

Oracle® Enterprise Manager

System Monitoring Plug-in User's Guide for Audit Vault and Database Firewall



13c Release 2

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The Oracle logo, consisting of a solid red square with the word "ORACLE" in white, uppercase, sans-serif font centered within it.

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Oracle Enterprise Manager System Monitoring Plug-in User's Guide for Audit Vault and Database Firewall,
13c Release 2

E73315-03

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Primary Author: Pavithra Mendon

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Preface

This document provides the installation, configuration, and management instructions for the Oracle Audit Vault and Database Firewall plug-in through Enterprise Manager Cloud Control 13c.

Audience

This document is intended for administrators and users of Oracle Audit Vault and Database Appliance.

Documentation Accessibility

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Related Documents

For more information about Oracle Audit Vault and Database Firewall or Oracle Enterprise Manager Cloud Control, see the following documentation:

- Oracle Audit Vault and Database Firewall documentation:
 - *Oracle Audit Vault and Database Firewall Administrator's Guide*
 - *Oracle Audit Vault and Database Firewall Auditor's Guide*
 - *Oracle Audit Vault and Database Firewall Release Notes*
 - *Oracle Audit Vault and Database Firewall Concepts Guide*
 - *Oracle Audit Vault and Database Firewall Installation Guide*
 - *Oracle Audit Vault and Database Firewall Developer's Guide*
 - *Oracle Audit Vault and Database Firewall Licensing Information*
 - Oracle Audit Vault and Database Firewall product page:

<http://www.oracle.com/technetwork/database/database-technologies/audit-vault-and-database-firewall/overview/index.html>

Visit the Oracle Audit Vault and Database Firewall documentation library:

http://docs.oracle.com/cd/E69292_01/index.html

- Oracle Enterprise Manager Cloud Control documentation:
 - *Oracle Enterprise Manager Cloud Control Administrator's Guide*Visit the Oracle Enterprise Manager Cloud Control documentation library:
http://docs.oracle.com/cd/E24628_01/index.htm

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.
monospace	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

1

Introduction to the Oracle AVDF Plug-in

The Oracle Audit Vault and Database Firewall (AVDF) plug-in provides an interface within Enterprise Manager Cloud Control for administrators to manage and monitor Audit Vault and Database Firewall components.

The following topics are discussed:

- [Versions Supported](#)
- [Prerequisites](#)
- [Known Issues](#)

1.1 Versions Supported

The Oracle AVDF plug-in supports the following versions of products:

[Table 1-1](#) lists supported versions of Oracle Enterprise Manager and Oracle Audit Vault Database Firewall.

Table 1-1 Support Matrix

Oracle Enterprise Manager Version	Release/Version
12.1.x and later	12.1.0.5
13.1.x	12.1.1
13.2.1	12.2.x

 **Note:**

- Oracle Audit Vault and Database Firewall (AVDF) plug-in is supported only with the above mentioned EM releases.
- Audit Vault 10.x plugin (`oracle.em.soav`) is desupported.

1.2 Prerequisites

The following prerequisites must be met before you can deploy the Management Agent:

- A user (such as, `AVAdmin`) on the Audit Vault (AV) Server that has Super Admin privileges (refer to the *Oracle Audit Vault and Database Firewall Administrator's Guide*).
- The password for the `root` user on the AV Server.
- The fully qualified names and IP addresses for each AVDF server.

- The password for the `support` user on the AVDF servers.
- There is no need for physical access to the servers. You will log in as the `support` user and run the `su` command to become the `root` user (and then later to become `oracle` user).
- Information about your Oracle Enterprise Manager Cloud Control instance:
 - OMS host name.
 - OMS port.

This information can be obtained with the following command:

```
emctl status oms -details -sysman_pwd <password>
```

1.3 Known Issues

While the AVDF plug-in automates many of the installation steps, the AVDF plug-in for the Windows environment has a known issue where installation of the AV agent must be completed manually.

2

Installing the Enterprise Manager Management Agent

This chapter provides the instructions for installing the Enterprise Manager (EM) Management Agent onto the Audit Vault Server and Database Firewall Appliance.

Follow the steps below to install the EM Management Agent:

- [Manually Installing the Enterprise Manager Management Agent](#)

2.1 Manually Installing the Enterprise Manager Management Agent

Follow the steps below to install the Enterprise Manager (EM) Management Agent manually:

1. [Manually Installing the EM Management Agent on the Audit Vault Server](#)
2. [Manually Installing the EM Management Agent on the Database Firewall Appliance](#)

Once installed, you will then install or configure the EM Management Agent on each server where an AVDF agent resides.

2.1.1 Manually Installing the EM Management Agent on the Audit Vault Server

Follow the steps below to set the host name, configure the DNS, and to download and install the EM Management Agent on the Audit Vault Server:

1. Log in to the Audit Vault Server console as a user with the `AV_ADMIN` role.
2. Set the hostname to a fully qualified hostname (for example, `location.mycompany.com`). On the Audit Vault server console, click **Settings**, then **Network** under the Systems group header. On the Network page, set the host name.
3. Configure the DNS on each appliance, which are to be monitored, to be the same as that on the OMS server. Click **Settings**, then **Services** under the System group header. On the Services page, configure the DNS.

By default, SSH access into Audit Vault Server and Database Firewall is disabled. For the following steps, SSH is required. Therefore, on the same Services page, replace **disabled** inside the SSH box either with the **IP address** of the machine from which you will connect or with **all** to allow SSH connections from all machines on the network.

4. Log in to the operating system of the Audit Vault Server as the `root` user.

5. Unblock the network port through which the EM Management Agent and the Enterprise Manager server communicate:

 **Note:**

Changes made here to the `template-iptables` file might be rolled back by a subsequent Oracle Audit Vault and Database Firewall patch or upgrade. If you notice after applying the next patch or upgrade that Enterprise Manager is no longer collecting information about AV Server correctly, then repeat steps 2a and 2b below.

- a. Edit the file `/usr/local/dbfw/templates/template-iptables` file with the following entry:

 **Note:**

By default, the permissions for this file is **read-only**. You must change the permissions to allow editing, edit the file, and then change the permissions back to **read-only**:

- i. As `root`, change the permissions of the `template-iptables` file:

```
# chmod 644 template-iptables
```

- ii. Edit the line as described below.

- iii. Change the permissions of the `template-iptables` file back to read-only:

```
# chmod 444 template-iptables
```

```
-A RH-Firewall-1-INPUT -p tcp -m state --state NEW --dport 3872 -j ACCEPT
```

There may be similar entries already for database listener ports. Make your entry below them.

 **WARNING:**

Take extreme care when modifying the `template-iptables` file. Any mistakes here could make the system inoperable.

Only make this change and no other.

- b. Run the following command as `root`:

```
# /usr/local/dbfw/bin/priv/configure-networking
```

- c. Test your change. If port 3872 is used (this port is officially registered with IANA by Oracle for `oem-agent`), use:

```
iptables -L | grep oem
```

If another port was used, use:

```
iptables -L -n | grep <port number>
```

You will see that there is now an ACCEPT rule for the Management Agent.

