

Oracle® Database Vault

Installation Guide

Oracle9i Release 2 (9.2.0.8) for hp Tru64 UNIX

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Oracle Database Vault Installation Guide, Oracle9i Release 2 (9.2.0.8) for hp Tru64 UNIX

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Preface

Oracle Database Vault Installation Guide explains how to prepare for, install, and configure Oracle Database Vault with specific instructions for the operating system and Oracle software technology components that Database Vault requires.

This preface contains:

- [Audience](#)
- [Documentation Accessibility](#)
- [Related Documents](#)
- [Conventions](#)

Audience

This document is intended for Oracle DBAs and System Administrators who are involved in the installation of Oracle Database Vault and its related components.

Documentation Accessibility

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<http://www.fcc.gov/cgb/consumerfacts/trs.html>, and a list of phone numbers is available at <http://www.fcc.gov/cgb/dro/trsphonebk.html>.

Related Documents

For more information, refer to the following documents:

- *Oracle Database Vault Release Notes for hp Tru64 UNIX*
- *Oracle Database Vault Administrator's Guide*

Conventions

The following text conventions are used in this document:

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
<i>italic</i>	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
<code>monospace</code>	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

Part I

Oracle Database Vault Installation

Part I introduces you to Oracle Database Vault installation concepts, requirements, and steps. This part contains the following chapters:

- [Chapter 1, "Oracle Database Vault Installation Overview"](#)
- [Chapter 2, "Installing Oracle Database Vault as an Option"](#)

Oracle Database Vault Installation Overview

Oracle Database Vault enables you to secure business data in ways that were not possible before. Database Vault uses a multifactored and multilayered approach to implementing database security.

This chapter contains:

- [Database Vault Installation Environment](#)
- [Database Vault Accounts](#)
- [Installation Considerations](#)

Database Vault Installation Environment

You can installed Oracle Database Vault as an option to the following:

- Oracle9i Database release 2 (9.2.0.8) single instance installation
- Oracle9i Database release 2 (9.2.0.8) with Oracle Real Application Clusters (RAC)

Database Vault Accounts

Database Vault prompts for two accounts that you can create during installation. These are the Database Vault Owner (or Administrator) and the Database Vault Account Manager accounts. You must supply an account name and password for the Database Vault Owner during installation. Creating a Database Vault Account Manager is optional.

Database Vault Owner

The Database Vault Owner account is granted the DV_OWNER role. This account can manage Database Vault roles and configuration.

The Database Vault Owner user name can be a minimum of 2, and a maximum of 30 characters long. The account password can be a minimum of 8, and a maximum of 30 characters.

The password that you choose for the Database Vault Owner account must be a secure one. The following password restrictions are enforced:

- The password must include at least one alphabet, one digit, and one non alphanumeric character (symbol).
- The password cannot be the same as the account name.
- The password cannot contain any consecutive repeating characters.

Database Vault Account Manager

The Database Vault Account Manager is granted the DV_ACCTMGR role. You use this account to manage database user accounts. The Database Vault Account Manager is created to facilitate separation of duties, so Oracle recommends that you create this account. If you do not opt to create the Database Vault Account Manager account, then the DV_ACCTMGR role is granted to the Database Vault Owner account by default.

The Database Vault Account Manager user name can be a minimum of 2, and a maximum of 30 characters long. The account password can be a minimum of 8, and a maximum of 30 characters.

Note: If you opt to create a Database Vault Account Manager account, then you must not use the same user name that is used for the Database Vault Owner account.

The same password restrictions that apply to Database Vault Owner are applicable to Database Vault Account Manager as well.

Default Audit Policy and Initialization Parameters

Oracle Database Vault installs a baseline database auditing policy. This policy covers the access control configuration information stored in Database Vault database tables, information stored in Oracle Catalog (rollback segments, tablespaces, and so on), the use of system privileges, and Oracle Label Security configuration.

See Also: *Oracle Database Vault Administrator's Guide* for more information on the database audit policy

When you install Database Vault, the security specific database initialization parameters are initialized with default values. These security specific initialization parameters are listed in [Appendix E, "Default Values for Security-Specific Initialization Parameters"](#)

Installation Considerations

This section contains information that you should consider before deciding how to install this product. It contains the following sections:

- [Hardware and Software Certification](#)
- [Multiple Oracle Homes](#)

Hardware and Software Certification

The platform-specific hardware and software requirements included in this installation guide were current at the time this guide was published. However, because new platforms and operating system software versions might be certified after this guide is published, review the certification matrix on the Oracle *MetaLink* Web site for the most up-to-date list of certified hardware platforms and operating system versions. The Oracle *MetaLink* Web site is available at the following URL:

<http://metalink.oracle.com>

If you do not have a current Oracle Support Services contract, then you can access the same information at the following Web site:

<http://www.oracle.com/technology/support/metalink/content.html>

Multiple Oracle Homes

This product supports multiple Oracle homes. This means that you can install this release of the software multiple times on the same system, in different Oracle home directories.

Installing Oracle Database Vault as an Option

This chapter describes how to install Oracle Database Vault into an existing Oracle9i Database release 2 (9.2.0.8) database. These procedures transform an existing Oracle Database system (including associated applications) into an Oracle Database Vault system. Databases upgraded using the procedures described in this chapter can work almost in the same manner as in earlier releases and, optionally, can leverage new Database Vault functionality. For a list of changes that Database Vault makes, refer to [Appendix E, "Default Values for Security-Specific Initialization Parameters"](#) and *Oracle Database Vault Administrator's Guide*.

Note: To upgrade a pre-Oracle9i Database release 2 (9.2.0.8) database to Oracle Database Vault, you first must upgrade the database to Oracle9i Database release 2 (9.2.0.8).

This chapter covers the following topics:

- [Preinstallation and Installation Tasks](#)
- [Postinstallation Tasks](#)
- [Removing Oracle Software](#)

Preinstallation and Installation Tasks

This section covers the following topics:

- [Become Familiar with the Features of Oracle Database Vault](#)
- [Check the Hardware Requirements](#)
- [Check the Operating System Requirements](#)
- [Check Kernel Parameters](#)
- [Check the Database Requirements](#)
- [For Oracle Real Application Clusters Environments, Set System Variables](#)
- [Prepare a Backup Strategy](#)
- [Verify that the Global Services Daemon Is Running \(RAC Only\)](#)
- [Stop Existing Oracle Processes](#)
- [Configure the Oracle User's Environment](#)

- [Run Oracle Universal Installer to Install Oracle Database Vault](#)

Become Familiar with the Features of Oracle Database Vault

Before you plan the upgrade process, become familiar with the features of Database Vault. *Oracle Database Vault Administrator's Guide* discusses the basic features of Database Vault.

Check the Hardware Requirements

The system must meet the following minimum hardware requirements:

- At least 512 MB of available physical RAM
- Swap space on the disk equal to the system's physical memory, or 1GB, whichever is greater.
- 400 MB of disk space in the `/tmp` directory
- 270 MB of disk space for the Database Vault software
- 10 MB of additional disk space for the database files

To ensure that the system meets these requirements:

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

```
# /bin/vmstat -P | grep "Total Physical Memory"
```

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

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

```
# /sbin/swapon -s
```

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

3. 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 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 `TEMP` 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 your system administrator for information about extending file systems.
4. To determine the amount of free disk space on the system, enter the following command:

```
# df -k
```

Check the Operating System Requirements

The system must meet the following minimum software requirements:

- The version of hp Tru64 UNIX must be 5.1 or later.
- The following packages must be installed:

OSF11	OSFLIBA	OSFCMPLRS
OSFSER	OSFPGMR	

- The following patches must be installed:

Patch for hp Tru64 Release 5.1:

- 5.1 patchkit 4

Patches for hp Tru64 Release 5.1A:

- 5.1A patchkit 1

You can download these patches from the following Web site:

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

To ensure that the system meets these requirements, follow these steps:

1. To determine which version of hp Tru64 UNIX is installed, enter the following command:

```
# /usr/sbin/sizer -v
5.1
```

In this example, the version shown is 5.1. If necessary, see your operating system documentation for information about upgrading the operating system.

