
# Opsware® OMDB 7.0 Installation Guide

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Opsware SAS Version 7.0

Opsware OMDB Version 7.0

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# Preface

Welcome to the Opsware Operational Management Database (OMDB), the first configuration management database (CMDB) that offers seamless change automation. Leveraging the Opsware System consisting of the Opsware Server Automation System (SAS), Opsware Network Automation System (NAS), and the Opsware Application Storage Automation System (ASAS), the OMDB automatically populates and maintains all the infrastructure configuration items (CIs), their detailed attributes, and interdependencies. After the OMDB is populated with the data, customers can easily execute changes to configure and remediate the IT infrastructure.

## Overview of this Guide

This guide describes installing OMDB and Data Miners, and how to perform OMDB administrative tasks.

## Contents of this Guide

This guide contains the following chapters and appendices:

**Chapter 1: Supported Operating Systems**: Describes the supported operating systems for an Opsware OMDB core, OMDB Database, and the OMDB Client.
**Chapter 2: Installing OMDB**: Describes how to install OMDB Core and Database instances, and how to configure SAS groups to permit access to OMDB.
**Chapter 3: Installing OMDB Data Miners**: Describes how to install OMDB Data Miners.
**Chapter 4: Administrative Tasks**: Describes the OMDB filesystem layout, viewing and setting OMDB permissions, creating and assigning security boundaries, and the OMDB start script.

 

# Chapter 1: Supported Platforms

**IN THIS CHAPTER**

This chapter discusses the following topics:

- Supported Operating Systems for OMDB Core Servers
- Supported Operating Systems for the OMDB Client
- Supported Data Sources for OMDB Data Miners
- Hardware Requirements for OMDB Core Servers

## Supported Operating Systems for OMDB Core Servers

The following table lists the supported operating systems for the Opsware OMDB core components.

*Table 1-1: Opsware OMDB Core Supported Operating Systems*

| SUPPORTED OS FOR OMDB CORE | VERSIONS | ARCHITECTURE | OMDB COMPONENTS |
|---|---|---|---|
| Sun Solaris | Solaris 9 | Sun SPARC | All components |
| Sun Solaris | Solaris 10 | Sun SPARC | All components |
| Red Hat Linux | Red Hat Enterprise Linux 3 AS | 32 bit x86 | All components |
| Red Hat Linux | Red Hat Enterprise Linux 4 AS | 64 bit x86 | All components |

## Supported Operating Systems for the OMDB Client

The following table lists the operating systems supported for the OMDB Client.

*Table 1-2: OMDB Client Supported Operating Systems*

| SUPPORTED OPERATING SYSTEMS FOR OMDB CLIENT | VERSIONS | ARCHITECTURE |
|---|---|---|
| Windows | Windows XP<br>Windows 2003<br>Windows 2000 | 32 bit x86<br>32 bit x86<br>32 bit x86 |

## Supported Data Sources for OMDB Data Miners

See “Supported Data Sources for OMDB Data Miners” on page 47.

## Hardware Requirements for OMDB Core Servers

See the *Opsware® SAS Planning and Installation Guide* for information on the hardware requirements.

 

# Chapter 2: Pre-Installation Requirements

**IN THIS CHAPTER**

This chapter discusses the following topics:

- Installing SAS
- Pre-Install Script Requirements
- Viewing OMDB Permissions
- Enabling the OMDB Client
- Open Ports

## Installing SAS

Using the supplied Opsware SAS install DVD, install a SAS 7.0 core.

For more information, see the *Opsware® SAS Planning and Installation Guide*.

## Pre-Install Script Requirements

Before you begin installing OMDB, you should have the following two pieces of information:

- The fully qualified domain name or IP address of the server on which the Opsware Command Center (OCC) core component is installed.
- The password for the `admin` user of the SAS installation (the `cast.admin_pwd` parameter value).

## Viewing OMDB Permissions

This section describes how to view OMDB permissions for an existing group, and the definitions of the permission settings.

### Viewing OMDB Permissions

To view the OMDB permissions, perform the following steps:

1. Log in to the SAS Web Client as admin.
2. In the Navigation Panel, click Administration ➤ Users and Groups. The View Users pane appears.
3. Click the Groups tab.
4. Select a group. The group is displayed in the View Groups pane.
5. Click the OMDB Features tab.

If a user has no OMDB permissions, the SAS Client will not display the Opsware OMDB Client item on the Tools menu.

### OMDB Permissions

The General Permissions section has the following five checkboxes:

- Schedule Reports - Selecting Schedule Reports causes the OMDB Client to display the **Schedule Reports** item in the **View ➤ Reports** menu. It also enables the **Schedule** button when the user views a specific report.
- Manage Scheduled Reports - In addition to the permissions granted by selecting Schedule Reports, selecting Manage Scheduled Reports also causes the OMDB Client to display the **Manage Scheduled Reports** item in the **View ➤ Opsware Administration** menu. The user can see scheduled reports of other users, set the maximum number of scheduled reports per user, and set the maximum number of reports to be concurrently processed by a server. This permission grants access to only the report definitions of scheduled reports. If the user runs a report created by another user, the data displayed depends on the Data Access permissions. If the user runs a report that attempts to display data the user does not have access to, the report displays the following message: “There is no data that matches your criteria”.
- Manage Security Boundaries -Selecting Manage Security Boundaries adds the **Security Boundaries** item on the menu **View ➤ Opsware Administration** menu of the OMDB Client to members of the group. The user can create security boundaries.

 

- Administer OMDB System - Selecting Administer OMDB System permits the user access to CDK-related APIs.
- All Data Access Permissions - Selecting All Data Access Permissions grants members of the group access to all data in OMDB. Clear All Data Access Permissions, then use the Data Access section to grant data access to only selected categories.

### Data Access

The Data Access section of the OMDB Features tab has two sections:

- NAS Category and Permission
- SAS Category and Permission

Each section describes one row for each Configuration Item (CI) Type in that section. If custom CI Types are defined in the SAS installation, those data types are displayed in a third section labeled Other.

For each CI Type, set the permission for the group by selecting either None, All, or Security Boundary. If you select the Security Boundary option, click **Select** to display the Select Security Boundaries window.

## Enabling the OMDB Client

You must enable OMDB on the SAS server, and you must also create an OMDB group and add a user to that group before that user can see the Opsware OMDB Client menu item in the SAS Client.

### Enabling OMDB in SAS

To enable OMDB in SAS, perform the following steps:

1. On the twist server, log in as root.
2. Enter the following command:
   `/opt/opsware/omdb/bin/enable_omdb_client.sh`
3. Restart the twist:
   `/etc/init.d/opsware-sas restart twist`

If you did not install OMDB on the server that the twist is installed on, you must copy `enable_omdb_client.sh` from the OMDB server. Instead of the command in step 2, enter the following commands:

```
scp youromdbserver:/opt/opsware/omdb/bin/enable_omdb_
client.sh /var/tmp
```

```
/var/tmp/enable_omdb_client.sh
```

Then restart the twist as shown in step 3.

### Enabling the OMDB Client Menu Item in the SAS Client

To enable the OMDB Client menu item in the SAS Client, perform the following steps:

1. Log in to the SAS Web Client as admin.
2. In the Navigation panel, click Administration ➤ Users and Groups. The View Users pane appears.
3. Click the Groups tab.
4. Click **New Group**.
    1. Type a name for the group.
    2. (Optional) Type the Group description.
5. Click **Save**. The new group is displayed in the Groups pane.
6. Click the name of the group you just created.
7. In the Edit Group pane, assign the users to the OMDB group.
8. Click the OMDB Features tab.
9. In the General Permissions section, select all five of the checkboxes.
10. Click **Save**.

## Open Ports

The following table lists the ports required for OMDB.

*Table 2-1: OMDB Required Ports*

| PORT NUMBER | PURPOSE | FROM | TO |
|---|---|---|---|
| 25 (TCP) | SMTP | OMDB Core | Mail Server |
| 443 (TCP) | Web Services | OMDB Client | SAS OCC |
| 1032 (TCP) | SAS Twist | OMDB Core | SAS OCC |

 

*Table 2-1: OMDB Required Ports*

| PORT NUMBER | PURPOSE | FROM | TO |
|---|---|---|---|
| 1521 (TCP) | Oracle TNS | OMDB Core | OMDB Database |
| 8443 (TCP) | Web Services | • OMDB Client<br>• Data Miner on a Managed Server | OMDB Core |
| 8080 (TCP) | OMDB Client Download | OMDB Client | OMDB Core |
| 8873 (TCP) | RSYNC Data Miner | Data Miner on a Managed Server | OMDB Core |
| 14445 (TCP) | RMI Over SSL | OMDB Client | OMDB Core |

 

# Chapter 3: Installing OMDB

**IN THIS CHAPTER**

This chapter discusses the following topics:

- Compatibility
- Overview
- Installing OMDB on a Single Server
- Installing OMDB and SAS on Separate Servers
- Installing the OMDB Core, the OMDB Database, and SAS on Separate Servers

## Compatibility

OMDB 7.0 is compatible with the 7.0 version of Opsware SAS. In the SAS Client, check the version by selecting the **Help ➤ About** menu item.

## Overview

This chapter describes the following installation scenarios:

- Installing SAS, the OMDB Core, and the OMDB Database on a single server. SAS and OMDB share a single Oracle RDBMS. See “Installing OMDB on a Single Server” for more information.
- Installing SAS and OMDB on two separate servers. SAS and OMDB have separate Oracle database instances.
- Installing SAS on one server, the OMDB Core on a second server, and the OMDB database instance on a third server.

See “OMDB Filesystem Layout” on page 76 for a description of the files installed by the OMDB Installer and their locations.

## Installing OMDB on a Single Server

This section describes the concurrent installation of the Opsware OMDB Database and the Opsware OMDB Core Services on the same server that Opsware SAS is installed on. The OMDB install process uses the same Opsware Installer application that you used to install Opsware SAS, and you start it in the same manner. When running the Opsware Installer, press Ctrl+I at any time to display online help for the current step.

The OMDB hardware requirements for installation are the same as the Opsware SAS hardware requirements. For more information, see the *Opsware® SAS Planning and Installation Guide*.

### Installing OMDB Using Simple Interview Mode

To install OMDB using the Simple Interview Mode, complete the following steps:

1. Log in to the server that you installed SAS on, and then launch a command prompt.
2. Mount the Opsware OMDB install DVD using a command similar to `mount /dev/cdrom` as appropriate.
3. From the Opsware OMDB install DVD, start the Opsware Installer using the following command:
   `/<mnt_point>/opsware_installer/install_opsware.sh`

Start the Opsware Installer using the fully qualified path name. Do not start the Opsware Installer from the local directory.

The following prompt appears:

```
Install Type: "OMDB Installation"

Please select the interview mode. Simple mode uses default
values for many of the configuration parameters. Advanced
mode allows you to fully configure the installation.

1 - Simple Interview Mode
2 - Advanced Interview Mode
```

 

```
Please select the interview mode from the menu, type 'h' for
help, 'q' to quit:
```

4 To select the Simple Interview mode, type 1, then press Enter. The following prompt appears:

```
The Opsware Installer will now interview you to obtain the
installation parameters it needs. You can use the following
keys to navigate forward and backward through the list of
parameters:

Control-P - go to the previous parameter
Control-N - go to the next parameter
Return - accept the default (if any) and go to the next
parameter
Control-F - finish parameter entry
Control-I - show this menu, plus information about the
current parameter

Press Control-F when you are finished. The Opsware Installer
will perform a final validation check and write out a
response file that will be used to install the Opsware
components.

Parameter 1 of 9 (decrypt_passwd)Please enter the password
for the cryptographic material:
```

5 Type the cryptographic password to use. The following prompt appears:

```
Parameter 2 of 9 (omdb.oracleHost)Please enter the hostname
of the server where the Oracle RDBMS will be installed.
[localhost]:
```

6 To accept the default value localhost, press Enter. The following prompt appears:

```
Parameter 3 of 9 (omdb.oracleSid)Please enter the SID for the
OMDB Oracle database instance. [cmdb]:
```

7 To accept the default value cmdb for the Oracle SID, press Enter. The following prompt appears:

```
Parameter 4 of 9 (omcs.occHost)Please enter the hostname or
IP of the server where the SAS OCC service is running.:
```

8 Type the fully qualified domain name or IP address of the server that the Opsware Command Center (OCC) core component is installed, then press Enter. The following prompt appears:

```
Parameter 5 of 9 (omcs.twistUser)Please enter the username of
a SAS admininstator for OMDB to use to connect to the twist.
[admin]:
```

**9** To accept the default value admin, press Enter. The following prompt appears:

```
Parameter 6 of 9 (omcs.twistPwd)Please enter the password for
the SAS admin user for OMDB to use to connect to the twist.:
```

**10** Type the password for the `admin` account on the SAS installation (the `cast.admin_passwd` parameter value), then press Enter. The following prompt appears:

```
Parameter 7 of 9 (omcs.host)Please enter the hostname or IP
of the server where the OMDB Core Services will be installed
(not localhost).:
```

**11** Type the fully qualified domain name or IP address of the server that you are installing OMDB on, then press Enter.