6. While logged in as the `root` user on the Audit Vault Server, run the following command to become the `oracle` user:

```
# su - oracle
```

7. Download the `AgentPull.sh` script as follows:

```
$ cd /tmp
$ curl "https://<OMS_HOST>:<OMS_PORT>/em/install/getAgentImage" -k -o
AgentPull.sh
```

8. Give execute permission to the `AgentPull.sh` script:

```
$ chmod +x AgentPull.sh
```

9. Create a response `agent.rsp` file:

```
LOGIN_USER=sysman
PLATFORM="Linux x86-64"
```

10. Run the `AgentPull.sh` script to download and install the Management Agent:

```
$ ./AgentPull.sh RSPFILE_LOC=/tmp/agent.rsp AGENT_BASE_DIR=/var/lib/oracle/
emagent ORACLE_HOSTNAME=location.mycompany.com AGENT_PORT=3872
```

Where `ORACLE_HOSTNAME` is the fully qualified hostname of the Audit Vault Server where the EM Management Agent is being installed.



Note:

You will be prompted for two passwords immediately upon executing this command.

The installation of the EM Management Agent starts automatically as soon as the download has finished. At the end of the installation, you will be prompted to run a script as `root`.

After running that script, continue with [Discovering the Oracle AVDF Target](#).

2.1.2 Manually Installing the EM Management Agent on the Database Firewall Appliance

Follow the steps below to set the host name, configure the DNS, and to download and install the EM Management Agent on the Database Firewall appliance:

1. Log in to Database Firewall appliance console as a user with Firewall Admin privileges.
2. Set the hostname to a fully qualified hostname (for example, `location.mycompany.com`). On the Database Firewall console, click **Network** under the **System** header, and then click the **Change** button on the lower right-hand corner of the page.
3. Configure the DNS to be the same as that on the OMS server. Click **System** and then **Services**. On the Services page, configure the DNS.

By default, SSH access into Database Firewall is disabled. For the following steps, SSH is required. Therefore, on the same Services page, replace **disabled** inside the SSH box either with the **IP address** of the machine from which you will connect or with **all** to allow SSH connections from all machines on the network.

4. Log in to the operating system of the Database Firewall appliance as the `root` user.
5. Unblock the network port through which the EM Management Agent and the Enterprise Manager server communicate:

 **Note:**

Changes made here to the `template-iptables` file might be rolled back by a subsequent Oracle Audit Vault and Database Firewall patch or upgrade. If you notice after applying the next patch or upgrade that Enterprise Manager is no longer collecting information about Database Firewall correctly, then repeat steps 2a and 2b below.

- a. Edit the file `/usr/local/dbfw/templates/template-iptables` file with the following entry:

 **Note:**

By default, the permissions for this file is **read-only**. You must change the permissions to allow editing, edit the file, and then change the permissions back to **read-only**:

- i. As `root`, change the permissions of the `template-iptables` file:

```
# chmod 640 template-iptables
```

- ii. Edit the line as described below.

- iii. Change the permissions of the `template-iptables` file back to read-only:

```
# chmod 440 template-iptables
```

```
-A RH-Firewall-1-INPUT -p tcp -m state --state NEW --dport 3872 -j ACCEPT
```

There may be similar entries already for database listener ports. Make your entry below them.

 **WARNING:**

Take extreme care when modifying the `template-iptables` file. Any mistakes here could make the system inoperable.

Only make this change and no other.

- b. Run the following command:

```
# /usr/local/dbfw/bin/priv/configure-networking
```

- c. Test your change. If port 3872 is used (this port is officially registered with IANA by Oracle for oem-agent), use:

```
iptables -L | grep oem
```

If another port was used, use:

```
iptables -L -n | grep <port number>
```

You will see that there is now an `ACCEPT` rule for the Management Agent.

6. While logged in as the `root` user on the Audit Vault Server, run the following command to become the `oracle` user:

```
# su - oracle
```

7. Download the `AgentPull.sh` script as follows:

```
$ cd /tmp
$ curl "https://<OMS_HOST>:<OMS_PORT>/em/install/getAgentImage" -k -o
AgentPull.sh
```

8. Give execute permission to the `AgentPull.sh` script:

```
$ chmod +x AgentPull.sh
```

9. Create a response `agent.rsp` file:

```
LOGIN_USER=sysman
PLATFORM="Linux x86-64"
```

10. Run the `AgentPull.sh` script to download and install the Management Agent:

```
$ ./AgentPull.sh RSPFILE_LOC=/tmp/agent.rsp AGENT_BASE_DIR=/var/lib/oracle/
emagent ORACLE_HOSTNAME=location.mycompany.com AGENT_PORT=3872
```

Where `ORACLE_HOSTNAME` is the fully qualified hostname of the Database Firewall where the EM Management Agent is being installed.

 **Note:**

You will be prompted for two passwords immediately upon executing this command.

The installation of the EM Management Agent starts automatically as soon as the download has finished. At the end of the installation, you will be prompted to run a script as `root`.

After running that script, continue with [Discovering the Oracle AVDF Target](#).

3

Discovering the Oracle AVDF Target

Before you can begin monitoring Oracle Audit Vault and Database Firewall, it must first be *discovered* by Oracle Enterprise Manager Cloud Control. This chapter describes the necessary steps for discovering the Oracle AVDF target:

1. [Deploying the Oracle AVDF Plug-in.](#)
2. [Discovering Targets:](#)
 - a. [Discover Audit Vault Server 12.1 Target.](#)
 - b. [Discover Database Firewall 12.1 Target.](#)
 - c. [Discover Audit Vault Agent Target.](#)

3.1 Deploying the Oracle AVDF Plug-in

You can deploy plug-ins to an OMS instance using the Enterprise Manager Cloud Control interface or the EM Command Line Interface (EMCLI). While the graphical interface mode enables you to deploy one plug-in at a time, the command line interface mode enables you to deploy multiple plug-ins at a time, thus saving plug-in deployment time and downtime, if applicable.

The *Managing Plug-ins* chapter in the *Oracle Enterprise Manager Cloud Control Administrators Guide* provides instructions for deploying the plug-in.

Complete the following sections to deploy the AVDF plug-in on:

- Your Management Server (performed within Enterprise Manager Cloud Control). See the “Deploying Plug-Ins to Oracle Management Service” section for details:
- Your Management Agent (AV Server, performed within Enterprise Manager Cloud Control). See the “Deploying Plug-ins to Oracle Management Agent” section for details.

Once completed, return and continue with the instructions outlined in [Discovering Targets](#).

