

Distributed Configuration Management

Administrator's Guide

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Preface

This guide describes the Distributed Configuration Management framework and describes the `dcmctl` utility command syntax and usage. It includes a troubleshooting section that identifies common problems and how to diagnose and solve them.

This guide does not discuss Oracle Application Server configurations, or recommend how to manage these.

Intended Audience

This manual is intended as a reference for system administrators who use the `dcmctl` utility, or those seeking a summary of Distributed Configuration Management architecture and capabilities.

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Related Documents

These documents may also be of interest to the system administrator using DCM:

- *Oracle Application Server Concepts*
- *Oracle Application Server Administrator's Guide*
- *Oracle Process Manager and Notification Server Administrator's Guide*
- *Oracle Application Server High Availability Guide*

Conventions

The following text conventions are used in this document:

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

Distributed Configuration Management Overview

This chapter briefly describes the Distributed Configuration Management (DCM) architecture and functionality.

This chapter covers the following topics:

- [What is Distributed Configuration Management?](#)
- [Distributed Configuration Management Architecture](#)

1.1 What is Distributed Configuration Management?

Distributed Configuration Management is a management framework that enables you to create and manage multiple Oracle Application Server Instances that you can manage as a single Oracle Application Server Instance. Multiple Oracle Application Server Instances enable the application server to handle large volumes of traffic reliably, since the workload is distributed among multiple Oracle Application Server Instances.

Distributed Configuration Management enables you to:

- Keep a configuration synchronized across multiple Oracle Application Server Instances
- Archive and restore versions of configurations
- Export and import configurations between Oracle Application Server Instances

With DCM, you can manage configuration information for the following Oracle Application Server components and applications:

- Oracle HTTP Server (OHS)
- Oracle Application Server Containers for J2EE (OC4J)
- Oracle Process Manager and Notification Server (OPMN)
- Oracle Application Server Java Authentication and Authorization Service (JAAS) Provider (JAZN)
- J2EE Applications
- Log Loader

1.1.1 Elements of a Distributed Configuration

Distributed configuration management enables you to synchronize the configuration of, archive, and import and export multiple Oracle Application Server Instances as if they were a single Oracle Application Server Instance. This guide refers to such configurations as "DCM-configured". To provide the management functionality, DCM keeps information about an Oracle Application Server Instance's configuration in the DCM Metadata Repository. The repository and the Oracle Application Server Instances comprise the distributed configuration. In this section, each element of the distributed configuration and its relationship to other elements is described in detail.

1.1.1.1 What is an Oracle Application Server Instance?

The fundamental element of the distributed configuration is the Oracle Application Server Instance: the set of processes required to operate the components that are configured. The terms "instance" and "installation" are sometimes used interchangeably, but note the distinction: an instance is the set of processes that operate the components, whereas an installation is the set of files installed into an Oracle home. The distinction is important in the context of DCM management, because the DCM management scope does not extend to all files installed in the Oracle home—only those related to the set of processes that are needed to operate the configured components.

1.1.1.2 What is a DCM-Managed Oracle Application Server Cluster?

A DCM-Managed OracleAS Cluster is a collection of Oracle Application Server Instances with identical configuration and application deployment characteristics. To become members of a DCM-Managed OracleAS Cluster, Oracle Application Server Instances must be of the same installation type and version, reside on a like operating system (for example, UNIX and Linux) and contain only Oracle HTTP Server, OC4J, OPMN, and JAZN components.

1.1.1.3 What is an Oracle Application Server Farm?

An Oracle Application Server Farm is a collection of OracleAS Clusters and Oracle Application Server Instances that share the same DCM Metadata Repository. The shared repository is called the repository host. [Section 1.1.1.4.2, "File-based Repository \(Repository Host\)"](#) describes the repository host and its use.

An Oracle Application Server Farm may be of one of the following types: an OracleAS File-Based Farm or an OracleAS Database-based Farm.

1.1.1.4 Understanding the DCM Metadata Repository

In order to manage configurations, DCM stores information about the configuration (called configuration metadata in this guide) in the DCM Metadata Repository.

All configuration data is stored in the DCM Metadata Repository. The DCM Metadata Repository is a distinct metadata repository that is not dependent on the Oracle Application Server Metadata Repository.

The DCM Metadata Repository contains:

- Configuration files for Oracle HTTP Server, OC4J, OPMN, and JAZN components
- Deployed J2EE applications
- Information about the Oracle Application Server Instance or OracleAS Cluster

A DCM Metadata Repository is stored in the file system or in the database, in one of the following configurations:

- Oracle Application Server File-Based Farm with a standalone Oracle Application Server Instance (described in [Section 1.1.1.4.1, "File-based Repository \(Standalone Oracle Application Server Instance\)"](#) on page 1-3)
- Oracle Application Server File-Based Farm with repository host (described in [Section 1.1.1.4.2, "File-based Repository \(Repository Host\)"](#) on page 1-3)
- Oracle Application Server Database-based Farm (described in [Section 1.1.1.4.3, "Database-based repository"](#) on page 1-3)

1.1.1.4.1 File-based Repository (Standalone Oracle Application Server Instance) A single Oracle Application Server Instance that is not part of an OracleAS Cluster or Farm is called a standalone Oracle Application Server Instance. Every Oracle Application Server Instance has a local file-based repository. When an Oracle Application Server Instance is associated with an OracleAS File-Based Farm, but is not the repository host, the local file-based repository contains the Bill of Materials (BOM) that DCM uses to validate that the Oracle Application Server Instance's configuration is synchronized with the configuration metadata in the repository. When the Oracle Application Server Instance is not associated with an Oracle Application Server Farm, the local file-based repository is the only stored representation of the Oracle Application Server Instance's configuration information.

1.1.1.4.2 File-based Repository (Repository Host) When an Oracle Application Server Instance is defined as the repository host for an OracleAS File-Based Farm, the repository for that Oracle Application Server Instance contains the configuration metadata for all Oracle Application Server Instances in the OracleAS File-Based Farm.

Since the repository host Oracle Application Server Instance stores configuration information on its file system, the repository host Oracle Application Server Instance should use mirrored or RAID disks to increase availability. However, when the repository host Oracle Application Server Instance is unavailable:

- OracleAS Clusters using it still function normally, but cannot update any configuration information.
- Read-only configuration operations are not affected on any running Oracle Application Server Instance (the Oracle Application Server Farm's cluster-wide configuration information is distributed and managed through the local repository).
- Operations that attempt to change configuration information in the repository will cause an error. These operations must be delayed until the repository host Oracle Application Server Instance is available, or until the repository host Oracle Application Server Instance is relocated to another Oracle Application Server Instance within the Oracle Application Server Farm (see [repositoryRelocated](#)).

1.1.1.4.3 Database-based repository A Database-based repository is comprised of DCM schema. Storing the DCM Metadata Repository in a database may be useful as part of a site's high availability and backup strategy. Using a Database-based repository, the database serves as the repository host.

For all three types of DCM Metadata Repository: Database-based repository, file-based repository in standalone mode, or file-based repository host mode, an Oracle Application Server Instance always has a local file-based repository. In cases in which the Oracle Application Server Instance is not included in an OracleAS Farm, the local file-based repository is the sole persistent storage for that Oracle Application Server Instance's configuration metadata.

When you make configuration changes using either Oracle Enterprise Manager 10g Application Server Control Console or the `dcmctl` utility, the configuration management system updates the DCM Metadata Repository to reflect your changes.

See Also: [Section 2.2.1, "Designating the OracleAS File-Based Farm Repository Host"](#) on page 2-3, [Section 2.2.2, "Adding Instances to an OracleAS Farm"](#) on page 2-4 and [Section 2.2.3, "Creating a DCM-Managed OracleAS Cluster"](#) on page 2-4 for information on setting up the file-based repository and working with Oracle Application Server Instances and OracleAS Clusters.

1.1.1.5 Understanding Synchronization of the Metadata Repository and the Oracle Application Server Instance

The DCM Metadata Repository is the definitive source for DCM-managed configuration information. If there is a difference between the Oracle Application Server Instance configuration stored in the repository and the Oracle Application Server Instance configuration in the associated `ORACLE_HOME` file system, the configuration in the file system is updated with the configuration in the repository. When the DCM repository and the file system configuration information are identical, the configuration is synchronized; its `In Sync Status` is `true`. (See [getState](#) and [resyncInstance](#).)

Immediately after a configuration change, DCM automatically attempts to resynchronize the members of an OracleAS Cluster. If an Oracle Application Server Instance in an OracleAS Cluster is not available, the resynchronization occurs the next time the DCM daemon on the Oracle Application Server Instance is started. The DCM daemon can be started manually with the `opmnctl startproc ias-component="dcm-daemon"` command.

When a configuration change is made in a Oracle Application Server Farm or in a OracleAS Cluster, DCM attempts to ensure that the change will be successful by first applying the change to the local Oracle Application Server Instance, before attempting to propagate the change to other Oracle Application Server Instances. If the configuration change fails in the local Oracle Application Server Instance, its effects are automatically rolled back; no changes are made to any Oracle Application Server Instance.

In some cases, a configuration change may succeed on the local Oracle Application Server Instance, but fail on other Oracle Application Server Instances in the Oracle Application Server Farm or OracleAS Cluster. This could occur for many reasons, including insufficient disk space, file system security, or connectivity from the Oracle Application Server Instance to a dependent service such as Oracle Internet Directory or the database. In these cases, the `In Sync` status of the Oracle Application Server Instance is set to `false`.

When the `In Sync` status is set to `false`, the event is recorded, with details, in the DCM log file. When the problem that caused the status to be set to `false` is resolved, you should resynchronize the Oracle Application Server Instance, using the `dcmctl resyncinstance` command to copy the configuration stored in the repository for an Oracle Application Server Instance to the file system for the Oracle Application Server Instance (see [resyncInstance](#)).

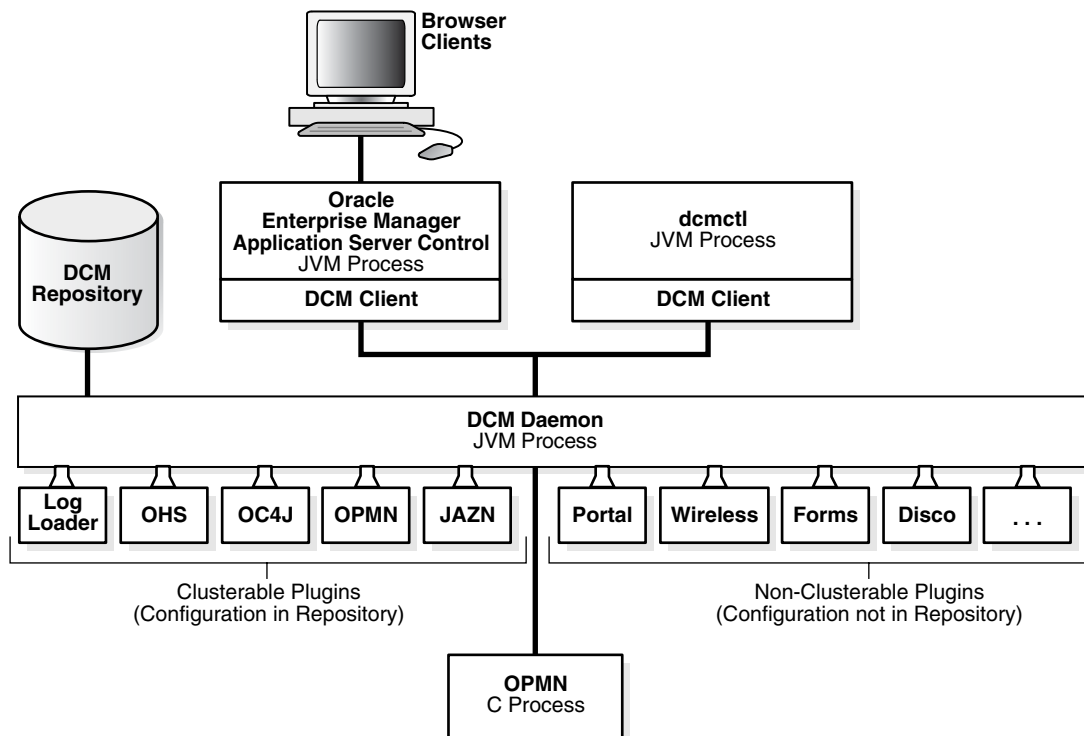
The `updateConfig` command is another synchronization command that requires special handling. The `updateConfig` command takes configuration information from the file system and places this configuration information in the DCM repository. Ensure that you understand the guidelines for using the `updateConfig` command before you use it (see [updateConfig](#)).

See Also: "In Sync Status is False" on page B-7

1.2 Distributed Configuration Management Architecture

Distributed Configuration Management consists of clients, a daemon, and the DCM Metadata Repository. Figure 1-1 shows the relationship between these and other Oracle Application Server components. The clusterable plugin's configuration is managed within the DCM Metadata Repository; clusterable plugins have a copy of persistent data stored in the DCM Metadata Repository. Non-clusterable plugins do not.

Figure 1-1 Distributed Configuration Management Architecture



The Oracle Enterprise Manager 10g Application Server Control Console and `dcmctl` contain the DCM client JAR file.

1.2.1 The Distributed Configuration Management Bootstrap Sequence

It is helpful at times to understand the order in which components are started upon initialization. The DCM bootstrap sequence is as follows:

1. The DCM client checks to determine whether Oracle Process Manager and Notification Server is running.
 - a. If not, it starts Oracle Process Manager and Notification Server.
 - b. If yes, it discovers and uses it.
2. The DCM client checks to determine whether the DCM daemon is running.
 - a. If not, it starts the daemon.

- b. If yes, it discovers and uses it.

Note: Do not stop the DCM daemon explicitly (using the `opmnctl stopall` command) when an active DCM client is in use. If you stop the DCM daemon explicitly, then you must restart the DCM client.

- 3. The DCM daemon checks the configuration file version of Oracle HTTP Server, OC4J, Oracle Process Manager and Notification Server, and Java Authentication and Authorization Service (using the configurable plug-ins shown in [Figure 1-1](#)).
- 4. The DCM daemon updates the configuration file versions, if required.
- 5. The DCM daemon restarts Oracle Process Manager and Notification Server, if required.

Using the dcmctl Utility

This chapter explains how to use the `dcmctl` utility to create and manage the elements of a managed configuration: Oracle Application Server File-Based Farm, DCM-Managed Oracle Application Server Cluster, Oracle Application Server Instance, and component instance. Database-based repository creation and maintenance tasks are not documented here, because they are performed with tools other than the `dcmctl` utility—namely, the Oracle Universal Installer and the Repository Creation Assistant. See the Oracle Application Server Administrator's Guide for those instructions.

This chapter contains the following topics:

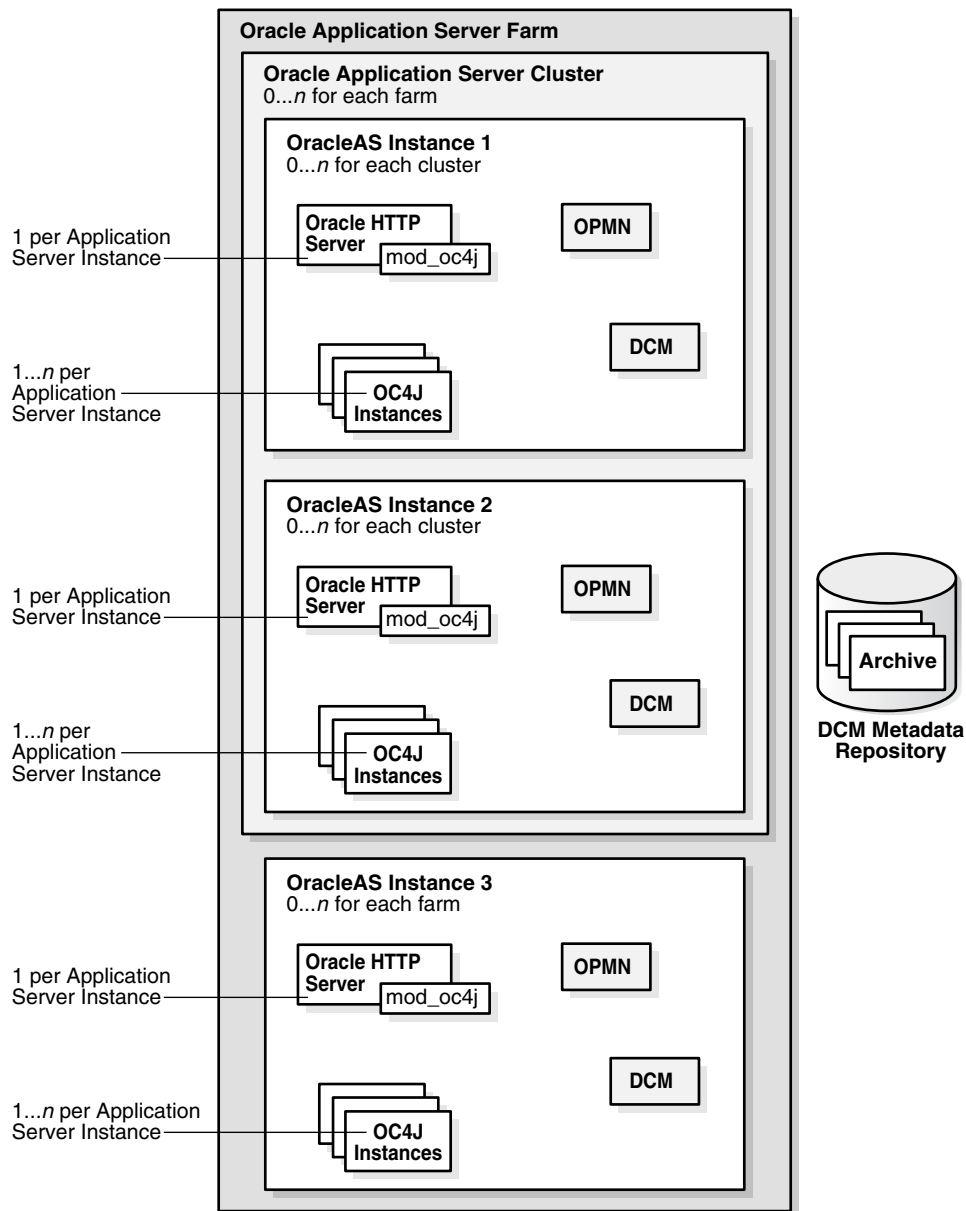
- [Managed Configuration Overview](#)
- [Oracle Application Server Farm Creation and Maintenance Tasks](#)
- [Creating and Maintaining OC4J Instances In DCM-Managed OracleAS Clusters](#)
- [Best Practices for DCM-Managed OracleAS Cluster Management](#)

2.1 Managed Configuration Overview

The managed configuration elements are related as shown in [Figure 2-1](#). "Managed" means that a repository (file-based or database) is involved in administration. DCM-Managed OracleAS Cluster configurations can be created and kept in synch on an individual, manual basis, but that method is not discussed here.

The broadest scope of administration of a DCM-managed configuration is the Oracle Application Server Farm, in which DCM-Managed OracleAS Clusters of Oracle Application Server Instances and non-clustered, or standalone, Oracle Application Server Instances may reside. An OracleAS Farm may be created during installation, or with the `dcmctl` utility. [Figure 2-1](#) depicts the elements, relationships, and cardinalities within an OracleAS Farm.

Figure 2–1 Oracle Application Server Farm, Instance, and Cluster Configuration



2.2 Oracle Application Server Farm Creation and Maintenance Tasks

An OracleAS Farm is defined as a collection of OracleAS Clusters and Oracle Application Server Instances that share the same DCM metadata repository. The Oracle Application Server Farm is the scope of administration for the OracleAS Clusters and Oracle Application Server Instances that share a repository.

This section explains how to set up a OracleAS File-Based Farm and add Oracle Application Server Instances to it, create and maintain DCM-Managed OracleAS Clusters of the Oracle Application Server Instances, and perform other system administration tasks. The following topics are included:

- [Designating the OracleAS File-Based Farm Repository Host](#)
- [Adding Instances to an OracleAS Farm](#)

- [Creating a DCM-Managed OracleAS Cluster](#)
- [Understanding DCM-Managed OracleAS Cluster Membership](#)
- [Removing an Oracle Application Server Instance From a DCM-Managed OracleAS Cluster](#)
- [Exporting and Importing Configurations From a File-based Repository](#)
- [Moving an Instance From One OracleAS File-Based Farm to Another](#)
- [Moving An Instance to a OracleAS Database-Based Farm](#)
- [Enabling SSL For Communication Between Instances in an OracleAS File-Based Farm](#)
- [Improving Performance in a Large OracleAS File-Based Farm](#)
- [Removing an Instance From the Infrastructure After Executing the leaveFarm Command](#)

2.2.1 Designating the OracleAS File-Based Farm Repository Host

You must designate the Oracle Application Server Instance that will be the repository host of the OracleAS File-Based Farm. The Oracle Application Server Instance you designate must be a standalone Oracle Application Server Instance (that is, not associated with any OracleAS Farm). Follow these steps to designate the repository host of a OracleAS File-Based Farm:

1. Navigate to the Oracle Application Server Instance that will be the repository host Oracle Application Server Instance.
2. Determine whether it is a standalone Oracle Application Server Instance by issuing this command:

```
dcmctl whichFarm
```

If `dcmctl` returns an OracleAS File-Based Farm name, the Oracle Application Server Instance is still part of an OracleAS File-Based Farm, and is thus still associated with an existing repository. To place the Oracle Application Server Instance in a standalone state:

- a. Issue this command:

```
dcmctl leaveFarm
```

The Oracle Application Server Instance is now in a standalone state, and all components running in it are stopped.

3. Issue this command:

```
dcmctl getRepositoryID
```

`dcmctl` returns a repository identifier in the format `hostname:port`.

4. Issue this command:

```
dcmctl joinFarm -r repository ID
```

In the preceding command, *repository ID* is the `hostname:port` value returned by the `getRepositoryID` command.

The current Oracle Application Server Instance is established as the repository host instance of the OracleAS File-Based Farm. The OracleAS File-Based Farm

configuration information is stored in the file-based repository in the repository host Oracle Application Server Instance.

2.2.2 Adding Instances to an OracleAS Farm

An Oracle Application Server Instance can be part of an OracleAS Farm as a standalone Oracle Application Server Instance (without also being a DCM-Managed OracleAS Cluster member) as shown in [Figure 2-1](#). This makes it possible to manage as one unit a collection of UNIX, Windows, and Linux Oracle Application Server Instances. (Instances of like operating systems may be clustered; however, before an Oracle Application Server Instance can join a DCM-Managed OracleAS Cluster, it must be in the OracleAS Farm). Follow these steps to bring an Oracle Application Server Instance into an OracleAS File-Based Farm:

1. Obtain the repository ID of the repository host Oracle Application Server Instance of the OracleAS File-Based Farm the Oracle Application Server Instance will join (if necessary, by issuing this command):

```
dcmctl getRepositoryID
```

`dcmctl` returns a repository identifier in the format `hostname:port`.