Do not type localhost for this parameter.

The following prompt appears:

```
Parameter 8 of 9 (omdb.adminPwd)Please enter the password to
use for the OMDB database administrator.:
```

**12** To accept the default value cmdb_admin, press Enter.

The following prompt appears:

```
Parameter 9 of 9 (omcs.smtpHost)Please enter the hostname or
IP address of your SMTP mail server. [localhost]:
```

Consider using a non-default password.

**13** Perform one of the following two actions:

- Type the name of the mail server that OMDB should use, then press Enter.
- To accept the default value localhost, press Enter.

The following prompt appears:

```
All parameters have values. Do you wish to finish the
interview? (y/n):
```

 

**14** To finish the interview, type `y`, then press Enter. The following prompt appears:

```
Concluding interview.
Interview complete.
Name of response file to write [/usr/tmp/oiresponse.omdb]:
```

**15** To accept the default value `/usr/tmp/oiresponse.omdb`, press Enter. The following prompt appears:

```
Response file written to /usr/tmp/oiresponse.omdb.
Would you like to continue the installation using this
response file? (y/n):
```

**16** To continue, type `y`, then press Enter. The following prompt appears:

```
Welcome to the Opsware Installer.
Please select the components to install.
1 ( ) Oracle RDBMS for OMDB
2 ( ) Opsware OMDB Database Instance
3 ( ) Opsware OMDB Core Services
Enter a component number to toggle ('a' for all, 'n' for
none).
When ready, press 'c' to continue, or 'q' to quit.
Selection:
```

Because this installation is of SAS, the OMDB Core, and the OMDB Database on a single server, selecting all components is appropriate. For more information, see “Installing OMDB on a Single Server” on page 18.

**17** To select all, type `a`, then press Enter. The following prompt appears:

```
Welcome to the Opsware Installer.
Please select the components to install.
1 (*) Oracle RDBMS for OMDB
2 (*) Opsware OMDB Database Instance
3 (*) Opsware OMDB Core Services
Enter a component number to toggle ('a' for all, 'n' for
none).
When ready, press 'c' to continue, or 'q' to quit.
Selection:
```

**18** To continue, type `c`, then press Enter. The following prompt appears:

```
Installing preliminary components
```

```
.....
Database with cryptographic material not found. Would you
like Opsware Installer to generate new database of
cryptographic material? [y/n]
```

**19** Perform one of the following two actions:

- Type y, then Enter.
- To use existing cryptographic information, contact Opsware Technical Support for more information.

The following prompt appears:

```
Invoking OCT, this may take a while...

>>>>Installing component Oracle RDBMS for OMDB
.............................................................
>>>>Installing component Opsware OMDB Database Instance
.............................................................
>>>>Installing component Opsware OMDB Core Services
.....................................
Opsware Installer ran successfully.

For more details, please see the following file:
/var/log/opsware/install_opsware/
install_opsware.2007-02-26.21:30:54_verbose.log

################################################################
WARNING: to make sure that no sensitive information is left
on this server, please remove,encrypt or copy to a secure
location
the following files and directories:
  -- /var/opt/opsware/install_opsware/resp/*
  -- /var/log/opsware/install_opsware/*
  -- /var/tmp/*.sh
Also, please encrypt or store in a secure location the
response file
that you used to install this core.
################################################################

Script done on Mon Feb 26 21:39:23 2007
```

You have completed installing OMDB.

 

### Installing OMDB Using Advanced Interview Mode

To install OMDB using the Advanced Interview Mode, complete the following steps:

1. Log in to the server that you installed SAS on, and then launch a command prompt.
2. Mount the Opsware OMDB install DVD using a command similar to `mount /dev/cdrom` as appropriate.
3. From the Opsware OMDB install DVD, start the Opsware Installer using the following command:
   `/<mnt_point>/opsware_installer/install_opsware.sh`

Start the Opsware Installer using the fully qualified path name. Do not start the Opsware Installer from the local directory.

The following prompt appears:

```
Install Type: "OMDB Installation"

Please select the interview mode. Simple mode uses default
values for many of the configuration parameters. Advanced
mode allows you to fully configure the installation.

1 - Simple Interview Mode
2 - Advanced Interview Mode

Please select the interview mode from the menu, type 'h' for
help, 'q' to quit:
```

4. To select the Advanced Interview mode, type 2, then press Enter. The following prompt appears:

```
The Opsware Installer will now interview you to obtain the
installation parameters it needs. You can use the following
keys to navigate forward and backward through the list of
parameters:

Control-P - go to the previous parameter
Control-N - go to the next parameter
Return - accept the default (if any) and go to the next
parameter
Control-F - finish parameter entry
Control-I - show this menu, plus information about the
current parameter
```

```
Press Control-F when you are finished. The Opsware Installer
will perform a final validation check and write out a
response file that will be used to install the Opsware
components.

Parameter 1 of 20 (decrypt_passwd)Please enter the password
for the cryptographic material:
```

5 Type the cryptographic password to use. The following prompt appears:

```
Parameter 2 of 20 (omdb.oracleHost)Please enter the hostname
of the server where the Oracle RDBMS will be installed.
[localhost]:
```

6 To accept the default value localhost, press Enter. The following prompt appears:

```
Parameter 3 of 20 (omdb.oracleSid)Please enter the SID for
the OMDB Oracle database instance. [cmdb]:
```

7 Type the password for the Oracle SID, and then press Enter. The following prompt appears:

```
Parameter 4 of 20 (omdb.sysPwd)Please enter the password to
use for the OMDB Oracle SYS user.:
```

8 Type the password for the Oracle system password, and then press Enter. The following prompt appears:

```
Parameter 5 of 20 (omdb.systemPwd)Please enter the password
to use for the OMDB Oracle SYSTEM user.:
```

9 Type the password for the SYS user for the OMDB Oracle database instance, and then press Enter. The following prompt appears:

```
Parameter 6 of 20 (omdb.pgaAggrTarget)Please enter the value
to use for the PGA_AGGREGATE_TARGET for the OMDB Oracle
instance (in Megabytes). [80]:
```

10 To accept the default value 80 for the Oracle sizing parameter, press Enter. The following prompt appears:

```
Parameter 7 of 20 (omdb.sgaTarget)Please enter the value to
use for the SGA_TARGET for the OMDB Oracle instance (in
Megabytes). [150]:
```

11 To accept the default value 150 for the Oracle sizing parameter, press Enter. The following prompt appears

```
Parameter 8 of 20 (omcs.occHost)Please enter the hostname or
IP of the server where the SAS OCC service is running.:
```

 

12 Type the fully qualified domain name or IP address of the server that the Opsware Command Center (OCC) core component is installed, then press Enter. The following prompt appears:

```
Parameter 9 of 20 (omcs.twistUser)Please enter the username
of a SAS admininstator for OMDB to use to connect to the
twist. [admin]:
```

13 To accept the default value admin, press Enter. The following prompt appears:

```
Parameter 10 of 20 (omcs.twistPwd)Please enter the password
for the SAS admin user for OMDB to use to connect to the
twist.:
```

14 Type the password for the `admin` account on the SAS installation (the `cast.admin_passwd` parameter value), then press Enter. The following prompt appears:

```
Parameter 11 of 20 (omcs.host)Please enter the hostname or IP
of the server where the OMDB Core Services will be installed
(not localhost).:
```

15 Type the fully qualified domain name or IP address of the server that you are installing OMDB on, then press Enter.

Do not type localhost for this parameter.

The following prompt appears:

```
Parameter 12 of 20 (omcs.port)Please enter the port on which
the OMDB Core Services will run. [8443]:
```

16 To accept the default value 8443, press Enter. The following prompt appears:

```
Parameter 13 of 20 (omcs.rsyncPort)Please enter the port on
which the rsync service will run. [8873]:
```

17 To accept the default value 8873, press Enter. The following prompt appears:

```
Parameter 14 of 20 (omcs.rmiObjectPort)Please enter the port
on which RMIObject should run. [14445]:
```

18 To accept the default value 14445, press Enter. The following prompt appears:

```
Parameter 15 of 20 (omcs.webServicesPort)Please enter the
port on which WebServices should run. [8083]:
```

19 To accept the default value 8083, press Enter. The following prompt appears:

```
Parameter 16 of 20 (omdb.adminPwd)Please enter the password
to use for the OMDB database administrator.:
```

**20** Type the password, and then press Enter. The following prompt appears:

```
Parameter 17 of 20 (omdb.applPwd)Please enter the password to
use for the OMDB database applications user.:
```

Consider using a non-default password.

**21** Type the password, and then press Enter. The following prompt appears:

```
Parameter 18 of 20 (omdb.reporterPwd)Please enter the
password to use for the OMDB database reporter user.:
```

**22** Type the password, and then press Enter. The following prompt appears:

```
Parameter 19 of 20 (omcs.smtpHost)Please enter the hostname
or IP address of your SMTP mail server. [localhost]:
```

**23** Perform one of the following two actions:

- Type the name of the mail server that OMDB should use, then press Enter.
- To accept the default value localhost, press Enter.

The following prompt appears:

```
Parameter 20 of 20 (omcs.smtpPort)Please enter the port on
which your SMTP mail server is listening. [25]:
```

**24** To accept the default value 25, press Enter. The following prompt appears

```
All parameters have values. Do you wish to finish the
interview? (y/n):
```

To finish the interview, type `y`, then press Enter.

To complete the installation, see step 14 on page 21, and then complete steps 14-19.

 

## Installing OMDB and SAS on Separate Servers

This section describes the installation of the Opsware OMDB Database and the Opsware OMDB Core Services on a separate server that the SAS server was installed on. The OMDB install process uses the same Opsware Installer application that you used to install Opsware SAS, and you start it in the same manner. The OMDB hardware requirements for installation are the same as the Opsware SAS hardware requirements.

For more information, see the *Opsware® SAS Planning and Installation Guide*.

### Installing OMDB Using Simple Interview Mode

To install OMDB using the Simple Interview Mode, complete the following steps:

1. Log in to the server you want to install the Opsware OMDB Database and the Opsware OMDB Core Services on.
2. Mount the Opsware OMDB install DVD using a command similar to `mount /dev/cdrom` as appropriate.
3. From the Opsware OMDB install DVD, start the Opsware Installer using the following command:
   `/<mnt_point>/opsware_installer/install_opsware.sh`

Start the Opsware Installer using the fully qualified path name. Do not start the Opsware Installer from the local directory.

The following prompt appears:

```
Install Type: "OMDB Installation"

Please select the interview mode. Simple mode uses default
values for many of the configuration parameters. Advanced
mode allows you to fully configure the installation.

1 - Simple Interview Mode
2 - Advanced Interview Mode

Please select the interview mode from the menu, type 'h' for
help, 'q' to quit:
```

4. To select the Simple Interview mode, type 1, then press Enter. The following prompt appears:

```
The Opsware Installer will now interview you to obtain the
installation parameters it needs. You can use the following
keys to navigate forward and backward through the list of
parameters:

Control-P - go to the previous parameter
Control-N - go to the next parameter
Return - accept the default (if any) and go to the next
parameter
Control-F - finish parameter entry
Control-I - show this menu, plus information about the
current parameter

Press Control-F when you are finished. The Opsware Installer
will perform a final validation check and write out a
response file that will be used to install the Opsware
components.

Parameter 1 of 9 (decrypt_passwd)Please enter the password
for the cryptographic material:
```

5. Type the cryptographic password to use. The following prompt appears:

```
Parameter 2 of 9 (omdb.oracleHost)Please enter the hostname
of the server where the Oracle RDBMS will be installed.
[localhost]:
```

6. To accept the default value localhost, press Enter. The following prompt appears:

```
Parameter 3 of 9 (omdb.oracleSid)Please enter the SID for the
OMDB Oracle database instance. [cmdb]:
```

7. To accept the default value cmdb for the Oracle SID, press Enter. The following prompt appears:

```
Parameter 4 of 9 (omcs.occHost)Please enter the hostname or
IP of the server where the SAS OCC service is running.:
```

8. Type the fully qualified domain name or IP address of the server that the Opsware Command Center (OCC) core component is installed, then press Enter. The following prompt appears:

```
Parameter 5 of 9 (omcs.twistUser)Please enter the username of
a SAS admininstator for OMDB to use to connect to the twist.
[admin]:
```

9. To accept the default value admin, press Enter. The following prompt appears:

```
Parameter 6 of 9 (omcs.twistPwd)Please enter the password for
the SAS admin user for OMDB to use to connect to the twist.:
```

 

10 Type the password for the `admin` account on the SAS installation (the `cast.admin_passwd` parameter value), then press Enter. The following prompt appears:

```
Parameter 7 of 9 (omcs.host)Please enter the hostname or IP
of the server where the OMDB Core Services will be installed
(not localhost).:
```

11 Type the fully qualified domain name or IP address of the server that you are installing OMDB on, then press Enter.

Do not type localhost for this parameter.