2. To determine whether the required packages are installed, enter a command similar to the following:

```
# /usr/sbin/dupatch -track -type kit
```

If a package is not installed, then install it. See your operating system or software documentation for information about installing packages.

3. To determine whether an operating system patch is installed, enter a command similar to the following:

```
# setld -i |grep os_package
```

If an operating system patch is not installed, download it from the following Web site and install it:

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

Check Kernel Parameters

Verify that the following kernel parameters are set to values greater than or equal to the recommended value shown:

Kernel Parameter	Setting	Purpose
MAX_PER_PROC_STACK_SIZE	33554432 (32 MB)	Defines the processor stack size. The default size is sufficient for Oracle Database Vault software. If an application that shares the system with Oracle Database Vault requires a higher per process stack size, do not set this parameter higher than 512 MB.
PER_PROC_STACK_SIZE	33554432 (32 MB)	Defines the processor stack size. The default size is sufficient for Oracle Database Vault software. If an application that shares the system with Oracle Database Vault requires a higher per process stack size, do not set this parameter higher than 512 MB.
PER_PROC_DATA_SIZE	201326592 (192 MB)	Defines the minimum per process data segment size.
SHM_MAX	4278190080 (4GB less 16 MB)	Defines the maximum allowable size of the shared memory. The SHM_MAX parameter does not affect how much shared memory is used or needed by Oracle Database Vault, the operating system, or the operating system kernel.
SHM_MIN	1	Defines the minimum allowable size of a single shared memory segment.
SHM_MNI	256	Defines the maximum number of shared memory segments in the entire system.
SHMSEG	128	Defines the maximum number of shared memory segments one process can attach.

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

1. To view the current values of these parameters, enter the following command:

```
# /sbin/sysconfig -q ipc
```

2. If you must change any of the current values, follow these steps:

- a. Create a backup copy of the `/etc/sysconfigtab` file, for example:

```
# cp /etc/sysconfigtab /etc/sysconfigtab.orig
```

- b. Using a text editor, create a file similar to the following, specifying the subsystems and attributes to modify:

```
ipc: shm_max = 4278190080
     shm_mni = 256
     shm_seg = 128

proc: per_proc_stack_size = 33554432
      per_proc_data_size = 201326592
```


- c. Enter a command similar to the following to add the subsystem attributes to the `/etc/sysconfigtab` file:

```
# /sbin/sysconfigdb -m -f filename
```

In this example, replace `filename` with the name of the file that you created in Step b.

- d. Enter the following command to restart the system:

```
# /sbin/shutdown -r now
```

- e. When the system restarts, log in as user `root`.

Check the Database Requirements

To install Oracle Database Vault, you must run the Enterprise Edition of Oracle9i Database release 2 (9.2.0.8). In addition, the Database Vault installer requires write access to the `oratab` and `oraInst.loc` files.

Note: The `/var/opt/oracle/oratab` file should have an entry for the database. For example:

```
DBDV:/oracle/product/9.2_VAULT:Y
```

A listener must have been configured for the existing database. Oracle Net Configuration Assistant configures the listener when you first install the database.

You must have an existing password file for the database. The password file authentication parameter, `REMOTE_LOGIN_PASSWORDFILE` must have been set to `EXCLUSIVE` or `SHARED`.

You can set the `REMOTE_LOGIN_PASSWORDFILE` parameter in the `init.ora` file. Use the `orapwd` utility to create and manage password files.

See Also: *Oracle9i Database Administrator's Guide* for more information on creating and maintaining a password file

The following topic discusses applying the 9.2.0.8 patch set:

Apply Oracle Database Release 9.2.0.8 Patch Set

To install Oracle Database Vault, you must upgrade the database to Oracle9i Database release 2 (9.2.0.8). Back up your database before performing any upgrade or installation.

See Also: *Oracle9i Backup and Recovery Concepts* for information on database backups

This section covers the following topics:

Patch Set Overview

Patch sets are cumulative. Patch set release 9.2.0.8 includes all fixes in patch sets 9.2.0.8 and earlier, and new fixes for patch set 9.2.0.8. This means that unless the patch set documentation indicates otherwise, you can apply this patch set to any earlier release 9.2 installation. You do not have to install intermediate patch sets.

Patch sets contain generic fixes that apply to all platforms. Patch sets may also include additional platform-specific patches.

Oracle Universal Installer Version Requirements

This patch set includes Oracle Universal Installer release 10.1.0.5. You must use this Oracle Universal Installer to install this patch set and not Oracle Universal Installer from the 9.2.0.x maintenance release media or Oracle home.

This is not a complete software distribution. You must install it in an existing Oracle9i release 2 (9.2.0.x.x) installation. Users applying this patch set must use Oracle Universal Installer release 10.1.0.5 (provided as part of this patch set) or later to ensure that their Oracle home can be patched in the future. Oracle Universal Installer release 10.1.0.5 is also installed when you install this patch set.

Patch Set Documentation

There are two documents related to this release of the Oracle9i release 2 patch set:

- *Oracle9i Patch Set Notes, Release 2 (9.2.0.8) Patch Set 7 for hp Tru64 UNIX*

This document provides:

- System requirements and information about how to install or reinstall the patch set
- A list of all bugs fixed to date that are specific to Oracle9i Release 2 for hp Tru64 UNIX
- A list of known issues relating to Oracle9i Release 2 for hp Tru64 UNIX

- *Oracle9i List of Bugs Fixed, Release 2 (9.2.0.8) Patch Set 7*

The List of Bugs Fixed is a list of all generic bugs related to Oracle9i release 2 that have been fixed in this release.

Both of these documents are included with the patch set. The *Oracle9i List of Bugs Fixed* is also available on *OracleMetaLink*, from document 189908.1, *ALERT: Oracle9i Release 2 (9.2) Support Status and Alerts* at:

<http://metalink.oracle.com>

For Oracle Real Application Clusters Environments, Set System Variables

For each node of an Oracle Application Clusters (RAC) environment on which you plan to install Oracle Database Vault, set the `udp_sendspace` and `udp_recvspace` system parameters as follows:

```
/sbin/sysconfig -r inet udp_sendspace=65536
/sbin/sysconfig -r inet 655360
```

You can check the current values of these variables by running the following command:

```
/sbin/sysconfig -q inet
```

Prepare a Backup Strategy

Oracle strongly recommends that you back up your database before performing any upgrade or installation. The ultimate success of your upgrade depends heavily on the design and execution of an appropriate backup strategy. To develop a backup strategy, consider the following questions:

- How long can the production database remain inoperable before business consequences become intolerable?
- What backup strategy should be used to meet your availability requirements?
- Are backups archived in a safe, off-site location?
- How quickly can backups be restored (including backups in off-site storage)?
- Have recovery procedures been tested successfully?

Your backup strategy should answer all of these questions and include procedures for successfully backing up and recovering your database.