2. In the Oracle Application Server Instance that will join the OracleAS File-Based Farm, issue this command:

```
dcmctl joinFarm -r repository ID
```

In the preceding command, *repository ID* is the repository identifier returned in Step 1.

3. (Optional) Verify that the OracleAS File-Based Farm was joined as expected by issuing this command:

```
dcmctl whichfarm -v
```

`dcmctl` returns the farm name, host instance name, host name and repository type.

2.2.3 Creating a DCM-Managed OracleAS Cluster

A DCM-Managed OracleAS Cluster is created as a member of an Oracle Application Server Farm, as depicted in [Figure 2-1](#). Follow these steps to create a DCM-Managed OracleAS Cluster:

1. Navigate to the Oracle home of an Oracle Application Server Instance that belongs to the OracleAS Farm in which you want to create a DCM-Managed OracleAS Cluster.
2. Issue this command:

```
dcmctl createCluster -cl nameOfCluster
```

In the preceding command, *nameOfCluster* is the identifier for the DCM-Managed OracleAS Cluster.

Tip: See [createCluster](#) for syntax and rules, or issue the command `dcmctl help createcluster` to view help text.

`dcmctl` lists the DCM-Managed OracleAS Clusters as shown:

```
1 cluster2
```

2 cluster1

The DCM-Managed OracleAS Cluster does not have any member Oracle Application Server Instances upon creation. You add Oracle Application Server Instances to the DCM-Managed OracleAS Cluster using the `joinCluster` command.

2.2.4 Understanding DCM-Managed OracleAS Cluster Membership

After a DCM-Managed OracleAS Cluster is created, you can add Oracle Application Server Instances to it. Before you add an Oracle Application Server Instance to an DCM-Managed OracleAS Cluster, review and understand the following guidelines about DCM-Managed OracleAS Cluster configuration and the characteristics of clusterable Oracle Application Server Instances.

2.2.4.1 How the Common Configuration is Established

The order in which the Oracle Application Server Instances are added to the DCM-Managed OracleAS Cluster is significant. The common configuration that will be replicated across the DCM-Managed OracleAS Cluster is established by the first Oracle Application Server Instance added to the cluster. The configuration of the first Oracle Application Server Instance added is inherited by all Oracle Application Server Instances that subsequently join the DCM-Managed OracleAS Cluster.

The common configuration includes all cluster-wide configuration information—namely, DCM-Managed OracleAS Cluster and Oracle Application Server Instance attributes, such as components configured. For example, if the first Oracle Application Server Instance to join the cluster has four OC4J instances, then the common configuration includes those four OC4J instances and the applications deployed on the OC4J instances. Instances that subsequently join the DCM-Managed OracleAS Cluster replicate the OC4J instances and their deployed applications. (In addition, when the Oracle Application Server Instance joins the DCM-Managed OracleAS Cluster, DCM removes any OC4J components that do not match the common configuration). Furthermore, changes to one Oracle Application Server Instance in the DCM-Managed OracleAS Cluster, such as adding new OC4J instances or removing OC4J instances, are replicated across the DCM-Managed OracleAS Cluster; the components configured are part of the replicated cluster-wide, common configuration.

When the last Oracle Application Server Instance leaves a DCM-Managed OracleAS Cluster, the DCM-Managed OracleAS Cluster becomes an empty DCM-Managed OracleAS Cluster, and the next Oracle Application Server Instance to joins the DCM-Managed OracleAS Cluster provides the new common configuration for the DCM-Managed OracleAS Cluster.

2.2.4.2 Parameters Excluded from the Common Configuration: Instance-Specific Parameters

Some parameters only apply to a given Oracle Application Server Instance or computer, and are therefore not propagated automatically to all of the OracleAS Instances in a DCM-Managed OracleAS Cluster. Therefore, when changing any of these parameters, you must apply the changes to the appropriate Oracle Application Server Instance.

Table 2–1 OC4J Instance-specific Parameters

Parameter	Description
Oracle Application Server Cluster (OC4J) definitions	Specific to an Oracle Application Server Instance. Stateful OC4J applications require that each OracleAS Cluster (OC4J) in each OC4J instance across the DCM-Managed OracleAS Cluster have the same name.
number of processes	Specific to a computer. You may want to tune this parameter according to the computer's capabilities.
command-line options	Specific to a computer.
port numbers for RMI, JMS and AJP communication	Specific to a computer.

Table 2–2 Oracle HTTP Server Instance-Specific Parameters

Parameter	Description
ApacheVirtualHost	Specific to a computer.
Listen	Specific to a computer. This directive binds the server to specific addresses or ports.
OpmnHostPort	Specific to a computer.
Port	Specific to a computer. This directive specifies the port to which the standalone server listens.
User	Specific to a computer.
Group	Specific to a computer.
NameVirtualHost	Specific to a computer. This directive specifies the IP address on which the server receives requests for a name-based virtual host. This directive can also specify a port.
ServerName	Specific to a computer. This directive specifies the host name that the server should return when creating redirection URLs. This directive is used if <code>gethostbyname</code> does not work on the local host. You can also use it if you want the server to return a DNS alias as a host name (for example, <code>www.abccompany.com</code>).
PerlBlob	Specific to a computer.

Table 2–3 Oracle Process Manager and Notification Server Instance-Specific Parameters

Parameter in opmn.xml file	Description
All configuration for the notification server: opmn/notification-server	Specific to a computer.
process-manager elements: log-file process-module	Specific to an Oracle Application Server Instance.

Table 2–3 (Cont.) Oracle Process Manager and Notification Server Instance-Specific Parameters

Parameter in opmn.xml file	Description
ias_instance attributes: id ORACLE_HOME ORACLE_CONFIG_HOME	Specific to an Oracle Application Server Instance.
The following elements and attributes of opmn/process-manager/ias-instance /ias-component/process-type port.range start stop ping restart process-set	Specific to an Oracle Application Server Instance. Although instance-specific, these elements and attributes have default configurations (the configurations are not propagated, but retrieved from repository). The MissingLocalValuePolicy flag indicates that element or attribute has a default value: MissingLocalValuePolicy="UseRepositoryValue"
The following opmn/process-manager/ias-instance attributes and elements: module-data/category/data[id='config-file'] ias-component/module-data/category/ data[id='config-file'] ias-component/process-type/ module-data/category/data[id='config-file'] ias-component/process-type/ process-set/module-data/category/ data[id='config-file'] environment ias-component/environment ias-component/process-type/ environment ias-component/process-type/ process-set/environment	Most of the HTTP_Server and OC4J parameters are cluster-wide; only those shown here are instance-specific. In general: <ul style="list-style-type: none"> Any data element whose id is config-file is instance-specific. Any environment element is instance-specific. Note: Example B–1 in Appendix B, "Troubleshooting DCM" on page B-4, shows a complete opmn.xml file that shows the hierarchy of these elements and attributes.
All other components whose id is not HTTP_Server or OC4J in opmn/process-manager/ias-instance/ ias-component: [id='dcm-daemon'] [id='WebCache'] [id='OID'] [id='IASPT'] [id='wireless'] [id='ProcessConnect'] [id='ReportsServer1'] [id='Discoverer'] [id='LogLoader'] [id='Custom']	

2.2.4.3 Rules and Guidelines for Adding Instances to DCM-Managed OracleAS Clusters

Instances that are to be added to DCM-Managed OracleAS Clusters are subject to the following restrictions:

- Instances in an DCM-Managed OracleAS Cluster must be of the same installation type and version and reside on a like operating system (Solaris, Linux, and HP-UX are like operating systems).
- Instances in an DCM-Managed OracleAS Cluster must contain only Oracle HTTP Server, OC4J, OPMN and OracleAS JAAS Provider (JAZN) components.
- Configuration changes can be made in any Oracle Application Server Instance in the DCM-Managed OracleAS Cluster, and will be propagated across the DCM-Managed OracleAS Cluster from there. However, it is probably a good idea to designate one Oracle Application Server Instance as the origin of configuration changes.

2.2.4.4 Naming Restrictions For Instances and Applications

Do not use the host name of the computer that contains the Oracle Application Server installation when naming applications, OC4J instances, Oracle Application Server Instances, or J2EE applications. In a clustered environment, in particular, do not use the host name, Oracle home, or the IP address of any Oracle Application Server installation in the DCM-Managed OracleAS Cluster.

For example, if your computer has the host name of `abc.com`, you should not create a new OC4J instance or J2EE application that consists of, or contains, the string `abc.com`. This rule also applies to the Oracle home directory path or the IP address of the computer.

The reason for this restriction has to do with the clustering, archival, and cloning features of DCM. When archiving or capturing configuration parameters, DCM scans all configuration files for occurrences of the host name, Oracle home and IP address. When it finds occurrences of these values, it replaces the values with symbolic macros and stores them in the DCM Repository.

When DCM applies these configurations to other installations, the occurrences of host name, Oracle home and IP address are replaced with the values for that installation to which the configuration is being applied. Consequently, if OC4J instance names or J2EE application names contain host names, Oracle home names or IP addresses, they are inappropriately substituted if a configuration is applied to other installations.

2.2.5 Adding an Instance to a DCM-Managed OracleAS Cluster

Follow these instructions to add an Oracle Application Server Instance to an DCM-Managed OracleAS Cluster:

1. (Optional) Find the names of the DCM-Managed OracleAS Clusters in the local OracleAS Farm by issuing this command:

```
dcmctl listClusters
```

`dcmctl` returns a list of DCM-Managed OracleAS Cluster names that belong to the OracleAS Farm that is associated with the local Oracle Application Server Instance.

2. Navigate to the Oracle Application Server Instance that you want to join to the DCM-Managed OracleAS Cluster.

3. (Optional) Determine whether the Oracle Application Server Instance can be added to a DCM-Managed OracleAS Cluster by issuing this command:

```
dcmctl isClusterable
```

If `dcmctl` returns `true`, then continue with Step 4.

4. Issue this command:

```
dcmctl joinCluster -cl nameOfCluster
```

In the preceding command, *nameOfCluster* is the identifier for the DCM-Managed OracleAS Cluster you want the Oracle Application Server Instance to join.

Tip: See [joinCluster](#) for instructions on joining an Oracle Application Server Instance other than the local Oracle Application Server Instance to an DCM-Managed OracleAS Cluster, or issue the command

```
dcmctl help joincluster
```

to view help text.

The Oracle Application Server Instance is joined to the DCM-Managed OracleAS Cluster and stopped. The `dcmctl joincluster` command lists the Oracle Application Server Instances in the DCM-Managed OracleAS Cluster in the following format:

```
1 10g01.my.pc.mycompany.com
2 10g02.my.pc.mycompany.com
```

5. (Optional) Start the Oracle Application Server Instance by issuing this command:

```
opmnctl startall
```

2.2.6 Removing an Oracle Application Server Instance From a DCM-Managed OracleAS Cluster

Follow these instructions to remove an Oracle Application Server Instance from a DCM-Managed OracleAS Cluster:

1. (Optional) Find the names of the Oracle Application Server Instances in the DCM-Managed OracleAS Cluster by issuing this command:

```
dcmctl listInstances -cl nameOfCluster
```

`dcmctl` returns a list of Oracle Application Server Instance names in the DCM-Managed OracleAS Cluster.

2. Navigate to the Oracle Application Server Instance that you want to remove from the DCM-Managed OracleAS Cluster.

3. Issue this command:

```
dcmctl leaveCluster
```

Tip: See [leaveCluster](#) for instructions on removing an DCM-Managed OracleAS Cluster from an Oracle Application Server Instance other than the local Oracle Application Server Instance, or issue the command `dcmctl help leavecluster` to view help text.

2.2.7 Exporting and Importing Configurations From a File-based Repository

One of the benefits of managing configurations with DCM is that configuration information is portable from one Oracle Application Server Instance to another. This section explains how to save and restore a repository and move an Oracle Application Server Instance from one repository to another.

Oracle Application Server provides commands to save a file-based repository, so that you can restore it if the repository host Oracle Application Server Instance stops functioning, or its file system is damaged. The `exportRepository` command saves the file-based repository; then, with the `importRepository` command, you can restore the saved configuration information to the repository host Oracle Application Server Instance, or to a different Oracle Application Server Instance in the OracleAS File-Based Farm.

To export the repository from the repository host Oracle Application Server Instance, issue this command:

```
dcmctl exportRepository -file file name
```

In the preceding command, *file name* is the name of the file in which the configuration information will be stored.

Follow these steps to import a saved file-based repository:

1. Stop the DCM daemon in each Oracle Application Server Instance of the OracleAS File-Based Farm except for the current Oracle Application Server Instance (in which you are using `dcmctl`). Issue the following command in each Oracle Application Server Instance of the OracleAS File-Based Farm:

```
ORACLE_HOME/opmn/bin/opmnctl stopproc ias-component=dcm-daemon
```

2. Issue this command on the system that is to be the repository host Oracle Application Server Instance for the OracleAS File-Based Farm:

```
dcmctl importRepository -file file name
```

In the preceding command, *file name* is the name of the file you specified in the `exportRepository` command.

3. On the system that was the repository host, indicate that the Oracle Application Server Instance is no longer the host Oracle Application Server Instance by issuing the following command:

```
dcmctl repositoryRelocated
```

2.2.8 Moving an Instance From One OracleAS File-Based Farm to Another

You can move an Oracle Application Server Instance that belongs to one OracleAS File-Based Farm to another OracleAS File-Based Farm. To move to another repository, you use the `leaveFarm` and `joinFarm` commands.

When an Oracle Application Server Instance leaves an OracleAS File-Based Farm, it becomes a standalone Oracle Application Server Instance. This means that:

- The Oracle Application Server Instance's DCM-managed configuration metadata in the repository is moved to the Oracle Application Server Instance's local, file-based repository.
- Archives of the Oracle Application Server Instance remain in the farm; they are not moved to the new farm.

- If there are connections to the Infrastructure database for other components (Oracle Application Server Single Sign-On, Oracle Application Server Java Authentication and Authorization Service (JAAS) Provider, and Oracle Internet Directory) they remain.

Follow these steps to move an Oracle Application Server Instance from one repository to another:

1. Issue the following command in the Oracle Application Server Instance that you will move to another OracleAS File-Based Farm:

```
dcmctl whichFarm
```

If `dcmctl` returns an OracleAS File-Based Farm name, the Oracle Application Server Instance is still part of a OracleAS File-Based Farm, and is thus still associated with an existing repository.

2. Issue this command:

```
dcmctl leaveFarm
```

The Oracle Application Server Instance is now in a standalone state.

3. Use the `createArchive` command to create a baseline archive of the Oracle Application Server Instance. For example:

```
dcmctl createArchive -arch myArchive
```

4. Issue the following command in one of the Oracle Application Server Instances that belongs to the OracleAS File-Based Farm whose repository the Oracle Application Server Instance will join:

```
dcmctl getRepositoryId
```

`dcmctl` returns the repository identifier in the format `hostname:port`.

5. Join the Oracle Application Server Instance to the OracleAS File-Based Farm of the repository identified in Step 4 by issuing this command:

```
dcmctl joinFarm -r repository ID
```

Note: The change will not be reflected in the Application Server Control Console until it is restarted. In the `ORACLE_HOME/bin` directory, issue these commands:

```
ORACLE_HOME/bin> emctl stop iasconsole
ORACLE_HOME/bin> emctl start iasconsole
```

2.2.9 Moving An Instance to a OracleAS Database-Based Farm

You can use the `dcmctl` utility to move an Oracle Application Server instance that is joined to a OracleAS File-Based Farm to a OracleAS Database-Based Farm.

To move an instance from a OracleAS File-Based Farm to an OracleAS Database-Based Farm, first disassociate the instance from its current repository by leaving the OracleAS File-Based Farm. The instance is then in a standalone state, and you can join the instance to the OracleAS Database-Based Farm.

Follow these steps to move the instance:

1. Determine whether the instance is still part of an OracleAS File-Based Farm using the following command:

```
dcmctl whichFarm
```

2. If the output indicates that the instance is part of a OracleAS Database-Based Farm, issue the following command to put the instance in a standalone state:

```
dcmctl leaveFarm
```

3. If you want the instance to join a OracleAS Database-Based Farm, and the instance was previously a member of that OracleAS Database-Based Farm, use the following command to rejoin the OracleAS Farm:

```
dcmctl joinFarm
```

If this step fails, then the instance was not previously a member of the OracleAS Database-Based Farm. Therefore, its configuration metadata is not in the DCM repository, which means that you will need to use Application Server Control Console to join the OracleAS Database-Based Farm.

Note: When an Oracle Application Server instance leaves a OracleAS Farm, it becomes a standalone instance. The standalone instance has its DCM-managed configuration metadata saved on the file system of the standalone instance. Archives for the instance are deleted from the previous repository host. However, connections to the Infrastructure database that may exist for other components, including Oracle Application Server Single Sign-On, JAAS, and Oracle Internet Directory, are not removed.

See Also: *Oracle Application Server Administrator's Guide* for information on using the Application Server Control Console to join an instance to a OracleAS Database-based Farm.

2.2.10 Enabling SSL For Communication Between Instances in an OracleAS File-Based Farm

You can configure DCM to send configuration information between instances using the Secure Sockets Layer (SSL) protocol. This feature ensures the security of messages sent between all instances in the OracleAS File-Based Farm, and prevents unauthorized instances from joining the OracleAS File-Based Farm.

This section provides instructions for setting up SSL and certificate-based security for instances in a OracleAS File-Based Farm. The complete procedure consists of the following tasks:

1. [Generating the Keystore](#)
2. [Stopping the Oracle Application Server Processes on Each Instance](#)
3. [Setting Up Keystore Information File on Each Instance in the OracleAS File-based Farm](#)
4. [Enabling SSL in the dcmCache.xml File](#)
5. [Verifying that Configuration Changes are Effected](#)
6. [Starting the Instances in the OracleAS File-based Farm](#)
7. [Adding a New Instance to a SSL-Enabled OracleAS File-based Farm](#)

2.2.10.1 Generating the Keystore

Use the JDK `keytool` command to generate a certificate and create the keystore, as documented in:

<http://java.sun.com/j2se/1.4.1/docs/tooldocs/solaris/keytool.html>

If you have already generated the key pair and obtained the certificate for OC4J, then you can use the same keystore you previously obtained.

To use SSL certificate-based security, a Java keystore must be created on each instance in the OracleAS File-Based Farm. This keystore may be the same as that used by other Java applications, or it can be unique for OracleAS File-Based Farm configuration. Note the path to each keystore location for each instance in the OracleAS File-Based Farm.

2.2.10.2 Stopping the Oracle Application Server Processes on Each Instance

In each instance of the OracleAS File-Based Farm, issue the following commands to stop Oracle Application Server processes:

```
ORACLE_HOME/bin/emctl stop iasconsole
ORACLE_HOME/dcm/bin/opmnctl stopall
```

2.2.10.3 Setting Up Keystore Information File on Each Instance in the OracleAS File-based Farm

After obtaining the keystore and certificate information, you must create the file that holds the keystore information on each Oracle Application Server instance in the OracleAS File-Based Farm.

Important: The keystore information file must be set up for the repository host instance OracleAS File-Based Farm before it is set up in any other instance. To find the repository host and host instance, execute the following:

```
dcmctl whichfarm -v
```

To set up the keystore information file, perform these steps, beginning with the repository host instance OracleAS File-Based Farm. The steps can be performed on the remaining instances in any order.

1. Copy the keystore file that you generated in the first step, "[Generating the Keystore](#)," to a location in the local host.
2. Use the `configRepositorySSL` command as follows:

```
dcmctl configRepositorySSL -keystore path_to_keystore -storepass password
```

The generated file, `.ssl.conf`, is stored in the `ORACLE_HOME/dcm/config` directory.

2.2.10.4 Enabling SSL in the `dcmCache.xml` File

To enable or disable the use of SSL, modify the `<useSSL>` attribute in the `ORACLE_HOME/dcm/config/dcmCache.xml` file. [Table 2-4](#) lists the configuration parameters for enabling SSL.

Optionally, you can specify the location of the file that was generated using `configRepositorySSL` by modifying the value of the `<sslConfigFile>` element. If you modify this value, you need to copy the `.ssl.conf` file that `configRepositorySSL` generated to the new file that you specify using the `<sslConfigFile>` element.

Table 2–4 Elements for Enabling SSL in a Farm Using a File-Based Repository

Element	Description
<code><useSSL></code> <code> true false</code> <code></useSSL></code>	Set to <code>true</code> to use SSL or to <code>false</code> to disable the use of SSL for DCM communications. The default value is <code>false</code> . Valid values: <code>true</code> , <code>false</code>
<code><sslConfigFile></code> <code> sslfile</code> <code></sslConfigFile></code>	Specifies the name, <code>sslfile</code> , of the SSL configuration file. The default value is <code>.ssl.conf</code> . For most installations, there should be no need to change the default value for this element.

2.2.10.5 Verifying that Configuration Changes are Effected

Ensure that the configuration changes are effected by executing the following command on each instance in the OracleAS File-Based Farm, beginning with the repository host instance:

```
dcctl getstate
```

This shows the synchronization state of the local instance in the OracleAS File-Based Farm.

2.2.10.6 Starting the Instances in the OracleAS File-based Farm

After the security configuration is consistent across all the instances in the OracleAS File-Based Farm, restart each instance, beginning with the repository host instance, using the following command:

```
ORACLE_HOME/opmn/bin/opmnctl startall
ORACLE_HOME/bin/emctl start iasconsole
```

2.2.10.7 Adding a New Instance to a SSL-Enabled OracleAS File-based Farm

You can add a standalone instance to a OracleAS File-Based Farm that is using SSL. On the standalone machine:

1. Copy the keystore file that you generated in the first step, "[Generating the Keystore](#)," to a location on the local computer.
2. Use the `configRepositorySSL` as follows on each instance to create the keystore information file:

```
dcctl configRepositorySSL -keystore path_to_keystore -storepass password
```

The generated file, `.ssl.conf`, is stored in `ORACLE_HOME/dcm/config`.

3. Follow the instructions in [Section 2.2.2, "Adding Instances to an OracleAS Farm"](#) on page 2-4 to join the instance to the farm.

2.2.11 Improving Performance in a Large OracleAS File-Based Farm

You can improve the performance of a large OracleAS File-Based Farm by tuning parameters in the in `ORACLE_HOME/dcm/config/dcmCache.xml` file. [Table 2-5](#) lists the parameters and the sample values that were used to improve the performance of an OracleAS File-Based Farm with 12 Oracle Application Server Instances.

