

Oracle® Content Services

Administrator's Guide

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Preface

Oracle Collaboration Suite 10g Content Services (Oracle Content Services) is a consolidated, database-centric content management application that provides a comprehensive, integrated solution for file and document lifecycle management. Oracle Content Services provides both Windows and Web interfaces, and integrates with Oracle Application Server Portal (OracleAS Portal), Oracle Applications E-Business Suite, and other environments.

Oracle Content Services runs on Oracle Application Server and Oracle Database, and provides a scalable content management repository. Oracle Content Services also takes advantage of Oracle Content Management SDK.

Audience

This document is intended for system administrators, or anyone involved in configuring, running, and maintaining an Oracle Content Services instance. Oracle Content Services application administrators, such as Quota or Content Administrators, should refer to *Oracle Content Services Application Administrator's Guide* for information about application administration tasks.

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Related Documents

For more information, see the following documents:

Oracle Content Services and Oracle Records Management

- *Oracle Content Services Application Administrator's Guide*
- *Oracle Records Management Administrator's Guide*
- *Oracle Content Services Application Developer's Guide*

Oracle Collaboration Suite

- *Oracle Collaboration Suite Administrator's Guide*
- *Oracle Collaboration Suite Release Notes*
- *Oracle Collaboration Suite Installation Guide*
- *Oracle Collaboration Suite Upgrade Guide*
- *Oracle Collaboration Suite Concepts Guide*
- *Oracle Collaboration Suite Deployment Guide*
- *Oracle Collaboration Suite Security Guide*
- *Oracle Collaboration Suite Licensing Information*
- *Oracle Collaboration Suite Migration and Coexistence Guide*

Oracle Application Server

- *Oracle Application Server Concepts*
- *Oracle Application Server Installation Guide*
- *Oracle Application Server Administrator's Guide*
- *Oracle Internet Directory Administrator's Guide*
- *Oracle HTTP Server Administrator's Guide*
- *Oracle Application Server Single Sign-On Administrator's Guide*
- *Oracle BPEL Process Manager Developer's Guide*

Oracle Database

- *Oracle Database Administrator's Guide*
- *Oracle Database Backup and Recovery User's Guide*
- *Oracle Database Net Services Administrator's Guide*

- *Oracle Database Globalization Support Guide*
- *Oracle Database Oracle Clusterware and Oracle Real Application Clusters Administration and Deployment Guide*

Conventions

The following text conventions are used in this document:

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

What's New in Oracle Content Services Administration

This section describes changes to administrative features in Oracle Content Services 10g Release 1 (10.1.2). If you are upgrading to Oracle Content Services 10g from a previous release of Oracle Files, read the following information carefully, because there are significant differences in administration features, tools, and procedures.

New administrative features in Oracle Content Services include:

- [New Product Name](#)
- [Terminology Changes](#)
- [Integration with Oracle Records Management](#)
- [Multiple Site Support](#)
- [Site Management from the Oracle Collaboration Suite Control](#)
- [BPEL Workflow Support](#)
- [BFILE Archiving and Aging](#)
- [Partner Integration for Retention Hardware Support](#)
- [Changes to Protocol Support](#)
- [Changes to File Synchronization Support](#)
- [Changes to Print Services Support](#)
- [Antivirus Integration](#)
- [New Index to Speed Up Name Searches](#)
- [OPMN Integration and Elimination of Domain Controller](#)
- [Changes to Administrative Accounts](#)
- [Enhanced Logging](#)
- [Multiple Applications Tiers on a Single Host](#)
- [New Method to Change the Oracle Content Services Schema Password](#)
- [Metric Configuration Management](#)
- [Additional Default Formats](#)
- [Simplified Installation and Configuration](#)
- [Option to Configure and Unconfigure Oracle Content Services from the Oracle Collaboration Suite Control](#)

- [Simplified Oracle RAC Configuration](#)
- [Changes to OC4J Instance Names for Oracle Content Services](#)
- [Oracle Collaboration Suite Control Provides Access to Oracle Content Services Logs and Ports](#)

New Product Name

Oracle Content Services is the new name for the product formerly known as Oracle Files. For information about new product features, see *Oracle Collaboration Suite Release Notes* for your platform.

Terminology Changes

Many key terms have changed. Read the following list carefully to avoid confusion:

- The organizational entity formerly known as a Subscriber is now called a [Site](#). Sites are based on identity management [realms](#).
- The role formerly known as Subscriber Administrator was split into a variety of different administrative roles, such as User Administrator, Quota Administrator, and Content Administrator. Collectively, users who hold one or more of these roles are known as [application administrators](#).
- Tasks performed by the Site Administrator in Oracle Files (creating, modifying, and deleting Sites, as well as registering custom workflows) are now performed by the system administrator using the [Oracle Collaboration Suite Control](#).
- Workspaces are now known as [Libraries](#).
- There are two new terms to describe the Oracle Collaboration Suite architecture: [Applications tier](#), which replaces the previously used term middle tier, and [Infrastructure tier](#), which includes both the [Oracle Collaboration Suite Database](#) and [Oracle Identity Management](#).
- The administrative tool to manage each Applications tier is now called Oracle Enterprise Manager 10g Application Server Control for Collaboration Suite ([Oracle Collaboration Suite Control](#)). This tool was formerly known as Oracle Enterprise Manager 10g Application Server Control (Application Server Control).
- The tools formerly known as Bulk Administration Tools are now called [Oracle Content Services command-line tools](#). See "Oracle Content Services Command-line Tools" in Chapter 9 of *Oracle Collaboration Suite Migration and Coexistence Guide* for information about how to use these tools.

Integration with Oracle Records Management

Oracle Collaboration Suite 10g Records Management ([Oracle Records Management](#)) is a records management application that ships with Oracle Content Services. When you install Oracle Content Services, Oracle Records Management is installed automatically, but the application is disabled by default. You can use the Oracle Collaboration Suite Control to enable Oracle Records Management.

For information about how to use Oracle Records Management, see *Oracle Records Management Administrator's Guide*.

Multiple Site Support

You can now configure multiple Sites within one Oracle Content Services domain. In previous releases of Oracle Collaboration Suite, this functionality was not supported by OracleAS Single Sign-On.

Site Management from the Oracle Collaboration Suite Control

In Oracle Files, there was a separate administrative interface (and a separate administrative role) to manage Sites. In Oracle Content Services, the system administrator can manage Sites from the Oracle Collaboration Suite Control.

BPEL Workflow Support

Oracle Content Services now supports integration with [BPEL](#) custom workflows. Because of this, custom workflows built using Oracle Workflow Builder are no longer supported.

In Oracle Files, there was a separate administrative interface for registering custom workflows. In Oracle Content Services, you can register custom workflows from the Oracle Collaboration Suite Control.

BFILE Archiving and Aging

In Oracle Files, two agents moved content from the Archive to [BFILE](#) storage. This feature was enabled by default. In Oracle Content Services, a new agent called the Cleanup Agent performs this task. This feature is not activated by default.

In addition to BFILE archiving, you can now configure an agent called the Content Agent to periodically move content to BFILE storage if it was not accessed for a specified period (BFILE aging). The Content Agent is not activated by default.

Partner Integration for Retention Hardware Support

Oracle Content Services integrates with [Network Appliance SnapLock](#) and [EMC Centera](#) to provide hardware storage for records retention and compliance. Use the Oracle Collaboration Suite Control to manage retention hardware integration.

Note: The features described in this section were added to Oracle Collaboration Suite in the Oracle Collaboration Suite Cumulative Patchsets 10.1.2.1 and 10.1.2.2. Support for Network Appliance SnapLock was added in the Oracle Collaboration Suite Cumulative Patchset 10.1.2.1, and support for EMC Centera was added in the Oracle Collaboration Suite Cumulative Patchset 10.1.2.2.

If you are using a previous version or patchset of Oracle Collaboration Suite, the features described are not available.

Changes to Protocol Support

The following is a summary of the changes to Oracle Content Services protocol support for this release:

- The NTFS and SMB protocol servers are no longer included as native Oracle Content Services protocol servers. Instead, the Oracle Drive client provides support similar to Server Message Block (SMB) for users, while using WebDAV as the actual file protocol.
- The NFS protocol is no longer supported. UNIX users are encouraged to use [FTP](#) as an alternative.
- The AFP protocol is no longer supported, but WebDAV is now supported for the Macintosh. Macintosh users are encouraged to use WebDAV as an alternative.
- Secure FTP (FTPS) is now supported, in addition to FTP.

- The FTP and FTPS servers are not configured by default after you install and configure Oracle Content Services; you must enable these protocols using the Oracle Collaboration Suite Control.

Changes to File Synchronization Support

The Oracle FileSync client was replaced by the Oracle Drive client. Oracle Drive provides file synchronization features similar to what was provided in Oracle FileSync.

Changes to Print Services Support

Because the Oracle Files printing services relied on SMB, which is not supported in this release, you cannot add, modify, or delete printers from the Oracle Collaboration Suite Control. Instead, Oracle Content Services relies on partners for output management.

Antivirus Integration

Oracle Content Services integrates with a partner solution, the Symantec AntiVirus Scan Engine (**SAVSE**), to provide options to verify that content is virus free and to clean files that are found to be infected. After the antivirus software is enabled and configured, files are scanned for viruses whenever they are opened for read access, using the latest available virus definitions.

New Index to Speed Up Name Searches

Oracle Content Services ships with a new index, called `IFS_LYKE`, that makes item name searches faster.

OPMN Integration and Elimination of Domain Controller

Because Oracle Content Services is now fully integrated with OPMN, you can use the `opmnctl` utility to manage the Oracle Content Services **domain** and **nodes**. As a result, the `ifsctl` tool is no longer available, and there is no longer an Oracle Content Services domain controller.

Changes to Administrative Accounts

The following are changes to administrative accounts used with Oracle Content Services:

- There is no longer a `site_admin` account. Administrative tasks formerly performed using the `site_admin` account are now performed using the `ias_admin` account in the Oracle Collaboration Suite Control.
- There is no longer a Subscriber Administrator. Tasks performed by the Subscriber Administrator are now performed by a variety of administrators, such as the Content Administrator and the Quota Administrator, in Oracle Content Services **Administration Mode**.
- The `orcladmin` account for each realm has all of the Oracle Content Services access roles by default. Use the `orcladmin` account to sign in to Oracle Content Services for the first time and delegate access roles to additional users.
- Although the Oracle Content Services `system` account is still used internally, it is no longer needed to perform administrative tasks.

Enhanced Logging

Using the Oracle Collaboration Suite Control, you can customize the level of information you would like logged by selecting and configuring **loggers**.

Multiple Applications Tiers on a Single Host

You can now have more than one Oracle Content Services Applications tier on a single host. Each Oracle Content Services Applications tier must be in its own Oracle home. The Applications tiers can be part of the same Oracle Content Services domain, or they can belong to different domains.

New Method to Change the Oracle Content Services Schema Password

You can now change the Oracle Content Services schema password using the Oracle Collaboration Suite Control.

Metric Configuration Management

You can configure Oracle Content Services metrics, including SQL metrics, Java metrics, and URL timing metrics, for particular Applications tiers using the Oracle Collaboration Suite Control.

Additional Default Formats

The number of default [formats](#) shipped with Oracle Content Services was increased. Support for common formats, such as `.jar`, is now provided.

Simplified Installation and Configuration

The process of installing and configuring Oracle Content Services was simplified. The configuration process is now integrated with Oracle Universal Installer, and you no longer need to manually run the Oracle Content Services Configuration Assistant (formerly known as the Oracle Files Configuration Assistant, or `ifsca`).

Option to Configure and Unconfigure Oracle Content Services from the Oracle Collaboration Suite Control

If you choose not to configure Oracle Content Services through Oracle Universal Installer during Oracle Collaboration Suite installation, you can configure Oracle Content Services at a later time using the Oracle Collaboration Suite Control. You can also use the Oracle Collaboration Suite Control to:

- Unconfigure Oracle Content Services on a particular Applications tier
- Reconfigure Oracle Content Services on a particular Applications tier, after Oracle Content Services was unconfigured

Simplified Oracle RAC Configuration

When you add or remove Oracle RAC nodes for Oracle Collaboration Suite, the Oracle RAC databases are automatically registered in Oracle Internet Directory. Oracle Content Services uses the information stored in Oracle Internet Directory to connect. Because of this, you no longer need to specify database connection information on Applications tiers. You do need to restart the Oracle Content Services domain, however, after you add or remove an Oracle RAC node.

Changes to OC4J Instance Names for Oracle Content Services

The OC4J instance that supports the HTTP node for the Oracle Content Services application, called `OC4J_ifs_files` in previous releases, is now called `OC4J_Content`. This release also introduces a new OC4J instance to support the HTTP node for the Oracle Records Management application, called `OC4J_RM`. This OC4J instance is, by default, not enabled after Oracle Content Services is installed and configured.

Oracle Collaboration Suite Control Provides Access to Oracle Content Services Logs and Ports

You can now view Oracle Content Services logs directly from the Oracle Collaboration Suite Control. You can also use the Oracle Collaboration Suite Control to view Oracle Content Services ports.

Oracle Content Services Administration Concepts

This chapter provides Oracle Content Services system administrators with key architectural and administration concepts.

This chapter provides information about the following topics:

- [About the Oracle Content Services System Administrator](#)
- [Oracle Content Services Architecture](#)
- [Oracle Content Services Deployment Configurations](#)
- [Integration with Key Oracle Technologies](#)

About the Oracle Content Services System Administrator

Typically, Oracle Content Services [system administrators](#) are responsible for the following tasks:

- Installing and configuring Oracle Content Services
- Optionally customizing their Oracle Content Services deployment by enabling an antivirus solution, the [FTP](#) and FTPS servers, the [OmniPortlet](#), retention hardware, [BFILE](#) archiving or aging, and other scenarios
- Managing the Oracle Content Services [domain](#), [nodes](#), [services](#), and [servers](#)
- Performing system tuning and troubleshooting
- Adding, deleting, and managing [Sites](#)
- Managing custom [BPEL](#) workflows

Note: Oracle Content Services [application administrators](#) are responsible for tasks related to a particular Site, such as managing users, quotas, categories, and content. There are a variety of application administration roles, such as the Category Administrator, Configuration Administrator, and Security Administrator. Users with one or more application administration roles should refer to *Oracle Content Services Application Administrator's Guide* for information about application administration tasks.

Skills Required to Administer Oracle Content Services

System administrators need to have the following skills:

- **Basic Oracle Database administration experience.** Because the file system is stored in an Oracle database, you need to understand the basics of how to administer the database, including knowledge of [Oracle Text](#).
- **Knowledge of Internet and intranet protocols.** You need to understand how [HTTP](#), [WebDAV](#), and the other networking protocols work.
- **Oracle Application Server administration experience.** You need to understand how to administer the various components of Oracle Application Server, such as [Oracle HTTP Server](#), OracleAS [Web Cache](#), and Oracle Application Server Containers for J2EE ([OC4J](#)).

Administrative Accounts

[Table 1–1](#) is a summary of the administrative accounts used by system administrators.

Table 1–1 Administrative Accounts

Account Name	Purpose	Notes
ias_admin	Used to access the Oracle Collaboration Suite Control and the Oracle Enterprise Manager 10g Database Control.	The password is set during Oracle Collaboration Suite Infrastructure tier and Oracle Collaboration Suite Applications tier installation.
orcladmin	Used to administer a single Oracle Identity Management realm.	This user is the superuser for a single Oracle Identity Management realm and is the bootstrap user for a particular Oracle Content Services Site. For the superuser of the default realm, the password is set during Oracle Collaboration Suite Infrastructure tier installation. For the superuser of any additional realms, the password is set when a realm is created.
cn=orcladmin	Used to administer Oracle Identity Management.	This user is the superuser for Oracle Identity Management and can manage multiple realms. The password is set during Oracle Collaboration Suite Infrastructure tier installation.

Oracle Content Services Administration Tools

Several administration tools are provided with Oracle Content Services, including browser-based management tools and command-line tools. Using these administration tools, you can:

- Configure and unconfigure Oracle Content Services
- Start and stop domains and nodes
- Manage service and server objects
- Work from the command line
- Monitor domain, service, and node performance

The following sections describe the administration tools available to Oracle Content Services administrators.

Oracle Collaboration Suite Control

Oracle Enterprise Manager 10g Application Server Control for Collaboration Suite (Oracle Collaboration Suite Control) provides access to basic Oracle Content Services

process management and monitoring functions, such as starting, stopping, monitoring, and dynamically tuning the domain, nodes, services, and servers.

This tool also allows administrators to configure, unconfigure, and reconfigure Oracle Content Services Applications tiers. These options are only available for Applications tiers that are not running Oracle Workflow.

Oracle Content Services Administration Mode

Oracle Content Services **Administration Mode** provides access to application administration functions such as allocating quota and assigning roles. See *Oracle Content Services Application Administrator's Guide* for more information.

Oracle Content Services Command-Line Tools

You can use the **Oracle Content Services command-line tools** to create groups, update groups, create Libraries, and update Libraries. The Oracle Content Services command-line tools were formerly known as the Bulk Tools. See "Oracle Content Services Command-Line Tools" in Chapter 9 of *Oracle Collaboration Suite Migration and Coexistence Guide* for more information.

Oracle Identity Management Tools

There are several Oracle Identity Management tools you can use to manage users in Oracle Collaboration Suite:

- The Oracle Internet Directory Self-Service Console is an application that enables administrators to manage users, groups, and realms.
- Oracle Directory Manager is a Java-based tool used to manage most functions in Oracle Internet Directory. Use it to configure password policies.
- You can use command-line tools, such as `ldapmodify`, instead of the Oracle Internet Directory Self-Service Console and Oracle Directory Manager.

See *Oracle Collaboration Suite Administrator's Guide* for information about the Oracle Internet Directory Self-Service Console. See *Oracle Internet Directory Administrator's Guide* for information about Oracle Directory Manager and the Oracle Internet Directory command-line tools.

Oracle Application Server Tools

You can also use these Oracle Application Server tools:

- `opmnctl` - Manages Oracle Process Manager and Notification Server (**OPMN**). Used to start and stop Oracle Content Services, OC4J processes, Oracle HTTP Server, and OracleAS Web Cache. Can be accessed from `ORACLE_HOME/opmn/bin/`.
- `emctl` - Manages the Oracle Collaboration Suite Control. Can be accessed from `ORACLE_HOME/bin/`.

See *Oracle Process Manager and Notification Server Administrator's Guide* for more information about using the `opmnctl` tool. See *Oracle Collaboration Suite Administrator's Guide* for more information about using the `emctl` tool.

Oracle Content Services System Administration Tasks Not Covered in This Guide

Some Oracle Content Services system administration tasks are covered in other guides. The following table explains what these tasks are, and where to go for more information.

Table 1–2 System Administration Tasks and Information Not Covered in This Guide

Task	Where to Go for More Information
Oracle Content Services sizing and tablespace information	<i>Oracle Collaboration Suite Deployment Guide</i>
Upgrading to Oracle Content Services	<i>Oracle Collaboration Suite Upgrade Guide</i>
Installing Oracle Content Services	<i>Oracle Collaboration Suite Installation Guide</i> for your platform
Setting up a load balancer	<i>Oracle Collaboration Suite Installation Guide</i> for your platform
Getting started after installing Oracle Content Services	<i>Oracle Collaboration Suite Administrator's Guide</i>
Creating and managing users	<i>Oracle Collaboration Suite Administrator's Guide</i>
Using the Oracle Content Services command-line tools for bulk creation and updating of groups and Libraries	<i>Oracle Collaboration Suite Migration and Coexistence Guide</i>
Migrating data from other systems to Oracle Content Services	<i>Oracle Collaboration Suite Migration and Coexistence Guide</i>
Setting up Oracle Content Services for use with SSL, setting the client session timeout interval, and other security considerations	<i>Oracle Collaboration Suite Security Guide</i>
Changing the Oracle Content Services schema password	<i>Oracle Collaboration Suite Administrator's Guide</i>
Accessing shared administrative tools, such as the Oracle Collaboration Suite Control	<i>Oracle Collaboration Suite Administrator's Guide</i>
Changing an Applications tier host name or IP address	<i>Oracle Collaboration Suite Administrator's Guide</i>
Client certification information	OracleMetaLink (http://metalink.oracle.com)

Oracle Content Services Architecture

The following sections describe the underlying technology for Oracle Content Services, and explain how the Oracle Content Services nodes and other processes interact. In addition, information about Oracle Internet Directory and Oracle Content Services Sites is provided.

Built with Oracle Content Management SDK

Oracle Content Services was built using Oracle Content Management SDK (Oracle CM SDK), a development platform for content management applications.

Oracle CM SDK provides a set of Java APIs that expose file system functionality such as file storage and searching, as well as delete, move, and rename operations for documents. The APIs also provide content management features unique to Oracle CM SDK, such as document versioning, document access control, and advanced queuing to facilitate communication between applications

You can find more information about Oracle Content Management SDK at:

<http://www.oracle.com/technology/products/ifs/>

The Oracle Content Services Domain

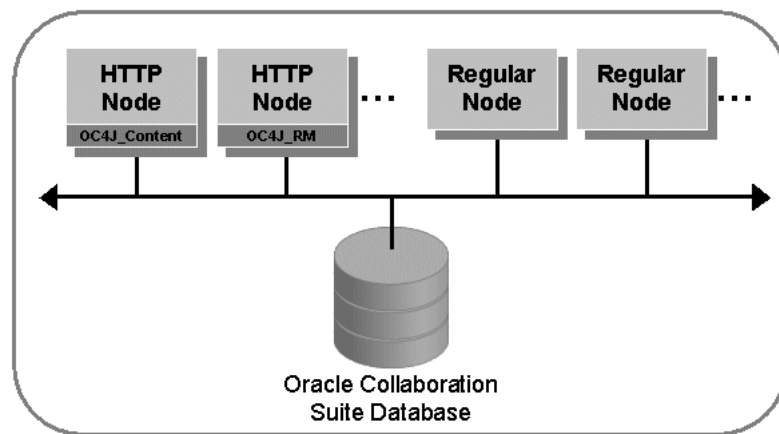
An Oracle Content Services **domain** is a logical grouping of Oracle Content Services nodes and an Oracle Database instance (called the **Oracle Collaboration Suite Database**) that contains the Oracle Content Services data. The nodes run on Oracle Application Server. The Oracle Content Services node processes and the database can be physically configured on a single computer or across several, separate computers.

Only one Oracle Content Services domain is allowed for each Applications tier; you cannot configure two domains in the same Oracle home.

The Oracle Content Services **schema** is created in the Oracle Collaboration Suite Database during the configuration process. The schema owns all database objects, including metadata about Oracle Content Services and configuration information.

Figure 1–1 shows the Oracle Content Services domain.

Figure 1–1 The Oracle Content Services Domain



Oracle Content Services Nodes

An Oracle Content Services **node** is the application software that comprises the product, along with the underlying Java Virtual Machine (JVM) required to support the software at run time.

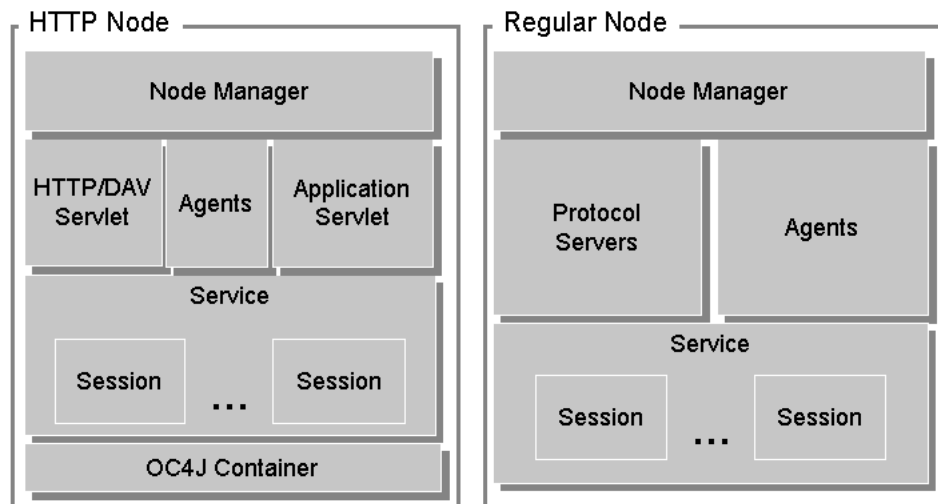
Important concepts to understand about nodes include:

- After installation, each Oracle Content Services Applications tier includes two nodes by default: one regular node and one HTTP node. (See Figure 1–2.) An additional HTTP node to support the Oracle Records Management application is also included on each Applications tier, but this HTTP node and its OC4J instance are disabled by default after installation.
- The regular node supports protocol servers, such as FTP, and agents, such as the Garbage Collection Agent.
- Each regular node is monitored by OPMN, which automatically restarts the node when it is stopped unexpectedly.
- The HTTP nodes support the Oracle Content Services and Oracle Records Management applications, the Oracle Content Services portlet, WebDAV, and the Web services using servlets that are configured to work with OC4J.
- The OC4J process for each HTTP node is guarded by OPMN, which restarts the OC4J process if it is stopped unexpectedly.

- The node manager is a process that is started when the node is started. It is responsible for starting the default services and servers for the node. It also provides an administrative API for the node that lets you find information about node log levels, locale information, available free memory, and the Oracle home for the node.

Figure 1–2 shows the Oracle Content Services nodes.

Figure 1–2 Oracle Content Services Nodes



Services, Servers, and Agents

Each node supports a [service](#) that has specific configuration parameters, such as credential managers, connections to the database, and cache sizes. By default, a single service starts on each node, and that service supports all protocol servers and agents for that node.

The [servers](#) supported by the service can be either protocol servers or agents. The protocol servers listen for requests from clients on a specific port and respond to requests according to the rules of the protocol specification. By default, each protocol server listens on the industry standard well-known port (for example, FTP listens on port 21) and adheres to the specification of the protocol server.

Agents perform operations periodically (time-based) or in response to events generated by other Oracle Content Services servers or processes (event-based). For example, the Content Garbage Collection Agent deletes content no longer associated with any document in Oracle Content Services. It does this based on an activation period parameter specified in the server configuration object. See [Appendix E, "Server Configuration Properties"](#) for more information.

Although different agents can run on different nodes, each agent must run only on a single node, except the Service Warmup Agent and the Statistics Agent. These agents must be running on all nodes, both regular and HTTP. Typically, most of the shipped agents must be run to ensure a stable system.

The Oracle Content Services architecture is flexible: services and servers are not coupled so that you can configure services, protocol servers, and agents across a wide array of hardware. For example, you can run all protocol servers on one node, and run all agents on another node; or, they can all run on the same node.

An initial domain and node configuration is set up for you during Oracle Content Services configuration, but you can change this later. You can configure the protocol servers and other processes at any point using the Oracle Collaboration Suite Control.

See [Appendix D, "Service Configuration Properties"](#) for information about service configuration parameters. See [Appendix E, "Server Configuration Properties"](#) for information about server configuration parameters.

Oracle Internet Directory

Oracle Content Services, like all Oracle Collaboration Suite components, uses Oracle Internet Directory to store and manage users.

To administer the Oracle Internet Directory associated with Oracle Content Services, use Oracle Directory Manager and other associated Oracle Internet Directory tools. See *Oracle Internet Directory Administrator's Guide* for more information.

Provisioning Users in Oracle Content Services

After users have been created in Oracle Internet Directory, they are automatically provisioned in Oracle Content Services every 15 minutes by the Oracle Internet Directory Credential Manager Agent.

You can change the default provisioning time period by changing the `IFS.SERVER.TIMER.ActivationPeriod` parameter of the Oracle Internet Directory Credential Manager Agent. You can choose a time period anywhere from 5 minutes to 24 hours. See ["Modifying Server Configurations"](#) on page 6-21 for information about changing agent parameters.

Additionally, after a user has been created in Oracle Internet Directory, signing on to Oracle Content Services as that user will immediately provision the user in Oracle Content Services, regardless of the time interval specified for the Agent. This feature, known as on-demand provisioning, can be enabled or disabled through the `IFS.DOMAIN.CREDENTIALMANAGER.AutoUserProvisioningEnabled` domain property. See ["Changing Domain Properties"](#) on page 6-1 for more information.

Oracle Records Management Provisioning

Oracle Content Services and Oracle Records Management share the same provisioning model. After a user has been provisioned in Oracle Content Services, that user will be provisioned in Oracle Records Management, and the reverse. Oracle Records Management also supports on-demand provisioning.

The Site Model

In Oracle Content Services, a Site is a discrete organizational entity whose users can collaborate on files and folders. Users in one Site do not have access to the content of users in another Site. Oracle Content Services Sites are based on identity management realms.

During Oracle Content Services installation and configuration, a default Site is created, based on the default realm in Oracle Identity Management. You can create and manage additional Sites using the Oracle Collaboration Suite Control. See [Chapter 9, "Managing Oracle Content Services Sites"](#) for more information.

If you create more than one Site, users who are not members of the default Site must specify the corresponding realm name when they sign on to Oracle Content Services.

Each Oracle Content Services Site has a designated set of application administrators to manage quota, specify Site settings, and perform other tasks. See *Oracle Content Services Application Administrator's Guide* for more information.

Oracle Records Management shares the Oracle Content Services Site model. Each Records Administrator role is specific to a particular Site, and users of nondefault Sites must specify the realm on which their Site is based when they access Oracle Records Management.

Oracle Content Services Deployment Configurations

This section describes the two types of Oracle Content Services deployment and provides information about high availability considerations:

- [Single-Computer Deployment](#)
- [Multiple-Computer Deployment](#)
- [High Availability Considerations](#)

Single-Computer Deployment

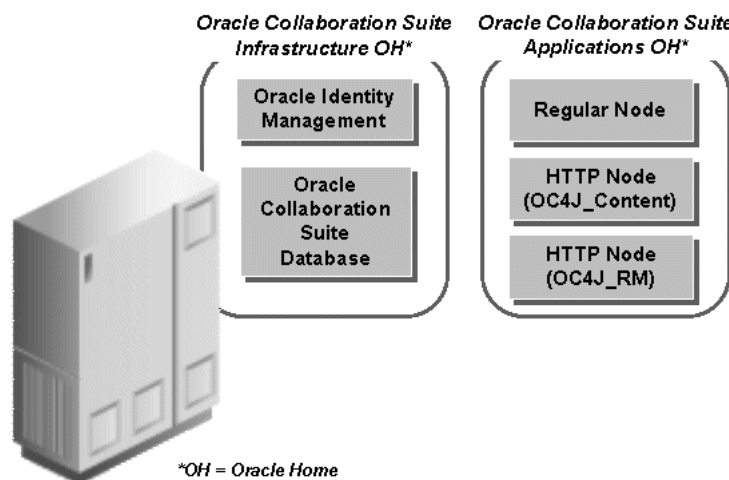
Oracle Content Services can be installed on a single computer if the computer meets the recommended hardware and software requirements. If your computer does not meet the recommended requirements, the performance of this configuration might be less than satisfactory. See *Oracle Collaboration Suite Installation Guide* for your platform for more information about hardware and software requirements.

In a single-computer deployment, Oracle Content Services and all required components are installed on a single computer. These components include Oracle Identity Management and the Oracle Collaboration Suite Database. A single-computer deployment does not allow you to use load balancing or failover options.

Because Oracle Collaboration Suite uses Oracle Internet Directory for credential management, the computer requires at least two Oracle home instances. See *Oracle Collaboration Suite Deployment Guide* for information about the number of supported users for single-computer deployment.

Figure 1–3 shows an Oracle Content Services domain running on a single computer.

Figure 1–3 Single-Computer Oracle Content Services Deployment



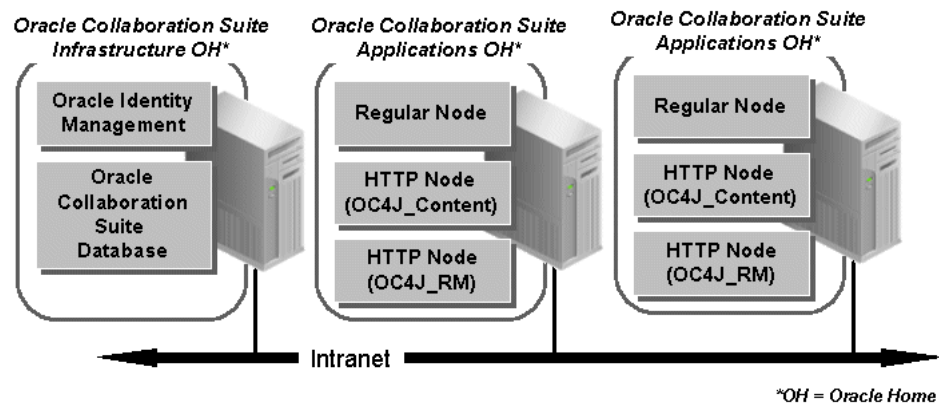
Multiple-Computer Deployment

Oracle Content Services can be deployed on multiple computers. This configuration enables you to separate the components, and configure failover, load balancers, and high availability options. Multiple-computer deployment also allows you to use computers with lower hardware requirements than required for single-computer deployment. See *Oracle Collaboration Suite Installation Guide* for your platform for more information about hardware requirements.

With the appropriate network load balancers and computer configuration, users may not know whether the Oracle Content Services instance is running on one host or across several hosts. Users access content, such as folders and files, using the appropriate client application for a particular Oracle Content Services protocol server.

Figure 1–4 is an example of a multiple-computer deployment, with Oracle Collaboration Suite components distributed across three computers.

Figure 1–4 A Multiple-Computer Oracle Content Services Deployment



Each Oracle Content Services Applications tier can include HTTP nodes, regular nodes, or both. Oracle Content Services agents can only run on one Applications tier at a time. However, agents can be deployed on multiple Applications tiers in an inactive state, and activated if the Applications tier on which they were running fails. See the following section for more information.

High Availability Considerations

When you first configure Oracle Content Services, the first Applications tier that you configure contains important configuration settings that are not stored in subsequent Applications tiers. Because of this, if you choose to deinstall the first Oracle Content Services Applications tier, or if the first Applications tier goes down, you must ensure these configuration settings are restored on another Applications tier.

The following list is a summary of these configuration settings:

- If you were running some or all of the Oracle Content Services agents on a particular Applications tier that is deinstalled or becomes unavailable, you must configure these agents to run elsewhere. To do this, modify the node configuration of a node running on another Oracle Content Services Applications tier. See ["Modifying Node Configurations"](#) on page 6-8 for more information.
- The Oracle Internet Directory Service Registry contains Oracle Content Services Web application URLs that point to a particular Applications tier (typically the first that was configured). If that Applications tier is deinstalled or becomes

unavailable, you must change these URLs to point to another Oracle Content Services Applications tier. For more information about how to change URLs in the Oracle Internet Directory Service Registry, see *Oracle Collaboration Suite Administrator's Guide*.

- The `IFS.DOMAIN.APPLICATION.ApplicationHost` domain property points to a particular Applications tier (typically the first that was configured). If that Applications tier is deinstalled or becomes unavailable, you must update this domain property to point to another Oracle Content Services Applications tier. See ["Changing Domain Properties"](#) on page 6-1 for more information.
- If you were running Oracle Mail on a particular Applications tier that is deinstalled or becomes unavailable, you must update the `IFS.DOMAIN.EMAIL.Smtphost` and `IFS.DOMAIN.EMAIL.Smtport` domain properties to point to another SMTP server. See ["Changing Domain Properties"](#) on page 6-1 for more information.
- If you collected domain and repository metrics on a particular Applications tier that is deinstalled or becomes unavailable, you must configure these metrics on another Oracle Content Services Applications tier. See ["Configuring Performance Metrics"](#) on page 7-4 for more information.
- If you have multiple Oracle Content Services Applications tiers, and the Applications tier on which you are running Oracle Workflow is deinstalled or becomes unavailable, you must manually configure Oracle Workflow on another Oracle Content Services Applications tier. See ["Configuring Oracle Workflow After Applications Tier Deinstallation"](#) on page 3-6 for more information.

Integration with Key Oracle Technologies

Oracle Content Services, a part of the Oracle Collaboration Suite, uses the capabilities of both the Oracle Database and Oracle Application Server.

This section contains the following topics:

- [Integration with Other Oracle Collaboration Suite Applications](#)
- [Integration with Oracle Database](#)
- [Integration with Oracle Application Server](#)

Integration with Other Oracle Collaboration Suite Applications

Oracle Collaboration Suite is an integrated suite of enterprise information management products. It provides a number of shared, cross-product features, such as an integrated portal home page, a consistent Web client look-and-feel, and federated search for content across all products.

Oracle Mail

If you configure Oracle Collaboration Suite 10g Mail (Oracle Mail), Oracle Mail is used as the SMTP server for Oracle Content Services e-mail notifications, such as error messages sent to application administrators and Site quota notifications. You can also choose to use Oracle Mail for the Oracle Workflow notification mailer.

Oracle Mobile Collaboration

Oracle Collaboration Suite 10g Mobile Collaboration (Oracle Mobile Collaboration), formerly known as Oracle Application Server Wireless, provides telephone and PDA access to Oracle Content Services. You can browse files, view documents (depending

on file type), send links to documents, and fax documents from a wireless device. Oracle Mobile Collaboration integrates to Oracle Content Services through the WebDAV protocol.

Oracle Workspaces

Oracle Collaboration Suite 10g Workspaces (Oracle Workspaces) uses Oracle Content Services for its repository, and connects to Oracle Content Services through the Oracle Content Services Web services. Oracle Workspaces also provides access to Oracle Content Services Libraries from its Web client.

Integration with Oracle Database

Oracle Content Services uses Oracle Database to store all content and metadata.

Oracle Database and the Oracle Content Services Schema

All content and metadata about the Oracle Content Services instance is stored in an Oracle database. These objects, including tablespaces, tables, indexes, views, sequences, and procedures owned by the schema, provide the underpinnings of a fully functioning system.

There are additional schemas created to ensure secure connectivity to other systems. These additional schema names are derived from the Oracle Content Services schema name. For example, if the Oracle Content Services schema name is `CONTENT`, the additional schemas are `CONTENT$CM` and `CONTENT$ID`.

User content, such as word processing files, spreadsheets, sound files, and presentations, is stored by Oracle Content Services in the database as large objects (LOBs).

LOBs enable fast access and optimized storage for large bits of content, often binary, stored in the database. Otherwise, all content in the Oracle Content Services schema is stored as standard data types in various tables.

Oracle Text

Oracle Text is full-text retrieval technology built into Oracle Database for indexing and searching text and documents. Oracle Text supports mixed languages and character sets in the same index. Oracle Content Services uses the text indexing and retrieval features of Oracle Text.

Oracle Streams Advanced Queueing

Oracle Streams Advanced Queueing provides an infrastructure for distributed applications to communicate asynchronously using messages. Oracle Streams Advanced Queueing is built into Oracle Database.

Oracle Content Services uses Oracle Streams Advanced Queueing to integrate with Oracle Workflow and Oracle BPEL Process Manager.

Oracle Real Application Clusters (Oracle RAC)

A cluster is a group of computers that work together and behave as a single system. Clustering requires both hardware (interconnect) and software (clusterware) support. In the past, clusters were used in high availability read-only applications, such as data warehouses. Now, clusters are increasingly becoming a lower-cost approach for computing applications that require high availability and scalability.

An Oracle Real Application Cluster consists of two or more computers configured to interact and provide the appearance of a single Oracle database. These Oracle RAC nodes are linked by an interconnect. The interconnect serves as the communication path between each node in the cluster database. Each Oracle Database instance uses the interconnect for the messaging that synchronizes each instance's use of shared resources. Oracle also uses the interconnect to transmit data blocks that are shared by the multiple instances. The data files accessed by all the nodes are the primary type of shared resource.

Oracle RAC requires that all nodes have simultaneous access to the shared disks to give the instances concurrent access to the database. The implementation of the shared disk subsystem is based on your operating system: you can use either a cluster file system, or place the files on raw devices. Cluster file systems simplify the installation and administration of Oracle Real Application Clusters.

When you add or remove Oracle RAC nodes for Oracle Collaboration Suite, the Oracle RAC databases are automatically registered in Oracle Internet Directory. Oracle Content Services uses the information stored in Oracle Internet Directory to connect. Although you do not need to specify database connection information on Applications tiers, you must restart the Oracle Content Services domain after you add or remove an Oracle RAC node.

For more information about Oracle RAC, see *Oracle Database Oracle Clusterware and Oracle Real Application Clusters Administration and Deployment Guide*.

Integration with Oracle Application Server

Oracle Content Services is designed to integrate with several components from the Oracle Application Server product family, including Oracle Internet Directory, the Oracle Collaboration Suite Control, and OC4J.

Oracle Application Server Containers for J2EE (OC4J)

OC4J is a J2EE-compliant application server that supports Java Server Pages (JSP), Java servlets, and many other APIs from the Java 2 Platform, Enterprise Edition (J2EE). Services are deployed to an OC4J instance using XML-based configuration files as standard Web Application Archive(.WAR), Enterprise Application Archive (.EAR), Resource Adapter Archive (.RAR), and Java Archive (.JAR) files. Oracle Content Services uses the Java Servlet and the run-time environment of OC4J to support the HTTP/DAV servlet, application servlet, portlet servlet, and Web services.

OC4J is automatically configured for the Oracle Content Services HTTP node and the Oracle Records Management HTTP node as part of the Oracle Content Services configuration process. You can manage OC4J through the Oracle Collaboration Suite Control.

Oracle Process Manager and Notification Server (OPMN)

OPMN manages all the components within an application server instance, including Oracle HTTP Server, OC4J processes, and OracleAS Web Cache. It channels all events from different components to all components interested in receiving them.

OPMN provides the following functionality:

- Provides a command-line interface for process control and monitoring for single or multiple Oracle Application Server components and instances.
- Provides an integrated way to manage Oracle Application Server components.

- Solves interdependency issues between Oracle Application Server components by enabling you to start and stop components in order.
- Provides automatic restart of Oracle Application Server processes when they become unresponsive, terminate unexpectedly, or become unreachable as determined by ping and notification operations.

The OPMN server should be started as soon as possible after turning on the computer. OPMN must be running whenever OPMN-managed components are turned on or off.

Note: On the Microsoft Windows operating system, OPMN is installed as a Windows service (`Oracle<OracleHomename>ProcessManager`). It starts up automatically when you start or restart your computer.

You can use the OPMN command-line tool, `opmnctl`, to manage Oracle Content Services. For complete information about `opmnctl` syntax and usage, see *Oracle Process Manager and Notification Server Administrator's Guide*.

Oracle Enterprise Manager

Oracle Enterprise Manager is a systems management software application that enables you to manage and monitor Oracle Application Server instances and other Oracle products. You can use the following Oracle Enterprise Manager Web-based interfaces:

- Use the Oracle Enterprise Manager 10g Application Server Control for Collaboration Suite (Oracle Collaboration Suite Control) to manage Oracle Content Services Applications tier hosts.
- Use the Oracle Enterprise Manager 10g Application Server Control (Application Server Control) to manage Oracle Identity Management hosts.

Use the Oracle Collaboration Suite Control to operate and monitor system processes associated with the Oracle Content Services domain and nodes. You can also configure any components that were not configured during Oracle Collaboration Suite installation.

You can access the Oracle Collaboration Suite Control using a Web browser from anywhere on the network. The first page you see is the Oracle Application Server Farm Home page, which lets you view the application server instances in your Oracle Collaboration Suite deployment. From this page, you can access the Collaboration Suite Home page, which shows the Oracle Collaboration Suite components configured for the current Applications tier.

Oracle Internet Directory

Oracle Internet Directory is a Lightweight Directory Access Protocol (LDAP) v.3-compliant directory service implementation. Oracle Internet Directory provides user authentication and other directory service features, such as user provisioning, to Oracle Collaboration Suite components. See *Oracle Internet Directory Administrator's Guide* for more information.

Oracle BPEL Process Manager

Oracle BPEL Process Manager provides a framework to design, deploy, monitor, and administer processes based on BPEL standards. You can define custom BPEL workflows in Oracle BPEL Process Manager, and then register them for use in Oracle Content Services. Custom workflows are only available to the default Site in Oracle

Content Services; additional Sites cannot use the custom workflows. See [Chapter 3, "Managing Workflows in Oracle Content Services"](#) for detailed information.