The following prompt appears:

```
Parameter 8 of 9 (omdb.adminPwd)Please enter the password to
use for the OMDB database administrator.:
```

12 To accept the default value cmdb_admin, press Enter.

The following prompt appears:

```
Parameter 9 of 9 (omcs.smtpHost)Please enter the hostname or
IP address of your SMTP mail server. [localhost]:
```

Consider using a non-default password.

13 Perform one of the following two actions:

- Type the name of the mail server that OMDB should use, then press Enter.
- To accept the default value localhost, press Enter.

The following prompt appears:

```
All parameters have values. Do you wish to finish the
interview? (y/n):
```

14 To finish the interview, type `y`, then press Enter. The following prompt appears:

```
Concluding interview.
Interview complete.
Name of response file to write [/usr/tmp/oiresponse.omdb]:
```

**15** To accept the default value `/usr/tmp/oiresponse.omdb`, press Enter. The following prompt appears:

```
Response file written to /usr/tmp/oiresponse.omdb.
Would you like to continue the installation using this
response file? (y/n):
```

**16** To continue, type `y`, then press Enter. The following prompt appears:

```
Welcome to the Opsware Installer.
Please select the components to install.
1 ( ) Oracle RDBMS for OMDB
2 ( ) Opsware OMDB Database Instance
3 ( ) Opsware OMDB Core Services
Enter a component number to toggle ('a' for all, 'n' for
none).
When ready, press 'c' to continue, or 'q' to quit.
```

Because this configuration is installing SAS on one server and installing all of the OMDB components on the current server, selecting all components is appropriate. For more information, see “Installing OMDB and SAS on Separate Servers” on page 27.

**17** To select all, type `a`, then press Enter. The following prompt appears:

```
Welcome to the Opsware Installer.
Please select the components to install.
1 (*) Oracle RDBMS for OMDB
2 (*) Opsware OMDB Database Instance
3 (*) Opsware OMDB Core Services
Enter a component number to toggle ('a' for all, 'n' for
none).
When ready, press 'c' to continue, or 'q' to quit.
Selection:
```

**18** To continue, type `c`, then press Enter. The following prompt appears:

```
Installing preliminary components
.....
Database with cryptographic material not found. Would you
like Opsware Installer to generate new database of
cryptographic material? [y/n]
```

**19** Perform one of the following two actions:

- Type y, then Enter.

 

- To use existing cryptographic information, contact Opsware Technical Support for more information.

The following prompt appears:

```
Invoking OCT, this may take a while...

>>>>Installing component Oracle RDBMS for OMDB
.....................................................
>>>>Installing component Opsware OMDB Database Instance
.....................................................
>>>>Installing component Opsware OMDB Core Services
.................................
Opsware Installer ran successfully.

For more details, please see the following file:
/var/log/opsware/install_opsware/
install_opsware.2007-02-26.21:30:54_verbose.log

############################################################
WARNING: to make sure that no sensitive information is left
on this server, please remove,encrypt or copy to a secure
location
the following files and directories:
  -- /var/opt/opsware/install_opsware/resp/*
  -- /var/log/opsware/install_opsware/*
  -- /var/tmp/*.sh
Also, please encrypt or store in a secure location the
response file
that you used to install this core.
############################################################

Script done on Mon Feb 26 21:39:23 2007
```

You have completed installing OMDB.

### Installing OMDB Using Advanced Interview Mode

To install OMDB using the Advanced Interview Mode, complete the following steps:

1. Log in to the server you want to install the Opsware OMDB Database and the Opsware OMDB Core Services on.
2. Mount the Opsware OMDB install DVD using a command similar to `mount /dev/cdrom` as appropriate.

3 From the Opsware OMDB install DVD, start the Opsware Installer using the following command:

```
/<mnt_point>/opsware_installer/install_opsware.sh
```

Start the Opsware Installer using the fully qualified path name. Do not start the Opsware Installer from the local directory.

The following prompt appears:

```
Install Type: "OMDB Installation"

Please select the interview mode. Simple mode uses default
values for many of the configuration parameters. Advanced
mode allows you to fully configure the installation.

1 - Simple Interview Mode
2 - Advanced Interview Mode

Please select the interview mode from the menu, type 'h' for
help, 'q' to quit:
```

4 To select the Advanced Interview mode, type 2, then press Enter. The following prompt appears:

```
The Opsware Installer will now interview you to obtain the
installation parameters it needs. You can use the following
keys to navigate forward and backward through the list of
parameters:

Control-P - go to the previous parameter
Control-N - go to the next parameter
Return - accept the default (if any) and go to the next
parameter
Control-F - finish parameter entry
Control-I - show this menu, plus information about the
current parameter

Press Control-F when you are finished. The Opsware Installer
will perform a final validation check and write out a
response file that will be used to install the Opsware
components.

Parameter 1 of 20 (decrypt_passwd)Please enter the password
for the cryptographic material:
```

 

5 Type the cryptographic password to use. The following prompt appears:

```
Parameter 2 of 20 (omdb.oracleHost)Please enter the hostname
of the server where the Oracle RDBMS will be installed.
[localhost]:
```

6 To accept the default value localhost, press Enter. The following prompt appears:

```
Parameter 3 of 20 (omdb.oracleSid)Please enter the SID for
the OMDB Oracle database instance. [cmdb]:
```

7 To accept the default value cmdb for the Oracle SID, press Enter. The following prompt appears:

```
Parameter 4 of 20 (omdb.sysPwd)Please enter the password to
use for the OMDB Oracle SYS user.:
```

8 Type the password for the Oracle system password, and then press Enter. The following prompt appears:

```
Parameter 5 of 20 (omdb.systemPwd)Please enter the password
to use for the OMDB Oracle SYSTEM user.:
```

9 Type the password for the SYS user for the OMDB Oracle database instance, and then press Enter. The following prompt appears:

```
Parameter 6 of 20 (omdb.pgaAggrTarget)Please enter the value
to use for the PGA_AGGREGATE_TARGET for the OMDB Oracle
instance (in Megabytes). [80]:
```

10 To accept the default value 80 for the Oracle sizing parameter, press Enter. The following prompt appears:

```
Parameter 7 of 20 (omdb.sgaTarget)Please enter the value to
use for the SGA_TARGET for the OMDB Oracle instance (in
Megabytes). [150]:
```

11 To accept the default value 150 for the Oracle sizing parameter, press Enter. The following prompt appears

```
Parameter 8 of 20 (omcs.occHost)Please enter the hostname or
IP of the server where the SAS OCC service is running.:
```

12 Type the fully qualified domain name or IP address of the server that the Opsware Command Center (OCC) core component is installed, then press Enter. The following prompt appears:

```
Parameter 9 of 20 (omcs.twistUser)Please enter the username
of a SAS admininstator for OMDB to use to connect to the
twist. [admin]:
```

13 To accept the default value admin, press Enter. The following prompt appears:

```
Parameter 10 of 20 (omcs.twistPwd)Please enter the password
for the SAS admin user for OMDB to use to connect to the
twist.:
```

**14** Type the password for the `admin` account on the SAS installation (the `cast.admin_passwd` parameter value), then press Enter. The following prompt appears:

```
Parameter 11 of 20 (omcs.host)Please enter the hostname or IP
of the server where the OMDB Core Services will be installed
(not localhost).:
```

**15** Type the fully qualified domain name or IP address of the server that you are installing OMDB on, then press Enter.

Do not type localhost for this parameter.

The following prompt appears:

```
Parameter 12 of 20 (omcs.port)Please enter the port on which
the OMDB Core Services will run. [8443]:
```

**16** To accept the default value 8443, press Enter. The following prompt appears:

```
Parameter 13 of 20 (omcs.rsyncPort)Please enter the port on
which the rsync service will run. [8873]:
```

**17** To accept the default value 8873, press Enter. The following prompt appears:

```
Parameter 14 of 20 (omcs.rmiObjectPort)Please enter the port
on which RMIObject should run. [14445]:
```

**18** To accept the default value 14445, press Enter. The following prompt appears:

```
Parameter 15 of 20 (omcs.webServicesPort)Please enter the
port on which WebServices should run. [8083]:
```

**19** To accept the default value 8083, press Enter. The following prompt appears:

```
Parameter 16 of 20 (omdb.adminPwd)Please enter the password
to use for the OMDB database administrator.:
```

**20** Type the password, and then press Enter. The following prompt appears:

```
Parameter 17 of 20 (omdb.applPwd)Please enter the password to
use for the OMDB database applications user.:
```
Consider using a non-default password.

**21** Type the password, and then press Enter. The following prompt appears:

 

```
Parameter 18 of 20 (omdb.reporterPwd)Please enter the
password to use for the OMDB database reporter user.:
```

22 Type the password, and then press Enter. The following prompt appears:

```
Parameter 19 of 20 (omcs.smtpHost)Please enter the hostname
or IP address of your SMTP mail server. [localhost]:
```

23 Perform one of the following two actions:

- Type the name of the mail server that OMDB should use, then press Enter.
- To accept the default value localhost, press Enter.

The following prompt appears:

```
Parameter 20 of 20 (omcs.smtpPort)Please enter the port on
which your SMTP mail server is listening. [25]:
```

24 To accept the default value 25, press Enter. The following prompt appears

```
All parameters have values. Do you wish to finish the
interview? (y/n):
```

To finish the interview, type `y`, then press Enter.

To complete the installation, see step 14 on page 29, and then complete steps 14 to 19.

## Installing the OMDB Core, the OMDB Database, and SAS on Separate Servers

This section describes the installation of SAS on one server, the OMDB Core on a second server, and the OMDB database instance on a third server. The OMDB install process uses the same Opsware Installer application that you used to install Opsware SAS, and you start it in the same manner. The OMDB hardware requirements for installation are the same as the Opsware SAS hardware requirements.

For more information, see the *Opsware® SAS Planning and Installation Guide*.

### Installing OMDB Using Simple Interview Mode

To install OMDB using the Simple Interview Mode, complete the following steps:

1. Log in to the server you want to install the Opsware OMDB Database Services on. This server will be referred to as the OMDB Database server.
2. Mount the Opsware OMDB install DVD using a command similar to `mount /dev/cdrom` as appropriate.
3. From the Opsware OMDB install DVD, start the Opsware Installer using the following command:
   `/<mnt_point>/opsware_installer/install_opsware.sh`

Start the Opsware Installer using the fully qualified path name. Do not start the Opsware Installer from the local directory.

The following prompt appears:

```
Install Type: "OMDB Installation"

Please select the interview mode. Simple mode uses default
values for many of the configuration parameters. Advanced
mode allows you to fully configure the installation.

1 - Simple Interview Mode
2 - Advanced Interview Mode

Please select the interview mode from the menu, type 'h' for
help, 'q' to quit:
```

4. To select the Simple Interview mode, type 1, then press Enter. The following prompt appears:

 

```
The Opsware Installer will now interview you to obtain the
installation parameters it needs. You can use the following
keys to navigate forward and backward through the list of
parameters:

Control-P - go to the previous parameter
Control-N - go to the next parameter
Return - accept the default (if any) and go to the next
parameter
Control-F - finish parameter entry
Control-I - show this menu, plus information about the
current parameter

Press Control-F when you are finished. The Opsware Installer
will perform a final validation check and write out a
response file that will be used to install the Opsware
components.

Parameter 1 of 9 (decrypt_passwd)Please enter the password
for the cryptographic material:
```

5. Type the cryptographic password to use. The following prompt appears:

```
Parameter 2 of 9 (omdb.oracleHost)Please enter the hostname
of the server where the Oracle RDBMS will be installed.
[localhost]:
```

6. To accept the default value localhost, press Enter. The following prompt appears:

```
Parameter 3 of 9 (omdb.oracleSid)Please enter the SID for the
OMDB Oracle database instance. [cmdb]:
```

7. To accept the default value cmdb for the Oracle SID, press Enter. The following prompt appears:

```
Parameter 4 of 9 (omcs.occHost)Please enter the hostname or
IP of the server where the SAS OCC service is running.:
```

8. Type the fully qualified domain name or IP address of the server that the Opsware Command Center (OCC) core component is installed on, then press Enter. The following prompt appears:

```
Parameter 5 of 9 (omcs.twistUser)Please enter the username of
a SAS admininstator for OMDB to use to connect to the twist.
[admin]:
```

9. To accept the default value admin, press Enter. The following prompt appears:

```
Parameter 6 of 9 (omcs.twistPwd)Please enter the password for
the SAS admin user for OMDB to use to connect to the twist.:
```

10 Type the password for the `admin` account on the SAS server (the `cast.admin_passwd` parameter value), then press Enter. The following prompt appears:

```
Parameter 7 of 9 (omcs.host)Please enter the hostname or IP
of the server where the OMDB Core Services will be installed
(not localhost).:
```

11 Type the fully qualified domain name or IP address of the server that you will install OMDB Core Services on, then press Enter.