Table 2-5 Sample Values for Tuning a 12-Instance OracleAS File-Based Farm

Parameter	Default Value	Adjusted Value	Description
<clean-interval>	180	540	As the size of the farm increases, there are more cached objects. The process of cleaning the cache entails removing references to invalidated objects at a given interval. The more cached (and invalidated) objects, the longer it takes to clean the cache. With an increased number of objects, the cleanup interval should be set higher to decrease the frequency of cache cleanup, which is CPU-intensive.
<max-objects>	2000	6000	If the log file contains <code>CacheFullException</code> or <code>RegionFullException</code> errors, increase the value of <code>max-objects</code> .
<disksize>	256	768	The <code>disksize</code> parameter should be set to a value larger than the sizes of the J2EE deployment EAR files.

After you change `ORACLE_HOME/dcm/config/dcmCache.xml`, you must restart:

- The dcm daemon, by issuing these commands in `ORACLE_HOME/opmn/bin`:


```
opmnctl stopproc ias-component=dcm-daemon
opmnctl startproc ias-component=dcm-daemon
```
- The dcmctl shell, by issuing these commands in `ORACLE_HOME/dcm/bin`:


```
dcmctl shell
exit
```
- The Enterprise Manager daemon, by issuing these commands in `ORACLE_HOME/bin`:


```
emctl stop iasconsole
emctl start iasconsole
```

2.2.12 A Note About Port Assignments for the Oracle Application Server File-Based Farm: Instance Communication Across Firewalls

You should understand the implications of the default port assignments for Distributed Configuration Management communication, in the case of environments that require inter-instance communication across a firewall.

The Oracle Universal Installer assigns the ports described in [Table 2-6](#) by default when the instance is installed.

Table 2–6 Oracle Universal Installer Default Port Assignments

Quantity	Purpose/Description
1	DCM Discovery Port. The first instance installed on a computer is assigned port 7100 for this; the second instance installed on a computer is assigned 7101, and so on. This is defined in the <code>ORACLE_HOME/dcm/config/dcmCache.xml</code> file, in the <code>discoverer</code> element (for example, <code><discoverer discovery-port = "7100" original-"true" xmlns=" " /></code>)
50	<p>Range of ports for inter-instance communication: 7120 to 7179. These are defined in the <code>ORACLE_HOME/dcm/config/dcmCache.xml</code> file, in the <code>port</code> element (for example, <code><port lower="7120" upper="7179"></code>.)</p> <p>After installation, you will probably want to limit the number of ports open on the firewall. The actual port needs for inter-instance communication are:</p> <ul style="list-style-type: none"> ▪ 1 for the Oracle Enterprise Manager 10g Application Server Control Console on each instance ▪ 1 for the DCM daemon on each instance ▪ 1 for each <code>dcmctl</code> client operating on each instance

If the ports in the range 7100 to 7179 were open on the firewall before installation, the instances in the farm will be able to communicate immediately after installation. Note that:

- If you want the port assignments to be of a different numeric range from these, then, before installation, you must assign a DCM Discovery Port using the `staticports.ini` file, and select the **Manual** option during installation. (See the *Oracle Application Server Installation Guide*, Chapter 4, section titled "Using Custom Port Numbers (the "Static Ports" Feature)" for more information.) The range of ports will then be assigned accordingly, as specified in [Table 2–6](#).
- After installation of all instances, configure the firewall to close the unused ports within the assigned range on each instance.

2.2.13 Removing an Instance From the Infrastructure After Executing the `leaveFarm` Command

The `leaveFarm` command removes an Oracle Application Server Instance from an Oracle Application Server Farm, but in an OracleAS Database-based Farm, the Oracle Application Server Instance remains in the Identity Management configuration. You may choose to remove the Oracle Application Server Instance from the Identity Management configuration.

The configuration files and entries that must be changed depend on the installation type of the Oracle Application Server Instance that was removed from the OracleAS Database-based Farm. Follow the steps in the section for the applicable installation type. After the steps are performed, the Oracle Application Server Instance is a standalone Oracle Application Server Instance.

2.2.13.1 J2EE and Web Cache Instance Using Identity Management (Oracle Internet Directory)

Follow these steps to remove the Oracle Application Server Instance from the Identity Management configuration:

1. Use the `oidadmin` tool to remove the entries created during installation to register the Oracle Application Server Instance with Oracle Internet Directory.

One of the entries to be removed is shown in bold italic:

```
"orclApplciationCommonName=instance name,cn=IAS Instances, cn=IAS, cn=Products,
cn=OracleContext
```

The other entry to remove is the `uniquemember` attribute of the following entry:

```
"cn=Associated Mid-tiers, OrclReferenceName=repository name, cm=IAS
Infrastructure Databases,cn=Products,cn=OracleContext
```

2. Edit the `ORACLE_HOME/config/ias.properties` file to remove the Oracle Internet Directory host, port, dbname, and instance password. Change the `InfrastructureUse` flag to `false`.
3. Modify the `ORACLE_HOME/j2ee/home/config/jazn.xml` file to replace the following entry:

```
orclApplicationCommonName=jaznadmin1,cn=JAZNContext,cn=products,cn=OracleContext
```

with this entry:

```
<?xml version="1.0" encoding="UTF-8" standalone='yes'?>
<!DOCTYPE jazn PUBLIC "JAZN Config" "http://xmlns.oracle.com/ias/dtds/jazn-9_
04.dtd">
<jazn provider="XML" location="./jazn-data.xml">
</jazn>
```

Remove the corresponding Oracle Internet Directory entry also.

4. Modify the LDAP configuration as follows:
 - a. Remove the `ORACLE_HOME/network/admin/ldap.ora` file.
 - b. Edit the `ORACLE_HOME/network/admin/sqlnet.ora` file to remove the LDAP naming from the list of namings.

2.2.13.2 J2EE and Web Cache Installation with Database-based Repository

To remove the Oracle Application Server Instance from the Identity Management configuration of a J2EE and Web Cache Installation:

Edit the `ORACLE_HOME/config/iasschema.xml` file to change the DCM repository association entry as follows:

from this entry:

```
<SchemaConfigData>
  <ComponentName>DCM</ComponentName>
  <BaseName>DCM</BaseName>
  <Override>>true</Override>
  <SchemaName>DCM</SchemaName>
  <DBConnect>iasdb.us.oracle.com</DBConnect>
  <Password></Password>
  <SvcPassword></SvcPassword>
</SchemaConfigData>
```

to the following entry:

```
<SchemaConfigData>
  <ComponentName>DCM</ComponentName>
  <BaseName>DCM</BaseName>
```

```

<Override>>false</Override>
<SchemaName/>
<DBConnect/DBConnect>
<Password/>
<SvcPassword/>
</SchemaConfigData>

```

2.2.13.3 J2EE and Web Cache Installation Using Identity Management (Oracle Internet Directory) with Database-based Repository

Follow these steps to remove the Oracle Application Server Instance from the Identity Management configuration:

1. Use the `oidadmin` tool to remove the entries created during installation to register the Oracle Application Server with Oracle Internet Directory.

One of the entries to be removed is shown in bold italic:

```

"orclApplciationCommonName=instance name,cn=IAS Instances, cn=IAS, cn=Products,
cn=OracleContext

```

The other entry is shown in bold italic (in the `uniqueName` attribute of the entry):

```

"cn=Associated Mid-tiers, OrclReferenceName=repository name, cm=IAS
Infrastructure Databases,cn=Products,cn=OracleContext

```

2. Edit the `ORACLE_HOME/config/ias.properties` file to remove the Oracle Internet Directory host, port, dbname, and instance password. Change the `InfrastructureUse` flag to `false`.
3. Edit the `ORACLE_HOME/config/iasschema.xml` file to change the DCM repository association entry as follows:

from this entry:

```

<SchemaConfigData>
  <ComponentName>DCM</ComponentName>
  <BaseName>DCM</BaseName>
  <Override>>true</Override>
  <SchemaName>DCM</SchemaName>
  <DBConnect>iasdb.us.oracle.com</DBConnect>
  <Password></Password>
  <SvcPassword></SvcPassword>
</SchemaConfigData>

```

to the following entry:

```

<SchemaConfigData>
  <ComponentName>DCM</ComponentName>
  <BaseName>DCM</BaseName>
  <Override>>false</Override>
  <SchemaName/>
  <DBConnect/DBConnect>
  <Password/>
  <SvcPassword/>
</SchemaConfigData>

```

4. Change the OracleAS JAAS Provider entries, editing the `ORACLE_HOME/j2ee/home/config/jazn.xml` file to replace the following entry:

```

orclApplicationCommonName=jaznadmin1, cn=JAZNContext, cn=products, cn=OracleContext

```


with this entry:

```
<?xml version="1.0" encoding="UTF-8" standalone='yes'?>
<!DOCTYPE jazn PUBLIC "JAZN Config" "http://xmlns.oracle.com/ias/dtds/
jazn-9_04.dtd">
<jazn provider="XML" location="./jazn-data.xml">
</jazn>
```

Remove the corresponding Oracle Internet Directory entry also.

5. Modify the LDAP configuration as follows:
 - a. Remove the `ORACLE_HOME/network/admin/ldap.ora` file.
 - b. Edit the `ORACLE_HOME/network/admin/sqlnet.ora` file to remove the LDAP naming from the list of namings.

2.3 Creating and Maintaining OC4J Instances In DCM-Managed OracleAS Clusters

The `dcmctl` utility includes commands for creating and deleting OC4J instances in OracleAS Cluster. It also contains other commands for OC4J application deployment ([validateEarFile](#), [deployApplication](#) and [redeployApplication](#)), but it is generally recommended that in production environments, you use the Oracle Enterprise Manager 10g Application Server Control Console user interface for application deployment. The Application Server Control Console provides configuration change, monitoring, and status functionality as part of the deployment process. For example, the Application Server Control Console will notify you with a message that certain configuration changes will only take effect after you restart the OC4J instance.

2.3.1 Creating an OC4J Instance

Follow these steps to create an OC4J instance:

1. Navigate to the Oracle Application Server Instance that will contain the new OC4J instance.
2. Issue this command:

```
dcmctl createComponent -ct oc4j -co nameOfOC4JInstance
```

In the preceding command, *nameOfOC4JInstance* is the identifier for the new OC4J instance. Do not use the host name, the Oracle home or IP address of the computer containing the Oracle Application Server installation as the name for the OC4J instance.

Tip: See [createComponent](#) for syntax and rules, or issue the command `dcmctl help createcomponent` to view help text.

2.3.2 Deleting an OC4J Instance

You can use the `dcmctl` utility to remove an OC4J instance from the local application server instance, if the OC4J instance was created after installation by a user. You cannot remove any OC4J instance that was created by the Oracle Application Server installation process (such as `OC4J_SECURITY`). Follow these steps to remove an OC4J instance:

1. Navigate to the Oracle Application Server Instance that contains the OC4J instance you want to delete.

2. Issue this command:

```
dcmctl removeComponent -co nameOfOC4JInstance
```

In the preceding command, *nameOfOC4JInstance* is the identifier for the new OC4J instance.

Tip: See [removeComponent](#) for syntax and rules, or issue the command `dcmctl help removecomponent` to view help text.

2.4 Managing DCM Log Files

DCM creates log files to track activity and errors that occurred in the operation of the `dcmctl` utility, the DCM daemon, the Enterprise Manager daemon, and the business rule function. You can specify the size of the individual log files and the overall size of the logs by setting the `maxFileSize` and `maxLogSize` parameters.

2.4.1 Log File Location and Naming

The log files are created in subdirectories of the `ORACLE_HOME/dcm/logs` directory. The subdirectories are named for the DCM component or function: `dcmctl_logs`, `daemon_logs`, `busrule_logs`, `emd_logs`. The log files in each directory are named as follows:

```
log.xml, log1.xml, log2.xml . . . logN.xml
```

The `log.xml` file is the most recent log file; `log1.xml` is the oldest. When the `log.xml` file size reaches approximately the number of bytes specified by the `maxFileSize` parameter, the `log.xml` file is renamed to `log1-N.xml`, and a new `log.xml` file is created.

Note: The actual number of bytes in a log file is not always exactly equal to the `maxFileSize` value. Log file sizes may be slightly more or less when rotation occurs. Individual log entries are not split across files.

The `maxLogSize` parameter specifies the maximum number of bytes of the combined files (`log.xml` through `logN.xml`) and determines when the oldest log file is removed. The actual log size may be slightly larger or smaller than the specified `maxLogSize` when rotation occurs.

The *Oracle Application Server Administrator's Guide*, section 5.6.2.2, "ODL Log File Naming", describes the Oracle Diagnostic Logging naming convention in detail.

2.4.2 Changing Log Size Parameters

Follow these steps to change the `maxFileSize` or `maxLogSize` parameters:

1. Ensure that the DCM daemon process and DCM client processes such as `dcmctl` and Oracle Enterprise Manager 10g Application Server Control Console are stopped.
2. Edit the `ORACLE_HOME/dcm/config/sysmgmtProperties.xml` file and change the `maxFileSize` and `maxLogSize` parameter values to the sizes you want. [Example 2-1](#) shows the parameters as they appear in the file.

Note: An error will occur if the value of `maxFileSize` is larger than the value of `maxLogSize`.

Example 2-1 *sysmgtProperties.xml* File Contents

```
<Section>
  <Component name="DMSLogging">
    <Property name="maxFileSize" value="200000"/>
    <Property name="maxLogSize" value="1000000"/>
  </Component>
</Section>
```

3. Use these commands to restart:

- The dcm daemon, by issuing these commands in *ORACLE_HOME*/opmn/bin:

```
opmnctl stopproc ias-component=dcm-daemon
opmnctl startproc ias-component=dcm-daemon
```

- The dcmctl shell, by issuing these commands in *ORACLE_HOME*/dcm/bin:

```
dcmctl shell
exit
```

- The Enterprise Manager daemon, by issuing these commands in *ORACLE_HOME*/bin:

```
emctl stop iasconsole
emctl start iasconsole
```

2.5 Best Practices for DCM-Managed OracleAS Cluster Management

Understanding and adhering to the recommendations outlined will help you maximize DCM's capabilities and safeguard your system configuration. Note the following OracleAS Cluster management practices:

- Oracle Application Server Instances grouped in a DCM-Managed OracleAS Cluster can be managed using Oracle Enterprise Manager 10g Application Server Control Console or `dcmctl` from a single point of administration on any Oracle Application Server Instance in the DCM-Managed OracleAS Cluster. It is advisable to use one Oracle Application Server Instance as the administrative locus for the entire DCM-Managed OracleAS Cluster.
- When changing instance-specific configuration such as port numbers, host names or virtual hosts, ensure that no other concurrent administrative changes are made in the DCM-Managed OracleAS Cluster. This should help prevent application of conflicting changes to configuration (which could result in an unusable configuration).
- Concurrent administration within an DCM-Managed OracleAS Cluster is strongly discouraged. If multiple administrative operations are issued at the same time in an DCM-Managed OracleAS Cluster, errors may occur, and the associated error messages may be confusing. For example, a concurrent attempt to change the configuration of an Oracle Application Server Instance that is being deleted really does not make sense. It is recommended that one Oracle Application Server Instance be used as the administrative locus for the entire DCM-Managed OracleAS Cluster. This will ensure that operations are executed in logical order and are properly serialized.
- Archiving (automatically or manually) before any administrative operation is recommended. With auto-archiving, you can have `dcmctl` automatically detect that the Oracle Application Server Instance is associated with an DCM-Managed OracleAS Cluster and create auto-archives of the DCM-Managed OracleAS Cluster

configuration before administrative operations are performed. [Table 3-1, "Automatic Archive Operations"](#) on page 3-4 lists the operations that trigger automatic archiving.

Archiving A Managed Configuration

This chapter describes DCM archiving capabilities, and explains how to restore saved configurations from archives.

This chapter covers the following topics:

- [DCM Archiving Commands](#)
- [Initial Archive Creation](#)
- [Archive and Instance Compatibility](#)
- [Exporting and Importing Archives](#)
- [Using Automatic Archiving](#)
- [Preserving Configurations With Archive Commands](#)
- [Importing and Applying an Archive to an Instance](#)

3.1 DCM Archiving Commands

The `dcmtcl` utility provides commands (listed in [Table A-6, "Archive Commands"](#)) that enable you to create an archive of the configuration of an Oracle Application Server Instance or OracleAS Cluster, and then apply the archived configuration to the same Oracle Application Server Instance or OracleAS Cluster, or to a different Oracle Application Server Instance or OracleAS Cluster. The archiving feature makes it easy to save configurations before making changes to the system, or to save and restore a particular configuration for specific purposes, such as operating one configuration during the day and another at night.

Note: The `saveInstance` and `restoreInstance` commands are deprecated; the archiving feature contains all of the functionality provided by `saveInstance` and `restoreInstance`.

3.2 Initial Archive Creation

The Oracle Universal Installer invokes the archiving function at the end of installation, and archives the initial configuration of Distributed Configuration Management. The name of the initial archive is:

`InstalledImageinstance_name`

In the example above, *name* is the name of the Oracle Application Server Instance.

Note: To list the archives, use the `dcmctl listArchives` command. The initial configuration archive is shown in the "User Generated Archives" section of the `listArchives` report.

3.3 Archive and Instance Compatibility

When an archive is created, the configuration and application deployment information associated with the archived object (the Oracle Application Server Instance or OracleAS Cluster) is stored in the repository. This archived image can then be applied to any compatible Oracle Application Server Instance or OracleAS Cluster in the repository, or exported to a file to be applied to an Oracle Application Server Instance or OracleAS Cluster in another repository. The compatibility of an archive with an Oracle Application Server Instance or OracleAS Cluster is similar to the compatibility of Oracle Application Server Instances to be clustered.

Applying archives to Oracle Application Server Instances and OracleAS Clusters is subject to these compatibility rules:

- The source of the archive must have the same installed components configured as the destination. If the destination is a OracleAS Cluster, the archive cannot contain any non-clusterable objects.
- The source of the archive and the instance or cluster to which it is applied must be of the same installation type and version.
- Information specific to an Oracle Application Server Instance, such as host name, can only be applied back to the Oracle Application Server Instance from which it came.
- The configuration from one Oracle Application Server Instance or OracleAS Cluster may be applied directly to another Oracle Application Server Instance or OracleAS Cluster. That is, the apply operation can take, as a source, an archive of an Oracle Application Server Instance or a OracleAS Cluster.

See Also: [isClusterable](#) on page A-21

3.4 Exporting and Importing Archives

You can export an archive from the repository to a file, and then import the file back to the same repository, or to a different repository. You can change the name of the archive and associated comments during the import. The original archive name and comments are the defaults.

You can also export from a repository to a file, and import from a file to a repository. The import and export functionality allows an archive to be moved from one repository to another. Archives can be moved from:

- A Database-based repository to another Database-based repository
- A File-based repository to another File-based repository
- A Database-based repository to a File-based repository
- A File-based repository to a Database-based repository

The exported archive file is in a .jar format. Two entries in the jar file encapsulate a description of the archive: `Export_Information` and `Archive_Information`. These entries can be extracted from the export file and viewed as text. The other entries in the export file contain the configuration information, one entry for each

component instance. [Example 3–1](#), [Example 3–2](#), and [Example 3–3](#) provide sample archive files.

In Oracle Application Server 10g Release 2 (10.1.2), the files stored in the DCM Repository are not the actual configuration files, but are an internal form with information such as the ORACLE_HOME, host name, and IP address removed.

The current archive files are binary. They are JAR files (ZIP files with additional metadata) that could be stored in a version control system and the used later to apply a prior version of configuration. Considering the configuration data stored within the archive is an internal Oracle form, it makes sense to keep archive files in binary form, rather than exploding the JAR and storing individual files.

Caution: Do not edit the archive files. If you do, the archive may not function as it should.

Example 3–1 Expanded Export file

```
Archive_Information
Export_Information
Default_Information
HTTP Server
home
Component1
Component2
```

Example 3–2 Export_Information File

```
Export_Information:
Version: 10.1.2.0.0
Comments: "User comments about the export"
Farm: dbmachine.1234.5678
Create Time: Mon Sep 30 12:42:10 PDT 2002
```

Example 3–3 Archive_Information File

```
Archive_Information:
Name: archive1
Source: cluster1
Version: 10.1.2.0.0
Configured Component Types: [Apache, J2EE]
Comments: "User comments about the archive"
Create Time: 2002-09-26 16:46:40.0
Clusterable:true
```

3.5 Using Automatic Archiving

When you turn automatic archiving on, DCM automatically creates an archive when you perform any operation listed in [Table 3–1](#). The automatic archives coexist with archives created with the `createArchive` command, and are distinguished by their system-generated name.

[Example 3–6](#) shows several automatically generated archives.

Table 3–1 Automatic Archive Operations

Operation
Add an Oracle Application Server Instance to an OracleAS Cluster
Change an OracleAS Cluster's attributes
Change an Oracle Application Server Instance's attributes
Configure Oracle Application Server Single Sign-On with configuration tool
Create a new OC4J instance
Deploy a J2EE application
Dump or clear instrumentation timer
Issue the updateConfig command
Join an OracleAS Cluster
Perform a configuration change with System Management Interface
Remove an OC4J instance

You can specify the number of automatic archive versions you want to save, or disable automatic archiving with the `set` command, using the `-arch` option and an integer, as shown in [Example 3–4](#) and [Example 3–5](#).

Example 3–4 Setting Automatic Archiving to Save 10 Versions

```
dcmctl set -arch 10
```

Example 3–5 Turning Automatic Archiving Off

```
dcmctl set -arch 0
```

Automatic archives have system-generated names that resemble those shown in archive 2 in [Example 3–6](#). Automatic archive names all begin with `dcm.autoarchive`. Appended to this is the IP address of the computer, an identifier for the DCM operation that triggered the archive, and a user ID that is unique to the computer. This ensures that the automatic archive name is unique across the Oracle Application Server Farm. When an Oracle Application Server Instance is a member of an OracleAS Cluster, the Source: identifier is shown as: "cluster: *cluster name*".