About BPEL The Business Process Execution Language (BPEL) is an XML-based language for enabling task-sharing across multiple enterprises using a combination of Web services. BPEL is based on the XML schema, Simple Object Access Protocol (SOAP), and Web Services Description Language (WSDL). Using BPEL, you design a business process that integrates a series of discrete services into an end-to-end process flow. For more information about BPEL and Oracle BPEL Process Manager, see *Oracle BPEL Process Manager Developer's Guide*.

Oracle Workflow

Oracle Workflow is business-process automation software. You can use Oracle Workflow to automate the process of routing and approving information, according to business rules you specify. Oracle Content Services integrates with Oracle Workflow to support the default workflow processes shipped with Oracle Content Services.

You can view workflow notifications by accessing the Oracle Content Services Reports feature, or you can configure Oracle Workflow to send e-mail notifications. See [Chapter 3, "Managing Workflows in Oracle Content Services"](#) for more information.

Oracle Content Services Deployment Options

After you install and configure Oracle Content Services, you may want to customize your setup for a particular deployment scenario. For example, you may want to integrate Oracle Content Services with an antivirus solution, or run the Oracle Content Services application on a different port number.

Additional deployment options are covered elsewhere in this book. See the following references for more information:

- ["Enabling FTP" on page 4-3](#)
- ["Enabling FTPS" on page 4-4](#)
- ["Creating Sites" on page 9-2](#)

This chapter provides information about the following topics:

- [Setting Up Oracle Records Management](#)
- [Setting Up Antivirus Integration](#)
- [Managing Storage Options](#)
- [Integrating with Solutions for Records Management Retention](#)
- [Changing the Oracle Content Services Port Number](#)
- [Allowing Access to Oracle Content Services from Outside the Firewall](#)
- [Setting Up the OmniPortlet](#)

Setting Up Oracle Records Management

Records management is the systematic and comprehensive control of the creation, capture, maintenance, filing, use, and disposition of records. Its goal is to ensure that records:

- Are authentic and reliable
- Can be retrieved when needed as quickly and efficiently as possible
- Are not destroyed prematurely or kept longer than required

Oracle Records Management is a records management application that ships with Oracle Content Services. It must be licensed separately; see *Oracle Collaboration Suite Licensing Information* for more information.

When you install Oracle Content Services, Oracle Records Management is installed automatically, but the application is disabled by default. You can use the Oracle

Collaboration Suite Control to enable Oracle Records Management. You can also choose to configure records management-related metrics.

User permissions related to Oracle Records Management are managed from the Oracle Content Services Web client. See *Oracle Content Services Application Administrator's Guide* for more information.

For information about how to use Oracle Records Management, see *Oracle Records Management Administrator's Guide*.

Enabling Oracle Records Management

Although the Oracle Records Management application is disabled, by default, after you install and configure Oracle Content Services, you can use the Oracle Collaboration Suite Control to enable Oracle Records Management.

To enable Oracle Records Management, you must first enable the Oracle Records Management OC4J instance (OC4J_RM), then activate the node configuration for the Oracle Records Management HTTP node. Finally, you must activate the Records Management Lifecycle Agent.

Note: You *must* activate the node configuration for the Oracle Records Management HTTP node to use Oracle Records Management. It is not enough to enable only the Oracle Records Management OC4J instance.

Enabling Oracle Records Management OC4J Instances

If you have multiple Oracle Content Services Applications tiers on which you want to enable Oracle Records Management, you must connect to the Oracle Collaboration Suite Control on each Applications tier to enable multiple Oracle Records Management OC4J instances.

To enable Oracle Records Management OC4J instances:

1. Connect to the Oracle Collaboration Suite Control and go to the Collaboration Suite Home page.
2. From the Collaboration Suite Home page, click **Enable/Disable Components**.
3. From the Disabled Components list, select **OC4J_RM** and click **Remove**. The selected component appears in the Enabled Components list.
4. Click **OK**.
5. Restart Oracle HTTP Server (**HTTP_Server**) from the Collaboration Suite Home page.
6. Repeat these steps for each Oracle Content Services Applications tier on which you want to run Oracle Records Management.

Activating Oracle Records Management HTTP Node Configurations

You can activate all Oracle Records Management HTTP node configurations from one Applications tier.

To activate Oracle Records Management HTTP node configurations:

1. Connect to the Oracle Collaboration Suite Control and go to the Content Services Home page.
2. In the Administration section, click **Node Configurations**.

3. Click the name of the Oracle Records Management HTTP node for this Applications tier. The name of the Oracle Records Management HTTP node appears in the following format: *Applications_tier_name_RM_HTTP_Node*.
4. Select **Active** in the General section, then click **OK**.
5. If you have multiple Applications tiers on which you want to enable Oracle Records Management, click the names of the Oracle Records Management HTTP nodes for the other Applications tiers. On the Edit Node Configuration page for these nodes, select **Active**, then click **OK**.
6. Return to the Content Services Home page and start each Oracle Records Management HTTP node. To do this, select each **OC4J_RM** instance in the Processes list and click **Start**.

Each Oracle Records Management HTTP node has the same display name (OC4J_RM). Use the Middle Tier column of the Processes table to distinguish between different Oracle Records Management HTTP nodes. (In the Oracle Collaboration Suite Control, Middle Tier is used interchangeably with Applications tier.)

7. After you have at least one Oracle Records Management HTTP node running, you can access the Oracle Records Management application from any Web browser. The default URL is:

```
http://hostname:port/rm
```

Use the same host name and port as for the Oracle Content Services application. Use `https://` if you are using SSL.

Activating the Records Management Lifecycle Agent

The Records Management Lifecycle Agent runs on only one Applications tier. You must activate this agent for Oracle Records Management to work properly.

See ["Records Management Lifecycle Agent"](#) on page E-14 for more information about this agent.

To activate the Records Management Lifecycle Agent:

1. Connect to the Oracle Collaboration Suite Control and go to the Content Services Home page.
2. In the Administration section, click **Node Configurations**.
3. On the Node Configurations page, click the name of the regular node that runs the Records Management Lifecycle Agent.
4. In the Servers section, select **RmLifeCycleAgent** and click **Edit**.
5. Select **Active**, then click **OK**.
6. On the Edit Node page, click **OK**.
7. Return to the Content Services Home page and restart the node that corresponds to the node configuration you edited.

Configuring Records Management-Related Metrics

You can optionally choose to collect metrics related to Oracle Records Management Web application response time by configuring particular performance metrics on each Applications tier. For more information about how to do this, see ["Configuring Performance Metrics"](#) on page 7-4.

Setting Up Antivirus Integration

Oracle Content Services integrates with a partner solution, the Symantec AntiVirus Scan Engine (SAVSE), to provide options to verify that content is virus free and to clean files that are infected.

After antivirus integration has been set up, files will be scanned for viruses whenever they are opened for read access, using the latest available virus definitions. The following files will be excluded from the scanning process:

- Files that are quarantined
- File formats (such as .doc) that are excluded by the administrator
- Files that have already been scanned using the current virus definitions

If a file is infected with a virus, it will be marked as quarantined, and users will not be able to open the file until it is repaired. Contents of the file will remain unreadable even if virus checking is disabled by the administrator.

The Virus Repair Agent is responsible for repair attempts and retrieving the latest virus definitions. Whenever the agent becomes active, it polls the SAVSE server for updated virus definitions, and then attempts to repair the quarantined files. The agent will not attempt to repair the following files:

- Files that have exceeded the maximum number of repair attempts
- Files that have already experienced repair attempts using the current virus definitions

The following sections describe how to set up virus checking in Oracle Content Services:

- [Setting Up SAVSE](#)
- [Enabling Antivirus Functionality in Oracle Content Services](#)
- [Excluding Formats from Being Scanned](#)
- [Performance Implications of Scanning for Viruses](#)

Setting Up SAVSE

SAVSE must be installed and configured properly to function with Oracle Content Services. The following options must be set:

- You must select ICAP as the communication protocol. No other protocols are supported.
- You must set the scan policy to Scan and Repair or Scan Only. If you choose Scan Only, no repair attempts will be made. The Scan and Delete and Scan, Repair or Delete options are not supported.
- You must enable the ICAP 403 response. This parameter cannot be set using the SAVSE administration tool; instead, it must be manually set in the SAVSE configuration file.

Enabling Antivirus Functionality in Oracle Content Services

After the SAVSE server has been installed and configured, you can enable antivirus functionality in Oracle Content Services. You can also change the maximum number of repair attempts for quarantined documents, and configure how often the Virus Repair Agent is activated. Use the Oracle Collaboration Suite Control to perform these tasks.

To enable antivirus functionality and set the maximum number of repair attempts:

1. Connect to the Oracle Collaboration Suite Control and go to the Content Services Home page.
2. In the Administration section, click **Domain Properties**.
3. Click the **IFS.DOMAIN.ANTIVIRUS.Enabled** property, set the value to **true**, and click **OK**.
4. Click the **IFS.DOMAIN.ANTIVIRUS.Host** property, enter the host name or IP address of the computer where the SAVSE server is running, and click **OK**.
5. Click the **IFS.DOMAIN.ANTIVIRUS.MaxRepairAttempts** property, enter the number of times you want the Virus Scan Agent to attempt to repair a file, and click **OK**.
6. Click the **IFS.DOMAIN.ANTIVIRUS.Port** property, enter the value for the SAVSE listener port, and click **OK**.
7. Return to the Content Services Home page and click **Restart Domain**.

To configure how often the Virus Repair Agent becomes active:

1. Connect to the Oracle Collaboration Suite Control and go to the Content Services Home page.
2. In the Administration section, click **Server Configurations**.
3. Click **VirusRepairAgentConfiguration**.
4. In the Properties section, click **IFS.SERVER.TIMER.ActivationPeriod**.
5. Change the **Value** as necessary.
6. On the Edit Property page, click **OK**.
7. On the Edit Server Configuration page, click **OK**.
8. Return to the Content Services Home page and restart the node that runs this agent.

Excluding Formats from Being Scanned

You can exclude formats from being scanned for viruses to improve system performance. For example, you may choose to only scan formats with a higher probability of being infected, such as .zip files. Use the Oracle Collaboration Suite Control to exclude formats from virus checking.

To exclude formats from being scanned:

1. Connect to the Oracle Collaboration Suite Control and go to the Content Services Home page.
2. In the Administration section, click **Formats**.
3. Click the name of the format you want to exclude from virus scanning.
4. Select **Omitted From Anti-Virus Scan**.
5. Click **OK**.

Performance Implications of Scanning for Viruses

The performance of Oracle Content Services may be affected by enabling the virus checking option. The performance impact depends on the following factors:

- The frequency of virus definition updates made to the SAVSE service. Each time virus definitions are updated, *all* files that are opened (except for quarantined or excluded files) are scanned - none are excluded based on having already been scanned with these definitions, because the definitions are new.

After a virus definition update, overall system performance will degrade initially, but will gradually return to normal as more files are scanned with the current virus definitions and are therefore excluded from subsequent scans.
- The size and frequency of use of the Oracle Content Services repository.
- The type and size of the data in the repository.
- The probability of the number of attempted reads on unique files. Since files will only be scanned the first time they are opened against the current definitions, the frequency of unique files will affect performance.
- The performance of the SAVSE service. This is the most significant performance factor.
- The number of files whose format has been excluded from scanning by the administrator. Excluding certain formats will reduce the number of scans and improve system performance.

Managing Storage Options

The Oracle Content Services storage management options provide support for both offline and near-line storage. In offline and near-line storage, content that is infrequently accessed is moved from expensive online media, such as a disk array, to a cheaper offline medium, such as tape. The metadata and search indexes are kept online and are readily available.

Oracle Content Services uses BFILES to support offline and near-line storage. A BFILE is a read-only Oracle data type consisting of a directory object and a file name. Updating a document whose content is stored as a BFILE results in the content being reloaded from the external storage as a new binary large object (BLOB), where the modifications are made. The new content will be indexed, depending on its format. End users will be unaware of where their content is stored.

This section provides information about the following topics:

- [Data Aging and Archiving](#)
- [Near-Line Storage for Records](#)
- [Specifying Storage Management Options](#)

Data Aging and Archiving

Oracle Content Services provides both data aging and data archiving through BFILES. Through data aging, content that has not been accessed for a specified interval can be automatically moved from a BLOB to a BFILE. Through data archiving, content in the [Archive](#) is automatically moved from a BLOB to a BFILE.

Content that has been moved to a BFILE is still accessible, and is visible as any content would be when users are browsing or searching.

BFILE aging and archiving are not enabled by default. Follow the instructions in the subsequent sections to set up BFILE aging and archiving:

- [Setting Up Data Aging](#)

■ [Setting Up Data Archiving](#)

Setting Up Data Aging

Oracle Content Services is not set up for BFILE aging by default. To configure BFILE aging, you must first set domain properties that enable BFILE aging, then you must configure and activate the Content Agent. You can also specify storage management options.

To set domain properties that enable BFILE aging:

1. Connect to the Oracle Collaboration Suite Control and go to the Content Services Home page.
2. In the Administration section, click **Domain Properties**.
3. Click **IFS.DOMAIN.BFILE.Enabled**, set the value to **true**, and click **OK**.
4. Click **IFS.DOMAIN.BFILE.AgingEnabled**, set the value to **true**, and click **OK**.
5. Return to the Content Services Home page and click **Restart Domain**.

To configure and activate the Content Agent:

1. Connect to the Oracle Collaboration Suite Control and go to the Content Services Home page.
2. In the Administration section, click **Server Configurations**.
3. Click **ContentAgentConfiguration**.
4. Edit the server configuration properties as desired; see the Content Agent properties in [Appendix E, "Server Configuration Properties"](#) for more information about specific properties. In particular, you may want to edit **IFS.SERVER.AGENT.CONTENTAGENT.RetentionPeriod**; this property specifies the inactivity interval for files before they are moved to a BFILE.
5. Click **OK**.
6. Return to the Content Services Home page, and in the Administration section, click **Node Configurations**.
7. Click the name of the node configuration that corresponds to the node where you want to run the Content Agent.
8. On the Edit Node Configuration page, in the Servers section, click **ContentAgent**.
9. Select **Initially Started** and click **OK**.
10. On the Edit Node Configuration page, click **OK**.
11. Return to the Content Services Home page, select the node that corresponds to the node configuration you edited, and click **Restart**.

After you have set the domain properties for BFILE aging and configured the Content Agent, you can set storage management options as described in ["Specifying Storage Management Options"](#) on page 2-8.

Setting Up Data Archiving

Oracle Content Services is not set up for BFILE archiving by default. To configure BFILE archiving, you must set domain properties that enable BFILE archiving. You can also specify storage management options.

To set domain properties that enable BFILE archiving:

1. Connect to the Oracle Collaboration Suite Control and go to the Content Services Home page.
2. In the Administration section, click **Domain Properties**.
3. Click **IFS.DOMAIN.BFILE.Enabled**, set the value to **true**, and click **OK**.
4. Click **IFS.DOMAIN.BFILE.ArchivingEnabled**, set the value to **true**, and click **OK**.
5. Return to the Content Services Home page and click **Restart Domain**.

After you have set the domain properties for BFILE archiving, you can set storage management options as described in ["Specifying Storage Management Options"](#) on page 2-8.

Near-Line Storage for Records

If you are using Oracle Records Management, you have the option of storing certain types of records using BFILES. Near-line storage for records is not enabled by default; to enable this option, you must set a BFILE-related domain property and specify storage management options.

Setting Up Near-Line Storage for Records

To set the domain property that enables near-line records storage:

1. Connect to the Oracle Collaboration Suite Control and go to the Content Services Home page.
2. In the Administration section, click **Domain Properties**.
3. Click **IFS.DOMAIN.BFILE.Enabled**, set the value to **true**, and click **OK**.
4. Return to the Content Services Home page and click **Restart Domain**.

After you have set the domain property to enable near-line storage for records, you can set storage management options as described in the following section.

Specifying Storage Management Options

You can change the default base path and policy for BFILE storage using the Oracle Collaboration Suite Control. These settings apply to all types of BFILE storage, including BFILE aging, BFILE archiving, and near-line storage for records.

To specify storage management options:

1. Connect to the Oracle Collaboration Suite Control and go to the Content Services Home page.
2. In the Administration section, click **Storage Management**.

You will not be able to access the Storage Management page unless you have already set the **IFS.DOMAIN.BFILE.Enabled** property to **true**.

[Figure 2-1](#) shows the Storage Management page.

Figure 2–1 Storage Management Page**Storage Management**

You can use BFILES to provide off-line and near-line storage capabilities. A BFILE is a read-only Oracle data type consisting of a directory object and a filename. Specify the BFILE location and policy for BFILE storage.

Cancel OK

BFILE Location

Enter the base path where you want to store BFILE data (the operating system files). The directory or drive you specify must be both readable and writeable by the database processes.

* BFILE Base Path

Specify an absolute path that starts with '/' on UNIX, or a drive letter on Windows. To specify a path relative to the database's Oracle home, use './'.

BFILE Policy

The BFILE Policy determines whether the BFILE data (the operating system files) should be deleted when BFILE references are deleted from the database.

Delete BFILE References? ☒ Yes, Delete The Operating System Files
☐ No, Retain The Operating System Files

Cancel OK

3. Change the **BFILE Base Path**. The default base path is:

`ORACLE_HOME/ifsfiles/content_services_schema`

`ORACLE_HOME` refers to the database Oracle home on the database computer.

Each BFILE has a relative path in addition to the base path. The relative path is:

`/yyyy/dd/mm/hh/mm/ss/ifsbfile_id`

In the relative path, `ifsbfile_id` is the file naming pattern that associates a unique ID to each piece of content.

4. Change the **BFILE Policy**. This policy determines whether the operating system files should be deleted when the BFILE references are deleted from the database. If you are storing BFILES on an optical device that does not permit deletion, you should specify that the operating system files should be retained.
5. Click **OK**.

Integrating with Solutions for Records Management Retention

Oracle Content Services supports integration with two records management retention solutions: Network Appliance SnapLock and EMC Centera. These retention storage solutions provide write once, read many (WORM) data permanence capabilities for records management and regulatory compliance requirements. The critical data becomes immutable, nonrewritable, and unremovable for a specified retention period.

You must license Oracle Records Management in order to use a retention storage solution with Oracle Content Services. See *Oracle Collaboration Suite Licensing Information* for more information.

To integrate Oracle Content Services with a records management retention device, you must install and configure the hardware, either Network Appliance SnapLock or EMC Centera. Then, refer to the following sections for additional information about configuring Oracle Content Services for the appropriate retention device:

- [Configuring Oracle Content Services for Network Appliance SnapLock](#)
- [Configuring Oracle Content Services for EMC Centera](#)

Note: The features described in this section were added to Oracle Collaboration Suite in the Oracle Collaboration Suite Cumulative Patchsets 10.1.2.1 and 10.1.2.2. Support for Network Appliance SnapLock was added in the Oracle Collaboration Suite Cumulative Patchset 10.1.2.1, and support for EMC Centera was added in the Oracle Collaboration Suite Cumulative Patchset 10.1.2.2.

If you are using a previous version or patchset of Oracle Collaboration Suite, the features described are not available.

Configuring Oracle Content Services for Network Appliance SnapLock

Follow the instructions in this section to configure Oracle Content Services for Network Appliance SnapLock integration. Before you begin, make sure that Oracle Records Management has been configured and that the Records Management Lifecycle Agent has been activated. See "[Setting Up Oracle Records Management](#)" on page 2-1 for more information.

This section contains the following topics:

- [Configuring the Database Computer for Network Appliance SnapLock](#)
- [Configuring the Applications Tier Computer for Network Appliance SnapLock](#)

Configuring the Database Computer for Network Appliance SnapLock

Network Appliance SnapLock uses NFS to move data from the Oracle Collaboration Suite database to the retention storage device.

To configure the database computer on UNIX systems:

1. As the root user, perform an NFS mount to the SnapLock volume. Refer to the documentation for your operating system for optimum NFS mount point options.
2. In the mounted directory, create another directory. This new directory will be considered as the relative path to the SnapLock volume. The owner and group permissions on this new directory must be the same as that of the operating system user running the database.

To configure the database computer on Microsoft Windows systems:

1. On the database computer, install and configure an NFS client for Windows systems.
2. Ensure that the `pcnfsd` daemon process is running on the Network Appliance device. To start the `pcnfsd` process:
 - a. Access the Web-based Network Appliance administration tool, `na_admin`, using the following URL:
`http://hostname/na_admin`
 - b. Click the **FilerView** icon.
 - c. When prompted, provide the `na_admin` user name and password.
 - d. Click **NFS > Configure** in the left navigation pane.
 - e. Set **PCNFS Enabled** to **Yes**.
 - f. Click **Apply**.

Alternatively, you can telnet to the Network Appliance device and type the following command:

```
options pcnfsd.enable on
```

3. Use the NFS client to map a drive to the SnapLock volume. This will cause the SnapLock volume to appear as a drive letter.

Refer to the documentation for your NFS client for optimum NFS mount point options.

Configuring the Applications Tier Computer for Network Appliance SnapLock

Perform the following steps on the Applications tier that is running the Records Management Lifecycle Agent. To determine which Applications tier is running this agent, use the Oracle Collaboration Suite Control to view each node to see where the agent is running.

Follow the steps in these sections to configure the Applications tier:

- [Installing the Network Appliance SnapLock Software](#)
- [Setting Domain Properties for Network Appliance SnapLock](#)
- [Specifying Credential Information for Network Appliance SnapLock](#)

Installing the Network Appliance SnapLock Software

You must install the Network Appliance SnapLock software on the Applications tier that is running the Records Management Lifecycle Agent. To do this, follow these steps:

1. Obtain the Network Appliance SnapLock software (version 1.5 or later), located in the Network Appliance `manageontap.jar` file. You can obtain this file from the Network Appliance NOW (NetApp on the Web) site at <http://now.netapp.com>.

You must become a member of the NOW site by clicking the **New User Sign Up** link. There is no cost to join. Once you are a member, go to the following URL to download the software:

```
http://now.netapp.com/NOW/download/tools/oracleocs\_manageontap/
```

Be sure to refer to the Network Appliance certification information to ensure that Network Appliance supports your operating system.

2. Copy the `manageontap.jar` file to the `ORACLE_HOME/content/lib` directory.
3. Modify the classpath in the following XML files to include the `manageontap.jar` file:
 - `ORACLE_HOME/opmn/conf/opmn.xml`
 - `ORACLE_HOME/j2ee/OC4J_Content/application-deployments/content/content/orion-web.xml`
 - `ORACLE_HOME/j2ee/OC4J_RM/application-deployments/rm/rm/orion-web.xml`

Note: For more information about the Network Appliance software, refer to *Data ONTAP System Administration Guide* at the Network Appliance NOW site at <http://now.netapp.com>.

Setting Domain Properties for Network Appliance SnapLock

Use the Oracle Collaboration Suite Control to set domain properties related to Network Appliance SnapLock. To do this, follow these steps:

1. On the Content Services Home page, click **Domain Properties**.
2. Click **IFS.DOMAIN.RETENTION.StorageDevice**. You may need to move to the next page to find this property, or you can use the **Search** field.
3. In the **Value** field, select **SNAPLOCK** and click **OK**.
4. Click **IFS.DOMAIN.RETENTION.SNAPLOCK.Configuration**.
5. Click **HOST**.
6. In the **Value** field, specify the host name or IP address of the Network Appliance device and click **OK**.
7. Click **MOUNTPPOINT**.
8. In the **Value** field, enter the absolute path where the Network Appliance is NFS-mounted on the database and click **OK**.

If the database computer is running on Windows, you must enter a universal naming convention (UNC) path. For example, for a Filer called **snapsrver** and a volume called **wormdrive**, you would enter the following path:

```
\\\\\\snapsrver\\wormdrive
```

Because the backslash (\) is a common escape character, you must add an additional backslash to each backslash in the path. This means that you must enter four backslashes at the beginning of the path.

9. Click **PORT**.
10. In the **Value** field, enter the port used to communicate with the Network Appliance device through HTTP and click **OK**. The default port is 80.
11. Click **RELATIVEPATH**.
12. In the **Value** field, specify the relative path to the NFS mount point where content should be stored and click **OK**.

If the database computer is running on Windows, you must enter a universal naming convention (UNC) path. Because the backslash (\) is a common escape character, you must add an additional backslash to each backslash in the path.

13. Click **SNAPLOCKEXPORTPATH**.
14. In the **Value** field, specify the absolute path of the NFS-exported volume and click **OK**.
15. On the Edit Domain Property page, click **OK**.

Specifying Credential Information for Network Appliance SnapLock

Use the Oracle Collaboration Suite Control to specify credential information for Network Appliance SnapLock. To do this, follow these steps:

1. From the Content Services Home page, click **Retention Hardware**.

[Figure 2–2](#) shows the Retention Hardware page.

Figure 2–2 Retention Hardware Page

Retention Hardware

Choose a retention device to manage its connection credentials. Cancel OK

Retention Device Type	Network Appliance SnapLock
Username	netapp_admin
Password	*****
Confirm Password	*****

Cancel OK

2. In the **Retention Device Type** field, select **Network Appliance SnapLock**.
3. Enter a **Username** for Network Appliance SnapLock. You must provide a user name created in Network Appliance SnapLock; do not provide an Oracle Content Services user name.
4. Enter a corresponding **Password** for Network Appliance SnapLock, and confirm it in the **Confirm Password** field.
5. Click **OK**.
6. Return to the Content Services Home page and click **Restart Domain**.

Configuring Oracle Content Services for EMC Centera

Follow the instructions in this section to configure Oracle Content Services for EMC Centera integration. Before you begin, make sure that Oracle Records Management has been configured and that the Records Management Lifecycle Agent has been activated. See "[Setting Up Oracle Records Management](#)" on page 2-1 for more information.

You should perform the steps in the following sections on the Applications tier that is running the Records Management Lifecycle Agent. To determine which Applications tier is running this agent, use the Oracle Collaboration Suite Control to view each node to see where the agent is running

This section contains the following topics:

- [Installing the EMC Centera Software](#)
- [Setting Domain Properties for EMC Centera](#)
- [Specifying Credential Information for EMC Centera](#)

Installing the EMC Centera Software

You must install the EMC Centera software on the Applications tier that is running the Records Management Lifecycle Agent. To do this, follow these steps:

1. Download EMC Centera 3.1 Patch 1 SDK or later from [OracleMetaLink](http://metalink.oracle.com) at <http://metalink.oracle.com>. To find the SDK on [OracleMetaLink](http://metalink.oracle.com), search for patch number 5072277.

This SDK contains the necessary .jar and library files. Follow the instructions in the readme to install the software.

2. Modify the classpath in the following XML files to include the `FPLibrary.jar` file:

- `ORACLE_HOME/opmn/conf/opmn.xml`

- `ORACLE_HOME/j2ee/OC4J_Content/application-deployments/content/content/orion-web.xml`
 - `ORACLE_HOME/j2ee/OC4J_RM/application-deployments/rm/rm/orion-web.xml`
3. In `ORACLE_HOME/opmn/conf/opmn.xml`, include the directory that contains the libraries in the appropriate path variable for the node, `OC4J_Content`, and `OC4J_RM`. This variable is called `LD_LIBRARY_PATH` on Linux and Solaris, `PATH` on Windows, `SHLIB_PATH` on HP-UX, and `LIBPATH` on AIX. For example, on Linux, include the following entry:

```
<environment>
  <variable id="$LD_LIBRARY_PATH" value "$LD_LIBRARY_PATH:absolute_path_to_Centera_lib_directory"/>
</environment>
```

An example path on Linux could be:

```
/usr/local/centera31/lib
```

Note: If `opmn.xml` does not include an `<environment>` entry for the variable for your platform, you must create one.

Setting Domain Properties for EMC Centera

Use the Oracle Collaboration Suite Control to set domain properties related to EMC Centera. To do this, follow these steps:

1. On the Content Services Home page, click **Domain Properties**.
2. Click **IFS.DOMAIN.RETENTION.StorageDevice**. You may need to move to the next page to find this property, or you can use the **Search** field.
3. In the **Value** field, select **CENTERA** and click **OK**.
4. Click **IFS.DOMAIN.RETENTION.CENTERA.Configuration**.
5. Click **ADDRESSLIST**.
6. In the **Value** field, enter the comma-separated IP addresses of the EMC retention clusters and click **OK**.
7. On the Edit Domain Property page, click **OK**.

Specifying Credential Information for EMC Centera

Use the Oracle Collaboration Suite Control to specify credential information for EMC Centera. To do this, follow these steps:

1. From the Content Services Home page, click **Retention Hardware**.

[Figure 2-3](#) shows the Retention Hardware page.

Figure 2–3 Retention Hardware Page**Retention Hardware**

Choose a retention device to manage its connection credentials.

Cancel OK

Retention Device Type	EMC Centera
Username	emc_admin
Password	*****
Confirm Password	*****

Cancel OK

2. In the **Retention Device Type** field, select **EMC Centera**.
3. Enter a **Username** for EMC Centera. You must provide a user name created in EMC Centera; do not provide an Oracle Content Services user name.
4. Enter a corresponding **Password** for EMC Centera, and confirm it in the **Confirm Password** field.
5. Click **OK**.
6. Return to the Content Services Home page and click **Restart Domain**.

Changing the Oracle Content Services Port Number

If you want to change the Oracle Content Services application port to a different port number, perform the tasks listed in the following sections:

- [Changing the Port Number in Oracle HTTP Server](#)
- [Changing the Port Number in OracleAS Web Cache](#)
- [Registering the New Port with OracleAS Single Sign-On](#)
- [Updating the Oracle Internet Directory Service Registry](#)
- [Changing the Port Number in Oracle Content Services](#)
- [Updating Metric Configuration URLs](#)

For additional information about changing port numbers, see Chapter 14, "Changing Oracle Collaboration Suite Network Configurations" in *Oracle Collaboration Suite Administrator's Guide*.

Changing the Port Number in Oracle HTTP Server

Use the Oracle Collaboration Suite Control to change the port number in Oracle HTTP Server.

1. From the Collaboration Suite Home page, click **HTTP_Server**.
2. Click **Administration**.
3. Click **Server Properties**.
4. In the Listening Addresses and Ports section, change the **Default Port** to the desired port number.
5. Click **Apply**.
6. On the Confirmation page, click **Yes** to restart Oracle HTTP Server.

Changing the Port Number in OracleAS Web Cache

If OracleAS Web Cache is enabled, you must change the port number in OracleAS Web Cache using the Oracle Collaboration Suite Control. To do this, follow these steps:

1. From the Collaboration Suite Home page, choose **Web Cache**.
2. Click the **Administration** tab, then click **Ports** in the Properties - Web Cache section.
3. Change the appropriate port number in the Listen Ports section, then click **OK**.
4. Return to the Web Cache Home page and click **Restart**.

Registering the New Port with OracleAS Single Sign-On

After you change the port number in Oracle HTTP Server, you must register the new port with OracleAS Single Sign-On. To do this, run the single sign-on registration tool, then restart Oracle HTTP Server. See "Registering mod_osso" in *Oracle Application Server Single Sign-On Administrator's Guide* for more information.

Updating the Oracle Internet Directory Service Registry

Universal Resource Identifiers (URIs) for Oracle Content Services that are registered in the Oracle Internet Directory Service Registry may need to be updated with the new port number. See "Managing the Oracle Internet Directory Service Registry" in Chapter 7 of *Oracle Collaboration Suite Administrator's Guide* for more information.

Changing the Port Number in Oracle Content Services

Use the Oracle Collaboration Suite Control to update the Oracle Content Services Application Port domain property and restart the Oracle Content Services OC4J instance:

1. From the Content Services Home page, in the Administration section, click **Domain Properties**.
2. On the Domain Properties page, click **IFS.DOMAIN.APPLICATION.ApplicationPort**. You may need to move to the second or third page to find this domain property, or you can use the **Search** field.
3. On the Edit page, enter the new port number in the **Value** field and click **OK**. If you are using a load balancer with multiple Oracle Content Services Applications tiers, enter the load balancer port.
4. Return to the Content Services Home page.
5. Select **OC4J_Content** and click **Restart**. If you are using Oracle Records Management, you also need to restart **OC4J_RM**.

Updating Metric Configuration URLs

You also need to update the port number for any affected Web application response time metrics. To do this, update the affected URLs on the Metric Configuration page in the Oracle Collaboration Suite Control. See "[Configuring Performance Metrics](#)" on page 7-4 for more information.

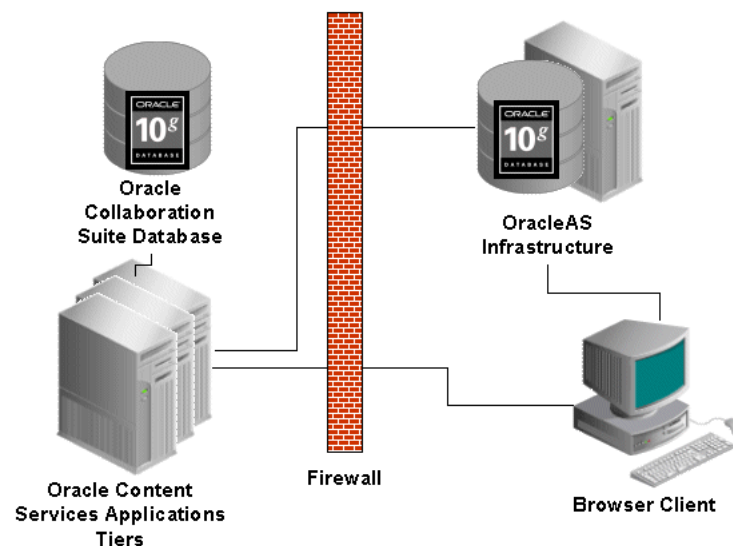
Allowing Access to Oracle Content Services from Outside the Firewall

You can set up Oracle Content Services so that users outside the firewall can have access. To do this, follow these steps:

1. **Open ports.** Disable the firewall for the following ports:
 - Oracle Content Services domain ports (node manager, node controller)
 - Database listener port (typically 1521)
 - Apache port (Oracle HTTP Server port)
 - Oracle Internet Directory ports (if Oracle Internet Directory is running inside the firewall)
 - Load balancer port (if you use a load balancer)
2. **Set firewall timeout periods.** You must set the operating system parameter `TCP_keeppalive` to 120 minutes.

Figure 2–4 shows a possible firewall scenario with the database and Applications tiers inside the firewall, and with OracleAS Infrastructure outside the firewall.

Figure 2–4 Sample Firewall Configuration



Setting Up the OmniPortlet

Oracle Content Services provides support for and integration with the OmniPortlet, a feature of Oracle Application Server Portal (OracleAS Portal). You can set up a preconfigured instance of the OmniPortlet, called the Content Services portlet, in your OracleAS Portal page. The Content Services portlet uses the Content Services searchlet, a user-definable query tool, and a tabular layout to display user-specific Oracle Content Services data. Users can search for and display content from Oracle Content Services in the Content Services portlet.

The following sections provide instructions about how to set up the OmniPortlet for Oracle Content Services:

- [Deploying the Content Services Searchlet](#)
- [Registering the OmniPortlet with Oracle Internet Directory](#)

- [Configuring the Content Services Searchlet](#)
- [Adding an Oracle Content Services Data Source to the OmniPortlet Framework](#)
- [Defining the OmniPortlet in OracleAS Portal](#)

All steps are performed on the Applications tier running OracleAS Portal.

Deploying the Content Services Searchlet

To deploy the Content Services Searchlet, you must provide the `content_searchlet.rar` file and add connection information to the `oc4j-connectors.xml` file.

To deploy the Content Services Searchlet:

1. Create a directory called `ContentSearchlet` under the following directory:

```
ORACLE_HOME/j2ee/OC4J_Portal/connectors
```

2. Copy the `content_searchlet.rar` file and paste it into the `ContentSearchlet` directory you just created. The `content_searchlet.rar` file is located on the Oracle Content Services Applications tier computer in the following directory:

```
ORACLE_HOME/content/lib
```

3. Go to the `ORACLE_HOME/j2ee/OC4J_Portal/config` directory and open the `oc4j-connectors.xml` file for editing.

4. Add a `<connector>` tag for the Content Services Searchlet by adding the following lines to the `<OC4J-connectors>` section:

```
<connector name="ContentSearchlet" path="content_searchlet.rar">
</connector>
```

The relevant portion of the edited file should look similar to the following:

```
<oc4j-connectors>
<connector name="ContentSearchlet" path="content_searchlet.rar">
</connector>
</oc4j-connectors>
```

5. Save the file.
6. Restart the OC4J instance for OracleAS Portal (`OC4J_Portal`) using the Oracle Collaboration Suite Control, or you can use the following `opmnctl` command:

```
opmnctl restartproc process-type=OC4J_Portal
```

The `content_searchlet.rar` file is expanded under the `ORACLE_HOME/j2ee/OC4J_Portal/connectors/ContentSearchlet` directory.

Registering the OmniPortlet with Oracle Internet Directory

After you have deployed the Content Services Searchlet, you must register the OmniPortlet with Oracle Internet Directory by adding a `<grant>` entry to the `jazn-data.xml` file, and by running the `ops2scfg` script.

To register the OmniPortlet with Oracle Internet Directory:

1. Go to the `ORACLE_HOME/config` directory and open the `jazn-data.xml` file for editing.

2. Add the following `<grant>` entry before the closing tags `</jazzn-policy></jazzn-data>` to set access permissions on the OmniPortlet repository API:

```
<grant>
  <grantee>
    <codesource>
      <url>file:Oracle_home_path/portal/jlib/portalttools.jar</url>
    </codesource>
  </grantee>
  <permissions>
    <permission>

    <class>oracle.ias.repository.schemaimpl.CheckRepositoryPermission</class>
    <name>makeNewOIDEntry</name>
    </permission>
    <permission>

    <class>oracle.ias.repository.schemaimpl.CheckRepositoryPermission</class>
    <name>connectAs</name>
    </permission>
  </permissions>
</grant>
```

Make sure to replace *Oracle_home_path* with the actual path of the Oracle home.

3. Save the file.
4. Run the `ops2scfg` script, located in the `ORACLE_HOME/portal/conf` directory, and provide the following values when prompted:
 - Create a name and password for the OmniPortlet application entry in Oracle Internet Directory (for example, `orclApplicationCommonName=OmniPortlet`)
 - Enter the user name and password of an Oracle Internet Directory administrator

When the script completes, copy and save the output. For example:

```
orclApplicationCommonName=OmniPortlet,cn=Portal,cn=Products,cn=OracleContext
```

You will need to provide this information when you add a Content Services data source to the OmniPortlet framework.

Note: Be careful when you supply values for the `ops2scfg` script, because you can only run the script one time. If you need to update these values later, you must do so in Oracle Internet Directory.

Configuring the Content Services Searchlet

After you have registered the OmniPortlet with Oracle Internet Directory, you must configure the Content Services Searchlet by providing connection information in the `oc4j-ra.xml` file.

To configure the Content Services Searchlet:

1. Go to the `ORACLE_HOME/j2ee/OC4J_Portal/application-deployments/default/ContentSearchlet` directory.
2. Open the `oc4j-ra.xml` file for editing.

3. Specify the JNDI name for the Content Services Searchlet and set the value for Search Web Service URL by updating the <connector-factory> tag, as follows:

```
<connector-factory location="eis/ContentSearchlet" connector-name="Content
Services Search Adapter">
  <config-property name="webServiceURL" value="http://content_services_host_
name:port/content/ws" />
</connector-factory>
```

4. Save the file.
5. Restart the OC4J instance for OracleAS Portal (OC4J_Portal) using the Oracle Collaboration Suite Control, or you can use the following opmnctl command:

```
opmnctl restartproc process-type=OC4J_Portal
```

Adding an Oracle Content Services Data Source to the OmniPortlet Framework

After you have configured the Content Services Searchlet, you must add a data source for Oracle Content Services to the OmniPortlet framework by creating a data source descriptor file.

To add a data source for Oracle Content Services to the OmniPortlet framework:

1. Create a directory called Content under the following directory:

```
ORACLE_HOME/j2ee/OC4J_Portal/applications/portalTools/omniPortlet/WEB-INF/
plugins/datasources
```

2. Go to the new folder.
3. Create a datasource descriptor file (datasource.xml) with the content that appears in the following sample. For <OCSCClientDN>, provide the script output you saved from Step 4 of the procedure in ["Registering the OmniPortlet with Oracle Internet Directory"](#) on page 2-18.

Note: If you cut and paste the text directly from this document, remove the extra carriage return and any extra spaces between oracle.webdb.reformlet.data.search and .SearchDataSourceDefinition. Otherwise, the data source descriptor file will not work.

```
<datasources>
  <datasource class="oracle.webdb.reformlet.api.plugin.DefaultDataSource">
    <name>Content</name>
    <displayName>Content</displayName>
    <icon>Content.gif</icon>
    <includeParamSection>true</includeParamSection>
    <editDefaultsHelp>rfdvdtwp.htm</editDefaultsHelp>

    <!-- Default values of datasource's metadata -->
    <metadata class="oracle.webdb.reformlet.data.search
.SearchDataSourceDefinition">
      <name>Content</name>
      <displayName>Content</displayName>
      <contentDataSourceJndiName>eis/ContentSearchlet</contentDataSourceJndiName>
      <requiresS2SAuthentication>true</requiresS2SAuthentication>
      <useSSL>true</useSSL>
```

```
<OCSCientDN>orclApplicationCommonName=OmniPortlet,cn=Portal,cn=Products,cn=OracleContext</OCSCientDN>
  </metadata>
</datasource>
</datasources>
```

4. Restart the OC4J instance for OracleAS Portal (OC4J_Portal) using the Oracle Collaboration Suite Control, or you can use the following `opmnctl` command:

```
opmnctl restartproc process-type=OC4J_Portal
```

Defining the OmniPortlet in OracleAS Portal

After you have added the data source to the OmniPortlet framework, you can define the OmniPortlet in OracleAS Portal by choosing search criteria and deciding which fields to display.

To define the OmniPortlet in OracleAS Portal:

1. Create a page in OracleAS Portal. To do this, on the OracleAS Portal home page, click **Create Page** and follow the Wizard instructions.
2. From your new page, click the **Add Portlet** icon and go to the OmniPortlet you registered. Then, select the portlet and click **OK**.
3. Click **Define**. The Type page appears.
4. Select **Content** and click **Next**.
5. On the Source page, click **Next**.
6. On the Filter page, enter search criteria for the OmniPortlet.
7. On the View page, click **Next**.
8. On the Layout page, enter the fields you want the OmniPortlet to return.
9. Click **Finish**.

Note: When you click a link to a folder within the OmniPortlet, you may be asked to re-authenticate. This behavior does not occur if you click a document link.

Managing Workflows in Oracle Content Services

Oracle Content Services comes with two default workflow processes, Parallel Vote and Serial Approval:

- In a Parallel Vote workflow process, all approvers review the submitted request at the same time. The required number of approvers can be configured.
- In a Serial Approval workflow process, each approver reviews the submitted request, one approver at a time. All reviewers must approve the request to complete the approval process.

Oracle Content Services uses [Oracle Workflow](#) to manage these default workflow processes. Oracle Workflow is configured and integrated with Oracle Content Services during Oracle Content Services configuration.

In addition to the two default workflow processes, you can define custom BPEL workflow processes in [Oracle BPEL Process Manager](#), and then register them in Oracle Content Services. The custom BPEL workflow processes are managed in Oracle BPEL Process Manager.

This chapter provides information about the following topics:

- [Using Oracle Workflow with Oracle Content Services](#)
- [Using Custom BPEL Workflows in Oracle Content Services](#)

Using Oracle Workflow with Oracle Content Services

Because Oracle Workflow is a required component of Oracle Content Services, you must manage Oracle Workflow along with Oracle Content Services. For information about most administration tasks related to Oracle Workflow, see *Oracle Workflow Administrator's Guide*.

Oracle Workflow is configured on only one Oracle Content Services Applications tier, typically the first one that is configured. To see whether Oracle Workflow is configured on a particular Applications tier, access the Oracle Collaboration Suite Control and go to the Collaboration Suite Home page. If Oracle Workflow is configured on that tier, the components **Oracle Workflow** and **Service_Component_Container** will appear in the System Components table.