3.2 Discovering Targets

After successfully installing the Management Agent and deploying the plug-in, follow the steps below to add the following targets to Enterprise Manager Cloud Control for central monitoring and management:

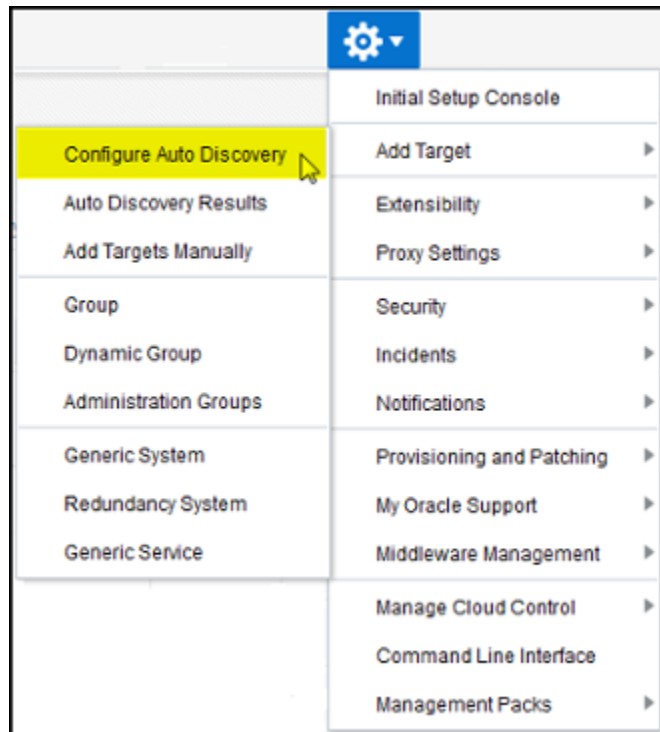
- [Discover Audit Vault Server 12.1 Target](#)
- [Discover Database Firewall 12.1 Target](#)
- [Discover Audit Vault Agent Target](#)

3.2.1 Discover Audit Vault Server 12.1 Target

Follow the steps below to add the Oracle Audit Vault Server 12.1 target:

1. Log in to Enterprise Manager Cloud Control.
2. Click **Setup**, then **Add Target**, and finally **Configure Auto Discovery**, as shown in [Figure 3-1](#):

Figure 3-1 Configure Auto Discovery Menu



3. On the Setup Discovery page, select a host on the Targets on Hosts tab and click **Discovery Modules**, as shown in [Figure 3-2](#):

Figure 3-2 Setup Discovery

The screenshot shows the 'Setup Discovery' page with the 'Targets on Hosts' tab selected. A table lists several hosts with their collection schedules, discovered and managed target counts, and enabled discovery modules. The 'Discovery Modules' button is highlighted with a red box.

Host	Collection Schedule	Discovered Targets	Managed Targets	Enabled Discovery Modules	Most Recent Ended On
↑ host1.example.com	Every 1 Day	0	9	5	✓ Dec 8, 2015 1:55:39 AM CST
↑ host2.example.com	Every 1 Day	1	9	5	✓ Dec 8, 2015 1:28:28 PM CST
✘ <host name>.example.com	Every 1 Day	0	2	0	
↑ 10.20.30.44	Every 1 Day	6	6	2	✓ Dec 8, 2015 3:26:42 PM CST
↑ <host IP address>	Every 1 Day	1	17	5	✓ Dec 8, 2015 2:41:58 PM CST

- On the Discovery Modules page, confirm that **Discover Audit Vault and Database Firewall Entities** and the **Oracle Database, Listener and Automatic Storage Management** options are enabled, as shown in Figure 3-3:

Figure 3-3 Discovery Modules

The screenshot shows the 'Discovery Modules : host1.example.com' configuration window. It contains a table with columns for Discovery Module, Enabled, Target Types, and Discovery Parameters. Two checkboxes in the 'Enabled' column are highlighted with red boxes.

Discovery Module	Enabled	Target Types	Discovery Parameters
Discover Audit Vault and Database Firewall Entities	<input checked="" type="checkbox"/>	Oracle Audit Vault and Database Firewall, Database Firewall, Audit Vault Agent	
Oracle Cluster and High Availability Service	<input checked="" type="checkbox"/>	Cluster, Oracle High Availability Service	
Oracle Database, Listener and Automatic Storage Management	<input checked="" type="checkbox"/>	Database Instance, Listener, Pluggable Database	Enter Clusterware Home=
Oracle Fusion Middleware	<input checked="" type="checkbox"/>	Oracle WebLogic Domain	Enter value of Middleware Home(s)=
Oracle Home Discovery	<input checked="" type="checkbox"/>	Oracle Home	
Oracle Secure Backup Domain	<input checked="" type="checkbox"/>	Oracle Secure Backup Domain	

- Click **OK**.
- Returning to the previous page, highlight the hostname of the Oracle Audit Vault Server and click **Discover Now**. A pop-up window will appear while the discovery is in progress.
 - Rename the Audit Vault Server and Database Firewall instances:
 - Click **Setup**, then **Add Target**, and finally **Auto Discovery Results**.
 - Click the **Targets on Hosts** tab.

- c. In the Target Type column, look for *Oracle Audit Vault and Database Firewall*, this is your Audit Vault Server. Highlight the row and click **Rename** to rename it to any meaningful name, such as AVServer_Legal_and_HR.
 - d. Next, highlight the row with Database Instance as a target type. Click **Rename** to rename it to any meaningful name, such as AVS_Repository.
 7. Promote the Audit Vault Server (AV Server):
 - a. Highlight the row of the Audit Vault Server and click **Promote**.
 - b. On the next page, provide user name and password of the AV Server user with AV_ADMIN privilege. The Preferred Connect String should be populated already. However, if it is not, go to the AV Server Web administration console and log in as a user with the AV_ADMIN privilege. Click **Settings**, then **Status**, and copy the preferred connect string from there. The ORACLE_HOME is:

```
/var/lib/oracle/dbfw
```
 - c. Click **Promote**.
 8. Promote AV Repository Database instance:
 - a. Highlight the row with the AVS_Repository database instance. Click on **Promote**.
 - b. On the next page, check AVS_Repository and click **Configure**.
 - c. Enter the Monitor password (user is dbstmp, unlock the account in the AVS repository database), change the port from 1522 to **1521**, and change the Listener Machine Name to the **fully qualified hostname** of your AV Server.
 - d. Click **Test Connection**; when successful, click **Save**.
 9. Back on the previous page, click **Next**. On the following page, click **Save**.
 10. To navigate to your new AV Server home page in Enterprise Manager Cloud Control:
 - a. From the Targets menu, select **All Targets**.
 - b. Expand the **Others** list item.
 - c. Select **Oracle Audit Vault and Database Firewall**. The AV repository database is listed under **Targets, Databases**.

3.2.2 Discover Database Firewall 12.1 Target

Follow the steps below to add the Oracle Database Firewall 12.1 target:

1. Log in to Enterprise Manager Cloud Control.
2. Click **Setup**, then select **Add Target**, and finally **Configure Auto Discovery**.
3. On the Setup Discovery page, select a host on the Targets on Hosts tab and click **Discovery Modules**, as shown in [Figure 3-2](#).
4. On the Discovery Modules page, confirm that **Discover Audit Vault and Database Firewall Entities** and the **Oracle Database, Listener and Automatic Storage Management** options are enabled.
5. On the Discovery Modules page, confirm that **Discover Audit Vault and Database Firewall Entities** and the **Oracle Database, Listener and Automatic Storage Management** options are enabled.

Click **OK**.