Example 3–6 Automatic versus User Generated Archive Names (listArchives Command Output)

```
dcmctl listArchives
***** AUTO GENERATED ARCHIVES *****
1
Name:          dcm.autoarchive_138.2.142.2121ff7a1e.fcb87f2e6d.-7ffe
Source:        instance: my-sun.us.oracle.com
Version:       10.1.2.0.0
Comments:     Automatic archival prior to deployment of application IsWebCacheWkng
Created:       2004-05-24 12:34:24.972
Clusterable:  true

2
Name:          dcm.autoarchive_138.2.142.21212d3205.fcb882fb5b.-7fff
Source:        instance: my-sun.us.oracle.com
```

```

Version:      10.1.2.0.0
Comments:    Automatic archival prior to hand-editing of configuration files OC4J
OHS opmn jazzn
Created:     2004-05-24 12:35:59.168
Clusterable: true

```

```
***** USER GENERATED ARCHIVES *****
```

```

1
Name:        initial_archive_my-sun.us.oracle.com
Source:      instance: my-sun.us.oracle.com
Version:     10.1.2.0.0
Comments:    The initial archive after joining the farm for my-sun.us.oracle.com
Created:     2004-05-24 14:01:54.158
Clusterable: true

```

3.5.1 Tuning Automatic Archiving to Improve Performance

When you install Oracle Application Server, the auto-archiving feature is set to maintain fifteen archives. You can improve system performance by reducing the number of archives, or by turning off auto-archiving.

Note: Limiting or disabling DCM auto-archiving may reduce the potential for full recovery from a system failure.

3.6 Preserving Configurations With Archive Commands

You should save the DCM configuration regularly. You may find it useful to create "before" and "after" snapshots of a configuration when performing extensive configuration changes. Archives that you create are designated as user-generated archives, to differentiate them from archives created automatically (shown in [Example 3-6](#)). Use the following steps to create an archive:

1. Issue one of the following commands (depending on the configuration):

```
dcmctl createarchive -arch archive name -cl cluster name
```

or

```
dcmctl createarchive -arch archive name -i instance name
```

The archive is created in the repository.

2. (Optional) Export the archive to the file system with this command:

```
dcmctl exportarchive -arch archive name -f file name
```

Note: Archives are stored in the repository. If you do not export an archive to the file system, and the repository is destroyed, any archives saved in the repository are also lost. Exporting the archive to the file system provides an extra measure of safety.

3.7 Importing and Applying an Archive to an Instance

If an Oracle Application Server Instance is inadvertently destroyed or a repository contains errors, you can restore the configuration from an exported archive. Use the `importArchive` command to bring the archive from the file system to the repository:

```
dcmctl importarchive -arch archive name -f file name
```

You can restore an archive to the DCM repository with one of the following commands:

```
dcctl applyarchiveto -arch archive name -cl cluster name
dcctl applyarchiveto -arch archive name -i instance name
```

3.8 Benefits of Archiving

The DCM archive feature provides a convenient way to create snapshots of the DCM-managed portions of Oracle Application Server system configuration. Archives are useful for staging changes, recovering from errors, and provisioning DCM-managed Oracle Application Server Instance configuration information from one Oracle Application Server Instance to another. Archiving enables you to:

- Use disk space efficiently. Within an Oracle Application Server Instance, there are many managed objects (including configuration files and EAR or WAR files), but when an archive is created, only one copy of any given version of a managed object is saved in the repository.
- Restore the state of an Oracle Application Server Instance or OracleAS Cluster to a prior state. The DCM system automatically takes an archive when it performs certain administrative operations so that the administrator has the option to roll back undesired administrative changes. The number of automatic archives that are saved is configurable.
- Explicitly create archives to satisfy a site's change management or staging policy. For example, when staging groups of changes that an administrator may want to collectively rollback, or push to other Oracle Application Server Instances, it is a good idea to explicitly create an archive.
- Use archives to apply the state of any Oracle Application Server Instance to the state of any available archive. An archive can also be applied to another Oracle Application Server Instance in the same Oracle Application Server Farm, or exported and imported to another Oracle Application Server Farm and then applied to an Oracle Application Server Instance in that Oracle Application Server Farm. (A hybrid staging solution is to first stage and test changes to a non-clustered Oracle Application Server Instance, archive the changes, and finally apply the archive to an OracleAS Cluster. These changes are then automatically propagated to all members of the OracleAS Cluster.)

Note: After applying an archive to an Oracle Application Server Instance other than the Oracle Application Server Instance from which it was created, some instance-specific configuration data may have to be modified. DCM automates this for IP addresses and hostnames. See [Section 2.2.4.2, "Parameters Excluded from the Common Configuration: Instance-Specific Parameters"](#) on page 2-5 for lists of these parameters in OHS, OC4J, and OPMN.

- If you use OracleAS Clusters, DCM assures that any change to the configuration is automatically distributed to all members of the OracleAS Cluster. As an alternative to using OracleAS Clusters, an archive of a staged configuration can be applied manually to non-clustered Oracle Application Server Instances in an Oracle Application Server Farm.

dcmctl Commands

This chapter describes the characteristics of the `dcmctl` utility, and provides syntax and reference information for each of its commands. It is divided into these sections:

- [Notes for Using dcmctl Commands](#)
- [Types of dcmctl Commands](#)
- [Alphabetical Listing of dcmctl Commands](#)

A.1 Notes for Using dcmctl Commands

All `dcmctl` commands have this syntax:

```
ORACLE_HOME/dcm/bin/dcmctl command [options]
```

Before you use the `dcmctl` utility, be aware of the following:

- Do not run [updateConfig](#) concurrently with any other `dcmctl` commands, or perform Oracle Enterprise Manager 10g Application Server Control Console configuration operations from multiple Oracle Application Server Instances in an Oracle Application Server Farm or OracleAS Cluster (see [updateConfig](#) for details).
- Oracle Application Server supports heterogeneous Oracle Application Server Instances as part of the same OracleAS File-Based Farm. For example, an Oracle Application Server Instance running on the Solaris operating system, an Oracle Application Server Instance running on a Linux system, and an Oracle Application Server Instance running on an HP-UX system can reside in the same OracleAS File-Based Farm. Oracle Application Server Instances that you want to be part of a OracleAS Cluster must be of the same installation type and version, and be installed on like operating systems (for example, UNIX and Linux).
- To use `dcmctl`, you must log in to the operating system with the user name that was used to install Oracle Application Server, or as the administrative user.
- When administering an OracleAS File-Based Farm, you may need to refresh the browser, or restart Application Server Control Console, after issuing the following `dcmctl` commands:
 - [joinCluster](#)
 - [joinFarm](#)
 - [leaveCluster](#)
 - [leaveFarm](#)

- Ensure that you issue `dcmctl` commands in the Oracle home of the Oracle Application Server Instance you wish to manage. `dcmctl` commands operate on the Oracle Application Server Instance in which the `dcmctl` executable is located. The value of the `ORACLE_HOME` environment variable does not determine the Oracle Application Server Instance on which `dcmctl` operates. You can issue commands to operate remotely (on a specified Oracle Application Server Instance) by using the `-i` option described in [Table A-2](#).
- All `dcmctl` commands and options are case-insensitive.
- Instance, component, and OracleAS Cluster names are case-sensitive.

A.1.1 dcmctl Options

As shown in the syntax description, `dcmctl` commands may be used with options. An option can be one of following types:

- Global: These can be used with all commands (see [Table A-1](#)).
- Scope: These options indicate the scope of a command. The scope can be an application, OracleAS Cluster, component, type of component, or Oracle Application Server Instance (see [Table A-2](#)).
- Command-specific: These options apply only to certain commands. Each command description in the following pages includes information about any options the command provides (see [Table A-3](#)).

Table A-1 *dcmctl Global Options*

Option	Description
<code>-d</code>	Prints the stack trace if an exception occurs when the command is executed. By default, <code>dcmctl</code> executes with this option on. You can change this behavior with the set command.
<code>-l directory</code>	Saves the DCM client error log file <code>log.xml</code> in the named <i>directory</i> . The directory can be a full path name or a path name relative to the current directory. Default value: <code>ORACLE_HOME/dcm/logs/dcmctl_logs</code>
<code>-v</code>	Prints the long (verbose) version of state and error messages. Setting <code>verbose</code> to <code>off</code> is recommended when using scripts or using the <code>dcmctl</code> shell, since the brief messages are easier to parse. By default, <code>dcmctl</code> executes with this option on. You can change this behavior with the set command.
<code>-sort</code>	Sorts the output of list commands by name. For example: <code>dcmctl listComponents -sort</code> By default, this option is set to <code>off</code> . You can make the sorting feature persistent with the set command.

Table A–2 dcmctl Scope Options

Option	Description
-a <i>app name</i>	Applies the command to the named application <i>app name</i> , or designates the name of an application during initial deployment.
-admin	Applies the command to the DCM daemon. For example: start -admin stop -admin
-cl <i>cluster name</i>	Applies the command to the named OracleAS Cluster, <i>cluster name</i> , or designates the name of an OracleAS Cluster during creation.
-co <i>comp name</i>	Applies the command to the named component, <i>comp name</i> , or designates the name of a component during creation
-ct <i>type</i>	Applies the command to components of the named component <i>type</i> . Component type can be of type: ohs, oc4j, opmn, or jazn.
-i <i>inst name</i>	Applies the command to the named Oracle Application Server Instance, <i>inst name</i> .
-r <i>repository info</i>	Applies the command to the repository name or port specified with <i>repository info</i> .

Table A–3 dcmctl Command-Specific Options

Option	Description
-arch	Specifies an archive name. Use with archive commands. For example: dcmctl createArchive -arch myArchive
-c	Creates a comment. Use with archive commands and 'import' and 'export' configuration management commands.
-force	Performs an operation without performing checks or issuing a confirmation. This option should be used judiciously, since in some cases, it can result in lengthy processing, and in others, it can perform a destructive action that might be unrecoverable.
-src	Indicates the source of the archive. Use with archive commands. For example, to apply an archive to the current Oracle Application Server Instance: dcmctl applyArchiveTo -src myArchive

A.1.1.1 Notes on OracleAS Cluster, Instance, Component and Component Type Options

The following rules apply to command-specific options. If you do not use options, by default, the command applies to the local Oracle Application Server Instance.

- If -cl is supplied, the command applies to all Oracle Application Server Instances in the OracleAS Cluster.
- If -ct is supplied with -cl or -i, then the command applies to the component type within the OracleAS Cluster, or the component type within the Oracle Application Server Instance within the OracleAS Cluster.
- If -co is supplied with -ct, -cl, -i then the command applies to the component within the OracleAS Cluster, or the component type within the Oracle Application Server Instance within the OracleAS Cluster.
- If -a is supplied with any of the preceding options, that particular application within the component, component type, Oracle Application Server Instance, or OracleAS Cluster is affected.

A.1.2 Using the dcmctl Shell

You can execute `dcmctl` commands from within the `dcmctl` shell. Within the shell, it is not necessary to preface commands with `dcmctl` (see the following sample session). To start the `dcmctl` shell, type:

```
dcmctl shell
```

Following is a sample shell session in which the shell is started, commands are executed, and the shell is stopped.

Example A-1 *dcmctl Shell Session*

```
dcmctl shell
dcmctl> createcluster -cl testcluster
dcmctl> joincluster -cl testcluster
dcmctl> createcomponent -ct oc4j -co component1
dcmctl> deployapplication -f /stage/apps/app1.ear -a app1 -co component1
dcmctl> getstate
dcmctl> exit
```

A.2 Types of dcmctl Commands

This section describes types of `dcmctl` commands and their uses.

Configuration Management: Use these commands to create and manage configuration elements (OracleAS Clusters, Oracle Application Server Instances, components) and the DCM repository.

Table A-4 *Configuration Management Commands*

Command			
<code>applyClusterTo</code>	<code>applyInstanceTo</code>	<code>createCluster</code>	<code>createComponent</code>
<code>configRepositorySSL</code>	<code>destroyInstance</code>	<code>exportRepository</code>	<code>fileCleanUp</code>
<code>getComponentType</code>	<code>getRepositoryId</code>	<code>importRepository</code>	<code>isClusterable</code>
<code>isCompatible</code>	<code>joinCluster</code>	<code>joinFarm</code>	<code>leaveCluster</code>
<code>leaveFarm</code>	<code>listClusters</code>	<code>listComponents</code>	<code>listInstances</code>
<code>removeCluster</code>	<code>removeComponent</code>	<code>repositoryRelocated</code>	<code>resetDCMCachePort</code>
<code>resetFileTransaction</code>	<code>resetHostInformation</code>	<code>restoreInstance</code>	<code>resyncInstance</code>
<code>saveInstance</code>	<code>updateConfig</code>	<code>whichCluster</code>	<code>whichFarm</code>
<code>whichInstance</code>			

`dcmctl` Shell: Use these commands with the `dcmctl` shell.

Table A-5 *dcmctl Shell Commands*

Command			
<code>!!</code>	<code>echo</code>	<code>exit</code>	<code>quit</code>
<code>shell</code>	<code>setLogLevel</code>		

Archive: Use these commands to create archives of configurations.

Table A–6 Archive Commands

Command			
applyArchiveTo	createArchive	exportArchive	importArchive
listArchives	removeArchive		

Application: Use these commands to deploy and manage applications.

Table A–7 Application Commands

Command			
deployApplication	listApplications	redeployApplication	undeployApplication
validateEarFile			

dcmctl Properties: Use these commands to administer the dcmctl utility.

Table A–8 dcmctl Properties Commands

Command			
getError	getReturnStatus	getState	help
listComponentTypes	set		

Manually Managed Oracle Application Server Clusters: Use these commands to work with Manually Managed OracleAS Clusters.

Table A–9 Manually Managed OracleAS Cluster Commands

Command			
addOPMNLINK	getOPMNPORt	listOPMNLINKs	removeOPMNLINK

Process Management: These commands allow you to start and stop processes within OracleAS Clusters and Oracle Application Server Instances. These commands are deprecated in Oracle Application Server 10g. Use `opmnctl` to manage processes in Oracle Application Server 10g. See the *Oracle Process Manager and Notification Server Administrator's Guide* for information on using `opmnctl`.

Table A–10 Process Management Commands

Command			
restart	shutdown	start	stop

A.3 Alphabetical Listing of dcmctl Commands

This section lists all commands alphabetically. The command type, syntax, and description is included for each command.

Note: All commands are case-insensitive. Capital letters are used in this guide only to increase readability. Many examples show the commands in all lower case.

A.3.1 !!

Repeats the previous command.

Type

Shell

Syntax

!!

Description

Use this command in the `dcmctl` shell to repeat the previous command.

Example

!!

A.3.2 addOPMNLINK

Creates a Manually Managed Oracle Application Server Cluster.

Type

Manually Managed OracleAS Cluster

Syntax

`addOPMNLINK hostname:port[, hostname:port...]`

Description

You can use this command to create a Manually Managed OracleAS Cluster that includes the local Oracle Application Server Instance and the Oracle Application Server Instances specified as arguments.

- You must run this command in the Oracle home of each Oracle Application Server Instance that is to be a member of the Manually Managed OracleAS Cluster, using the rest of the Oracle Application Server Instances as arguments.
- All Oracle Application Server Instances must be J2EE and Web Cache Oracle Application Server Instances, and the Oracle Application Server Instances must not be part of an OracleAS File-Based Farm. Otherwise, the command will fail.
- To change the ONS remote port for an Oracle Application Server Instance in a Manually Managed OracleAS Cluster, you must remove the Oracle Application Server Instance from the Manually Managed OracleAS Cluster using [removeOPMNLINK](#), change the remote port, and add it to the Manually Managed OracleAS Cluster again using [addOPMNLINK](#). You must repeat the command in every Oracle home.

- If you create a Manually Managed OracleAS Cluster and then want to add another Oracle Application Server Instance to the Manually Managed OracleAS Cluster, you must run the command again in all Oracle homes (essentially creating a new Manually Managed OracleAS Cluster with the added Oracle Application Server Instance).

Example

```
HOST1_ORACLE_HOME/dcm/bin/dcmctl getopmnport
host1:6200
HOST2_ORACLE_HOME/dcm/bin/dcmctl getopmnport
host2:6200
HOST3_ORACLE_HOME/dcm/bin/dcmctl getopmnport
host3:6200
HOST1_ORACLE_HOME/dcm/bin/dcmctl addopmnlink host2:6200,host3:6200
HOST2_ORACLE_HOME/dcm/bin/dcmctl addopmnlink host1:6200,host3:6200
HOST3_ORACLE_HOME/dcm/bin/dcmctl addopmnlink host1:6200,host2:6200
```

A.3.3 applyArchiveTo

Applies an archived configuration to an Oracle Application Server Instance or DCM-Managed OracleAS Cluster.

Type

Archive

Syntax

```
applyArchiveTo -src archiveName [-cl clusterName | -i instanceName]
```

Description

When configuration information is stored in the DCM repository, it is recognized as one of the following two types of information:

- Information that is generic to any Oracle Application Server Instance (cluster-wide information).
- Information that is specific to a particular Oracle Application Server Instance (instance-specific information). Instance specific information is defined by the various managed components, including: Oracle HTTP Server, OC4J, OPMN, and JAZN and may include such things as host name or port values

When an archive is applied to the same Oracle Application Server Instance from which it was created, both the cluster-wide information and instance-specific information is restored to the Oracle Application Server Instance. When the archive is applied to a DCM-Managed OracleAS Cluster or to a different Oracle Application Server Instance than the one it was created for, only the cluster-wide information is restored, the existing instance-specific information is not changed. See [Section 2.2.4.2, "Parameters Excluded from the Common Configuration: Instance-Specific Parameters"](#) on page 2-5.

Example

```
dcmctl applyarchiveto -src archive1 -i instance1
```

A.3.4 applyClusterTo

Applies the configuration of a DCM-Managed OracleAS Cluster to another Oracle Application Server Instance or DCM-Managed OracleAS Cluster.

Type

Configuration Management

Syntax

```
applyClusterTo -src clusterName [-cl clusterName | -i instanceName]
```

Description

The configuration of the named DCM-Managed OracleAS Cluster (as specified by the `-src` option) is applied to the named Oracle Application Server Instance or DCM-Managed OracleAS Cluster. The named source DCM-Managed OracleAS Cluster is not affected.

Example

```
dcmctl applyclusterto -src cluster1 -i instance1
```

A.3.5 applyInstanceTo

Applies the configuration of the named Oracle Application Server Instance to another Oracle Application Server Instance or DCM-Managed OracleAS Cluster.

Type

Configuration Management

Syntax

```
applyInstanceTo -src instanceName [-cl clusterName | -i instanceName]
```

Description

The configuration of the named Oracle Application Server Instance is applied to the named Oracle Application Server Instance or DCM-Managed OracleAS Cluster. If no Oracle Application Server Instance or DCM-Managed OracleAS Cluster is specified, then the configuration of the named Oracle Application Server Instance is applied to the current Oracle Application Server Instance. The named source Oracle Application Server Instance is not affected. The command will fail if the current Oracle Application Server Instance and the named Oracle Application Server Instance are the same (you cannot apply the configuration of an Oracle Application Server Instance to itself).

Example

```
dcmctl applyinstanceto -src instance1
```

A.3.6 configRepositorySSL

Specifies the location and password of the keystore used to secure the Oracle Application Server Farm.

Type

Configuration Management

Syntax

```
configRepositorySSL -keystore pathToKeystore -storepass password
```

Description

Specifies the location and password of the keystore to use to provide certificate-based security for the farm. This command applies to a distributed File-based repository only. Configuring the keystore does not automatically enable security.

To use certificate-based security, each Oracle Application Server Instance in the Oracle Application Server Farm must have a Java keystore. It can be shared by other Java applications, or it can be a separate keystore specifically for repository administration. After the keystore is set up, use the `configRepositorySSL` command in each Oracle Application Server Instance in the Oracle Application Server Farm to tell the system which keystore to use.

To enable this security feature, edit the file `ORACLE_HOME/dcm/config/dcmCache.xml`, in each Oracle Application Server Instance in the Oracle Application Server Farm to set the value of `<useSSL> true </useSSL>`. You must restart all DCM daemons and clients in the Oracle Application Server Farm for the security change to take effect. The security setting must be consistent across all Oracle Application Server Instances in the Oracle Application Server Farm, or they will not communicate properly.

Example

```
configRepositorySSL -keystore /OracleHome/security/files -storepass welcome
```

A.3.7 createArchive

Creates an archive of the named DCM-Managed OracleAS Cluster or Oracle Application Server Instance.

Type

Archive

Syntax

```
createArchive -arch archiveName [-cl myCluster | -i myInstance] [-comment "myComments"]
```

Description

An archive is created of the named Oracle Application Server Instance or DCM-Managed OracleAS Cluster. If you don't specify a DCM-Managed OracleAS Cluster or Oracle Application Server Instance, the current Oracle Application Server Instance is archived.

The difference is as follows.

Notes for using `createArchive` with DCM-Managed OracleAS Clusters:

- Cluster-wide archives, created with `createArchive -cl`, contain only cluster-specific information and do not contain any information specific to the Oracle Application Server Instance the archive is created on.
- Instance-specific archives, created with `createArchive -i` or with no options, contain cluster-specific information, plus any DCM-managed information pertaining to the Oracle Application Server Instance in which `createArchive` runs.

Example

```
createArchive -arch myInstance -comment "my favorite configuration"
```

A.3.8 createCluster

Creates a DCM-Managed OracleAS Cluster.

Type

Configuration Management

Syntax

```
createCluster -cl cluster_name
```

Description

A DCM-Managed OracleAS Cluster is created. "DCM-Managed" means that the DCM configuration can be kept in synch and archived by DCM using the metadata repository of the local farm.

Notes for using `createCluster`:

- When creating a DCM-Managed OracleAS Cluster with the `createCluster` command, use only the following characters in the `cluster_name` argument supplied with the `-cl` option:
`abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789_-`
- You must issue this command in the Oracle home of an Oracle Application Server Instance that belongs to an Oracle Application Server Farm. The DCM-Managed OracleAS Cluster will be created in that farm.
- The DCM-Managed OracleAS Cluster has no members when created. You can add members using [joinCluster](#).
- You can create an unlimited number of DCM-Managed OracleAS Clusters.

Example

```
dcmctl createCluster -cl cluster1
```

A.3.9 createComponent

Creates an OC4J instance.

Type

Configuration Management

Syntax

```
createComponent -ct oc4j -co component_name
```

Description

Creates a new OC4J instance belonging to the local Oracle Application Server Instance. You cannot specify another Oracle Application Server Instance with the `-i` option; the command operates locally. Note that OC4J is currently the only component type allowed for this command.

Note: When creating a component with the `createComponent` command, use only the following characters in the `component_name` argument supplied with the `-co` option:

```
abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789_-
```

OC4J instance names and J2EE application names should not contain the host name, the Oracle home or IP address of the computer containing the Oracle Application Server installation. In a clustered environment, this applies to the host name, Oracle home, IP address of any Oracle Application Server installation in the DCM-Managed OracleAS Cluster.

For example, if your computer has the host name of `abc.com`, you should not create a new OC4J instance or J2EE application that consists of or contains `abc.com`. This rule also applies to the Oracle home directory path or the IP address of the computer.