The name of the Oracle Workflow schema is `owf_mgr`. The value for the Oracle Workflow schema password depends on the type of database where the Oracle Content Services schema is located:

- If the Oracle Content Services schema used by the Oracle Content Services Applications tiers is in a database that is also being used as a metadata repository, the Oracle Workflow schema password is stored in Oracle Internet Directory. Use Oracle Directory Manager to find the value for this password, using the following DN:

```
orclResourceName=OWF_MGR,orclReferenceName=MR_DB_global_name, cn=IAS  
Infrastructure Databases,cn=IAS,cn=Products,cn=OracleContext
```

The value for *MR_DB_global_name* is typically the service name of the metadata repository database, in the form of *myinstance.domain.com*.

- If the Oracle Content Services schema used by the Oracle Content Services Applications tiers is in a database that is not being used as a metadata repository, the Oracle Workflow schema password is the same as the Oracle Content Services schema password.

Four tasks related to Oracle Workflow are described in this guide:

- How to set up Oracle Workflow for use with Oracle Content Services if you are using an existing database as your **Oracle Collaboration Suite Database**
- How to set up e-mail notifications in Oracle Workflow
- How to configure Oracle Workflow after the Applications tier is uninstalled
- How to manage Oracle Workflow background engines

Setting Up Oracle Workflow for Use with Oracle Content Services

Typically, Oracle Workflow is set up for use with Oracle Content Services, by default, when the Oracle Collaboration Suite Database is installed. When you use an existing database as your Oracle Collaboration Suite Database, however, additional steps are needed.

Note: You cannot use an existing database in which the Oracle Workflow schema, *owf_mgr*, is being used by other applications.

To set up Oracle Workflow if you are using an existing database as your Oracle Collaboration Suite Database:

1. Select the **Enable existing Oracle 10g Database to Oracle Collaboration Suite Database** option during **Oracle Collaboration Suite Infrastructure** installation.
2. Run the OracleAS Metadata Repository Creation Assistant to load the OracleAS Metadata Repository into your existing database. Performing this task will create application-server specific schemas, including the Oracle Workflow schema, in the database. You must perform this task even if you do not plan to use this database as your metadata repository.

For complete instructions about how to run the OracleAS Metadata Repository Creation Assistant, see *Oracle Application Server Metadata Repository Creation Assistant User's Guide*.

Note: If the *owf_mgr* schema exists, you must drop it before running the OracleAS Metadata Repository Creation Assistant.

3. If you plan to use this database as your metadata repository, no further steps are required to set up Oracle Workflow. If you do *not* plan to use this database as your metadata repository, you must connect to the database as the database user SYS to:

- Change the Oracle Workflow schema password to be the same as the Oracle Content Services schema password
- Unlock the Oracle Workflow schema

To do this, use the following command:

```
ALTER USER owf_mgr identified by new_schema_password account unlock
```

What if OracleAS Metadata Repository Creation Assistant Is Not Supported by My Database?

Some databases, such as Itanium databases, do not support the OracleAS Metadata Repository Creation Assistant. In this case, follow the subsequent procedure to set up Oracle Workflow for use with Oracle Content Services.

To set up Oracle Workflow for an existing database that does not support OracleAS Metadata Repository Creation Assistant:

1. Do not configure Oracle Content Services during the [Applications tier](#) installation.
2. On the Applications tier computer, start the Oracle Workflow Configuration Assistant using the executable file appropriate for your platform:
 - UNIX: `ORACLE_HOME/wf/install/wfinstall.csh`
 - Windows: `ORACLE_HOME\wf\install\wfinstall.bat`

Note: If the `owf_mgr` schema exists, you must drop it before running the Oracle Workflow Configuration Assistant.

[Figure 3–1](#) shows the Oracle Workflow Configuration Assistant.

Figure 3–1 Oracle Workflow Configuration Assistant: Server Only Installation Option

The screenshot shows the 'Oracle Workflow Configuration Assistant' window. The title bar reads 'Oracle Workflow Configuration Assistant'. The main content area has a blue background with a globe graphic. It says 'Welcome to Oracle Workflow Configuration Assistant' and 'Please enter the following information'. The 'Install Option' is set to 'Server Only'. The 'Workflow Account' is 'owf_mgr'. The 'Workflow Password' and 'SYS Password' are masked with asterisks. The 'TNS Connect Descriptor' is 'description=(address=(host=)'. There are checkboxes for 'Enter LDAP Parameters', 'Enter Mailer Parameters', and 'Change Tablespace', all of which are unchecked. There are buttons for 'Get LDAP values', 'Get Mailer values', and a 'Default' dropdown for 'Change Tablespace'. The 'Language Selection' is set to 'US'. At the bottom are 'Submit' and 'Quit' buttons. A footer bar says 'ORACLE SOFTWARE POWERS THE INTERNET'.

3. Provide the following parameters for the Oracle Workflow Configuration Assistant:
 - **Install Option:** Select **Server Only**.
 - **Workflow Account:** Leave the default, **owf_mgr**.
 - **Workflow Password:** Enter the same password as the Oracle Content Services schema password.
 - **SYS Password:** Enter the password for the database user SYS. You must supply this value.
 - **TNS Connect Descriptor:** Copy this value from the `tnsnames.ora` file, located in `ORACLE_HOME/network/admin`. For example:


```
(DESCRIPTION=(ADDRESS=(PROTOCOL=TCP)(HOST=myhost.mydomain.com)(PORT=1521))
(CONNECT_DATA=(SERVER=DEDICATED)(SERVICE_NAME=orcl.mydomain.com)))
```

Do not select **Enter LDAP Parameters**, **Enter Mailer Parameters**, or **Change Tablespace**.

4. Click **Submit**.
5. Configure Oracle Content Services using the Oracle Collaboration Suite Control, specifying the external database as the Oracle Collaboration Suite Database. See [Appendix B, "Configuring, Unconfiguring, and Reconfiguring Oracle Content Services"](#) for more information about configuring Oracle Content Services using the Oracle Collaboration Suite Control.

Setting Up E-mail Notifications in Oracle Workflow

Users can view notifications about pending and approved workflow tasks from the Reports pane of the Oracle Content Services Web client. In addition to the notifications displayed in the Reports pane, you can configure Oracle Workflow to send e-mail

notifications to users to inform them of workflow tasks. To do this, you must configure the Oracle Workflow notification mailer using the Oracle Collaboration Suite Control.

To configure the Oracle Workflow notification mailer:

1. Create an e-mail account for the notification mailer administrator (for example, wfadmin). The workflow account you create should only be used by the notification mailer system. Concurrent connections to this account are not allowed.
2. Create three folders for this e-mail account: one to use as an inbox, one to store processed messages, and one to store discarded messages. The default values for these folders in the notification mailer configuration wizard are INBOX, PROCESS, and DISCARD.
3. Ensure that all Oracle Workflow and e-mail server processes are running.
4. Access the Oracle Collaboration Suite Control on the computer where Oracle Workflow is running and go to the Collaboration Suite Home page.
5. In the System Components table, click **Oracle Workflow**.
6. On the Workflow Home page, click **Service Components** in the Related Links: Configuration section.
7. In the Service Components table, select **Workflow Notification Mailer** and click **Edit**.
8. Ensure that **Automatic** is selected for **Startup Mode** and click **Next**.
9. Click **Next** on the following page.
10. In the Inbound EMail Account section, provide the following information:
 - **Server Name:** Enter the fully-qualified host name for the incoming e-mail server.
 - **Username:** Enter the e-mail address you created for the workflow notification mailer administrator.
 - **Password:** Enter the password for the workflow notification mailer administrator e-mail address.
 - **Inbox Folder:** If the folder you created to use as an inbox has a name different from the default, provide the name of the inbox folder. The name for this folder is case-insensitive.
11. In the Outbound EMail Account section, in the **Server Name** field, provide the fully-qualified host name for the outgoing e-mail server.
12. In the EMail Processing section, provide the names of the **Processed Folder** and **Discard Folder**. The names for these folders are case-sensitive.
13. Click **Next**.
14. In the Send section, provide the following information:
 - **Reply-to Address:** Enter the e-mail address you created for the workflow notification mailer administrator.
 - **HTML Agent:** Enter the base URL that identifies the HTML Web agent that handles HTML notification responses, in the format:
`http://applications_tier_host:oracle_http_server_port/pls/wf`
15. Click **Next** on all the remaining pages, then click **Finish** on the Review page.

16. Return to the Collaboration Suite Home page, select **Service_Component_Container**, and click **Restart**.

For more information about setting up the Oracle Workflow notification mailer, see the Oracle Workflow Help pages in the Oracle Collaboration Suite Control.

Configuring Oracle Workflow After Applications Tier Deinstallation

If you deinstall an Oracle Content Services Applications tier on which Oracle Workflow has been configured, Oracle Workflow is also deinstalled from that Applications tier.

If you had only one Applications tier, and you reinstall and reconfigure Oracle Content Services, Oracle Workflow will be automatically reconfigured.

If you have multiple Oracle Content Services Applications tiers, Oracle Workflow will not be configured automatically, even if you reinstall and reconfigure Oracle Content Services on a new Applications tier. Instead, you must manually configure Oracle Workflow by running the Oracle Workflow Configuration Assistant on one of the Oracle Content Services Applications tiers. To do this, follow these steps:

1. On the Applications tier computer, launch the Oracle Workflow Configuration Assistant using the executable file appropriate for your platform:
 - UNIX: `ORACLE_HOME/wf/install/wfinstall.csh`
 - Windows: `ORACLE_HOME\wf\install\wfinstall.bat`

Figure 3–2 Oracle Workflow Configuration Assistant: Configure Middletier Installation Option

The screenshot shows the 'Oracle Workflow Configuration Assistant' window. The title bar reads 'Oracle Workflow Configuration Assistant'. The main window has a blue background with a grid pattern. The text 'Welcome to Oracle Workflow Configuration Assistant' is at the top, followed by 'Please enter the following information'. Below this, there are several fields and buttons:

- * Install Option:** A dropdown menu with 'Configure Middletier' selected.
- * Workflow Account:** A text field containing 'owf_mgr'.
- * Workflow Password:** A text field with masked characters (asterisks).
- SYS Password:** A text field.
- * TNS Connect Descriptor:** A text field containing '(description=(address=thost'.
- Enter LDAP Parameters:** A checkbox that is unchecked, with a 'Get LDAP values' button next to it.
- Enter Mailer Parameters:** A checkbox that is unchecked, with a 'Get Mailer values' button next to it.
- Change Tablespace:** A checkbox that is unchecked, with a 'Default' button next to it.
- Language Selection:** A text field containing 'US'.
- Submit** and **Quit** buttons at the bottom.
- * Indicates required field** at the bottom left.
- ORACLE SOFTWARE POWERS THE INTERNET** logo at the bottom.

2. Provide the following parameters for the Oracle Workflow Configuration Assistant:
 - **Install Option:** Select **Configure Middletier**.
 - **Workflow Account:** Leave the default, **owf_mgr**.

- **Workflow Password:** Enter the same password as the Oracle Content Services schema password.
- **TNS Connect Descriptor:** Copy this value from the `tnsnames.ora` file, located in `ORACLE_HOME/network/admin`. For example:

```
(DESCRIPTION=(ADDRESS=(PROTOCOL=TCP) (HOST=myhost.mydomain.com) (PORT=1521)) (
CONNECT_DATA=(SERVER=DEDICATED) (SERVICE_NAME=orcl.mydomain.com)))
```

Do not select **Enter LDAP Parameters**.

3. Click **Submit**.

If you were previously using the Oracle Workflow notification mailer, you must reconfigure the notification mailer after manually configuring Oracle Workflow. See ["Setting Up E-mail Notifications in Oracle Workflow"](#) on page 3-4 for more information.

Managing Oracle Workflow Background Engines

Oracle Workflow background engine processes serve three purposes: to handle activities deferred by the Workflow Engine, to handle timed out activities, and to handle stuck processes.

When the Workflow Engine initiates and performs a process, it completes all necessary activities before continuing to the next eligible activity. In some cases, an activity can require a large amount of processing resource or time to complete. Oracle Workflow lets you manage the load on the Workflow Engine by setting up supplemental engines to run these costly activities as background tasks. In these cases, the costly activity is deferred by the Workflow Engine and run later by a background engine. The main Workflow Engine can then continue to the next available activity, which may occur on some other parallel branch of the process.

A background engine can also handle timed out notification activities. When the Workflow Engine comes across a notification activity that requires a response, it calls the Notification System to send the notification to the appropriate performer, and then sets the notification activity to a status of NOTIFIED until the performer completes the notification activity. Meanwhile, a background engine set up to handle timed out activities periodically checks for NOTIFIED activities and whether these activities have time out values specified. If a NOTIFIED activity does have a time-out value, and the current date and time exceeds that time-out value, the background engine marks that activity as timed out and calls the Workflow Engine. The Workflow Engine then resumes by trying to execute a <timeout> transition activity.

Additionally, a background engine can handle stuck processes. A process is identified as stuck when it has a status of ACTIVE, but cannot progress any further. For example, a process could become stuck in the following situations:

- A thread within a process leads to an activity that is not defined as an End activity but has no other activity modeled after it, and no other activity is active.
- A process with only one thread loops back, but the pivot activity of the loop has the On Revisit property set to Ignore.
- An activity returns a result for which no eligible transition exists. For instance, if the function for a function activity returns an unexpected result value, and no default transition is modeled after that activity, the process cannot continue.

The background engine sets the status of a stuck process to ERROR:#STUCK and executes the error process defined for it.

You can define and start up as many background engines as you like to check for deferred and timed out activities. A background engine is set up by default for Oracle Content Services.

Background engines can be restricted to handle activities associated with specific item types, and within specific cost ranges. A background engine runs until it completes all eligible activities at the time it was initiated. Generally, you should set up background engines to run periodically.

Ensure that you have at least one background engine that can check for timed out activities, one that can process deferred activities, and one that can handle stuck processes. At a minimum, you need to set up one background engine that can handle both timed out and deferred activities as well as stuck processes. Generally, you should run a separate background engine to check for stuck processes at less frequent intervals than the background engine that you run for deferred activities, normally not more often than once a day. Run the background engine to check for stuck processes when the load on the system is low.

See *Oracle Workflow Administrator's Guide* for more information on background engines.

Viewing Background Engine Database Jobs

To view background engine database jobs:

1. Access the Oracle Collaboration Suite Control and navigate to the Collaboration Suite Home page.
2. Click **Oracle Workflow**.
3. On the Workflow System page, click the Background Engines status icon.

For each background engine, the Background Engines page displays the job number, the interval, and the PL/SQL code being executed in the database job.

Running Background Engines

You run a background engine by submitting a background engine database job. When you start a new background engine, you can restrict the engine to handle activities associated with specific item types, and within specific cost ranges. You can submit several database jobs to schedule different background engines to run at different times.

To submit a background engine database job, click **Submit New** on the Background Engines page. Then, specify the parameters and schedule options for the background engine and click **OK**.

For information on specific parameters, refer to the Oracle Enterprise Manager online help for Oracle Workflow.

Using Custom BPEL Workflows in Oracle Content Services

In addition to the default workflow processes that come with Oracle Content Services, you can define custom BPEL workflows in Oracle BPEL Process Manager, then register them for use in Oracle Content Services.

This section provides information about the following topics:

- [About Custom Workflows](#)
- [About BPEL](#)

- [Creating Custom Workflows in Oracle BPEL Process Manager](#)
- [Registering Custom Workflows with Oracle Content Services](#)
- [Deleting Custom Workflows from Oracle Content Services](#)

About Custom Workflows

Custom workflows can be created in Oracle BPEL Process Manager, an Oracle product that provides a framework for designing, deploying, monitoring, and administering processes based on BPEL standards. Custom workflows are only available to the default Site in Oracle Content Services; additional Sites cannot use custom workflows.

After you have created a custom workflow in Oracle BPEL Process Manager, you can use the Oracle Collaboration Suite Control to register the workflow in Oracle Content Services. You must provide detailed information about the workflow, including the names of the launch event and cancel event, as well as specific parameters that are used in the workflow. Custom workflows are disabled by default; before you can access the Custom Workflow pages in the Oracle Collaboration Suite Control, you must set the `IFS.DOMAIN.WORKFLOW.BPEL.CreationEnabled` domain property to true.

Custom workflows can be blocking or nonblocking. A blocking workflow is one that requires an action for it to complete. For example, you can create a blocking workflow to handle document approval for publication: action on the part of the approvers is required before a document is published. An example of a nonblocking workflow is one that handles sending out notifications for published documents; in this case, a document can be published without waiting for the notifications to be sent.

About BPEL

The Business Process Execution Language (BPEL) is an XML-based language for enabling task-sharing across multiple enterprises using a combination of Web services. BPEL is based on the XML Schema, Simple Object Access Protocol (SOAP), and Web Services Description Language (WSDL). Using BPEL, you design a business process that integrates a series of discrete services into an end-to-end process flow. For more information about BPEL and Oracle BPEL Process Manager, see *Oracle BPEL Process Manager Developer's Guide*.

Creating Custom Workflows in Oracle BPEL Process Manager

For information about using Oracle BPEL Process Manager, see *Oracle BPEL Process Manager Developer's Guide*. For information about creating custom workflows for use with Oracle Content Services, see the Oracle Content Services developer documentation.

Registering Custom Workflows with Oracle Content Services

After the custom workflow has been created in Oracle BPEL Process Manager, you can register the custom workflow with Oracle Content Services using the Oracle Collaboration Suite Control. Before you can register the workflow, you must first enable BPEL workflow creation by setting the `IFS.DOMAIN.WORKFLOW.BPEL.CreationEnabled` domain property to true.

Enabling BPEL Workflow Creation in Oracle Content Services

To enable BPEL workflow creation in Oracle Content Services:

1. Connect to the Oracle Collaboration Suite Control and go to the Content Services Home page.
2. In the Administration section, click **Domain Properties**.
3. Click **IFS.DOMAIN.WORKFLOW.BPEL.CreationEnabled**. You may need to move to the next page to find this property, or you can use the **Search** field.
4. Set the **Value** to true.
5. Click **OK**.
6. Return to the Content Services Home page and click **Restart Domain**.

Registering Custom Workflows

To register custom workflows in Oracle Content Services:

1. Connect to the Oracle Collaboration Suite Control and go to the Content Services Home page.
2. In the Administration section, click **Custom Workflows**. You cannot access the custom workflow pages unless you have enabled BPEL workflow creation in Oracle Content Services.
3. Click **Register Workflow**.
4. Enter a name for the workflow. The name you provide must match the name of the workflow you created in Oracle BPEL Process Manager.
5. Enter a description of the workflow (optional).
6. Enter the **Launch Event** for the workflow. The event you provide must match the name of the corresponding Partner Link Correlation ID in Oracle BPEL Process Manager. The Launch Event cannot exceed 30 characters.
7. Enter the **Cancel Event** for the workflow. If you have a corresponding Partner Link Correlation ID in Oracle BPEL Process Manager, the event you provide must match the name of the Correlation ID. The Cancel Event cannot exceed 30 characters.

Typically, the Cancel Event is not used. If this is the case, you can provide any string for this field (for example, CANCEL_MY_WORKFLOW).

8. Select **Blocking** if this workflow is a blocking workflow. A blocking workflow is one that requires an action for it to complete.
9. Select **Approvers Required** if this workflow requires approvers.
10. Click **Add** to add parameters for this workflow.
11. On the Register Workflow - Add Parameter page, specify information for the parameter you want to add:
 - **Name:** The name you provide must match the name of the parameter in Oracle BPEL Process Manager. The parameter name cannot exceed 30 characters.
 - **Description:** Enter an optional description of the parameter.
 - **Fixed Value:** Select this option if you do not want to allow changes to this parameter after the workflow has been created.
 - **Required:** Select this option if this parameter is required for the workflow to complete.
 - **Type:** Select one of the following type options for this parameter:

- String
- Boolean
- Integer Number Range
- String Enumeration
- Date
- Decimal Number Range
- Path
- Time Period
- User/Group

If you select **Integer Number Range**, **Decimal Number Range**, or **Time Period**, you can optionally specify a minimum and maximum value for this parameter. If you select **String Enumeration**, you must specify values for this parameter. To do this, specify a value and click **Add**. You can manage the list of enumerated values by using the arrows provided to alter the order of the list. You can remove values by clicking **Remove**.

12. Click **OK** on the Register Workflow - Add Parameter page.
13. Optionally, provide a default value for the parameter by specifying a value in the **Default Value** column of the Parameters table. If you selected **Fixed Value** for this parameter, you must provide a default value. Note the following:
 - To specify a default for a Date type parameter, click the calendar icon to ensure that the date you specify appears in the correct format (MM/dd/yyyy).
 - For a Path type parameter, you must supply a valid Oracle Content Services path (for example, /mysite/mylibrary/myfolder).
 - For a User/Group type parameter, you must supply a valid Oracle Content Services user or group name.
14. Repeat Steps 10 through 13 to add additional parameters as needed. You can modify parameters that you have already added by clicking the parameter name.
15. Click **OK** on the Register Workflow page.

You cannot edit a registered workflow. If you need to make any changes, you must delete the custom workflow, then register it again.

Deleting Custom Workflows from Oracle Content Services

You can use the Oracle Collaboration Suite Control to delete custom workflows. If any folder or Library in Oracle Content Services has been configured to use a particular custom workflow, the custom workflow cannot be deleted.

To delete custom workflows:

1. Connect to the Oracle Collaboration Suite Control and navigate to the Content Services Home page.
2. In the Administration section, click **Custom Workflows**. You cannot access the custom workflow pages unless you have enabled BPEL workflow creation in Oracle Content Services.
3. Select the workflow you want to delete and click **Delete**.

4. Click **OK** on the warning page. The workflow will be deleted as soon as the last active workflow completes.

Oracle Content Services Protocol Support

This chapter discusses the protocol servers supported by Oracle Content Services, and the client access paths and software for the supported protocols.

This chapter provides information about the following topics:

- [About the Oracle Content Services Protocol Servers](#)
- [Using FTP with Oracle Content Services](#)
- [Using WebDAV with Oracle Content Services](#)
- [Authenticating Against WebDAV and FTP](#)
- [Installing the Oracle Drive Client](#)
- [Providing Information About Protocol Access to Users](#)

About the Oracle Content Services Protocol Servers

Users can connect to Oracle Content Services using protocols appropriate to their platform. For example, Windows users can use the Oracle Drive client or connect using Web Folders, Macintosh users can connect through WebDAV, and UNIX users can connect using FTP. Users on all platforms can connect using HTTP for browser-based access.

Oracle Content Services supports the following protocols:

- **HTTP** is used for browser-based access. Use the following URL to access Oracle Content Services with HTTP:

`http://server_name:port/content`

- **FTP** is used for file transfers across wide area networks such as the Internet.

The FTP protocol sends unencrypted passwords over the network. For this reason, users must create an FTP password for greater security. See the Oracle Content Services chapter of *Oracle Collaboration Suite Security Guide* for more information about FTP passwords.

In addition to FTP, **FTPS** is supported. You can access Oracle Content Services using either implicit or explicit FTPS. Because FTPS does not send unencrypted passwords over the network, an FTP password is not necessary.

- **WebDAV**, Web-based Distributed Authoring and Versioning, is an HTTP-related protocol that is designed for wide area networks such as the Internet. Currently, the most widespread WebDAV client is the Web Folders extension to Windows Explorer, also known as Network Places in Windows 2000 and Windows XP. Oracle Content Services also provides WebDAV support for Macintosh users.

The Oracle Drive client provides Windows users with SMB-like drive mapping capabilities, while using WebDAV as the actual file protocol.

[Table 4–1](#) lists some of the client platforms, protocols, and access methods supported by Oracle Content Services. See *OracleMetaLink* at <http://metalink.oracle.com> for complete client certification information.

Table 4–1 Client Platforms and Protocol Support

Client Platform	Protocols Supported	Access Using ¹
Windows	HTTP, WebDAV, FTP/FTPS	Browser, Oracle Drive, Windows Explorer, FTP/FTPS client
Macintosh (Mac OS 10.3)	HTTP, WebDAV, FTP/FTPS	Browser, WebDAV client, FTP client
UNIX	HTTP, FTP/FTPS	Browser, command line
Red Hat Linux Adv. Server 3.0 (Kernel 2.4.9-e.16)	HTTP, FTP/FTPS	Browser, command line

¹ For all protocols, if the server to which you are connecting uses DHCP, then you must use the current IP address of the host in the connection syntax instead of the host name.

Using FTP with Oracle Content Services

FTP can move large amounts of data faster than the other protocols. For bulk operations, such as migrating files from an existing system, FTP is the preferred protocol. FTP is disabled, by default, after Oracle Content Services is installed and configured.

Oracle Content Services also supports FTPS, which uses SSL to provide a confidential, integrity-protected channel. FTPS defines a mechanism to implement the FTP Security Extensions based on the TLS protocol. There is wide support for FTPS among FTP clients. Do not confuse FTPS with SFTP, a service of the Secure Shell that is not related to FTP. FTPS is also disabled, by default, after Oracle Content Services is installed and configured.

Note that if you define a policy on a folder or Library that requires users to enter data associated with uploaded content, users will not be able to place content in that folder or Library using FTP. This limitation is because the FTP protocol does not provide a facility to enter metadata.

This section contains the following topics:

- [Accessing Oracle Content Services Using FTP or FTPS](#)
- [Enabling FTP](#)
- [Enabling Anonymous FTP Access](#)
- [Enabling FTPS](#)

Accessing Oracle Content Services Using FTP or FTPS

After FTP or FTPS has been enabled, users can use FTP or FTPS with Oracle Content Services, as long as the following requirements are met:

- An FTP or FTPS client must be installed on the local computer of the user.
- The user must know which port number to use. The default port number for FTP and for explicit FTPS is 21; the default port number for implicit FTPS is 990.

- For FTP only, each user must use a separate FTP password for greater security. Users can set their FTP password on the User Preferences page in the Oracle Content Services Web client.
- Users who are not members of the default Site must specify their realm name when they access Oracle Content Services through FTP or FTPS, in the format `username@realmname`.

Oracle Content Services supports several FTP Quote commands that users can issue during an FTP or FTPS session. See [Appendix F, "FTP Quote Command Reference"](#) for more information.

Note that users with multibyte user names cannot sign on to Oracle Content Services using FTP. For this reason, you should not create Oracle Content Services user names that contain multibyte characters.

Enabling FTP

You can enable FTP for Oracle Content Services so that users can upload and download files using FTP. FTP is disabled, by default, after Oracle Content Services is installed and configured.

To enable the Oracle Content Services FTP server:

1. Access the Oracle Collaboration Suite Control and go to the Content Services Home page.
2. You may want to change the default port number for the FTP server. To do this:
 - a. In the Administration section, click **Server Configurations**.
 - b. Click **FtpServerConfiguration**.
 - c. In the Properties section, click **IFS.SERVER.PROTOCOL.FTP.Port**.
 - d. In the **Value** field, enter the desired port number and click **OK**.
 - e. On the Edit Server Configuration page, click **OK**.
3. Return to the Content Services Home page, and in the Administration section, click **Node Configurations**.
4. Click the name of the node configuration that corresponds to the node where you want to run the FTP server. You can only run the FTP server on regular nodes; you cannot run FTP on HTTP nodes.
5. Scroll down to the Servers table and click **FtpServer**.
6. Select **Active** and **Initially Started**.
7. On the Edit Server page, click **OK**.
8. On the Edit Node Configuration page, click **OK**.
9. Return to the Content Services Home page and restart the node.

Repeat this procedure for any additional regular nodes on which you want to run FTP.

Enabling Anonymous FTP Access

For security reasons, anonymous FTP access is disabled by default. If you want to enable anonymous access, you must first modify the FTP server configuration to allow anonymous access, then allow public access to particular folders in Oracle Content Services.

After public access has been enabled for a particular folder, users can connect directly to that folder using anonymous FTP. In most cases, anonymous users should use FTP links to connect. For example, if an administrator only enables public access to the folder `/us/TestFiles/PublicViewing`, users would need to configure an FTP client to connect directly to that folder. Anonymous users would not be able to connect to the root folder and navigate to the `PublicViewing` folder, because the `us` and `TestFiles` folders do not have public access enabled.

Modifying the FTP Server Configuration

To modify the FTP server configuration to allow anonymous access:

1. Connect to the Oracle Collaboration Suite Control and go to the Content Services Home page.
2. In the Administration section, click **Server Configurations**.
3. Click **FtpServerConfiguration**.
4. In the Properties section, select **IFS.SERVER.PROTOCOL.FTP.AnonymousAllowed** and click **Edit**, or just click the property name.
5. Set the **Value** to true and click **OK**.
6. On the Edit Server Configuration page, click **OK**.
7. Return to the Content Services Home page and restart the node.

Enabling the Ability to Grant Public Access

Before you can allow public access to a particular folder, you must ensure that the ability to grant public access has been enabled at the Site level.

To ensure that the ability to grant public access is enabled for the Site:

1. Connect to Oracle Content Services as a user with the Content Administrator and User Administrator roles, such as `orcladmin`.
2. Change to Administration Mode.
3. Access the Sharing Properties for the root Site folder.
4. Ensure that the option **Allow public access to be granted** has been enabled.

Allowing Public Access to Oracle Content Services Folders

To grant public access to a particular folder:

1. Connect to Oracle Content Services as a user with the Content Administrator and User Administrator roles, such as `orcladmin`.
2. Change to Administration Mode.
3. Access the Sharing Properties for the folder to which you want to grant public access.
4. Add the special group **Public** to this folder. If you cannot add this group, make sure that you enabled the ability to grant public access at the Site level, as described in the previous procedure.

Enabling FTPS

You can enable FTPS for Oracle Content Services so that users can upload and download files using FTPS. The FTPS protocol is disabled, by default, after Oracle

Content Services is installed and configured. Users sign on to Oracle Content Services over FTPS using their regular single sign-on password.

There are two types of FTPS supported by Oracle Content Services: implicit FTPS and explicit FTPS. Implicit FTPS secures the channel on connection, while explicit FTPS (Auth TLS) secures the connection when the client issues an AUTH command. An explicit FTPS connection starts out as a regular FTP connection; the connection becomes secure only after the client issues an AUTH command. You can choose to enable the implicit FTPS server, the explicit FTPS server, or both.

To set up FTPS, you first need to use Oracle Wallet Manager to create a new wallet and obtain a security certificate. You must configure the wallet for automatic login. For more information, see *Oracle Collaboration Suite Security Guide* and *Oracle Database Advanced Security Administrator's Guide*.

After you have obtained a security certificate, you can use the Oracle Collaboration Suite Control to enable the Oracle Content Services FTPS servers.

Enabling the Explicit FTPS Server

To enable explicit FTPS:

1. Connect to the Oracle Collaboration Suite Control and go to the Content Services Home page.
2. In the Administration section, click **Server Configurations**.
3. Click **FtpServerExplicitConfiguration**.
4. Select **IFS.SERVER.PROTOCOL.FTP.Port** and click **Edit**, or just click the property name.
5. In the **Value** field, enter the appropriate Explicit FTPS port number (for example, 21) and click **OK**.
6. Select **IFS.SERVER.PROTOCOL.FTPS.WALLET.Location** and click **Edit**, or just click the property name.
7. Update the value with the location of the wallet file (for example, /C\$Home/WALLET/cwallet.sso) and click **OK**.
8. On the Edit Server Configuration page, click **OK**.
9. Return to the Content Services Home page and click **Node Configurations** in the Administration section.
10. Click the name of the regular node configuration that corresponds to the node where you want to run the Explicit FTPS server.
11. In the Servers section, select **FtpsServerExplicit** and click **Edit**, or just click the server name.
12. Select **Active** and **Initially Started**, then click **OK**.
13. On the Edit Node Configuration page, click **OK**.
14. Return to the Content Services Home page and restart the node.

Enabling the Implicit FTPS Server

To enable implicit FTPS:

1. Connect to the Oracle Collaboration Suite Control and go to the Content Services Home page.
2. In the Administration section, click **Server Configurations**.

3. Click **FtpServerImplicitConfiguration**.
4. Select **IFS.SERVER.PROTOCOL.FTP.Port** and click **Edit**, or just click the property name.
5. Update the **Value** with the appropriate Implicit FTPS port number (for example, 990) and click **OK**.
6. Select **IFS.SERVER.PROTOCOL.FTPS.WALLET.Location** and click **Edit**, or just click the property name.
7. Update the value with the location of the wallet file (for example, /CSHome/WALLET/cwallet.sso) and click **OK**.
8. On the Edit Server Configuration page, click **OK**.
9. Return to the Content Services Home page and, in the Administration section, click **Node Configurations**.
10. Click the name of the regular node configuration that corresponds to the node where you want to run the Implicit FTPS server.
11. Select **FtpsServerImplicit** and click **Edit**, or just click the server name.
12. Select **Active** and **Initially Started**, then click **OK**.
13. On the Edit Node Configuration page, click **OK**.
14. Return to the Content Services Home page and restart the node.

Using WebDAV with Oracle Content Services

The WebDAV protocol is enabled, by default, after Oracle Content Services is installed and configured.

Note that if you define a policy on a folder or Library that requires users to enter data associated with uploaded content, users will not be able to place content in that folder or Library using WebDAV. This limitation is because the WebDAV protocol does not provide a facility to enter metadata.

Accessing Oracle Content Services Using WebDAV

Use the following URL to access Oracle Content Services with WebDAV:

`http://server_name:port/content/dav`

The value for *port* varies depending on your platform, and depending on whether OracleAS Web Cache is running. If OracleAS Web Cache is running, the typical values are:

- 7777 for UNIX systems
- 80 for Windows systems (unless port 80 is in use when the Applications tier is configured)

If OracleAS Web Cache is not running, the port number is typically 7778.

Users who are not members of the default Site must specify their realm name when they access Oracle Content Services through WebDAV, in the format `username@realmname`.

Note that users with multibyte user names cannot sign on to Oracle Content Services using WebDAV. For this reason, you should not create Oracle Content Services user names that contain multibyte characters.

Authenticating Against WebDAV and FTP

The user name that needs to be entered when authenticating against WebDAV and FTP can vary. The user name format depends on whether the user is a member of the default realm, and on the nickname attribute set for the realm in Oracle Internet Directory (`uid` or `mail`).

The default nickname attribute is `uid`. You can use Oracle Directory Manager to view or change the nickname attribute for the realm; see *Oracle Internet Directory Administrator's Guide* for more information about using Oracle Directory Manager.

Table 4–2 summarizes the user name format that users need to enter for WebDAV and FTP, according to these two factors.

Table 4–2 User Name Format for Authenticating Against WebDAV and FTP

Realm Type	Nickname Attribute	Example User Names in Oracle Internet Directory	Example User Names to Enter When Authenticating Against WebDAV and FTP
Default realm Example: oracle	uid	user_name jsmith	user_name jsmith
Non-default realm Example: mycompany	uid	user_name jsmith	user_name@mycompany jsmith@mycompany
Default realm Example: oracle	mail	user.name@mydomain.com jsmith@anotherdomain.com	user.name jsmith
Non-default realm Example: mycompany	mail	user.name@mydomain.com jsmith@anotherdomain.com	user.name@mycompany jsmith@mycompany

Installing the Oracle Drive Client

This section describes how to install Oracle Drive, a Windows desktop client that uses the WebDAV protocol to access Oracle Content Services. After it is installed, Oracle Drive appears as a mapped drive in Windows Explorer. Oracle Drive also provides file synchronization capabilities between your local computer and Oracle Content Services.

Oracle Drive is available from the Oracle Collaboration Suite Downloads page. This page can be accessed from the Oracle Collaboration Suite Welcome page.

For information about which Windows platforms are supported by Oracle Drive, see *Oracle MetaLink* at <http://metalink.oracle.com>.

To install Oracle Drive:

1. On the Oracle Collaboration Suite Downloads page, click the Oracle Drive executable link.
2. In the File Download window, select **Run this program from its current location**, then click **Yes** in the warning dialog box.

You can also download the installation program to your local hard drive and run it from there. After downloading, double-click the executable file to begin installation.

3. On the Choose Setup Language screen, select a language and click **OK**.
4. On the Welcome screen, click **Next**.

5. On the Customer Information screen, select whether you want to install Oracle Drive for all users, or for the current user only. Then, click **Next**.
6. On the Choose Destination Location screen, accept the default installation directory, or click **Change** to select a different installation directory. Then, click **Next**.
7. On the Ready to Install the Program screen, click **Install** to install Oracle Drive, or click **Back** to change any values that you entered.
8. After the installation process completes, the Oracle Drive installer prompts you to add a shortcut icon to your desktop. Select **Add Oracle Drive shortcut to the desktop** if you want to add the icon, and click **Next**.
9. The Oracle Drive installer prompts you to restart your computer. Select **Yes** to restart your computer automatically, or select **No** and restart your computer manually.
10. Click **Finish**. If you selected **No, I will restart my computer later**, you must manually restart your computer to complete the Oracle Drive installation process.

For complete information about how to set up a WebDAV connection between Oracle Drive and Oracle Content Services, as well as information about how to use Oracle Drive, see the Oracle Drive Help.

Providing Information About Protocol Access to Users

You can choose to deploy the End-User Documentation Portal to provide your users with information about Oracle Content Services protocol access. The End-User Documentation Portal is a set of customizable HTML pages that provide an overview of Oracle Collaboration Suite clients and access methods, including information about how to connect to Oracle Content Services using the supported protocols.

The End-User Documentation Portal also includes links to the FAQ & Troubleshooting site on the Oracle Technology Network (OTN), as well as links to Oracle Collaboration Suite tutorials.

For information about deploying the End-User Documentation Portal, see "Managing the End-User Documentation Portal" in Chapter 5 of *Oracle Collaboration Suite Administrator's Guide*.

Managing Oracle Content Services Processes

You can use the Oracle Collaboration Suite Control to manage Oracle Content Services processes, including starting and stopping the Oracle Content Services domain, starting and stopping servers, and managing nodes. You can also manage Oracle Content Services processes from the command line using the `opmnctl` utility. To manage Oracle Content Services using the Oracle Collaboration Suite Control or `opmnctl`, OPMN must be started on all Applications tiers.

This chapter provides information about the following topics:

- [About the Oracle Content Services Domain](#)
- [Starting and Stopping the Oracle Content Services Domain](#)
- [Managing Nodes at Run Time](#)
- [Managing Services at Run Time](#)
- [Managing Servers at Run Time](#)
- [Managing Oracle Content Services from the Command Line](#)

About the Oracle Content Services Domain

An Oracle Content Services **domain** is a logical grouping of Oracle Content Services nodes and an Oracle Database instance (called the Oracle Collaboration Suite Database) that contains the Oracle Content Services data.

The Oracle Content Services software runs as a set of Applications tier processes, called **nodes**. Oracle Content Services node processes manage one or more **services**, **agents**, and **protocol** servers.

Each node runs on a particular Applications tier, or in other words, within a particular Oracle home. You can have multiple Applications tiers on the same computer. Although the nodes of a domain are often split across a set of Applications tiers, a single Applications tier can have more than one Oracle Content Services node.

There are two types of nodes: **regular nodes** and **HTTP nodes**. Each HTTP node runs as part of an **OC4J** process. You cannot have more than two HTTP nodes on a single Applications tier: one to support the Oracle Content Services application and one to support the Oracle Records Management application. The OC4J instance for the Oracle Content Services application is `OC4J_Content`, while the OC4J instance for the Oracle Records Management application is `OC4J_RM`.

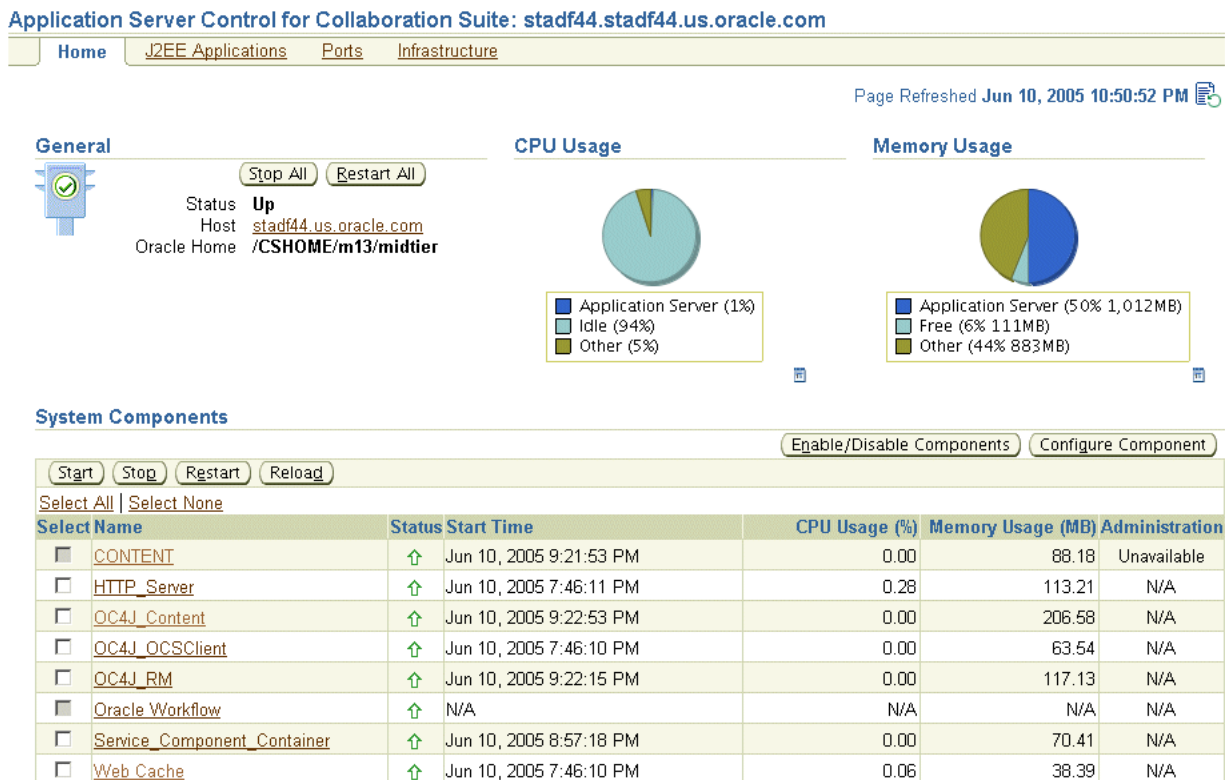
Starting and Stopping the Oracle Content Services Domain

You can start and stop the domain using the Oracle Collaboration Suite Control. Even if your domain is distributed across multiple Applications tiers, you can start and stop the domain from a single Applications tier.

1. From the Collaboration Suite Home page, click the name of the Oracle Content Services domain. Oracle Content Services domain targets typically appear as **Content**.

Figure 5–1 shows the Collaboration Suite Home page.

Figure 5–1 Collaboration Suite Home Page



2. The Content Services Home page appears, showing the status of the set of nodes that belong to the domain. A green Up arrow in the Status column means the process is running.

Figure 5–2 shows the Content Services Home page.

Figure 5–2 Content Services Home Page

Content

Page Refreshed Sep 8, 2005 11:39:33 AM

Content Services Version **10.1.1.1.2**
 Database Service **orcl.us.oracle.com**
[Show Database Connect Descriptor](#)
 Schema **CONTENT**

Processes

All local and remote processes are listed in the table below.

Search

|

Select	Name	OC4J Instance	Status	Middle Tier	Local
<input type="radio"/>	Node	n/a	↑	midtier.ifsqa3-sun.us.oracle.com	✓
<input type="radio"/>	OC4J_Content	OC4J_Content	↑	midtier.ifsqa3-sun.us.oracle.com	✓
<input type="radio"/>	OC4J_RM	OC4J_RM	↑	midtier.ifsqa3-sun.us.oracle.com	✓

Performance

- [Domain Performance & Statistics](#)
- [All Metrics](#)
- [Metric Configuration](#)

Administration

- [Domain Properties](#)
- [Node Configurations](#)
- [Service Configurations](#)
- [Server Configurations](#)
- [Sites](#)
- [Formats](#)
- [Retention Hardware](#)
- [Storage Management](#)
- [Custom Workflows](#)
- [Change Schema Password](#)

3. Start, stop, or restart the domain, as follows:

- To start the Oracle Content Services domain, click **Start Domain**. The entire domain is started across all Applications tiers, including all regular nodes and all HTTP nodes. Processes that are already running are not affected.
- To restart the Oracle Content Services domain, click **Restart Domain**, then click **Yes** on the Warning page. The entire domain is restarted across all Applications tiers, including all regular nodes and all HTTP nodes. Only those processes that are running are affected; processes that are not running will not be started.
- To stop the Oracle Content Services domain, click **Stop Domain**, then click **Yes** on the Warning page. The entire domain is stopped across all Applications tiers, including all regular nodes and all HTTP nodes.

