages (or later versions) must be installed:
  - Red Hat Enterprise Linux 3 (Update 2):  
make-3.79.1  
gcc-3.2.3-34  
glibc-2.3.2-95.20  
glibc-devel-2.3.2-95.20  
glibc-devel-2.3.2-95.20 (32 bit)  
compat-db-4.0.14-5

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```
compat-gcc-7.3-2.96.128
compat-gcc-c++-7.3-2.96.128
compat-libstdc++-7.3-2.96.128
compat-libstdc++-devel-7.3-2.96.128
gnome-libs-1.4.1.2.90-34.1 (32 bit)
openmotif21-2.1.30-8
setarch-1.3-1
libaio-0.3.96-3
libaio-devel-0.3.96-3
```

- **Red Hat Enterprise Linux 4 (Update 1):**

```
make-3.80-5
gcc-3.4.3-22.1
gcc-c++-3.4.3-22.1
libstdc++-3.4.3-22.1
libstdc++-devel-3.4.3-22.1
glibc-2.3.4-2.9
glibc-common-2.3.4-2.9
compat-db-4.1.25-9
compat-gcc-3.2.3
gnome-libs-1.4.1.2.90-44.1
openmotif21-2.1.30-11.RHEL4.2
binutils-2.15.92.0.2-13
pdksh-5.2.14-30
sysstat-5.0.5-1
```

- **SuSE Linux Enterprise Server 9:**

```
gcc-3.3.3-43
gcc-c++-3.3.3-43
glibc-2.3.3-98
libaio-0.3.98-18
libaio-devel-0.3.98-18
make-3.80
openmotif-libs-2.2.2-519.1
```

To ensure that the system meets these requirements, perform the following steps:

1. To determine which distribution and version of Linux is installed, enter the following command:

```
# cat /etc/issue
```

- On Red Hat Linux 3 systems only, enter the following command to determine whether the required kernel errata is installed:

```
# uname -r
2.4.21-15.EL
```

In this example, the output shows the kernel version (2.4.21) and errata level (15.EL). If the errata level is less than 15, install the latest kernel update. Kernel updates are available from the Red Hat Network.

- On Red Hat Linux 4 systems only, enter the following command to determine whether the required kernel errata is installed:

```
# uname -r
2.6.9-11.EL
```

In this example, the output shows the kernel version (2.6.9) and errata level (11.EL). If the errata level is less than 11, install the latest kernel update. Kernel updates are available from the Red Hat Network.

- On SUSE Linux 9 systems only, enter the following command to determine whether the required kernel is installed:

```
# uname -r  
2.6.5-7.97
```

In this example, the output shows the kernel version (2.6.5-7.97). If the kernel version is less than 2.6.5-7.97, contact SUSE for information about obtaining and installing the kernel updates.

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

```
# uname -r
```

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

```
# rpm -q package_name
```

Oracle SES requires a minimum of 2 GB of disk space. This includes 1 GB to install and approximately 500 MB to create the initial Oracle SES index.

Additional Oracle SES requirements are based on the amount of data that you need to search. Here are some configuration examples:

To index 100,000 documents:

- 4 GB disk space
- 1 GB RAM

The system must meet the following minimum hardware requirements:

- 512 MB of physical RAM
- 1 GB of swap space (or twice the size of RAM)

On systems with 2 GB or more of RAM, the swap space can be between one and two times the size of RAM.

- 400 MB of disk space in the /tmp directory
- Between 1.5 GB and 3 GB of disk space for the Oracle software, depending on the installation type and platform.

To ensure that the system meets these requirements, perform the following steps:

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

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

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

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

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

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

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