See Also: *Oracle9i User-Managed Backup and Recovery Guide* for information on database backups

Verify that the Global Services Daemon Is Running (RAC Only)

The Global Services Daemon (GSD) should be running for the Database Vault installer to find existing Oracle Real Application Clusters (RAC) databases. If you have stopped GSD, then you should restart it before running Oracle Universal Installer. Use the following command to start the GSD service:

```
$ORACLE_HOME/bin/gsdctl start
```

You must run this command on each Oracle RAC node.

Stop Existing Oracle Processes

Stop all processes running in the Oracle home. You must complete this task to enable Oracle Universal Installer to relink certain executables and libraries. For Oracle RAC databases, you must stop the processes on all nodes.

Stop the processes in the following order:

- [Step 1: Stop the apachectl and agentctl Processes](#)
- [Step 2: Shut Down All Database Instances](#)
- [Step 3: Stop Existing Listeners](#)

Step 1: Stop the apachectl and agentctl Processes

Stop the apachectl process using the following command:

```
$ORACLE_HOME/Apache/Apache/bin/apachectl stop
```

Stop the agentctl process using the following command:

```
$ORACLE_HOME/bin/agentctl stop
```

Step 2: Shut Down All Database Instances

Shut down all database instances running from the Oracle home directory into which Oracle Database Vault is to be installed.

```
sqlplus SYS "AS SYSDBA"
Enter password: password
SQL> shutdown immediate
```

Use the Server Control (srvctl) utility, and not SQL*Plus, to stop an Oracle Real Application Clusters (RAC) Database instance.

```
srvctl stop database -d database_name
```

Step 3: Stop Existing Listeners

Oracle Universal Installer configures and starts a default Oracle Net listener using TCP/IP port 1521. However, if an existing Oracle Net listener process is using the same port or key value, then Oracle Universal Installer can only configure the new listener, it cannot start it. To ensure that the new listener process starts during the installation, you must shut down any existing listeners before starting Oracle Universal Installer.

To determine whether an existing listener process is running and to shut it down if necessary:

1. Switch user to oracle:

```
# su - oracle
```

2. Enter the following command to determine whether a listener process is running and to identify its name and the Oracle home directory in which it is installed:

```
$ ps -ef | grep tnslnsr
```

This command displays information about the Oracle Net listeners running on the system:

```
... oracle_home1/bin/tnslnsr LISTENER -inherit
```

In this example, *oracle_home1* is the Oracle home directory where the listener is installed and *LISTENER* is the listener name.

Note: If no Oracle Net listeners are running, then refer to ["Configure the Oracle User's Environment"](#) on page 2-9 to continue.

3. Set the ORACLE_HOME environment variable to specify the appropriate Oracle home directory for the listener:

- Bourne, Bash, or Korn shell:

```
$ ORACLE_HOME=oracle_home1
$ export ORACLE_HOME
```

- C or tcsh shell:

```
% setenv ORACLE_HOME oracle_home1
```

4. Enter the following command to identify the TCP/IP port number and IPC key value that the listener is using:

```
$ $ORACLE_HOME/bin/lsnrctl status listenername
```

Note: If the listener uses the default name *LISTENER*, then you do not have to specify the listener name in this command.

5. Enter a command similar to the following to stop the listener process:

```
$ $ORACLE_HOME/bin/lsnrctl stop listenername
```

6. Repeat this procedure to stop all listeners running on this system.

Note: If you are installing Database Vault for Oracle Real Application Clusters (RAC), then you must shut down all Oracle processes on all cluster nodes. See [Appendix A, "Stopping Processes in an Oracle Real Application Clusters Database"](#) for more details.

Configure the Oracle User's Environment

Run Oracle Universal Installer (OUI) using the account that owns the Oracle software. This is usually 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.

Note: Ensure that the `PATH` variable contains `$ORACLE_HOME/bin` before `/usr/X11R6/bin`.

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 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. Open the `oracle` user's shell startup file in any text editor:

- Bourne shell (`sh`), Bash shell (`bash`), or Korn shell (`ksh`):

```
$ vi .profile
```

- C shell (`csh` or `tcsh`):

```
% vi .login
```

7. Enter or edit the following line, specifying a value of 022 for the default file mode creation mask:

```
umask 022
```

8. Save the file, and exit from the editor.

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

- Bourne, Bash, or Korn shell:

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

- C shell:

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

10. If you are not installing the software on the local system, then enter a command similar to the following to direct X applications to display on the local system:

- Bourne, Bash, or Korn shell:

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

- C shell:

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

In this example, *local_host* is the host name or IP address of the system to use to display Oracle Universal Installer (your workstation or PC).

11. 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 TEMP and TMPDIR environment variables to specify a temporary directory on this file system:

- a. Use the `df -k` command to identify a suitable file system with sufficient free space.

- 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:

```
$ su - root
# mkdir /mount_point/tmp
# chmod a+wr /mount_point/tmp
# exit
```

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

- * Bourne, Bash, or Korn shell:

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

- * C shell:

```
% setenv TEMP /mount_point/tmp
% setenv TMPDIR /mount_point/tmp
```

12. 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 to call the database (typically no more than five characters).

13. 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
```

14. To verify that the environment has been set correctly, enter the following commands:

```
$ umask
$ env | more
```

Verify that the `umask` command displays a value of 22, 022, or 0022 and the environment variables that you set in this section have the correct values.

Run Oracle Universal Installer to Install Oracle Database Vault

Run Oracle Universal Installer (OUI) to install Oracle Database Vault into an existing Oracle9i Database release 2 (9.2.0.8) database. You should run the installer as the software owner account that owns the current `ORACLE_HOME` environment. This is normally the `oracle` account.

Log in as the `oracle` user. Alternatively, switch user to `oracle` using the `su` command. Change your current directory to the directory containing the installation files. Start Oracle Universal Installer.