6. Returning to the previous page, highlight the hostname of the Oracle Database Firewall Server and click **Discover Now**. A pop-up window will appear while the discovery is in progress.
7. Rename the Audit Vault Server and Database Firewall instances:
 - a. Click **Setup**, then **Add Target**, and finally **Auto Discovery Results**.
 - b. In the Target Type column, look for *Database Firewall*, this is your Database Firewall Server. Highlight the row and click **Rename** to rename it to any meaningful name, such as `DBFW_Legal_and_HR`.
 - c. Next, highlight the row with Database Instance as a target type. Click **Rename** to rename it to any meaningful name, such as `DBFW_Repository`.
8. Promote the Database Firewall Server (DBFW Server):
 - a. Highlight the row of the DBFW Server and click **Promote**.
 - b. On the next page, provide user name and password of the AV Server user with `AV_ADMIN` privilege. The Preferred Connect String should be populated already. However, if it is not, go to the AV Server Web administration console and log in as a user with the `AV_ADMIN` privilege. Click **Settings**, then **Status**, and copy the preferred connect string from there. Replace the IP address with the hostname of the AV Server; confirm ports are set to **1521**.

 **Note:**

The DBFW Server is managed through the AV Server. When promoting the DBFW Server, you will still provide all the credentials for the AV Server.

- c. Click **Promote**. After clicking Promote, the console will ask for credentials again. Use the `av_admin` privilege credential of the AVDF Server.

 **Note:**

There is no need to promote the Database Firewall Repository instance.

9. Back on the previous page, click **Next**. On the following page, click **Save**.
10. To navigate to your new AV Server home page in Enterprise Manager Cloud Control:
 - a. From the Targets menu, select **All Targets**.
 - b. Expand the **Others** list item.
 - c. Select **Database Firewall**. The DBFW repository database is listed under **Targets, Databases**.

3.2.3 Discover Audit Vault Agent Target

Discovery of the Audit Vault (AV) Agent also can be done using automated discovery. Similar to other AVDF targets, you can run discovery on the host where the AV Agent

is installed. The discovery script identifies the AV Agent and includes it with the discovered targets, which could be promoted by providing the Oracle home of the AV Agent and AVDF server `AV_Admin` credential.

**Note:**

In order to manage an Audit Vault agent with Enterprise Manager Cloud Control, a Management Agent needs to be present on the machine where the Audit Vault agent is about to be deployed.

Follow the steps below to add the Oracle Audit Vault agent target:

1. Log in to Enterprise Manager Cloud Control.
2. Click **Setup**, then **Add Target**, and finally **Add Targets Manually**.
3. Select **Add Targets Declaratively by Specifying Target Monitoring Properties**.
4. From the Target type drop-down select the **Audit Vault Agent** target type. Then, for the Monitoring Agent, select the Enterprise Manager agent installed on the host on which the AV Agent is installed.

For example, if the AV Agent is installed on `host1.mycompany.com`, then you would need to search for the Enterprise Manager Agent (Monitoring Agent) on `host1.mycompany.com`. To search for the Monitoring Agent, click on the search icon to open a pop-up window with all the Enterprise Manager agents associated with this instance of Enterprise Manager.

5. Click **Add Manually**.
6. Follow the prompts for the Add Targets wizard to complete the process, including the following property settings:
 - AV Agent Name - The host agent name as it appears in AVDF console.
 - AV Agent Home - The location where the AV Agent is installed.
 - AVDF Monitor UserName - The user with the `AV_ADMIN` role on the AVDF repository.
 - AVDF Monitor Password.
 - AVDF Server Connect String.

You can get the connect string information from the AVDF server user interface:

- a. Log in to the AVDF Server using `AV_ADMIN` credential.
- b. Select **Settings**. In the left hand side list, under System, select click **Status**.
- c. In the Status block, the AVDF Server Connect String is listed. It should look like this:

```
Connect String (DESCRIPTION=(ADDRESS=(PROTOCOL=TCP)(HOST=<host IP>)  
(PORT=1521))(CONNECT_DATA= (SERVICE_NAME=DBFWDB.DBFWDB)))
```

- Associated Oracle AVDF Target - Optional. Name of the Enterprise Manager target of the corresponding AVDF.

4

Managing Oracle AVDF in Cloud Control

This chapter describes the various regions displayed on the Audit Vault and Database Firewall (AVDF) plug-in home page and includes the monitoring capabilities. The following topics are provided:

- [Installing the AV Agent](#)
- [The AVDF Plug-in Home Page](#)
- [Primary AVDF Plug-in Monitoring Overview](#)
- [Primary AVDF Plug-in Monitoring Overview](#)
 - [Audit Vault Agents](#)
 - [Audit Trails](#)
 - [Database Firewalls](#)
 - [Enforcement Points](#)
 - [Secured Targets](#)
- [Other AVDF Plug-in Monitoring](#)
 - [Summary Region](#)
 - [Auditor Activity Notifications](#)
 - [High Availability Information](#)
 - [Incidents and Problems](#)
- [Upgrading the Plug-in](#)
- [Undeploying the Plug-in](#)

4.1 Installing the AV Agent

As part of the set up of Enterprise Manager Cloud Control 12c, most hosts and targets are already discovered by Enterprise Manager. As part of Enterprise Manager, you can use this setup to install Audit Vault Agents and Sources:

To install an Audit Vault Agent:

1. On the Audit Vault listing page, click **Install**.
A new page will display which has a hosts table and an Add/Remove button. Initially, the host table is blank.
2. Click **Add** to bring up a pop-up window to search and add hosts for which the installation should happen. The pop-up window should only show those hosts where the AVDF plug-in is installed **and** where the host does not yet have the AV Agent installed.
3. Enterprise Manager will auto compute the AV Agent installation directory based on the Enterprise Manager Agent installation directory. You will have an option to change the directory.

4. Select the hosts you want to install the AV Agent. For those hosts you select, Enterprise Manager will show:
 - Host name, operating system, and platform details.
 - Agent installation directory.
 - A text box for the credential name. Click on the button next to the text box to view a pop-up window which displays all the credentials stored in Enterprise Manager. Select the credential name which is applicable for the host. If none of those credentials are for the particular host, then click on the new credential and provide the new credential information. This information will be saved for future reference.

You can either chose credentials for each host individually or click the default host credential and provide one credential applicable on all hosts.

 **Note:**

If you choose the default host credential and still provide a credential for some other host in the host details table, then the credential provided in the column will override the default credential.