```
# df -k
```

To index 1,000,000 documents:

- 20 GB disk space
- 6 GB RAM

For installation help, including pre-installation tips, see the Oracle SES tutorial:

<http://st-curriculum.oracle.com/tutorial/SESAdminTutorial/index.htm>

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**Note:** The Oracle SES administration tool and default query application are certified on the following browsers:

- Firefox 1.0, 1.0.1, 1.0.6, 1.0.7, 1.5
  - Internet Explorer 6.0
  - Netscape 7.1, 7.2
  - Mozilla 1.7.3
- 
- 

## Configuring Kernel Parameters

Before starting the Oracle installation, verify that the parameters shown in the following table are set to values greater than or equal to the recommended value shown. The procedure following the table describes how to verify and set the values.

**Table 1** *Kernel Parameters*

Parameter	Value	File
semmsl	250	/proc/sys/kernel/sem
semmns	32000	
semopm	100	
semmni	128	
shmall	2097152	/proc/sys/kernel/shmall
shmmax	Half the size of physical memory	/proc/sys/kernel/shmmax
shmmni	4096	/proc/sys/kernel/shmmni
file-max	65536	/proc/sys/fs/file-max
ip_local_port_range	1024 65000	/proc/sys/net/ipv4/ip_local_port_range

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**Note:** If the current value for any parameter is higher than the value listed in this table, 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, follow these steps:

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

---

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

---

**Table 2** *Commands for Kernel Parameters*

Parameter	Command
semmsl, semmns, semopm, semmni	# /sbin/sysctl -a   grep sem This command displays the value of the semaphore parameters in the order listed.
shmall, shmmax, 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 This command displays a range of port numbers.

2. If the value of any kernel parameter is different than the recommended value, then complete the following steps:
  - a. Using a 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 recommended value, then specify the larger value.

---

```
kernel.shmall = 2097152
kernel.shmmax = 2147483648
kernel.shmmni = 4096
kernel.sem = 250 32000 100 128
fs.file-max = 65536
net.ipv4.ip_local_port_range = 1024 65000
```

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

- b. 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, then edit the `/etc/sysctl.conf` file and enter this command again.

## 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:

**Table 3** Shell Limits for oracle User

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

To increase the shell limits:

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

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

2. Add the following line to the `/etc/pam.d/login` file, if it does not already exist:

```
session required /lib64/security/pam_limits.so
```

3. Depending on the oracle user's default shell, make the following changes to the default shell start-up file:

- For the Bourne, Bash, or Korn shell, add the following lines to the `/etc/profile` file:

```
if [ $USER = "oracle" ]; then
    if [ $SHELL = "/bin/ksh" ]; then
        ulimit -p 16384
        ulimit -n 65536
    else
        ulimit -u 16384 -n 65536
    fi
fi
```

- For the C or tcsh shell, add the following lines to the `/etc/csh.login` file:

```
if ( $USER == "oracle" ) then
    limit maxproc 16384
    limit descriptors 65536
endif
```

4. Reboot the system after setting shell limits.

## Installing on a Port Number Less Than 1024

Oracle SES must be installed by a non-root user. On UNIX platforms, only root users can bind to ports less than 1024. To install Oracle SES on a port number less than 1024, follow these steps:

1. During installation, specify the port (for example, 80).

2. After the installation is complete, log in as the root user.
3. Run the following commands:

```
chgrp -R root $ORACLE_HOME/jdk
$ORACLE_HOME/bin/searchctl start
```

---

---

**Note:**

- The `searchctl start` command must be run by a root user. However, the `searchctl stop` command can be run by either a root user or the user who installed Oracle SES.
  - `$ORACLE_HOME` represents the directory where Oracle SES was installed.
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If your installation completes on a port greater than 1024 and you want to change to a port less than 1024, then take the following steps:

1. Shutdown the middle tier with the following command:

```
$ORACLE_HOME/bin/searchctl stop
```

2. Edit the value for the port attribute in `$ORACLE_HOME/oc4j/j2ee/OC4J_SEARCH/config/http-web-site.xml`. (Ensure that the new port is not already in use.)
3. Log in as the root user.
4. Run the following commands:

```
chgrp -R root $ORACLE_HOME/jdk
$ORACLE_HOME/bin/searchctl start
```

## Installing Oracle Secure Enterprise Search

For easy instructions on installing Oracle SES, see the Installation Tips tutorial:

<http://st-curriculum.oracle.com/tutorial/SESAdminTutorial/index.htm>

In the following instructions, the disc mount point is referred to as `/SD_CDROM`. If your mount point is different, then substitute the correct mount point name for all references to `/SD_CDROM`.

To start the installer:

1. Ensure that you have checked all the minimum requirements, as described in "[System Requirements](#)".
2. Log in to the computer as the user who will install Oracle SES.
3. Insert the Oracle Secure Enterprise Search CD-ROM.
4. If your computer does not have automount, then see "[Mounting the CD-ROM](#)" for steps on mounting the CD-ROM manually.
5. Start up the installer:

```
prompt> cd
prompt> /SD_CDROM/runInstaller
```

This launches Oracle Universal Installer.

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**Note:** Do not run the installer from the mount point directory. The `cd` command changes your current directory to your home directory, so you do not start the installer from the mount point.

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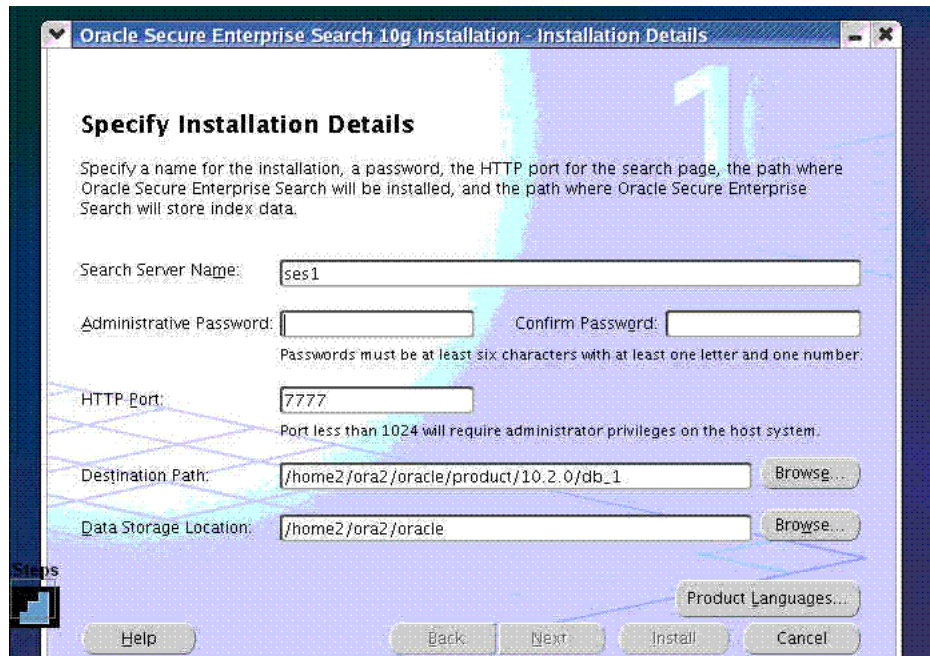
In the Oracle Universal Installer, the only value that you must specify is the administrative password. The remaining values are set to a default, but they can be overridden. Following is the list of the installation parameters:

- **Search Server Name:** Name for your search server.
- **Administrative Password:** The password that you will later use to log on to the administration tool.
- **HTTP Port:** The port on which the Oracle SES middle tier will listen. For example, if you installed Oracle SES on host `myhost.oracle.com` and you specify port 7890, then your search page URL will be `http://myhost.oracle.com:7890/search/query/search`.

**See Also:** ["Installing on a Port Number Less Than 1024"](#) on page 6

- **Destination Path:** The location where Oracle SES software is installed
- **Data Storage Location:** The location where Oracle SES will store its data.

The following screenshot shows the Oracle Universal Installer screen.



## Mounting the CD-ROM

Follow these steps if your computer does not automount the CD-ROM:

1. Insert the CD-ROM.
2. Log in as the root user:



```
prompt> su
Password:
```

3. Create the CD-ROM mount point directory:

```
prompt> /usr/bin/mkdir /SD_CDROM
```

4. Mount the CD-ROM drive on the mount point directory:

```
prompt> /bin/mount -t iso9660 /dev/cdrom /SD_CDROM
```

In the preceding example, `/SD_CDROM` is the disc mount point directory and `/dev/cdrom` is the device name for the disc device.

5. Log out from the root user.