```
./runInstaller
```

The following steps discuss the options you must select:

1. In the Specify Installation Details screen, you must specify the path to the Oracle home that contains the existing Oracle Database. The **Destination Path** box lists the Oracle home paths of all Oracle9i Database release 2 (9.2.0.8) Enterprise Edition databases registered with the system.

Select the Oracle home corresponding to the database into which you want to install Oracle Database Vault.

Note:

- If an Oracle home does not have an Enterprise Edition of Oracle9i Database release 2 (9.2.0.8) installed, then it is not displayed. You must ensure that the Oracle home has an Enterprise Edition of Oracle9i Database release 2 (9.2.0.8) installed.
 - If an Oracle home currently contains Oracle Database Vault, then it is not displayed. You cannot install Oracle Database Vault into an Oracle home more than once.
 - For an Oracle Real Application Clusters (RAC) installation, if the Global Services Daemon is not running, then OUI cannot detect the Oracle home. See ["Verify that the Global Services Daemon Is Running \(RAC Only\)"](#) on page 2-7 for instructions on starting the Global Services Daemon.
-

2. Enter a user name for the Database Vault Owner account in the **Database Vault Owner** field. The user name can be a minimum of 2 and maximum of 30 characters long.
3. Enter a password for the Database Vault Owner account in the **Database Vault Owner Password** field. The password can be a minimum of 8 and a maximum of 30 characters. The password must include at least one alphabet, one digit, and one non alphanumeric character (symbol). It cannot be the same as the account names for either the Database Vault owner or the Database Vault account manager. It cannot contain any consecutive repeating characters.
4. Reenter the password in the **Confirm Password** field.
5. Select **Create a Separate Account Manager** if you want to create a separate Account Manager to manage Oracle Database Vault accounts.

For greater security and to adhere to separation of duty requirements, Oracle recommends that you create a separate account manager user account.
6. In the **Database Vault Account Manager** field, enter a user name for the Database Vault Account Manager if you have chosen to select the **Create a Separate Account Manager** check box. The user name can be a minimum of 2 and a maximum of 30 characters.
7. Enter a password for the Database Vault Account Manager account in the **Account Manager Password** field.

The password can be a minimum of 8 and a maximum of 30 characters. The password must include at least one alphabet, one digit, and one non alphanumeric character (symbol). It cannot be the same as the account names for either the Database Vault owner or the Database Vault account manager. It cannot contain any consecutive repeating characters.
8. Reenter the password in the **Confirm Password** field. Click **Next**.
9. The Select Existing Database screen is displayed. A list of all databases running from the selected Oracle home is displayed. Select the database into which you want to install Oracle Database Vault.

Note:

- If a database is not listed, then check to make sure that you have followed the instructions under "[Check the Database Requirements](#)" on page 2-5.
- Install Oracle Database Vault into an Oracle home containing multiple databases only if you want to enable Oracle Database Vault for all these databases. If this is not the case, then Oracle recommends that you install Oracle Database Vault into an Oracle home containing a single database.

10. Enter the existing SYS user password for the selected database in the **Existing Database SYS Password** field.
11. Reenter the SYS password in the **Confirm Password** field. Click **Next**.

Note: At this point, the database requirements are validated.

12. When prompted, shut down all Oracle processes if you have not already done so.
For Oracle Real Application Clusters (RAC) environments, a node selection screen appears, indicating the nodes in which Oracle Database Vault will be installed.

See Also: "[Stop Existing Oracle Processes](#)" on page 2-7 for more information on stopping existing Oracle processes

13. When the Summary screen appears, verify the details of the installation.
For Oracle RAC, stop the Global Services Daemon on all nodes in which you are installing Oracle Database Vault. To stop the Global Services Daemon, enter the following command in a shell in each of these nodes:

```
$ORACLE_HOME/bin/gsdctl stop
```

14. In the Summary screen, click **Install**.

The installation screen displays. After the installation completes, Database Vault Configuration Assistant (DVCA) starts.

15. Answer the Database Vault Configuration Assistant (DVCA) prompts to complete the Oracle Database Vault installation and configuration.

After you complete the installation, the log file has the following message:

```
You selected -local option, hence OPatch will patch the local system only.
```

You can disregard this message. For an Oracle RAC environment, Oracle Database Vault is still installed in all nodes.

Postinstallation Tasks

This section lists the tasks to perform after you have completed an upgrade of your database. The following topics are discussed:

- [Backing Up the Database](#)
- [Updating Environment Variables After the Upgrade \(UNIX Systems Only\)](#)
- [Changing Passwords for Oracle-Supplied Accounts](#)
- [Disabling Remote SYSDBA Connections \(Optional\)](#)
- [Starting the Listener and Database on Other Nodes \(RAC Only\)](#)
- [Running DVCA to Set Instance Parameters \(RAC Only\)](#)
- [Deploying the Database Vault Administrator Application](#)
- [Setting the Time-Out Value for Oracle Database Vault Administrator](#)
- [Enabling Oracle Database Vault Administrator Accessibility](#)

Backing Up the Database

Make sure you perform a full backup of the production database. See *Oracle9i Backup and Recovery Concepts* for details on backing up a database.

Updating Environment Variables After the Upgrade (UNIX Systems Only)

Make sure that the following environment variables point to the correct Oracle Database Vault directories:

- `ORACLE_HOME`: Specifies the Oracle home directory. For example, `/u01/app/oracle/product/9.2.0/db_1`
- `PATH`: Specifies the directories searched by the shell to locate executable programs. For example, `/bin:/usr/bin:/usr/local/bin:/usr/bin/X11:$ORACLE_HOME/bin:$HOME/bin`

You may also need to set the following environment variables:

- `ORA_NLS33`: Specifies the directory where the language, territory, character set, and linguistic definition files are stored. For example, `$ORACLE_HOME/ocommon/nls/admin/data`
- `LD_LIBRARY_PATH`: Specifies the list of directories that the shared library loader searches to locate shared object libraries at run time. For example, `/usr/dt/lib:$ORACLE_HOME/lib`

Use the `man ld` command for more information about this environment variable.

Changing Passwords for Oracle-Supplied Accounts

Oracle strongly recommends that you change the password for each account after installation. This enables you to effectively implement the strong security provided by Oracle Database Vault.

Note: If you are creating a database using Database Configuration Assistant, you can unlock accounts after the database is created by clicking **Password Management** before you exit from Database Configuration Assistant.

Using SQL*Plus to Unlock Accounts and Reset Passwords

To unlock and reset user account passwords using SQL*Plus:

1. Start SQL*Plus and log in using the Database Vault Account Manager account. If you did not create the Database Vault Account Manager account during installation, then you must log in using the Database Vault Owner account.
2. Enter a command similar to the following, where *account* is the user account to unlock and *password* is the new password:

```
SQL> ALTER USER account [ IDENTIFIED BY password ] ACCOUNT UNLOCK;
```

In this example:

- The ACCOUNT UNLOCK clause unlocks the account.
- The IDENTIFIED BY *password* clause resets the password.

Note: If you unlock an account but do not reset the password, then the password remains expired. The first time someone connects as that user, they must change the user's password.

To permit unauthenticated access to your data through HTTP, unlock the ANONYMOUS user account.

Disabling Remote SYSDBA Connections (Optional)

Oracle Database Vault enables you to disable remote logins with SYSDBA privileges. This enables enhanced security for your database.

To disable remote SYSDBA connections, re-create the password file with the `nosysdba` flag set to `y` (Yes). A user can still log in AS SYSDBA locally using Operating System (OS) authentication. However, remote connections AS SYSDBA will fail.

Use the following syntax to re-create the password file:

```
orapwd file=filename password=password [entries=users] nosysdba=y/n
```

In this specification:

- `file`: Name of password file (mandatory)
- `password`: Password for SYS (mandatory).
- `entries`: Maximum number of distinct DBA users
- `nosysdba`: Whether to enable or disable the SYS logon (optional for Oracle Database Vault only). Enter `y` (for yes) or `n` (for no)

The default is `no`, so if you omit this flag, the password file will be created enabling SYSDBA access for Oracle Database Vault instances.

When you run the `orapwd` utility, ensure that the file name is of the `orapwsid` format. For example:

```
orapwd file=$ORACLE_HOME/dbs/orapworcl
password=password
nosysdba=n
```

Note: Do not insert spaces around the equal (=) character.

See Also: *Oracle9i Database Administrator's Guide* for more information on using the `orapwd` utility.

Enabling or Disabling Connecting with SYSDBA on Oracle Real Application Clusters Systems

Under a cluster file system and raw devices, the password file under `$ORACLE_HOME` is in a symbolic link that points to the shared storage location in the default configuration. In this case, the `orapwd` command you issue affects all nodes.

Starting the Listener and Database on Other Nodes (RAC Only)

You must start the listener and database on all Oracle Real Application Clusters (RAC) nodes other than the one on which the installation is performed. Use the following commands to start the listener and the database:

Note: You must enable SYSDBA connections on all nodes before running these commands. See "[Disabling Remote SYSDBA Connections \(Optional\)](#)" on page 2-15 for more information on enabling SYSDBA connections.