If you are performing scheduled maintenance and want to stop one Applications tier at a time, do not click **Stop Domain**. Instead, start and stop individual domain processes, as follows:

- To start, stop, or restart individual processes, such as regular nodes or HTTP nodes, select the appropriate process and click **Start**, **Stop**, or **Restart**. You can start, stop, or restart nodes that are on the local Applications tier, or on remote Applications tiers.

Using the Collaboration Suite Home Page to Start and Stop Oracle Content Services

You can start, stop, and restart Oracle Content Services from the Collaboration Suite Home page. Because the Collaboration Suite Home page only shows processes for the current Applications tier, you need to log in to all your Applications tiers separately to manage an Oracle Content Services deployment distributed across multiple Applications tiers.

The Content Services Home page allows you to see all Oracle Content Services processes across all Applications tiers. In addition, each node process is listed separately on the Content Services Home page, providing you with maximum flexibility.

To start, stop, or restart Oracle Content Services from the Collaboration Suite Home page, select the domain display name (typically **Content**) and click **Start**, **Stop**, or **Restart**. Do not use the **Reload** button with any Oracle Content Services processes.

Managing Nodes at Run Time

You can use the Oracle Collaboration Suite Control to start, stop, and restart nodes, as well as modify run-time node properties and deactivate nodes.

You can also use the `opmnctl` utility to start, stop, and restart nodes, as well as check node status; see ["Managing Oracle Content Services from the Command Line"](#) on page 5-17 for more information.

This section contains the following topics:

- [Starting, Stopping, and Restarting Nodes](#)
- [Modifying Nodes at Run Time](#)
- [Deactivating Nodes](#)

Starting, Stopping, and Restarting Nodes

You can start, stop, and restart nodes using the Oracle Collaboration Suite Control. Even if your nodes are distributed across multiple Applications tiers, you can start, stop, and restart them from a single Applications tier, regardless of where the nodes are located.

If a node fails to start, stop, or restart, check the node logs for more information. Click **Logs** in the upper right corner of any Oracle Collaboration Suite Control page to search for and view node logs.

Starting Nodes

To start a regular node or HTTP node using the Oracle Collaboration Suite Control:

1. On the Content Services Home page, in the Processes section, select the node you want to start.
2. Click **Start**. The Status column displays a green arrow pointing up, indicating that the node is up.

Stopping Nodes

To stop a regular node or HTTP node using the Oracle Collaboration Suite Control:

1. On the Content Services Home page, in the Processes section, select the node you want to stop.
2. Click **Stop**.
3. On the Warning page, click **Yes** to stop the node. The Status column displays a red arrow pointing down, indicating that the node is down.

Restarting Nodes

You can only restart nodes that are already started.

To restart a regular node or HTTP node using the Oracle Collaboration Suite Control:

1. On the Content Services Home page, in the Processes section, select the node you want to restart.
2. Click **Restart**. The node is stopped, then started again.

Modifying Nodes at Run Time

You can make run-time changes to nodes, such as configuring loggers for the node log, changing the service used by the node, or changing servers. Changes made at run time are lost when the node is restarted. If you want to make permanent changes, modify the [node configuration](#) for the node and then restart the node.

To modify a node at run time using the Oracle Collaboration Suite Control:

1. On the Content Services Home page, in the Processes section, click the name of the node you want to modify. The Node page appears.
2. In the Logging section, you can configure loggers for this node. See ["Configuring Node Loggers"](#) on page 6-13 for more information.
3. In the Services section, you can create, modify, or delete services for this node. See ["Managing Services at Run Time"](#) on page 5-5 for more information.
4. In the Servers section, you can create, modify, or delete servers for this node. See ["Managing Servers at Run Time"](#) on page 5-12 for more information.

Deactivating Nodes

As an alternative to deleting a node configuration, consider making a node inactive instead. This option lets you keep the configuration information, and you can activate the node later.

Typically, you only deactivate nodes that are local to the current Applications tier. In rare cases, however, such as when an Applications tier fails, you may need to deactivate a node on a remote Applications tier. Although nodes that were deactivated from remote Applications tiers will still respond to `opmnctl` commands, these nodes cannot be used because their node configurations are inactive.

To make a node inactive using the Oracle Collaboration Suite Control:

1. On the Content Services Home page, stop the node, if it is running.
2. In the Administration section, click **Node Configurations**.
3. Click the name of the node configuration that corresponds to the node you want to make inactive.
4. In the General section, deselect **Active**.
5. Click **OK**.

Although deactivating a node will stop the node, if it is running, it is better to stop the node before you deactivate it.

Managing Services at Run Time

You can use the Oracle Collaboration Suite Control to create or delete [services](#) for a particular node. When you create a service, you specify what [service configuration](#) object provides its properties.

You can make temporary (run-time) changes to a service by modifying the service from the Node page. You can also dynamically configure the Committed Data Cache, Read-only Connection Pool, and the Writeable Connection Pool while the service runs. Changes made to services at run time are lost when the node is restarted.

You can also make permanent changes to a service by modifying its service configuration; see ["Managing Service Configurations"](#) on page 6-15 for more information.

This section contains the following topics:

- [Creating Services](#)
- [Modifying Run-Time Service Parameters](#)
- [Managing the Committed Data Cache](#)
- [Managing the Connection Pools](#)
- [Deleting Services](#)

Creating Services

You can create services for a particular node by modifying the node at run time, or by modifying the appropriate node configuration. You can also create services when you create node configurations.

Creating Services at Run Time

To create a service by modifying the node at run time:

1. On the Content Services Home page, in the Processes section, click the name of the node for which you want to create a service.
2. On the Node page, in the Services section, click **Create**.
3. On the Create Service page, enter a name for the service. It must be unique within the node.
4. Choose a **Service Configuration** on which to base this service.
5. Click **OK** on the Create Service page.

These changes will be lost when the node is restarted.

Permanently Adding Services to a Node

To permanently add a service to a node by modifying its node configuration:

1. On the Content Services Home page, in the Administration section, click **Node Configurations**.
2. Click the name of the node for which you want to add a service.
3. In the Services section, click **Add**.
4. On the Add Service page, enter a name for the service. It must be unique within the node.
5. Select a **Service Configuration** on which to base this service.
6. Select **Active** if you want this service to be automatically started by the node.
7. Click **OK** on the Add Service page.
8. Click **OK** on the Edit Node page.

Changes take effect when the node is restarted.

Modifying Run-Time Service Parameters

You can make run-time changes to services, such as limiting concurrent sessions or choosing whether or not to accept new sessions. Changes you make at run time are lost when the node is restarted. To make permanent changes to a service, edit the

service configuration directly. See ["Modifying Service Configurations"](#) on page 6-17 for more information.

To modify run-time service parameters:

1. On the Content Services Home page, in the Processes section, click the name of the node that uses the service you want to change.
2. On the Node page, click the name of the service you want to modify.
3. You can change the following properties in the General section:
 - **Concurrent Sessions:** You can have an unlimited number of concurrent sessions, or you can limit concurrent sessions to a specified number. If you have an unlimited number of concurrent sessions, you may run out of memory. See Chapter 6, "Deploying Oracle Content Services" in *Oracle Collaboration Suite Deployment Guide* for more information.
 - **Accepting New Sessions:** Select this option if you want the service to accept additional sessions.
 - **Disposed on Last Disconnected Session:** Select this option if you want the service to shut down automatically when the last session is disconnected.
4. Click **Apply** to save your changes.
5. Use the locator links to return to the Node page.

Changing the Service Configuration Used by the Service

You can change the service configuration for a particular service from the Edit Node Configuration page:

1. On the Content Services Home page, click **Node Configurations**.
2. Click the name of the node configuration that uses the service you want to modify.
3. In the Services section, select the service you want to change and click **Edit**.
4. Select a new service configuration from the **Configuration** list and click **OK**.
5. On the Edit Node page, click **OK**.

Changes take effect when the node is restarted.

Managing the Committed Data Cache

The [Committed Data Cache](#) provides caching of the attribute values of frequently used objects without a database request, improving performance and scalability. Least recently used data is periodically purged from the cache. Each service has its own Committed Data Cache.

You can make run-time changes to the Committed Data Cache properties for a service using the Oracle Collaboration Suite Control. You can also view Committed Data Cache statistics for a service. See ["Monitoring Service Performance"](#) on page 7-6 for information about viewing or resetting the statistics.

For more information about cache settings, see Chapter 6, "Deploying Oracle Content Services" in *Oracle Collaboration Suite Deployment Guide*.

Making Run-Time Changes to Committed Data Cache Properties

To make run-time changes to Committed Data Cache properties:

1. On the Content Services Home page, click the name of the node that uses the service you want to modify.
2. On the Node page, click the name of the service you want to modify.
3. On the Service page, in the Administration section, click **Committed Data Cache Administration**.

Figure 5–3 shows the Committed Data Cache Administration page.

Figure 5–3 Committed Data Cache Administration Page

Committed Data Cache Administration

Page Refreshed Feb 22, 2005 3:43:43 PM [Revert](#) [Apply](#)

* Cache Capacity [Calculate](#)

Click "Calculate" to figure purge triggers and target based on cache capacity.

* Normal Purge Trigger

* Urgent Purge Trigger

* Emergency Purge Trigger

* Purge Target

4. You can change the following cache settings:
 - **Cache Capacity:** The absolute maximum size of the data cache of the service, in LibraryObjects. (The LibraryObject class is the base class for all persistent Oracle Content Services objects.) The service data cache holds the attribute values of recently used LibraryObjects.
After you specify Cache Capacity, you can click **Calculate** to automatically fill in the values for the other parameters based on the capacity you specified.
 - **Normal Purge Trigger:** The cache size, in LibraryObjects, at which the service data cache schedules a low-priority purge of data that has not been recently used.
 - **Urgent Purge Trigger:** The cache size, in LibraryObjects, at which the service data cache schedules a high-priority purge of data that has not been recently used. The value must be greater than the Normal Purge Trigger value.
 - **Emergency Purge Trigger:** The cache size, in LibraryObjects, at which the service data cache performs an immediate purge of data that has not been recently used. The value must be greater than the Urgent Purge Trigger value, but less than the Cache Capacity value.
 - **Purge Target:** The target cache size, in LibraryObjects, upon completion of a purge cycle. The value must be less than the Normal Purge Trigger value.
5. Click **Apply** after you are finished specifying cache settings.

Changes you make at run time are lost when the node is restarted. To make permanent changes to Committed Data Cache properties, edit the service configuration directly. See ["Modifying Service Configurations"](#) on page 6-17 for more information.

Table 5–1 maps the properties on the Committed Data Cache Administration page with their service configuration parameter equivalents.

Table 5–1 Committed Data Cache Service Configuration Properties

Property	Service Configuration Parameter Equivalent
Cache Capacity	IFS.SERVICE.DATACACHE.Size

Table 5–1 (Cont.) Committed Data Cache Service Configuration Properties

Property	Service Configuration Parameter Equivalent
Normal Purge Trigger	IFS.SERVICE.DATACACHE.NormalTrigger
Urgent Purge Trigger	IFS.SERVICE.DATACACHE.UrgentTrigger
Emergency Purge Trigger	IFS.SERVICE.DATACACHE.EmergencyTrigger
Purge Target	IFS.SERVICE.DATACACHE.PurgeTarget

Managing the Connection Pools

There are two connection pools used by each service: the [Read-Only Connection Pool](#) and the [Writable Connection Pool](#). The Read-Only Connection Pool is a set of database connections shared by the sessions to perform database read operations. The Writeable Connection Pool is a set of database connections shared by the sessions to perform database read and write operations within a database transaction.

A minimum number of connections are created in each pool when the service is started. Depending on the number of concurrent operations performed by the sessions, and the type of operations, additional connections may be added to each pool up to a specified maximum.

You can make run-time changes to the Connection Pool properties for a particular service using the Oracle Collaboration Suite Control. You can also view Read-Only and Writeable Connection Pool statistics for a particular service. See "[Monitoring Service Performance](#)" on page 7-6 for information about viewing or resetting the statistics.

For more information about connection pool settings, see Chapter 6, "Deploying Oracle Content Services" in *Oracle Collaboration Suite Deployment Guide*.

About the Statement Cache

To improve performance, Oracle Content Services reuses Oracle prepared statements (objects used to query and update the database) when possible. Because Oracle Content Services stores statements in the statement cache, similar queries can reuse existing statements. Least recently used statements are purged when the number of statements in the cache equals the Statement Cache Purge Trigger value.

You can manage statement cache settings from the Connection Pool Administration page. You can also view statement cache statistics (number of attempted purges and purge count) on the Connection Pool Statistics page. See "[Monitoring Service Performance](#)" on page 7-6 for more information.

Note: The Statement Cache feature was added in the Oracle Collaboration Suite Cumulative Patchset 10.1.2.3. If you are using a previous version or patchset of Oracle Collaboration Suite, the Statement Cache Purge Target and Statement Cache Purge Trigger, along with their corresponding service configuration parameter equivalents, do not exist in Oracle Content Services.

Making Run-Time Changes to Connection Pool Properties

To make run-time changes to Connection Pool properties:

1. On the Content Services Home page, click the name of the node that uses the service you want to modify.
2. On the Node page, click the name of the service you want to modify.

- On the Service page, in the Administration section, click **Connection Pool Administration**.

Figure 5–4 shows the Connection Pool Administration page.

Figure 5–4 Connection Pool Administration Page

Connection Pool Administration

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Read-only Connection Pool		Writeable Connection Pool	
* Minimum Number of Connections	<input type="text" value="2"/>	* Minimum Number of Connections	<input type="text" value="2"/>
* Target Maximum Number of Connections	<input type="text" value="10"/>	* Target Maximum Number of Connections	<input type="text" value="10"/>
* Absolute Maximum Number of Connections	<input type="text" value="20"/>	* Absolute Maximum Number of Connections	<input type="text" value="20"/>
* Statement Cache Purge Target	<input type="text" value="120"/>	* Statement Cache Purge Target	<input type="text" value="160"/>
* Statement Cache Purge Trigger	<input type="text" value="150"/>	* Statement Cache Purge Trigger	<input type="text" value="200"/>
* Target Size Timeout (ms)	<input type="text" value="1000"/>	* Target Size Timeout (ms)	<input type="text" value="1000"/>
* Maximum Size Timeout (ms)	<input type="text" value="10000"/>	* Maximum Size Timeout (ms)	<input type="text" value="10000"/>
Default Number of Rows Prefetched	<input type="text" value="0"/>	Default Number of Rows Prefetched	<input type="text" value="0"/>

- You can change the following properties for each connection pool:
 - Minimum Number of Connections:** The initial number of database connections in the connection pool.
 If you change this property, ensure the value you specify is greater than the current size for this connection pool. You can view the current connection pool size from the Connection Pool Statistics page. See "[Monitoring Service Performance](#)" on page 7-6 for more information.
 - Target Maximum Number of Connections:** The target maximum number of database connections in the connection pool. The value must be greater than or equal to the Minimum Number of Connections value.
 - Absolute Maximum Number of Connections:** The absolute maximum number of database connections in the connection pool. The value must be greater than or equal to the Target Maximum Number of Connections value.
 - Statement Cache Purge Target:** The target cache size, in number of statements, for the statement cache upon completion of a purge cycle. The value must be less than the Statement Cache Purge Trigger value.
 - Statement Cache Purge Trigger:** The cache size, in number of statements, at which the statement cache schedules a purge.
 - Target Size Timeout:** The maximum period, in milliseconds, that the service will postpone a connection allocation request when there are no unallocated connections, when the current size of the connection pool is greater than or equal to its target size but less than the maximum size. If a database connection does not become available within this period, a new connection will be created.
 - Maximum Size Timeout:** The maximum period, in milliseconds, that a service will postpone a connection allocation request when there are no unallocated connections, when the current size of the connection pool is equal to its maximum size. If a database connection does not become available within this period, the allocation request will fail, and an exception will occur.
- Click **Apply** after you are finished specifying connection pool settings.

Changes you make at run time are lost when the node is restarted. To make permanent changes to Connection Pool properties, edit the service configuration directly. See ["Modifying Service Configurations"](#) on page 6-17 for more information.

Table 5–2 maps the properties on the Connection Pool Administration page with their service configuration parameter equivalents.

Table 5–2 Connection Pool Service Configuration Properties

Property	Service Configuration Parameter Equivalent
Minimum Number of Connections	IFS.SERVICE.CONNECTIONPOOL.READONLY.MinimumSize IFS.SERVICE.CONNECTIONPOOL.WRITEABLE.MinimumSize
Target Maximum Number of Connections	IFS.SERVICE.CONNECTIONPOOL.READONLY.TargetSize IFS.SERVICE.CONNECTIONPOOL.WRITEABLE.TargetSize
Absolute Maximum Number of Connections	IFS.SERVICE.CONNECTIONPOOL.READONLY.MaximumSize IFS.SERVICE.CONNECTIONPOOL.WRITEABLE.MaximumSize
Statement Cache Purge Target	IFS.SERVICE.CONNECTIONPOOL.READONLY.StatementCacheTarget IFS.SERVICE.CONNECTIONPOOL.WRITEABLE.StatementCacheTarget
Statement Cache Purge Trigger	IFS.SERVICE.CONNECTIONPOOL.READONLY.StatementCacheSizeTrigger IFS.SERVICE.CONNECTIONPOOL.WRITEABLE.StatementCacheSizeTrigger
Target Size Timeout	IFS.SERVICE.CONNECTIONPOOL.READONLY.TargetSizeTimeout IFS.SERVICE.CONNECTIONPOOL.WRITEABLE.TargetSizeTimeout
Maximum Size Timeout	IFS.SERVICE.CONNECTIONPOOL.WRITEABLE.MaximumSizeTimeout IFS.SERVICE.CONNECTIONPOOL.WRITEABLE.MaximumSizeTimeout

Deleting Services

You can delete services for a node by modifying the node at run time, or by modifying the appropriate node configuration.

If you delete a service with active sessions, and if there are data transfers in progress over those sessions, data may be lost when you delete the service. In addition, any servers using this service will stop accepting new requests.

Deleting Services at Run Time

To delete a service by modifying the node at run time:

1. On the Content Services Home page, in the Processes section, click the name of the node that uses the service you want to delete.
2. On the Node page, in the Services section, select the service you want to delete and click **Delete**. Each node must have one active service.
3. On the Warning page, click **Yes**.

If you delete a service at run time that is defined in the node configuration, the service will reappear on the node when the node is restarted. To permanently delete the

service, you must remove it from the node configuration, as described in the following section.

Permanently Removing Services from a Node

To permanently remove a service from a node by modifying its node configuration:

1. On the Content Services Home page, in the Administration section, click **Node Configurations**.
2. Click the name of the node that uses the service you want to remove.
3. In the Services section, select the service you want to remove and click **Remove**.

You cannot remove a service if it is the only service defined in the node configuration. Each node must have at least one active service.

4. Click **OK**.

Changes take effect when the node is restarted.

Managing Servers at Run Time

You can use the Oracle Collaboration Suite Control to create or delete **servers** for a particular node. When you create a server, you specify what **server configuration** object provides its properties.

You can make temporary (run-time) changes to a server by modifying the server from the Node page. Changes made to servers at run time are lost when the node is restarted.

You can also make permanent changes to a server by modifying its server configuration. See "[Managing Server Configurations](#)" on page 6-18 for more information.

This section contains the following topics:

- [Creating Servers](#)
- [Starting, Stopping, Restarting, Suspending, and Resuming Servers](#)
- [Modifying Run-Time Server Parameters](#)
- [Reloading Servers](#)
- [Deleting Servers](#)

Creating Servers

You can create servers for a particular node by modifying the node at run time, or by modifying the appropriate node configuration. You can also create servers when you create node configurations.

Creating Servers at Run Time

To create a server by modifying the node at run time:

1. On the Content Services Home page, click the name of the node for which you want to create a server.
2. On the Node page, in the Servers section, click **Create**.
3. On the Create Server page, enter a name for the server. It must be unique within the node.

4. Select a **Service Name** to support this server.
5. Select a **Server Configuration** on which to base this server.
6. Click **OK**.

These changes will be lost when the node is restarted.

Permanently Adding Servers to a Node

To permanently add a server to a node by modifying its node configuration:

1. On the Content Services Home page, in the Administration section, click **Node Configurations**.
2. Click the name of the node for which you want to add a server.
3. In the Servers section, click **Add**.
4. On the Add Server page, enter a name for the server. It must be unique within the node.
5. Select a **Server Configuration** on which to base this service.
6. Select a **Service** to support this server.
7. For **Initial Priority**, select the Java thread priority of the server.
8. Select **Active** to deploy this server on the node at run time. If you do not select this option, this server will not appear in the Servers list on the Node page.
9. Select **Initially Started** if you want this server to be automatically started by the node. You should only select this option for active nodes.
10. Click **OK**.
11. On the Edit Node page, click **OK**.

Changes take effect when the node is restarted.

Starting, Stopping, Restarting, Suspending, and Resuming Servers

You can manually start, stop, restart, suspend, and resume servers from the Node page. The Create, Delete, and Reload buttons are discussed in separate sections.

To manage servers from the Node page:

1. On the Content Services Home page, click the name of the node that contains the server you want to manage. The Node page appears.

[Figure 5–5](#) shows the Node page.

Figure 5–5 Services and Servers Section of Node page

Services							
Delete Create							
Select	Name	Accepting New Session	Auto Disposed	Connected Sessions	Max Concurrent Sessions		
<input checked="" type="radio"/>	IfsDefaultService	✓		19	40		

Servers							
Status Legend: ▶ Started ■ Stopped ▶ Starting □ Stopping ■ Suspended							
Search <input type="text"/> Go							
Start Stop Restart Suspend Resume Reload Delete Create							
Select	Name	Type	Status	Last Start Time	Last Stop Time	Service	Priority
<input checked="" type="radio"/>	CleanupAgent	AGENT	▶	May 12, 2005 8:37:10 PM	Unavailable	IfsDefaultService	5
<input type="radio"/>	ContentAgent	AGENT	■	Unavailable	Unavailable	IfsDefaultService	5
<input type="radio"/>	ContentGarbageCollectionAgent	AGENT	▶	May 12, 2005 8:37:10 PM	Unavailable	IfsDefaultService	5
<input type="radio"/>	DanglingObjectAVCleanupAgent	AGENT	▶	May 12, 2005 8:37:10 PM	Unavailable	IfsDefaultService	5
<input type="radio"/>	EventExchangerAgent	AGENT	▶	May 12, 2005 8:37:10 PM	Unavailable	IfsDefaultService	5
<input type="radio"/>	ExpirationAgent	AGENT	▶	May 12, 2005 8:37:10 PM	Unavailable	IfsDefaultService	5
<input type="radio"/>	FolderIndexAgent	AGENT	▶	May 12, 2005 8:37:10 PM	Unavailable	IfsDefaultService	5
<input type="radio"/>	FolderIndexAnalyzerAgent	AGENT	▶	May 12, 2005 8:37:10 PM	Unavailable	IfsDefaultService	5
<input type="radio"/>	FtpServer	FTP	▶	May 12, 2005 8:37:10 PM	Unavailable	IfsDefaultService	5
<input type="radio"/>	FtpsServerExplicit	Secure FTP	▶	May 12, 2005 8:37:10 PM	Unavailable	IfsDefaultService	5
<input type="radio"/>	FtpsServerImplicit	Secure FTP	▶	May 12, 2005 8:37:10 PM	Unavailable	IfsDefaultService	5
<input type="radio"/>	GarbageCollectionAgent	AGENT	▶	May 12, 2005 8:37:10 PM	Unavailable	IfsDefaultService	5

- On the Node page, in the Servers section, there is a list of all servers for this node. Check the Status column to see whether a particular server is started, stopped, starting, stopping, or suspended. Use the following buttons to manage servers:

- Start:** Use this option to start a server that is not running.
- Stop:** Use this option to stop a server that is running.
- Restart:** Use this option to stop and then start a server that is running. This option does not refresh the server configuration information.
- Suspend:** Use this option to suspend a server that is running.
- Resume:** Use this option to resume a server that is suspended.

The Suspend and Resume functions are not available for all protocol servers, including the FTP server.

If a server fails to start, check the node log for errors. For regular nodes, click the **Base Log File** link in the Logging section to view the node log. For HTTP nodes, click **Logs** in the upper right corner of the screen and go to the appropriate log.

Ensuring Servers Are Started When the Node Is Started

Which servers and agents start with the node are defined in the node configuration. Servers and agents marked Active and Initially Started in the node configuration are started automatically when you start the domain.

To ensure that a particular server starts when the node restarts, you must modify the node configuration for the node where the server is running:

- On the Content Services Home page, in the Administration section, click Node Configurations.
- Click the name of the node configuration you want to modify.
- In the Servers section, select the server you want to change and click **Edit**.

4. Select **Initially Started**.
5. Click **OK**.
6. On the Edit Node page, click **OK**.

Modifying Run-Time Server Parameters

You can make run-time changes to servers, such as changing the Java thread priority of the server or changing run-time server properties. Changes you make at run time are lost when the node is restarted or when the server is reloaded. To make permanent changes to a server, edit the server configuration directly. See "[Modifying Server Configurations](#)" on page 6-21 for more information.

To modify run-time server parameters:

1. On the Content Services Home page, click the name of the node that contains the server you want to change.
2. On the Node page, click the name of the server you want to modify.
3. In the Priority section, click **Change Priority** to change the Java thread priority of the server. On the Change Priority page, select a new priority and click **OK**. Most servers and agents let you change the Java thread priority at run time, but a few servers, including the FTP server, do not provide this option.
4. The run-time properties for the server are displayed in the Runtime Properties section. Properties that can be modified at run time are displayed as links. Click the name of a property to update it. For example, to allow anonymous connections to the FTP server, click **IFS.SERVER.PROTOCOL.FTP.AnonymousAllowed**, change the **Value** to true, and click **OK**. Some run-time properties can only be modified when the server is stopped.
5. Use the locator links at the top of the page to return to the Node page.

Changing the Server Configuration Used by the Server

To change the configuration used by a server, delete the existing server and then create a new server from the Node page. Alternatively, you can change the configuration for a server from the Edit Node Configuration page:

1. On the Content Services Home page, in the Administration section, click **Node Configurations**.
2. Click the name of the node configuration that contains the server you want to modify.
3. In the Servers section, select the server you want to change and click **Edit**.
4. Select a new server configuration from the **Configuration** drop-down list.
5. Click **OK**.
6. On the Edit Node page, click **OK**.

Changes take effect when the server is reloaded or when the node is restarted.

Reloading Servers

If you modify a server configuration, you need to reload the server before the changes take effect. Restarting a server and reloading a server are different functions:

- **Restart** stops and then starts the server. You can only restart servers that are started. Restarting the server will not pick up changes to server configuration properties.
- **Reload** does the following:
 - Stops the server, if it is not stopped already.
 - Deletes the server.
 - Creates a new instance of the server, picking up any changes to the server configuration properties.
 - Returns the server to the state it was in when you clicked Reload (stopped, running, or suspended).

Both restarting and reloading a server will disconnect any users connected to that server.

To reload a server:

1. On the Content Services Home page, in the Processes section, click the name of the node that contains the server you want to reload.
2. In the Servers section of the Node page, select the server you want to reload (for example, **FtpServer**).
3. Click **Reload**. The server picks up the new server properties.

Deleting Servers

You can delete servers from a node by modifying the node at run time, or by modifying the appropriate node configuration.

Deleting Servers at Run Time

To delete a server by modifying the node at run time:

1. On the Content Services Home page, click the name of the node that contains the server you want to delete.
2. On the Node page, in the Servers section, select the server you want to delete and click **Stop**, if it is not stopped already. You cannot delete a server that is running or suspended.
3. Select the server again and click **Delete**.
4. On the Warning page, click **Yes**. The server still appears in the server list, but the following message is displayed: "This server is configured but not loaded now."

If you delete a server at run time that is defined in the node configuration, the server will reappear on the node when the node is restarted. To permanently delete the server, you must remove it from the node configuration, as described in the following section.

Permanently Removing Servers from a Node

To permanently remove a server from a node by modifying its node configuration:

1. On the Content Services Home page, in the Administration section, click **Node Configurations**.
2. Click the name of the node that contains the server you want to remove.
3. In the Servers section, select the server you want to remove and click **Remove**.

4. Click OK.

Changes take effect when the node is restarted.

Managing Oracle Content Services from the Command Line

As an alternative to using the Oracle Collaboration Suite Control to manage the Oracle Content Services domain and nodes, you can use `opmnctl`, the command-line tool for OPMN. The OPMN command-line tool can be found in:

`ORACLE_HOME/opmn/bin/`

Checking Node Status

Use the following command to check the status of Oracle Content Services nodes on the local Applications tier:

```
opmnctl status
```

Include the `@farm` option to check nodes on all Applications tiers, as follows:

```
opmnctl @farm status
```

Starting, Stopping, or Restarting the Oracle Content Services Domain

Use the following commands to start, stop, or restart Oracle Content Services domain processes across all Oracle Content Services Applications tiers:

```
opmnctl @farm startproc ias-component=Content
opmnctl @farm stopproc ias-component=Content
opmnctl @farm restartproc ias-component=Content
```

To start, stop, or restart Oracle Content Services domain processes on the local Applications tier, omit the `@farm` option, as follows:

```
opmnctl startproc ias-component=Content
opmnctl stopproc ias-component=Content
opmnctl restartproc ias-component=Content
```

Note: If you have multiple Oracle Content Services domains registered in Oracle Internet Directory, you must specify which domain to start or stop. The first Oracle Content Services domain to be registered is always identified as `Content`, while the second domain to be registered is identified as `Content_2`, and so on. You need to specify the appropriate domain display name in `opmnctl` commands. For example:

```
opmnctl @farm startproc ias_component=Content_2
```

Starting, Stopping, or Restarting Node Processes

Use the following commands to start, stop, or restart Oracle Content Services nodes (regular and HTTP) on the local Applications tier:

```
opmnctl startproc process-type=node_display_name
opmnctl stopproc process-type=node_display_name
opmnctl restartproc process-type=node_display_name
```

For example:

```
opmnctl startproc process-type=OC4J_Content
opmnctl startproc process-type=Node
```

To start, stop, or restart Oracle Content Services processes on a remote Applications tier, include the Oracle Application Server instance name for the remote Applications tier. For example, use the following command to start a regular node on a remote Applications tier:

```
opmnctl @instance:remote_instance_name startproc process-type=Node
```

If you are unsure of which Oracle Application Server instance name to use, use the `opmnctl @farm status` command to list Oracle Application Server instance names.

In rare cases, a regular node will hang and will not respond to `opmnctl` commands. See [Appendix A, "Troubleshooting Oracle Content Services"](#) for information about how to solve this problem.

Changing Oracle Content Services Configuration Settings

Your initial Oracle Content Services domain configuration is based on default settings. You can change this configuration at any time using the Oracle Collaboration Suite Control.

When the Oracle Content Services domain is started, it uses the **domain properties** contained in the repository to determine domain behavior, such as the maximum size of a single file that can be uploaded to Oracle Content Services. Each node has a **node configuration** that determines its run-time behavior. Each service has a **service configuration** that determines its size and characteristics. The **server configuration** for each server or agent provides values for properties, such as the default port number or activation period.

This chapter provides information about the following topics:

- [Managing Domain Properties](#)
- [Managing Node Configurations](#)
- [Managing Service Configurations](#)
- [Managing Server Configurations](#)

Managing Domain Properties

Domain properties are settings that apply to the entire domain. When the Oracle Content Services domain is started, it uses the domain properties contained in the repository to determine domain behavior, such as the maximum size of a single file that can be uploaded to Oracle Content Services.

You can view all the domain properties using the Oracle Collaboration Suite Control. Only underlined properties can be changed.

Changing Domain Properties

To change domain properties:

1. Connect to the Oracle Collaboration Suite Control and go to the Content Services Home page.
2. In the Administration section, click **Domain Properties**.
3. On the Domain Properties page, click the name of the property you want to change. Only underlined properties can be changed. See [Table 6–1](#) for a list of properties that can be edited.

You may need to move to the next page to find some properties, or you can use the **Search** field. For example, enter **workflow** and click **Go** (or press Enter) to see a list of workflow-related domain properties. You can use the question mark (?) and asterisk (*) wildcards.

4. Make the changes to the property and click **OK**.
5. Return to the Content Services Home page and click **Restart Domain**.

Table 6–1 Oracle Content Services Domain Properties That Can Be Edited

Domain Property	Description
IFS.DOMAIN.ANTIVIRUS.Enabled	Determines whether Oracle Content Services is configured to work with the Symantec AntiVirus Scan Engine (SAVSE) to provide virus scanning and repair functionality. The default value is false.
IFS.DOMAIN.ANTIVIRUS.Host	The host name or IP address of the computer where the SAVSE server is running.
IFS.DOMAIN.ANTIVIRUS.MaxRepair Attempts	The number of times the Virus Scan Agent will try to repair a file.
IFS.DOMAIN.ANTIVIRUS.Port	The port number for the SAVSE listener.
IFS.DOMAIN.APPLICATION.ApplicationHost	The host name of the Oracle Content Services application (where a user connects; for example, <code>content.oracle.com</code>).
IFS.DOMAIN.APPLICATION.ApplicationMountPoint	The mount point for the Oracle Content Services application (usually <code>/content/app</code>). Typically, you do not change this value. If you do change this value, be aware that additional configuration is required.
IFS.DOMAIN.APPLICATION.ApplicationPort	The port number for the Oracle Content Services application (typically 7777 on UNIX or 80 on Windows).
IFS.DOMAIN.APPLICATION.ApplicationUseHttps	Determines whether the Oracle Content Services application uses SSL. If SSL is enabled, users connect using HTTPS, rather than HTTP (for example, <code>https://content.oracle.com</code>).
IFS.DOMAIN.APPLICATION.RecordApplicationMountPoint	The mount point for the Oracle Records Management application (usually <code>/rm/app</code>). Typically, you do not change this value. If you do change this value, be aware that additional configuration is required.
IFS.DOMAIN.APPLICATION.WebDavMountPoint	The mount point for the content/DAV servlet (usually <code>/content/dav</code>). Typically, you do not change this value. If you do change this value, be aware that additional configuration is required.
IFS.DOMAIN.BFILE.AgingEnabled	Determines whether Oracle Content Services is configured for BFILE aging. The default value is false.
IFS.DOMAIN.BFILE.ArchivingEnabled	Determines whether Oracle Content Services is configured for BFILE archiving. The default value is false.
IFS.DOMAIN.BFILE.Enabled	If set to true, enables Oracle Content Services to store content as BFILES. The default value is false.
IFS.DOMAIN.CREDENTIALMANAGER.AutoUserProvisioningEnabled	If set to true, enables on-demand enrollment, a process in which Oracle Content Services automatically provisions a new user when the user first signs on.
IFS.DOMAIN.CREDENTIALMANAGER.ServiceToServiceAuthenticationEnabled	If set to true, enables Service-to-Service authentication, which allows a trusted partner application to establish user sessions with a digest credential (or basic credential over HTTPS), rather than using individual user credentials.

Table 6–1 (Cont.) Oracle Content Services Domain Properties That Can Be Edited

Domain Property	Description
IFS.DOMAIN.DOCUMENT.DefinitionObjectExpirationPeriod	<p>The default time, in seconds, before temporary DefinitionObject instances that were created without specifying an explicit expiration period are freed from the system.</p> <p>This property was added in the Oracle Collaboration Suite Cumulative Patchset 10.1.2.3. If you are using a previous version or patchset of Oracle Collaboration Suite, this feature is not available.</p>
IFS.DOMAIN.EMAIL.AdministratorAddress	The e-mail address of an administrator where Site quota warning notifications are sent.
IFS.DOMAIN.EMAIL.Smtphost	The host name for the SMTP server used by Oracle Content Services.
IFS.DOMAIN.EMAIL.Smtport	The port number for the SMTP server used by Oracle Content Services.
IFS.DOMAIN.EMAIL.Smtptimeoutlength	How long Oracle Content Services waits for the SMTP server to return from sending e-mail.
IFS.DOMAIN.EMAIL.Smtputer	The name of a user for the SMTP server used by Oracle Content Services.
IFS.DOMAIN.HSM.Enabled	<p>This property is not used.</p> <p>Note: This property was removed in the Oracle Collaboration Suite Cumulative Patchset 10.1.2.1.</p>
IFS.DOMAIN.LIBRARYOBJECT.SERVICECONFIGURATION.DefaultServiceConfiguration	The service configuration used by some internal Oracle Content Services processes to connect to the repository. The default is SmallServiceConfiguration.
IFS.DOMAIN.MEDIA.CONTENTTRANSFER.ContentLimit	<p>The maximum size of a single file that can be uploaded to Oracle Content Services. The value you specify is interpreted as the maximum number of megabytes or characters allowed for a single upload of data. This limit does not apply to administrators.</p> <p>The value you specify is interpreted in different ways depending on file type:</p> <ul style="list-style-type: none"> For binary files, this number is the maximum number of megabytes. For example, if you enter 5, the limit will be 5 megabytes for binary files. For text files, such as ASCII or HTML, the number you specify is first converted into bytes, then applied as a maximum character limit, taking into account multibyte encoding. For example, if you enter 5, the limit will be 5 x 1,048,576 (or 5,242,380) characters for text files. <p>Set this property to 0 (the default) if you do not want to limit the size of single-file uploads. Users will then be able to upload any file whose size is within the last calculated available quota, as of the beginning of the upload.</p>
IFS.DOMAIN.PROTOCOLS.DAV.CleartextAuthenticationEnabled	<p>Determines whether WebDAV clients can connect to the server using cleartext authentication.</p> <p>This property was added in the Oracle Collaboration Suite Cumulative Patchset 10.1.2.3. If you are using a previous version or patchset of Oracle Collaboration Suite, this feature is not available.</p>
IFS.DOMAIN.PROTOCOLS.DAV.NullResourceLockExpirationPeriod	The time period, in seconds, after which namespaces reserved over WebDAV as part of a Null Resource Lock are released. The default value is 3600.

Table 6–1 (Cont.) Oracle Content Services Domain Properties That Can Be Edited

Domain Property	Description
<code>IFS.DOMAIN.PROTOCOLS.DAV.PersistentCookieName</code>	The name of the cookie stored by WebDAV clients that use persistent cookies.
<code>IFS.DOMAIN.PROTOCOLS.DAV.UserAgents</code>	A custom list of User-Agent headers for well-known WebDAV clients. This property is empty by default; do not provide values unless instructed by Oracle Support Services.
<code>IFS.DOMAIN.RETENTION.CENTERA.Configuration</code>	<p>If you have integrated Oracle Content Services with EMC Centera, this property contains the EMC Centera ADDRESSLIST, which stores the hostnames or IP addresses of Centera access nodes. On the Edit Property page, you can provide multiple addresses separated by a comma.</p> <p>Support for EMC Centera was added in the Oracle Collaboration Suite Cumulative Patchset 10.1.2.2. If you are using a previous version or patchset of Oracle Collaboration Suite, this property cannot be used.</p>
<code>IFS.DOMAIN.RETENTION.SNAPLOCK.Configuration</code>	<p>If you have integrated Oracle Content Services with Network Appliance SnapLock, this property contains the following settings:</p> <ul style="list-style-type: none"> ■ HOST: The hostname or IP address of the Network Appliance device ■ MOUNTPOINT: The absolute path where the Network Appliance device is NFS-mounted on the database server ■ PORT: The port used to communicate with the Network Appliance device through HTTP. The default port is 80. ■ RELATIVEPATH: A path relative to the NFS mount point where content will be stored ■ SNAPLOCKEXPORTPATH: The absolute path of the NFS-exported volume <p>Support for Network Appliance SnapLock was added in the Oracle Collaboration Suite Cumulative Patchset 10.1.2.1. If you are using a previous version of Oracle Collaboration Suite, this property cannot be used.</p>
<code>IFS.DOMAIN.RETENTION.StorageDevice</code>	<p>The hardware-immutable storage device used for records retention.</p> <p>Integration with retention storage solutions was added to Oracle Collaboration Suite in the Oracle Collaboration Suite Cumulative Patchsets 10.1.2.1 and 10.1.2.2. Support for Network Appliance SnapLock was added in the Oracle Collaboration Suite Cumulative Patchset 10.1.2.1, and support for EMC Centera was added in the Oracle Collaboration Suite Cumulative Patchset 10.1.2.2.</p> <p>If you are using a previous version or patchset of Oracle Collaboration Suite, you do not need to set this property.</p>
<code>IFS.DOMAIN.RMLIFECYCLEAGENT.EventTarget</code>	<p>This property is used internally and cannot be changed.</p> <p>This property was added in the Oracle Collaboration Suite Cumulative Patchset 10.1.2.3. If you are using a previous version or patchset of Oracle Collaboration Suite, this property does not appear.</p>
<code>IFS.DOMAIN.SEARCH.AttemptContextSearchRewrite</code>	Determines whether Oracle Content Services attempts to generate fast-response SQL for text searches. The default value is true.

Table 6–1 (Cont.) Oracle Content Services Domain Properties That Can Be Edited

Domain Property	Description
IFS.DOMAIN.WORKFLOW.BPEL.Creation Enabled	Determines whether Oracle Content Services is configured to integrate with custom BPEL workflows created in Oracle BPEL Process Manager.
IFS.DOMAIN.WORKFLOW.BPEL.Worklist URL	The URL of the Oracle BPEL Process Manager Worklist application.
IFS.DOMAIN.WS.Cleartext AuthenticationRequiresHttps	If set to true (recommended), does not allow cleartext authentication over Web services, unless the Oracle Content Services application has been configured for SSL.

Managing Node Configurations

The run-time behavior of a node is specified in its **node configuration** object. Each node has its own corresponding node configuration. If you want to make permanent changes to a node, such as changing servers or services, modify the node configuration for the node. If you want to make temporary (run-time) changes to a node, modify the node itself. Changes made at run time are lost when the node is restarted.

You cannot create a node directly using the Oracle Collaboration Suite Control. Instead, you must first create an active node configuration, and then a corresponding node will be created automatically. Similarly, to delete a node, you must delete its node configuration object (or mark its node configuration as inactive), rather than deleting the node directly.

Nodes and node configurations do not have identical names. HTTP nodes use the name of the corresponding OC4J instance, while regular nodes appear as the display name specified in the node configuration. The display name for each node is the same as the OPMN process type for both regular and HTTP nodes. For example, if you specify Node1 as the display name for a regular node, you can start that node using the following OPMN command:

```
opmnctl startproc process-type=Node1
```

This section describes the following topics:

- [Creating Regular Node Configurations](#)
- [Creating HTTP Node Configurations](#)
- [Modifying Node Configurations](#)
- [Deleting Node Configurations](#)
- [Configuring Node Loggers](#)

Creating Regular Node Configurations

When you create an active, regular node configuration, a corresponding regular node and its OPMN process type are created automatically.

To create a regular node configuration:

1. If you have multiple Oracle Content Services Applications tiers, connect to the Oracle Collaboration Suite Control on the Applications tier where you want to add and run the node.
2. On the Content Services Home page, in the Administration section, click **Node Configurations**.

3. On the Node Configurations page, decide whether or not to create a new regular node configuration based on the properties of an existing node configuration.
 - Click **Create Non-HTTP Node** to create the node configuration without basing it on an existing node configuration.
 - Select a regular node configuration and click **Create Like** to base the new node configuration on an existing node configuration.

In both cases, the New Node Configuration page appears. If you selected **Create Like**, some properties have been filled with those of the existing node configuration.

Figure 6–1 shows the Create Non-HTTP Node page.