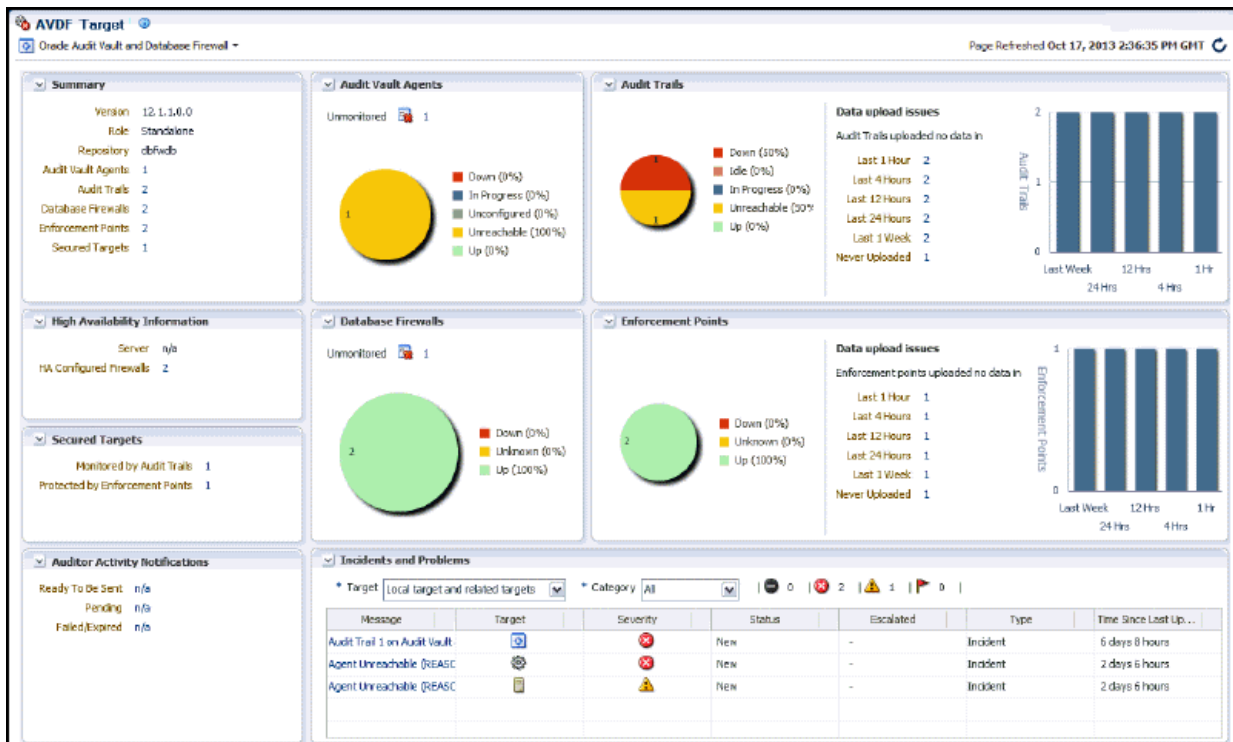
5. Click Submit to initiate the job (one per host) for the AV Agent setup. After the job is submitted, the AV listing page is displayed.
6. To monitor the progress, click the refresh button to see the new AV Agents added to the system.

For any jobs that fail, use the EM Jobs page to diagnose the failure. As part of the job execution, Enterprise Manager will log any relevant information to aid the AV Administrator for diagnosing the issue.

4.2 The AVDF Plug-in Home Page

Once installed and configured, you can monitor Oracle Audit Vault and Database Firewall from Enterprise Manager Cloud Control, as shown in [Figure 4-1](#). Each section and region of this page is described in [Primary AVDF Plug-in Monitoring Overview](#).

Figure 4-1 Oracle AVDF Plug-in Home Page in Cloud Control



4.3 Primary AVDF Plug-in Monitoring Overview

The regions described below provide high-level information about the status or performance of the Audit Vault Server and Database Firewall Appliance.

From the Oracle Audit Vault and Database Firewall plug-in home page, you can monitor the following information:

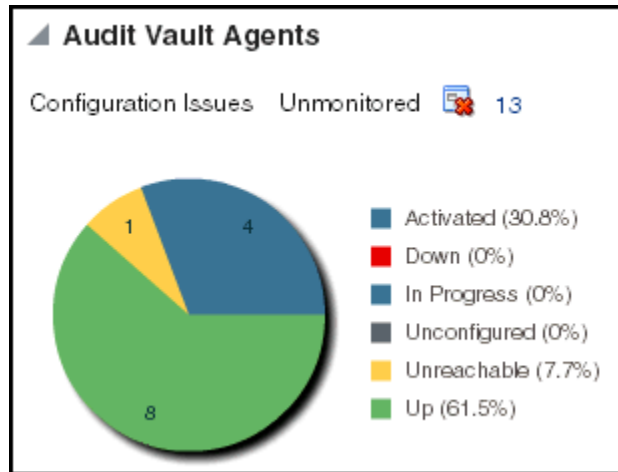
- [Audit Vault Agents](#)
- [Audit Trails](#)
- [Database Firewalls](#)
- [Enforcement Points](#)
- [Secured Targets](#)

4.3.1 Audit Vault Agents

This region shows the status information and configuration issues of all Audit Vault Agents monitored by Audit Vault and Database Firewall, not only monitored by Enterprise Manager as an Enterprise Manager target. It also shows the information about the Audit Vault Agents not monitored by Enterprise Manager as an Enterprise Manager target.

A graph shows if the agent is down, in progress, unreachable, or up. (See [Figure 4-2](#).)

Figure 4-2 Audit Vault Agents Region



For a detailed report ([Audit Vault Agents List](#)), select **Audit Vault Agents** from the Oracle Audit Vault and Database Firewall menu or click the **Audit Vault Agents** title on the Oracle AVDF home page.

4.3.1.1 Audit Vault Agents List

This page lists all of the Audit Vault Agents monitored by Audit Vault and Database Firewall. The following information is available:

- **Name:** The name of the Audit Vault Agent. Click the link in this column for a detailed [Audit Vault Agent Summary Page](#) of the Audit Vault agent.
- **Version:** The version of the Audit Vault Agent
- **Status:** Identifies if the agent is Up, Down, Unreachable, Not Activated, etc.
- **Audit Vault Agent Location:** The directory path for where the Audit Vault Agent is located.
- **Activation Key:** Key using which Audit Vault Agent has been activated.
- **Activation Time:** Time since when the Audit Vault Agent has been activated.
- **Incidents:** The number of incidents logged against a particular agent (it may or may not be monitored by Enterprise Manager Cloud Control) and all the audit trails managed by it. Incidents have a state of Fatal, Critical, Warning, and Escalated.

You can **Install, Activate, Deactivate, Start, Stop, or Delete** any of the Audit Vault Agents listed in this page by selecting the agent and clicking on the required button.

4.3.1.2 Audit Vault Agent Summary Page

This page provides detailed information about a particular Audit Vault Agent.

From the Audit Vault Agent home page, you can monitor the following information:

Errors & Messages

This region shows a high-level list of any important messages about the status and activity of the Audit Vault Agent.