The reason for this restriction has to do with the clustering, archival, and cloning features of DCM. When archiving or capturing configuration parameters, DCM scans all configuration files for occurrences of the host name, Oracle home and IP address. When it finds occurrences of these values, it replaces the values with symbolic macros and stores them in the DCM Repository.

When DCM applies these configurations to other installations, the occurrences of host name, Oracle home and IP address are replaced with the values for that installation to which the configuration is being applied. Consequently, if OC4J instance names or J2EE application names contain host names, Oracle home names or IP addresses, they are inappropriately substituted when the configuration is applied to other installations.

Example

```
dcmctl createComponent -ct oc4j -co OC4J_myapps
```

A.3.10 deployApplication

Deploys a J2EE application.

Type

Application

Syntax

```
deployApplication -f file -a app_name [-co comp_name] [-enableIOP] [-rc rootcontext] [-pa parent_name]
```

In the preceding command:

- *file* is the name of the WAR or EAR file to deploy
- *app_name* is the name of the application specified by the user in original deployment
- *comp_name* is the name of the OC4J instance to which the application will be deployed. The default is the home instance.
- *enable IOP* enables the Internet Inter-Orb Protocol
- *rootcontext* is the base path used in the URL to access the web module (for example, `http://hostname:port/context root`). Applies to deployment of WAR files only.
- *parent_name* is the parent application name. The parent application contains common classes used by child applications.

Description

The J2EE application is deployed to the specified Oracle Application Server Instance.

The `deployApplication` command does the following:

1. Copies the WAR or EAR file from the specified location to the server.
2. Expands the WAR or EAR file into the runtime directories.
3. Changes the context root in the OHS configuration file, the mount points in the `oc4j.conf` file, and the `server.xml` file as necessary.
4. Persists all files into the DCM repository.
5. (If multiple nodes) Copies files from the local node to the remote node(s), and invokes the remote node processing.

Example

To deploy an application to the home OC4J instance:

```
dcmctl deployApplication -f app1.ear -a app1
```

To deploy an application to the OC4J_my_apps instance:

```
dcmctl deployApplication -f app1.ear -a app1 -co OC4J_myapps
```

To deploy a WAR file to the home OC4J instance:

```
dcmctl deployApplication -f app2.war -a app1 -rc /myiAS/myWebapps
```


A.3.11 destroyInstance

Removes an Oracle Application Server Instance from the DCM Metadata Repository.

Note: This command is intended for use only with specific guidance from Oracle support, because its effects are irreversible (that is, the Oracle Application Server Instance is unrecoverable). The Oracle Universal Installer uses this command in its deinstallation routine to remove all DCM data associated with the named Oracle Application Server Instance from the Metadata Repository.

Type

Configuration Management

Syntax

```
destroyInstance -i instance_name
```

Description

Removes all information related to the specified Oracle Application Server Instance from the DCM repository. The need for this command arises when an Oracle Application Server Instance is removed using operating system commands on files or directories, and the repository information about the Oracle Application Server Instance remains. This may cause problems in subsequent installation attempts. The `destroyInstance` command clears the repository of all vestiges of an Oracle Application Server Instance that was removed precipitously.

If the command is executed in the Oracle Application Server Instance being destroyed, the `dcm.conf` file, `targets.xml` file, and the repository directory will be cleaned up. If it is executed remotely, you should check to ensure that the instance-related information has been removed, and, if not, remove it manually.

Example

```
dcmctl destroyInstance -i instance1
```

A.3.12 echo

Displays the specified string to standard output.

Type

Shell

Syntax

```
echo
```

Description

Used in a `dcmctl` command script to display a specified string to standard output.

Example

```
echo "this is a comment"
```

A.3.13 exit

Exits a `dcmtl` shell client.

Type

Shell

Syntax

`exit`

Description

Exits a `dcmtl` shell client. This command is only applicable to the shell; it does not affect the `dcmtl` daemon.

Example

```
exit
```

A.3.14 exportArchive

Exports the named archive from the repository to a JAR file.

Type

Archive

Syntax

```
exportArchive -arch archiveName -f myFile [-comment myComments]
```

Description

See "[Exporting and Importing Archives](#)" on page 3-2.

Example

```
dcmtl exportArchive -arch archive1 -f /exports/testConfig -comment "this is an  
export of archive1"
```

A.3.15 exportRepository

Copies the named file-based repository to the specified location.

Type

Configuration Management

Syntax

```
exportRepository -f myFile [-force]
```

Description

Copies the file-based repository information to the location specified. Use the `-force` option to overwrite an existing file. If you do not use the `-force` option and the named file exists, an exception is thrown.

Note for using `exportRepository`:

- Typically, when you use the `exportRepository` command, you also use the `importRepository` command on another Oracle Application Server Instance. Before executing the `importRepository` command, stop all DCM daemons in the Oracle Application Server Instances that are part of the Oracle Application Server Farm in which you run `importRepository`. Use the following command in each Oracle Application Server Instance in the Oracle Application Server Farm to stop the DCM daemon:

```
ORACLE_HOME/opmn/bin> opmnctl stopproc ias-component=dcm-daemon
```

Example

This example assumes two Oracle Application Server Instances: `instance1` and `instance2`. To relocate the file-based repository host from `instance1` to `instance2`, perform the following steps:

On `instance1`, the original file-based repository host issue these commands:

```
ORACLE_HOME/dcm/bin> dcmctl exportrepository -f /export/repository_save_file
ORACLE_HOME/opmn/bin> opmnctl stopproc ias-component=dcm-daemon
```

If there are more than two Oracle Application Server Instances, stop the daemon on all of the other Oracle Application Server Instances.

On `instance2`, issue these commands:

```
ORACLE_HOME/opmn/bin> opmnctl stopproc ias-component=dcm-daemon
ORACLE_HOME/dcm/bin> dcmctl importrepository -f /export/repository_save_file
```

On `instance1`, issue this command:

```
ORACLE_HOME/dcm/bin> dcmctl repositoryrelocated
```

After the `repositoryRelocated` command completes, start the dcm daemons, as follows:

On `instance1` issue this command:

```
ORACLE_HOME/opmn/bin> opmnctl startproc ias-component=dcm-daemon
```

When this command completes, on `instance2`, issue the command:

```
ORACLE_HOME/opmn/bin> opmnctl startproc ias-component=dcm-daemon
```

If there are more than two Oracle Application Server Instances, on all of the other Oracle Application Server Instances issue the command:

```
ORACLE_HOME/opmn/bin> opmnctl startproc ias-component=dcm-daemon
```

A.3.16 fileCleanUp

Purges outdated records found in the file-based repository.

Type

Configuration Management

Syntax

```
fileCleanUp dump | clean [-force]
```

Description

Purges outdated records from the file-based repository. The data tables in a file-based repository are limited in size, and should be purged periodically to make room for new transactions. DCM operations may fail when the tables become full.

You must stop the DCM daemon (`opmnctl stopproc ias-component=dcm-daemon`) before you execute the `fileCleanUp clean` command.

Backing up the `ORACLE_HOME/dcm/repository` directory is recommended before using `fileCleanUp`.

Example

To list the contents of the repository tables:

```
dcmctl fileCleanUp dump
```

To purge the outdated records from the repository:

```
dcmctl fileCleanUp clean
```

A.3.17 getComponentType

Returns the type of the component in the local Oracle Application Server Instance or specified Oracle Application Server Instance.

Type

Configuration Management

Syntax

```
getComponentType [-i instance_name] -co component_name
```

Description

Returns the type of the component to standard output. By default, it returns the type of the component in the local Oracle Application Server Instance. You can use the `-i` option to specify a different Oracle Application Server Instance.

Example

To obtain the type of the `home` component in the local Oracle Application Server Instance:

```
dcmctl getComponentType -co home
```

```
OC4J
```

To obtain the type of the `OC4J_SECURITY` component in `instance1`:

```
dcmctl getComponentType -co OC4J_SECURITY -i instance1  
OC4J
```

A.3.18 getError

Displays descriptions of errors.

Type

dcmctl Properties

Syntax

```
getError [error_number | error_name]
```

Description

Displays error descriptions. If you issue this command with no arguments, it displays the error message from the most recent DCM error that occurred. If the `debug` option is set to on, the stack trace is printed, if there was one. If you provide an error number or error name, it displays the message for that error.

Example

To view the description of the error that occurred most recently:

```
dcmctl getError
```

You can use the following commands to print the messages for `ADMN-906025`:

```
dcmctl getError 906025
```

```
dcmctl getError ADMN-906025
```

A.3.19 getOPMNPoort

Returns the hostname and Oracle Notification Service remote port.

Type

Manually Managed OracleAS Cluster

Syntax

```
getOPMNPoort
```

Description

This command returns the hostname and the ONS remote port for the local Oracle Application Server Instance. It retrieves this information from the `ons.conf` file.

Example

```
dcmctl getopmnport
```

```
myhost.example.com:6200
```

A.3.20 getRepositoryId

Returns the repository ID of an OracleAS File-Based Farm repository.

Type

Configuration Management

Syntax

```
getRepositoryId
```

Description

Returns the repository identifier of the OracleAS File-Based Farm to which the Oracle Application Server Instance belongs. If the Oracle Application Server Instance is a standalone Oracle Application Server Instance, this command returns the repository identifier for the Oracle Application Server Instance. If the standalone Oracle Application Server Instance is to be used to establish a new distributed File-based repository, then use the returned repository identifier to initialize the repository host with [joinFarm](#) and the `-r` option.

Example

```
dcmctl getRepositoryId
```

A.3.21 getReturnStatus

Returns the status of the last dcmctl command.

Type

dcmctl Properties

Syntax

```
getReturnStatus
```

Description

This command displays the status of the last dcmctl command that performed an asynchronous operation (as opposed to a command that returned information). This command is intended to be used to get the status of a previous command that timed out. You can issue the `getReturnStatus` command repeatedly until it reports that the previous command has finished.

For synchronous operations, use the [getError](#) command to retrieve more information on the last failed command.

Example

In this example, the `start` command times out and the `getReturnStatus` command is used to check for status:

```
dcmctl getReturnStatus
```

```
ADMN-906005
```

The specified command, "start", is being executed asynchronously. The maximum wait time of, 120 seconds, has been reached. This operation will continue to execute to completion. Use the "getReturnStatus" command to determine if/when the operation completes successfully.

A.3.22 getState

Returns the state of the components in the indicated scope. The `getState` command only displays the state of the following components: OC4J, Oracle HTTP Server, and JAZN.

Type

Configuration Management

Syntax

```
getState [-i instance_name] [-cl cluster_name] [-co component_name]
```

Description

Without any arguments, this command returns the state of all components in the local Oracle Application Server Instance. The state includes the following indicators:

- Up Status — indicates whether a component is running
- In Sync Status — indicates whether the component's configuration is synchronized with the configuration in the DCM repository

You can use arguments with the command to narrow the scope of the command by Oracle Application Server Instance, DCM-Managed OracleAS Cluster, or component.

If you execute the `getState` command with `verbose` option set to `off`, the output (which is intended to facilitate parsing for scripting purposes) appears in the form:

```
x:y:z
```

where:

- `x` is the number of components running
- `y` is the number of components in the process of starting or stopping
- `z` is the total number of components

Example

To get the state of the local Oracle Application Server Instance:

```
dcmctl getState
```

To get the state of the component `HTTP_Server`:

```
dcmctl getState -co HTTP_Server
```

To get the state of a managed OracleAS Cluster:

```
dcmctl getState -cl cluster1
```

A.3.23 help

Returns a listing of `dcmctl` commands or help for a specific command.

Type

dcmctl Properties

Syntax

```
help [commandName]
```

Description

Returns a listing of `dcmctl` commands. If a command name is specified after the help command, description and syntax information on that command is returned.

Example

To list all commands:

```
dcmctl help
```

To get help for the `createComponent` command:

```
dcmctl help createcomponent
```

A.3.24 importArchive

Imports an archive file to the current repository.

Type

Archive

Syntax

```
importArchive [-arch archiveName] -f myFile [-comment "myComments"]
```

Description

Imports the named archive file from the file system to the current repository. Use `-arch` to change the name and `-comment` to change the comment during the import.

Example

```
dcmctl importArchive -arch Archive1 -f /exports/testConfig -comment "this is an import"
```

A.3.25 importRepository

Moves an OracleAS File-Based Farm repository from one Oracle Application Server Instance to another.

Type

Configuration Management

Syntax

```
importRepository -f file_name [-force]
```

Description

Moves a OracleAS File-Based Farm repository from one Oracle Application Server Instance to another, based on a saved file from the [exportRepository](#) command. The repository may be restored to any Oracle Application Server Instance in the farm. If the current Oracle Application Server Instance is not hosting a repository, `dcmctl` prompts for confirmation of the action, unless the `-force` option is used.

If the repository has been moved, and the former repository host is still a member of the farm, then the [repositoryRelocated](#) command must be run in the former repository host Oracle Application Server Instance to notify it that it is no longer the host.

Note for using `importRepository`:

- Before executing `importRepository`, stop all DCM daemons in the Oracle Application Server Instances that are part of the OracleAS File-Based Farm in which you are running `importRepository`. Use the following command in each Oracle Application Server Instance in the Oracle Application Server Farm to stop the DCM daemon:

```
ORACLE_HOME/opmn/bin> opmnctl stopproc ias-component=dcm-daemon
```

Example

This example assumes two Oracle Application Server Instances: `instance1` and `instance2`. To relocate the OracleAS File-Based Farm repository host from `instance1` to `instance2`, perform the following steps:

On `instance1`, the original OracleAS File-Based Farm repository host, issue these commands:

```
ORACLE_HOME/dcm/bin> dcmctl exportrepository -f /export/repository_save_file
ORACLE_HOME/opmn/bin> opmnctl stopproc ias-component=dcm-daemon
```

If there are more than two Oracle Application Server Instances, issue the `opmnctl stopproc` command on all of the other Oracle Application Server Instances.

On `instance2`, issue these commands to stop the DCM daemon, and then import the saved repository:

```
ORACLE_HOME/opmn/bin> opmnctl stopproc ias-component=dcm-daemon
ORACLE_HOME/dcm/bin> dcmctl importrepository -f /export/repository_save_file
```

On `instance1`, issue this command:

```
ORACLE_HOME/dcm/bin> dcmctl repositoryrelocated
```

After the `repositoryrelocated` command completes, sequentially, start the DCM daemons, as follows:

On `instance1`, issue this command:

```
ORACLE_HOME/opmn/bin> opmnctl startproc ias-component=dcm-daemon
```

When this command completes, on `instance2`, issue this command:

```
ORACLE_HOME/opmn/bin> opmnctl startproc ias-component=dcm-daemon
```

If there are more than two Oracle Application Server Instances, on all of the other Oracle Application Server Instances issue this command:

```
ORACLE_HOME/opmn/bin> opmnctl startproc ias-component=dcm-daemon
```

A.3.26 isClusterable

Identifies whether an Oracle Application Server Instance can become a member of a DCM-Managed OracleAS Cluster.

Note for using DCM-Managed OracleAS Clusters:

- Oracle Application Server supports heterogeneous Oracle Application Server Instances as part of the same farm. For example, an Oracle Application Server Instance running on Solaris operating system, an Oracle Application Server Instance running on a Linux system, and an Oracle Application Server Instance running on a Windows system can reside in the same farm. Oracle Application Server Instances that you want to join to a DCM-Managed OracleAS Cluster must

be of the same installation type and version and be installed on a like operating system. For example, Solaris and Linux systems may be clustered.

Type

Configuration Management

Syntax

```
isClusterable [-i instance_name | -arch archive_name]
```

Description

Identifies whether an Oracle Application Server Instance is eligible to become a member of a DCM-Managed OracleAS Cluster. By default, this command uses the local Oracle Application Server Instance. You can use the `-i` option to specify a different Oracle Application Server Instance. In order for an Oracle Application Server Instance to be eligible, all components in the Oracle Application Server Instance must be clusterable.

If the Oracle Application Server Instance is ineligible, and the verbose option is on, the reason is included with the `false` answer returned by the command.

Example

```
dcmctl isClusterable
```

A.3.27 isCompatible

Identifies whether an Oracle Application Server Instance is compatible with other members of an DCM-Managed OracleAS Cluster.

Type

Configuration Management

Syntax

```
isCompatible -cl cluster_name [-i instance_name | -arch archive_name]
```

Description

Identifies whether an Oracle Application Server Instance is compatible with other members of an DCM-Managed OracleAS Cluster. By default, this command uses the local Oracle Application Server Instance. You can use the `-i` option to specify a different Oracle Application Server Instance. An Oracle Application Server Instance is compatible if it has the same components configured and is of the same version.

Example

```
dcmctl isCompatible -cl cluster1
```

A.3.28 joinCluster

Adds an Oracle Application Server Instance to the named DCM-Managed OracleAS Cluster.

Notes for using DCM-Managed OracleAS Clusters:

- Oracle Application Server supports heterogeneous Oracle Application Server Instances as part of the same farm. For example, an Oracle Application Server

Instance running on Solaris operating system, an Oracle Application Server Instance running on a Linux system, and an Oracle Application Server Instance running on a Windows system can reside in the same farm. Oracle Application Server Instances that you want to be part of a OracleAS Cluster must be of the same installation type and version, and be installed on a like operating system. For example, Solaris and Linux systems may be clustered.

- If you are using Oracle Enterprise Manager 10g Application Server Control Console, then after issuing `joinCluster` command, you must stop and then start Oracle Enterprise Manager 10g Application Server Control Console using the commands:

```
emctl stop iasconsole
emctl start iasconsole
```

Type

Configuration Management

Syntax

```
joinCluster -cl cluster_name [-i instance_name]
```

Description

Adds an Oracle Application Server Instance to the DCM-Managed OracleAS Cluster specified with the `-cl` option. By default, this command uses the local Oracle Application Server Instance. You can specify a different Oracle Application Server Instance with the `-i` option. The Oracle Application Server Instance must be a member of the same Oracle Application Server Farm as the DCM-Managed OracleAS Cluster. There is no limit to the number of Oracle Application Server Instances you can add to a DCM-Managed OracleAS Cluster. An Oracle Application Server Instance is stopped after being added to an DCM-Managed OracleAS Cluster, so you must manually start it.

Example

To add the local Oracle Application Server Instance to `cluster1` and restart it:

```
dcmctl joinCluster -cl cluster1
opmnctl @cluster startproc
```

To add `instance1` to `cluster1` and restart it:

```
dcmctl joinCluster -cl cluster1 -i instance1
opmnctl @instance startproc
```

A.3.29 joinFarm

Associates an Oracle Application Server Instance with an OracleAS Database-based Farm or an OracleAS File-Based Farm.

Notes for using Oracle Application Server Farms and the `joinFarm` command:

- Oracle Application Server supports heterogeneous Oracle Application Server Instances as part of the same farm. For example, an Oracle Application Server Instance running on Solaris operating system, an Oracle Application Server Instance running on a Linux system, and an Oracle Application Server Instance running on a Windows system can reside in the same farm.

- If you are using Oracle Enterprise Manager 10g Application Server Control Console, then after issuing `joinFarm` command, you must stop and then start Oracle Enterprise Manager 10g Application Server Control Console using the commands:

```
emctl stop iasconsole
emctl start iasconsole
```

Note: When an Oracle Application Server Instance joins a farm, all archives for the Oracle Application Server Instance are removed. If you want to preserve the archives on the Oracle Application Server Instance that is joining the farm, export each of the archives with the [exportArchive](#) command prior to using the `joinfarm` command.

Type

Configuration Management

Syntax`joinFarm [-r repository_ID]`**Description**

With the `-r` option and a repository ID, it associates an Oracle Application Server Instance with the named OracleAS File-Based Farm repository. The repository ID is a hostname and port.

If the Oracle Application Server Instance was originally associated with a OracleAS Database-based Farm, using Infrastructure database information, you can issue this command without arguments to reassociate the Oracle Application Server Instance with the original database.

You can obtain the repository ID by issuing the [getRepositoryId](#) command on any Oracle Application Server Instance that is a member of the OracleAS File-Based Farm associated with the repository.

Example

To reassociate the Oracle Application Server Instance with a OracleAS Database-Based Farm:

```
dcmctl joinFarm
```

To associate the Oracle Application Server Instance with a OracleAS File-Based Farm:

```
dcmctl joinFarm -r myhost.mycompany.com:1899
```

A.3.30 leaveCluster

Removes an Oracle Application Server Instance from an DCM-Managed OracleAS Cluster.

Type

Configuration Management

Syntax

```
leaveCluster [-i instance_name]
```

Description

Removes an Oracle Application Server Instance from its DCM-Managed OracleAS Cluster. By default, this command uses the local Oracle Application Server Instance. You can specify a different Oracle Application Server Instance with the `-i` option. The Oracle Application Server Instance being removed is stopped, so you must restart it after using this command.

Notes for using `leaveCluster`:

- A middle tier instance that leaves a cluster must be re-registered with OracleAS Single Sign-On. The registration process gives the instance a new encryption key for communicating with the OracleAS Single Sign-On server, and updates the instance's URL. Before you invoke the registration utility, you must set the `ORACLE_HOME` environment variable.

The registration utility is available in `ORACLE_HOME/sso/bin`. Its syntax and required parameters are:

ssoreg.sh or **ssoreg.bat**

-oracle_home_path *oracleHome*

-site_name *siteName* (the host name and port of the partner application)

-config_mod_osso **TRUE**

-mod_osso_url *modOSSOURL* (the URL used to access the partner application)

For additional information, see the *Oracle Application Server Single Sign-On Administrator's Guide*.

- If you are using Oracle Enterprise Manager 10g Application Server Control Console, then after issuing the `dcmctl leaveCluster` command, you must stop and then start Oracle Enterprise Manager 10g Application Server Control Console using the commands:

```
emctl stop iasconsole
emctl start iasconsole
```

Example

To remove the local Oracle Application Server Instance from the DCM-Managed OracleAS Cluster:

```
dcmctl leaveCluster
```

To remove `instance1` from its DCM-Managed OracleAS Cluster:

```
dcmctl leaveCluster -i instance1
```

A.3.31 leaveFarm

Removes an Oracle Application Server Instance from a farm.