Do not type localhost for this parameter.

The following prompt appears:

```
Parameter 8 of 9 (omdb.adminPwd)Please enter the password to
use for the OMDB database administrator.:
```

12 To accept the default value cmdb_admin, press Enter.

The following prompt appears:

```
Parameter 9 of 9 (omcs.smtpHost)Please enter the hostname or
IP address of your SMTP mail server. [localhost]:
```

Consider using a non-default password.

13 Perform one of the following two actions:

- Type the name of the mail server that OMDB should use, then press Enter.
- To accept the default value localhost, press Enter.

The following prompt appears:

```
All parameters have values. Do you wish to finish the
interview? (y/n):
```

14 To finish the interview, type `y`, then press Enter. The following prompt appears:

```
Concluding interview.
Interview complete.
Name of response file to write [/usr/tmp/oiresponse.omdb]:
```

15 To accept the default value `/usr/tmp/oiresponse.omdb`, press Enter. The following prompt appears:

 

```
Response file written to /usr/tmp/oiresponse.omdb.
Would you like to continue the installation using this
response file? (y/n):
```

**16** To continue, type y, then press Enter. The following prompt appears:

```
Welcome to the Opsware Installer.
Please select the components to install.
1 ( ) Oracle RDBMS for OMDB
2 ( ) Opsware OMDB Database Instance
3 ( ) Opsware OMDB Core Services
Enter a component number to toggle ('a' for all, 'n' for
none).
When ready, press 'c' to continue, or 'q' to quit.
Selection:
```

**17** To select Opsware Oracle RDBMS for OMDB and Opsware OMDB Database Instance, type 1, then press Enter, and then type 2, then press Enter. The following prompt appears:

```
Welcome to the Opsware Installer.
Please select the components to install.
1 (*) Oracle RDBMS for OMDB
2 (*) Opsware OMDB Database Instance
3 ( ) Opsware OMDB Core Services
Enter a component number to toggle ('a' for all, 'n' for
none).
When ready, press 'c' to continue, or 'q' to quit.
Selection:
```

**18** To continue, type c, then press Enter. The following prompt appears:

```
Installing preliminary components
.....
Database with cryptographic material not found. Would you
like Opsware Installer to generate new database of
cryptographic material? [y/n]
```

**19** Perform one of the following two actions:

- Type y, then Enter.
- To use existing cryptographic information, contact Opsware Technical Support for more information.

The following prompt appears:

```
Invoking OCT, this may take a while...

>>>>Installing component Oracle RDBMS for OMDB
.....................................................
>>>>Installing component Opsware OMDB Database Instance
.....................................................
Opsware Installer ran successfully.

For more details, please see the following file:
/var/log/opsware/install_opsware/
install_opsware.2007-02-26.21:30:54_verbose.log

############################################################
WARNING: to make sure that no sensitive information is left
on this server, please remove,encrypt or copy to a secure
location
the following files and directories:
  -- /var/opt/opsware/install_opsware/resp/*
  -- /var/log/opsware/install_opsware/*
  -- /var/tmp/*.sh
Also, please encrypt or store in a secure location the
response file
that you used to install this core.
############################################################

Script done on Mon Feb 26 21:39:23 2007
```

**20** On the server that you intend to install OMDB Core Services on, open a command prompt.

**21** To copy the `oiresponse.omdb` file from the OMDB Database server to the OMDB Core server, enter the following command:

```
scp omdbdatabaseserver:/usr/tmp/oiresponse.omdb .
```

**22** Mount the Opsware OMDB install DVD using a command similar to `mount /dev/cdrom` as appropriate.

**23** From the Opsware OMDB install DVD, start the Opsware Installer using the following command:

```
/<mnt_point>/opsware_installer/install_opsware.sh -r /usr/
tmp/oiresponse.omdb
```

**24** To continue, type `y`, then press Enter. The following prompt appears:

```
Welcome to the Opsware Installer.
Please select the components to install.
1 ( ) Oracle RDBMS for OMDB
2 ( ) Opsware OMDB Database Instance
```

 

```
3 ( ) Opsware OMDB Core Services
Enter a component number to toggle ('a' for all, 'n' for
none).
When ready, press 'c' to continue, or 'q' to quit.
Selection:
```

**25** To select Opsware OMDB Core Services, type `3`, then press Enter. The following prompt appears:

```
Welcome to the Opsware Installer.
Please select the components to install.
1 ( ) Oracle RDBMS for OMDB
2 ( ) Opsware OMDB Database Instance
3 (*) Opsware OMDB Core Services
Enter a component number to toggle ('a' for all, 'n' for
none).
When ready, press 'c' to continue, or 'q' to quit.
Selection:
```

**26** To continue, type `c`, then press Enter. The following prompt appears:

```
Installing preliminary components
.....
Database with cryptographic material not found. Would you
like Opsware Installer to generate new database of
cryptographic material? [y/n]
```

**27** Perform one of the following two actions:

- Type y, then Enter.
- To use existing cryptographic information, contact Opsware Technical Support for more information.

The following prompt appears:

```
Invoking OCT, this may take a while...

>>>>Installing component Opsware OMDB Core Services
.........................................................
Opsware Installer ran successfully.

For more details, please see the following file:
/var/log/opsware/install_opsware/
install_opsware.2007-02-26.22:30:54_verbose.log

############################################################
```

 

```
WARNING: to make sure that no sensitive information is left
on this server, please remove,encrypt or copy to a secure
location
the following files and directories:
  -- /var/opt/opsware/install_opsware/resp/*
  -- /var/log/opsware/install_opsware/*
  -- /var/tmp/*.sh
Also, please encrypt or store in a secure location the
response file
that you used to install this core.
############################################################

Script done on Mon Feb 26 22:39:23 2007
```

You have completed installing OMDB.

### Installing OMDB Using Advanced Interview Mode

To install OMDB using the Advanced Interview Mode, complete the following steps:

1. Log in to the server you want to install the Opsware OMDB Database Services on.
2. Mount the Opsware OMDB install DVD using a command similar to `mount /dev/cdrom` as appropriate.
3. From the Opsware OMDB install DVD, start the Opsware Installer using the following command:
   `/<mnt_point>/opsware_installer/install_opsware.sh`

Start the Opsware Installer using the fully qualified path name. Do not start the Opsware Installer from the local directory.

The following prompt appears:

```
Install Type: "OMDB Installation"

Please select the interview mode. Simple mode uses default
values for many of the configuration parameters. Advanced
mode allows you to fully configure the installation.

1 - Simple Interview Mode
2 - Advanced Interview Mode
```

 

```
Please select the interview mode from the menu, type 'h' for
help, 'q' to quit:
```

4. To select the Advanced Interview mode, type 2, then press Enter. The following prompt appears:

```
The Opsware Installer will now interview you to obtain the
installation parameters it needs. You can use the following
keys to navigate forward and backward through the list of
parameters:

Control-P - go to the previous parameter
Control-N - go to the next parameter
Return - accept the default (if any) and go to the next
parameter
Control-F - finish parameter entry
Control-I - show this menu, plus information about the
current parameter

Press Control-F when you are finished. The Opsware Installer
will perform a final validation check and write out a
response file that will be used to install the Opsware
components.

Parameter 1 of 20 (decrypt_passwd)Please enter the password
for the cryptographic material:
```

5. Type the cryptographic password to use. The following prompt appears:

```
Parameter 2 of 20 (omdb.oracleHost)Please enter the hostname
of the server where the Oracle RDBMS will be installed.
[localhost]:
```

6. To accept the default value localhost, press Enter. The following prompt appears:

```
Parameter 3 of 20 (omdb.oracleSid)Please enter the SID for
the OMDB Oracle database instance. [cmdb]:
```

7. To accept the default value cmdb for the Oracle SID, press Enter. The following prompt appears:

```
Parameter 4 of 20 (omdb.sysPwd)Please enter the password to
use for the OMDB Oracle SYS user.:
```

8. Type the password for the Oracle system password, and then press Enter. The following prompt appears:

```
Parameter 5 of 20 (omdb.systemPwd)Please enter the password
to use for the OMDB Oracle SYSTEM user.:
```

9 Type the password for the SYS user for the OMDB Oracle database instance, and then press Enter. The following prompt appears:

```
Parameter 6 of 20 (omdb.pgaAggrTarget)Please enter the value
to use for the PGA_AGGREGATE_TARGET for the OMDB Oracle
instance (in Megabytes). [80]:
```

10 To accept the default value 80 for the Oracle sizing parameter, press Enter. The following prompt appears:

```
Parameter 7 of 20 (omdb.sgaTarget)Please enter the value to
use for the SGA_TARGET for the OMDB Oracle instance (in
Megabytes). [150]:
```

11 To accept the default value 150 for the Oracle sizing parameter, press Enter. The following prompt appears

```
Parameter 8 of 20 (omcs.occHost)Please enter the hostname or
IP of the server where the SAS OCC service is running.:
```

12 Type the fully qualified domain name or IP address of the server that the Opsware Command Center (OCC) core component is installed, then press Enter. The following prompt appears:

```
Parameter 9 of 20 (omcs.twistUser)Please enter the username
of a SAS admininstator for OMDB to use to connect to the
twist. [admin]:
```

13 To accept the default value admin, press Enter. The following prompt appears:

```
Parameter 10 of 20 (omcs.twistPwd)Please enter the password
for the SAS admin user for OMDB to use to connect to the
twist.:
```

14 Type the password for the `admin` account on the SAS installation (the `cast.admin_passwd` parameter value), then press Enter. The following prompt appears:

```
Parameter 11 of 20 (omcs.host)Please enter the hostname or IP
of the server where the OMDB Core Services will be installed
(not localhost).:
```

15 Type the fully qualified domain name or IP address of the server that you are installing OMDB on, then press Enter.

Do not type localhost for this parameter.

The following prompt appears:

 

```
Parameter 12 of 20 (omcs.port)Please enter the port on which
the OMDB Core Services will run. [8443]:
```

16 To accept the default value 8443, press Enter. The following prompt appears:

```
Parameter 13 of 20 (omcs.rsyncPort)Please enter the port on
which the rsync service will run. [8873]:
```

17 To accept the default value 8873, press Enter. The following prompt appears:

```
Parameter 14 of 20 (omcs.rmiObjectPort)Please enter the port
on which RMIObject should run. [14445]:
```

18 To accept the default value 14445, press Enter. The following prompt appears:

```
Parameter 15 of 20 (omcs.webServicesPort)Please enter the
port on which WebServices should run. [8083]:
```

19 To accept the default value 8083, press Enter. The following prompt appears:

```
Parameter 16 of 20 (omdb.adminPwd)Please enter the password
to use for the OMDB database administrator.:
```

20 Type the password, and then press Enter. The following prompt appears:

```
Parameter 17 of 20 (omdb.applPwd)Please enter the password to
use for the OMDB database applications user.:
```

Consider using a non-default password.

21 Type the password, and then press Enter. The following prompt appears:

```
Parameter 18 of 20 (omdb.reporterPwd)Please enter the
password to use for the OMDB database reporter user.:
```

22 Type the password, and then press Enter. The following prompt appears:

```
Parameter 19 of 20 (omcs.smtpHost)Please enter the hostname
or IP address of your SMTP mail server. [localhost]:
```

23 Perform one of the following two actions:

- Type the name of the mail server that OMDB should use, then press Enter.
- To accept the default value localhost, press Enter.

The following prompt appears:

```
Parameter 20 of 20 (omcs.smtpPort)Please enter the port on
which your SMTP mail server is listening. [25]:
```

24 To accept the default value 25, press Enter. The following prompt appears

```
All parameters have values. Do you wish to finish the
interview? (y/n):
```

To finish the interview, type `y`, then press Enter.

To complete the installation, see step 14 on page 38, and then complete steps 14 to 27.