Figure 6–1 Create Non-HTTP Node Page

Create Non-HTTP Node

Click "OK" to create the object, or "Cancel" to cancel this operation. Cancel OK

General

* Name

* Display Name

* Host Name/IP Address

Middle Tier **stadf44.stadf44.us.oracle.com**

Type **Non-HTTP Node**

Description

Access Control

☒ Active

OPMN Configuration

Node Manager Port Range

Java Binary

Java Parameters

Properties

Maximum Sessions Per User	<input type="text" value="50"/>
Maximum Concurrent Requests Per User	<input type="text" value="3"/>
Transaction Timeout (seconds)	<input type="text" value="120"/>
Transaction Timeout Check Interval (seconds)	<input type="text" value="30"/>
Guest Session Pool Target Size	<input type="text" value="10"/>
Guest Session Pool Maximum Size	<input type="text" value="100"/>
System Session Pool Target Size	<input type="text" value="5"/>
System Session Pool Maximum Size	<input type="text" value="50"/>

Logging [Return to Top](#)

Format

All Loggers

[Expand All](#) | [Collapse All](#)

Name	Level
▼ All	Information
Administration	
▶ AllAgents	
▶ AllProtocols	
ClientServiceLayer	
ContentManagement	
Repository	
Utilities	
WebApplication	

Log Rotation

Max Log File Size (MB) Set to 0 to disable file size based log rotation

Rotation Interval (hours) Set to 0 to disable time based log rotation

Max Log Files Set to 0 for unlimited files, set to 1 to disable file size based and time based log rotation

4. Provide a name for the node configuration. This name must be unique in the domain.
5. Provide additional node configuration properties in the General and Logging sections. See Table 6–2 for detailed information about these properties.
6. If you did not select **Create Like**, click **Add** in the Services section to add a default service for the node. Each node must have at least one active service.

On the Add Service page, specify:

- **Name:** Service name.

- **Configuration:** Which service configuration object provides the configuration properties of the service.
- **Active:** Whether the service is currently active.
Inactive services are not automatically started by the node. You must have at least one active service to add servers to this node configuration.

After you are finished specifying parameters on the Add Service page, click **OK**.

7. If you selected **Create Like**, you may want to edit or remove an existing service.
 - To change service properties, select the service and click **Edit**. On the Edit Service page, change the appropriate information and click **OK**.
 - To remove a service, select it and click **Remove**. Each node must have at least one active service.
8. Click **Add** in the Servers section to choose default servers for the node.

On the Add Server page, specify:

- **Name:** Server name.
- **Configuration:** Which server configuration object provides the configuration parameters of the server. For example, select `FtpServerConfiguration` if you want to run an FTP server on this node.
- **Service:** Name of the service against which the server will operate.
- **Initial Priority:** Java thread priority of the server.
- **Active:** Whether the server is currently active. Inactive servers are not automatically loaded by the node.
- **Initially Started:** Whether the server is automatically started once loaded.

After you are finished specifying parameters on the Add Server page, click **OK**.

9. If you selected **Create Like**, you may want to edit or remove an existing server.
 - To change server properties, select the server and click **Edit**. On the Edit Server page, change the appropriate information and click **OK**.
If you want a particular protocol server to automatically start when the node is started, on the Edit Server page, select **Initially Started**.
 - To remove a server, select it and click **Remove**.
10. Click **OK** on the Create Non-HTTP Node page.
11. Optionally, start the node by selecting it from the Processes list on the Content Services Home page and clicking **Start**.

Creating HTTP Node Configurations

When you create an HTTP node configuration, a corresponding HTTP node and its OC4J instance are deployed automatically. Unlike regular node configurations, you do not specify configuration information when you create HTTP node configurations; the new HTTP node configuration is initially based on default settings. You can edit these default settings later.


To create an HTTP node configuration:

1. If you have multiple Oracle Content Services Applications tiers, connect to the Oracle Collaboration Suite Control on the Applications tier where you want to add and run the HTTP node.

2. On the Content Services Home page, in the Administration section, click **Node Configurations**.
3. Click **Create OC4J_Content** to create an HTTP node that supports the Oracle Content Services application. Click **Create OC4J_RM** to create an HTTP node that supports the Oracle Records Management application.

Figure 6–2 shows the Create OC4J_Content page.

Figure 6–2 Create OC4J_Content Page


 **Warning**
 The OC4J instance "OC4J_Content" has already been created on this Oracle Home. Clicking "OK" will delete and create the OC4J instance again.

Create OC4J_Content
 Click "OK" to redeploy "OC4J_Content" - it may take a while. Click "Cancel" to cancel the operation.

Node Configuration	stadf44.stadf44.us.oracle.com_HTTP_Node
Host Name/IP Address	stadf44.us.oracle.com
Middle Tier	stadf44.stadf44.us.oracle.com
OC4J Instance	<u>OC4J_Content</u>

Figure 6–3 shows the Create OC4J_RM page.

Figure 6–3 Create OC4J_RM Page

 **Warning**
 The OC4J instance "OC4J_RM" has already been created on this Oracle Home. Clicking "OK" will delete and create the OC4J instance again.

Create OC4J_RM
 Click "OK" to redeploy "OC4J_RM" - it may take a while. Click "Cancel" to cancel the operation.

Node Configuration	stadf44.stadf44.us.oracle.com_RM_HTTP_Node
Host Name/IP Address	stadf44.us.oracle.com
Middle Tier	stadf44.stadf44.us.oracle.com
OC4J Instance	<u>OC4J_RM</u>

4. On the Create OC4J_Content or the Create OC4J_RM page, click **OK**. In rare cases, you may need to provide a name for the node, such as *applications_tier_name_HTTP_Node* or *applications_tier_name_RM_HTTP_Node*.
5. Optionally, start the node by selecting it from the Processes list on the Content Services Home page and clicking **Start**.

If you already have HTTP nodes on this Applications tier, this operation removes the currently deployed OC4J_Content or OC4J_RM instance and redeploys the instance again.

Modifying Node Configurations

You can make changes to existing node configurations, such as changing which protocol servers and agents run on a node. Changes take effect when the node is restarted.

To modify a node configuration:

1. On the Content Services Home page, in the Administration section, click **Node Configurations**.
2. On the Node Configurations page, click the name of the node configuration you want to change. You can change both HTTP nodes and regular nodes.

3. Change the node configuration properties, as necessary. The node configuration properties are described in [Table 6–2](#). Some properties apply to regular nodes only.

Table 6–2 Node Configuration Properties

Property Name	Description	Applies to HTTP Node?
Display Name	Appears in the Processes list on the Content Services Home page. This name is also used to identify nodes in <code>opmnctl</code> commands.	No. For HTTP nodes, the display name is the same as the OC4J instance for the node (OC4J_Content or OC4J_RM). You cannot change this value.
Host Name/IP Address	The host name or IP address of the primary network card is displayed by default. If you have multiple network cards, you can change this value to an alternate host name or IP address.	Yes
Description	Description of the node configuration.	Yes
Access Control	The access level associated with the node configuration.	Yes
Active	Whether or not the node configuration is active. Deselect this option to make the node configuration inactive. When you deactivate a node configuration, its corresponding process type is disabled in OPMN. Making a node inactive is an alternative to deleting the node configuration; the configuration information is retained, and you can activate the node later.	Yes
Node Manager Port Range	The port range for the Node Manager process. The default is 53140-53899. You can specify specific ports, a port range, or both. For example, you can specify 53140, 53141, or 53140, 53400-53500. You can enter any valid port number range.	Yes
Java Binary	The Java Binary for the node. The default is <code>ORACLE_HOME/jdk/bin/java</code> .	No

Table 6–2 (Cont.) Node Configuration Properties

Property Name	Description	Applies to HTTP Node?
Java Parameters	<p>Edit this value to specify command-line arguments for the Java VM. For example, add <code>java -Xmx512M</code> to increase the maximum size of the Java VM memory to 512 MB.</p> <p>To log all garbage collection activity, add <code>-verbosegc</code> as an argument.</p>	<p>No.</p> <p>To define Java parameters and arguments for an HTTP node:</p> <ol style="list-style-type: none"> 1. From the Collaboration Suite Home page, click OC4J_Content. 2. Click the Administration tab, then click Server Properties. 3. In the Command Line Options section, update the Java Options to include the new <code>-Xmx</code> setting. For example, enter <code>-Xmx430m</code> to specify 430 MB of memory for the Java heap. 4. Click Apply. 5. Return to the Collaboration Suite Home page and restart OC4J_Content.
Maximum Sessions Per User	<p>The maximum number of sessions allowed for a given user. The default value is 50.</p> <p>To allow an unlimited number of sessions for each user, set the value to 0.</p>	Yes
Maximum Concurrent Requests Per User	<p>The maximum number of outstanding requests allowed for a given user. An outstanding request is a request that the server is still processing, such as a search. The default value is 3.</p> <p>To allow an unlimited number of outstanding requests for each user, set the value to 0.</p>	Yes
Transaction Timeout (seconds)	<p>The inactivity timeout period for a transaction that spans multiple requests. This setting usually applies to Web services clients, because they are the only clients that can have transactions that span multiple requests. If there is an outstanding transaction and there is no request on the corresponding session for the transaction timeout period, the transaction will time out. The default value is 120.</p> <p>Do not set this property to a value lower than 15.</p>	Yes

Table 6–2 (Cont.) Node Configuration Properties

Property Name	Description	Applies to HTTP Node?
Transaction Timeout Check Interval (seconds)	<p>The interval between successive checks for transactions that need to be timed out. The default value is 30. Follow these guidelines for setting this value:</p> <ul style="list-style-type: none"> ■ This value must be smaller than the Transaction Timeout. ■ Setting a small value for this property may have a performance impact. ■ A large value for this parameter can significantly increase the actual transaction timeout period. For example, if the Transaction Timeout is 120 seconds, and the Transaction Timeout Check Interval is 30 seconds, then a given transaction will time out between 120 and 150 seconds of inactivity, depending on the timing of the transaction check. 	Yes
Guest Session Pool Target Size	<p>The number of sessions kept in the guest session pool. If the number of sessions in the guest pool is equal to the Guest Session Pool Target Size up on the return of a session, the session will be disconnected, rather than returned to the pool. The default value is 10.</p> <p>If you are not allowing guest access, you can set this value to 0.</p>	Yes
Guest Session Pool Maximum Size	<p>The maximum number of guest sessions that can be in use at a given time. The default value is 100.</p> <p>If you are not allowing guest access, you can set this value to 0. This value must be greater than the Guest Session Pool Target Size (if the Guest Session Pool Target Size is greater than 0).</p>	Yes
System Session Pool Target Size	<p>The number of sessions kept in the system session pool. If the number of sessions in the system pool is equal to the System Session Pool Target Size up on the return of a session, the session will be disconnected, rather than returned to the pool. The default value is 5.</p> <p>Do not set this property to a value lower than 5.</p>	Yes
System Session Pool Maximum Size	<p>The maximum number of system sessions that can be in use at a given time. The default value is 50.</p> <p>This value must be greater than the System Session Pool Target Size.</p>	Yes
All Loggers	<p>You can configure the level of logging for this node. See "Configuring Node Loggers" on page 6-13 for more information.</p>	Yes
Format	Whether the log format should be text or XML.	No

Table 6–2 (Cont.) Node Configuration Properties

Property Name	Description	Applies to HTTP Node?
Max Log File Size (MB)	The maximum size for the log. The default is 7 MB. Set this value to 0 to disable file size-based log rotation. You should set the Max Log File Size or the Rotation Interval property, or both, to a value other than 0 to keep the log from getting too large.	No
Rotation Interval (hours)	The interval, in hours, that the log is archived and rotated. After this interval, the current log is renamed to include a time stamp, and a new log is created. Set this value to 0 to disable time-based log rotation.	No
Max Log Files	The maximum number of logs allowed. When the maximum number of logs is reached, the oldest log is overwritten. The default value is 5. Set this value to 0 to allow unlimited logs. If you set this value to 1, both file size-based and time-based log rotation are disabled, regardless of the values set for Max Log File Size and Rotation Interval property.	No

4. In the Services section, you can add, edit, or remove services for this node.
 - To add a service, click **Add**, specify information for the service, and click **OK**.
 - To change service properties, select the service and click **Edit**, or click the service name. On the Edit Service page, change the appropriate information and click **OK**.
 - To remove a service, select it and click **Remove**. Each node must have at least one active service.
5. In the Servers section, you can add, edit, and remove protocol servers and agents for this node. You can also activate or deactivate servers for the node.
 - To add a server, click **Add**, specify information for the server, and click **OK**. To actively run a protocol server or agent on this node, make sure to select **Active** and **Initially Started**.
 - To change server properties, select the server and click **Edit**, or click the server name. On the Edit Server page, change the appropriate information and click **OK**.

If you want a server to automatically start when the node is started, on the Edit Server page, select **Active** and **Initially Started**.
 - To remove a server, select it and click **Remove**.
 - To activate or deactivate multiple servers, click **Activate/Deactivate**. On the Activate/Deactivate Servers page, you can move servers between the Active Servers list and the Inactive Servers list. Then, click **OK**.

Note: The Activate/Deactivate button was added in the Oracle Collaboration Suite Cumulative Patchset 10.1.2.3. If you are using a previous version or patchset of Oracle Collaboration Suite, this feature is not available.

6. On the Edit Node page, click **OK** to save the changes. You must restart the node for your changes to take effect.

Deleting Node Configurations

Deleting a node configuration also deletes the node process that is based on that node configuration. Typically, you only delete node configurations that are local to the current Applications tier. In rare cases, however, such as when an Applications tier fails, you may need to delete a node configuration on a remote Applications tier.

To delete a node configuration:

1. On the Content Services Home page, stop the node, if it is running.
2. On the Content Services Home page, in the Administration section, click **Node Configurations**.
3. On the Node Configurations page, select the node configuration you want to delete.
4. Click **Delete**. If you to delete an HTTP node, its corresponding OC4J instance is also deleted.
5. On the Warning page, click **Yes**. The node configuration is deleted.

Deactivating Nodes

Making a node inactive is an alternative to deleting the node configuration. An inactive node is removed from the domain and is disabled in OPMN, but the configuration information is kept so that you can activate the node later. See ["Deactivating Nodes"](#) on page 5-5 for more information.

Configuring Node Loggers

You can configure **loggers** for each node to fine-tune the level of information you want to collect in each node log. For example, you can specify a more detailed level of logging for a particular protocol server or agent. All messages are logged in English. You can configure loggers from the Node page, or you can configure loggers by modifying the node configuration for a node.

Configuring Loggers from the Node Page

To configure loggers from the Node page:

1. On the Content Services Home page, in the Processes section, click the name of the node for which you want to configure loggers.
2. From the Node page, in the Loggers section, you can see a list of loggers and their current log level by expanding the **All Loggers** heading.
3. Click **Configure Loggers** to change log levels for particular loggers.

[Figure 6-4](#) shows the Configure Logger Levels page.

Figure 6–4 Configure Logger Levels Page

Configure Logger Levels

[Expand All](#) | [Collapse All](#)

Name	Level
▼ All	Information
Administration	
▶ AllAgents	
▼ AllProtocols	
DAV	
FTP/FTPS	Fine
ClientServiceLayer	
ContentManagement	
Repository	
Utilities	
WebApplication	Finest

- On the Configure Logger Level page, specify logging levels for loggers you want to configure. For example, you can increase the log level for FTP (under the AllProtocols heading) to get more detailed logging on the Oracle Content Services FTP server. The available log levels are:
 - **Severe:** Log only nonrecoverable problems
 - **Warning:** Log only recoverable problems
 - **Important:** Log messages that are deemed important
 - **Information:** General level of log information
 - **Fine:** Level for debugging or tracing key operations
 - **Finer:** Level for debugging or tracing the entry and exit of methods
 - **Finest:** Level for debugging or tracing within a method
- Click **Save To Runtime** if you want your changes to take effect for the current node, but you do not want your changes to be saved when the node is restarted.
- Click **Save To Configuration** if you want your changes to become a permanent part of the node configuration. Your changes will be retained when the node is restarted.
- Click **Reset From Configuration** to remove any changes you made to this node at run time, and to reset the values based on the values in the node configuration.

Configuring Loggers by Modifying the Node Configuration

To configure loggers by modifying the node configuration for a particular node:

- On the Content Services Home page, in the Administration section, click **Node Configurations**.
- On the Node Configurations page, click the name of the node configuration for which you want to configure loggers.
- In the All Loggers section, specify logging levels for loggers you want to configure. For example, you can increase the log level for FTP (under the AllProtocols heading) to obtain more detailed logging on the Oracle Content Services FTP server. The available log levels are:

- **Severe:** Log only nonrecoverable problems
 - **Warning:** Log only recoverable problems
 - **Information:** General level of log information
 - **Fine:** Level for debugging or tracing key operations
 - **Finer:** Level for debugging or tracing the entry and exit of methods
 - **Finest:** Level for debugging or tracing within a method
4. Click **OK** to save the changes.
- Restart the node based on this node configuration for your changes to take effect.

Managing Service Configurations

A **service configuration** holds the default values used when a service is started for an Oracle Content Services node. This section explains how to manage service configurations using the Oracle Collaboration Suite Control.

This section contains the following topics:

- [About Service Configurations](#)
- [Creating Service Configurations](#)
- [Modifying Service Configurations](#)
- [Deleting Service Configurations](#)

About Service Configurations

Each service configuration specifies values for service properties such as credential manager settings, the sizes of the cache and database connection pools, the maximum number of sessions, and the default language and character set of the service. See [Appendix D, "Service Configuration Properties"](#) for a complete list of service configuration parameters. Service configurations are uniquely named in a domain.

Whenever a new Oracle Content Services schema is created, three service configuration objects are generated:

- SmallServiceConfiguration
- MediumServiceConfiguration
- LargeServiceConfiguration

These objects are named to reflect the sizes of their data caches.

Use the Oracle Collaboration Suite Control to create or edit service configuration objects. The services read their service configuration properties only when they start. You must stop and restart the affected nodes for changes to take effect. The changes you make this way are applied each time you start a service and overwrite any changes you make on a service while it is running.


[Figure 6–5](#) shows the Service Configurations page.

Figure 6–5 Service Configurations Page**Service Configurations**Page Refreshed Jun 28, 2005 12:31:51 AM 

Below is a list of all service configurations. Click a name to edit that service configuration. Click "Create" to create a new service configuration. Select a service configuration and click "Create Like" to create a new service configuration based on an existing one. Select a service configuration and click "Delete" to remove an entry.

Search

|

Select	Name 	ACL	Modified
<input checked="" type="radio"/>	LargeServiceConfiguration	Private (system)	Monday, June 27, 2005 11:17:32 PM UTC
<input type="radio"/>	MediumServiceConfiguration	Private (system)	Monday, June 27, 2005 11:17:31 PM UTC
<input type="radio"/>	SmallServiceConfiguration	Private (system)	Monday, June 27, 2005 11:17:27 PM UTC

Similar to node configuration properties, you can change run-time service properties, change to a different service configuration, alter service configuration properties permanently, or create a new service configuration.

Creating Service Configurations

Use the Oracle Collaboration Suite Control to create service configurations.

To create a new service configuration:

1. On the Content Services Home page, in the Administration section, click **Service Configurations**.
2. On the Service Configurations page, decide whether or not to create a new service configuration based on the properties of an existing service configuration.
 - Select a service configuration and click **Create Like** to base the new service configuration on an existing service configuration (highly recommended).
 - Click **Create** to create the service configuration without basing it on an existing configuration.

In both cases, the New Service Configuration page appears. If you clicked **Create Like**, the service configuration properties have been filled with those of the existing service.

Figure 6–6 shows the New Service Configuration page.

Figure 6–6 New Service Configuration Page**New Service Configuration**

Cancel OK

Click "OK" to create the object, or "Cancel" to cancel this operation.

General

* Name

Description

Access Control

PropertiesSearch Go

<input type="button" value="Remove"/>	<input type="button" value="Add"/>	<input type="button" value="Previous"/>	1-25 of 75	<input type="button" value="Next 25"/>
Select	Name	Type	Value	
<input type="radio"/>	IFS.SERVICE.ACLCACHE.EmergencyTrigger	INTEGER	6000	
<input type="radio"/>	IFS.SERVICE.ACLCACHE.NormalTrigger	INTEGER	5000	
<input type="radio"/>	IFS.SERVICE.ACLCACHE.PurgeTarget	INTEGER	4000	
<input type="radio"/>	IFS.SERVICE.ACLCACHE.Size	INTEGER	7500	
<input type="radio"/>	IFS.SERVICE.ACLCACHE.UrgentTrigger	INTEGER	5500	
<input type="radio"/>	IFS.SERVICE.CaseSensitiveAuthentication	BOOLEAN	true	
<input type="radio"/>	IFS.SERVICE.CheckForOrphanSessionsPeriod	INTEGER	60	
<input type="radio"/>	IFS.SERVICE.CONNECTIONPOOL.READONLY.MaximumSizeTimeout	INTEGER	10000	

3. In the General section, enter a name for the new service configuration.
4. Enter a description of the service.
5. Assign an access level to the configuration by selecting from the **Access Control** list.
6. Add, remove, or update the properties of the new service.
7. Click OK.

Modifying Service Configurations

You can use the Oracle Collaboration Suite Control to make changes to service configurations, such as changing the capacity of the Committed Data Cache or changing the number of maximum concurrent sessions.

To modify a service configuration:

1. On the Content Services Home page, in the Administration section, click **Service Configurations**.
2. On the Service Configurations page, click the name of the service configuration you want to change.
3. On the Edit page, update the information in the General section, as necessary:
 - **Description:** Enter a description of the service configuration.
 - **Access Control:** Keep the default value.
4. To add new properties for this service configuration, follow these steps:
 - a. In the Properties section, click **Add**.
 - b. Provide a name for the new property.

- c. Select a **Type** (such as string, integer, or Boolean). The page refreshes to display the appropriate **Value** field. For example, if you select **BOOLEAN**, a true or false list is displayed.
 - d. Enter or select a value for the property.
 - e. Click **OK**.
5. To edit a service configuration property, click the name of the property, update the value, and click **OK**.
6. To remove a property from this service configuration, select the property, click **Remove**, then click **Yes**.
7. Click **OK**.

Services only read their service configuration properties as they start. You must stop and restart the node on which the service is running before your changes will take effect. When the node restarts, the changes you made to the service configuration overwrite any run-time changes made on the service.

Deleting Service Configurations

You cannot delete a service configuration that is being used by an active service. If the service configuration you want to delete is being used by an active service, perform one of the following tasks:

- Change the service configuration being used by the service by modifying the node configuration
- Delete the service from the node configuration

You cannot delete the service if it is the only service defined in the node configuration. Each node must have at least one active service.

To delete a service configuration:

1. On the Content Services Home page, in the Administration section, click **Service Configurations**.
2. On the Service Configurations page, select the service configuration you want to delete.
3. Click **Delete**.
4. Click **Yes** to confirm that you want to delete the service configuration.

Managing Server Configurations

A [server configuration](#) holds the default values used when a server is started for an Oracle Content Services node. This section explains how to manage service configurations using the Oracle Collaboration Suite Control.

This section contains the following topics:

- [About Server Configurations](#)
- [Creating Server Configurations](#)
- [Modifying Server Configurations](#)
- [Deleting Server Configurations](#)

About Server Configurations

Server configurations specify their server types as Java classnames. In addition to the server type, each server configuration specifies values for parameters relevant to that type. See [Appendix E, "Server Configuration Properties"](#) for more information. For example, a server configuration for the Oracle Content Services FTP server specifies the FTP port number, whether anonymous FTP connections are allowed, and the connection timeout period.

Most of the server configuration information is used by the server itself. Only the server Java class entry is used by the node to instantiate a new server.

When Oracle Content Services is installed, server configurations are automatically created for each protocol server and agent. You can edit these configurations, or create additional server configurations using the Oracle Collaboration Suite Control. Any changes you make will appear the next time the node is restarted, or when the server is unloaded and then loaded again.

Server configuration objects are of two types:

- **Abstract:** Used to set base values for the properties, which can then be inherited by some other configuration. You cannot start a server from an abstract server configuration.
- **Non-abstract:** Can be used to start servers.

When you create a new server configuration, you can let it inherit the properties from one or more server configurations. You can use the same values as inherited, or use different values.

Inheritance operations are accessed from the New Server Configuration page, shown in [Figure 6–7](#). See ["Creating Server Configurations"](#) on page 6-20 for more information on creating new server configurations.

Figure 6–7 Inheritance Operations on the New Server Configuration Page

Inherited Server Configurations [Return to Top](#)

A server configuration can inherit properties from other server configurations. The order in which the inherited server configurations are listed is significant. Those listed first take precedence.

Available Configurations

- CleanupAgentConfiguration
- ContentAgentConfiguration
- ContentGarbageCollectionAgentConfiguration
- DanglingObjectAVCleanupAgentConfiguration
- EcmHttpServerConfiguration
- EventExchangerAgentConfiguration
- ExpirationAgentConfiguration
- FolderIndexAgentConfiguration
- FolderIndexAnalyzerAgentConfiguration
- FtpServerConfiguration

Description

>

Move

>>

Move All

<

Remove

<<

Remove All

Inherited Configurations

Description

Properties [Return to Top](#)

Inherited and locally defined properties are shown for the server configuration. If you change the inherited server configurations, click "Update Inherited Properties" to revise the inherited properties. Click "Add", "Edit", or "Remove" to manage locally defined properties.

Search

Select	Name	Inherited	Type	Value
<input checked="" type="radio"/>	IFS.SERVER.Class		STRING	oracle.ifs.protocols.ftp.server.FtpServer
<input type="radio"/>	IFS.SERVER.PROTOCOL.FTP.AcceptQueueSize		INTEGER	50

Changing Values of Inherited Properties

To change the value of an inherited property, create a new property in the inherited server configuration that is identical in name to the one in the parent server configuration, but has values that override those in the parent server configuration.

Viewing Inherited Properties

View the inherited properties to determine whether the property in the current server configuration object is local to this object or taken from a parent server configuration object. You can also differentiate between inherited server configuration objects and those that are local to the server configuration.

Creating Server Configurations

Use the Oracle Collaboration Suite Control to create new server configurations.

To create a new server configuration:

1. On the Content Services Home page, in the Administration section, click **Server Configurations**.
2. On the Server Configurations page, decide whether or not to create a new server configuration based on the properties of an existing server.
 - Select a server configuration and click **Create Like** to base the new server configuration on an existing configuration.
 - Click **Create** to create the server configuration without basing it on an existing configuration.

In both cases, the New Server Configuration page appears. If you clicked **Create Like**, the server configuration properties have been filled with those of the existing server.

3. On the New Server Configuration page, in the General section, enter a name for the new server configuration.
4. Enter a description of the server.
5. Keep the default value for **Access Control**.
6. Select **Abstract** to prevent this server from being instantiated. An abstract server configuration is used to set base values for properties, which can then be inherited by another server configuration. You cannot start a server from an abstract server configuration.
7. In the Inherited Server Configurations section, select the existing configurations from which the new configuration will inherit properties. Select configurations from the **Available Configurations** list and move them to the **Selected Configurations** list.
8. If you change the list of inherited server configurations, click **Update Inherited Properties** in the Properties section to display the properties of the inherited server configurations.

The order of the items in the Inherited Configurations list determines which configuration takes precedence.

9. To edit server configuration properties, follow these steps:
 - a. In the Properties section, select the property you want to change and click **Edit**.

- b. Update the value of the property.
- c. Click **OK**.

For example, to change the FTP port number for a server configuration based on the `FtpServerConfiguration`, click `IFS.SERVER.PROTOCOL.FTP.Port`, update the value, and click **OK**.

Inherited server configuration properties cannot be edited. Inherited properties display an icon in the Inherited column, and their names are not rendered as links. To change the value of these properties, add a new property that is identical in name to the inherited property, but with a value that overrides the value of the inherited property.

10. To add new server configuration properties, follow these steps:
 - a. Click **Add** in the Properties section.
 - b. Enter a name for the new property. If you are adding a property to override an inherited property, make sure the name matches the inherited property.
 - c. Select a **Type** (such as string, integer, or Boolean). The page refreshes to display the appropriate **Value** field. For example, if you select **BOOLEAN**, a true or false list is displayed.
 - d. Enter or select a value for the property.
 - e. Click **OK**. If you added a property to override an inherited property, the property name changes to a link, and the Inherited icon no longer appears.
11. To remove server configuration properties, select a property and click **Remove**.
12. After you complete the server configuration, click **OK**.

Modifying Server Configurations

You can use the Oracle Collaboration Suite Control to make important changes to server configurations, such as changing which configurations to inherit and editing, adding, or removing server configuration properties. See [Appendix E, "Server Configuration Properties"](#) for more information about specific server configuration parameters.

To modify an existing server configuration:

1. On the Content Services Home page, in the Administration section, click **Server Configurations**.
2. On the Server Configurations page, click the name of the server configuration you want to modify.
3. On the Edit page, update the information in the General section as necessary:
 - **Description:** Enter a description of the server configuration.
 - **Access Control:** Keep the default value.
 - **Abstract:** Choose whether to make the server configuration abstract. An abstract server configuration is used to set base values for properties, which can then be inherited by some other server configuration. You cannot start a server from an abstract server configuration.
4. In the Inherited Server Configurations section, use the arrow buttons to add or remove server configurations from which this server configuration will inherit properties.

5. If you change the list of inherited server configurations, click **Update Inherited Properties** in the Properties section to display the properties of the inherited server configurations.

The order of the items in the Inherited Configurations list determines which configuration takes precedence.

6. To edit server configuration properties, follow these steps:
 - a. In the Properties section, select the property you want to change and click **Edit**.
 - b. Update the value of the property.
 - c. Click **OK**.

For example, to change the FTP port number for a server configuration based on the `FtpServerConfiguration`, click `IFS.SERVER.PROTOCOL.FTP.Port`, update the value, and click **OK**.

Inherited server configuration properties cannot be edited. Inherited properties display an icon in the Inherited column, and their names are not rendered as links. To change the value of these properties, add a new property that is identical in name to the inherited property, but with a value that overrides the value of the inherited property.

7. To add new server configuration properties, follow these steps:
 - a. Click **Add** in the Properties section.
 - b. Enter a name for the new property. If you are adding a property to override an inherited property, make sure the name matches the inherited property.
 - c. Select a **Type** (such as string, integer, or Boolean). The page refreshes to display the appropriate **Value** field. For example, if you select **BOOLEAN**, a true or false list is displayed.
 - d. Enter or select a value for the property.
 - e. Click **OK**. If you added a property to override an inherited property, the property name changes to a link, and the Inherited icon no longer appears.
8. To remove server configuration properties, select a property and click **Remove**.
9. After you complete the server configuration, click **OK**.

Servers only read their server configuration properties when they are reloaded, or when the node is restarted. You must reload the server before your changes will take effect. See ["Reloading Servers"](#) on page 5-15 for more information. These server configuration changes overwrite changes you make on a server while it is running.

Deleting Server Configurations

You cannot delete a server configuration that is being used by an active server. If the server configuration you want to delete is being used by an active server, first edit the node configuration to remove the server, then delete the server configuration. Alternatively, you can change the server configuration being used by the server.

To delete a server configuration:

1. On the Content Services Home page, in the Administration section, click **Server Configurations**.
2. On the Server Configurations page, select the server configuration you want to delete.

3. Click **Delete**.
4. On the Warning page, click **Yes**.

Monitoring Domain, Node, Service, and Server Performance

Use the Oracle Collaboration Suite Control to monitor Oracle Content Services domain, node, service, and server performance. You can use this information to get an overall picture of the performance of the domain, or to determine whether the configuration of the domain needs to be changed.

This chapter provides information about the following topics:

- [Monitoring Domain Performance](#)
- [Monitoring Node Performance](#)
- [Monitoring Service Performance](#)
- [Monitoring Server Performance](#)
- [Viewing Logs](#)
- [Accessing Metrics and Monitoring Metric Alerts](#)

Monitoring Domain Performance

You can use the Oracle Collaboration Suite Control to view different types of performance information for the Oracle Content Services domain. This section contains the following topics:

- [About Oracle Content Services Performance Metrics](#)
- [Viewing Performance Information](#)
- [Configuring Performance Metrics](#)

About Oracle Content Services Performance Metrics

There are three types of Oracle Content Services performance metrics: repository metrics, Dynamic Monitoring Service (DMS) metrics, and other metrics. See "[Monitoring Server Performance](#)" on page 7-7 for information about DMS metrics.

Repository metrics are metrics that apply to the entire Oracle Content Services domain. These metrics include:

- Domain Response
- Documents
- Documents By MIME Type
- Users

- Users By Site
- Libraries By Site
- Nodes
- Sessions By Server (Node)
- Sessions By Server (Domain)
- All Sessions

Other Oracle Content Services performance metrics include:

- Response
- Resource Usage
- Processes
- Web Application URL Timing
- RM Application URL Timing
- Load Balanced Web Application URL Timing
- Load Balanced RM Application URL Timing

Some metrics must be configured for particular Applications tiers. See "[Configuring Performance Metrics](#)" on page 7-4 for more information.

Viewing Performance Information

You can view Oracle Content Services performance metrics in two ways:

- All Oracle Content Services metrics can be viewed from the All Metrics pages, as long as they are being collected on that Applications tier.
- Repository metrics can also be viewed from the Domain Performance & Statistics pages, which provide information in a more graphical format than the All Metrics pages. These pages are not available on Applications tiers where repository metrics are not being collected.

Using the All Metrics Link

All Oracle Content Services performance metrics that are being collected on an Applications tier can be accessed from the All Metrics pages in the Oracle Collaboration Suite Control. To access these pages, from the Performance section of the Content Services Home page, click **All Metrics**.

To view information about a particular metric, click the metric name, then click **Help** on the resulting Metric Detail page.

Using the Domain Performance & Statistics Pages

The Domain Performance & Statistics pages in the Oracle Collaboration Suite Control provide tables and charts that present information about Oracle Content Services users, Libraries, documents, sessions, and overall usage patterns. This information can help you evaluate system performance and guide you in making changes to your configuration.

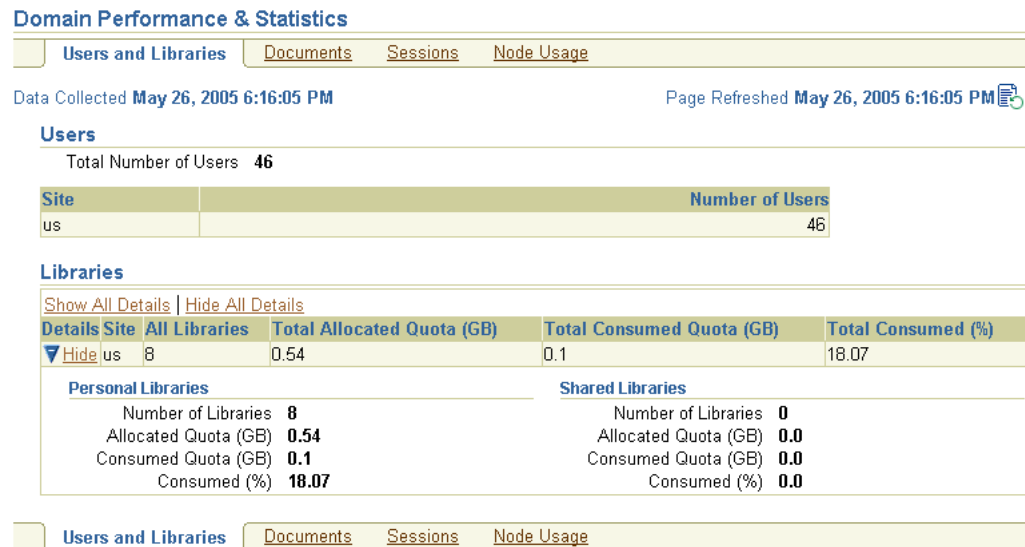
The Domain Performance & Statistics pages are only available on Applications tiers that have been configured for repository metrics. See "[Configuring Performance Metrics](#)" on page 7-4 for more information.

To view domain performance information:

1. On the Content Services Home page, click **Domain Performance & Statistics**.

Figure 7–1 shows the Domain Performance & Statistics page.

Figure 7–1 Domain Performance & Statistics Page



2. Select one of the four subtabs:
 - The **Users and Libraries** subtab provides information about the total number of users and the number of users for each Site, and provides information about Personal and Shared Libraries for each Site.
 - The **Documents** subtab provides systemwide information about documents.
 - The **Sessions** subtab lets you view the connected sessions by server type.
 - The **Node Usage** subtab lets you monitor sessions, threads, and memory by node and host.
3. To refresh the information for the **Sessions** or **Node Usage** subtabs, refresh your browser, or click the Refresh Data icon in the upper right portion of the page.
 Because data for the **Users and Libraries** and **Documents** subtabs is only collected at preset intervals, refreshing the page will not cause the data to be collected again. To see the last time the data was collected on these tabs, look at the Data Collection Time displayed in the upper left corner of the page.
4. To move between the table view and the chart view, make a selection from the **Select a View** list.

Table 7–1 lists the various charts, graphs, and tables, and shows you which subtab and view names you need to select to access the information.

Table 7–1 Reference to Statistical Information About the Domain and Nodes

Chart, Graph, or Table Name	Statistics or Information Displayed	Subtab	Select a View Item
Users	<ul style="list-style-type: none"> Total Number of Users Total Number of Users by Site 	Users and Libraries	Not applicable
Libraries	Tabular display showing: <ul style="list-style-type: none"> Total number of Libraries for each Site Total allocated quota for each Site Total consumed quota for each Site Percentage of quota consumed for each Site These statistics are also available for Personal and Shared Libraries for each Site; click Show in the Details column to access this information.	Users and Libraries	Not applicable
Document Table	Document distribution and space consumption by MIME type.	Documents	Table
Document Distribution Chart	Space consumed, displayed by MIME type (displays a bar chart comparing quantities of the different types of documents stored in the system).	Documents	Distribution Chart
Document Consumption Chart	Space consumed, displayed by MIME type.	Documents	Consumption Chart
Sessions Table	Tabular display of the total number of connected sessions for each protocol server or agent.	Sessions	Table
Sessions Chart	Pie chart of total number of connected sessions for each protocol server or agent. The sessions for all the agents are displayed as a combined result.	Sessions	Chart
Node Usage Table	Tabular display of node name, host name and IP address, number of sessions, number of threads, and JVM total/free/used memory for each node.	Node Usage	Table
Node Usage Chart	Bar charts showing the same information as the Overall Usage Table.	Node Usage	Chart

Configuring Performance Metrics

You can use the Oracle Collaboration Suite Control to select which Oracle Content Services performance metrics to configure on the current Applications tier. For example, you can collect metrics related to Oracle Content Services Web application response time.

To configure performance metrics:

1. On the Content Services Home page, in the Performance section, click **Metric Configuration**.
2. You can collect repository metrics on this Applications tier. To do this, select **Run Repository Metric?**, and provide the Oracle Content Services schema password and the database connect descriptor. If you do not know the database connect descriptor, you can copy it from the Content Services Home page.

To avoid the potential performance impact of duplicate metric collection, only run repository metrics on one Applications tier. Be aware that the Domain Performance & Statistics pages are only available from Applications tiers on which repository metrics are collected.

3. You can collect metrics related to Oracle Content Services Web application response time on this Applications tier.
 - To collect metrics related to the Oracle Content Services Web application URL for this Applications tier, select **Run Web Application Response Time Metric?**, and provide the correct Oracle Content Services Web application URL for this Applications tier.
 - To collect metrics related to the load-balanced URL for the Oracle Content Services Web application, select **Run Load Balanced Web Application Response Time Metric?**, and provide the correct Oracle Content Services load-balanced Web application URL.
4. You can collect metrics related to Oracle Records Management Web application response time on this Applications tier.
 - To collect metrics related to the Oracle Records Management Web application URL for this Applications tier, select **Run RM Application Response Time Metric?**, and provide the correct Oracle Records Management Web application URL for this Applications tier.
 - To collect metrics related to the load-balanced URL for the Oracle Records Management Web application, select **Run Load Balanced RM Application Response Time Metric?**, and provide the correct Oracle Records Management load-balanced Web application URL.

If Oracle Records Management was not enabled, these metrics will report that the Oracle Records Management Web application URLs are not available.

5. Click OK.

Monitoring Node Performance


You can use the Oracle Collaboration Suite Control to view performance information about both regular nodes and HTTP nodes, including JVM total, used, and free memory, JVM thread count, and default time zone and locale.

To view node performance information:

1. On the Content Services Home page, click the name of the node for which you want to view performance information.
2. On the Node page, click the **Details** link to display operating system and JVM information about that node.

[Figure 7–2](#) shows the Details page.

Figure 7–2 Details Page for Selected Node

Details		Page Refreshed Mar 28, 2006 10:45:57 PM 
Java VM Total Memory (MB)	35	
Java VM Used Memory (MB)	23	
Java VM Free Memory (MB)	12	
Java VM Thread Count	75	
Java VM Default Time Zone	UTC	
Java VM Default Locale	en_US	
IP Address	stang08/140.87.22.106	
Java Vendor	Sun Microsystems Inc.	
Java Version	1.4.2_06	
Java Home	/scratch/ankugoel/softwares/ias/jdk/jre	
Operating System Name	Linux	
Operating System Architecture	i386	
Operating System Version	2.4.21-37.ELsmp	
Content Services Version (beans-side)	10.1.2.3.0	
Content Services Version (server-side)	10.1.2.3.0	

Monitoring Service Performance

You can view real-time statistics for the Committed Data Cache, the Read-Only Connection Pool, and the Writable Connection Pool for each service. You can also reset the statistics.

1. On the Content Services Home page, click the node whose service you want to monitor.
2. On the Node page, click the service (for example, **IfsDefaultService**).
3. On the Service page, scroll to the Performance section.
4. Click the link to the statistics you want to view: **Committed Data Cache Statistics** or **Connection Pool Statistics**.

[Figure 7–3](#) shows the Committed Data Cache Statistics page.

Figure 7–3 Committed Data Cache Statistics Page

Committed Data Cache Statistics		Page Refreshed Feb 22, 2005 3:40:50 PM  Reset Statistics
Cache Size	1,007	
Cache Puts	1,075	
Cache Removes	4	
Cache Purges	0	
Cache Purge Cycles	0	
Average Cache Purge Time (ms)	0	
Cache Lookups	450,235	
Cache Hits (%)	99.8	

[Figure 7–4](#) shows the Connection Pool Statistics page.

Figure 7–4 Connection Pool Statistics Page**Connection Pool Statistics**Page Refreshed Mar 8, 2006 10:59:14 AM 

Read-only Connection Pool		Writeable Connection Pool	
	Reset Statistics		Reset Statistics
Total Connections	3	Total Connections	6
Allocated Connections	0	Allocated Connections	1
Immediate Allocations	120,392	Immediate Allocations	432,490
Deferred Allocations	0	Deferred Allocations	0
Failed Allocations	0	Failed Allocations	0
Average Allocation Time (ms)	0	Average Allocation Time (ms)	0
Attempted Purges	0	Attempted Purges	0
Purge Count	0	Purge Count	0

- Click **Reset Statistics** in the Committed Data Cache, Read-Only Connection Pool, or Writeable Connection Pool areas to reset cache or connection pool statistics.

Note: The Attempted Purges and Purge Count statistics for the statement cache that appear on the Connection Pool Statistics page were added in the Oracle Collaboration Suite Cumulative Patchset 10.1.2.3. If you are using a previous version or patchset of Oracle Collaboration Suite, these statistics do not appear on the Connection Pool Statistics page.

Logging Service Performance Information

The Statistics Agent captures the statistics for the Committed Data Cache, as well as the Read-Only and Writeable Connection Pools, and writes them to the node log and the application log. You can also configure this agent to write statistics to a document stored in the Oracle Content Services repository.

See "[Viewing Logs](#)" on page 7-8 for information about the node log and application log. See "[Statistics Agent](#)" on page E-16 for information about the Statistics Agent.

Monitoring Server Performance

You can monitor server performance by viewing Dynamic Monitoring Service (DMS) metrics that were defined for some servers. DMS metrics are a special type of performance metric that can be defined in Oracle Application Server. DMS metrics for Oracle Content Services include:

- WebDAV Servers
- FTP Servers
- Servers

Some DMS metric information can be viewed on the Node page, and on the Server page for some servers. For example, the Servers section of the Node page shows the Last Start Time and Last Stop Time for each server, while the FTP Server page displays Requests Completed, Average Request Processing Time (seconds), Downloaded Content Size (MB), and Uploaded Content Size (MB).

DMS metrics can also be viewed using the `dmstool` utility and AggreSpy. For more information about DMS metrics and how to view them, see *Oracle Application Server Performance Guide*.