Type

Configuration Management

Syntax`leaveFarm`**Description**

Removes an Oracle Application Server Instance from a farm. This command affects only the relationship between DCM and a repository, and has no impact on other components. Specific implications for this command on the repository and other components are as follows:

- Only the metadata for the DCM-managed configuration is moved from the centralized DCM repository to a local Oracle Application Server Instance.
- The Oracle Application Server Instance is removed from the repository, but it is not removed from the Oracle Internet Directory. Therefore, if you have a complete Infrastructure installation (the Metadata Repository and Identity Management), the `leaveFarm` command removes the Oracle Application Server Instance the Metadata Repository, but it remains in Identity Management. To remove the Oracle Application Server Instance entirely, see [Section 2.2.13, "Removing an Instance From the Infrastructure After Executing the leaveFarm Command"](#) on page 2-16.
- When an Oracle Application Server Instance is removed from a farm, any associated archives are deleted from the centralized repository. For this reason, it is a good idea to issue the `createArchive` command immediately after issuing the `leaveFarm` command. This creates a new baseline archive for the Oracle Application Server Instance.
- The `leaveFarm` command does not remove connections to the infrastructure database for other components, such as Oracle Application Server Single Sign-On or JAZN.

Note for using `leaveFarm`:

- Using Oracle Enterprise Manager 10g Application Server Control Console, after issuing the `dcmctl leaveFarm` command, you must stop and then start Oracle Enterprise Manager 10g Application Server Control Console using the commands:

```
emctl stop iasconsole
emctl start iasconsole
```

Example

To remove an Oracle Application Server Instance from the farm:

```
dcmctl leaveFarm
```

A.3.32 listApplications

Lists the applications deployed in an OC4J instance within a farm, DCM-Managed OracleAS Cluster, Oracle Application Server Instance, or archive.

Type

Application

Syntax

```
listApplications [-farm] [-cl cluster_name] [-i instance_name] [-arch archive_name] [-co component_name]
[-sort on | off] [pattern]
```

Description

List the applications deployed in the specified domain. The default is the home OC4J instance in the local Oracle Application Server Instance.

When using the `dcmctl` shell, you can limit the output with the `pattern` option, which enables you to list only the applications with names matching the pattern. Specify the pattern using the wildcard character `*` as a leading, trailing or embedded character (or in combination) in the string you want to match, or by itself to specify all. For example, `*string`, `string*`, `st*ing`, `*trin*`, `*tr*ng` and `*` are all valid uses of the wildcard to specify a pattern.

Note: If the asterisk character is part of the string you want to match, you must prepend it with the escape character `\` (backward slash).

Example

To list the applications in the home OC4J instance in the local application server instance:

```
dcmctl listApplications
1
Application:      ADFBC
Component Name:  home
Component Type:  OC4J
Cluster:         cluster1

2
Application:      ADFBCManager
Component Name:  home
Component Type:  OC4J
Cluster:         cluster1

3
Application:      IsWebCacheWorking
Component Name:  home
Component Type:  OC4J
Cluster:         cluster1
```

To list the applications in `myInstance`:

```
dcmctl listApplications -i myInstance
1
Application:      ADFBC
Component Name:  home
Component Type:  OC4J
Instance:        myInstance

2
Application:      ADFBCManager
Component Name:  home
Component Type:  OC4J
Instance:        myInstance

3
Application:      IsWebCacheWorking
Component Name:  home
Component Type:  OC4J
Instance:        myInstance
```

To list only the ADFBC applications when applications ADFBC, ADFBCManager and IsWebCacheWorking are present, the command and its resulting output would be:

```
dcmctl shell
dcmctl> listApplications A*
1
Application:    ADFBC
Component Name: home
Component Type: OC4J
Cluster:       cluster1

2
Application:    ADFBCManager
Component Name: home
Component Type: OC4J
Cluster:       cluster1
```

A.3.33 listArchives

Returns a list of archive names.

Type

Archive

Syntax

```
listArchives [-arch archive_name][[-sort on|off]]
```

Description

Returns a list of automatically generated archives (in ascending order by timestamp), followed by a list of user generated archives (in ascending order by archive name). If the `-arch` (archive name) option is used, only the named archive is listed.

Example

To list information about archives:

```
dcmctl listArchives
***** AUTO GENERATED ARCHIVES *****
1
Name:          dcm.autoarchive_138.2.142.2121ff7a1e.fcb87f2e6d.-7ffe
Source:        instance: my-sun.us.oracle.com
Version:       10.1.2.0.0
Comments:     Automatic archival prior to deployment of application IsWebCacheWkng
Created:       2004-08-24 12:34:24.972
Clusterable:  true

2
Name:          dcm.autoarchive_138.2.142.21212d3205.fcb882fb5b.-7fff
Source:        instance: my-sun.us.oracle.com
Version:       10.1.2.0.0
Comments:     Automatic archival prior to hand-editing of configuration files OC4J
OHS opmn jazn
Created:       2004-08-24 12:35:59.168
Clusterable:  true

***** USER GENERATED ARCHIVES *****
1
Name:          initial_archive_my-sun.us.oracle.com
```



```

Source:      instance: my-sun.us.oracle.com
Version:    10.1.2.0.0
Comments:   The initial archive after joining the farm for my-sun.us.oracle.com
Created:    2004-08-24 14:01:54.158
Clusterable: true

```

A.3.34 listClusters

Lists the DCM-Managed OracleAS Clusters in the local Oracle Application Server Farm.

Type

Configuration Management

Syntax

```
listClusters
```

Description

This command lists the DCM-Managed OracleAS Clusters in the Oracle Application Server Farm that is associated with the local Oracle Application Server Instance.

When using the `dcmctl` shell, you can limit the output with the `pattern` option, which enables you to list only the DCM-Managed OracleAS Clusters whose names match the pattern. Specify the pattern using the wildcard character `*` as a leading, trailing or embedded character (or in combination) in the string you want to match, or by itself to specify all. For example, `*string`, `string*`, `st*ing`, `*trin*`, `*tr*ng` and `*` are all valid uses of the wildcard to specify a pattern.

Note: If the asterisk character is part of the string you want to match, you must prepend it with the escape character `\` (backward slash).

Example

To list DCM-Managed OracleAS Clusters in the local farm, which contains `cluster1` and `cluster2`:

```

dcmctl listClusters
1 cluster2
2 cluster1

```

To list the DCM-Managed OracleAS Clusters whose name ends in 1:

```

dcmctl shell
dcmctl> listClusters *1
1 cluster1

```

A.3.35 listComponents

Lists components within the named scope.

Type

Configuration Management

Syntax

```
listComponents [-i instance_name] [-cl cluster_name] [-farm] [-arch archive_name] [pattern] [-sort on | off]
```

Description

Returns a list of the components in the specified scope. Without arguments, this command returns a list of components in the local Oracle Application Server Instance.

When using the `dcmctl` shell, you can limit the output with the `pattern` option, which enables you to list only the components whose names match the pattern. Specify the pattern using the wildcard character `*` as a leading, trailing or embedded character (or in combination) in the string you want to match, or by itself to specify all. For example, `*string`, `string*`, `st*ing`, `*trin*`, `*tr*ng` and `*` are all valid uses of the wildcard to specify a pattern.

Note: If the asterisk character is part of the string you want to match, you must prepend it with the escape character `\` (backward slash).

The `listcomponents` command may display components that OPMN manages. Use the `opmnctl` command to manage, start, stop, and restart these components.

Example

To list the components in the local Oracle Application Server Instance:

```
dcmctl listComponents
1
Component Name: home
Component Type: OC4J
Cluster:       cluster1

2
Component Name: HTTP_Server
Component Type: HTTP_Server
Cluster:       cluster1
```

To list only the components whose name contains the underscore character:

```
dcmctl shell
dcmctl> listcomponents *_*
1
Component Name: HTTP_Server
Component Type: HTTP_Server
Cluster:       cluster1
```

A.3.36 listComponentTypes

Lists supported component types.

Type

dcmctl Properties

Syntax

```
listComponentTypes
```

Description

Lists the component types that DCM supports.

Example

```
dcmctl listComponentTypes
```

A.3.37 listInstances

Lists the Oracle Application Server Instances in a Oracle Application Server Farm or DCM-Managed OracleAS Cluster.

Type

Configuration Management

Syntax

```
listInstances [-cl cluster_name] [pattern] [-farm]
```

Description

With no options, this command lists the Oracle Application Server Instances that belong to the same Oracle Application Server Farm as the local Oracle Application Server Instance, but are not part of an DCM-Managed OracleAS Cluster. If you use the `-cl` option, it lists only the Oracle Application Server Instances that are part of the specified DCM-Managed OracleAS Cluster. If you use the `-farm` option, it lists all Oracle Application Server Instances in the farm, identifying DCM-Managed OracleAS Cluster membership (if any) for each.

When using the `dcmctl` shell, you can limit the output with the `pattern` option, which enables you to list only the Oracle Application Server Instances whose names match the pattern. Specify the pattern using the wildcard character `*` as a leading, trailing or embedded character (or in combination) in the string you want to match, or by itself to specify all. For example, `*string`, `string*`, `st*ing`, `*trin*`, `*tr*ng` and `*` are all valid uses of the wildcard to specify a pattern.

Note: If the asterisk character is part of the string you want to match, you must prepend it with the escape character `\` (backward slash).

Example

Assume an Oracle Application Server Farm that includes five Oracle Application Server Instances. Two belong to the UNIX DCM-Managed OracleAS Cluster `cluster1`, two belong to the Windows DCM-Managed OracleAS Cluster `cluster2`, and one is a non-clustered Windows Oracle Application Server Instance.

To list all non-clustered Oracle Application Server Instances in the Oracle Application Server Farm associated with the local Oracle Application Server Instance:

```
dcmctl listInstances
1
Instance name: 10gTwo.my-pc.us.oracle.com
Cluster:
Hostname:      my-pc.us.oracle.com
Oracle Home:   C:\10gHome2
```

To list the Oracle Application Server Instances in `cluster1`:

```
dcmctl listInstances -cl cluster1
1
Instance name: 1012AS01.my-sun.us.oracle.com
Cluster:      cluster1
```

```
Hostname:      my-sun.us.oracle.com
Oracle Home:   /private2/1012AS01
```

```
2
Instance name: AS1012.my-sun.us.oracle.com
Cluster:      cluster1
Hostname:     my-sun.us.oracle.com
Oracle Home:  /private2/1012AS
```

To list the Oracle Application Server Instances in cluster 2:

```
dcmctl listInstances -cl cluster2
1
Instance name: M28.my-pc.us.oracle.com
Cluster:      cluster2
Hostname:     my-pc.us.oracle.com
Oracle Home:  C:\M28Home
```

```
2
Instance name: 10gOne.my-pc.us.oracle.com
Cluster:      cluster2
Hostname:     my-pc.us.oracle.com
Oracle Home:  C:\10gHome1
```

To list all Oracle Application Server Instances in the farm:

```
dcmctl listInstances -farm
1
Instance name: 10gTwo.my-pc.us.oracle.com
Cluster:
Hostname:     my-pc.us.oracle.com
Oracle Home:  C:\10gHome2
```

```
2
Instance name: M28.my-pc.us.oracle.com
Cluster:      cluster2
Hostname:     my-pc.us.oracle.com
Oracle Home:  C:\M28Home
```

```
3
Instance name: 10gOne.my-pc.us.oracle.com
Cluster:      cluster2
Hostname:     my-pc.us.oracle.com
Oracle Home:  C:\10gHome1
```

```
4
Instance name: 1012AS01.my-sun.us.oracle.com
Cluster:      cluster1
Hostname:     my-sun.us.oracle.com
Oracle Home:  /private2/1012AS01
```

```
5
Instance name: AS1012.my-sun.us.oracle.com
Cluster:      cluster1
Hostname:     my-sun.us.oracle.com
Oracle Home:  /private2/1012AS
```

To list Oracle Application Server Instances within the Oracle Application Server Farm whose name contains pc:

```
dcmctl shell
```

```

dcmctl> listinstances -farm *pc*
1
Instance name: 10gTwo.my-pc.us.oracle.com
Cluster:
Hostname:      my-pc.us.oracle.com
Oracle Home:   C:\10gHome2

2
Instance name: M28.my-pc.us.oracle.com
Cluster:      cluster2
Hostname:     my-pc.us.oracle.com
Oracle Home:  C:\M28Home

3
Instance name: 10gOne.my-pc.us.oracle.com
Cluster:      cluster2
Hostname:     my-pc.us.oracle.com
Oracle Home:  C:\10gHome1

```

A.3.38 listOPMNLlinks

Lists the Oracle Application Server Instances that are in a Manually Managed OracleAS Cluster with the local Oracle Application Server Instance.

Type

Manually Managed OracleAS Cluster

Syntax

```
listOPMNLlinks
```

Description

This command lists all Oracle Application Server Instances that are in a Manually Managed OracleAS Cluster with the local Oracle Application Server Instance. These Oracle Application Server Instances could have been added to the Manually Managed OracleAS Cluster using the [addOPMNLlink](#) command.

Example

```

dcmctl listopmnllinks
host1:6200
host2:6200

```

A.3.39 quit

Ends a dcmctl shell client session.

Type

Shell

Syntax

```
quit
```

Description

Ends a dcmctl shell client session. This command is only applicable to the shell; it does not affect the dcmctl daemon.

Example

```
quit
```

A.3.40 redeployApplication

Redeploys a J2EE application.

Type

Application

Syntax

```
redeployApplication -f file -a app_name [-co comp_name] [-enableIOP] [-rc rootcontext]
```

In the preceding command:

- *file* is the name of the WAR or EAR file to deploy
- *app_name* is the name of the application specified by the user in original deployment
- *comp_name* is the name of the OC4J instance to which the application will be deployed. The default is the home instance.
- *enableIOP* enables the Internet Inter-Orb Protocol
- *rootcontext* is the base path used in the URL to access the web module (for example, `http://hostname:port/context root`). Applies to deployment of WAR files only.

Description

This command redeploys a J2EE application (WAR or EAR file) to the local Oracle Application Server Instance.

Example

To redeploy `app1.ear` to the home OC4J instance:

```
dcmctl redeployApplication -f app1.ear -a app1
```

To redeploy `app1.ear` to the OC4J_myapps instance:

```
dcmctl redeployApplication -f app1.ear -a app1 -co OC4J_myapps
```

To redeploy `app2.war` to the home OC4J instance:

```
dcmctl redeployApplication -f app2.war -a app1 -rc /myiAS/myWebapps
```

A.3.41 removeArchive

Removes one or more archive files.

Type

Archive

Syntax

```
removeArchive -arch [archive_name] [pattern]
```

Description

Removes the specified archive files from the DCM repository.

When using the `dcmctl` shell, you can specify multiple archives to remove with the `pattern` option, which removes all archives with names matching the pattern. Specify the pattern using the wildcard character `*` as a leading, trailing or embedded character (or in combination) in the string you want to match, or by itself to specify all. For example, `*string`, `string*`, `st*ing`, `*trin*`, `*tr*ng` and `*` are all valid uses of the wildcard to specify a pattern.

Note: If the asterisk character is part of the string you want to match, you must prepend it with the escape character `\` (backward slash).

Example

To remove `archive3`:

```
dcmctl removeArchive -arch archive3
```

To remove all archives whose name begins with `init*`:

```
dcmctl shell
dcmctl> removeArchive init*
```

A.3.42 removeCluster

Removes one or more DCM-Managed OracleAS Clusters from the farm.

Type

Configuration Management

Syntax

```
removeCluster -cl [cluster_name] [pattern]
```

Description

Removes the specified DCM-Managed OracleAS Cluster from its farm, or all DCM-Managed OracleAS Clusters whose name matches the pattern string. The DCM-Managed OracleAS Cluster must contain no Oracle Application Server Instances when it is removed. This command destroys all information about the DCM-Managed OracleAS Cluster in the DCM repository.

When using the `dcmctl` shell, you can specify multiple DCM-Managed OracleAS Clusters to remove with the `pattern` option, which removes all DCM-Managed OracleAS Clusters with names matching the pattern. Specify the pattern using the wildcard character `*` as a leading, trailing or embedded character (or in combination) in the string you want to match, or by itself to specify all. For example, `*string`, `string*`, `st*ing`, `*trin*`, `*tr*ng` and `*` are all valid uses of the wildcard to specify a pattern.

Note: If the asterisk character is part of the string you want to match, you must prepend it with the escape character `\` (backward slash).

Example

To remove `cluster1` from a Oracle Application Server Farm containing `cluster1`, `cluster2` and `cluster3`:

```
dcmctl removeCluster -cl cluster1
```

To remove all DCM-Managed OracleAS Clusters from a Oracle Application Server Farm containing `cluster1`, `cluster2`, `cluster3`:

```
dcmctl shell
dcmctl> removeCluster -cl *
```

A.3.43 removeComponent

Destroys one or more OC4J instances.

Type

Configuration Management

Syntax

```
removeComponent -co [component_name] [pattern]
```

Description

Destroy the named OC4J instance, or all OC4J instances in the local Oracle Application Server Instance whose name matches the pattern string. Note that OC4J is the only component type allowed for this command. You cannot remove an OC4J instance that was created by the installation process (such as OC4J_SECURITY).

When using the `dcmctl` shell, you can specify multiple components to remove with the pattern option, which removes all components with names matching the pattern. Specify the pattern using the wildcard character `*` as a leading, trailing or embedded character (or in combination) in the string you want to match, or by itself to specify all. For example, `*string`, `string*`, `st*ing`, `*trin*`, `*tr*ng` and `*` are all valid uses of the wildcard to specify a pattern.

Note: If the asterisk character is part of the string you want to match, you must prepend it with the escape character `\` (backward slash).

Example

To destroy the instance `OC4J_myapps`:

```
dcmctl removeComponent -co OC4J_myapps
```

To destroy all OC4J instances whose names begin with `my`:

```
dcmctl shell
dcmctl> removeComponent -co my*
```

A.3.44 removeOPMNLINK

Removes Oracle Application Server Instances from a Manually Managed OracleAS Cluster.

Type

Manually Managed OracleAS Cluster

Syntax

```
removeOPMNLINK hostname:port[, hostname:port...]
```

Description

Removes one or more Oracle Application Server Instances from a Manually Managed OracleAS Cluster. You must run this command in the Oracle home of each Oracle Application Server Instance in the Manually Managed OracleAS Cluster.

Example

This example shows a Manually Managed OracleAS Cluster with three Oracle Application Server Instances on `host1`, `host2`, and `host3`. The command removes the `host2` Oracle Application Server Instance.

```
HOST2_ORACLE_HOME/dcm/bin/dcmctl listopmnlinks
host1:6200
host2:6200
host3:6200
HOST1_ORACLE_HOME/dcm/bin/dcmctl removeopmnlink host2:6200
HOST2_ORACLE_HOME/dcm/bin/dcmctl removeopmnlink host2:6200
HOST3_ORACLE_HOME/dcm/bin/dcmctl removeopmnlink host2:6200
```

A.3.45 repositoryRelocated

Notifies an Oracle Application Server Instance that it is no longer hosting a repository.

Note: Usually, you use the `repositoryRelocated` command after an associated `exportRepository` and `importRepository`. Before running `importRepository` and `repositoryRelocated`, stop all DCM daemons in the Oracle Application Server Instances that are part of the Oracle Application Server Farm in which you run `repositoryRelocated`.

Use the following command in each Oracle Application Server Instance in the Oracle Application Server Farm to stop the DCM daemon:

```
ORACLE_HOME/opmn/bin> opmnctl stopproc ias-component=dcm-daemon
```

Type

Configuration Management

Syntax

```
repositoryRelocated
```

Description

Notifies an Oracle Application Server Instance that the repository it formerly hosted has been imported to another Oracle Application Server Instance. This command is issued in the Oracle Application Server Instance that formerly hosted the repository.

This command is used in conjunction with the `importRepository` command. An Oracle Application Server Farm can only be associated with one repository at a time. When the repository is imported to a new Oracle Application Server Instance of the Oracle Application Server Farm, the old Oracle Application Server Instance must be notified, with the `repositoryRelocated` command, that it is no longer the repository host.

Example

This example assumes two Oracle Application Server Instances: instance1 and instance2.

To relocate the file-based repository host from instance1 to instance2, perform the following steps:

On instance1, the original file-based repository host, issue these commands:

```
ORACLE_HOME/dcm/bin> dcmctl exportrepository -f /export/repository_save_file
ORACLE_HOME/opmn/bin> opmnctl stopproc ias-component=dcm-daemon
```

If there are more than two Oracle Application Server Instances, stop the daemon on all of the other Oracle Application Server Instances.

On instance2, issue these commands:

```
ORACLE_HOME/opmn/bin> opmnctl stopproc ias-component=dcm-daemon
ORACLE_HOME/dcm/bin> dcmctl importrepository -f /export/repository_save_file
```

On instance1, issue this command:

```
ORACLE_HOME/dcm/bin> dcmctl repositoryrelocated
```

After the repositoryrelocated command completes, start the DCM daemons as follows:

On instance1, issue this command:

```
ORACLE_HOME/opmn/bin> opmnctl startproc ias-component=dcm-daemon
```

When the command completes, on instance2, issue this command:

```
ORACLE_HOME/opmn/bin> opmnctl startproc ias-component=dcm-daemon
```

If there are more than two Oracle Application Server Instances, on all of the other Oracle Application Server Instances issue this command:

```
ORACLE_HOME/opmn/bin> opmnctl startproc ias-component=dcm-daemon
```

A.3.46 resetDCMCachePort

Updates the port used by the DCM cache for Oracle Application Server Instance discovery in DCM-Managed OracleAS Clusters that are managed using a file-based repository.

Type

Configuration Management

Syntax

```
resetDCMCachePort [new_port_number] [-r]
```

Description

Changes the port value used by the DCM cache in DCM-Managed OracleAS Clusters in an OracleAS File-Based Farm. To find the current host and port, issue the command without arguments, as follows:

```
dcmctl resetDCMCachePort
```

To update the port associated with the current Oracle Application Server Instance, issue the command with the new port number, as follows:

```
dcmctl resetDCMCachePort 12345
```

If the port value is changed on the Oracle Application Server Instance that is hosting the repository, other Oracle Application Server Instances in the OracleAS File-Based Farm may not be able to locate the repository. If this occurs, issue the following command in the Oracle Application Server Instance that cannot locate the repository:

```
dcmctl resetDCMCachePort -r 12345
```

In the preceding command, *12345* is the port number set at the repository host.

Example

To find the current host and port:

```
dcmctl resetDCMCachePort
```

To update the port associated with the current Oracle Application Server Instance:

```
dcmctl resetDCMCachePort 12345
```

To notify an Oracle Application Server Instance of the location of the repository:

```
dcmctl resetDCMCachePort -r 12345
```

A.3.47 resetFileTransaction

Resets a file-based repository to its pre-transaction state after an interrupted operation.

Type

Configuration Management

Syntax

```
resetFileTransaction
```

Description

Resets a file-based repository. If an operation on a File-based repository is interrupted with `control-c`, uncommitted information may be left in the repository. This command blocks all subsequent updates to the repository, cleans up uncommitted data, and reopens the repository for update.

Example

```
dcmctl resetfiletransaction
```

A.3.48 resetHostInformation

Updates IP address or hostname information.