 

# Chapter 4: Installing OMDB Data Miners

**IN THIS CHAPTER**

This chapter discusses the following topics:

- Supported Data Sources for OMDB Data Miners
- Pre-registering a Data Miner
- Installing and Configuring Data Miners for SAS
- Installing and Configuring Data Miners for NAS
- Installing and Configuring Data Miners for ASAS
- Installing and Configuring Data Miners for PAS
- Starting the Data Miner

## Supported Data Sources for OMDB Data Miners

The following list of data sources are supported for OMDB Data Miners:

- SAS 7.0
- SAS 6.5.1
- NAS 6.1, 6.2, 6.3, 7.0
  - Oracle 9i (9.2.0.7)
  - Oracle 10g (10.2.0.2)
  - SQL Server 2005
- PAS 2.2, 7.0

If you are installing a Data Miner on NAS 7.0 or PAS (either 2.2 or 7.0), Java J2SE v 1.4.2_15 JRE must be installed on the system that the OMDB Data Miner is installed on to. To download this version of Java, go to http://java.sun.com/products/archive/j2se/1.4.2_15/index.html.

## Pre-registering a Data Miner

You will need to pre-register your Data Miner on the OMDB server. This will set up all of the information needed by a Data Miner to connect to its data source. As part of the process, you will create a registration token that you will use when configuring the Data Miner on the SAS and NAS servers.

You can use the command line option to preregister the Data Miner. All values can be entered on a single command line, and you can skip the entire interactive configuration that is shown in “Pre-registering a Data Miner Interactively Using dmconfig.sh” on page 50.

For details on the parameters, see “Pre-registering a Data Miner Interactively Using dmconfig.sh” on page 50, or at a command prompt run the following command:

```
./dmconfig.sh --help
```

### Pre-registering a Data Miner for SAS and Oracle

To pre-register a Data Miner for SAS and Oracle, perform the following steps:

1. `cd /opt/opsware/omdb/bin`
2. `./dmconfig.sh --add --name SASserver --desc SAS on SASserver --type SAS --driver Oracle Driver --properties database=SASserver.example.com:1521:<SID>,user=<user>,password=<password>`

To avoid including the OMDB Administrator password in every dmconfig.sh command, you can add `password=omdb_admin_password` to the file `dmconfig.properties` located in `/opt/opsware/omdb/bin`. The password is stored in the file in clear text.

### Pre-registering a Data Miner for NAS and Oracle

To pre-register a Data Miner for NAS and Oracle, perform the following steps:

1. `cd /opt/opsware/omdb/bin`

 

2. `./dmconfig.sh --add --name NAS --desc NAS on NASserver --type NAS --driver Oracle Driver --properties database=NASserver.example.com:1521:<SID>,user=<user>,password=<password>`

Write down the registration token that appears after you run this command. You will need to enter it later when configuring the Data Miner on the NAS server. Registration tokens are uppercase text.

- The database and user/password information in this example are for the NAS database, not OMDB.
- When you are prompted for a user name and password, enter `cmdb_admin` / *`omdb_admin_password`* (the password set during the OMDB install for the OMDB database administrator).

If NAS is not installed with a user name of `system`, you must set the `EtlTableOwnerOverride` value as shown in step 2. Set the value to the name of the database user who owns the table. For example, if the database user name is `dbo`, add the following at the end of the command:

```
--settings EtlTableOwnerOverride=dbo
```

The Oracle user `OPSW_OMDBXM` must have its disk quota setting set to unlimited to auto-extend the tablespace used for NAS database transaction triggers. If this user's disk quota setting is not set as unlimited, NAS users may have problem logging in when OPSW_OMDBXM hits the quota limit.

### Pre-registering a Data Miner for NAS and SQL Server 2005

To pre-register a Data Miner for NAS and SQL Server 2005, perform the following steps:

1. `cd /opt/opsware/omdb/bin`
2. `./dmconfig.sh --add --name sqlserver05b --desc NAS on MSSQL 2005--type NAS --driver SQL Server --properties database=sqlserver05b.example.com:1433/TrueControl,user=opsware,password=password --settings EtlTableOwnerOverride=dbo`

Write down the registration token that appears after you run this command. You will need to enter it later when configuring the Data Miner on the NAS server. Registration tokens are uppercase text.

- The database and user/password information in this example are for the NAS database, not OMDB.
- When you are prompted for a user name and password, enter `cmdb_admin` / *`omdb_admin_password`* (the password set during the OMDB install for the OMDB database administrator).

If NAS is not installed with a user name of `system`, you must set the `EtlTableOwnerOverride` value as shown in step 2. Set the value to the name of the database user who owns the table. For example, if the database user name is `dbo`, add the following at the end of the command:

```
--settings EtlTableOwnerOverride=dbo
```

### Pre-registering a Data Miner for PAS and Oracle

To pre-register a Data Miner for PAS and Oracle, perform the following steps:

1. `cd /opt/opsware/omdb/bin`
2. `./dmconfig.sh --add --name nc34.pas --desc nc34 Pas Db --type PAS --driver Oracle Driver --properties database=pas.nc34.ncdev.opsware.com:1521:XE,user=pas,password=cmdb_admin`

### Pre-registering a Data Miner Interactively Using dmconfig.sh

You need to pre-register your Data Miner on the OMDB server. This will set up all of the information needed by a Data Miner to connect to its data source. As part of the process, you will create a registration token that you will use when configuring the Data Miner on the SAS and NAS servers. To pre-register a Data Miner Interactively with dmconfig.sh, perform the following steps:

1. Run the Data Miner configuration tool `dmconfig.sh` with the following two commands:

   ```
   cd /opt/opsware/omdb/bin
   ./dmconfig.sh
   ```

   The following prompt should now be displayed:

 

```
[ DMConfigure <]
```

2. At the [ DMConfigure <] prompt, the following commands are supported:
   - **ADD**: Displays the prompts that enable you to generate a registration token.
   - **UPDATE**: Displays a list of properties, noting the required properties. Enter keyvalue pairs until done, and then press Enter to end.
   - **LIST**: Displays current Data Miner configurations.
   - **QUIT**: Exits the prompt.
3. (Optional) You may be prompted for the database information for the OMDB server. Unless you made changes during the installation, use the following values. (If not prompted for some or all of these, it is because the values were found in dmconfig.properties.)
   - Database [host:port:sid]: localhost:1521:cmdb
   - Userid: cmdb_admin
   - Password: the password set during the OMDB install for the OMDB database administrator
4. Type add and then press Enter.
5. Follow the prompts to generate a new registration token.
   - **Name**: Enter a short name for the data source you are planning to mine.

     Example: SASserver
   - **Description**: Enter a meaningful name.

     Example: SAS on SASserver
   - **Connection Template ID**: Enter the number listed for Oracle Driver (probably 1).

     Pick source ID: Enter 1 for SAS or 2 for NAS.

   The following example shows how this step should display:

```
[ DMConfigure <] add
Name : m500
Description : SAS on SASserver
ID              NAME
----------------------
1               Oracle Driver
Connection template ID : 1
ID              NAME
----------------------
```

```
1               SAS
2               NAS
Source type id : 1
REG TOKEN is WD2K5R
```

Write down the registration token (in the example, registration token is the string WD2K5R). You will need to enter it later when configuring the Data Miner on the SAS or NAS box.

Now that the initial add is complete, you need to update the specific database configuration for the Data Miner source.

6. At the [ DMConfigure # <] prompt type update and then press Enter.
7. Select the configuration you want to update. Because there is only a single configuration at this point, select 1. The following prompt appears:

```
[ DMConfigure # <] update
ID              NAME            DESCRIPTION          TOKEN
-------------------------------------------------------------
1               SASserver       SAS on SASserver  EM1U6O
ID to update : 1
```

8. Set the connection information that the Data Miner (to be installed shortly on the SAS or NAS server) will use to connect to its local source database (use lowercase). Each time you enter a value, the current values for the Data Miner source will display.

   These values are for the SAS or NAS database, not the OMDB database. Your values will look similar to the following example:

```
database=10.124.6.02:1521:truth (Note that database is of
the format host:port:sid)
user=opsware_admin
password=opsware_admin
```

9. When you are finished, press Enter to exit edit mode and return to the prompt.
10. Type quit, and then press Enter. The OMDB server-side configuration for the Data Miner is now complete.

 

### Setting Configuration Options Using dmconfig.sh

The Data Miner periodically connects to OMDB and retrieves miscellaneous configuration settings. You can set the following values:

*Table 4-2: Data Miner Configuration Settings*

| PARAMETER | DEFINITION | DEFAULT |
|---|---|---|
| CollectionInterval | adjusts the frequency of the query mine, in milliseconds | 5 minutes (300000) |
| VaultConfigFileDir | specifies the location of the vault configuration file | /etc/opt/opsware/vault/ |
| InitialCollectionDate | the start date and time of a Data Miner. Set a future value to delay the start. | 1980-01-01 12.00.00 |
| DataFileChunkSize | the number of transactions in a Data Miner data file | 1500 |
| FileTransferGroupSize | the number of files per rsync transfer, per zip | 250 |
| FileTransferInterval | the frequency of file transfer tasks, in milliseconds | 30 seconds (30000) |
| DataFileUseClearText<br>(Use for debugging only) | The Data Miner base64 encodes data to support both UTF8 and embedded CDATA. Set to true to use only CDATA.<br>Note: If true, data xml may fail to load, and some occurrences of UTF8 data may cause the data file to fail signature validation. | false |
| EtlTableOwnerOverride | ETL specified owner | SYSTEM |
| TriggerMineHistoryDays | Number of days of Trigger Mining history to keep | |

These parameters are stored in cmdb_meta.cmdb_parameters where namespace='cmdb.datasource' and owner_id = source_id.

To set these parameters, at a prompt enter the following command:

```
./dmconfig.sh --update --name {dm name} --settings
setting=value[, setting=value]
```

You can also add custom settings which may be used for custom Data Miners.

### Listing Data Miners

To list the Data Miners on a Solaris or Linux server, perform the following steps:

1. Log in to the server that the Data Miner is running on, and then start a command prompt.
2. Type the following command:
   `/etc/init.d/opsware-dataminer list`
   The following is an example of the kind of output from the list option:
   ```
   The following DataMiners are registered on this machine:
   DataMiner #1 token:3M2C2 location /opt/opsware/dataminer
   type:SAS
   DataMiner #2 token:XXX123 location /opt/opsware/dataminerx
   type:Not yet retrieved from OMDB Core
   ```

### Unregistering a Data Miner

To unregister a Data Miner from the list of Data Miners running on a Solaris or Linux server, perform the following steps:

1. Perform the steps in “Listing Data Miners”.
   Note the token value displayed for the Data Miner you want to remove.
2. Change directory to the location where the Data Miner is installed. By default, the first Data Miner installed on a system is installed to `/opt/opsware/dataminer`.
3. Enter the following command:
   `/.dmsetup.sh --unregister` *`TOKEN`*
   where *`TOKEN`* is the token value of the Data Miner you noted in step 1.

Unregistering a Data Miner comments out the entry for that Data Miner in `dataminers.conf`. For information on the `dataminers.conf` file, see “Reading the dataminers.conf File”.

 

### Reading the dataminers.conf File

When you run `dmsetup.sh`, it creates or updates a file `/etc/opt/opsware/omdb/dataminers.conf` that includes information on all Data Miners installed on that server. If the `dataminers.conf` file exists when you install a new Data Miner, `dmsetup.sh` updates the file with the new information, and adds 1 to the `ConfiguredDataMiners` value. When uninstalling a Data Miner, dmsetup.sh comments out the specified Data Miner entry in `dataminers.conf`, and then decreases the `ConfiguredDataMiners` value by 1.

## Installing and Configuring Data Miners for SAS

After the Data Miner is configured on the OMDB server, you will copy Data Miner files and configure them on the data source machine–the actual SAS server.

### Installing a Data Miner on a SAS Server

To copy the Data Miner files to the data source servers, perform the following steps:

1. Log in to the SAS server.
2. Do a remote copy of `dataminer.tar` from `/opt/opsware/omdb/dist` on the OMDB server to a local directory such as `/opt/opsware/dataminer`. The commands used for this step are shown in the following example:

   ```
   scp youromdbserver:/opt/opsware/omdb/dist/dataminer.tar
   /opt/opsware/
   ```
3. Untar the file:

   ```
   cd /opt/opsware/
   tar -xvf dataminer.tar
   ```
4. Run the dataminer setup using the following command:

   ```
   ./dmsetup.sh
   ```

   The following prompt appears:

   ```
   Please enter the registration token provided after this
   dataminer was configured on the OMDB server: []
   ```
5. Enter the token that was generated by registration on the OMDB server. (You were told to write it down earlier in these instructions. It will be a secure one-use mixture of about 6 uppercase letters and digits.) The following prompt appears:

   ```
   Updating token in dataminer.conf
   ```

```
Would you like to have this dataminer automatically start up
when the system reboots? y/n:
```

6. Type `y`, then press Enter. The following prompt appears:
   `Dataminer is now configured for startup:`
7. To exit `dmsetup.sh`, type `y`, then press Enter.

You can also use command-line parameters with dmsetup.sh to run non-interactively. See "Running dmsetup.sh Using Command-line Parameters" on page 56.