Viewing Logs

The following sections provide a list of Oracle Content Services logs, and information about how to view logs in the Oracle Collaboration Suite Control.

Oracle Content Services Logs

Logs are generated by each node. Because some logs can get very large, manage your log files to ensure that you do not run out of disk space.

You can set the level of logging for various loggers, such as the FTP server, repository, or Web application, from the Configure Loggers page in the Oracle Collaboration Suite Control. See ["Configuring Node Loggers"](#) on page 6-13 for more information.

The Node Log

The node log records major state transitions (such as started, failed, or restarted) and provides centralized data on overall node health. This log is useful for troubleshooting protocol servers and agents. All errors are logged with stack traces. Log properties, such as Log Level and Rotation Interval, are specified in the node configuration of the node being monitored. The location of the node log cannot be changed. The node log is located in:

```
ORACLE_HOME/content/log/domain_name/node_name.log
```

You can also refer to the OPMN log for the regular node:

```
ORACLE_HOME/opmn/logs/Content~Node~1
```

The Application Log

The application log records additional information for HTTP nodes. This log is useful for troubleshooting the Oracle Content Services and Oracle Records Management applications and the WebDAV server. All errors are logged with stack traces. By default, application logs are located in:

```
ORACLE_HOME/j2ee/OC4J_Content/application-deployments/Content/OC4J_Content_
default_island_1/application.log
```

```
ORACLE_HOME/opmn/logs/Content~OC4J_Content~default_island~1
```

```
ORACLE_HOME/j2ee/OC4J_RM/application-deployments/rm/OC4J_RM_
default_island_1/application.log
```

```
ORACLE_HOME/opmn/logs/Content~OC4J_RM~default_island~1
```

Viewing Oracle Content Services Logs from the Oracle Collaboration Suite Control

You can view a variety of logs from the Oracle Collaboration Suite Control. This feature lets you view the logs without having to remember the individual log location.

To view log, click the **Logs** link in the upper-right corner of any Oracle Collaboration Suite Control page.

- The View Logs page provides a custom list of logs relevant to the component from where the link was clicked. For example, if you click **Logs** from any Oracle Content Services page, the View Logs page will display relevant Oracle Content Services logs, such as the node logs.

- You can also use Simple Search to locate logs. To do this, select the target that corresponds to the type of log you want to see from the **Available Components** list, and move it to the **Selected Components** list:
 - Select the Oracle Content Services instance (for example, **Content**) if you want to see the node log.
 - Select **OC4J_Content** or **OC4J_RM** to see the application log for Oracle Content Services or Oracle Records Management.
 - Select **Enterprise Manager** to see Oracle Collaboration Suite Control logs.

Click **Search** to see the log names in the Results table.

Click the name of a log to see the log data. By default, the last 500 lines in the log appear in the log viewer. You can view up to 2000 lines. To download the contents of the entire log, click the log name at the top of the screen. If the log is large, the download may take several minutes.

Accessing Metrics and Monitoring Metric Alerts

You can access Oracle Content Services metrics from the Oracle Enterprise Manager 10g Grid Control. The following sections provide information about how to access the metrics and how to set up metric collection:

- [Installing the Grid Control Management Agent](#)
- [Setting the Management Agent Classpath](#)
- [Managing Oracle Content Services with the Grid Control](#)
- [Accessing the Grid Control](#)
- [Changing the Default Metric Collection Behavior](#)
- [Viewing Oracle Content Services Metrics in the Grid Control](#)
- [Metric Thresholds and Metric Collection Intervals](#)

For more information about the metrics available for Oracle Content Services, click **Help** on any Grid Control Metrics page. For more information about the Grid Control, see *Oracle Enterprise Manager Concepts*.

Installing the Grid Control Management Agent

Before you can use the Grid Control to view Oracle Content Services metrics, you must install a separate Oracle Management Agent in its own Oracle home, and configure it to connect to the Grid Control. To do this, choose the "Additional Management Agent" option in the Oracle Universal Installer for Grid Control. The metrics collected by the Grid Control Management Agent are uploaded to the Oracle Management Service (OMS).

The Management Agent that was installed in the Oracle Collaboration Suite Oracle home cannot be used by the Grid Control; instead, it is used by the Oracle Collaboration Suite Control in that Oracle home. The metrics collected by the Oracle Collaboration Suite Control Management Agent are used by the Oracle Collaboration Suite Control and are not uploaded to the OMS.

Setting the Management Agent Classpath

To manage Oracle Content Services with Grid Control, you must run a script that is installed with the Management Agent. This script configures the Management Agent

classpath so that the Management Agent can monitor the Oracle Content Services component.

To modify the Management Agent classpath:

1. Stop the Management Agent, if it has been started:
 - UNIX: `AGENT_HOME/bin/emctl stop agent`
 - Windows: `AGENT_HOME\bin\emctl stop agent`
2. Run the following command:
 - UNIX: `AGENT_HOME/files/emagent/bin/ifsemchgtarget`
 - Windows: `AGENT_HOME\files\emagent\bin\ifsemchgtarget`
3. When prompted, choose **4. Oracle Content Services Release 10.1.2.**
4. Start the Management Agent:
 - UNIX: `AGENT_HOME/bin/emctl start agent`
 - Windows: `AGENT_HOME\bin\emctl start agent`

Managing Oracle Content Services with the Grid Control

See *Oracle Enterprise Manager Configuration for Oracle Collaboration Suite* for information about configuring Grid Control for Oracle Content Services. You can find *Oracle Enterprise Manager Configuration for Oracle Collaboration Suite* on the Oracle Technology Network at:

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

Accessing the Grid Control

To access the Grid Control, perform the following steps:

1. Use the following URL to access the Grid Control from a Web browser:

`http://hostname:port/em`

or

`https://hostname:port/em`

Note: If you are uncertain about the port number, you can refer to one of the following files:

- `ORACLE_HOME/install/setupinfo.txt` as displayed by the Oracle Universal Installer at the end of the installation
 - `ORACLE_HOME/install/portlist.ini` on the Management Service computer
-
-

2. Log in as `sysman`, using the password you created during Oracle Enterprise Manager 10g installation. Or, log in as another Grid Control user with administrator privileges.

Changing the Default Metric Collection Behavior

You may want to enable or disable an Oracle Content Services metric for an Applications tier host after initial configuration. For example, you may want to enable

the Load Balanced Application URL Timing metric on an Applications tier because a load balancer has been recently added to the system, or you may want to disable the Application URL Timing metric on an Applications tier because the HTTP node has been removed from that Applications tier.

To change the default metric collection behavior, reconfigure the Oracle Content Services (`oracle_files`) targets for the given Oracle Content Services domain in the Grid Control.

Reconfiguring Oracle Content Services (`oracle_files`) Targets in the Grid Control

Follow these steps to change the default metric collection behavior of Oracle Content Services targets:

1. From the Grid Control Home page, click the **Targets** tab, then click the **All Targets** subtab. A list of all the discovered targets across the network appears.
2. Locate the Oracle Content Services target for the given Applications tier. You can perform a quick search by entering the schema name in the **Search** field and clicking **Go**.
3. Select the Oracle Content Services target and click **Configure**.
4. Set the following values to `TRUE` or `FALSE` to enable or disable metric collection. The values must be in upper case.

- **Run Repository Metric?**

The default is `TRUE` for the first Applications tier to be configured. For any additional Oracle Content Services Applications tiers, the default is `FALSE`.

- **Run Web Application Response Time Metric?**

The default is `TRUE`. If you set this parameter to `TRUE`, specify a valid value for **Web Application URL**. If you set this parameter to `FALSE`, enter `NULL` for **Web Application URL**.

- **Run Load Balanced Web Application Response Time Metric?**

The default is `FALSE`. If you set this parameter to `TRUE`, specify a valid value for **Load Balanced Web Application URL**. If you set this parameter to `FALSE`, enter `NULL` for **Load Balanced Web Application URL**.

- **Run RM Application Response Time Metric?**

The default is `TRUE`. If you set this parameter to `TRUE`, specify a valid value for **RM Application URL**. If you set this parameter to `FALSE`, enter `NULL` for **RM Application URL**.

- **Run Load Balanced RM Application Response Time Metric?**

The default is `FALSE`. If you set this parameter to `TRUE`, specify a valid value for **Load Balanced RM Application URL**. If you set this parameter to `FALSE`, enter `NULL` for **Load Balanced RM Application URL**.

For more information about these parameters, click the **Help** link.

5. Click **OK**.

Viewing Oracle Content Services Metrics in the Grid Control

After you have logged in to the Grid Control, there are several ways to navigate to the pages that show Oracle Content Services metrics. Two methods are described in the following sections.

Using the Collaboration Suites Subtab

To access Oracle Content Services metrics using the Collaboration Suites subtab, follow these steps:

1. On the Grid Control Home page, click the **Targets** tab.
2. Click the **Collaboration Suites** subtab.
3. In the System:Name column, click the name of the Content Services System.
4. On the Content Services System Home page, click **Components**.
5. Click the name of your Oracle Content Services Applications Tier instance from the list. The name appears in the following format:

`app_server_host.db_host_schema`

The Oracle Content Services Grid Control Home page appears.

6. Click **All Metrics** to see a list of Oracle Content Services metrics.

Using the Search Function

To access Oracle Content Services metrics using the search function, follow these steps:

1. Click the **Targets** tab.
2. Click the **All Targets** subtab. A list of targets appears.
3. Type the name of your Oracle Content Services host in the **Search** field and click **Go**.
4. Click the name of your Oracle Content Services instance.
5. Click **All Metrics** to see a list of Oracle Content Services metrics.

Metric Thresholds and Metric Collection Intervals

You can use the Grid Control to edit the thresholds for Grid Control metrics. When you edit the thresholds, a customized collection file will be created in the following directory:

`AGENT_HOME/sysman/emd/collection`

For more information, see *Oracle Enterprise Manager Concepts*.

Metric Collection Intervals

You cannot use the Grid Control to update the metric collection intervals. If you must change the default intervals, you can manually edit the customized collection file described in the previous section. Do not specify a collection rate higher than once every minute, or it will have a negative impact on the performance of your entire system.

Managing Oracle Content Services Formats

Oracle Content Services associates a format (also known as a MIME type) with each document. You can add, modify, and delete formats using the Oracle Collaboration Suite Control.

This chapter provides information about the following topics:

- [About Formats](#)
- [Adding Formats](#)
- [Modifying Formats](#)
- [Deleting Formats](#)
- [Default Formats](#)

About Formats

The **format** of a document indicates the file type (for example, .doc or .zip). Oracle Content Services needs to know the format of documents to determine how to index their content. In addition, the Documents tab of the Domain Performance & Statistics page in the Oracle Collaboration Suite Control provides information about documents according to their MIME type.

A format contains the following information:

- **MIME type:** Specifies the type of content stored in Oracle Content Services, such as `text/plain` or `text/html`.
- **Extension type:** Specifies the default extension for files that use this format, such as `.fm` or `.jar`.
- **Binary setting:** Determines whether files that use this format are of binary type.
- **Index setting:** Determines whether files that use this format need to be indexed.
- **Omitted From Anti-Virus Scan:** Determines whether files that use this format need to be omitted from antivirus scans.

Indexing a format type is the basis of content searching in Oracle Content Services. If a format is not indexed, content searches will fail. Content searches can also fail when formats are indexed incorrectly.

See Appendix B, "Oracle Text Supported Document Formats" in *Oracle Text Reference* for information about which formats can be indexed by Oracle Text.

Adding Formats

You can add more formats to Oracle Content Services for special types of content. See ["Default Formats"](#) on page 8-3 for a list of default formats.

To add a format:

1. Connect to the Oracle Collaboration Suite Control and go to the Content Services Home page.
2. In the Administration section, click **Formats**.
3. On the Formats page, click **New Format**. The New Format page appears.

[Figure 8–1](#) shows the New Format page.

Figure 8–1 New Format Page

New Format

Click "OK" to create the object, or "Cancel" to cancel this operation.

* Name

* MIME Type

* Extension

☐ Binary

☐ Omitted From Anti-Virus Scan

☐ Indexed

4. Enter the following information:
 - **Name:** Provide a name for the format (for example, FrameMaker or Jar).
 - **MIME Type:** Specify the type of content stored in Oracle Content Services, such as `text/plain` or `text/html`. Click the Flashlight icon to select from a list of MIME types.
 - **Extension:** Specify the default extension for files that use this format, such as `.fm` or `.jar`. Click the Flashlight icon to select from a list of file extensions.
 - **Binary:** Specify whether files that use this format are of binary type.
 - **Omitted From Anti-Virus Scan:** Specify whether files that use this format need to be omitted from antivirus scans.
 - **Indexed:** Specify whether files that use this format need to be indexed.
5. Click **OK**.

Modifying Formats

You can modify formats using the Oracle Collaboration Suite Control. The Unknown format is a required system format and cannot be modified.

To modify a format:

1. Connect to the Oracle Collaboration Suite Control and go to the Content Services Home page.
2. In the Administration section, click **Formats**.
3. On the Formats page, click the name of the format you want to modify.
4. On the Edit Format page, you can change the following information:

- **MIME Type:** Specify the type of content stored in Oracle Content Services, such as `text/plain` or `text/html`. Click the Flashlight icon to select from a list of MIME types.
- **Extension:** Specify the default extension for files that use this format, such as `.fm` or `.jar`. Click the Flashlight icon to select from a list of file extensions.
- **Binary:** Specify whether files that use this format are of binary type.
- **Omitted From Anti-Virus Scan:** Specify whether files that use this format need to be omitted from antivirus scans.
- **Indexed:** Specify whether files that use this format need to be indexed. Changing this setting only affects new documents that are uploaded to Oracle Content Services; the index setting for existing documents that use this format will not be changed. To force indexing of existing documents, upload the documents again after changing this setting.

5. Click **OK**.

Some formats must be indexed. For these formats, the index setting cannot be changed.

Deleting Formats

You can delete formats using the Oracle Collaboration Suite Control. The Unknown format is a required system format and cannot be deleted.

To delete a format:

1. Connect to the Oracle Collaboration Suite Control and go to the Content Services Home page.
2. In the Administration section, click **Formats**.
3. On the Formats page, select the format you want to delete.
4. Click **Delete**.
5. When asked to confirm the deletion, click **OK**.

Default Formats

Table 8–1 provides a list of default formats.

Table 8–1 Default System Formats

Format Name	Extension	Indexed by Default?	Can Change Index Setting? ¹
Advanced Stream Redirector File	asx	No	Yes
Advanced Streaming Format	asf	No	Yes
Apple Quicktime	mov	Yes	No
Apple Quicktime (qt)	qt	Yes	No
Audio Interchange File (aif)	aif	Yes	No
Audio Interchange File (aifc)	aifc	Yes	No
Audio Interchange File (aiff)	aiff	Yes	No
Basic audio	au	Yes	No

Table 8–1 (Cont.) Default System Formats

Format Name	Extension	Indexed by Default?	Can Change Index Setting?¹
Bitmap image	bmp	Yes	No
c file	c	Yes	Yes
C Header	h	Yes	Yes
C++ Header (h++)	h++	Yes	Yes
C++ Header (hh)	hh	Yes	Yes
C++ Header (hpp)	hpp	Yes	Yes
C++ Header (hxx)	hxx	Yes	Yes
C++ Source Code (C++)	c++	Yes	Yes
C++ Source Code (cc)	cc	Yes	Yes
C++ Source Code (cpp)	cpp	Yes	Yes
CC++ Source Code (cxx)	cxx	Yes	Yes
Comma-Separated Values	csv	Yes	Yes
Compiled WML Document	wmlc	No	Yes
Compiled WML Script	wmlsc	No	Yes
Compressed File	taz	No	Yes
Corel Photo-Paint Image	cpt	No	Yes
Corel Vector Graphic Drawing	cdr	No	Yes
Corel Vector Pattern	pat	No	Yes
CorelDraw Template	cdt	No	Yes
Debian Linux Package	deb	No	Yes
Difference File	diff	Yes	Yes
Email Message	eml	Yes	No
Encapsulated PostScript	eps	Yes	Yes
Extensible HyperText Markup Language File	xhtml	Yes	Yes
Extensible Markup Language	xml	Yes	Yes
FileMaker Pro Spreadsheet	fm	Yes	Yes
FrameMaker Book	book	Yes	Yes
FrameMaker FBDOC	fbdoc	Yes	Yes
FrameMaker FRAME	frame	Yes	Yes
FrameMaker FRM	frm	Yes	Yes
FrameMaker MAKER	maker	Yes	Yes
GIF	gif	Yes	No
GNU tar Compressed File Archive (GNU Tape Archive)	gtar	No	Yes
GZIP	gz	No	Yes
HTML	htm	Yes	Yes

Table 8–1 (Cont.) Default System Formats

Format Name	Extension	Indexed by Default?	Can Change Index Setting?¹
HTML unix	html	Yes	No
Hypertext Cascading Style Sheet	css	Yes	Yes
JAR	jar	No	Yes
Java Bytecode	class	No	Yes
java file	java	Yes	Yes
Java Serialized Object File	ser	No	Yes
JavaScript Source Code	js	Yes	Yes
JNLP	jnlp	No	Yes
JPEG	jpg	Yes	No
JPEG (jpe)	jpe	Yes	No
JPEG (jpeg)	jpeg	Yes	No
JSP	jsp	Yes	Yes
Lotus 123 Spreadsheet	wk	Yes	Yes
Macintosh Sound Resource	snd	No	Yes
Macromedia Director Movie	dir	No	Yes
Macromedia Director Protected Movie File	dxd	No	Yes
Macromedia Flash Format File	swf	No	Yes
Macromedia Flash Format File - swfl	swfl	No	Yes
MHTML Document mhtm	mhtm	Yes	Yes
MHTML Document mhtml	mhtml	Yes	Yes
Microsoft AVI	avi	Yes	No
Microsoft PowerPoint	ppt	Yes	Yes
Microsoft Powerpoint (pot)	pot	Yes	Yes
Microsoft Powerpoint Show	pps	Yes	Yes
Microsoft Wave Audio	wav	Yes	No
MIDI	mid	No	Yes
Money Data File	mny	No	Yes
MP3 Playlist File	m3u	No	Yes
MPEG	mpg	No	Yes
MPEG (mpe)	mpe	No	Yes
MPEG (mpeg)	mpeg	No	Yes
MPEG - mpeg	mpeg	Yes	No
MPEG Layer 2	mp2	Yes	No
MPEG Layer 3 Audio	mp3	Yes	No
MPEG Layer 3 Audio Stream	mpga	Yes	No
MS Access	mdb	Yes	Yes

Table 8–1 (Cont.) Default System Formats

Format Name	Extension	Indexed by Default?	Can Change Index Setting?¹
MS DOS Batch Processing	bat	Yes	Yes
MS Excel	xls	Yes	Yes
MS Excel (xlb)	xlb	Yes	Yes
MS Executable File	exe	No	Yes
MS Windows Dynamic Link Library	dll	No	Yes
MS Word	doc	Yes	Yes
MS Word (dot)	dot	Yes	Yes
MS Works	msw	Yes	Yes
Object File	o	No	Yes
OpenOffice.org Drawing	sda	No	Yes
OpenOffice.org Presentation	sdd	Yes	Yes
Outlook Express News File	nws	No	Yes
PCX	pcx	No	Yes
PDF	pdf	Yes	Yes
PERL Program File	pl	Yes	Yes
Portable (Public) Network Graphic	png	No	Yes
portable pixmap	ppm	No	Yes
Postscript	ps	No	Yes
postscript-ai	ai	No	Yes
Project File	mpp	Yes	Yes
Real Audio (ra)	ra	Yes	No
Real Audio (ram)	ram	Yes	Yes
Real Media (rm)	rm	Yes	No
Real Video	rv	Yes	No
RedHat Package Manager	rpm	No	Yes
RichText	rtf	Yes	Yes
RichText (rtx)	rtx	Yes	Yes
Schedule/Schedule+ Data	scd	No	Yes
SGI Video	movie	No	Yes
Shell Script	sh	Yes	Yes
Shockwave Movie	dcr	No	Yes
Sourcecode	src	Yes	Yes
Standard General Markup Language	sgml	Yes	Yes
Tab Separated Values File	tsv	Yes	Yes
Tar	tar	No	Yes
Tcl (Tool Command Language) Language Script	tcl	Yes	Yes

Table 8–1 (Cont.) Default System Formats

Format Name	Extension	Indexed by Default?	Can Change Index Setting?¹
Text	txt	Yes	Yes
Text Document (text)	text	Yes	Yes
TIFF	tif	Yes	No
TIFF (tiff)	tiff	Yes	No
Tk Language Script	tk	Yes	Yes
UNIX Compressed Archive File	z	No	Yes
UNIX csh Shell Script	csh	Yes	Yes
UNIX Tar File Gzipped	tgz	No	Yes
Unknown	(N/A)	No	No
Unknown Binary	bin	No	Yes
URL Reference	url	No	Yes
vCalendar File	vcs	No	Yes
vCard File	vcf	Yes	Yes
Visio Drawing	vsd	Yes	Yes
VRML	vrml	No	Yes
Windows Help File	hlp	No	Yes
Windows Icon	ico	No	Yes
Wireless Markup Language File	wml	Yes	Yes
WML Script	wmls	Yes	Yes
Word Perfect	wpd	Yes	Yes
Wordperfect 5.1 Document	wp5	Yes	Yes
XFIG Graphic File	fig	No	Yes
xpixmap	xpm	No	Yes
xpixmap pm	pm	No	Yes
Zip	zip	No	Yes

¹ Some formats must be indexed. For these formats, the index setting cannot be changed.

Managing Oracle Content Services Sites

In Oracle Content Services, a **Site** is a discrete organizational entity whose users can collaborate on files and folders. Users in one Site do not have access to the content of users in another Site. Each Site has an allocated quota that specifies the amount of content (in MB, GB, or TB) that can be stored in the Site. Oracle Content Services Sites are based on **identity management realms**.

You can use the Oracle Collaboration Suite Control to create new Sites, or enable, disable, modify, or delete existing Sites. You can also grant the Security Administrator role to a particular Site user.

This chapter provides information about the following topics:

- [About Sites](#)
- [Creating Sites](#)
- [Modifying Sites](#)
- [Granting the Security Administrator Role](#)
- [Enabling and Disabling Sites](#)
- [Deleting Sites](#)

About Sites

Oracle Content Services Sites are based on realms that were defined in Oracle Identity Management. A realm is a collection of identities and associated policies that is typically used when enterprises want to isolate user populations and enforce different identity management policies for each population.

Each installation of Oracle Content Services has a default Site, based on the default realm in Oracle Identity Management.

Important: If you want to choose another realm as the default, or if you want to change the name of the default realm, you must make the change before you install and configure Oracle Content Services. You cannot change the default realm or realm name after Oracle Content Services has been installed and configured.

You can create and manage additional realms using the Oracle Internet Directory Self-Service Console. You must configure OracleAS Single Sign-On for multiple realms if you want to have more than one realm in your deployment. For information about how to do this, see "Setting Up and Enabling Multiple Realms" in Chapter 7 of *Oracle Collaboration Suite Administrator's Guide*.

There are a number of application administrators for each Site who perform functions such as allocating quota and assigning roles. The application administration roles include the User Administrator, Content Administrator, and Quota Administrator. For more information about the application administrator roles and tasks, see *Oracle Content Services Application Administrator's Guide*.

Each Site has an allocated quota that specifies the amount of content (in MB, GB, or TB) that can be stored in the Site. When the quota consumed by a Site reaches 95 percent of the allocated quota, an e-mail notification is sent to the administrator e-mail address, and to any users of that Site with the Quota Administrator role. The administrator e-mail address is specified in the `IFS.DOMAIN.EMAIL.AdministratorAddress` domain property. See "[Changing Domain Properties](#)" on page 6-1 for information about how to specify this administrator e-mail address.

Quota warning e-mail notifications are issued by the Cleanup Agent. You can change the properties of this agent to adjust the warning threshold, or to specify whether files in the [Archive](#) count against Site quota. These properties are not Site-specific; they apply to all the Sites in your deployment. See "[Cleanup Agent](#)" on page E-4 for more information about these properties.

Creating Sites

Each new Site that you create must be based on an existing realm; if all the realms have been used for other Sites, you must create a new realm in Oracle Internet Directory before you can create a new Site.

To create a new Site:

1. Connect to the Oracle Collaboration Suite Control and go to the Content Services Home page.
2. In the Administration section, click **Sites**.
3. On the Sites page, click **Create**.
4. In the **Name** field, provide a name for the new Site.

Oracle recommends that you use the name of the realm on which this Site will be based for the name of the Site. Because users for this Site will need to provide the realm name during authentication, having the Site name based on the realm name provides consistency.

The Site name is used as the top folder name for the new Site and will appear in all Site paths. Because of this, you cannot use the following characters in the Site name: backslash (\), slash (/), colon (:), asterisk (*), question mark (?), quotation mark ("), left angle bracket (<), right angle bracket (>), and vertical bar (|). Keep Site names short to avoid long path names, and avoid using spaces because these characters will be replaced by %20 in URLs, making the URL long and hard to read.

5. For **Realm**, select a realm on which you want to base the new Site.
6. Specify an **Allocated Quota** for the new Site, in megabytes (MB), gigabytes (GB), or terabytes (TB).
7. Specify whether you want the new Site to be enabled by default. Disabled Sites cannot accept new user sessions.
8. Click **OK**.
9. Return to the Content Services Home page and restart **OC4J_Content**. If you are using Oracle Records Management, you must also restart **OC4J_RM**. If you are

running these processes on multiple Applications tiers, you must restart these processes on all Applications tiers.

If you need to change the default location of the Personal Libraries for new users of this Site, modify the Site after it has been created, and specify the required properties. See the following section for more information.

Modifying Sites

You can change settings for existing Sites, including changing the Site name, updating Site quota, and changing the location of Personal Libraries for new users.

To modify an existing Site:

1. Connect to the Oracle Collaboration Suite Control and go to the Content Services Home page.
2. On the Content Services Home page, in the Administration section, click **Sites**.
3. Click the name of the Site you want to modify.
4. If necessary, provide a new name for the Site. Since the Site name is used as the top folder name for the Site, any bookmarks to existing URLs will break. Also, in Oracle Drive, any paths designated for scheduled backups will need to be changed.

You cannot use the following characters in the Site name: backslash (\), slash (/), colon (:), asterisk (*), question mark (?), quotation mark ("), left angle bracket (<), right angle bracket (>), and vertical bar (|). Keep Site names short to avoid long path names, and avoid using spaces because these characters will be replaced by %20 in URLs, making the URL long and hard to read.

Note: The ability to modify the Site name was added in the Oracle Collaboration Suite Cumulative Patchset 10.1.2.3. If you are using a previous version or patchset of Oracle Collaboration Suite, you cannot modify the Site name.

5. Specify the amount of quota you want to allocate in the **Allocated Quota** field, then specify whether you want to allocate the quota in Megabytes (MB), Gigabytes (GB), or Terabytes (TB) by selecting from the list. The quota you allocate must be larger than the quota that has already been used by the Site.
6. In the Personal Libraries section, you have the option of changing the location of the Personal Libraries for new users. Using this option requires custom Java code; contact your Oracle Support Services representative for more information. To change the location of the Personal Libraries for new users, provide the following two parameters:
 - **Locator Class Name:** Specify the name of the custom class you created for the new Personal Library location.
 - **Root Path:** Specify the new root path for the Personal Libraries.

Only the Personal Libraries for new users will use the new path. Personal Libraries for existing users will remain in the old location.
7. Click **OK**.

Granting the Security Administrator Role

If all existing Site users with the Security Administrator role are deleted or deprovisioned, you can use the Oracle Collaboration Suite Control to grant the Security Administrator role to a Site user.

For more information about the Security Administrator role, see *Oracle Content Services Application Administrator's Guide*.

Note: The feature described in this section was added in the Oracle Collaboration Suite Cumulative Patchset 10.1.2.3. If you are using a previous version or patchset of Oracle Collaboration Suite, the feature described is not available.

To grant the Security Administrator role to a Site user:

1. Connect to the Oracle Collaboration Suite Control and go to the Content Services Home page.
2. On the Content Services Home page, in the Administration section, click **Sites**.
3. Select the Site where you want to grant Security Administrator access.
4. Click **Grant Security Role**.
5. On the Grant Security Role page, enter the name of the user to whom you want to grant the Security Administrator role.
6. Click **OK**.

Enabling and Disabling Sites

You can choose whether to enable or disable Sites. Disabled Sites cannot accept new user sessions.

To enable a Site:

1. Connect to the Oracle Collaboration Suite Control and go to the Content Services Home page.
2. In the Administration section, click **Sites**.
3. Select the Site you want to enable and click **Enable**.
4. On the Warning page, click **Yes**.

To disable a Site:

1. Connect to the Oracle Collaboration Suite Control and go to the Content Services Home page.
2. In the Administration section, click **Sites**.
3. Select the Site you want to disable and click **Disable**.
4. On the Warning page, click **Yes**.
5. After you disable a Site, it will not accept any new sessions. To terminate existing sessions, return to the Content Services Home page and click **Restart Domain**.

Deleting Sites

Delete a Site only if you are sure that you will not need to access anything in the Site again. When a Site is deleted, all content and associated metadata is deleted. The Containers, Libraries, users, groups, roles, Categories, and the Archive for the Site are also deleted. You cannot delete the default Site.

To delete a Site:

1. Connect to the Oracle Collaboration Suite Control and go to the Content Services Home page.
2. In the Administration section, click **Sites**.
3. If the Site you want to delete is enabled, select the Site and click **Disable**. Then, on the Warning page, click **Yes**. Enabled Sites cannot be deleted.
4. Select the Site and click **Delete**. Then, on the Warning page, click **Yes**. Everything associated with that Site, including content, metadata, users, and Libraries, is deleted, and the Site is removed from the Sites list.

You cannot delete a Site that contains records. See *Oracle Records Management Administrator's Guide* for information about managing records.

Oracle Content Services Maintenance and Tuning

This chapter provides information about ongoing system maintenance, performance tuning, and recovery. As with any production system, your implementation of Oracle Content Services needs to include a basic disaster recovery plan.

This chapter provides information about the following topics:

- [Backup and Recovery](#)
- [Service Configurations and Java Memory Sizing](#)
- [Performance Tuning](#)
- [Analyzing Performance Problems](#)

Backup and Recovery

Planning for failures is one of the most important jobs of any system administrator or DBA. Be sure to implement a daily or weekly backup plan that meets the needs of your business and operations environment. Take advantage of the Oracle database backup capabilities, built into the database.

Always back up the system before upgrading, migrating new data, or making other major changes. See *Oracle Collaboration Suite Administrator's Guide* and *Oracle Database Backup and Recovery Basics* for additional information.

Note: In addition to the Oracle Content Services schema, there are two special schemas that ensure secure connectivity to other systems. When you back up your system, make sure to include these schemas.

The special schema names are derived from the Oracle Content Services schema name. For example, if the Oracle Content Services schema name is `CONTENT`, the additional schemas are `CONTENT$CM` and `CONTENT$ID`.

Service Configurations and Java Memory Sizing

In Oracle Content Services, the default service configurations specify the maximum number of sessions that can connect to the service. Restricting the number of sessions reduces the likelihood of getting out of memory errors in the `OC4J_Content.default_island.1` or in the `application.log` files.

In previous releases, the default service configurations allowed an unlimited number of sessions. Due to this change, you may see the following errors:

- Oracle Content Services Web client: "The maximum number of concurrent sessions has been reached. Please try your request again later."
- `OC4J_Content.default_island.1` or `application.log`: "IFS-20127: Service too busy (maximum concurrent sessions)"

If you see either error, change the service configuration from small to medium or from medium to large, or create a custom service configuration. If you use the large service configuration, or if you create a custom service configuration, you must adjust your `-Xmx` setting.

If you see `java.lang.OutOfMemory` errors in your `OC4J_Content.default_island.1` or `application.log` files, then you also need to adjust your `-Xmx` setting.

[Table 10–1](#) describes factors that might require you to change the `-Xmx` setting.

Table 10–1 *Xmx Settings*

Service Configuration	Setting for IFS.SERVICE.MaximumConcurrentSessions	Expected PCCU	Recommended Size for Xmx (Java Maximum Memory)	Need to change the default Xmx setting of 256MB?
Small	40	25	64 MB	No
Medium	70	45	162 MB	No
Large	200	125	430 MB	Yes

Note: The term PCCU refers to Peak Concurrent Connected Users. PCCU is the number of users who are signed on to Oracle Content Services and have performed an operation during the peak hour of the day. If you do not know the number of peak hour users, assume 10 percent of your Oracle Content Services user population.

See ["Managing Service Configurations"](#) on page 6-15 for additional information about creating and changing service configurations.

Calculating Xmx Settings

A general guideline for calculating the `Xmx` setting is:

$$Xmx = PCCU * 2.8MB$$

Alternatively, you can use the following equation to determine a more precise value:

$$Xmx = (PCCU * 1.6 \text{ sessions per PCCU} * 1MB \text{ per session}) + (DATACACHE.Size * 3KB \text{ per data cache object}) + (20\% \text{ JVM overhead for garbage collection})$$

The maximum value for the `Xmx` setting depends on your operating system. On Linux operating systems, the setting cannot exceed 2GB. On Solaris operating systems, the setting cannot exceed 4GB. Oracle recommends that the `Xmx` setting does not exceed 2GB for Oracle Content Services.

See ["Modifying Node Configurations"](#) on page 6-8 for more information about how to change the `Xmx` setting.

Adjusting Service Configuration Settings

If you expect that your peak concurrent connected users (PCCU) will exceed 125, create a custom service configuration using the following recommendations:

```
MaximumConcurrentSessions = 1.6 * PCCU
DATACACHE.Size = 400 * PCCU
DATACACHE.EmergencyTrigger = 0.80 * DATACACHE.Size
DATACACHE.UrgentTrigger = 0.75 * DATACACHE.Size
DATACACHE.NormalTrigger = 0.65 * DATACACHE.Size
DATACACHE.PurgeTarget = 0.55 * DATACACHE.Size
CONNECTIONPOOL.WRITEABLE.MaximumSize = 0.05 * PCCU
CONNECTIONPOOL.WRITEABLE.TargetSize = 0.04 * PCCU
CONNECTIONPOOL.WRITEABLE.MinimumSize = 5
CONNECTIONPOOL.READONLY.MaximumSize = 0.05 * PCCU
CONNECTIONPOOL.READONLY.TargetSize = 0.04 * PCCU
CONNECTIONPOOL.READONLY.MinimumSize = 5
```

The other settings in the service configuration generally do not need to be adjusted.

Performance Tuning

Performance is typically affected by network I/O, hard-disk drive I/O, memory (random access memory) I/O, or some combination of these three or other factors. Adjusting one of the factors sometimes moves the performance problem to a new location, so you must approach the tuning task in a logical manner.

The performance tips in this section cover the basics and include:

- [Running the Oracle Content Services `analyze.sql` Script](#)
- [Providing Adequate Storage to Improve Performance](#)

See *Oracle Database Performance Tuning Guide* for complete information.

Running the Oracle Content Services `analyze.sql` Script

Oracle Content Services uses Oracle Database Cost-Based Optimizer (CBO) to determine the most efficient way to run SQL statements. For the CBO to work properly, the Oracle Content Services `analyze.sql` script needs to be run as part of regular Oracle Content Services operations, especially after large volume changes to the data, such as after users have loaded a large number of files into the database instance. This script generates statistics about the distribution of data in Oracle Content Services so that the CBO can choose the most efficient way to execute SQL statements. For more information about the Cost-Based Optimizer, see *Oracle Database Performance Tuning Guide*.

Run the script during periods that are not busy to avoid impeding system performance.

The `analyze.sql` script, which makes calls to the `DBMS_STATS` package, exports schema statistics to a backup table, so you can restore statistics later, if necessary, as discussed in ["Restoring Prior Statistics"](#) in the following section. To run the script, enter the following at the command line:

```
cd ORACLE_HOME/content/admin/sql
sqlplus content_services_schema/password@connect_string @analyze.sql content_
services_schema
```

This script may take a while to run, especially if Oracle Content Services contains a large number of documents.

Restoring Prior Statistics

Before gathering new statistics, the `analyze.sql` script exports backup statistics to the `IFS_BACKUP_STATS` table, marking the set of statistics with a time stamp. You can query the table for existing saved sets by running this SQL statement:

```
SQL> select distinct statid from IFS_BACKUP_STATS;
```

This query returns a list of all statistics by statistic ID (the date and time stamp). For example:

```
STATID
-----
01-MAY-02 02:15.36
04-MAY-02 20:00.15
08-MAY-02 02:15.48
11-MAY-02 06:21.40
11-MAY-02 20:15.37
```

You can then restore the statistics from a day and time when you know performance was better. For example, if you find that after using the statistics from the 8:00 p.m. run of the `analyze` script that performance is worse, then you can restore the statistics from earlier that day using:

```
SQL> call dbms_stats.import_schema_stats (content_services_schema,
'IFS_BACKUP_STATS', '08-MAY-02 06:21.40',content_services_schema);
```

By restoring the statistics, you are directing the CBO to revert to the way it previously ran SQL statements.

Providing Adequate Storage to Improve Performance

The disks that have the most space used are those that contain the documents residing in Oracle Content Services, namely the Indexed Medias and Non-Indexed Medias tablespaces. This section explains how the documents are stored, and how to calculate the amount of space those documents will require.

Document Storage and Sizing Issues

Oracle Content Services data is made up of content and metadata. The majority of data stored in Oracle Content Services is content, and it is stored in large objects (LOBs) in database tablespaces. All *documents* are stored as binary large objects (BLOBs), which is a type of LOB provided by the database.

BLOBs provide for transactional semantics much like the normal data stored in a database. To meet the criteria of transactional semantics, BLOBs must be broken down into smaller pieces that are individually modifiable and recoverable. These smaller pieces are referred to as chunks. Chunks are a group of one or more sequential database blocks from a tablespace that contains a BLOB column.

Both database blocks and chunk information within those blocks (BlockOverhead) impose some amount of overhead for the stored data. BlockOverhead is presently 60 bytes per block and consists of the block header, the BLOB header, and the block checksum. Oracle Content Services configures its BLOBs to have a 32 K chunk size. As an example, assume that the `DB_BLOCK_SIZE` parameter of the database is set to 8192 (8 K). A chunk would require four contiguous blocks and would impose an overhead of 240 bytes. The usable space within a chunk would be $32768 - 240 = 32528$ bytes.

Each document stored in Oracle Content Services will consist of some integral number of chunks. Using the previous example, a 500 K document will actually use

$512000/32528=15.74=16$ chunks. Sixteen chunks will take up $16*32\text{ K} = 512\text{K}$ bytes. The chunking overhead for storing this document would then be $512\text{K}-512000=12288$ bytes, which is 2.4 percent of the original document size. The chunk size used by Oracle Content Services is set to optimize access times for documents. Note that small documents, less than one chunk, will incur a greater disk space percentage overhead because they must use at least one chunk.

Another structure required for transactional semantics on BLOBs is the BLOB index. Each BLOB index entry can point to eight chunks of a specific BLOB object (`NumLobPerIndexEntry = 8`). Continuing the example, whereas a 500 K document takes up 16 chunks, two index entries would be required for that object. Each entry takes 46 bytes (`LobIndexEntryOverhead`) and is then stored in an Oracle B*Tree index, which, in turn, has its own overhead depending on how fragmented that index becomes.

The last factor affecting BLOB space use is the `PCTVERSION` parameter used when creating the BLOB column. For information about how `PCTVERSION` works, see *Oracle Database SQL Reference*.

Oracle Content Services uses the default `PCTVERSION` value of 20 percent for the BLOB columns it creates. This reduces the possibility of "ORA-22924 snapshot too old" errors occurring in read consistent views. By default, a minimum of a 20 percent increase in chunking space must be added to the expected disk usage to allow for persistent `PCTVERSION` chunks.

For large systems where disk space is an issue, set the `PCTVERSION` parameter to 1 to reduce disk storage requirements. This can be done at any time in a running system with these SQL statements:

```
alter table odmm_contentstore modify lob (globalindexedblob) (pctversion 1);
alter table odmm_contentstore modify lob (intermediablob) (pctversion 1);
alter table odmm_contentstore modify lob (intermediablob_t) (pctversion 1);
alter table odmm_nonindexedstore modify lob (nonindexedblob2) (pctversion 1);
```

The steps for calculating BLOB tablespace usage are as follows:

1. Calculate the number of chunks a file will take up by figuring the number of blocks per chunk and then subtracting the `BlockOverhead` (60 bytes) from the chunk size to get the available space per chunk.
2. Divide the file size by the available space per chunk to get the number of chunks.

```
chunks = roundup(FileSize/(ChunkSize-((ChunkSize/BlockSize) * BlockOverhead)))
```

For example, if `FileSize = 100,000`, `ChunkSize = 32768`, `BlockSize = 8192`, and `BlockOverhead = 60`, then `chunks = roundup (100000 / (32768 - ((32768 / 8192) * 60))) = 4` chunks.

3. Calculate the amount of disk space for a file by multiplying the number of chunks times the chunk size and then multiplying that result by the `PCTVERSION` factor. Then, add the space for `NumLobPerIndexEntry` (8) and `LobIndexEntryOverhead` (46 bytes).

```
FileDiskSpaceInBytes = roundup(chunks*ChunkSize*PctversionFactor) +
roundup(chunks/NumLobPerIndexEntry*LobIndexEntryOverhead)
```

Continuing from the preceding example, `chunks = 4`, `ChunkSize = 32768`, `PctversionFactor = 1.1`, `NumLobPerIndexEntry = 8`, and `LobIndexEntryOverhead = 46`, so `FileDiskSpaceInBytes = roundup (4 * 32768 * 1.1) + (roundup(4/8) * 46) = 144226` `FileDiskSpaceInBytes`.

4. Calculate the total disk space used for file storage by summing up the application of these formulas for each file to be stored in the BLOB.

`TableSpaceUsage = the total of FileDiskSpaceInBytes for all files stored`

Oracle Content Services creates multiple BLOB columns. The space calculation must be made for each tablespace based on the amount of content that will qualify for storage in each tablespace.

Oracle Content Services Metadata and Infrastructure

The Oracle Content Services server keeps persistent information about the file system and the contents of that file system in database tables. These tables and their associated structures are stored in the Oracle Content Services Primary tablespace. These structures are required to support both the file system and the various protocols and APIs that make use of that file system. The administration and planning tasks of this space are similar to operations on a normal Oracle Database installation.

You need to plan for approximately 6 K of overhead for each document to be used from this tablespace, or about 2 percent of the overall content. If there is a significant number of custom metadata, such as attributes, subclasses or categories, this overhead needs to be much larger.

The initial disk space allocated for the primary tablespace is approximately 50 MB for a default installation. Of the 50 MB, 16 MB is actually used at the completion of installation. This includes instantiations for all required tables and indexes and the metadata required for the 700 files that are loaded into Oracle Content Services as part of the installation. Different tables and indexes within this tablespace will grow at different rates depending on which features of Oracle Content Services get used in a particular installation.

Analyzing Performance Problems

After ensuring that you have run statistics properly and have enough free hard-disk space to support the tablespaces, you may still have performance problems. If you have performance problems, you must determine whether the performance bottleneck is caused by Oracle Database, Oracle Content Services, or other factors.

To isolate the problem, start looking at which processes are running and how many resources they are using:

1. Run `top` (on UNIX) or start the Task Manager (on Windows platforms) as you reproduce the problem.
2. Determine whether a Java process, the Oracle shadow process, I/O, or a combination is the bottleneck during that time.

If the Database Is Causing the Problem

If the problem is the Oracle shadow process, use the Statspack utility to determine the SQL statement that is causing the largest number of buffer gets, and run Explain Plan on it.

If you see full table scans, then that may be the cause of the problem; the optimizer may not be choosing an appropriate plan. Report that problem to Oracle Support Services. Additional work must be done to isolate the problem.

For more information about the Statspack utility and Explain Plan, see *Oracle Database Performance Tuning Guide*.

If the Java Processes Are Causing the Problem

You may not have enough memory. For example, if you see any `java.lang.OutOfMemoryError` errors in your logs, increase your maximum memory (Xmx) settings for that JVM. See ["Modifying Node Configurations"](#) on page 6-8 for more information about changing the Xmx setting.