Summary

This region shows high-level information about the Audit Vault Agent, including:

- Name: the name of the Audit Vault Agent
- Version: the version of the Audit Vault Agent
- Audit Vault Server: the name of the Audit Vault Server to which the Audit Vault Agent is associated
- Generation Time:
- Activation Time:
- Activation Key:
- Platform: the operating system of the Audit Vault Agent
- Audit Trails: the number of audit trails associated with the Audit Vault Agent
- Secured Targets: the number of secured targets monitored by the Audit Vault Agent

Audit Trails

This region provides a high-level summary of any audit trail available for the Audit Vault Agent. The following information is provided:

- Audit Trail ID: the unique identifier for any audit trail available for the Audit Vault Agent. Click the link in this column for a [detailed audit trail summary](#).
- Secured Target
- Status
- Type
- Time Since Last Upload
- Throughput (records/sec): the number of records per second the Audit Trail is uploading to the Audit Vault Server
- Incidents

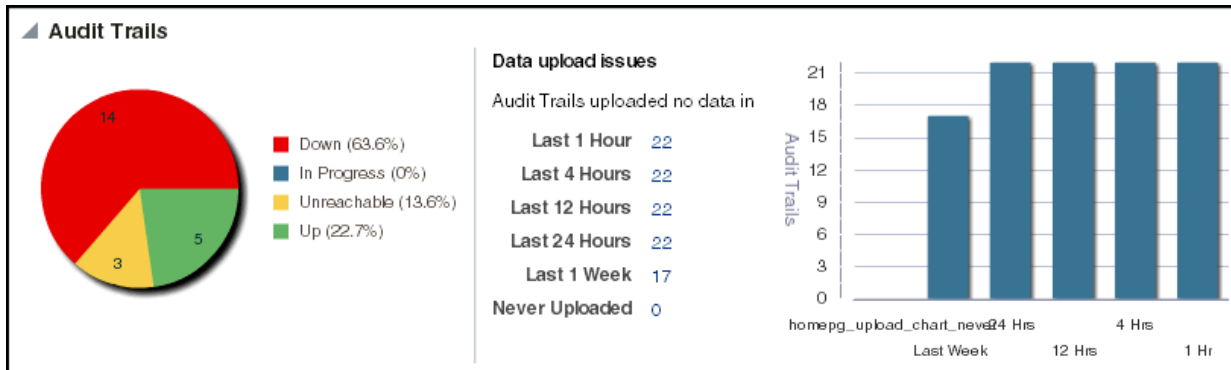
Incidents and Problems

This region provides a summary of any reported incident or problem. If there is an incident or problem listed, click the link in the Message column to show details in the Incident Manager feature of Enterprise Manager Cloud Control.

4.3.2 Audit Trails

Like Audit Vault Agents region, the Audit Trails region ([Figure 4-3](#)) shows status information for all the audit trails in the Audit Vault and Database Firewall system. It shows since how long the data upload issues exist.

Figure 4-3 Audit Trails Region



For a detailed report ([Audit Trails List](#)), select **Audit Trails** from the Oracle Audit Vault and Database Firewall menu or select the **Audit Trails** title from the Oracle AVDF home page.

4.3.2.1 Audit Trails List

This page lists all of the audit trails monitored by the Audit Vault and Database Firewall plug-in. The following information is available:

- Location
- Secured Target
- Status: identifies if the secured target is Up, Down, Idle, Unreachable, Not Activated, etc.
- Audit Vault Agent: lists the host name of the Audit Vault Agent. Click the link to display that agent's home page summary.
- Type
- Time Since Last Upload: The elapsed time since the last upload. This represents the time since when the audit trails has not uploaded any audit data into Audit Vault and Database Firewall repository.
- Throughput: shows the number of queries audited per second.
- Incidents: Identifies the number of incidents logged against an audit trail. Incidents have a state of Critical, Warning, and Escalated.

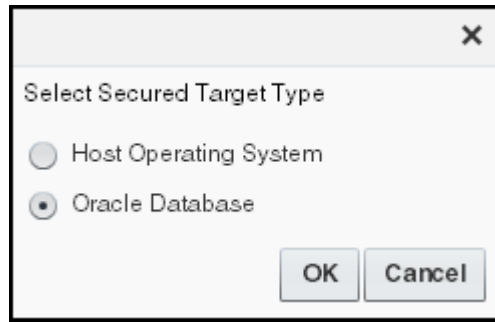
You can **Add**, **Stop**, **Start**, or **Delete** any of the audit trails listed in this page by selecting the trail and clicking on the required button.

4.3.2.2 Adding an Audit Trial

Follow the steps below to add an audit trail.

1. From the Oracle Audit Vault and Database Firewall home page, click the home page menu and select **Audit Trails**.
2. On the Audit Trails page, click **Add**.
3. On the pop-up window, select either **Host Operating System** or **Oracle Database**.

Figure 4-4 Select Secured Target Type



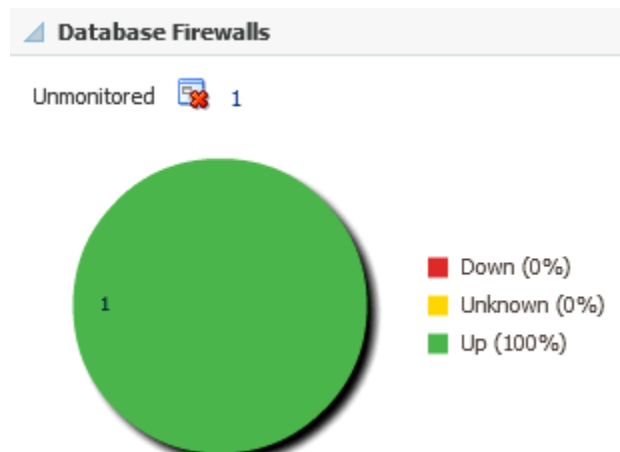
Click **OK**.

4. On the Search and Select Secured Targets page, select the target(s) and click **OK**.
5. For Oracle Database Secured Target, click the Configure Trail icon and select the trail types that you want to enable the trail for, else enter the trail location for the host secured target.
6. Click **Submit**.
7. Enter the credentials in the Credentials pop-up window and click **OK**.

4.3.3 Database Firewalls

Like the Audit Vault Agents region, the Database Firewalls region ([Figure 4-5](#)) shows all of the firewalls in the Audit Vault and Database Firewall system, not only the one monitored by Enterprise Manager as an Enterprise Manager target. This section also shows the count of Database Firewalls not monitored by Enterprise Manager as an Enterprise Manager target.

Figure 4-5 Database Firewalls Region



For a detailed report ([Database Firewalls List](#)), select **Database Firewalls** from the Oracle Audit Vault and Database Firewall menu.