### Enabling Mesh Vault Mining (SAS Only)

To enable mesh vault mining, perform the following steps:

1. Using the SAS Web Client, log in to a server in the multimaster mesh.

Log in as a user that has the permission Configure Opsware.

2. In the Navigation Panel, click **Administrations ➤ System Configuration ➤ Facilities**, and then click the name of the server that you copied the Data Miner files to.
3. Set the `cmdbshareddirectory` parameter to `/var/opt/opsware/vault/spool`.
4. Set the `cmdbbufferflushsize` parameter to `15360`.
5. Set the `cmdbbufferflushtimeout` parameter to `2000`.
6. Set the `cmdbmaxfileage` parameter to `3`.
7. Click **Save**.
8. Restart the vault daemon on the server that the Data Miner is installed on.

### Running dmsetup.sh Using Command-line Parameters

You can use optional parameters when launching dmsetup.sh on a Solaris or Linux server. For example, entering the command
`dmsetup.sh --help`

 

on any Solaris or Linux server that a Data Miner is installed on displays the available parameters and the definitions of those parameters. Table 4-3 displays the available parameters and their definitions.

*Table 4-3: dmsetup.sh*

| PARAMETER | USE |
|---|---|
| `--token ABC123` | configure the dataminer to use the token ABC123 |
| `--autostart` | Sets the Data Miner to start at system boot |
| `--noautostart` | Sets the Data Miner to not automatically start at system boot |
| `--unregister` | Removes the specified Data Miner from the list of Data Miners running on the server |
| `--register` | Adds the specified Data Miner to the list of Data Miners running on the server |
| `--help` | Displays the parameters usable with dmsetup.sh and their definitions |

## Installing and Configuring Data Miners for NAS

This section describes the following tasks:

- Installing and Configuring a Data Miner on a NAS Server on Linux or Solaris
- Installing Transaction Mining Triggers for NAS with Oracle on Linux or Solaris
- Installing Transaction Mining Triggers for NAS with Oracle on Windows
- Installing Transaction Mining Triggers for NAS with SQL Server on Windows
- Configuring a Data Miner on a NAS Windows Server
- Installing a Data Miner on a NAS Windows Server
- Starting a Data Miner on a NAS Windows Server

### Installing and Configuring a Data Miner on a NAS Server on Linux or Solaris

After the Data Miner is configured on the OMDB server, you will copy Data Miner files and configure them on the data source machine–the actual NAS server.

To copy the Data Miner files to the data source servers, perform the following steps:

1. Log in to the NAS server.
2. Do a remote copy of `dataminer.tar` from `/opt/opsware/omdb/dist` on the OMDB server to a local directory such as `/opt/opsware/dataminer`. The commands used for this step are shown in the following example:

   ```
   scp youromdbserver:/opt/opsware/omdb/dist/dataminer.tar
   /opt/opsware/
   ```
3. Untar the file:

   ```
   cd /opt/opsware/
   tar -xvf dataminer.tar
   ```
4. Run the dataminer setup using the following command:

   ```
   ./dmsetup.sh
   ```

   The following prompt appears:

   ```
   Please enter the registration token provided after this
   dataminer was configured on the OMDB server: []
   ```
5. Enter the token that was generated by registration on the OMDB server. (You were told to write it down earlier in these instructions. It will be a secure one-use mixture of about 6 uppercase letters and digits.) The following prompt appears:

   ```
   Updating token in dataminer.conf

   Would you like to have this dataminer automatically start up
   when the system reboots? y/n:
   ```
6. Type `y`, then press Enter. The following prompt appears:

   ```
   Dataminer is now configured for startup:
   ```
7. To exit `dmsetup.sh`, type `y`, then press Enter.

### Installing Transaction Mining Triggers for NAS with Oracle on Linux or Solaris

This section describes how to install transaction mining triggers for a NAS installation on a Linux or Solaris server using Oracle.

You will need the following information before you begin:

 

- The Oracle SID of the NAS database instance
- The Oracle database user owning the NAS table
- An existing tablespace with 100MB available for OMDB transaction data

To prepare for installing transaction mining triggers on a NAS Linux or Solaris server, perform the following steps:

1. Stop the OMDB Data Miner if it is running.
2. Log in to the NAS database server as user `oracle`.
3. Confirm the files in the `/opt/opsware/dataminer/triggers/oracle` on the OMDB server are accessible by the `oracle` user on the NAS database server. Set the file ownership and permissions so that the oracle user can read the files in the directory, and can execute the `deploy_nas_triggers.sh` script.
4. Type the following commands:
   ```
   chmod o+x /opt/opsware/dataminer/
   chmod o+x /opt/opsware/dataminer/triggers
   chmod o+x /opt/opsware/dataminer/triggers/oracle
   ```
5. Type the following command:
   ```
   chmod o+r /opt/opsware/dataminer/triggers/oracle*
   ```
6. Type the following command:
   ```
   chmod o+x /opt/opsware/dataminer/triggers/oracle*.sh
   ```

If the Data Miner installation is not installed on the server, copy the `/opt/opsware/dataminer/triggers/oracle` directory from a server the NAS Data Miner is installed on to the NAS database server.

To install transaction mining triggers on a NAS Linux or Solaris server, perform the following steps:

1. Open a comand prompt and then log in as the user `oracle`.
2. Type the following command:
   ```
   cd /opt/opsware/dataminer/triggers/oracle
   ```
3. Type the following command:
   ```
   ./deploy_nas_triggers.sh
   ```

4. Respond to all prompts.
5. (Optional) If you stopped the Data Miner in the first step, restart it.

### Installing Transaction Mining Triggers for NAS with Oracle on Windows

This section describes how to install transaction mining triggers for a NAS installation on a Windows server using Oracle.

You will need the following information before you begin:

- The Oracle SID of the NAS database instance
- The Oracle database user owning the NAS table
- An existing tablespace with 100MB available for OMDB transaction data

To install transaction mining triggers on a NAS and Oracle Windows server, perform the following steps:

1. (Optional) Stop the OMDB Data Miner if it is running.
2. Log in to the NAS database server as a user that is a member of the `ORA_DBA` group.
3. Confirm the files in the `/opt/opsware/dataminer/triggers/oracle` on the OMDB server are accessible by the `ORA_DBA` group member user on the NAS database server. If the Data Miner installation is on another server, copy the `/opt/opsware/dataminer/triggers/oracle` directory to the NAS database server. A suggested location is `C:\opsware\dataminer\triggers\oracle`
4. Confirm the `sqlplus.exe` application is in the user's path.
5. In the `C:\opsware\dataminer\triggers\oracle` directory, run the following command:
   `deploy_nas_triggers.cmd`
6. Respond to all prompts.
7. (Optional) If you stopped the Data Miner in the first step, restart it.

### Installing Transaction Mining Triggers for NAS with SQL Server on Windows

This section describes how to install transaction mining triggers for a NAS installation on a Windows server using SQL Server.

You will need the following information before you begin:

 

- The name of the NAS application schema
- The name of the user account created during the NAS installation

To find these names, perform the following steps:

1. Start NAS.
2. Select System Status in the Admin menu.
3. Select DatabaseMonitor.
4. In the Actions field, select View Details. The Monitor Details page displays.
5. Find and write down the values for
   - Database catalog
   - Database user name

To install transaction mining triggers on a NAS and SQL Server Windows server, perform the following steps:

1. (Optional) Stop the OMDB Data Miner if it is running.
2. In the `C:\opsware\dataminer\triggers\sqlserver` directory, run the following command:
   `deploy_nas_triggers.cmd`
3. The following prompt appears:
   `Deployment will remove existing OMDB transaction data from previous deployments. Continue? [Y]`
4. Type y, and then press Enter. The following prompt appears:
   `Which SQL Server instance contains the NAS database? [default]`
5. To accept the default value of SQL Server, press Enter.
   Or
   Type the name of the SQL Server instance. For example, type `SQLExpress` to select SQL Server Express.
6. The following prompt appears:
   `Which SQL Server database contains the NAS application schema? [default]:`
7. Type the value of the NAS 'Database catalog' you wrote down in step 5 on page 61, and then press Enter. The following prompt appears:

```
Which database user does the NAS application use to connect
to the database? [nas]:
```

8 Type the value of the NAS 'Database user name' you wrote down in step 5 on page 61, and then press Enter. The following prompt appears:

```
Which database schema contains the NAS application tables?
[dbo]:
```

9 To accept the default value dbo, press Enter.

10 (Optional) If you stopped the Data Miner in the first step, restart it.

### Configuring a Data Miner on a NAS Windows Server

After the Data Miner is configured on the OMDB server, you will copy Data Miner files and configure them on the data source machine–the actual NAS server. To configure a Data Miner on a NAS Windows server, perform the following steps:

1 On the Windows NAS server, create a directory, such as `C:\dataminer`.

2 Copy the `dataminer.zip` and `dmboot.pem` file from `/opt/opsware/omdb/dist` on the OMDB server to a local directory, such as `C:\dataminer.`

3 Unzip the `dataminer.zip` file. Keep the directory structure intact.

4 Edit the file `jvm.properties`. Update the JVM-Path value to the correct location of `JVM.DLL` for the Java Runtime Environment 1.4.2.

5 Edit the `dataminer.conf` file using the following example:

```
#OpswareGateway=host:port
CMDBLocation=10.10.10.10:8443
RestartableCopyLocation=10.10.10.10:8873
RegistrationToken=ToKeN
LogLevel=INFO
```

- Leave `OpswareGateway` as a comment (preceded by #)
- Set `CMDBLocation` to the OMDB Server <host>:8443
- Set the port number of `CMDBLocation` to the value set for the ocms.rsyncPort when you installed OMDB. The default port value is 8443.
- Set the port number of `RestartableCopyLocation` to the value set for the ocms.rmiObjectPort when you installed OMDB. The default port value is 8873.

 

- Set `RegistrationToken` to the token generated at registration on the OMDB Server
- `RestartableCopyLocation` should be set to the same IP address as `CMDBLocation`:8873

### Installing a Data Miner on a NAS Windows Server

To install a Data Miner on a NAS Windows server, perform the following steps:

1. Open a Windows command prompt.
2. Change directory to `C:\dataminer`.
3. To install the service, run the following command:
   `DataMinerService -install`

### Starting a Data Miner on a NAS Windows Server

To start a Data Miner on a NAS Windows server, perform the following steps:

1. Open a Windows command prompt.
2. Change directory to `C:\dataminer`.
3. To start the service, run the following command:
   `DataMinerService -start`

## Installing and Configuring Data Miners for ASAS

Data Miners for ASAS work differently than Data Miners for either SAS or NAS. The ASAS Data Miner process first mines from the ASAS source server to a staging database in the OMDB database instance, and then transfers data from the OMDB staging database to the OMDB main database instance. To mine data from an ASAS system, you must:

- Install and configure a SAS Data Miner for the SAS server that ASAS is installed on.
- Register the ASAS Data Miner on OMDB to create a database link and set up a scheduled ASAS-specific mining job. This scheduled job moves data from the ASAS source server to the OMDB staging database.
- Install the standard OMDB Data Miner and configure it to communicate with the staging database on OMDB. When the scheduled ASAS-specific mining job completes, it triggers the OMDB data miner to then mine data from the OMDB staging database to the OMDB main database instance.

This section describes the following tasks:

- Configuring the OMDB Database for the ASAS Data Miner
- Pre-registering a Data Miner for ASAS and Oracle
- Installing and Configuring a Data Miner for an ASAS Server
- Mining ASAS Data

### Configuring the OMDB Database for the ASAS Data Miner

To configure the OMDB database instance for an ASAS Data Miner, perform the following steps:

1. Ensure that the desired ASAS source system is properly installed and operational.
2. Install and configure a SAS Data Miner for the SAS server that ASAS is installed on.
3. Log in to the OMDB database server.
4. At a command prompt, in `/u01/app/oracle/product/10.2.0/db_1/network/admin`, create a `tnsnames.ora` entry for the ASAS source database.

```
asas1 =
    (DESCRIPTION =
        (ADDRESS_LIST = (ADDRESS = (PROTOCOL = TCP)(HOST =
asashost.opsware.com)(PORT = 1521))
        )
        (CONNECT_DATA =
        (SERVICE_NAME = truth)
        )
    )
```

5. On the OMDB database server, start SQL*Plus or other database tool.
6. As the user ASAS_RPT_USER, run the following command:
   `etlinterface.registerPlaformDatabase`
   to register the source system.
7. For each additional ASAS source server, repeat the above steps.