If users are experiencing poor response times, and `top` (on UNIX) or its equivalent (for example, Task Manager on Windows platforms), shows a Java process running at 100 percent of a CPU for a minute or longer, then the Xmx setting for Java may be too small.

1. Turn on verbose garbage collection (`verbosegc`). To do this, edit the Java Properties of the node configuration. See [Table 6-2, "Node Configuration Properties"](#) on page 6-9 for more information.

In the node log file, output related to garbage collection appears as follows:

```
[Full GC 1476K->1476K(2112K) , 0.0549430 secs]
```

A Full GC occurs when the Garbage Collector has exhausted all available memory in the nursery, and has to go into the rest of the heap to reclaim memory.

2. If Full GCs occur more than once every 10 minutes (not just after startup), increase your Xmx settings for that JVM.

Viewing Cache Statistics and Changing Cache Settings

If the problem is an Oracle Content Services Java process, start by checking the percentage of cache hits for the Oracle Content Services service using the Oracle Collaboration Suite Control, as follows:

1. On the Content Services Home page, click the name of the node you want to manage.
2. Click the name of the service. Typically, this will be `IfsDefaultService`. The Service page appears.
3. Scroll to the Performance section and click **Committed Data Cache Statistics**. The Committed Data Cache Statistics page appears, showing real-time data for Cache Size, Cache Puts, Cache Removes, Cache Purges, Cache Purge Cycles, Cache Lookups, and Cache Hits.

The goal is to have a high percentage of Cache Hits; as much as 100 percent is possible. If the percentage of Cache Hits for the service is less than 98 percent, the size of the Committed Data Cache may be too small.

Because the Statistics Agent captures the real-time data, you can also see prior statistics by viewing the node log or application log. You can also configure this agent to write statistics to a document stored in the Oracle Content Services repository. See ["Statistics Agent"](#) on page E-16 for information about the Statistics Agent.

4. To change the run-time Cache settings, return to the Service page and, in the Administration section, click **Committed Data Cache Administration**.
5. Proportionately increase all Cache settings (Cache Capacity, Normal Purge Trigger, Urgent Purge Trigger, Emergency Purge Trigger, Purge Target) and click **Apply**.

This will increase your memory usage on the Applications tier computer by approximately 3 KB for each object. For example, if you increase cache capacity by 5000, your memory usage will grow by 15 MB.

To make the changes permanent, update the service configuration. See ["Modifying Service Configurations"](#) on page 6-17 for more information.

Viewing Connection Pool Statistics and Changing Connection Pool Settings

Check the target and maximum number of connections for the Read-Only and Writeable Connection Pools using the Oracle Collaboration Suite Control, as follows:

1. On the Content Services Home page, click the name of the node you want to manage.
2. Click the name of the service. Typically, this will be `IfsDefaultService`. The Service page appears.
3. Scroll to the Performance section and click **Connection Pool Statistics**.

Increase the Target Maximum Number of Connections and Absolute Maximum Number of Connections if any of the following is true:

- Failed Allocations is greater than zero.
- Total Connections is more than two higher than Target Maximum Number of Connections.
- Deferred Allocations is greater than 5 percent, and Average Allocation Time (ms) is more than 10 milliseconds.

Because the Statistics Agent captures the real-time data, you can also see prior statistics by viewing the node log or application log. You can also configure this agent to write statistics to a document stored in the Oracle Content Services repository. See ["Statistics Agent"](#) on page E-16 for information about the Statistics Agent.

4. To change the run-time Connection Pool settings, return to the Service page and, in the Administration section, click **Connection Pool Administration**.
5. Increase the **Target Maximum Number of Connections** and **Absolute Maximum Number of Connections**, and click **Apply**.

Each additional Target or Absolute connection will use approximately 8 MB for each connection on the Applications tier and 1 MB for each connection on the database.

To make the changes permanent, update the service configuration. See ["Modifying Service Configurations"](#) on page 6-17 for more information.

Troubleshooting Oracle Content Services

Use this appendix to troubleshoot problems in your Oracle Content Services installation.

This appendix provides information about the following topics:

- [Solving General Administration Problems](#)
- [Solving Problems with Oracle Content Services Protocols](#)
- [Solving Performance Problems](#)
- [Solving Oracle Workflow Problems](#)

Solving General Administration Problems

[Table A-1](#) provides information about how to troubleshoot general Oracle Content Services administration problems.

Table A-1 *General Administration Issues*

Problem	Probable Cause	Corrective Action
An out-of-memory exception occurs when running Oracle Content Services.	The maximum Java heap size is too low.	Increase the heap size by modifying the <code>-Xmx</code> setting for that node configuration. See "Modifying Node Configurations" on page 6-8 for more information.
Content queries through the Web and Windows return no rows.	Oracle Text indexing of the documents has not occurred.	See "Maintaining the IFS_TEXT Index by Using the Oracle Text PL/SQL Packages" on page C-3 for more information.
The administrator has uploaded files and removed them, and does not see the space retrieved in the tablespace.	The Initial Time of Day and Activation Period has been set incorrectly for the Content GarbageCollectionAgent.	Use the Oracle Collaboration Suite Control to view the Initial Time of Day and Activation Period entries for the Content Garbage Collection Agent. Also check the node log and see if the Content Garbage Collection Agent is being activated at periodic intervals.
Users fail to be provisioned, or newly provisioned users cannot be added to Libraries.	Required user attributes were not set in Oracle Internet Directory.	The following Oracle Internet Directory user attributes must be nonnull for all users: <code>sn</code> , <code>givenName</code> , <code>mail</code> . In addition, all users must have a nonnull user name. The user name is specified by the <code>orclCommonNicknameAttribute</code> in the OracleContext of the realm. See <i>Oracle Internet Directory Administrator's Guide</i> for more information about viewing the <code>orclCommonNicknameAttribute</code> .
Cannot connect to Oracle Content Services.	The Oracle Content Services server may be using DHCP.	If Oracle Content Services is using DHCP, use the current IP address of the server to connect, rather than the host name. All Oracle Content Services protocols are affected, including HTTP.

Table A–1 (Cont.) General Administration Issues

Problem	Probable Cause	Corrective Action
On UNIX systems, the regular node does not respond to <code>opmnctl stop</code> or <code>opmnctl restart</code> commands.	The node is hanging and must be stopped manually by the root user.	<p>Because regular nodes run as root, nodes that are hanging must be shut down manually by the root user:</p> <pre>kill -9 process-id</pre> <p>To find out whether a node is hanging, use the <code>opmnctl status</code> command. Nodes that are hanging will show a status of "Stop."</p> <p>Nodes sometimes hang when the Applications tier computer is low on resources, causing the node startup time to exceed 5 minutes.</p>
Cannot log in to a new Site that was added using the Oracle Collaboration Suite Control.	OC4J_Content was not restarted after the Site was added.	<p>You must restart OC4J_Content after you add a new Site. Restart OC4J_Content from the Content Services Home page in the Oracle Collaboration Suite Control, or use the following <code>opmnctl</code> command:</p> <pre>opmnctl restartproc process-type=OC4J_Content</pre>
<p>In the Oracle Collaboration Suite Control, the following error message appears for a particular server on the Node page:</p> <p>"This server is configured but not loaded now."</p>	<p>The server may not have been configured correctly, or the server may have an initialization or loading problem.</p> <p>This message also appears when the server has been deleted from the node at run time, but still exists in the node configuration.</p>	Check the node log for information about possible initialization and loading errors for this server.
Users cannot access Properties dialog boxes or other dialog boxes in the Oracle Content Services or Oracle Records Management Web clients.	Pop-up blockers are blocking these application dialog boxes.	<p>Users must disable pop-up blockers to access some features of the Oracle Content Services and Oracle Records Management Web clients.</p> <p>Users should hold down the Ctrl key while clicking Launch to bypass most pop-up blockers. In addition, users can refer to the Help for the browser for more information about pop-up settings.</p>

Solving Problems with Oracle Content Services Protocols

Table A–2 provides information about how to troubleshoot problems with Oracle Content Services protocols.

Table A–2 Protocol Issues

Problem	Probable Cause	Corrective Action
Problems with outbound FTP on UNIX.	You are using <code>/usr/bin/ftp</code> on UNIX and the default port number in <code>/etc/services</code> is a port other than 21, such as 2100.	Specify the port number explicitly, for example, <code>ftp ifs.us.oracle.com 21</code> , where 21 is the port assigned.
Cannot log in to FTP.	The FTP password has not been set.	Log in to Oracle Content Services with the user account that cannot access FTP and set an FTP password. You can then log in to FTP using the FTP password.
Multibyte file names for files that were uploaded over FTP appear garbled in the Web client.	Protocol command character set was not specified for the FTP client.	<p>When uploading files with multibyte file names over FTP, you must specify a protocol command character set to ensure the file names are properly encoded. This step is only required when the installation locale has a different default character set than the file name you are specifying over FTP.</p> <p>For example, if you want to upload a file with a Japanese file name over FTP, but the installation locale is Spanish, explicitly set the protocol command character set to <code>shift_jis</code>, as follows:</p> <pre>FTP> quote setcommandcharacterset shift_jis</pre> <p>See "Globalization and the Oracle Content Services Protocols" on page G-4 for more information about protocol command character sets.</p>

Solving Performance Problems

[Table A–3](#) provides information about how to troubleshoot problems with Oracle Content Services performance.

Table A–3 Performance Issues

Problem	Probable Cause	Corrective Action
Server is generally slow for read and write activity (case #1).	Server memory is overcommitted. The server is excessively swapping memory blocks to disk.	<p>Run system monitoring tools, such as <code>vmstat</code> (UNIX) and look for excessive page swapping to verify the problem.</p> <p>Adjust the following parameters in the <code>init.ora</code> file for the database:</p> <ul style="list-style-type: none"> Reduce <code>processes</code>. Reduce <code>open_cursors</code>. Reduce <code>db_block_buffers</code>. <p>Stop unneeded Java VMs or other unneeded processes.</p> <p>You may also need to add memory to your server or, if you are running a single-tier configuration, reconfigure your Oracle Content Services server into a two-tier configuration.</p> <p>For more information about adjusting the parameters in the <code>init.ora</code> file, see <i>Oracle Collaboration Suite Installation Guide for Solaris Operating System</i>.</p>
Server is generally slow for read and write activity (case #2).	CTXHX is using 100 percent of your CPU.	See Appendix C, "Managing the Oracle Text Index" .
Server is slow only on read or search activity.	Large volumes of data have been loaded but the CBO statistics were not updated.	If the Cost-Based Optimizer is using out-of-date statistics data, performance suffers. Run the <code>analyze.sql</code> script located in the <code>ORACLE_HOME/content/admin/sql</code> directory to refresh the statistics.
Server is slow only on content-based search activity (case #1).	Oracle Text tablespaces are on the same disk as other database files.	Move the Oracle Text tablespaces to other disks. See <i>Oracle Collaboration Suite Installation Guide</i> and <i>Oracle Database Administrator's Guide</i> for more information about moving tablespaces.

Table A–3 (Cont.) Performance Issues

Problem	Probable Cause	Corrective Action
Server is slow only on content-based search activity (case #2).	Oracle Text indexes have become fragmented.	Regularly optimize the Oracle Text Oracle index IFS_TEXT. See "Maintaining the IFS_TEXT Index by Using the Oracle Text PL/SQL Packages" on page C-3 for more information.
Server is slow only on write activity (case #1).	Large amounts of documents are being loaded and the Redo logs are too small.	Add two or more 100 MB or larger Redo logs. See <i>Oracle Database Administrator's Guide</i> for more information. In general, Redo logs should be switching every hour or less frequently. See the <i>ORACLE_HOME/rdbsms/sid/bdump</i> directory for the latest logs which indicate the frequency of Redo log switching.
Server is slow only on write activity (case #2).	Large amounts of documents are being loaded and the Redo logs are on the same disk as the database files.	Place the Redo logs on a separate disk from the database files. See <i>Oracle Database Administrator's Guide</i> and <i>Oracle Database Performance Tuning Guide</i> for more information. For optimal performance, dedicate one or more disks (and, if possible, a disk controller) exclusively to the Redo logs, and optimize the disks for sequential write activity. For example, on Solaris Operating System (SPARC), you may choose raw partitions or UNIX file systems for the disks. If you choose UNIX file systems on Solaris 2.6 or later, use the "forcedirection" option when mounting the file systems. These options should only be used if the file systems are dedicated exclusively to the Redo logs.

Solving Oracle Workflow Problems

[Table A–4](#) provides information about how to troubleshoot problems with Oracle Workflow.

Table A–4 Oracle Workflow Issues

Problem	Probable Cause	Corrective Action
Users cannot log in to Oracle Workflow.	Users do not understand how Oracle Workflow functions with Oracle Content Services 10g.	Ensure that users are aware that Oracle Content Services workflow features are significantly different from workflow features in Oracle Files. In Oracle Content Services, all workflow operations are performed from the Oracle Content Services Web client. Users cannot access the Oracle Workflow interface to perform workflow-related tasks.
Users are not receiving Oracle Workflow e-mail notifications.	E-mail notifications have not been configured.	Oracle Workflow is not configured to send e-mail notifications by default. You must configure the Oracle Workflow notification mailer. See "Setting Up E-mail Notifications in Oracle Workflow" on page 3-4 for more information.

Configuring, Unconfiguring, and Reconfiguring Oracle Content Services

You can configure, unconfigure, and reconfigure Oracle Content Services Applications tiers using the Oracle Collaboration Suite Control.

This appendix contains the following topics:

- [Configuring Oracle Content Services](#)
- [Unconfiguring Oracle Content Services](#)
- [Reconfiguring Oracle Content Services](#)

Configuring Oracle Content Services

If you did not configure Oracle Content Services during the Oracle Collaboration Suite installation, or if you want to configure Oracle Content Services on additional Applications tiers, you can use the Oracle Collaboration Suite Control to configure Oracle Content Services on a particular Applications tier. You can only configure Oracle Content Services on an Applications tier that does not already have Oracle Content Services configured.

To configure Oracle Content Services on a particular Applications tier:

1. Connect to the Oracle Collaboration Suite Control on the Applications tier where you want to configure Oracle Content Services, and go to the Collaboration Suite Home page.
2. Click **Configure Component**.
3. On the Configure Component: Select Component page, select **Oracle Content Services**, then click **Continue**.
4. Follow the wizard directions to go through the remaining configuration pages. For more information about a particular page, click **Help**.

Note that the SMTP page only appears for the first Applications tier you configure. This page does not appear when you configure Oracle Content Services on subsequent Applications tiers.

Also, on the Oracle Internet Directory page, be sure to enter an Oracle Internet Directory user with the appropriate credentials. You can use the `cn=orcladmin` user, or any Oracle Internet Directory user with the following privileges:

- Owner of the **IAS Admins** group
- Member of the **IAS and User Mgmt Application Admins** group

- Member of the **Repository Mid-tier Administrators** group
- 5. Return to the Collaboration Suite Home page and restart Oracle HTTP Server (**HTTP_Server**). You must perform this step in order to access Oracle Content Services through Web services or WebDAV.
- 6. After you have completed the configuration, you must restart **OC4J_OCSCClient** from the Collaboration Suite Home page to access Oracle Content Services from the Oracle Collaboration Suite Welcome page.

Unconfiguring Oracle Content Services

You can use the Oracle Collaboration Suite Control to unconfigure Oracle Content Services from an Applications tier. This action will remove all traces of the current Oracle Content Services configuration from that Applications tier.

You cannot unconfigure Oracle Content Services from an Applications tier that is also running Oracle Workflow.

Unconfiguring Oracle Content Services can have several consequences for your deployment, depending on your current configuration. For example:

- If the Oracle Internet Directory Service Registry contains Oracle Content Services Web application URLs that point to the Applications tier where you want to unconfigure Oracle Content Services, you must change these URLs after you unconfigure Oracle Content Services. For more information about how to change URLs in the Oracle Internet Directory Service Registry, see *Oracle Collaboration Suite Administrator's Guide*.
- If you have set the `IFS.DOMAIN.APPLICATION.ApplicationHost` domain property to point to the Applications tier where you want to unconfigure Oracle Content Services, you must update this domain property after you unconfigure Oracle Content Services.
- If you are currently running Oracle Content Services agents on the Applications tier where you want to unconfigure Oracle Content Services, you must configure these agents to run elsewhere after you unconfigure Oracle Content Services. To do this, modify the node configuration of a node running on another Applications tier.
- If you currently collect domain and repository metrics on the Applications tier where you want to unconfigure Oracle Content Services, you must configure these metrics elsewhere after you unconfigure Oracle Content Services.

To unconfigure Oracle Content Services on an Applications tier:

1. Connect to the Oracle Collaboration Suite Control on the Applications tier where you want to unconfigure Oracle Content Services, and go to the Content Services Home page.
2. On the Content Services Home page, stop any node processes that are running on this Applications tier. Local nodes display a check mark in the **Local** column of the Processes table.
3. In the Administration section, click **Unconfigure**. This option does not appear for an Applications tier that is also running Oracle Workflow.

You cannot unconfigure Oracle Content Services unless all nodes on this Applications tier are stopped.

4. On the Warning page, click **Yes**.

5. After you have completed unconfiguration, you must restart **OC4J_OCSCClient** from the Collaboration Suite Home page to remove the Oracle Content Services link from the Oracle Collaboration Suite Welcome page.

Reconfiguring Oracle Content Services

After Oracle Content Services is unconfigured on an Applications tier, you have the option of configuring Oracle Content Services again on that Applications tier. For example, you might want unconfigure Oracle Content Services on an Applications tier that was configured against a test schema, and then configure the Applications tier again against a production schema.

To reconfigure Oracle Content Services, unconfigure Oracle Content Services from an Applications tier, and then configure Oracle Content Services again, as described in the preceding sections.

Managing the Oracle Text Index

Oracle Content Services uses Oracle Text to facilitate full-text search and other advanced capabilities. The speed with which results are returned depends on several factors, including the quality of the Oracle Text index used with Oracle Content Services (IFS_TEXT). The performance of the search can also depend on how much time you let elapse before a search times out.

Oracle Content Services uses an additional index, the IFS_LYKE index, to speed up substring searches on known items. For example, the IFS_LYKE index facilitates searches such as "*planning*" or "*.doc." The IFS_LYKE index is automatically created and maintained and does not normally require any administration. If you are having problems related to the IFS_LYKE index, contact Oracle Support Services for troubleshooting information.

This appendix provides information about how to maintain the Oracle Text index to ensure optimal Oracle Content Services performance, and includes these topics:

- [Oracle Text Tablespaces and Disk Utilization](#)
- [Creating and Maintaining the Oracle Text Index](#)
- [Modifying the Search Timeout Parameter](#)
- [Troubleshooting Oracle Text Problems](#)

Previous names for Oracle Text include Oracle Context and Oracle *interMedia* Text. Many of the underlying indexes, views, tables, and various PL/SQL packages referred to in much of the administrator and application developer documentation still use Context or *interMedia*-related terminology.

For detailed information about Oracle Text, visit the Oracle Technology Network at <http://www.oracle.com/technology/products/text/>.

Oracle Text Tablespaces and Disk Utilization

Disk space for Oracle Text is divided among three distinct tablespaces:

- The **Oracle Text Tokens** tablespace contains tables that hold text tokens (separate words) that exist within the various indexed documents. The storage for these text tokens is roughly proportional to the ASCII content of the document. The ASCII content percentage will vary depending on the format of the original document. Text files only have white space as their non-ASCII content and, therefore, will incur a greater per-document percentage overhead. Document types such as Microsoft Word or PowerPoint contain large amounts of data required for formatting that does not qualify as text tokens. The per-document percentage on these types of documents will, therefore, be lower. On a system with diverse

content types, the expected overhead is approximately 8 percent of the sum of the original sizes of the indexed documents.

- The **Oracle Text Index** tablespace contains the B*tree database index that is used against the text token information stored in the Oracle Text Tokens tablespace. This will grow as a function of the ASCII content, just as the Oracle Text Tokens tablespace does. On a system with diverse content types, the expected overhead is approximately 4 percent of the sum of the ASCII content of the documents, or approximately 1 percent of the sum of the total sizes of the indexed documents.
- The **Oracle Text Other** tablespace contains the tables and indexes required to translate from the Oracle Content Services locator of a document (the Oracle Content Services DocID) to the Oracle Text locator of that same document (the Oracle Text DocID). The expected space utilization for this tablespace is approximately 70 bytes for each indexed document.

Use this information to estimate and plan disk storage needs for your Oracle Content Services instance.

Creating and Maintaining the Oracle Text Index

The configuration process for Oracle Content Services uses the SQL scripts shown in [Table C–1](#) to create and populate the IFS_TEXT index.

These scripts are located in the following directory:

`ORACLE_HOME/content/admin/sql`

Table C–1 SQL Scripts for Creating Oracle Text Index

Script	Usage	Log In As	Arguments
CreateContext FunnelProcedure.sql	Creates the procedure used by USER_DATASTORE.	<i>content_</i> <i>services_</i> <i>schema_owner</i> (typically CONTENT)	None
GrantContext ToIFS.sql	Grants the Oracle Content Services user (schema) privileges on the Oracle Text-specific commands required to maintain the index.	<i>sys</i>	<i>content_services_schema_</i> <i>name</i> (typically CONTENT)
CreateContext Preferences.sql	Tablespace and other text preferences are created by the Oracle Content Services user.	<i>content_</i> <i>services_</i> <i>schema_owner</i> (typically CONTENT)	<i>OracleText_index_</i> <i>tablespace</i> <i>OracleText_keymap_</i> <i>tablespace</i> <i>OracleText_data_</i> <i>tablespace</i> <i>content_services_schema_</i> <i>name</i> (typically CONTENT)
CreateContext Index.sql	Creates the IFS_TEXT index based on the text preferences.	<i>content_</i> <i>services_</i> <i>schema_owner</i> (typically CONTENT)	None

Maintaining the IFS_TEXT Index by Using the Oracle Text PL/SQL Packages

Two PL/SQL procedures are provided with Oracle Text for maintaining the index. Unlike a regular database index, the Oracle Text index is not dynamically updated with each insert or update of information. Rather, the index must be refreshed (or synchronized) periodically, using the Oracle Text stored procedure `ctx_ddl.sync_index`.

The `ctx_ddl.sync_index` procedure does not rebuild the entire index; it adds and deletes records that have changed since the last synchronization. Because the changes are incremental, the more frequently this procedure is run, the faster it runs. Over the course of time, however, the index can become fragmented, so a companion procedure (`ctx_ddl.optimize_index`) is provided to optimize the index.

During Oracle Content Services configuration, the procedures to synchronize and optimize the IFS_TEXT index are automatically set up to run periodically in the background, using the DBMS_JOBS package of Oracle Database. DBMS_JOBS procedures, which are similar to `cron jobs` on UNIX systems, are portable across all platforms on which Oracle Database runs.

When the Oracle Content Services schema is created during configuration, two DBMS_JOBS are set up: Sync Job and Optimize Job. The name of the Oracle Content Services schema is typically `CONTENT`.

Note: Sync Job and Optimize Job are only created automatically when a new schema is created. If you are upgrading from an existing schema, these jobs will not be created for you.

Sync Job

Sync Job will periodically call the `ctx_ddl.sync_index()` method. This method indexes the documents that were created or updated since the last run. By default, this job runs every 30 minutes.

Optimize Job

Optimize Job will periodically call the `ctx_ddl.optimize_index()` method. The goal of this job is to optimize the IFS_TEXT index by defragmenting it. By default, this job is run in `FULL` mode, with a maximum of 1 hour allocated for the optimization task. The job runs every 24 hours, starting at midnight.

Monitoring DBMS_JOBS

DBMS_JOB logs can be found under the Oracle home that hosts Oracle Database, in the directory that holds the background process logs. This directory is pointed to by the `BACKGROUND_DUMP_DEST` configuration parameter of the database server. You can recognize the log trace files by their name pattern, `DBNAME_j###_process-id.trc`.

Another database configuration parameter, `JOB_QUEUE_PROCESSES`, determines how many processes are available to run all background tasks. You may need to increase the value of this parameter if not enough processes are available to run Sync Job and Optimize Job. The default value is 10.

You can also look at the `USER_JOBS` view to see a list of all the jobs set up by the current schema user. The `USER_JOBS` view shows details such as the PL/SQL being run by each job, the last time each job was run, and when the jobs are scheduled to be run next. To see the `USER_JOBS` view, log on to the Oracle Content Services schema (typically `CONTENT`) using SQL*Plus.

Changing or Removing the Default DBMS_JOBS

Two SQL files are used to set up and clear the DBMS_JOBS in Oracle Content Services: `SetupContextJobs.sql` and `ClearContextJobs.sql`. These files are located in the following directory:

`ORACLE_HOME/content/admin/sql`

`SetupContextJobs.sql` is used by the system during configuration to set up Sync Job and Optimize Job. `ClearContextJobs.sql` is provided to remove Sync Job and Optimize Job, in case you want to set up your own DBMS_JOBS.

See *Oracle Database Administrator's Guide* for information about setting up your own DBMS_JOBS. You can also look at Sync Job and Optimize Job as examples.

Manually Synchronizing and Optimizing IFS_TEXT

To synchronize an existing IFS_TEXT index, use SQL*Plus to connect as the Oracle Content Services schema user (typically CONTENT), and enter:

```
exec ctx_ddl.sync_index('ifs_text');
```

You can also run the `SyncContextIndex.sql` script from the `ORACLE_HOME/content/admin/sql` directory. In addition to synchronizing the IFS_TEXT index, this script will display extra log information on the console.

To optimize an existing IFS_TEXT index, use SQL*Plus to connect as the Oracle Content Services schema user (typically CONTENT), and enter:

```
exec ctx_ddl.optimize_index('ifs_text', 'FAST');
```

or

```
exec ctx_ddl.optimize_index('ifs_text', 'FULL', maxtime);
```

Monitoring Oracle Text Indexing of Oracle Content Services Documents

Oracle Content Services provides some utility-type SQL scripts to facilitate interaction with Oracle Text. Read each .sql file for additional usage details. All scripts are available in:

`ORACLE_HOME/content/admin/sql`

[Table C-2](#) lists the SQL scripts provided by Oracle Content Services to monitor Oracle Text.

Table C-2 SQL Scripts for Monitoring Oracle Text Indexing

Script	Usage
<code>ViewContextErrors.sql</code>	Script that decodes the operating system-specific errors that were generated during Oracle Text indexing.
<code>SyncContextIndex.sql</code>	Script that synchronizes the Oracle Text index and enables you to monitor the Oracle Text synchronization process. Uncomment the first two lines in the script, which includes a call to <code>ctx_output.add_event()</code> , to monitor on a row ID by row ID basis.
<code>ViewDocumentByRowID.sql</code>	Script that enables you to view additional information about a document that is indexed by Oracle Text. Use the <code>docid</code> from the Oracle Text log with this script.

Indexing Non-Standard Content Types

Oracle Content Services does, not by default, index every file that is moved into the system, but you can configure it to index any type of content you choose. To do this, designate the MIME type as Indexed on the New Format page (or Edit Format page, if the format already exists) in the Oracle Collaboration Suite Control. The MIME type of a document is determined by its extension.

For example, you may want to index all your C# (.cs) source code files. To do so:

1. Use the Oracle Collaboration Suite Control to add the .cs MIME type, and designate it as **Indexed** on the New Format page.
2. Upload the files into the repository.
3. Synchronize the index using the procedure discussed in ["Manually Synchronizing and Optimizing IFS_TEXT"](#) on page C-4.

See ["Default Formats"](#) on page 8-3 for a list of formats that are indexed by default in Oracle Content Services.

Modifying the Search Timeout Parameter

The `IFS.SERVICE.SESSION.DefaultSearchTimeoutPeriod` service configuration parameter specifies the timeout period for a running search that has not yet returned results. The default setting for this parameter (in the default service configurations) is 60 seconds. If you increase this value, users will wait longer than a minute before a search times out; decrease the value to shorten the time in which a running search will time out.

See ["Modifying Service Configurations"](#) on page 6-17 for information about how to modify service configuration parameters.

Troubleshooting Oracle Text Problems

[Table C-3](#) provides Oracle Text troubleshooting information.

Table C-3 Troubleshooting Oracle Text Problems

Problem	Probable Cause	Corrective Action
Cannot search on contents of any documents.	Documents have not been indexed.	Start the database instance and ensure that the Oracle Text indexing jobs are running. See "Creating and Maintaining the Oracle Text Index" on page C-2 for more information.
Server is slow only on content-based search activity (case #1).	Oracle Text tablespaces are on the same disk as other database files.	Move the Oracle Text tablespaces to other disks. See <i>Oracle Database Administrator's Guide</i> for more information about moving tablespaces.
Server is slow only on content-based search activity (case #2).	Oracle Text indexes have become fragmented.	Regularly optimize the Oracle Text index <code>GLOBALINDEXEDBLOB_I</code> . See "Manually Synchronizing and Optimizing IFS_TEXT" on page C-4 for more information.

Table C-3 (Cont.) Troubleshooting Oracle Text Problems

Problem	Probable Cause	Corrective Action
Searching on the contents of new documents stops working.	A recent document has caused Oracle Text server to fail.	<ol style="list-style-type: none"> 1. Log in to SQL*Plus as <i>content_services_schema/schema_password</i>, and enter the following command: <pre>select count(*) from ctx_user_pending;</pre> The name of the Oracle Content Services schema is typically CONTENT. 2. If there are any rows in that view and the rows are not changing, then a recent document has caused Oracle Text to stop indexing. To determine which Oracle Content Services documents these rows refer to, see the problem "Oracle Content Services rows show up in the Oracle Text view ctx_user_index_errors." 3. Check again to see if there are any rows in <i>ctx_user_pending</i> and, if so, that the rows are changing. 4. If this does not resolve the issue, contact your Oracle Support Services representative for further assistance.
Oracle Content Services rows show up in the Oracle Text view <i>ctx_user_index_errors</i> .	Oracle Content Services documents are corrupt or do not have the correct extension.	<ol style="list-style-type: none"> 1. Determine which Oracle Content Services document is being referred to, based on the <i>err_textkey</i> from <i>ctx_user_index_errors</i>. <pre>sqlplus content_services_schema/schema_password</pre> <pre>select du.uniquename, vd.name, co.contentsize, cs.id, vd.id from odm_document vd, odm_contentobject co, odmm_contentstore cs, odm_document od, odm_directoryuser du where vd.id = od.id and od.contentobject = co.id and co.content = cs.id and du.id = vd.owner and cs.id in (select distinct od.id from ctx_user_index_errors cp, odmm_ contentstore od where od.rowid = err_textkey) order by cs.id;</pre> 2. Log in to Oracle Content Services as a user with the Content Administrator role (such as the <i>orcladmin</i> user) and switch to Administration Mode. 3. Search on the document name <i>vd.id</i>, where <i>vd.id</i> is the <i>vd.id</i> returned from the <i>SELECT</i> statement provided in Step 1. 4. Check document attributes, such as document size, to ensure that it is the correct document. 5. Examine this document, and consider these questions: Is the file damaged in any way? Is the file name extension correct for this document? Is the character set of the document correct? 6. If no obvious problems are found, send the document to your Oracle Support Services representative for further diagnosis.

Table C-3 (Cont.) Troubleshooting Oracle Text Problems

Problem	Probable Cause	Corrective Action
Oracle Content Services rows never get processed and never leave the Oracle Text view ctx_user_pending.	Oracle Content Services documents are corrupt or do not have the correct extension.	<ol style="list-style-type: none"> 1. Follow the steps in "Oracle Content Services rows show up in the Oracle Text view ctx_user_index_errors." to determine which Oracle Content Services documents are being referred to, substituting ctx_user_pending for ctx_user_index_errors and pnd_rowid for err_textkey. 2. Examine this document, and consider these questions: Is the file damaged in any way? Is the file name extension correct for this document? Is the character set of the document correct? 3. If no obvious problems are found, send the document to your Oracle Support Services representative for further diagnosis. 4. Delete the document from Oracle Content Services.

Service Configuration Properties

An Oracle Content Services service comprises a Java runtime environment for the protocol servers and agents that it supports. A service also manages connections to the database through JDBC. There are three default service configuration objects you can use to create new services on nodes:

- SmallServiceConfiguration
- MediumServiceConfiguration
- LargeServiceConfiguration

The differences among the three configuration templates are in the number of connections and sessions supported.

This appendix lists the service configuration properties and their default values.

Note: Spaces can be included in service configuration properties. For this reason, do not use spaces to separate alternate values of a property. You must use a comma as a delimiter.

Table D–1 IFS.SERVICE.* Properties

Property	Description and Usage Notes	Default	Required?
IFS.SERVICE. CheckForOrphanSessionsPeriod	Number of seconds between checks for orphan sessions. (Active sessions generate heartbeats. An orphan session is one that no longer generates session heartbeats. When the service detects an orphan session, it disconnects the session and releases the resources for the session.) Default is 60 seconds between checks. Set to 0 to disable the checking.	60	No
IFS.SERVICE. DefaultCharacterSet	This property is not used.	Not applicable	No
IFS.SERVICE. DefaultLanguage	This property is not used.	Not applicable	No
IFS.SERVICE. LockTimeoutPeriod	The time period (in seconds) for a session to wait when attempting to lock database resources when performing an update operation. If unable to lock the required database resources within the time period indicated, the update operation will time out, and an exception will occur.	10	No

Table D–1 (Cont.) IFS.SERVICE.* Properties

Property	Description and Usage Notes	Default	Required?
IFS.SERVICE. MaximumConcurrentSessions	Maximum number of sessions the service can support concurrently. Default of 0 means unlimited.	0	No
IFS.SERVICE. OrphanSessionTimeoutPeriod	Number of seconds after which a session that no longer generates a heartbeat becomes an orphan. Set to 0 to disable orphan session timeout.	600	No
IFS.SERVICE. PollForEventsFromOtherServices Period	Seconds between checks for incoming events from other services. Set to 0 to disable interservice event polling.	2	No
IFS.SERVICE. ServiceKeepAliveEventPeriod	Seconds between service heartbeats. The Service Watchdog Agent detects services that cease to have a heartbeat, and cleans up information associated with the failed service in the Oracle Content Services repository. Set to 0 to disable the heartbeat.	60	No
IFS.SERVICE. SessionOperationTimeoutPeriod	Number of seconds after which certain Oracle Content Services API calls are terminated, even if incomplete. If an operation times out in this manner, it is terminated, its transaction is terminated, and an exception occurs. The session performing the operation remains valid. Set to 0 to disable session operation timeout.	300	No
IFS.SERVICE. TransportEventsToOtherServices Period	Maximum length of time (seconds) that outgoing events are buffered before sending. Set to 0 to disable outgoing event buffer.	2	No
IFS.SERVICE.ACLCACHE. EmergencyTrigger	The cache size, in ACLs, at which the service ACL cache performs an immediate purge of data that has not been recently used. Must be greater than IFS.SERVICE.ACLCACHE.UrgentTrigger but less than IFS.SERVICE.ACLCACHE.Size.	600 - Small 2400 - Medium 6000 - Large	No
IFS.SERVICE.ACLCACHE. NormalTrigger	The cache size, in ACLs, at which the service ACL cache schedules a low-priority purge of data that has not been recently used.	500 - Small 2000 - Medium 5000 - Large	No
IFS.SERVICE.ACLCACHE. PurgeTarget	The target cache size, in ACLs, on completion of a purge cycle. Must be less than IFS.SERVICE.ACLCACHE.NormalTrigger.	400 - Small 1600 - Medium 4000 - Large	No
IFS.SERVICE.ACLCACHE. Size	The absolute maximum size of the service's ACL cache, in ACLs. The service ACL cache holds resolved access levels of ACLs.	750 - Small 3000 - Medium 7500 - Large	No
IFS.SERVICE.ACLCACHE. UrgentTrigger	The cache size, in ACLs, at which the service ACL cache schedules a high-priority purge of data that has not been recently used. Must be greater than IFS.SERVICE.ACLCACHE.NormalTrigger.	550 - Small 2200 - Medium 5500 - Large	No
IFS.SERVICE.CONNECTIONPOOL. READONLY.MaximumSize	The absolute maximum number of database connections in the read-only connection pool. Must be greater than or equal to IFS.SERVICE.CONNECTIONPOOL.READONLY.TargetSize.	20 - Small 40 - Medium 60 - Large	No

Table D–1 (Cont.) IFS.SERVICE.* Properties

Property	Description and Usage Notes	Default	Required?
IFS.SERVICE.CONNECTIONPOOL.READONLY.MaximumSizeTimeout	The maximum period, in milliseconds, that a service will postpone a connection allocation request when there are no unallocated connections, if the current size of the read-only connection pool is equal to its maximum size. If a database connection does not become available within this period, the allocation request will fail and an exception will occur.	10000	No
IFS.SERVICE.CONNECTIONPOOL.READONLY.MinimumSize	The initial number of database connections in the read-only connection pool.	2 - Small 4 - Medium 6 - Large	No
IFS.SERVICE.CONNECTIONPOOL.READONLY.StatementCacheSizeTrigger	The cache size, in number of statements, at which the statement cache schedules a purge. The Statement Cache feature was added in the Oracle Collaboration Suite Cumulative Patchset 10.1.2.3. If you are using a previous version or patchset of Oracle Collaboration Suite, this service configuration property does not exist in Oracle Content Services.	150	No
IFS.SERVICE.CONNECTIONPOOL.READONLY.StatementCacheTarget	The target cache size, in number of statements, for the statement cache upon completion of a purge cycle. Must be less than IFS.SERVICE.CONNECTIONPOOL.READONLY.StatementCacheSizeTrigger. The Statement Cache feature was added in the Oracle Collaboration Suite Cumulative Patchset 10.1.2.3. If you are using a previous version or patchset of Oracle Collaboration Suite, this service configuration property does not exist in Oracle Content Services.	120	No
IFS.SERVICE.CONNECTIONPOOL.READONLY.TargetSize	The target maximum number of database connections in the read-only connection pool. Must be greater than or equal to IFS.SERVICE.CONNECTIONPOOL.READONLY.MinimumSize.	10 - Small 20 - Medium 30 - Large	No
IFS.SERVICE.CONNECTIONPOOL.READONLY.TargetSizeTimeout	The maximum period, in milliseconds, that the service will postpone a connection allocation request when there are no unallocated connections, if the current size of the read-only connection pool is greater than or equal to its target size, but less than the maximum size. If a database connection does not become available within this period, a new connection will be created.	1000	No
IFS.SERVICE.CONNECTIONPOOL.WRITEABLE.MaximumSize	The absolute maximum number of database connections in the writeable connection pool. Must be greater than or equal to IFS.SERVICE.CONNECTIONPOOL.WRITEABLE.TargetSize.	20 - Small 40 - Medium 60 - Large	No

Table D–1 (Cont.) IFS.SERVICE.* Properties

Property	Description and Usage Notes	Default	Required?
IFS.SERVICE.CONNECTIONPOOL.WRITEABLE.MaximumSizeTimeout	The maximum period, in milliseconds, that a service will postpone a connection allocation request when there are no unallocated connections, if the current size of the writeable connection pool is equal to its maximum size. If a database connection does not become available within this period, the allocation request will fail and an exception will occur.	10000	No
IFS.SERVICE.CONNECTIONPOOL.WRITEABLE.MinimumSize	The initial number of database connections in the writeable connection pool.	2 - Small 4 - Medium 6 - Large	No
IFS.SERVICE.CONNECTIONPOOL.WRITEABLE.StatementCacheSizeTrigger	The cache size, in number of statements, at which the statement cache schedules a purge. The Statement Cache feature was added in the Oracle Collaboration Suite Cumulative Patchset 10.1.2.3. If you are using a previous version or patchset of Oracle Collaboration Suite, this service configuration property does not exist in Oracle Content Services.	200	No
IFS.SERVICE.CONNECTIONPOOL.WRITEABLE.StatementCacheTarget	The target cache size, in number of statements, for the statement cache upon completion of a purge cycle. Must be less than IFS.SERVICE.CONNECTIONPOOL.WRITEABLE.StatementCacheSizeTrigger. The Statement Cache feature was added in the Oracle Collaboration Suite Cumulative Patchset 10.1.2.3. If you are using a previous version or patchset of Oracle Collaboration Suite, this service configuration property does not exist in Oracle Content Services.	160	No
IFS.SERVICE.CONNECTIONPOOL.WRITEABLE.TargetSize	The target maximum number of database connections in the writeable connection pool. Must be greater than or equal to IFS.SERVICE.CONNECTIONPOOL.WRITEABLE.MinimumSize.	10 - Small 20 - Medium 30 - Large	No
IFS.SERVICE.CONNECTIONPOOL.WRITEABLE.TargetSizeTimeout	The maximum period, in milliseconds, that the service will postpone a connection allocation request when there are no unallocated connections, if the current size of the writeable connection pool is greater than or equal to its target size, but less than the maximum size. If a database connection does not become available within this period, a new connection will be created.	1000	No
IFS.SERVICE.CaseSensitiveAuthentication	Whether, in performing Cleartext authentication, passwords are case-sensitive.	false	No
IFS.SERVICE.CREDENTIALMANAGER.CredentialNameTokenizer	The fully qualified classname of the CredentialNameTokenizer.	oracle.ifs.common.IfsCredentialNameTokenizer	No

Table D-1 (Cont.) IFS.SERVICE.* Properties

Property	Description and Usage Notes	Default	Required?
IFS.SERVICE.CREDENTIALMANAGER.*	The configuration of credential managers for the service. Do not edit these properties directly, except for IFS.SERVICE.CREDENTIALMANAGER.Oid.OidSsl and IFS.SERVICE.CREDENTIALMANAGER.Oid.OidUrl.	Not applicable	Not applicable
IFS.SERVICE.CREDENTIALMANAGER.Oid.OidSsl	Whether Oracle Content Services connects to Oracle Internet Directory using SSL.	Set during configuration	No
IFS.SERVICE.CREDENTIALMANAGER.Oid.OidUrl	The URL for Oracle Internet Directory.	Set during configuration	No
IFS.SERVICE.DATACACHE.Size	The absolute maximum size of the service's data cache, in LibraryObjects. The service data cache holds the attribute values of recently used LibraryObjects.	7500 - Small 30000 - Medium 75000 - Large	No
IFS.SERVICE.DATACACHE.NormalTrigger	The cache size, in LibraryObjects, at which the service data cache schedules a low-priority purge of data that has not been recently used.	5000 - Small 20000 - Medium 50000 - Large	No
IFS.SERVICE.DATACACHE.UrgentTrigger	The cache size, in LibraryObjects, at which the service data cache schedules a high-priority purge of data that has not been recently used. Must be greater than IFS.SERVICE.DATACACHE.NormalTrigger.	5500 - Small 22000 - Medium 55000 - Large	No
IFS.SERVICE.DATACACHE.EmergencyTrigger	The cache size, in LibraryObjects, at which the service data cache performs an immediate purge of data that has not been recently used. Must be greater than IFS.SERVICE.DATACACHE.UrgentTrigger but less than IFS.SERVICE.DATACACHE.Size.	6000 - Small 24000 - Medium 60000 - Large	No
IFS.SERVICE.DATACACHE.PurgeTarget	The target cache size, in LibraryObjects, on completion of a purge cycle. Must be less than IFS.SERVICE.DATACACHE.NormalTrigger.	4000 - Small 16000 - Medium 40000 - Large	No
IFS.SERVICE.HSM.PrimaryDevice	This property is not used.	Not applicable	Not applicable
IFS.SERVICE.JDBC.DefaultRowPrefetch	Number of result set rows prefetched. If set to null or 0, prefetches 10 rows. Do not change.	0	No
IFS.SERVICE.JDBC.DriverType	Specifies the JDBC driver type. Do not change.	oci8	No
IFS.SERVICE.JDBC.TracingEnabled	Sends JDBC debugging information to the standard output. Do not change.	false	No
IFS.SERVICE.SESSION.TransactionStackSize	The maximum number of nested transactions by the session.	100	No
IFS.SERVICE.SESSION.EventPoller	The event poller used by a session to generate the heartbeat of the session. Must be either oracle.ifs.beans.LibrarySessionEventPollerThreadPerProcess (recommended) or oracle.ifs.beans.LibrarySessionEventPollerThreadPerSession.	oracle.ifs.beans.LibrarySessionEventPollerThreadPerProcess	No

Table D–1 (Cont.) IFS.SERVICE.* Properties

Property	Description and Usage Notes	Default	Required?
IFS.SERVICE.SESSION.EventPollerPeriod	The period, in milliseconds, of the session's heartbeat. In addition to indicating the health of the session to the service, the heartbeat allows an idle session to process events generated by other sessions or services.	2500	No
IFS.SERVICE.SESSION.DefaultSearchTimeoutPeriod	The period, in seconds, after which a search API call is terminated, even if incomplete. If a search times out in this manner, it is terminated and an exception occurs. The session performing the search remains valid. A value of 0 disables search timeouts.	60	No
IFS.SERVICE.SESSION.BEANOBJECTCACHE.Size	The target maximum size of the bean-side session object cache, in LibraryObjects. The bean-side session object cache holds instances of oracle.ifs.beans.LibraryObject. If IFS.SERVICE.SESSION.SERVEROBJECTCACHE.IsUnbounded is false, this value is ignored and implicitly equal to IFS.SERVICE.SESSION.SERVEROBJECTCACHE.Size.	750	No
IFS.SERVICE.SESSION.FOLDERPATHCACHE.Enabled	Whether the session caches the resolution of folder paths.	true	No
IFS.SERVICE.SESSION.FOLDERPATHCACHE.Size	The absolute maximum size of the folder path cache of the session, in cached folder paths.	150	No
IFS.SERVICE.SESSION.FOLDERPATHCACHE.NormalTrigger	The cache size, in folder paths, at which the session's folder path cache schedules a low-priority purge of data that has not been recently used.	100	No
IFS.SERVICE.SESSION.FOLDERPATHCACHE.UrgentTrigger	The cache size, in folder paths, at which the folder path cache of the session schedules a high-priority purge of data that has not been recently used. Must be greater than IFS.SERVICE.SESSION.FOLDERPATHCACHE.NormalTrigger and less than IFS.SERVICE.SESSION.FOLDERPATHCACHE.Size.	110	No
IFS.SERVICE.SESSION.FOLDERPATHCACHE.PurgeTarget	The target cache size, in folder paths, on completion of a purge cycle. Must be less than IFS.SERVICE.SESSION.FOLDERPATHCACHE.NormalTrigger.	80	No
IFS.SERVICE.SESSION.SERVEROBJECTCACHE.Size	The absolute maximum size of the server-side session object cache, in LibraryObjects. The server-side session object cache holds instances of oracle.ifs.server.S_LibraryObject and oracle.ifs.beans.LibraryObject.	750	No
IFS.SERVICE.SESSION.SERVEROBJECTCACHE.NormalTrigger	The cache size, in LibraryObjects, at which the session data caches schedule a low-priority purge of data that has not been recently used.	500	No

Table D–1 (Cont.) IFS.SERVICE.* Properties

Property	Description and Usage Notes	Default	Required?
IFS.SERVICE.SESSION. SERVEROBJECTCACHE.UrgentTrigger	The cache size, in LibraryObjects, at which the session data caches schedule a high-priority purge of data that has not been recently used. Must be greater than IFS.SERVICE.SESSION.SERVEROBJECTCACHE.NormalTrigger.	550	No
IFS.SERVICE.SESSION. SERVEROBJECTCACHE.EmergencyTrigger	The cache size, in LibraryObjects, at which the session data caches perform an immediate purge of data that has not been recently used. Must be greater than IFS.SERVICE.SESSION.SERVEROBJECTCACHE.UrgentTrigger but less than IFS.SERVICE.SESSION.SERVEROBJECTCACHE.Size.	600	No
IFS.SERVICE.SESSION. SERVEROBJECTCACHE.PurgeTarget	The target cache size, in LibraryObjects, on completion of a purge cycle. Must be less than IFS.SERVICE.SESSION.SERVEROBJECTCACHE.NormalTrigger.	400	No
IFS.SERVICE.TRACING. ChannelCount	The number of trace logger channels. Oracle reserves channels 0 to TraceLogger.LAST_RESERVED_CHANNEL. See the Javadoc for class oracle.ifs.common.TraceLogger for a list of Oracle-defined channels.	50	No
IFS.SERVICE.TRACING. ServiceTraceType	The destination of trace data generated by a service. Must be TRACETYPE_NONE (disabled) or TRACETYPE_LOCAL (writes to a file on the local file system).	TRACETYPE_NONE	No
IFS.SERVICE.TRACING. ServerSessionTraceType	The destination of trace data generated by a server-side session. Must be TRACETYPE_NONE (disabled), TRACETYPE_LOCAL (writes to a file on the local file system), TRACETYPE_REMOTE (routes to the service's trace logger), or TRACETYPE_BOTH (writes to a file on the local file system and routes to the service's trace logger).	TRACETYPE_NONE	No
IFS.SERVICE.TRACING. BeansSessionTraceType	The destination of trace data generated by a bean-side session. Must be TRACETYPE_NONE (disabled), TRACETYPE_LOCAL (writes to a file on the local file system), TRACETYPE_REMOTE (routes to the server-side session's trace logger), or TRACETYPE_BOTH (writes to a file on the local file system and routes to the server-side session's trace logger).	TRACETYPE_NONE	No
IFS.SERVICE.TRACING. TraceLevelChanneln	Tracing verbosity for trace channel <i>n</i> . Refer to the Javadoc for class oracle.ifs.common.TraceLogger for a list of Oracle-defined trace levels.	None	No
IFS.SERVICE.TRACING. DefaultTraceLevel	Default tracing verbosity for all trace channels. See oracle.ifs.common.TraceLogger Javadoc for a list of trace levels.	None	No

Server Configuration Properties

Each Oracle Content Services node can support multiple **servers**. These servers can be either protocol servers or agents:

- The protocol servers, such as the FTP server, listen for requests from clients on a specific Internet Protocol (IP) port and respond to requests according to the rules of the protocol specification.
- Agents perform operations periodically (time-based) or in response to events generated by other Oracle Content Services servers or processes (event-based). Although different agents can run in different nodes, each agent must run only on a single node. Typically, most of the agents that come with the software must be run to ensure a stable system.