4.3.3.1 Database Firewalls List

This page lists all of the Database Firewalls monitored by the Audit Vault and Database Firewall plug-in. The following information is available:

- **Firewall:** The Database Firewall name for all Database Firewalls in the Audit Vault and Database Firewall system - whether they are monitored by Enterprise Manager or not. Click the link for a detailed [Database Firewall Summary Page](#) for the selected Database Firewall.
- **Status:** Identifies if the firewall is Up, Down, Idle, Unreachable, Not Activated, etc.
- **Firewall Host:** Depending on the information available, this field displays:
 - The host name when available. The IP address of the Database Firewall host is shown as a tooltip of the host name.
 - The IP address of the Database Firewall host.
- **Role:** This field shows whether the firewall has **primary** or **secondary** role in a High Availability (HA) configuration. If the Database Firewall is not HA configured, then this would be standalone.
- **Incidents:** Identifies the number of incidents logged against a particular Database Firewall, whether monitored by Enterprise Manager Cloud Control or not. Incidents have a state of Critical, Warning, and Escalated

4.3.3.2 Database Firewall Summary Page

This page provides detailed information about a particular Database Firewall. The following sections are provided:

Summary

This region shows high-level information about the Database Firewall, including:

- **Name:** the name of the Database Firewall
- **Version:** the version of the Database Firewall
- **Audit Vault Server:** the name of the server where the Database Firewall is installed
- **Firewall Host:** Depending on the information available, this field displays:
 - The host name when available. The IP address of the Database Firewall host is shown as a tooltip of the host name.
 - The IP address of the Database Firewall host.
- **Role:** This field shows whether the firewall has **primary** or **secondary** role in a High Availability (HA) configuration. If the Database Firewall is not HA configured, then this would be standalone.
- **Enforcement Points:** the number of enforcement points associated with the Database Firewall
- **Secured Targets:** the number of secured targets protected by the Database Firewall

Enforcement Points

This region shows a high-level, table summary for all enforcement points associated with a particular Database Firewall. The information displayed includes:

- **Enforcement Point:** the name of the enforcement point for a particular Database Firewall. Click the link for a detailed summary of the enforcement point.
- **Status:** identifies if the enforcement point is Up, Down, Idle, Unreachable, Not Activated, etc.
- **Monitoring Mode:**
 - Database Activity Monitoring (DAM): monitors the activity of the database.
 - Database Policy Enforcement Mode (DPM): blocks activity if a policy violation occurs.
- **Firewalls:** lists the Database Firewalls associated with a particular enforcement point.
- **Secured Target:** identifies the name of the secured target. Click the link for a pop-up window with a detail summary.
- **Time Since Last scan:** The time since the enforcement point last scanned any query.
- **Throughput:** shows the number of queries audited per second.
- **Incidents:** Identifies the number of incidents logged against an enforcement point. Incidents have a state of Critical, Warning, and Escalated

High Availability

This region shows a high-level summary of the high availability (HA) support provided for the Database Firewall, including:

- **Secondary Firewall:**
- **Secondary Firewall Host:** Depending on the information available, this field displays:
 - The host name when available. The IP address of the secondary Database Firewall host is shown as a tooltip of the host name.
 - The IP address of the secondary Database Firewall host.

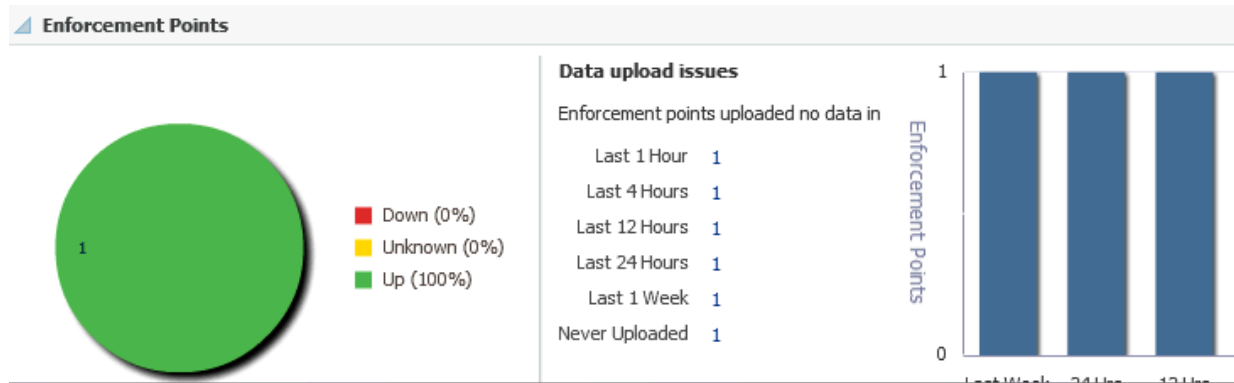
Incidents and Problems

This region provides a summary of any reported incident or problem. If there is an incident or problem listed, click the link in the Message column to show details in the Incident Manager feature of Enterprise Manager Cloud Control.

4.3.4 Enforcement Points

This region ([Figure 4-6](#)) shows a high-level status of the enforcement points in the Audit Vault and Database Firewall system data. A timestamp shows since how long enforcement points have not scanned any queries (from the last hour to the last week).

Figure 4-6 Enforcement Points Region



For a detailed report ([Enforcement Points List](#)), select **Enforcement Points** from the Oracle Audit Vault and Database Firewall menu.

4.3.4.1 Enforcement Points List

This page lists all of the enforcement points monitored by the Audit Vault and Database Firewall plug-in. The following information is available:

- **Enforcement Point:** the name of the enforcement point for a particular Database Firewall. Click the link for a detailed [Enforcement Points Summary Page](#) of the enforcement point.
- **Status:** identifies if the enforcement point is Up, Down, Idle, Unreachable, Not Activated, etc.
- **Monitoring Mode:**
 - Database Activity Monitoring (DAM): monitors the activity of the database.
 - Database Policy Enforcement Mode (DPM): blocks activity if a policy violation occurs.
- **Firewalls:** lists the Database Firewalls associated with a particular enforcement point.
- **Secured Target:** identifies the name of the secured target. Click the link for a pop-up window with a detail summary.
- **Time Since Last scan:** The time since the enforcement point last scanned any query.
- **Throughput:** shows the number of queries audited per second.
- **Incidents:** Identifies the number of incidents logged against an enforcement point. Incidents have a state of Critical, Warning, and Escalated

4.3.4.2 Enforcement Points Summary Page

This page provides detailed information about a particular enforcement point associated with a Database Firewall. The following sections are provided:

Summary

This region shows high-level information about the enforcement points for a Database Firewall, including:

- **Status:** identifies if the enforcement point is Up, Down, Idle, Unreachable, Not Activated, etc.
- **Active Since:** the time the enforcement point was made active.
- **Monitoring Mode:**
 - Database Activity Monitoring (DAM): monitors the activity of the database.
 - Database Policy Enforcement Mode (DPM): blocks activity if a policy violation occurs.
- **Firewalls:** lists the Database Firewalls associated with a particular enforcement point.
- **Time Since Last scan:** The time since the enforcement point last scanned any query.
- **Audit Vault Server:** the name of the server to which the Database Firewall is associated.

Enforcement Point Source

This region provides a high-level summary of the enforcement point associated with a Database Firewall, including:

- Source Name
- Type
- Source Host
- Port

Performance

This region provides a graph of the throughput per second data over a particular time. Click the Duration drop-down menu to select a time frame.

Incidents and Problems

This region provides a summary of any reported incident or problem. If there is an incident or problem listed, click the link in the Message column to show details in the Incident Manager feature of Enterprise Manager Cloud Control.

4.3.5 Secured Targets

Secured targets can be supported databases or operating systems that Audit Vault and Database Firewall monitors. You must register all secured targets in Oracle Audit Vault and Database Firewall. From this page you can perform the following tasks:

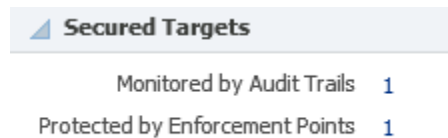
- [Add a Database Target](#)
- [Add Host Secured Target](#)
- [Delete a Database Target or a Host Secured Target](#)

- [Secured Targets Page Information](#)

This region (see [Figure 4-7](#)) shows number of Secured Targets:

- Contained in the Audit Vault and Database Firewall system.
- Monitored by the Audit Trails in Audit Vault and Database Firewall system.
- Protected by the enforcement points in the Audit Vault and Database Firewall system.