Type

Configuration Management

Syntax

```
resetHostInformation [-r repository_hostname]
```

Description

If the IP address or hostname information has changed for an Oracle Application Server Instance in the farm, this command updates the repository and the `ons.conf` file with the new information. This command is used in the local Oracle Application Server Instance. If the host information changes for the repository host of an OracleAS File-Based Farm, it is best to have all Oracle Application Server Instances running, so that all Oracle Application Server Instances can locate the repository.

For Oracle Application Server Instances that were not running during the change, it may be necessary to update the repository host information directly. Use the `-r` option and the name of the repository host to do this.

Example

```
resethostinformation
```

A.3.49 restart

This command is deprecated in Oracle Application Server 10g. Use `opmnctl` to manage processes in Oracle Application Server 10g. See the *Oracle Process Manager and Notification Server Administrator's Guide* for information on using `opmnctl`.

A.3.50 restoreInstance

This command is deprecated in Oracle Application Server 10g. Use archiving commands to save and restore instances in Oracle Application Server 10g. To move configuration between Oracle Application Server Instances in a farm, use the [applyClusterTo](#) and [applyInstanceTo](#) commands. To move configuration between farms, use the [exportArchive](#) and [importArchive](#) commands.

A.3.51 resyncInstance

Resynchronizes Oracle Application Server Instance configuration files with the DCM repository.

Type

Configuration Management

Syntax

```
resyncInstance [-force][-i instance_name]
```

Description

Resynchronizes the Oracle Application Server Instance configuration files with the contents of the DCM repository. This command takes all data from the repository that is not yet propagated and writes it out to the configuration files for the specified Oracle Application Server Instance. It updates the Oracle HTTP Server, OC4J, and OPMN configuration files, as well as the `targets.xml` file. It may also deploy or undeploy applications and add or remove components, as required. This could involve lengthy processing; use this command judiciously.

This command operates on the local Oracle Application Server Instance, unless you specify a different Oracle Application Server Instance with the `-i` option.

By default, the command only updates the configuration files for components whose In Sync Status is `false` (see [getState](#)). You can use the `-force` option to force it to update all configuration information.

Example

To resynchronize instance1 with the contents of the DCM repository:

```
dcmctl resyncinstance -i instance1
```

To force all files in the local Oracle Application Server Instance to be updated with that is in the DCM repository:

```
dcmctl resyncinstance -force
```

A.3.52 saveInstance

This command is deprecated in Oracle Application Server 10g. Use [createArchive](#) to save an instance's configuration.

A.3.53 set

Sets dcmctl options, timeout value, sorting preference, and number of versions for automatically archived Oracle Application Server Instances.

Type

dcmctl Properties

Syntax

```
dcmctl set [-v off | on] [-d off | on] [-t timeout_value] [-arch number_of_auto_archive_versions] [-sort on]
```

Description

Sets properties of the dcmctl utility. The set command enables you to set the `-verbose` and `-debug` flags on a persistent basis, and the default time out value to be set on a persistent basis. You can also specify the number of versions to be automatically archived, and whether to sort the output of list commands.

When `set` is run without any arguments, it displays the current settings.

Example

To turn verbose and debug off, and set the timeout value to 200:

```
dcmctl set -v off -d off -t 200
```

To view current settings:

```
dcmctl set
Verbose: true
Sort: false
Debug: true
Default Timeout: 120
Auto Archive Count: 10
```

To set name sorting of 'list' command output on:

```
set -sort on
```

To automatically archive 45 versions of an Oracle Application Server Instance:

```
set -arch 45
```

To turn off automatic archiving:

```
set -arch 0
```

A.3.54 setLogLevel

Sets the logging level.

Type

Shell

Syntax

```
Level [-admin] [error] [notification] [debug] [trace]
```

Description

Sets the logging level for the dcmctl client shell, or for the daemon (with the -admin option).

Example

To set the DCM daemon logging level:

```
setloglevel -admin notification
```

To set the dcmctl shell log level:

```
setloglevel notification
```

A.3.55 shell

Starts the dcmctl shell.

Type

Shell

Description

Starts the dcmctl shell, and, optionally, executes the commands in a named file.

Syntax

```
dcmctl shell [-f file_name]
```

Example

To start the shell:

```
dcmctl shell
```

To start the shell and execute the commands in the file myDCMCommands:

```
dcmctl shell -f myDCMCommands
```

A.3.56 shutdown

This command is deprecated in Oracle Application Server 10g. Use opmnctl to manage processes in Oracle Application Server 10g. See the *Oracle Process Manager and Notification Server Administrator's Guide* for information on using opmnctl.

A.3.57 start

This command is deprecated in Oracle Application Server 10g. Use `opmnctl` to manage processes in Oracle Application Server 10g. See the *Oracle Process Manager and Notification Server Administrator's Guide* for information on using `opmnctl`.

A.3.58 stop

This command is deprecated in Oracle Application Server 10g. Use `opmnctl` to manage processes in Oracle Application Server 10g. See the *Oracle Process Manager and Notification Server Administrator's Guide* for information on using `opmnctl`.

A.3.59 updateConfig

Updates the repository with information from local configuration files.

The purpose of the `updateConfig` operation is to take the configuration that is currently stored in the local file system and place it into the DCM repository. This is a coarse grained operation with minimal validation of the content of the configuration file.

The `dcmctl updateConfig` command should be used in limited and controlled situations. It is recommended that when changing DCM-managed configuration for Oracle HTTP Server, OC4J, OC4J applications, OPMN, or JAZN that you use the Application Server Control Console. If you use the Application Server Control Console, then you do not need to use `updateConfig`.

If you need to manually edit configuration files for a component, you must use `updateConfig` to place these changes into the DCM repository. If you make manual changes and you do not run `updateConfig` the changes will be overwritten the next time that the configuration is resynchronized.

Caution: Do not run `updateConfig` concurrently with any other `dcmctl` commands or while performing Application Server Control Console configuration operations across multiple Oracle Application Server Instances in a Oracle Application Server Farm or DCM-Managed OracleAS Cluster.

Type

Configuration Management

Syntax

```
updateConfig [-ct component_type [, component_type...]] [-force]
```

Description

Updates the DCM repository with the information in local configuration files.

To do this, DCM obtains all configuration documents from the OHS, OC4J, OPMN and JAZN plug-ins and copies them to the repository. The updated documents are given back to the plug-ins and each plug-in decides whether or not to notify the respective component.

With no arguments, this command updates all DCM managed components, configuration files, as well as the `targets.xml` file. It does not cause all applications to be redeployed, but if an EAR or an expanded EAR file was changed manually since the last deployment, it will redeploy the application.

You can specify which component's configuration files to update with the `-ct` option.

Valid component types are:

ohs: Oracle HTTP Server

oc4j: Oracle Application Server Containers for J2EE

opmn: Oracle Process Manager and Notification Server

jazn: Oracle Application Server Java Authentication and Authorization Service (JAAS) Provider

When you make manual configuration file changes in conjunction with the `updateConfig` command, use this approach:

1. Verify that the Oracle Application Server Instance has the most current configuration from the DCM repository. Issue the `resyncInstance` command to resync the configuration.
2. Create an explicit archive for the Oracle Application Server Instance or the OracleAS Cluster using `createArchive`.
3. Ensure that there are no other administrative operations taking place in the Oracle Application Server Farm that may alter the configuration while you are making the manual change to the configuration. This includes Oracle Enterprise Manager 10g Application Server Control Console changes, deployments, or other `dcmctl` shell or `dcmctl` commands running in the farm.
4. Make the manual configuration file change and test the change, if possible.
5. Execute `dcmctl updateConfig` to place the updated configuration files into the DCM repository.

If safety precautions outlined in step 3 are not followed, there is a risk that conflicting changes will be placed in the repository. This could leave the configuration stored in the repository in a non-functional state, and could require a restore from the archive created in step 2. If you restore from the archive, you will need to restart at step 1.

Example

To register all configuration files with the Distributed Configuration Management repository and restart the Oracle HTTP Server:

```
ORACLE_HOME/dcm/bin> dcmctl updateConfig
ORACLE_HOME/opmn/bin> opmnctl restartproc ias-component=HTTP_Server
```

If you have just updated only an Oracle HTTP Server configuration file, you can register the change with the Distributed Configuration Management repository and restart Oracle HTTP Server as follows:

```
dcmctl updateConfig -ct ohs
ORACLE_HOME/opmn/bin> opmnctl restartproc ias-component=HTTP_Server
```

A.3.60 undeployApplication

Undeploys applications.

Type

Application

Syntax

```
undeployApplication -a application_name -co instance_name
```

Description

Undeploys the named application in the named OC4J instance.

Example

To undeploy the application `testApp` in the home OC4J instance:

```
undeployApplication -a testApp -co home
```

A.3.61 validateEarFile

Checks an EAR file for J2EE compliance.

Type

Application

Syntax

```
validateEarFile -f file [-noproxy]
```

Description

Examines the named EAR file and lists characteristics that are not compliant with the J2EE specification.

You may need to set up a proxy to enable access to DTDs on the Web. You can pass a parameter to the JVM using the `ORACLE_DCM_JVM_ARGS` environment variable to specify the proxy host and port.

Example

To validate the Pet Store EAR file:

```
dcmctl validateEarFile -f petstore.ear
Warning: J2EE/DTD validation errors were foundADMN-906001
{0} Base Exception:
oracle.ias.sysmgmt.deployment.j2ee.exception.J2eeDeploymentException:Cannot get
xml document by parsing /var/tmp/jar50152.tmp: Invalid element 'servlet' in
content of 'web-app', expected elements '[servlet-mapping, session-config,
mime-mapping, welcome-file-list, error-page, taglib, resource-ref,
security-constraint, login-config, security-role, env-entry, ejb-ref]'
```

A.3.62 whichCluster

Returns the DCM-Managed OracleAS Cluster name for the named Oracle Application Server Instance.

Type

Configuration Management

Syntax

```
whichCluster [-i instance_name]
```

Description

Returns the name of the DCM-Managed OracleAS Cluster that contains the named Oracle Application Server Instance. If no Oracle Application Server Instance is specified, returns the name of the DCM-Managed OracleAS Cluster that contains the local Oracle Application Server Instance.

Example

```
dcmctl whichCluster
```

A.3.63 whichFarm

Identifies the type and location of the farm.

Type

Configuration Management

Syntax

```
dcmctl whichFarm
```

Description

Returns Oracle Application Server Farm name, host Oracle Application Server Instance, host name, and repository type, and SSL usage. If the repository is hosted by a third-party database, the hosting Oracle Application Server Instance name and host name are not available.

Example

```
dcmctl whichFarm
Farm Name: .private2.1012AS.dcm.repository
Host Instance: AS1012.my-sun.us.oracle.com
Host Name: my-sun.us.oracle.com
Repository Type: Distributed File-based (host)
SSL In Use: false
```

A.3.64 whichInstance

Returns the Oracle Application Server Instance name.

Type

Configuration Management

Syntax

```
whichInstance
```

Description

Returns the name of the local Oracle Application Server Instance.

Example

```
dcmctl whichInstance
1012AS01.my-sun.us.oracle.com
```

Troubleshooting DCM

This appendix describes common problems that you might encounter when using DCM and explains how to solve them. It also gives detailed instructions on how to diagnose problems. It contains the following topics:

- [Problems and Solutions](#)
- [Diagnosing Problems with Components Related to DCM](#)
- [Diagnosing DCM Problems](#)

B.1 Problems and Solutions

This section describes problems reported by, or encountered while using, Distributed Configuration Management and provides instructions for resolving these problems.

It contains the following topics:

- [OPMN Cannot Start](#)
- [DCM Daemon Cannot Start](#)
- [DCM Daemon Does Not Start As Expected](#)
- [Invalid username/password](#)
- [BOM \(Bill of Materials\) Not Updated](#)
- [In Sync Status is False](#)
- [Unable to Connect to the Directory](#)
- [Cannot Access the Infrastructure Database](#)
- [The dcm.conf File is Unreadable](#)
- [The dcm.conf or dcmCache.xml File is Empty](#)
- [dcmctl getState Hangs](#)
- [getState Cannot Be Used With \(9.0.2 or 9.0.3\) Instances](#)
- [dcmctl joinFarm Produces Error](#)
- [repositoryRelocated Command Causes Repository to be Unreachable](#)
- [Unreachable IP Address](#)
- [resyncInstance Command Does Not Restore Properly](#)

B.1.1 OPMN Cannot Start

Problem

During a configuration operation, the `opmn.xml` file was corrupted or removed. This error may be accompanied by one of the following error messages:

```
ADMN-202001
```

```
An exception has occurred while accessing DCM repository. Please refer to the  
  accompanying base exception for more details.
```

```
Base Exception:
```

```
oracle.ons.ONSEException:Unable to open file /private/10g/opmn/conf/opmn.xml
```

or

```
ADMN-705002
```

```
The most likely causes are:
```

1. Configuration error; TaskMaster cannot read configuration file;
2. Cannot connect to the repository.

```
Base Exception:
```

```
oracle.ons.SubscriptionException:Subscription request timed out after 120000  
milliseconds. Possible causes: OPMN is not running, you may have OPMN running in an  
alternate ORACLE_HOME using duplicate port values, OPMN may be misconfigured.
```

Solution 1

Restart OPMN using the last saved version of the `opmn.xml` configuration file and then perform a `dcmctl resyncinstance` command to update the configuration files with the version last saved to the repository.

To do this, perform the following steps:

1. Perform a `opmnctl validate` operation on the saved `opmn.xml.bak` file.

```
% cd $ORACLE_HOME/opmn/conf  
% $ORACLE_HOME/opmn/bin/opmnctl validate opmn.xml.bak
```

Note: The `opmn.xml.bak` file is created upon installation. It is re-created before any change (through DCM or Oracle Enterprise Manager 10g) is committed.

2. If step 1 returns the following, then continue to the next step:

```
opmnctl: opmn validation succeeded!
```

If step one returns with the message:

```
opmnctl: opmn validation failed!
```

Then, if you know how to correct the error in `opmn.xml.bak` then correct it and try step 1 again. Otherwise, try Solution 2.

3. Replace the `opmn.xml` file with the file that was saved in the last DCM operation. The saved version of `opmn.xml` should be in the file `$ORACLE_HOME/opmn/conf/opmn.xml.bak`.

For example:

```
% cd $ORACLE_HOME/opmn/conf  
% cp opmn.xml.bak opmn.xml
```

4. Start the DCM shell and run the `resyncinstance` command.

```
% cd $ORACLE_HOME/dcm/bin
% dcmctl shell
dcmctl> resyncinstance -force
All OC4J components are stopped during a resyncinstance -force.
They will need to be restarted after the command completes.
Current State for Instance:10gM21.tvanraal-sun.us.oracle.com
```

5. Use `opmnctl` to check the status of all components, and if any components that you expect to be running are not running, then start them:

```
% cd $ORACLE_HOME/opmn/bin
% opmnctl status
```

Solution 2

Modify the last saved version of the `opmn.xml` file to allow DCM to run, and then perform a `dcmctl resyncinstance` command to update the configuration files with the version last saved to the repository.

To do this, perform the following steps:

1. Perform a `opmnctl validate` operation on the saved `opmn.xml.bak` file.

```
% cd $ORACLE_HOME/opmn/conf
% $ORACLE_HOME/opmn/bin/opmnctl validate opmn.xml.bak
```

2. If step one returns the following:

```
opmnctl: opmn validation failed!
```

Then, you need to correct the error in `opmn.xml.bak` to allow you to start the dcm daemon. First, backup your current version of `opmn.xml.bak`, in case you have problems, so you can revert to your backup copy. For example, use the following command:

```
cp opmn.xml.bak opmn.xml.bak.orig
```

Edit the `$ORACLE_HOME/opmn/conf/opmn.xml.bak` file and add the attribute `status="disabled"` for each `<ias-component>` element in `opmn.xml.bak`. For only the component `dcm-daemon`, set the `status="enabled"`.

For example:

```
<ias-component id="OC4J" status="disabled">
<ias-component id="dcm-daemon" status="enabled" id-matching="true">
```

3. Replace the `opmn.xml` file with the updated version of `opmn.xml.bak`.

For example:

```
% cd $ORACLE_HOME/opmn/conf
% cp opmn.xml.bak opmn.xml
```

4. Start the DCM shell and run the `resyncinstance` command.

```
% cd $ORACLE_HOME/dcm/bin
% dcmctl shell
dcmctl> resyncinstance -force
All OC4J components are stopped during a resyncinstance -force.
They will need to be restarted after the command completes.
Current State for Instance:10gM21.tvanraal-sun.us.oracle.com
```

5. Use `opmnctl` to check the status of all components; if any components that you expect to be running are not running, start them:

```
% cd $ORACLE_HOME/opmn/bin
% opmnctl status
```

Solution 3

If Solution 1 and Solution 2 do not solve this problem, then both the `opmn.xml` and the `opmn.xml.bak` files have been corrupted. In this case, you need to manually create an `opmn.xml` file that enables you to start the `dcm-daemon` and then perform a `dcmctl resyncinstance` command to update the configuration files with the version last saved to the repository.

To create a version of `opmn.xml` that is sufficient for starting the `dcm-daemon`, perform the following steps:

1. Copy and paste the text shown in [Example B-1](#) to `$ORACLE_HOME/opmn/conf/opmn.xml`.
2. Edit the port element such that the attributes `local`, `remote`, and `request` have the correct values for your environment. These values are shown as `XXXX`, `YYYY`, and `ZZZZ` in [Example B-1](#).
3. Using this file, the OPMN Server should start up, which should allow the DCM Daemon to start so that you can restore the `opmn.xml` file from the DCM repository using the `dcmctl resyncInstance` command.

Example B-1 Basic opmn.xml File For Emergency Startup - Replace Port Values Before Using

```
<opmn xmlns="http://www.oracle.com/ias-instance">
  <notification-server>
    <port local="XXXX" remote="YYYY" request="ZZZZ"/>
    <log-file path="$ORACLE_HOME/opmn/logs/ons.log" level="4"
      rotation-size="1500000"/>
    <ssl enabled="true" wallet-file="$ORACLE_HOME/opmn/conf/ssl.wlt/default"/>
  </notification-server>
  <process-manager>
    <log-file path="$ORACLE_HOME/opmn/logs/ipm.log" level="4"
      rotation-size="1500000"/>
    <process-modules>
      <module path="$ORACLE_HOME/opmn/lib/libopmndcmdaemon">
        <module-id id="DCMDaemon"/>
      </module>
    </process-modules>
    <ias-instance id="foo">
      <environment>
        <variable id="TMP" value="/tmp"/>
      </environment>
      <ias-component id="dcm-daemon" status="enabled" id-matching="true">
        <process-type id="dcm-daemon" module-id="DCMDaemon">
          <process-set id="dcm" numprocs="1">
            <module-data>
              <category id="start-parameters">
                <data id="java-parameters"
                  value="-Xmx256m -Doracle.ias.sysmgmt.logging.loglevel=ERROR -Djava.net.preferIPv4Stack=true
-Djava.io.tmpdir=$TMP" />
                <data id="jar-file" value="$ORACLE_HOME/dcm/lib/dcm.jar"/>
                <data id="application-parameters" value="daemon -logdir $ORACLE_HOME/dcm/logs/daemon_logs
-o $ORACLE_HOME" />
              </category>
            </module-data>
          </process-set>
        </process-type>
      </ias-component>
    </ias-instance>
  </process-manager>
</opmn>
```

```

    </ias-component>
  </ias-instance>
</process-manager>
</opmn>

```

B.1.2 DCM Daemon Cannot Start

Problem

The DCM daemon does not start.

Solution

This can occur due to insufficient memory problem or an OPMN problem. You can investigate this problem as follows:

1. Review the error messages in `ORACLE_HOME/opmn/logs/dcm-daemon~dcm-daemon~dcm~1`.
2. Review the error messages in the log files in `ORACLE_HOME/opmn/logs/*`.
3. Ensure that the ports OPMN uses are free of conflicts. These ports are listed in `ORACLE_HOME/opmn/conf/opmn.xml` under the `<notification-server>` element.

B.1.3 DCM Daemon Does Not Start As Expected

Problem

After a successful execution of the `opmnctl startall` command, the `opmnctl` status shows that `dcm-daemon` is down.

Solution

Start the `dcm-daemon` component explicitly, if necessary, by issuing this command:

```
opmnctl startproc ias-component=dcm-daemon
```

By default, the `dcm-daemon` component is not started by the `opmnctl startall` command. Instead, the `dcm-daemon` component is started during initialization by `dcmctl` or Oracle Enterprise Manager 10g Application Server Control Console.

Starting the `dcm-daemon` explicitly is required in some cases. For example, if you are performing a cluster-wide DCM operation, such as deploying an application to the cluster, then the `dcm-daemon` must be running on all of the Oracle Application Server Instances in the cluster. A `dcmctl` command on the local Oracle Application Server Instance will start the `dcm-daemon` on the local Oracle Application Server Instance, but not in remote Oracle Application Server Instances of the cluster.

Note: For more information, see: [Section 1.2.1, "The Distributed Configuration Management Bootstrap Sequence"](#) on page 1-5.

B.1.4 DCM Operations Fail

Problem

Occasionally, while using `dcmctl` commands with a file-based repository, unexpected messages or failures may occur.

Solution 1

Purge outdated records from the repository data tables using the [fileCleanUp](#) command on page A-15.

Solution 2

Restart all `dcmctl` processes, `dcm` daemons, and Application Server Control Console on all the Oracle Application Server Instances in the farm. Restarting these processes may fix the problem, and will not result in a loss of configuration information.

B.1.5 Invalid username/password

Problem

`dcmctl` returns "invalid username/password; logon denied"

Solution

This could mean that DCM is having problems accessing Oracle Internet Directory or the DCM schema in the metadata repository. Refer to "[Troubleshooting Oracle Internet Directory](#)" on page B-12 for the steps for troubleshooting this problem.

B.1.6 BOM (Bill of Materials) Not Updated

Problem

The DCM log file contains the entry "BOM Not Updated". Usually, this error is accompanied by a detailed message resembling the following:

```
Error writing filepath to file for plugin plugin name.
```

Solution

This message is logged when configuration files for the Oracle Application Server Instance are not synchronized with the configuration information stored in the DCM repository. DCM was not able to update the configuration files due to a file system full condition, file permissions problem, or an operating system problem. Examine the following log files to find the reasons for which DCM could not write to the file system:

```
ORACLE_HOME/dcm/logs/dcmctl_logs/log.xml
```

```
ORACLE_HOME/dcm/logs/emd_logs/log.xml
```

```
ORACLE_HOME/j2ee/home/log/log.xml
```

Another way to pinpoint a problem writing to the file system is to log in to the operating system as the user that installed Oracle Application Server, and attempt to write to a configuration file. The operating system will return an error message that describes the problem precisely.