```
$ORACLE_HOME/bin/lsnrctl start listener_name
srvctl start instance -d unique_database_name -i instance_name -c "SYS/password AS SYSDBA"
```

Note: You must use the Server Control (`srvctl`) utility to start and stop Oracle Database Vault RAC instances. Do not use SQL*Plus to start and stop Oracle RAC instances. You must enable SYSDBA connections before you can use the `srvctl` command.

Running DVCA to Set Instance Parameters (RAC Only)

After installing Database Vault for an Oracle Real Application Clusters (RAC) instance, you must run Database Vault Configuration Assistant (DVCA) with the `-action optionrac` switch. You must run this command for all Oracle RAC nodes other than the node on which the Database Vault installation is performed. This step is required to enable the enhanced security features provided by Oracle Database Vault.

The command itself must be run on the node on which the Database Vault installation is performed. You must supply the name of the remote Oracle RAC node for which the action is being performed using the `-racnode` switch.

Note: The listener and database instance should be running on the nodes for which you run DVCA.

You should also ensure that the Global Services Daemon (GSD) is running on the remote nodes. You can use the following command to start the GSD service on a node:

```
$ORACLE_HOME/bin/gsdctl start
```

Use the following syntax to run DVCA:

```
# dvca -action optionrac -racnode host_name -oh oracle_home -jdbc_str jdbc_
connection_string -sys_passwd sys_password [-logfile ./dvca.log] [-silent]
```

`[-nodecrypt]`

Where:

- **action:** The action to perform. `optionrac` performs the action of updating the instance parameters for the Oracle RAC instance and optionally disabling SYSDBA operating system access for the instance.
- **racnode:** The host name of the Oracle RAC node for which the action is being performed. Do not include the domain name with the host name.
- **oh:** The Oracle home for the Oracle RAC instance.
- **jdbc_str:** The JDBC connection string used to connect to the instance you are configuring. For example, "jdbc:oracle:oci:@orcl1".
- **sys_password:** The password for the SYS user.
- **logfile:** Optionally, specify a log file name and location. You can enter an absolute path or a path that is relative to the location of the `$ORACLE_HOME/bin` directory.
- **silent:** Required if you are not running DVCA in an xterm window.
- **nodecrypt:** Reads plaintext passwords as passed on the command line.

Note: You can reenale SYSDBA access by re-creating the password file with the `nosysdba` flag set to `n` (No). The `orapwd` utility enables you to do this.

Deploying the Database Vault Administrator Application

Oracle Database Vault Administrator (DVA) is a browser-based graphical user interface console that you can use to manage Oracle Database Vault. You can deploy DVA in an existing Oracle Database 10g Release 2 (10.2) installation (release 10.2.0.3 or later) to manage an Oracle Database Vault Oracle9i Release2 (9.2.0.8.1) instance.

You should have the following directory structure on the host containing the Oracle Database 10g Release 2 (10.2) installation:

```

$ORACLE_HOME
|-----> jlib
|
|-----> lib
|
|-----> sysman
|         |----> jlib
|
|-----> rdbms
|         |----> jlib
|
|-----> owm
|         |----> jlib
|
|-----> oui
|         |----> jlib

```

Note: Ensure that the environment variable `$ORACLE_HOME` is set to the directory containing the installed Oracle product.

For example, if the 10.2 installation directory is
`/u00/app/oracle/product/10.2/db_1`, then:

`ORACLE_HOME = /u00/app/oracle/product/10.2/db_1`

Create the following directory structure under the `ORACLE_HOME` directory:

```
$ORACLE_HOME
|
|-----> dv
|          |----> jlib
```

For example:

```
mkdir -p $ORACLE_HOME/dv/jlib/
```

The following files should be present in the Oracle Database 10g Release 2 (10.2) installation:

```
$ORACLE_HOME/sysman/jlib/emCORE.jar
$ORACLE_HOME/sysman/jlib/emDB.jar
$ORACLE_HOME/sysman/jlib/emjsp.jar
$ORACLE_HOME/sysman/jlib/ems.jar
$ORACLE_HOME/sysman/jlib/log4j-core.jar
$ORACLE_HOME/sysman/jlib/jcb.jar
$ORACLE_HOME/rdbms/jlib/jmscommon.jar
$ORACLE_HOME/rdbms/jlib/qsma.jar
$ORACLE_HOME/oui/jlib/OraInstaller.jar
$ORACLE_HOME/jlib/regexp.jar
$ORACLE_HOME/jlib/providerutil.jar
$ORACLE_HOME/jlib/ojmisc.jar
$ORACLE_HOME/jlib/netcfg.jar
$ORACLE_HOME/jlib/orai18n-mapping.jar
$ORACLE_HOME/jlib/ldapjclnt10.jar
$ORACLE_HOME/lib/xschema.jar
$ORACLE_HOME/lib/xsutil.jar
$ORACLE_HOME/lib/oraclexsql.jar
```

You can manually deploy Database Vault Administrator (DVA) to the following Oracle Application Server Containers for J2EE (OC4J) home:

```
$ORACLE_HOME/oc4j/j2ee/home
```

Use the following steps to manually deploy the DVA application:

Note: If you are redeploying the DVA application, then you must remove the application before you can run the steps to deploy the application. Use the following commands to remove the DVA application:

```
cd $ORACLE_HOME/dv/jlib
rm -rf dv_webapp
```

1. Copy the following files from the Oracle home to the `$ORACLE_HOME/dv/jlib/` directory in your Oracle Database 10g Release 2 (10.2) installation:

- `dva_webapp_jsp.jar`
- `dva_webapp.ear`

2. Edit the file, `$ORACLE_HOME/oc4j/j2ee/home/config/server.xml`. Enter the following line just before the last line that reads, `</application-server>`:

```
<application name="dva" path="$ORACLE_HOME/dv/jlib/dva_webapp.ear"
auto-start="true" />
```

For example:

```
<application name="dva" path="/u00/app/oracle/oracle/product/dv12/dv/jlib/dva_
webapp.ear" auto-start="true" />
```

Note: If there was a previous version of DVA installed, and if you are redeploying the new `dva_webapp.ear` file from Disk1, then steps 2 to 6 have been performed. You can move to step 7.

3. Edit the file, `$ORACLE_HOME/oc4j/j2ee/home/config/http-web-site.xml`. Enter the following line just above the last line that reads, `</web-site>`:

```
<web-app application="dva" name="dva_webapp" root="/dva" />
```

4. Edit the file, `$ORACLE_HOME/oc4j/j2ee/home/config/global-web-application.xml`. Search for `<servlet-class>oracle.jsp.runtimev2.JspServlet</servlet-class>`. Uncomment the following lines after this:

```
<init-param>
  <param-name>main_mode</param-name>
  <param-value>justrun</param-value>
</init-param>
```

5. Create the directory, `$ORACLE_HOME/dv/jlib/sysman/config`.