Examples of the `etlinterface.registerPlaformDatabase` parameter declarations are shown below.

```
declare

  -- Service name defined in the OMDB tnsnames.ora file

  DbNetServiceName varchar2(30) := 'asas1';
```

 

```
  -- The user name for connection to the ASAS source database
  DbUserName varchar2(30) := 'opsware_admin';
  -- The password for connection to the ASAS source database
  DbPassword varchar2(30) := 'opsware_admin';
  -- A description of this registered ASAS source
  DbDescription varchar2(100) := 'ASAS Source 1';
  -- The unique Oracle link name. This name (with current
database domain appended)
  -- must match the source database's global name OR the local
global_names database
  -- parameter must be 'false'
  DbLinkName varchar2(30) := 'asas1_dblink';
  -- The hostname of the ASAS source database server. This
should match the hostname
  -- in the tnsnames.ora entry.
  DbHost varchar2(100) := 'asashost.opsware.com';
begin
  etlinterface.registerPlatformDatabase( DbNetServiceName,
DbUserName, DbPassword, DbDescription, DbLinkName, DbHost );
end;
/
```

### Pre-registering a Data Miner for ASAS and Oracle

To pre-register a Data Miner for ASAS and Oracle, perform the following steps:

1. Log in to the OMDB database server.
2. `cd /opt/opsware/omdb/bin`
3. `./dmconfig.sh --add --name ASAS --desc Local ASAS data --type ASAS --driver Oracle --properties database=localhost:1521:cmdb,user=asas_rpt_user,password=cmdb_admin`

Write down the registration token that appears after you run this command. Registration tokens are uppercase text.

The ASAS example uses localhost because the ASAS Data Miner is installed on the OMDB Core server. You can specify the host name of the OMDB Core server.

### Installing and Configuring a Data Miner for an ASAS Server

After the Data Miner is configured on the OMDB server, you will copy Data Miner files and configure them on the data source machine–the OMDB Core server.

1. Log in to the OMDB Core server.
2. Do a remote copy of `dataminer.tar` from `/opt/opsware/omdb/dist` on the OMDB server to a local directory such as `/opt/opsware/dataminer`. The commands used for this step are shown in the following example:

   ```
   scp youromdbserver:/opt/opsware/omdb/dist/dataminer.tar
   /opt/opsware/
   ```
3. Untar the file:

   ```
   cd /opt/opsware/
   tar -xvf dataminer.tar
   ```
4. Run the dataminer setup using the following command:

   ```
   ./dmsetup.sh
   ```

   The following prompt appears:

   ```
   Please enter the registration token provided after this
   dataminer was configured on the OMDB server: []
   ```
5. Enter the token that was generated by registration on the OMDB server. (You were told to write it down earlier in these instructions. It will be a secure one-use mixture of about 6 uppercase letters and digits.) The following prompt appears:

   ```
   Updating token in dataminer.conf

   Would you like to have this dataminer automatically start up
   when the system reboots? y/n:
   ```
6. Type `y`, then press Enter. The following prompt appears:

   ```
   Dataminer is now configured for startup:
   ```
7. To exit `dmsetup.sh`, type `y`, then press Enter.

 

### Mining ASAS Data

ETL procedures on the ASAS server mine ASAS data from the ASAS server into a staging schema in the OMDB database instance. A scheduled Oracle job runs this ETL procedure against all registered ASAS servers daily at midnight UTC.

You can run this process at other times, such as immediately after registering the ASAS server. To run the ETL procedure, perform the following steps:

1. On the OMDB database server, start SQL*Plus or other database tool.
2. Run the following command:

```
begin
    dbms_scheduler.run_job(
    job_name=>'asas_rpt_user.asas_Run_etl',
    use_current_session=>false
    );
end;
```

## Installing and Configuring Data Miners for PAS

This section describes the following tasks:

- Installing and Configuring a Data Miner on a Linux or Solaris PAS Server
- Configuring a Data Miner on a PAS Windows Server
- Installing a Data Miner on a PAS Windows Server
- Starting a Data Miner on a PAS Windows Server
- Installing Transaction Mining Triggers for PAS with Oracle on Linux or Solaris
- Installing Transaction Mining Triggers for PAS with SQL Server on Windows

### Installing and Configuring a Data Miner on a Linux or Solaris PAS Server

After the Data Miner is configured on the OMDB server, you will copy Data Miner files and configure them on the data source machine–the actual PAS server. To copy the Data Miner files to the source servers, perform the following steps:

1. Log in to the PAS server.
2. Do a remote copy of `dataminer.tar` from `/opt/opsware/omdb/dist` on the OMDB server to a local directory such as `/opt/opsware`. The commands used for this step are shown in the following example:

   ```
   scp youromdbserver:/opt/opsware/omdb/dist/dataminer.tar
   /opt/opsware/
   ```
3. Unzip the file:

   ```
   cd /opt/opsware/
   tar -xvf dataminer.tar
   ```
4. Run the dataminer setup using the following command:

   ```
   ./dmsetup.sh
   ```

   The following prompt appears:

   ```
   Please enter the registration token provided after this
   dataminer was configured on the OMDB server: []
   ```
5. Enter the token that was generated by registration on the OMDB server. (You were told to write it down earlier in these instructions. It will be a secure one-use mixture of about 6 uppercase letters and digits.) The following prompt appears:

   ```
   Updating token in dataminer.conf

   Would you like to have this dataminer automatically start up
   when the system reboots? y/n:
   ```
6. Type `y`, then press Enter. The following prompt appears:

   ```
   Dataminer is now configured for startup:
   ```
7. To exit `dmsetup.sh`, type `y`, then press Enter.

### Configuring a Data Miner on a PAS Windows Server

To configure a Data Miner on a PAS Windows server, perform the following steps:

1. On the Windows PAS server, create a directory, such as `C:\dataminer`.
2. Copy the `dataminer.zip` and `dmboot.pem` file from `/opt/opsware/omdb/dist` on the OMDB server to a local directory, such as `C:\dataminer`.

 

3. Unzip the `dataminer.zip` file. Keep the directory structure intact.
4. Edit the file `jvm.properties`. Update the JVM-Path value to the correct location of `JVM.DLL` for the Java Runtime Environment 1.4.2.
5. Edit the `dataminer.conf` file using the following example:

```
#OpswareGateway=host:port
CMDBLocation=10.10.10.10:8443
RestartableCopyLocation=10.10.10.10:8873
RegistrationToken=ToKeN
LogLevel=INFO
```

- Leave `OpswareGateway` as a comment (preceded by #)
- Set `CMDBLocation` to the OMDB Server <host>:8443
- Set the port number of `CMDBLocation` to the value set for the ocms.rsyncPort when you installed OMDB. The default port value is 8443.
- Set the port number of `RestartableCopyLocation` to the value set for the ocms.rmiObjectPort when you installed OMDB. The default port value is 8873.
- Set `RegistrationToken` to the token generated at registration on the OMDB Server
- `RestartableCopyLocation` should be set to the same IP address as `CMDBLocation`:8873

### Installing a Data Miner on a PAS Windows Server

To install a Data Miner on a PAS Windows server, perform the following steps:

1. Open a Windows command prompt.
2. Change directory to `C:\dataminer`.
3. To install the service, run the following command:
   `DataMinerService -install`

### Starting a Data Miner on a PAS Windows Server

To start a Data Miner on a PAS Windows server, perform the following steps:

1. Open a Windows command prompt.
2. Change directory to `C:\dataminer`.

3 To start the service, run the following command:
```
DataMinerService -start
```

### Installing Transaction Mining Triggers for PAS with Oracle on Linux or Solaris

This section describes how to install transaction mining triggers for a PAS installation on a Linux or Solaris server using Oracle.

You will need the following information before you begin:

- The Oracle SID of the PAS database instance
- The Oracle database user owning the PAS table
- An existing tablespace with 100MB available for OMDB transaction data

To prepare for installing transaction mining triggers on a PAS Linux or Solaris server, perform the following steps:

1 Stop the OMDB Data Miner if it is running.

2 Log in to the PAS database server as the user that installed the Data Miner.

3 Confirm the files in the `/opt/opsware/dataminer/triggers/oracle` on the OMDB server are accessible by the oracle user on the PAS database server. Set the file ownership and permissions so that the oracle user can read the files in the directory, and can execute the `deploy_pas_triggers.sh` script.

4 Type the following commands:
```
chmod o+x /opt/opsware/dataminer/
chmod o+x /opt/opsware/dataminer/triggers
chmod o+x /opt/opsware/dataminer/triggers/oracle
```

5 Type the following command:
```
chmod o+r /opt/opsware/dataminer/triggers/oracle*
```

6 Type the following command:
```
chmod o+x /opt/opsware/dataminer/triggers/oracle*.sh
```

If the Data Miner installation is not installed on the server, copy the `/opt/opsware/dataminer/triggers/oracle` directory from a server the PAS Data Miner is installed on to the PAS database server.

 

To install transaction mining triggers on a PAS Linux or Solaris server, perform the following steps:

1. Open a comand prompt and then log in as the user `oracle`.
2. Type the following command:
   `cd /opt/opsware/dataminer/triggers/oracle`
3. Type the following command:
   `./deploy_pas_triggers.sh`
4. Respond to all prompts.
5. (Optional) If you stopped the Data Miner in the first step, restart it.

### Installing Transaction Mining Triggers for PAS with SQL Server on Windows

This section describes how to install transaction mining triggers for a PAS installation on a Windows server using SQL Server.

You will need the following information before you begin:

- The name of the PAS application schema
- The name of the user account created during the PAS installation

To install transaction mining triggers on a PAS and SQL Server Windows server, perform the following steps:

1. (Optional) Stop the OMDB Data Miner if it is running.
2. In the `C:\opsware\dataminer\triggers\sqlserver` directory, run the following command:
   `deploy_pas_triggers.cmd`
3. The following prompt appears:
   ```
   Deployment will remove existing OMDB transaction data from
   previous deployments. Continue? [Y]
   ```
4. Type y, and then press Enter. The following prompt appears:
   ```
   Which SQL Server instance contains the PAS database?
   [default]
   ```
5. To accept the default value of SQL Server, press Enter.
   Or
   Type the name of the SQL Server instance. For example, type `SQLExpress` to select SQL Server Express.

6 The following prompt appears:

```
Which SQL Server database contains the PAS application
schema? [default]:
```

7 Type the value of the PAS 'Database catalog', and then press Enter. The following prompt appears:

```
Which database user does the PAS application use to connect
to the database? [pas]:
```

8 Type the value of the PAS 'Database user name', and then press Enter. The following prompt appears:

```
Which database schema contains the PAS application tables?
[dbo]:
```

9 To accept the default value dbo, press Enter.

10 (Optional) If you stopped the Data Miner in the first step, restart it.

## Starting the Data Miner

To start the Data Miner, perform the following steps:

1 At a prompt, change to the directory you installed the Data Miner to.

2 Type the following command:

```
/.dataminer.sh start
```

3 Tail the dataminer.log to observe progress.

```
tail -f /opt/opsware/dataminer/dataminer.log
```

You should see the tail of the Data Miner log display content similar to the following example:

```
INFO - - - - - "Configuration Path = /opt/opsware/dataminer"
INFO - - - - - "Using configuration file /opt/opsware/
dataminer/dataminer.conf"
INFO - - - - - "Initializing..."
INFO - - - - - "Running on Linux"
INFO - - - - - "Cached Configuration file has been updated,
reloading"
INFO - - - - - "Boot certificate not found Attempt to import"
INFO - - - - - "Boot certificate successfully imported"
INFO - - - - - "DataMiner successfully registered"
```

4 When you are satisfied that the Data Miner is correctly configured and collecting data, you can stop the tail command.

 

# Chapter 5: Administration

**IN THIS CHAPTER**

This chapter discusses the following topics:

- Starting and Stopping OMDB
- Creating and Assigning Security Boundaries
- PAS Administrative Tasks
- OMDB Filesystem Layout
- Files Modified By the OMDB Installer at Installation
- OMDB Architecture and Components

## Starting and Stopping OMDB

This section describes the `opsware-omdb` script used to start OMDB. After installation, the script is located in the `/etc/init.d/` directory:

```
/etc/init.d/opsware-omdb
```

The `opsware-omdb` script has the following options:

- `start`
- `stop`
- `startsync`
- `restart`
- `list`
- `status`
- `version`

For more information on these options, see the *Opsware® SAS Administration Guide*.

## Creating and Assigning Security Boundaries

The Security Boundaries feature allows you to choose custom search parameters that you can then save and assign to a user or a group of users in OMDB. You can define a Security Boundary as one or more attributes of one or more configuration items. You create a security boundary in the OMDB Client. You assign security boundaries in the SAS Web Client.

If you select the Security Boundary option, click **Select** to display the Select Security Boundaries window.

### Creating Security Boundaries

To create a security boundary, perform the following steps:

1. Launch the SAS Client. The SAS Client appears.
2. From the **Tools** menu, select **Opsware OMDB Client**. The Opsware OMDB Client window appears.
3. From the **View** menu, select **Opsware Administration ➤ Security Boundaries**.
4. Select a Configuration Item from the drop-down list.
5. In the drop-down list for (the Asset Tag, Hostname, and so on), select Contains, Equals, or the appropriate association.
6. In the text field, type the appropriate value.
7. (Optional) Click **+** and then repeat the preceding three steps to define a second criteria.
8. Click **Preview Security Boundary** to view the current items defined within the security boundary.
9. Click **Save** to save the security boundary.