After you resolve the file system problem, you can resynchronize the Oracle Application Server Instance with this command:


```
ORACLE_HOME/dcm/bin/dcmctl resyncinstance
```

B.1.7 In Sync Status is False

Problem 1

`dcmctl getState` displays an In Sync status of "False: Configuration" for one or more components.

Solution 1

This indicates that the configuration files for the Oracle Application Server Instance are out of sync with the configuration information stored in the DCM repository. This can happen if a previous operation was not able to complete properly. To resolve this problem, you need to restore the configuration information from the DCM repository to the Oracle Application Server Instance as follows:

1. Stop Oracle Enterprise Manager 10g Application Server Control Console to ensure that no attempts are made to change the configuration while you are synchronizing it.
2. Resynchronize the Oracle Application Server Instance with this command:

```
ORACLE_HOME/dcm/bin/dcmctl resyncinstance
```

This will usually fix the problem. If not, the `resyncinstance` operation will return error information that will help you determine what is wrong and how to proceed.

Problem 2

`dcmctl updateconfig` returns the message "The configuration files for this Oracle Application Server Instance are inconsistent with the configuration stored in the repository."

Solution 2

This indicates that the configuration files for the Oracle Application Server Instance are out of sync with the configuration information stored in the DCM repository. Stop and resynchronize the Oracle Application Server Instance. After the configuration files for the Oracle Application Server Instance are synchronized, you can make your original modifications. Be sure to run `dcmctl updateconfig` again after making the changes.

See Also: Problem 1 and Solution 1 in this section

Problem 3

A DCM configuration file has zero bytes after an operation.

Solution 3

A file size of zero bytes indicates there was a problem writing to the configuration file during a DCM operation. To resolve the problem:

1. Log on to the operating system as the user that installed the Oracle Application Server Instance, and:
 - a. Check the file permissions.

- b. Attempt to write to the configuration file, noting the operating system error message after any failure. Resolve the condition that caused the failure.
 - c. Verify file system quotas.
 - d. Ensure that there are no problems with the operating system that are preventing writing to the configuration file.
2. Resolve any problems found.
3. Restore the file from the DCM repository with the `resyncInstance` command.

B.1.8 Unable to Connect to the Directory

Problem

`dcmctl` returns ADMN-100999 and the base exception is "Unable to connect to Directory."

Solution

This error occurs when DCM cannot access Oracle Internet Directory. DCM needs to connect to the directory in order to retrieve the passwords it uses to connect to the Database-based repository.

See if restarting Oracle Internet Directory solves the problem. If it does not, refer to "[Troubleshooting Oracle Internet Directory](#)" on page B-12.

B.1.9 Cannot Access the Infrastructure Database

Problem

`dcmctl` returns ADMN-202026 and the base exception is "Unable to connect to Directory."

Solution

This error occurs when DCM cannot access Oracle Internet Directory. DCM needs to connect to the directory in order to retrieve the passwords it uses to connect to the Database-based repository.

See if restarting Oracle Internet Directory solves the problem. If it does not, refer to "[Troubleshooting Oracle Internet Directory](#)" on page B-12.

B.1.10 The `dcm.conf` File is Unreadable

Problem

An error occurs when attempting login to Application Server Control Console or invoking a `dcmctl` command; permission is denied when attempting to read the `dcm.conf` file. This error occurs when a user other than the user who installed the Oracle Application Server Instance invokes a `dcmctl` command, or when the file permissions on the `dcm.conf` file have been altered from the default set by the installer.

Solution

Change the ownership/permissions on the `ORACLE_HOME/dcm/config/dcm.conf` file to the permissions set by the installer when the Oracle Application Server Instance was installed. In addition, ensure that the permissions are set correctly on `ORACLE_`

HOME/opmn/conf/ons.conf and all files under *ORACLE_*
HOME/dcm/logs/dcmctl_logs.

B.1.11 The dcm.conf or dcmCache.xml File is Empty

Problem

Occasionally, during configuration management operations, configuration files are written out as zero length files. This is usually due to disk write problems, such as lack of space on the disk.

Solution

Copy the corresponding .bak file, dcm.conf.bak or dcmCache.xml.bak, to dcm.conf or dcmCache.xml respectively, and start the Oracle Application Server Instance.

B.1.12 dcmctl getState Hangs

Problem

When the `dcmctl getState -d` command is executed, it returns the following and then stops:

```
Current state for Instance:myinstance.example.com
Component          Type      Up Status    In Sync Status
=====
```

Solution

Determine which process has actually stopped. It could be that a process associated with one of the related components (that is, OHS, OPMN, OC4J) has stopped.

1. Determine the PID of the `dcm-daemon` process, using the following command:

```
ORACLE_HOME/opmn/bin/opmnctl status
```

2. Send a kill -3 signal to the `dcm-daemon` process with the following command:

```
kill -3 PID
```

This tells the JVM to dump an execution stack trace.

3. Open the `ORACLE_HOME/opmn/logs/dcm-daemon~dcm-daemon~dcm~1` file and examine the execution stack trace to identify the process that caused DCM to stop.

B.1.13 getState Cannot Be Used With (9.0.2 or 9.0.3) Instances

Problem

Invoking the command `dcmctl getstate -i instance name` from an Oracle Application Server 10g Release 2 (10.1.2) Oracle home results in an ADMN-604104 exception. This problem occurs when the `instance name` is a 9.0.2 or 9.0.3 Oracle Application Server Instance.

Solution

When trying to retrieve the state of a 9.0.2 or 9.0.3 Oracle Application Server Instance, invoke the `dcmctl` utility from a 9.0.2 or 9.0.3 Oracle home, and not from the Oracle Application Server 10g Release 2 (10.1.2) Oracle home.

B.1.14 dcmctl joinFarm Produces Error**Problem**

When the `dcmctl joinfarm` command is executed, it returns the following:

```
ADMN-202026
A problem has occurred accessing the OracleAS 10g infrastructure database.
Base Exception:
oracle.ias.repository.schema.SchemaException:DCM Repository is not Configured
Please refer to the base exception for resolution or call Oracle support.
oracle.ias.repository.schema.SchemaException: DCM Repository is not Configured
.
.
.
```

Solution

If you are attempting to join a File-based repository, issue the command again, using the `-r` option to specify the repository ID for the File-based repository.

The `-r` option is required to specify the ID of a File-based repository. If you erroneously omit the `-r` option, `dcmctl` attempts to join an Infrastructure database farm with the repository ID you provided.

B.1.15 repositoryRelocated Command Causes Repository to be Unreachable**Problem**

You executed `repositoryRelocated` and now the repository is unreachable.

The `repositoryRelocated` command is intended to be used in conjunction with the `importRepository` command. A Oracle Application Server Farm can only be associated with one repository at a time. When the repository is imported to a new Oracle Application Server Instance of the Oracle Application Server Farm, the old Oracle Application Server Instance must be notified, with the `repositoryRelocated` command, that it is no longer the repository host. If the repository was not imported to a new Oracle Application Server Instance, then there is currently no Oracle Application Server Instance managing the repository.

Solution

The solution depends on the circumstances under which the command was issued.

If the intent was to import an exported repository image to a new Oracle Application Server Instance, simply issue the `importRepository` command. After the repository is imported to a new Oracle Application Server Instance, all Oracle Application Server Instances will be able to locate the new repository host.

If the command was run in error, and you wish to continue to use the current repository:

1. Stop the Oracle Application Server Instance.
2. Navigate to the `ORACLE_HOME/dcm/config` directory.

3. Compare the files with the command:

```
diff dcm.conf dcm.conf.bak
```

The result should be:

```
< repository_type=cache
> repository_type=cache rep
```

4. Restore the `dcm.conf` file to the original version with the command:

```
cp dcm.conf.bak dcm.conf
```

5. Start the Oracle Application Server Instance.

The repository is now available to the farm.

B.1.16 Unreachable IP Address

Problem

The following Application Server Control Console or `dcmctl` errors may occur if the configuration file `ORACLE_HOME/dcm/config/dcmCache.xml` includes a `<communication>` element with a `<coordinator>` subelement that specifies an `ip` attribute for an IP address that is not reachable.

The exception 202504, has occurred in the cache layer of the persistence manager. "Network port is in use.". Resolution: Please, refer to the base exception for the details.

And the following `dcmctl` error is also associated with this problem:

Local Stack:

```
oracle.ias.cache.group.GroupException: Network port is in use
at oracle.ias.cache.group.Transport.ssinit(Unknown Source)
at oracle.ias.cache.group.Transport.init(Unknown Source)
```

Solution

The IP address could become unreachable if the IP address for the machine changes, for example, in a DHCP environment.

Use the following procedure to workaround this problem:

1. Change the `ip` attribute specified in the `<coordinator>` element of the `ORACLE_HOME/dcm/config/dcmCache.xml` configuration file. There are several `ip` attributes and `<coordinator>` elements specified in this file; change the `<coordinator>` element with attribute `"original=true"`. In this element change the `ip` attribute to the correct value for the machine. Use the `hostname` and `nlslookup` commands or similar commands to identify the correct IP address.
2. Change the `VirtualHostName` value in `ORACLE_HOME/config/ias.properties` to the corresponding correct hostname.
3. Run the command `dcmctl resetHostInformation`.

This should correct the problem.

B.1.17 resyncInstance Command Does Not Restore Properly

Problem

A configuration change was not reverted as expected in the following sequence of steps:

1. Update of DCM-managed configuration file
2. Execute the `updateConfig` command
3. Manually remove change to configuration file
4. Execute the `resyncInstance` command

Solution

Make DCM aware of the removal of the configuration change in Step 3 by issuing the `updateConfig` command after Step 3. You can use the `-force` option to force DCM to resynchronize the Oracle Application Server Instance whether it thinks it necessary or not:

```
ORACLE_HOME/dcm/bin/dcmctl resyncInstance -force
```

B.2 Diagnosing Problems with Components Related to DCM

Some problems reported by DCM have root causes in a related component or system (that is, OPMN, OHS, OC4J, Oracle Internet Directory, the metadata repository, or the file system). This section contains tips for recognizing, verifying, and fixing these types of problems. It contains the following topics:

[Troubleshooting Oracle Process Manager and Notification Server](#)

[Troubleshooting Oracle Internet Directory](#)

[Troubleshooting the Metadata Repository](#)

B.2.1 Troubleshooting Oracle Process Manager and Notification Server

A problem with starting or stopping could be due to OPMN, or to one of the components it is attempting to start and stop. The OPMN logs are the starting point for determining the source of the problem. The OPMN logs are located in the `ORACLE_HOME/opmn/logs/`. In addition to the main logs, `opmn.log`, `ipm.log`, and `ons.log`, there are log files for each component managed by OPMN.

B.2.2 Troubleshooting Oracle Internet Directory

If DCM returns an error referring to the directory, or a problem with a password, problems with Oracle Internet Directory may be the cause. This section provides instructions on how to resolve these types of problems.

B.2.2.1 How DCM Uses Oracle Internet Directory

DCM uses Oracle Internet Directory only if the Oracle Application Server Instance is configured to use Identity Management and a metadata repository. In this case:

1. DCM logs in to Oracle Internet Directory using an internal, randomly generated password that is stored with the Oracle Application Server Instance.
2. It obtains the metadata repository password from Oracle Internet Directory.
3. It uses this password to access the metadata repository.

B.2.2.2 How to Troubleshoot Oracle Internet Directory Problems

1. Determine the host and port the Oracle Application Server Instance is using to access Oracle Internet Directory. Examine the `ORACLE_HOME/config/ias.properties` file in the Oracle home of the middle tier Oracle Application Server Instance that is reporting the DCM failure. In the file, the Oracle Internet Directory host is `OIDhost`. The Oracle Internet Directory port is `OIDport`.
2. Ping the Oracle Internet Directory host from another computer to see if the network is running. If the ping is unsuccessful, then the network is stopped.
3. If the ping is successful, run the following command to see if you can access Oracle Internet Directory:

```
ORACLE_HOME/bin/ldapbind -p oid_port -h oid_host
```

4. If this command fails, then Oracle Internet Directory is stopped. Try to restart Oracle Internet Directory using Oracle Process Manager and Notification Server. If it does not start, then contact the Oracle Internet Directory administrator with a request to restart Oracle Internet Directory.

Use one of the following commands, on the Oracle Application Server Instance that contains the OID component to start or restart Oracle Internet Directory:

- `opmnctl startall`
 - `opmnctl startproc ias-component=OID`
5. Try the DCM command again. If it fails, continue with the next step.
 6. Ensure that the metadata repository is running. DCM accesses the metadata repository differently, depending on installation type and configuration, as follows:
 - **For J2EE and Web Cache installations using Identity Management and a metadata repository:** The metadata repository the Oracle Application Server Instance is using is the `DBConnect` field corresponding to `ComponentNameDCM` in the `ORACLE_HOME/config/iasschema.xml` file.
 - **For Portal and Wireless installations:** The metadata repository the Oracle Application Server Instance is using is the `InfrastructureDBCommonName` field in the `ORACLE_HOME/config/ias.properties` file.
 7. Ensure that the DCM schema password stored in Oracle Internet Directory matches the DCM schema password in the metadata repository.
 - a. Obtain the DCM schema password from Oracle Internet Directory by following the instructions in Oracle Application Server Installation Guide, Section 7.5, "How to Determine the Password for the DCM Schema".
 - b. Try to log in to the DCM schema in the metadata repository using the password:

```
sqlplus dcm/password@connectstring
```

If the passwords do not match, you have two options:

B.2.2.2.1 Option 1: Reset the password in Oracle Internet Directory and the metadata repository using the Oracle Enterprise Manager 10g Application Server Control Console (Application Server Control Console):

1. Log in to the Application Server Control Console and navigate to the Instance Home page for the Oracle Application Server Instance that is reporting the problem.

2. Click Infrastructure.
3. Select the DCM schema.
4. Click Change Schema.
5. Click Change Password.
6. Set the new password.
7. Try the DCM command again.

See Also: *Oracle Internet Directory Administrator's Guide* for more information on troubleshooting Oracle Internet Directory.

B.2.2.2 Option 2: Reset the DCM password in the metadata repository to match that which is stored in Oracle Internet Directory. To do this, log in to the metadata repository as the `SYS` user and issue the command:

```
sql> ALTER DCM IDENTIFIED BY password in oid
```

In the preceding command, *password in oid* is the DCM schema password retrieved from Oracle Internet Directory.

B.2.3 Troubleshooting the Metadata Repository

If DCM is reporting problems with the repository, and you are using the metadata repository (not a File-based repository), you can troubleshoot the repository as described in this section.

B.2.3.1 How DCM Uses the Metadata Repository

DCM stores configuration information in the DCM schema in the metadata repository.

B.2.3.2 How to Troubleshoot Problems with the Metadata Repository

1. Ensure that the metadata repository is running and that you can access it from your system. The metadata repository for the Oracle Application Server Instance is listed in the `DBConnect` field in the `ORACLE_HOME/config/iasschema.xml` file.

2. If the error message states that an Oracle Application Server Instance is inconsistent with the repository, issue the `resyncInstance` command:

```
ORACLE_HOME/dcm/bin/dcmctl resyncinstance
```

3. Examine the log files for errors. The repository could be corrupted in some way, due to database or system errors. These will be captured in the following log files (in the following example, the `asdb` directory is named for the default SID):

```
METADATA_REPOSITORY_ORACLE_HOME/admin/asdb/bdump
```

```
METADATA_REPOSITORY_ORACLE_HOME/admin/asdb/udump
```

If there is evidence of database failure or corruption, refer to database documentation for information on restoring and recovering the database.

B.2.4 Troubleshooting the File-based Repository

If DCM is reporting problems with a File-based repository, you can troubleshoot the repository as described in this section.

B.2.4.1 How DCM Uses the File-based Repository

DCM stores configuration information in `ORACLE_HOME/dcm/repository`.

B.2.4.2 How to Troubleshoot Problems with the File-based Repository

Most File-based repository problems are due to file system problems.

1. Ensure that:
 - The file system is not full.
 - File system usage is within quotas.
 - The operating system user that installed Oracle Application Server has write permission on the repository.
2. If the error message states that an Oracle Application Server Instance is inconsistent with the repository, issue the `resyncInstance` command:

```
ORACLE_HOME/dcm/bin/dcmctl resyncinstance
```

3. If the repository files contain errors or some or all have been removed, you can restore them as follows:

If the Oracle Application Server Instance is in a cluster:

- a. In the Oracle home of the Oracle Application Server Instance you are trying to recover:

```
ORACLE_HOME/dcm/bin/dcmctl resyncinstance
```

If you have a backup of the Oracle home:

- a. Restore the repository files in `ORACLE_HOME/dcm/repository`.
- b. In the Oracle home of the Oracle Application Server Instance you are trying to recover, issue this command:

```
ORACLE_HOME/dcm/bin/dcmctl resyncinstance
```

B.3 Diagnosing DCM Problems

This section presents a step-by-step approach for diagnosing problems with DCM.

Step 1: Analyze the verbose and debug output from the dcmctl utility

When an error occurs, `dcmctl` usually provides a detailed error message and contextual information on a possible cause and solution. If an exception occurs, the `-d` option provides a stack trace. Sometimes this information may allow you to resolve the problem. The stack trace must be supplied if you contact Oracle support. By default, the `dcmctl` utility sets the `-v` (verbose) option and the `-d` (debug) option on. Change these defaults with the `set` command.

To view the error message and stack trace that most recently occurred, use this command:

```
ORACLE_HOME/dcm/bin/dcmctl getError
```

Step 2: Examine the log files

If the information provided by the `dcmctl verbose` and `debug` output is not sufficient, try examining the log files. Often, they will contain error messages that will help you determine the problem. [Table B-1](#) describes the log files related to DCM.

Table B-1 Distributed Configuration Management Log Files

File	Description
ORACLE_HOME/dcm/logs/dcmctl_logs/log.xml	DCM client log for dcmctl shell
ORACLE_HOME/dcm/logs/emd_logs/log.xml	DCM client log for Application Server Control Console
ORACLE_HOME/dcm/logs/daemon_logs/log.xml	DCM daemon log
ORACLE_HOME/dcm/logs/busrule_logs/log.xml	DCM business rule execution log
ORACLE_HOME/opmn/logs/*	Oracle Process Manager and Notification Server logs

Step 3: Review the [Problems and Solutions](#) section

If you have determined the error but are not sure how to proceed, try searching for the problem, or one similar, in "[Problems and Solutions](#)" on page B-1.

Step 4: Determine whether the problem was caused by a related component

Many problems reported by DCM have root causes in the operation of a related component, such as OPMN, Oracle HTTP Server, Oracle Application Server Containers for J2EE, Oracle Internet Directory, and the metadata repository. [Table B-2](#) provides tips on recognizing these types of problems and pointers to more information.

Table B-2 Problems with Related Technologies

Type of Problem	May be due to:
Starting and stopping	Oracle Process Manager and Notification Server, Oracle HTTP Server, or Oracle Application Server Containers for J2EE problems See Also: Oracle Process Manager and Notification Server Administrator's Guide See Also: Oracle Application Server Containers for J2EE User's Guide
Application deployment or clustering	Oracle Application Server Containers for J2EE problems See Also: Oracle Application Server Containers for J2EE User's Guide
Directory or password problems	Oracle Internet Directory problems See Also: Troubleshooting Oracle Internet Directory See Also: Oracle Internet Directory Administrator's Guide, Appendix I, Troubleshooting
Repository problems (metadata repository)	Metadata Repository problems See Also: Troubleshooting the Metadata Repository
Repository problems (File-based repository)	File system problems See Also: Troubleshooting the File-based Repository

Step 5: Get assistance from Oracle Support

If none of the preceding steps led to a solution, report the problem to Oracle Support. Have the following information ready:

- Steps to duplicate the problem, or a summary of the conditions and settings in effect when the problem occurred
- The verbose and debug output from the dcmctl command
- Log file entries

B.4 Need More Help?

You can find more solutions on Oracle *MetaLink*, <http://metalink.oracle.com>. If you do not find a solution for your problem, log a service request.

See Also:

Oracle Application Server Release Notes, available on the Oracle Technology Network:

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

DCM Metadata Repository

This appendix describes the files, tables, and directories of the DCM metadata repository. You should not edit, relocate, or otherwise change these files and directories; they are described here for information only.

C.1 Repository Farm Files and Tables

The files and tables associated with an Oracle Application Server Farm are stored in `ORACLE_HOME/dcm/repository` in OracleAS Database-Based Farms and OracleAS File-Based Farms. The contents of the repository are stored as binary files in the filesystem in the OracleAS File-Based Farm, or as database tables in the OracleAS Database-Based Farm. [Table C-1](#) describes the file and tables.

Table C-1 DCM Metadata Repository Files and Tables

File Name	Table Name	Description
farm	tm_farms	Farm information.
cluster	tm_clusters	Cluster information.
componentCluster	tm_componentclusters	Component information belonging to an instance.
instance	tm_instances	Instance information, belong to a farm (or a farm and cluster)
node	tm_nodes	Information about the host computer.
tag	pm_op_tags	Operation tag map for internal messaging; records runtime states.
obj, tmp directory	pm_objects	Configuration objects and instance attribute objects.
archive	pm_archives	Configuration archive.
member	pm_cluster_membership	Maps objects to clusters and components.
instanceAttr	tm_instance_attrs	Associations between instances and attribute (PM\$\$InstanceAttribute) objects
archmember	pm_arc_membership	Association of archive and configuration objects.

C.2 Repository Files and Directories

The DCM metadata repository also contains these files and directories:

app.bom

The `app.bom` file is a bill of material file that stores the names and versions of application objects deployed to the instance.

conf.bom

The `conf.bom` file is a bill of material file that stores the names and versions of configuration objects in the instance.

cluster.bom

The `cluster.bom` is a bill of material file that stores information about the cluster to which the instance belongs.

tp.bom

The `tp.bom` file is a bill of material file that stores information about the topology of the instance, such as the components it comprises.

mutex directory

The `mutex` directory is used for internal management of OracleAS File-Based Farm and OracleAS Database-Based Farm repositories. It is a placeholder for storage of mutex files for the sequencing of DCM operations within an instance. The mutex file type is related to OracleAS File-Based Farm repositories only; it has no database equivalent.

tmp directory

The `tmp` directory stores the File Data Base (FDB) object, which is used only in a OracleAS File-Based Farm repository. Despite the directory name, these files are not temporary, and deleting them would render the repository useless. These files are equivalent to the column `pm_objects.data` in the OracleAS Database-Based Farm repository, and are referenced in the `obj` table file.

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