```
mkdir -p $ORACLE_HOME/dv/jlib/sysman/config
```

6. Create the database connection configuration file, `emoms.properties`, in the configuration directory that you just created. Add the following lines to the file:

```
oracle.sysman.emSDK.svlt.ConsoleMode=standalone
oracle.sysman.eml.mntr.emdRepRAC=FALSE
oracle.sysman.eml.mntr.emdRepDBName=ORACLE_SID
oracle.sysman.eml.mntr.emdRepConnectDescriptor=TNS_connection_string
```

Note:

- `oracle.sysman.eml.mntr.emdRepRAC` should be set to `TRUE` for a Real Application Clusters (RAC) database.
- `ORACLE_SID` should be the SID of the Oracle Database Vault Oracle9i Release 2 (9.2.0.8) instance.
- For `oracle.sysman.eml.mntr.emdRepConnectDescriptor`, you can use an alias from `$ORACLE_HOME/network/admin/tnsnames.ora`. Alternatively, you can use the following syntax:


```
oracle.sysman.eml.mntr.emdRepConnectDescriptor=(DESCRIPTION=(ADDRESS_
LIST=(ADDRESS=(PROTOCOL=TCP) (HOST=HOSTNAME) (PORT=PORT))) (C
ONNECT_DATA=(SERVICE_NAME=ORACLE_SID)))
```

7. Start OC4J. Before starting OC4J, ensure that the correct environment variables are set. For example:

```
ORACLE_HOME=/u00/app/oracle/product/10.2/db_1
export ORACLE_HOME
LD_LIBRARY_PATH=$ORACLE_HOME/bin:$ORACLE_HOME/lib:$ORACLE_HOME/jdbc/lib
export LD_LIBRARY_PATH
PATH=$ORACLE_HOME/bin:$ORACLE_HOME/jdk/bin:$PATH
export PATH
```

Note: `LD_LIBRARY_PATH` must be set to use the OCI-based JDBC libraries.

Start OC4J using the following syntax:

```
$ORACLE_HOME/jdk/bin/java -Djava.awt.headless=true -DEMROOT=$ORACLE_
HOME/dv/jlib -jar $ORACLE_HOME/oc4j/j2ee/home/oc4j.jar -userThreads -config
$ORACLE_HOME/oc4j/j2ee/home/config/server.xml
```

Tip: You can create a shell script file, put the command to start OC4J in it, and grant appropriate execute permissions for the file. This allows you to easily reuse the command when required.

You can also create a shell script file to stop OC4J, if required. You must stop and start OC4J if you make DVA configuration changes. For example:

```
# script to stop and start OC4J
$ORACLE_HOME/jdk/bin/java -jar $ORACLE_
HOME/oc4j/j2ee/home/admin.jar ormi://localhost admin welcome -stop
$ORACLE_HOME/jdk/bin/java -Djava.awt.headless=true
-DEMROOT=$ORACLE_HOME/dv/jlib -jar $ORACLE_
HOME/oc4j/j2ee/home/oc4j.jar -userThreads -config $ORACLE_
HOME/oc4j/j2ee/home/config/server.xml
```

8. To access the DVA application, use the following URL. The HTTP port defaults to 8888 for this environment. For example:

```
http://hostname:8888/dva
```


Setting the Time-Out Value for Oracle Database Vault Administrator

By default, an Oracle Database Vault session lasts 35 minutes. Afterwards, the session expires. If you want the session to last for a different time, follow the steps in this section.

To set the session time for Oracle Database Vault Administrator:

1. Back up the `web.xml` file, which by default is in the `$ORACLE_HOME/dv/jlib/dva_webapp/dva_webapp/WEB-INF` directory.
2. In a text editor, open the `web.xml` file.
3. Search for the following setting:


```
<session-config>
  <session-timeout>35</session-timeout>
</session-config>
```
4. Change the `<session-timeout>` setting to the amount of time in minutes that you prefer.
5. Save and close the `web.xml` file.
6. Stop and restart the Database Vault Administrator.

Enabling Oracle Database Vault Administrator Accessibility

You can configure Database Vault Administrator to make data accessible and usable to the disabled community. The following sections explain how to enable Database Vault Administrator for full accessibility.

- [Enabling Oracle Database Vault Administrator Accessibility Mode](#)
- [Providing Textual Descriptions of Database Vault Administrator Charts](#)

Enabling Oracle Database Vault Administrator Accessibility Mode

Oracle Database Vault Administrator takes advantage of user interface development technologies that improve the responsiveness of some user operations. For example, when you navigate to a new record set in a table, Oracle Database Vault Administrator does not redisplay the entire HTML page. However, this performance-improving technology is generally not supported by screen readers. To disable this feature, and as a result, make the Database Vault Administrator HTML pages more accessible for disabled users, use the following procedure.

To enable the display of an entire HTML page:

1. Locate the `uix-config.xml` configuration file.
By default, the `uix-config.xml` file is in the following directory:
`$ORACLE_HOME/oc4j/j2ee/oc4j_applications/applications/em/em/WEB-INF`
2. Open the `uix-config.xml` file using a text editor and locate the following entry:


```
<!-- An alternate configuration that disables accessibility features -->
<default-configuration>
  <accessibility-mode>inaccessible</accessibility-mode>
  ...
</default-configuration>
```
3. Change the value of the `accessibility-mode` property from `inaccessible` to `accessible`.

4. Save and close the `uix-config.xml` file.
5. Restart Database Vault Administrator.

Providing Textual Descriptions of Database Vault Administrator Charts

The Monitor page of Database Vault Administrator displays security policy data in a chart. However, charts do not convey information in a manner that can be read by a screen reader. To remedy this problem, you can configure Database Vault Administrator to provide a complete textual representation of each chart. By default, support for the textual representation of charts is disabled. When textual description for charts is enabled, Database Vault Administrator displays a textual representation of the chart data.

To enable the textual representation of charts:

1. Locate the `web.xml` configuration file.
 To locate the `web.xml` file in a Oracle Database 10g installation, change directory to the following location in the Oracle home:

```
$ORACLE_HOME/dv/jlib/dva_webapp/dva_webapp/WEB-INF/
```
2. Open the `web.xml` file with your favorite text editor and locate the following six lines of the file:

```
<!-- Uncomment this to enable textual chart descriptions
<context-param>
<param-name>enableChartDescription</param-name>
<param-value>true</param-value>
</context-param>
-->
```
3. Remove comments from this section by deleting the first line and the last line of this section so that the section consists of only these four lines:

```
<context-param>
<param-name>enableChartDescription</param-name>
<param-value>true</param-value>
</context-param>
```
4. Save and exit the `web.xml` file.
5. Restart Database Vault Administrator.

Removing Oracle Software

Use Oracle Universal Installer (OUI) to remove Oracle software from an Oracle home. The following list summarizes the steps involved:

1. Log in as the user that owns the Oracle software. This is usually the `oracle` user.
2. Shut down all processes running in the Oracle home.
3. Start Oracle Universal Installer as follows:

```
$ $ORACLE_HOME/oui/bin/runInstaller
```
4. In the Welcome screen, select **Deinstall Products**. The Inventory screen appears. This screen lists all the Oracle homes on the system.
5. Select the Oracle home and the products that you want to remove. Click **Remove**.

See Also: Refer to the *Oracle Universal Installer Concepts Guide* for Oracle Universal Installer (OUI) concepts

Note: You cannot remove or uninstall the Database Vault option. However, you can disable Oracle Database Vault. Refer to *Oracle Database Vault Administrator's Guide* for more details.

You can also remove the entire Oracle home, as discussed earlier in this section.

Part II

Appendixes

Part II includes the appendixes. The contents of this part are:

- [Appendix A, "Stopping Processes in an Oracle Real Application Clusters Database"](#)
- [Appendix B, "Using Response Files"](#)
- [Appendix C, "Enabling Database Vault for Additional Databases in a Shared Oracle Home"](#)
- [Appendix D, "Database Listener Security Recommendations"](#)
- [Appendix E, "Default Values for Security-Specific Initialization Parameters"](#)

Stopping Processes in an Oracle Real Application Clusters Database

This appendix describes how to stop all processes in an Oracle Real Application Clusters (RAC) database, in preparation for installing Database Vault.

Note: Before you make any changes to the Oracle software, Oracle recommends that you create a backup of the Oracle Database installation.

Shut down the following Oracle Database services before modifying the Oracle Database software:

Note: You must perform these steps in the order listed.

1. Shut down all Oracle RAC instances on all nodes. To shut down all Oracle RAC instances for a database, enter the following command, where *db_name* is the name of the database:

```
$ oracle_home/bin/srvctl stop database -d db_name
```

2. Stop all node applications on all nodes. To stop node applications running on a node, enter the following command, where *node* is the name of the node where the applications are running:

```
$ oracle_home/bin/srvctl stop nodeapps -n node
```

Using Response Files

This appendix describes how to install Oracle Database Vault using a response file. It includes the following topics:

- [How Response Files Work](#)
- [Installing Database Vault Using a Response File](#)
- [Troubleshooting Silent Mode Installation](#)

How Response Files Work

You can automate the installation and configuration of Oracle software by specifying a response file when you start Oracle Universal Installer. Oracle Universal Installer uses the values contained in the response file to provide answers to some or all of Oracle Universal Installer prompts.

Typically, Oracle Universal Installer runs in interactive mode, which means that it prompts you to provide information in graphical user interface (GUI) screens. When you use response files to provide this information, you run Oracle Universal Installer at a command prompt using the silent mode.

During a silent mode installation, Oracle Universal Installer does not display any screens. Instead, it displays progress information in the terminal that you used to start it.

You define the settings for a silent mode installation by entering values for the variables listed in the response file. For instance, to specify the Oracle home, you would supply the appropriate value for the `ORACLE_HOME` variable, as in the following example:

```
ORACLE_HOME = "/home/Oracle/OraDBHome1"
```

Another way of specifying the response file's variable settings is to pass them as command line arguments when you run Oracle Universal Installer. For example:

```
$ /directory_path/runInstaller -silent "ORACLE_HOME=/home/Oracle/OraDBHome1" ...
```

In this command, *directory_path* is the path to the database directory on the DVD or the path to the `Disk1` directory on the hard drive.

This method is particularly useful if you do not want to embed sensitive information, such as passwords, in the response file. For example:

```
$ /directory_path/runInstaller -silent "s_ownerPasswd=binks342" ...
```

Ensure that you enclose the variable and its setting in double quotation marks (" ").

See Also: *Oracle Universal Installer Concepts Guide* for more information about response file formats

General Procedure for Using Response Files

The following are the general steps to install and configure Oracle products using Oracle Universal Installer in silent mode:

Note: You must complete all required preinstallation tasks on a system before running Oracle Universal Installer in silent mode.

1. Verify that the `oraInst.loc` file exists in the `/var/opt/oracle` directory.
2. Prepare a response file.
3. Run Oracle Universal Installer in silent mode.

Installing Database Vault Using a Response File

Use the following steps to install Database Vault using a response file:

Note: The `oraInst.loc` file should be present in the `/var/opt/oracle` directory, by default. This is because **Oracle Database Vault** is installed into an existing Oracle Database installation.

1. [Prepare the Response File](#)
2. [Run Oracle Universal Installer Using the Response File](#)

Prepare the Response File

Oracle Database Vault comes with a response file template (`dv.rsp`) that you can edit to customize your installation. You can use this response file for silent mode installations.

The `dv.rsp` file is located in the `response` directory on the installation media. Use the following steps to copy and modify the response file:

1. Copy the response file from the `response` directory to a directory on your system.

```
$ cp /directory_path/response/dv.rsp local_directory
```

In this example, `directory_path` is the path to the database directory on the installation media. `local_directory` is the path to a directory on your disk.

2. Open the response file in a text editor:

```
$ vi local_directory/dv.rsp
```

The response file contains variables that store information required by Oracle Universal Installer. You must set these variable values in the file. For example, you must specify values for the Oracle home location, Database Vault owner name, and other such information required by Oracle Universal Installer.

The response file contains two parts. You should edit the variables only in the first part. The second part of the file contains preset variables, which must not be edited. This instruction is also provided in the response file.

Some of the variables are mandatory while others are optional. The mandatory variables must be supplied for a successful installation. Each variable is explained within the response file. Examples are also provided within the response file.

The following excerpt from the response file shows instructions related to setting the Oracle home variable:

```
#-----
--
#Name      : ORACLE_HOME
#Datatype  : String
#Description: Complete path of the existing 9.2.0.8 database Oracle
#           Home into which Oracle Database Vault will be installed.
#
#Requirement: 1) Must have Oracle Database Enterprise Edition release
#              9.2.0.8 installed.
#              2) Must have Oracle Enterprise Manager Console DB version
#              9.2.0.8 installed.
#              3) Cannot contain Oracle Database Vault.
#
#Example: ORACLE_HOME = "C:\OHOM1"
#-----
--
ORACLE_HOME=<Value Required>
```

Lines starting with a pound sign (#) are comment entries. If you want to omit an optional variable, you can comment it by adding a pound sign (#) at the beginning of the line. You cannot comment lines containing mandatory variables, like ORACLE_HOME.

Remember that you can specify sensitive information, such as passwords, at the command line rather than within the response file. ["How Response Files Work"](#) on page B-1 explains this method.

See Also: *Oracle Universal Installer Concepts Guide* for detailed information on creating response files.

3. Follow the instructions in the file to edit it. Save and close the file.

Note: Oracle Universal Installer fails if you do not correctly configure the response file. Refer to the ["Troubleshooting Silent Mode Installation"](#) section on page B-4 for more information about troubleshooting a failed silent mode installation.

4. Change the permissions on the file to 700:

```
$ chmod 700 /local_dir/response_file.rsp
```

Caution: A fully specified response file for an Oracle Database Vault installation contains the passwords for database administrative accounts. Ensure that only the Oracle software owner user can view or modify response files or consider deleting them after the installation succeeds.

Run Oracle Universal Installer Using the Response File

Now, you are ready to run Oracle Universal Installer at the command line, specifying the response file you created, to perform the installation. The Oracle Universal Installer executable, `runInstaller`, provides several options. For help information on the full set of these options, run `runInstaller` with the `-help` option. For example:

```
$ directory_path/runInstaller -help
```

To run Oracle Universal Installer using a response file:

1. Complete the preinstallation tasks listed in [Chapter 2, "Installing Oracle Database Vault as an Option"](#).

See Also: Frequently Asked Questions in the *Oracle Database Vault Release Notes for Solaris Operating System (SPARC 32-Bit)* for a checklist of the preinstallation requirements

2. Log in as the Oracle software owner user (typically `oracle`).
3. To start Oracle Universal Installer in silent mode, enter a command similar to the following:

Note: Do not specify a relative path to the response file. If you specify a relative path, Oracle Universal Installer fails.