Figure 4-7 Secured Targets Region

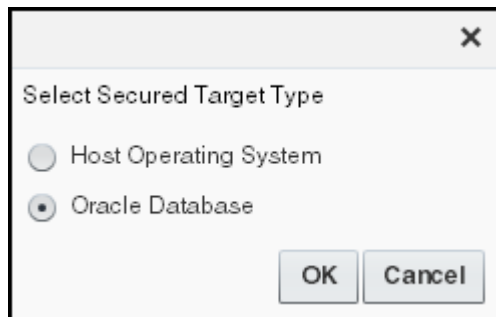


For a detailed report, select **Secured Targets** from the Oracle Audit Vault and Database Firewall menu or click the **Secured Targets** title on the Oracle AVDF home page.

4.3.5.1 Add a Database Target

1. From the Secured Targets page, click **Add**.
2. On the pop-up, select **Oracle Database**, as shown in [Figure 4-8](#):

Figure 4-8 Add Oracle Database Secured Target Type



Click **OK**.

3. Another pop-up displays, which shows all available Oracle Database targets. Select an Oracle Database target. Click **OK** to return to the Secure Targets page.
4. *Optional:* On the Secure Targets page, you can modify the Database target name. Click the DB name and then enter a new target name.
5. Select the host credentials:

- Under Secured Target Details, select **Default Secured Target Host Credential** and select the default host credentials for all Database hosts (applicable for all targets).
Or
 - In the Credentials pop-up, set the host credentials for each Database host, overriding the default.
6. Enter the Sys password:
 - Under Host Details, select **Default Sys User Password** and enter the default sys password for all Databases (applicable for all targets).
Or
 - In the DB Sys Password field, enter the **sys password** for each Database, overriding the default.
 7. Select the AVDF user credentials:
 - Under Host Details, select **Default AVDF User Credential** and enter the default `avdf` user credential - a credential for a user to be created and configured on the target Oracle Database and applicable for all targets.
Or
 - In the AVDF User Account column, click **New Credential** and enter the `avdf` user credentials for each Database target, overriding the default.
 8. Click **Submit**.

4.3.5.2 Add Host Secured Target

1. From the Secured Targets page, click **Add**.
2. On the pop-up, select **Host Operating System**. Click **OK**.
3. Another pop-up displays, which shows all available Host Secured Targets. Select a host secured target from the list. Click **OK** to return to the Secure Targets page.
4. *Optional:* On the Secure Targets page, you can modify the Host Secured target name. Click the Host Secured name and then enter a new target name.
5. Click **Submit**.
6. On the credential pop-up, enter the Oracle user credential for the AV Server host. Click **OK**.

4.3.5.3 Delete a Database Target or a Host Secured Target

To delete a database target or a host-secured target, follow these steps:

1. From the Secured Targets page, select a target from the list that you want to delete.
2. Click **Delete**.
3. In the pop-up, specify the credential for the user who owns the Oracle Home of Audit Vault Agent(s).
4. Click **OK** to close the Credentials window. The deletion request is submitted as a job to Cloud Control.

4.3.5.4 Secured Targets Page Information

On the Secured Targets list page, the following information is available:

- **Secured Target:** name of the target
- **Type:** the type of the supported database or operating system (such as, Oracle Database or Microsoft SQL Server)
- **Status:** shows whether the database is **Up** or **Down**
- **Audit Trails:** Number of audit trails associated with a Secure Target.
- **Enforcement Points:** the number of enforcement points associated with a Secure Target.
- **Connection String:**
- **Monitored by:** identifies the Audit Vault Agent and Audit Trails that are monitoring this Secure Target
- **Protected by:** identifies the Database Firewall and enforcement points that are protecting this Secure Target

4.4 Other AVDF Plug-in Monitoring

The regions described below may provide links for additional information about the target. For example, the links in the [Summary Region](#) takes you to the corresponding component listing page which has the summary of all the components of that type. Other link and chart sections are also clickable, which will take you to the corresponding component listing page after applying the appropriate filter.

From the Oracle Audit Vault and Database Firewall plug-in home page, you can monitor the following information:

- [Summary Region](#)
- [Auditor Activity Notifications](#)
- [High Availability Information](#)
- [Incidents and Problems](#)

4.4.1 Summary Region

This region shows high-level information including the Oracle Audit Vault Server version and the number and type of components monitored by the plug-in (as shown in [Figure 4-9](#)).

Figure 4-9 Summary Region

Summary	
Version	12.1.2.0.0
Role	Standalone
Repository	dbfwdb
Audit Vault Agents	1
Audit Trails	2
Database Firewalls	1
Enforcement Points	1
Secured Targets	1

4.4.2 Auditor Activity Notifications

This region (Figure 4-10) shows the number of Auditor Activity Notifications. A notification can be **Ready to be Sent**, **Pending**, or **Failed/Expired**. These notifications are generated by Audit Trails in the Audit Vault and Database system.

Figure 4-10 Auditor Activity Notifications Region

Auditor Activity Notifications	
Ready To Be Sent	n/a
Pending	n/a
Failed/Expired	n/a

4.4.3 High Availability Information

This region shows the associated high-availability pair of IP address for the Audit Vault Server and shows the number of high-availability configured Database Firewalls.

If the paired high-availability server is added to Enterprise Manager as an Enterprise Manager target, this region would show the Enterprise Manager target name (instead of the IP addresses) and would provide a link to navigate to that target. (See Figure 4-11.)

Figure 4-11 High Availability Information Region

High Availability Information	
Server	n/a

4.4.4 Incidents and Problems

This region ([Figure 4-12](#)) provides a summary of any incident or problem for the components monitored by the plug-in. If there is an incident or problem listed, click the link in the Message column to show details in the Incident Manager feature of Enterprise Manager Cloud Control.

Figure 4-12 Incidents and Problems Region

Summary	Target	Severity	Status	Escalation level	Type	Time Since Last L
Audit Trail 1 on Audit Vault agent			New	-	Incident	0 days 12 hours
Audit Trail 2 on Audit Vault agent			New	-	Incident	0 days 11 hours

4.5 Upgrading the Plug-in

The Self Update feature allows you to expand Enterprise Manager's capabilities by updating Enterprise Manager components whenever new or updated features become available. Updated plug-ins are made available via the Enterprise Manager Store, an external site that is periodically checked by Enterprise Manager Cloud Control to obtain information about updates ready for download. See the *Updating Cloud Control* chapter in the *Oracle Enterprise Manager Cloud Control Administrator's Guide* for steps to update the plug-in.

4.6 Undeploying the Plug-in

See the *Managing Plug-ins* chapter in the *Oracle Enterprise Manager Cloud Control Administrator's Guide* for steps to undeploy the plug-in.

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