```
# exit
```

## Removing Oracle Secure Enterprise Search

To remove Oracle SES, run `$ORACLE_HOME/install/deinstall_ses` as the user who installed Oracle SES.

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**Note:** If the Oracle SES instance was bound to a port less than 1024 and the middle tier ran as root user, then after removal there could be files left under `$ORACLE_HOME`. After the removal completes, log in as the root user and delete those files.

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## Restarting Oracle Secure Enterprise Search

The tool for starting and stopping the search engine is `searchctl`. To restart Oracle SES after rebooting, navigate to the `$ORACLE_HOME/bin` directory where Oracle SES is installed and run `searchctl startall`.

Users are prompted for a password when running `searchctl` commands.

For detailed steps, see the Startup / Shutdown lesson in the Oracle SES tutorial:

<http://st-curriculum.oracle.com/tutorial/SESAdminTutorial/index.htm>

## What to Do Next?

To become familiar with Oracle Secure Enterprise Search, Oracle suggests that you complete the following tasks:

- Follow the Oracle Secure Enterprise Search tutorial:  
<http://st-curriculum.oracle.com/tutorial/SESAdminTutorial/index.htm>
- Log in to the Oracle SES administration tool, using the user name and password set in the installation. With the administration tool, you can:
  - Define sources to search.
  - Configure and schedule the crawling of the sources.
  - Monitor the status and performance of crawling and search.

Click the **Help** link in the top right corner of any page in the administration tool for context-sensitive help.

- Read the *Oracle Secure Enterprise Search Administrator's Guide*.
- In a production environment, where a load balancer or other monitoring tools are used to ensure system availability, Oracle SES can also be easily monitored through the following URL

`http://host:port/monitor/check.jsp`

The URL should return the following message: **Oracle Secure Enterprise Search instance is up.**

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**Note:** This message is not translated to other languages, because system monitoring tools may need to byte-compare this string.

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If Oracle Secure Enterprise Search is not available, then the URL returns either a connection error or the HTTP error code 503.

## Additional Resources

To download free release notes, installation documentation, white papers, or other collateral, visit Oracle Technology Network (OTN). You must register online before using OTN; registration is free and can be done at

<http://www.oracle.com/technology/membership/>

If you already have a user name and password for OTN, then you can go directly to the documentation section of OTN at

<http://www.oracle.com/technology/documentation>

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- Instructions on how to access electronic services
- Helpful Web sites
- Support resources
- Oracle Support Portfolio
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- Patch downloads
- Bug database query access
- Product life-cycle information

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<https://metalink.oracle.com>

## Quick Reference

Resource	Contact Information or Web Site
<i>OracleMetaLink</i>	<a href="https://metalink.oracle.com">https://metalink.oracle.com</a>
Purchase additional products, full-use licenses, version updates, and documentation in the U.S.A.	<a href="http://oraclestore.oracle.com">http://oraclestore.oracle.com</a>
Access technical resources for developers	<a href="http://www.oracle.com/technology/index.html">http://www.oracle.com/technology/index.html</a>
Access information about technical support	<a href="http://www.oracle.com/support">http://www.oracle.com/support</a>
Locate local Oracle Support Centers outside the U.S.A.	<a href="http://www.oracle.com/support">http://www.oracle.com/support</a>
Locate local Oracle offices outside the U.S.A.	<a href="http://www.oracle.com/global/index.html">http://www.oracle.com/global/index.html</a>
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