### Assigning Security Boundaries

To assign a security boundary to a group, perform the following steps:

1. Log in to the SAS Web Client as an administrator. The SAS Web Client Home Page appears.
2. In the Navigation Panel, click Administration ➤ Users & Groups. The View Users pane is displayed.
3. Click the Groups tab. The Groups tab is displayed.

 

4. Select the group you want to set a security boundary for. The group is displayed in the View Groups pane.
5. Click the OMDB Features tab. The OMDB Features tab is displayed.
6. Clear All Data Access Permissions.
7. For the CI Type you want the group to use a security boundary for access to that data, select the Security Boundary option.
8. Click **Select**. The Select Security Boundaries window is displayed.
9. Click a security boundary in the Unassigned Boundaries list, and then click **->** to move the selected security boundary to the Assigned Boundaries list.
10. Click **Save**. The Select Security Boundaries window closes.
11. In the OMDB Features of the View Groups pane, click **Save.**

You can select multiple security boundaries in the Select Security Boundaries window to control data access for a single CI Type. Users that are members of groups with different security boundaries for data access have access to all the data viewable by the individual groups. For example, suppose a user is a member of two groups:

- SAS Users - Security boundary defined for all SAS data
- NAS Users - Security boundary defined for all NAS data

The user can see all the CI Types for both SAS data and NAS data.

## PAS Administrative Tasks

To enable PAS actions on objects for OMDB users, the OMDB Administrator must perform two tasks:

- Define PAS Actions
- Setting PAS Options

### Defining PAS Actions

To define the PAS actions, perform the following steps:

1. On the OMDB server, open a terminal window.

2. Using a text editor, open the following file:
   `/opt/opsware/omdb/deploy/birt.war/pas_actions.xml`
   The `pas_actions.xml` file is an example file that provides example Configuration Item types and PAS workflows.
3. Edit the `pas_actions.xml` file, and then save the file.

### Setting PAS Options

To set parameters for PAS workflows, perform the following steps:

1. Launch the OMDB Client as an OMDB administrator. The OMDB Client appears.
2. From the **View** menu, select **Opsware Administration ➤ PAS Options**.
3. In the PAS Hostname field, type the PAS server hostname. The field does not allow spaces. You can enter any DNS-resolvable hostname format, including localhost, 127.0.0.1, pas.server.example.com, or pas_server.
4. (Optional) In the Port [8443] field, type the port number. The default value is 8443 if you do not type a different port number.
5. In the Username and Password fields, type the username and password for the account on the PAS server the workflow should run as.
6. Click **Save Values**.

## OMDB Filesystem Layout

This section describes the filesystem layout of the Opsware OMDB Database and the Opsware OMDB Core Services. The default OMDB database filesystem layout is presented in Table 5-1.

*Table 5-1: OMDB Database Filesystem Layout*

| | |
|---|---|
| `/u01/` | Location of Oracle application, instance admin files, and a control file |
| `/u01/app/oracle/product/10.2.0/db_1/network/admin/tnsnames.ora` | config for OMDB instance |

*Table 5-1: OMDB Database Filesystem Layout*

| | |
|---|---|
| `/u01/app/oracle/product/10.2.0/db_1/network/admin/omdb.listener.ora` | config for OMDB instance |
| `/u01/app/oracle/product/10.2.0/db_1/dbs/orapwcmdb` | OMDB password file |
| `/u01/app/oracle/product/10.2.0/db_1/dbs/spfilecmdb.ora` | OMDB config file |
| `/u01/app/oracle/admin/cmdb/bdump,cdump,pfile,udump` | Oracle OMDB instance log and support files |
| `/u01/app/oracle/admin/cmdb/create/` | Scripts to create database |
| `/u01/app/oracle/admin/cmdb/create/metaschema` | Schema creation scripts |
| `/u01/app/oracle/admin/cmdb/dataschema` | Data creation scripts |
| `/u01/oradata/cmdb/` | OMDB control file #1 |
| `/u02/` | Location of data files |
| `/u02/oradata/cmdb/` | OMDB data files |
| `/u03/oradata/cmdb/` | CMDB control file #2, and redo logs group #1 |
| `/u04/` | Location of second member of redo log groups, and a control file |
| `/u04/oradata/cmdb/` | CMDB control file #1, and redo logs group #2 |
| `/etc/oratab` | Entry for OMDB instance |

The default OMDB Core Services filesystem layout is presented in Table 5-2.

*Table 5-2: OMDB Core Services Filesystem Layout*

| | |
|---|---|
| /opt/opsware/omdb | Root of the primary install location |
| /opt/opsware/omdb/bin | Location of OMCS binary executables |
| /var/opt/opsware/crypto/omdb/ | cryptographic certificates for omdb, twist |
| /opt/opsware/omdb/dist | Location where the Dataminer installer and cert are deployed |
| /opt/opsware/omdb/conf | JBoss configuration directory |
| /opt/opsware/omdb/deploy | OMDB JBoss deploy files that are not in OCC, such as loadersar, cooper.jar, and so on |
| /opt/opsware/omdb/deploy/birt.war/ | BIRT Engine |
| /opt/opsware/omdb/omdb/ | Hierarchy is the same as the SAS OCC |
| /opt/opsware/omdb/omdb/deploy/ | JBoss deployment, hierarchy the same as SAS OCC |
| /opt/opsware/omdb/omdb/deploy/jbossweb-tomcat55.sar/ | Apache webserver deployment directory |
| /opt/opsware/omdb/reports/ | OMDB report definitions |
| /var/opt/opsware/omdb/collect/ | Location of OMCS Loader Collect directory |
| /etc/opt/opsware/omdb/ | Location of OMCS configuration files |
| /etc/inet.d/opsware-omdb | OMCS daemon launch script |
| /var/log/opsware/omdb/ | Log files for OMDB |

## Files Modified By the OMDB Installer at Installation

Table 5-3 presents the files modified when installing OMDB.

 

*Table 5-3:* Files Modified By the OMDB Installer at Installation

| TOPIC | LOCATION AND DESCRIPTION |
|---|---|
| OMDB properties | `/etc/opt/opsware/omdb/omdb.properties` - twist security and scheduled reports settings |
| Core Services, default port 8443 | • `/opt/opsware/omdb/omdb/conf/http-invoker.sar/jboss-service.xml`<br>Two changes for InvokerURLSuffix<br>• `/opt/opsware/omdb/omdb/deploy/http-invoker.sar/META-INF/jboss-service.xml`<br>Two changes for InvokerURLSuffix<br>• `/opt/opsware/omdb/omdb/deploy/jboss-ws4ee.sar/META-INF/jboss-service.xml`<br>One change for WebServicesSecurePort<br>• `/opt/opsware/omdb/omdb/deploy/jbossweb-tomcat55.sar/server.xml`<br>redirectPort<br>connector port<br>keystore password and file (keystoreFile, keystorePass) |
| RMIObjectPort, default 14445 | `/opt/opsware/omdb/omdb/conf/jboss-service.xml` |
| OMDB rsync | `/etc/opt/opsware/omdb/rsyncd.conf`<br>Change "port" value |

*Table 5-3:* Files Modified By the OMDB Installer at Installation

| TOPIC | LOCATION AND DESCRIPTION |
|---|---|
| OMDB Twist password | `/var/opt/opsware/crypto/omdb/twistpwd`<br>An obfuscated version of the twist password, created the same way as in SAS. Upu can change the password by recreating the file using plaintext. Upon OMDB restart, the password will be automatically obfuscated. |
| SAS Twist | `/opt/opsware/omdb/bin/enable_omdb_client.sh`<br>• omdb host<br>• omdb port<br>SAS twist.conf changes must be changed manually or by running this script. |
| Application Data Source configurations | • `/opt/opsware/omdb/deploy/cmdb-ds.xml`<br>• `/opt/opsware/omdb/deploy/reporter-ds.xml`<br>Change the `connection-url` value for oracle sid, host, port changes. Change `password` for Oracle `cmdb_appl` user password change. |
| Cryptographic files (generated at install, including querying twist for the SAS public certificate) | • `/var/opt/opsware/crypto/omdb/server.keystore`<br>• `/opt/opsware/omdb/dist/dmboot.pem`<br>Data Miner secure communication. |
| Keystore password | `/opt/opsware/omdb/omdb/deploy/security-service.xml` |

 

*Table 5-3:* Files Modified By the OMDB Installer at Installation

| TOPIC | LOCATION AND DESCRIPTION |
|---|---|
| Dataminer properties | `/opt/opsware/omdb/bin/dmconfig.properties`<br>• oracle host<br>• port<br>• oracle omdbsid<br>• omdb admin userid (`cmdb_admin`), but is usually not changed<br>The `cmdb_admin` password can be included here as `password=xxx` but is not included automatically by the OMDB Installer. Including the `cmdb_admin` password will prevent prompting for the `cmdb_admin` password when running `dmconfig.sh` to install a Data Miner. |
| Dataminer files | `/opt/opsware/omdb/dist/dataminer.tar`<br>This file includes `dataminer.conf` and `dmboot.pem`. |
| Dataminer parameters | `/opt/opsware/omdb/dist/dataminer.conf`<br>• rsync port<br>• server (listed as `RestartableCopyLocation`) |

## OMDB Architecture and Components

Opsware OMDB operates with Opsware SAS to provide analysis and data warehousing capabilities targeted to the operational needs of IT organizations. There are three major collections of functionality: the OMDB Server, the OMDB Client, and Data Miners.

- The OMDB Server hosts the underlying physical database, core services, and the loader interface.

- The OMDB Client provides a user interface.
- Data Miners collect information from source systems and forward the collected information to the OMDB Server to build the data warehouse.

These components leverage core services provided by a hosting Opsware SAS installation.

### OMDB Server Components

- AAA Login Module: The AAA Login Module redirects login credentials through the twist client to the supporting Opsware AAA instance that is shared with the hosting SAS core.
- BIRT: Business Intelligence Reporting Toolkit (BIRT) is the reporting engine which generates formatted report output. BIRT is an open source component derived from the Eclipse Project.
- Catalog: The Catalog application manages the metadata-based data model. The catalog is the source of definitions for items, attributes, and relationships. Extensions to the OMDB data model are managed by the Catalog.
- Conveyor: The Conveyor application provides configuration information to a Data Miner present on a remote data source. The Data Miner receives updates to the ETL definitions from the Conveyor. These ETL definitions control what information is collected from each source and how that information is mapped to items, attributes and relationships in the OMDB database.
- Cooper: Cooper is the core web services interface to the OMDB. All OMDB Client data interaction is controlled by Cooper.
- JAAS Security: The Java Authentication and Authorization Service (JAAS) Security module marshals authentication, functionality authorization, and security filtering of query information.
- Loader: The Loader inserts data records created by Data Miners into the data warehouse. Because the order of delivery of data from the Data Miners is not guaranteed, the Loader is responsible for reconstructing the sequence of events as the records are inserted. The Loader also verifies the incoming data records to confirm the data is not corrupted.
- OMDB JDBC Driver: The OMDB JDBC Driver implements security filtering by refactoring database queries to limit access to information according to a user's security rights. The

 

OMDB JDBC driver acts in conjunction with a standard JDBC Driver to access the underlying physical representation through the database.

- OMDB rsync Server: The OMDB Data Miner delivers data records to the Loader using the rsync protocol. The rsync Server listens for these connections from the Dataminer and deposits data records for the Loader to process.
- Oracle Database Instance: The OMDB data warehouse uses an Oracle database to store information.
- Scheduler: The Scheduler component maintains the queue of scheduled reports and executes those scheduled reports according to their specified schedule.
- Twist Client: The Twist Client dispatches Opsware Universal API (UAPI) calls to the Twist application service of the Opsware SAS Mesh.

### OMDB Client

The OMDB Client is the user interface to the Opsware OMDB. The OMDB Client provides specific capabilities for report presentation, search, ad-hoc searching and report building, and administrative capabilities.

### OMDB Data Miner

OMDB Data Miners collect information for all data sources using the rules specified by the ETL definitions. This source data is formatted into an XML format along with checksum and signature information.

### SAS Common Services

- Opsware AAA: The Opsware Authentication, Authorization, and Auditing component provides core AAA services to Opsware SAS and OMDB, including user and group accounts, authorization for specific OMDB features, and representation of OMDB data access boundaries.
- Twist: The Opsware Web Service Data Access Engine (Twist) provides programmatic access to Opsware services. OMDB uses the Twist API to access the Opsware AAA component.

 