```
$ /directory_path/runInstaller -silent -responseFile responsefilename
```

In this example:

- `directory_path` is the path to the database directory on the DVD or the path to the `Disk1` directory on the hard disk.
- `-silent` indicates that you want to run Oracle Universal Installer in silent mode.
- `responsefilename` is the full path and file name of the installation response file that you configured.

Note: For more information about other options for the `runInstaller` command, enter the following command:

```
$ /directory_path/runInstaller -help
```

Troubleshooting Silent Mode Installation

To determine whether a silent mode installation succeeds or fails, refer to the following log file:

```
/oraInventory_location/logs/silentInstalldate_time.log
```

The `oraInventory_location` can be found in the `/var/opt/oracle/oraInst.loc` file. The `inventory_loc` parameter in the `oraInst.loc` file specifies the location of the `oraInventory` directory.

A silent installation fails in the following conditions:

- You do not specify a response file

- You specify an incorrect or incomplete response file
- Oracle Universal Installer encounters an error, such as insufficient disk space
- The Database Vault installation prerequisites have not been met

Oracle Universal Installer or configuration assistant validates the response file at run time. If the validation fails, the silent mode installation or configuration process ends. Oracle Universal Installer treats values for parameters that are of the wrong context, format, or type as if no value was specified in the file.

Enabling Database Vault for Additional Databases in a Shared Oracle Home

You should run Database Vault Configuration Assistant (DVCA) after creating a new Oracle Database Vault database, if any of the following conditions is true:

- Database Vault is installed into an Oracle home that has more than one database. You must run DVCA on the other databases in the Oracle home. This enables Database Vault security for those databases. The databases should meet the prerequisites for installing Oracle Database Vault, as discussed in ["Preinstallation and Installation Tasks"](#) on page 2-1.
- Database Configuration Assistant (DBCA) is used to create a new Database Vault database in an Oracle home that has a Database Vault database. DVCA loads the Database Vault schema objects into the new database, creates the DV_OWNER and optional DV_ACCTMGR accounts, and deploys the Database Vault Administrator application for the database.

Use the following syntax to run the DVCA utility:

```
$ORACLE_HOME/bin/dvca -action option [-racnode host_name] -oh oracle_home -jdbc_str jdbc_connection_string -sys_passwd SYS_password -owner_account DV_owner_account_name -owner_passwd DV_owner_account_password [-acctmgr_account DV_account_manager_account_name] [-acctmgr_passwd DV_account_manager_password] [-logfile ./dvca.log] [-silent] [-nodecrypt] [-languages {"en"}, {"de"}, {"es"}, {"fr"}, {"it"}, {"ja"}, {"ko"}, {"pt_BR"}, {"zh_CN"}, {"zh_TW"}]]
```

In this specification:

- **action:** The action to perform. **option** creates the Database Vault schema objects, creates the DV_OWNER account and the optional DV_ACCTMGR account, and deploys the Database Vault Administrator application.
- **racnode:** The host name of the Oracle Real Application Clusters (RAC) node on which the action is being performed. Do not include the domain name with the host name. Use this option if this is an Oracle RAC database.
- **oh:** The Oracle home for the database.
- **jdbc_str:** The JDBC connection string used to connect to the database. For example, `jdbc:oracle:oci:@orcl1`, where `orcl1` is the net service name in the `tnsnames.ora` file (`$ORACLE_HOME/network/admin/tnsnames.ora`).
- **sys_passwd:** Password for user SYS
- **owner_account:** Oracle Database Vault Owner account name
- **owner_passwd:** Oracle Database Vault owner account password

-
- `acctmgr_account`: (Optional) Oracle Database Vault Account Manager user
 - `acctmgr_passwd`: Oracle Database Vault Account Manager password (if a user name has been specified)
 - `logfile`: Optionally, specify a log file name and location. You can enter an absolute path or a path that is relative to the location of the `$ORACLE_HOME/bin` directory
 - `silent`: Required if you are not running DVCA in an xterm window
 - `nodecrypt`: Reads plaintext passwords as passed on the command line. You must use this option if you are passing plaintext passwords to the command.
 - `languages`: Declares the language content to load, defaults to "en" (English). You can specify multiple languages. Include each language in quotation marks with commas separating different languages. Enclose the list of languages in braces. For example, `-languages {"en", "fr", "ja"}`.

The following lists the language key:

- `de`: German
- `en`: English
- `es`: Spanish
- `fr`: French
- `it`: Italian
- `ja`: Japanese
- `ko`: Korean
- `pt_BR`: Brazilian Portuguese
- `zh_CN`: Simplified Chinese
- `zh_TW`: Traditional Chinese

Note:

- If the Oracle system identifier (SID) of the database is more than 8 characters, then you must update the Net service name in the `tnsnames.ora` file before running DVCA. See *Oracle Database Vault Release Notes for hp Tru64 UNIX* for more information about Bug 5258820.
 - Ensure that the database and the listener are running before you run the DVCA utility.
 - You should run DVCA before and after installing database options like Spatial, Java, and Intermedia. See *Oracle Database Vault Administrator's Guide* for more details.
 - In an Oracle Real Application Clusters (RAD) environment, after you run DVCA on a local node, run it again on the remote nodes by including option `optionrac` in the `dvca` command.
-
-

Database Listener Security Recommendations

This appendix lists the security recommendations for protecting the database listener. Use these configuration guidelines help enhance the security for your database listener:

- The database listener configuration file, `listener.ora`, and the supporting Oracle Net configuration file, `tnsnames.ora`, should have the `ADMIN_RESTRICTIONS_LISTENER_SID=ON` protection enabled.
- The database listener configuration file, `listener.ora`, and the supporting Oracle Net configuration file, `tnsnames.ora`, should have the `PLSExtProc` listener disabled.
- The listener should be configured to listen on a nonstandard port. This means that the default port (1521) should be changed.
- The listener should be password protected or leverage operating system (OS) authentication based on the organizational security policy.
- The listener should use a unique name, which should be different from the default name.
- The `listener.ora` file should have the following parameter set:
`INBOUND_CONNECT_TIMEOUT_ListenerName = 10`
- The `sqlnet.ora` file should have the following parameters set:
`SQLNET.INBOUND_CONNECT_TIMEOUT = 12`
`SQLNET.EXPIRE_TIME = 10`
- The listener should have logging enabled as follows:
`LOGGING_LISTENER = ON`
`LOG_STATUS = ON`
`LOG_DIRECTORY_ListenerName = Directory_owned_by_Oracle_account`
`LOG_FILE_ListenerName = File_owned_by_Oracle_account`

Note: Only the owner and the DBA group should have permissions over the `LOG_DIRECTORY`. The owner should have read and write access to the `LOG_DIRECTORY` and the DBA group should have read access to it.

Only the owner and the DBA group should have read and write permissions over the `LOG_FILE`.

-
- The listener should have tracing enabled as follows:

```
TRACE_DIRECTORY_ListenerName = Directory_owned_by_Oracle_account
TRACE_FILE_ListenerName = File_owned_by_Oracle_account
TRACE_LEVEL = user
TRACE_FILELEN_ListenerName = 512
TRACE_FILENO_ListenerName = 1000
TRACE_TIMESTAMP_ListenerName = dd-mon-yyyy hh:mi:ss:mi
```

Note: Only the owner and the DBA group should have read and write permissions over the TRACE_DIRECTORY.

Only the owner and the DBA group should have read and write permissions over the TRACE_FILE.

Default Values for Security-Specific Initialization Parameters

When you install Oracle Database Vault, the security specific database initialization parameters are initialized with default values. The following list shows the default values for these security specific initialization parameters:

```
REMOTE_LISTENER=''
COMPATIBLE=9.2.0.0.0
_app_ctx_vers=FALSE
REMOTE_LOGIN_PASSWORDFILE = default, EXCLUSIVE
AUDIT_SYS_OPERATIONS = TRUE
REMOTE_OS_AUTHENT = FALSE
REMOTE_OS_ROLES = FALSE
OS_ROLES = FALSE
OS_AUTHENT_PREFIX = ''
SQL92_SECURITY = TRUE
O7_DICTIONARY_ACCESSIBILITY = FALSE
```

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