Each server is based on a particular **server configuration** that holds the default values used when the server is started for an Oracle Content Services node. For example, a server configuration for the Oracle Content Services FTP server contains properties that specify the FTP port number, whether anonymous FTP connections are allowed, and the connection timeout period.

The properties listed in this appendix are all required for a protocol server or agent to run properly. When you install and configure an Oracle Content Services instance, the properties are configured using the default values shown in this appendix.

This appendix provides information about the following topics:

- [Shared Properties](#)
- [Audit Event Dispatch Agent](#)
- [Audit Event Handler Agent](#)
- [Background Processing Agent](#)
- [Cleanup Agent](#)
- [Content Agent](#)
- [Content Garbage Collection Agent](#)
- [Dangling Object AV Cleanup Agent](#)
- [Event Exchanger Agent](#)
- [Event Handler Agent](#)
- [Expiration Agent](#)
- [Folder Index Agent](#)
- [Folder Index Analyzer Agent](#)

- FTP Server
- FTPS Server - Explicit
- FTPS Server - Implicit
- Garbage Collection Agent
- HTTP Server
- Inbound Queue Listener Agent
- Lock Expiration Agent
- Most Recent Doc Agent
- Oracle Internet Directory Credential Manager Agent
- Quota Agent
- Read Document Agent
- Reassign Quota Agent
- Records Management HTTP Server
- Records Management Lifecycle Agent
- Refresh Security Agent
- Secure Enterprise Search Group Agent
- Service Warmup Agent
- Service Watchdog Agent
- Statistics Agent
- Version Purge Agent
- Virus Repair Agent

Shared Properties

Table E–1 defines server configuration properties that are shared among more than one server or agent.

Table E–1 Shared Properties

Property	Description and Usage Notes	Default
IFS.SERVER.Class	The class used to instantiate the server.	Default varies from server to server.
IFS.SERVER.SESSION.LOCALE.Country	Default country to be used in session localizer.	US
IFS.SERVER.SESSION.LOCALE.Language	Default language to be used in session localizer.	en
IFS.SERVER.SESSION.User	User name for server session. Must be a user with Oracle Content Services administrator privileges.	system
IFS.SERVER.TIMER.ActivationPeriod	Time interval for when the agent runs again. Specified as a number followed by a time unit, such as 4h to indicate a 4-hour interval. Time units are: h=hours, m=minutes, s=seconds	Default varies from server to server.
IFS.SERVER.TIMER.InitialDelay	The delay before the first time interval, relative to when the server is started. This property is ignored if a value is specified for IFS.SERVER.TIMER.InitialTimeOfDay.	Default varies from server to server.
IFS.SERVER.TIMER.InitialTimeOfDay	The first timer event. Set time based on a 24-hour clock.	00:15:00

Audit Event Dispatch Agent

The Audit Event Dispatch Agent is a time-based agent that dispatches raw audit events to other audit histories. This agent polls for new raw audit events, and copies them to all registered audit histories through registered AuditSpecification instances.

Note: The Audit Event Dispatch Agent was added in the Oracle Collaboration Suite Cumulative Patchset 10.1.2.3. If you are using a previous version or patchset of Oracle Collaboration Suite, this feature is not available.

The default name for this server configuration is:

AuditEventDispatchAgentConfiguration

Table E–2 lists the properties for the Audit Event Dispatch Agent.

Table E–2 Audit Event Dispatch Agent Configuration Properties

Property	Description and Usage Notes	Default
ECM.AGENT.AUDITEVENTDISPATCHAGENT.EventBatchSize	The maximum number of events processed in a single iteration of this agent.	5000
ECM.AGENT.AUDITEVENTDISPATCHAGENT.EventCountPublishingPeriod	The number of activation periods that will elapse before the updated event counts are published. For example, if this property is set to 20, and IFS.SERVER.TIMER.ActivationPeriod is set to 3 seconds, then the event counts are updated every 1 minute.	20

Audit Event Handler Agent

This agent is not used. Do not activate this agent.

Note: The Audit Event Handler Agent was added in the Oracle Collaboration Suite Cumulative Patchset 10.1.2.3. If you are using a previous version or patchset of Oracle Collaboration Suite, this agent does not exist.

Background Processing Agent

The Background Processing Agent is an event-based agent that reacts to requests placed by users for operations that take a long time to perform, such as modifying the Sharing properties of a Site. The agent asynchronously performs the requested operations to avoid performance problems.

The default name for this server configuration is:

BackgroundProcessingAgentConfiguration

Table E–3 lists the properties for the Background Processing Agent.

Table E–3 Background Processing Agent Configuration Properties

Property	Description and Usage Notes	Default
ECM.AGENT.BACKGROUNDPROCESSINGAGENT.EventBatchSize	The maximum number of events processed in a single iteration of this agent.	5000

Cleanup Agent

The Cleanup Agent performs a variety of cleaning tasks on a periodic basis, such as deleting content in the Archive that has passed the expiration period set by the Content Administrator. Each of these tasks has a corresponding property called an Activation Multiplier that controls how often the task is performed.

The Activation Multiplier works in conjunction with the `IFS.SERVER.TIMER.ActivationPeriod` property. For example, if `IFS.SERVER.TIMER.ActivationPeriod` is set to 1h, and `ECM.AGENT.CLEANUPAGENT.EMPTYARCHIVE.ActivationMultiplier` is set to 8, then the Cleanup Agent will delete expired content in the Archive every 8 hours.

The descriptions and notes provided in [Table E-4](#) assume an `ActivationPeriod` of 1 hour, which is the default for this agent.

The default name for this server configuration is:

`CleanupAgentConfiguration`

Table E-4 Cleanup Agent Configuration Properties

Property	Description and Usage Notes	Default
<code>ECM.AGENT.CLEANUPAGENT.ARCHIVETOBFILE.ActivationMultiplier</code>	Controls how often content in the Archive is moved to a BFILE. This action is only performed when BFILE archiving has been enabled. See "Setting Up Data Archiving" on page 2-7 for more information.	24
<code>ECM.AGENT.CLEANUPAGENT.BaseTimeOfDay</code>	The time of day from which all intervals for this agent are based. This property determines the time at which tasks will be run that perform only once every 24 hours, and the relative time for tasks performed only a few times in a 24-hour period. For example, if a task has an <code>ActivationMultiplier</code> of 8 and the <code>BaseTimeOfDay</code> is set to 20:15:00, that task will run at 20:15, 4:15, and 12:15.	20:15:00
<code>ECM.AGENT.CLEANUPAGENT.CALCULATEARCHIVEQUOTA.ActivationMultiplier</code>	Controls how often the quota used by files in the Archive for each Site is recalculated.	4
<code>ECM.AGENT.CLEANUPAGENT.CALCULATEDOMAINQUOTA.ActivationMultiplier</code>	Controls how often the total quota used by all files located in Libraries for each Site is recalculated.	1
<code>ECM.AGENT.CLEANUPAGENT.CLEARLINKREFERENCE.ActivationMultiplier</code>	Controls how often links that reference inaccessible items have their internal representation optimized.	12
<code>ECM.AGENT.CLEANUPAGENT.DELETEDOMAINADMINUSER.ActivationMultiplier</code>	Controls how often the administration mode representation for users is removed from the system, for users whose application administration access has been disabled for a sufficient period of time. This time period is controlled by the <code>ECM.AGENT.CLEANUPAGENT.DELETEDOMAINADMINUSER.InactivityPeriod</code> property.	12
<code>ECM.AGENT.CLEANUPAGENT.DELETEDOMAINADMINUSER.InactivityPeriod</code>	The amount of time the administration representation for a user remains after the user loses all application administration rights, before that user is removed from the system.	24h
<code>ECM.AGENT.CLEANUPAGENT.DELETEGRANT.ActivationMultiplier</code>	Controls how often security configurations are optimized to reflect users or groups that have been removed from the system.	24
<code>ECM.AGENT.CLEANUPAGENT.DELETETRASHACL.ActivationMultiplier</code>	Controls how often unused security configurations for items in Trash folders are removed from the system.	24

Table E–4 (Cont.) Cleanup Agent Configuration Properties

Property	Description and Usage Notes	Default
ECM.AGENT.CLEANUPAGENT.DELETEWORKFLOWUSER.ActivationMultiplier	Controls how often workflow components are optimized with respect to users that have been removed from the system.	12
ECM.AGENT.CLEANUPAGENT.DISABLEDOMAINADMINUSER.ActivationMultiplier	Controls how often verification is performed for administrative users to ensure that the users still have administration mode access. For users that have lost all administration mode access, the administration representation of the user is disabled, and remains disabled until the user is again granted application administration access, or is removed from the system.	1
ECM.AGENT.CLEANUPAGENT.EMPTYARCHIVE.ActivationMultiplier	Controls how often content that has passed the expiration period set by the Content Administrator is deleted from the Archive.	24
ECM.AGENT.CLEANUPAGENT.EMPTYTRASH.ActivationMultiplier	Controls how often Trash folders are emptied if they were configured to be automatically emptied.	4
ECM.AGENT.CLEANUPAGENT.ISSUEDOMAINQUOTAWARNING.ActivationMultiplier	Controls how often e-mail notification warnings are sent when the quota used by a Site is at or near the allocated quota limit for that Site. E-mail notifications are sent to any users of that Site with the Quota Administrator role, as well as to the administrator e-mail address specified in the IFS.DOMAIN.EMAIL.AdministratorAddress domain property.	12
ECM.AGENT.CLEANUPAGENT.ISSUEDOMAINQUOTAWARNING.ConsumptionPercentageThreshold	Specifies how close the used quota for a Site needs to be to the allocation limit for a Site quota warning to be issued. The value is specified as a percentage of the Site quota allocation.	95
ECM.AGENT.CLEANUPAGENT.ISSUEDOMAINQUOTAWARNING.IncludeArchiveConsumption	Specifies whether documents in a Site's Archive are considered to count against the quota used for a Site.	true
ECM.AGENT.CLEANUPAGENT.PURGEDELETEDWORKSPACE.ActivationMultiplier	Controls how often Libraries that have been deleted and that are unreferenced in the Archive are permanently removed from the system.	24

Content Agent

The Content Agent controls the management of document content when BFILE aging has been set up. When BFILE aging has been enabled, the Content Agent moves content to a BFILE if it has not been accessed after the retention period. See ["Managing Storage Options"](#) on page 2-6 for information about setting up BFILE aging.

The default name for this server configuration is:

ContentAgentConfiguration

[Table E–5](#) lists the properties for the Content Agent.

Table E–5 Content Agent Configuration Properties

Property	Description and Usage Notes	Default
IFS.SERVER.AGENT.CONTENTAGENT.ContentToBfileManager	The fully qualified classname of the ContentToBfileManager interface.	oracle.ifs.management.servers.content.IfsContentToBfileManager
IFS.SERVER.AGENT.CONTENTAGENT.MaxFilesPerFolder	For every relative path created, the maximum number of files that can be moved to a folder.	500
IFS.SERVER.AGENT.CONTENTAGENT.MaxFoldersPerActivationPeriod	The maximum number of folders created when the Content Agent runs.	20
IFS.SERVER.AGENT.CONTENTAGENT.RetentionPeriod	How long a file may be kept in the database as a LOB if it is not accessed.	30d

Content Garbage Collection Agent

File attributes and content are stored separately. For performance reasons, the content of a document is not deleted when the document is deleted. The Content Garbage Collection Agent deletes the unreferenced content. Like many agents, this agent runs at a specific time that is specified in the IFS.SERVER.TIMER.InitialTimeOfDay and IFS.SERVER.TIMER.ActivationPeriod properties.

The default name for this server configuration is:

ContentGarbageCollectionAgentConfiguration

Table E–6 lists the properties for the Content Garbage Collection Agent.

Table E–6 Content Garbage Collection Agent Configuration Properties

Property	Description and Usage Notes	Default
IFS.SERVER.AGENT.CONTENTGARBAGECOLLECTIONAGENT.FilteredContentRemovalPeriod	Amount of time filtered content is kept in the system before it is deleted. HTML-generated rendition of content is an example of filtered content. Unit of measure is seconds.	3600
IFS.SERVER.AGENT.CONTENTGARBAGECOLLECTIONAGENT.FreedContentBatchSize	The maximum number of unreferenced ContentObjects that are freed in a single iteration of this agent.	10000

Dangling Object AV Cleanup Agent

Similar to the Garbage Collection Agent, the Dangling Object AV Cleanup Agent removes orphaned object type references and identifies all invalid object references, such as references to objects that no longer exist, and sets these references to null for array type attributes and zero for scalar attributes. For example, this agent cleans up the owner attribute of a document pointing to a directory object that was deleted and is no longer valid.

The default name for this server configuration is:

DanglingObjectAVCleanupAgentConfiguration

Table E–7 lists the properties for the Dangling Object AV Cleanup Agent.

Table E–7 Dangling Object AV Cleanup Agent Configuration Properties

Property	Description and Usage Notes	Default
<code>IFS.SERVICE.AGENTS.DANGLINGOBJECTAVCLEANUPAGENT.ExcludedAttributeList</code>	A list of attributes for which invalid references to LibraryObjects are not cleaned up. Do not delete the default values, so the Garbage Collection Agent can handle deleted users correctly. Add additional attributes as needed.	AUDITENTRY PUBLICOBJECT:OWNER PUBLICOBJECT:DELETOR PUBLICOBJECT:CREATOR PUBLICOBJECT:LASTMODIFIER VERSIONSERIES:RESERVOR

Event Exchanger Agent

The Event Exchanger Agent periodically purges expired events from the event queue.

The default name for this server configuration is:

`EventExchangerAgentConfiguration`

[Table E–8](#) lists the properties for the Event Exchanger Agent.

Table E–8 Event Exchanger Agent Configuration Properties

Property	Description and Usage Note	Default
<code>IFS.SERVICE.EventLifespan</code>	The time, in seconds, after which an event is assumed to have been delivered and become eligible for purging.	1800

Event Handler Agent

The Event Handler Agent provides the ability for customers to write custom code in response to audit events. Classes implementing the `oracle.ifs.fdk.EventHandler` are run using this agent.

Note: The Event Handler Agent was added in the Oracle Collaboration Suite Cumulative Patchset 10.1.2.3. If you are using a previous version or patchset of Oracle Collaboration Suite, this feature is not available.

The default name for this server configuration is:

`EventHandlerAgentConfiguration`

Expiration Agent

All public objects have an attribute called `ExpirationDate`. When this date passes, the public objects are automatically deleted. This is handled by the Expiration Agent, which periodically deletes expired objects. If the expiration date of a public object passes, the agent deletes the public object. Like many agents, this agent runs at a specific time that is specified in the `IFS.SERVICE.TIMER.InitialTimeOfDay` and `IFS.SERVICE.TIMER.ActivationPeriod` properties.

The default name for this server configuration is:

`ExpirationAgentConfiguration`

Folder Index Agent

The Folder Index Agent handles additional folder index functions not covered by the Folder Index Analyzer Agent. See the following section for more information about the Folder Index Analyzer Agent.

The default name for this server configuration is:

FolderIndexAgentConfiguration

[Table E–9](#) lists the properties for the Folder Index Agent.

Table E–9 Folder Index Agent Configuration Properties

Property	Description and Usage Notes	Default
IFS.SERVER.AGENTS.FOLDERINDEXAGENT.MaxDeferredUpdates	The maximum number of deferred updates processed in a single iteration of this agent.	5000

Folder Index Analyzer Agent

Oracle Content Services uses an internal mechanism called the folder index to speed up folder-restricted queries. This index is modified every time the folder hierarchy gets changed, to reflect the up-to-date folder hierarchy. However, certain forms of file links may leave the folder index in a less than optimal state. The Folder Index Analyzer Agent runs periodically to detect and correct these states, and returns the folder index to an optimal state.

The default name for this server configuration is:

FolderIndexAnalyzerAgentConfiguration

[Table E–10](#) lists the properties for the Folder Index Analyzer Agent. Never modify these values.

Table E–10 Folder Index Analyzer Agent Configuration Properties

Property	Description and Usage Notes	Default
IFS.SERVER.AGENTS.FOLDERINDEXANALYZERAGENT.MaxParentsThreshold	The threshold for the maximum number of parents after which the folder index is considered less than optimal. This condition is ANDed with the MaxChildrenThreshold.	10
IFS.SERVER.AGENTS.FOLDERINDEXANALYZERAGENT.MaxChildrenThreshold	The threshold for the maximum number of children after which the folder index is considered less than optimal. This condition is ANDed with the MaxParentsThreshold.	10

FTP Server

The Oracle Content Services **FTP** server lets users transfer files between one file system and the Oracle Content Services repository. FTP is particularly useful for bulk transfers.

The FTP server is disabled, by default, after Oracle Content Services is installed and configured. See ["Enabling FTP"](#) on page 4-3 for information about enabling the FTP protocol.

The default name for this server configuration is:

FtpServerConfiguration

[Table E–11](#) lists the properties for the FTP server.

Table E–11 FTP Server Configuration Properties

Property	Description and Usage Notes	Default
IFS.SERVER.PROTOCOL.FTP.AcceptQueueSize	The number of server requests backlogged before denying requests. Do not change.	50
IFS.SERVER.PROTOCOL.FTP.AnonymousAllowed	If set to true, allows anonymous connections.	false
IFS.SERVER.PROTOCOL.FTP.BannerText	The string displayed when the FTP client is started. The FTP Banner only supports ASCII characters, because not all FTP clients can display non-ASCII text.	Oracle Content Services FTP Server ready. Access to this system is limited to authorized users for company business purposes only. Unauthorized access to or use of this system is prohibited and may subject you to civil and criminal prosecution. Use of this system may be monitored for the purpose of maintaining system security, and system information may be accessed or disclosed under limited circumstances.
IFS.SERVER.PROTOCOL.FTP.CommandCharacterSetIsUserCharacterSet	If set to true, character set is the same as the Default Character Set specified by the user in Globalization Preferences. If set to false, character set is the same as specified in IFS.SERVER.PROTOCOL.FTP.DefaultCommandCharacterSet. If no character set is found, character set is the same as specified in the session default for the user specified in IFS.SERVER.SESSION.User.	true
IFS.SERVER.PROTOCOL.FTP.DateFormat	Specifies the default date format.	MMM dd HH:mm
IFS.SERVER.PROTOCOL.FTP.DefaultCommandCharacterSet	Default FTP protocol command character set.	ISO-8859-1
IFS.SERVER.PROTOCOL.FTP.Localhost	Optionally, specify the host name if the host has multiple homes in the network.	Default_Hostname
IFS.SERVER.PROTOCOL.FTP.MaximumConnections	The maximum number of connections for this FTP server.	100
IFS.SERVER.PROTOCOL.FTP.Port	The port on which the server is running.	21 If port 21 is already in use, 2100 is used.
IFS.SERVER.PROTOCOL.FTP.TimeoutPeriod	Amount of time between activity before the connection times out; default is 900 seconds or 15 minutes. Unit of measure is milliseconds.	900000

FTP Server - Explicit

The Oracle Content Services FTPS servers provide support for FTP over SSL. Explicit FTPS secures the connection when the client issues an AUTH command. An Explicit FTPS connection starts out as a regular FTP connection; the connection becomes secure only after the client issues an AUTH command.

The FTPS servers are disabled, by default, after Oracle Content Services is installed and configured. See ["Enabling FTPS"](#) on page 4-4 for information about enabling the FTPS protocol.

The Explicit FTPS server contains many of the same properties as the FTP Server. [Table E–12](#) only lists those properties that are specific to Explicit FTPS, and those properties that have different default values. See [Table E–11](#) for information about the other properties.

The default name for this server configuration is:

FtpsServerExplicitConfiguration

Table E–12 Explicit FTPS Server Configuration Properties

Property	Description and Usage Notes	Default
IFS.SERVER.PROTOCOL.FTP.Port	The port on which the server is running.	21
IFS.SERVER.PROTOCOL.FTPS.SECURITY.IMPLICIT	Determines whether this FTPS server accepts Implicit FTPS or Explicit FTPS clients.	Set to false by default in the FtpsServerExplicit Configuration.
IFS.SERVER.PROTOCOL.FTPS.WALLET.Location	Location of the Wallet file.	/scripts/cwallet.sso

FTP Server - Implicit

The Oracle Content Services FTPS servers provide support for FTP over SSL. Implicit FTPS secures the channel on connection.

The FTPS servers are disabled, by default, after Oracle Content Services is installed and configured. See ["Enabling FTPS"](#) on page 4-4 for information about enabling the FTPS protocol.

The Implicit FTPS server contains many of the same properties as the FTP Server. [Table E–13](#) only lists those properties that are specific to Implicit FTPS, along with those properties that have different default values. See [Table E–11](#) for information about the other properties.

The default name for this server configuration is:

FtpsServerImplicitConfiguration

Table E–13 Implicit FTPS Server Configuration Properties

Property	Description and Usage Notes	Default
IFS.SERVER.PROTOCOL.FTP.Port	The port on which the server is running.	990
IFS.SERVER.PROTOCOL.FTPS.SECURITY.IMPLICIT	Determines whether this FTPS server accepts Implicit FTPS or Explicit FTPS clients.	Set to true by default in the FtpsServerImplicit Configuration.
IFS.SERVER.PROTOCOL.FTPS.WALLET.Location	Location of the wallet file.	/scripts/cwallet.sso

Garbage Collection Agent

The Garbage Collection Agent fixes invalid public object owners, creators, and modifiers. For example, a document is created and modified by jsmith. The creator, owner, and last modifier attribute of document are set to the object ID of jsmith. If jsmith is deleted, then the attribute value becomes invalid. The agent replaces these invalid attribute values with the ID of the replacement owner, creator, or modifier specified in the server configuration properties.

The default name for this server configuration is:

GarbageCollectionAgentConfiguration

[Table E–14](#) lists the properties for the Garbage Collection Agent.

Table E–14 Garbage Collection Agent Configuration Properties

Property	Description and Usage Notes	Default
IFS.SERVER.AGENT.GARBAGECOLLECTIONAGENT.ReplacementOwner	User to be replaced as owner. Modify as needed.	system
IFS.SERVER.AGENT.GARBAGECOLLECTIONAGENT.ReplacementCreator	User to be replaced as creator. Modify as needed.	system
IFS.SERVER.AGENT.GARBAGECOLLECTIONAGENT.ReplacementModifier	User to be replaced as modifier. Modify as needed.	system

HTTP Server

The HTTP server lets users access the Oracle Content Services Web client. It also contains properties for [WebDAV](#) access.

The default name of this server configuration is:

EcmHttpServerConfiguration

[Table E–15](#) lists the properties for the HTTP server.

Table E–15 HTTP Server Configuration Properties

Property	Description and Usage Notes	Default
IFS.SERVER.PROTOCOL.DAV.Browse.Enabled	If set to true, WebDAV will return a directory listing when a user tries to GET a folder through the WebDAV servlet. If set to false, the user is redirected to the Web interface.	true
IFS.SERVER.PROTOCOL.DAV.DigestNonceTimeout	Nonce refers to the challenge used by WebDAV in digest authentication. After using a nonce to authenticate, the client can continue accessing the server until the timeout period is reached, at which point the server sends another challenge and the client must authenticate again. Unit of measure is minutes.	10
IFS.SERVER.PROTOCOL.DAV.Lock.Timeout.Min	The minimum timeout value, in seconds, that a client can request when acquiring a lock. This value prevents clients from asking for short timeouts, then refreshing frequently, which increases server load.	601
IFS.SERVER.PROTOCOL.DAV.Propfind.Infinity.Enabled	Whether to allow depth-infinity PROPFIND requests on collections, which can be extremely resource-intensive.	true
IFS.SERVER.PROTOCOL.DAV.Propfind.Infinity.MaxResponses	The maximum number of results to collect for a depth-infinity PROPFIND on a collection before rejecting the request. This limit only applies to depth-infinity PROPFIND requests; depth-one requests are not affected. Set to -1 to collect unlimited results. This property is ignored if IFS.SERVER.PROTOCOL.DAV.Propfind.Infinity.Enabled is set to false.	1001
IFS.SERVER.PROTOCOL.DAV>Welcome	The array of welcome document names that are served up if a GET is done on a directory containing one of these documents. Typically used so that index.html will be served automatically when the directory is requested. To disable this feature, set to an empty array.	index.html index.htm

Renaming the Oracle Content Services HTTP Server

Do not change the name of the `EcmHttpServer`. If you change the server name, you will not be able to access Oracle Content Services through the Web application interface.

If you must change the server name, you must also change the name in the `web.xml` configuration file. To change the server name:

1. Rename the server using the Oracle Collaboration Suite Control.
2. Edit `web.xml`, located in the following directory:

```
ORACLE_HOME/j2ee/OC4J_Content/applications/files/files/WEB-INF/
```

Look for the following lines of code, and replace the value for `<param-value>`:

```
<init-param>
  <param-name>IFS.SERVER.PROTOCOL.DAV.IfsServer.Name</param-name>
  <param-value>EcmHttpServer</param-value>
</init-param>
```

3. Save the file.
4. Restart the OC4J instance.

Inbound Queue Listener Agent

The Inbound Queue Listener Agent is a time-based agent that polls all of the inbound queues periodically so that Oracle Content Services can act upon the messages placed on inbound queues. The Inbound Queue Listener Agent can dequeue a message and delegate the work of processing to the message object itself.

The default name for this server configuration is:

```
InboundQueueListenerAgentConfiguration
```

Table E-16 lists the properties for the Inbound Queue Listener Agent.

Table E-16 Inbound Queue Listener Agent Configuration Properties

Property	Description and Usage Notes	Default
IFS.SERVER.AGENT.INBOUNDQUEUELISTENERAGENT.Queues	Holds a list of queues on which the agent will listen.	IFS_IN IFS_BPEL_IN

Lock Expiration Agent

The Lock Expiration Agent is a time-based agent that releases locks that are timed out. The agent needs to be running at all times for the automatic expiration function of the lock to work.

The default name for this server configuration is:

```
LockExpirationAgentConfiguration
```

Most Recent Doc Agent

The Most Recent Doc Agent is an event-based agent that reacts to documents that have been uploaded or accessed by each user. The information provided by the agent is used whenever a user accesses My Recent Documents.

The default name for this server configuration is:

MostRecentDocAgentConfiguration

Table E-17 lists the properties for the Most Recent Doc Agent.

Table E-17 Most Recent Doc Agent Configuration Properties

Property	Description and Usage Notes	Default
ECM.AGENT.MOSTRECENTDOAGENT.EventBatchSize	The maximum number of events processed in a single iteration of this agent.	5000

Oracle Internet Directory Credential Manager Agent

The Oracle Internet Directory Credential Manager Agent is a time-based agent that polls for changes to Oracle Internet Directory users. If a user has been added, modified, or deleted in Oracle Internet Directory, the Oracle Internet Directory Credential Manager Agent provisions the change in Oracle Content Services.

Set the `IFS.SERVER.TIMER.ActivationPeriod` property if you want to change how frequently this agent runs. The default is every 15 minutes.

The default name for this server configuration is:

OidCredentialManagerAgent

Table E-18 lists the properties for the Oracle Internet Directory Credential Manager Agent.

Table E-18 Oracle Internet Directory Credential Manager Agent Configuration Properties

Property	Description and Usage Notes	Default
IFS.SERVER.AGENT.OIDCREDENTIALMANAGERAGENT.MaxEventCount	Number of events to handle at one time.	100
IFS.SERVER.AGENT.OIDCREDENTIALMANAGERAGENT.OidChangeHandler	The fullyqualified classname of the OidChangeHandler implementation.	oracle.ifs.ecm.util.oid.EcmOidChangeHandler

Quota Agent

The Quota Agent is triggered by an event to compute the quota used for Libraries. This agent also checks all active Libraries periodically, according to a specified timer period. The agent updates the storage used by the Library. When the storage used is over the allocated quota, users of the Library will not be able to add any more documents to that Library. Documents in Trash count toward the quota for a Library.

The quota for a Library is calculated based on the content already used. This means that a Library will go over quota when a user of that Library adds the final file that pushes the storage used over the storage limit. When you set the allocated quota for a Library, remember that the last file the user puts in the Library must go over quota before being denied.

Quotas will not be enforced if:

- The Quota Agent has not been started or is not running.
- The quota for a Library has not been enabled.

The default name for this server configuration is:

QuotaAgentConfiguration

Read Document Agent

The Read Document Agent is an event-based agent that reacts to documents read by users, by triggering a custom workflow if one is configured for the document that is read. If no custom workflow is configured for the Read Document operation on the folders where the documents are read, the agent takes no action.

The default name for this server configuration is:

ReadDocumentAgentConfiguration

[Table E-19](#) lists the properties for the Read Document Agent.

Table E-19 Read Document Agent Configuration Properties

Property	Description and Usage Notes	Default
ECM.AGENT.READDOCUMENTAGENT.EventBatchSize	The maximum number of events processed in a single iteration of this agent.	5000

Reassign Quota Agent

The Reassign Quota agent is an event-based agent that adjusts the quota charged for content in the system when content is moved between Libraries, often a time-consuming task.

The default name for this server configuration is:

ReassignQuotaAgentConfiguration

[Table E-20](#) lists the properties for the Reassign Quota Agent.

Table E-20 Reassign Quota Agent Configuration Properties

Property	Description and Usage Notes	Default
ECM.AGENT.REASSIGNQUOTAAGENT.EventBatchSize	The maximum number of events processed in a single iteration of this agent.	5000

Records Management HTTP Server

The records management HTTP server allows users to access the Oracle Records Management Web client.

The default name for this server configuration is:

RmHttpServerConfiguration

Records Management Lifecycle Agent

The Records Management Lifecycle Agent is a time-based agent that processes the cutoff, retention, and disposition instructions on record categories and record folders.

The default name for this server configuration is:

RmLifeCycleAgentConfiguration

Refresh Security Agent

The Refresh Security Agent is an event-based agent that reacts to changes in grants applied at the Site or Container level, and modifies the security applied lower in the folder hierarchy accordingly, if necessary.

The default name for this server configuration is:

RefreshSecurityAgentConfiguration

Table E–21 lists the properties for the Refresh Security Agent.

Table E–21 Refresh Security Agent Configuration Properties

Property	Description and Usage Notes	Default
ECM.AGENT.REFRESHSECURITYAGENT.EventBatchSize	The maximum number of events processed in a single iteration of this agent.	5000

Secure Enterprise Search Group Agent

This agent is not used. Do not activate this agent.

Note: The Secure Enterprise Search Group Agent was added in the Oracle Collaboration Suite Cumulative Patchset 10.1.2.3. If you are using a previous version or patchset of Oracle Collaboration Suite, this agent does not exist.

Service Warmup Agent

When a node is started, the Service Warmup Agent automatically preloads the data cache of the service. All properties for this agent are required. Unlike most other agents, this agent is configured to run separately on each node.

The default name for this server configuration is:

ServiceWarmupAgentConfiguration

Table E–22 lists the properties for the Service Warmup Agent.

Table E–22 Service Warmup Agent Configuration Properties

Property	Description and Usage Notes	Default
IFS.SERVER.AGENT.SERVICEWARMUP.WarmupAcls	If set to true, preloads ACL collection.	false
IFS.SERVER.AGENT.SERVICEWARMUP.WarmupFormats	If set to true, preloads format collection.	true
IFS.SERVER.AGENT.SERVICEWARMUP.WarmupMedias	If set to true, preloads Media collection.	true
IFS.SERVER.AGENT.SERVICEWARMUP.WarmupSetAdmin	Whether the preloading is done in administration mode.	true
IFS.SERVER.AGENT.SERVICEWARMUP.WarmupUsers	If set to true, preloads user collection.	false

Service Watchdog Agent

The Service Watchdog Agent cleans up after Oracle Content Services services that do not shut down cleanly.

The default name for this server configuration is:

ServiceWatchdogAgentConfiguration

Table E–23 lists the properties for the Service Watchdog Agent.

Table E–23 Service Watchdog Agent Configuration Properties

Property	Description and Usage Notes	Default
IFS.SERVER.AGENT.SERVICEWATCHDOGAGENT.ServiceTimeoutPeriod	The number of seconds after which a service is considered inactive. When a service becomes inactive, it is eligible for cleanup by the Service Watchdog Agent.	120

Statistics Agent

The Statistics agent is a time-based agent that gathers statistics pertaining to service activity on the node where the agent is running. Unlike most other agents, this agent is configured to run separately on each node, so that statistics are gathered independently for each node. The properties of the agent determine whether the statistics are logged, and whether they are written to a document stored in the Oracle Content Services repository.

The default name for this server configuration is:

StatisticsAgentConfiguration

[Table E–24](#) lists the properties for the Statistics Agent.

Table E–24 Statistics Agent Configuration Properties

Property	Description and Usage Notes	Default
ECM.AGENT.STATISTICSAGENT.CreateStatisticsDocument	Specifies whether an HTML document should be created, whose content is the currently gathered statistics. The name for this file is automatically generated and appears as <i>node_name_log.html</i> .	false
ECM.AGENT.STATISTICSAGENT.LogStatistics	If set to true, the currently gathered statistics are sent to the node or application log.	true
ECM.AGENT.STATISTICSAGENT.StatisticsFolderPath	<p>The path within the Oracle Content Services folder hierarchy where the statistics document should be created. The path must refer to a Library or a folder within a Library. Do not include a file name as part of this path; the statistics document file name is autogenerated.</p> <p>If the folder where the statistics file resides does not have a versioning policy set on it, the file will be overwritten every time the agent logs statistics. You should set the folder versioning policy to Auto Versioning or Manual Versioning so that a new version is generated each time the agent logs statistics.</p> <p>When you set the versioning policy, be sure to set the Maximum number of versions to keep to a high number to ensure that statistics are kept for an adequate time period. For example, if you keep the activation period for this agent at 15 minutes (the default), you would need 96 versions in order to retain statistics for a 24-hour period.</p>	Not applicable

Version Purge Agent

The Version Purge agent is an event-based agent that purges versioned documents that have exceeded the version limit specified by the Versioning Configuration in effect for the documents. The purged versions are moved to the associated Trash folder.

The default name for this server configuration is:

VersionPurgeAgentConfiguration

Table E–25 lists the properties for the Version Purge Agent.

Table E–25 Version Purge Agent Configuration Properties

Property	Description and Usage Notes	Default
ECM.AGENT.VERSIONPURGEAGENT.EventBatchSize	The maximum number of events processed in a single iteration of this agent.	5000

Virus Repair Agent

The Virus Repair Agent is responsible for repairing files that have been infected with a virus, and for retrieving the latest virus definitions. Whenever the agent becomes active, it will poll the SAVSE server for updated virus definitions, and then attempt to repair the quarantined files. The agent will not try to repair the following files:

- Files that have exceeded the maximum number of repair attempts
- Files that have already experienced repair attempts using the current virus definitions

The default name for this server configuration is:

VirusRepairAgentConfiguration

FTP Quote Command Reference

This appendix provides information about using the FTP quote commands.

This appendix provides information about the following topics:

- [SETCHARACTERSET](#)
- [SETCOMMANDCHARACTERSET](#)
- [SETLANGUAGE](#)
- [SHOWCHARACTERSET](#)
- [SHOWLANGUAGE](#)

SETCHARACTERSET

This command was called SETCHARENCODING in previous releases of Oracle Content Services. Sets the character encoding to an IANA character set name for the session when loading documents. Use when loading documents that are different than the default system character encoding setting. The character encoding setting is important for content-based indexing, used for content searches. For more information about character encodings, see *Oracle Database Globalization Support Guide*.

Syntax	Example
<code>quote setcharacterset [character set]</code>	<code>quote setcharacterset UTF-8</code>

Valid character encodings include:

BIG5	ISO-2022-JP	KOI8-R	WINDOWS-1251
BIG5-HKSCS	ISO-2022-KR	KS_C_5601-1987	WINDOWS-1252
EUC-JP	ISO-8859-1	SHIFT_JIS	WINDOWS-1253
EUC-TW	ISO-8859-2	TIS-620	WINDOWS-1254
GB2312	ISO-8859-3	UTF-8	WINDOWS-1255
GB18030	ISO-8859-4	UTF-16BE	WINDOWS-1256
IBM850	ISO-8859-5	UTF-16LE	WINDOWS-1257
IBM852	ISO-8859-6	WINDOWS-936	WINDOWS-1258
IBM857	ISO-8859-7	WINDOWS-949	
IBM866	ISO-8859-8	WINDOWS-950	

SETCOMMANDCHARACTERSET

Sets the command character set for the FTP session. This character set specifies the character encoding to be used in subsequent FTP commands. The FTP protocol server converts FTP commands from this character encoding to Java String and vice versa. When the FTP session is first created, the FTP server uses the default character set of the session. The IANA naming standards should be used to specify the character set. See "[SETCHARACTERSET](#)" on page F-1 for a list of valid character encodings.

Syntax	Example
quote setcommandcharacter set [character set]	quote setcommandcharacter set UTF-8

SETLANGUAGE

Sets the language for the session when loading documents. Should be used when loading documents that are different than the default system language. The language setting is important for content-based indexing, used for content searches. For more information on language setting, see *Oracle Database Globalization Support Guide*.

Syntax	Example
quote setlanguage [language]	quote setlanguage French quote setlanguage "Latin American Spanish"

The list of valid languages is given in the following table. For languages that are longer than one word, the language needs to be enclosed in quotes as shown in the preceding example.

American	Egyptian	Japanese	Russian
Arabic	English	Korean	Simplified Chinese
Bengali	Estonian	Latin American Spanish	Slovak
Brazilian Portuguese	Finnish	Latvian	Slovenian
Bulgarian	French	Lithuanian	Spanish
Canadian French	German	Malay	Swedish
Catalan	Greek	Mexican Spanish	Thai
Croatian	Hebrew	Norwegian	Traditional Chinese
Czech	Hungarian	Polish	Turkish
Danish	Indonesian	Portuguese	Ukrainian
Dutch	Italian	Romanian	Vietnamese

SHOWCHARACTERSET

This command was called SHOWCHARENCODING in previous releases of Oracle Content Services. Displays the both the current command character set and the current document character set of the FTP session.

Syntax	Example
<code>quote showcharacterset</code>	<code>quote showcharacterset</code>

SHOWLANGUAGE

Displays the current language setting for the session.

Syntax	Example
<code>quote showlanguage</code>	<code>quote showlanguage</code>

Oracle Content Services Globalization Support

Oracle Content Services globalization support lets users store and search documents of heterogeneous character sets and languages in a single Oracle Content Services instance. The globalization infrastructure ensures that the resource strings, error messages, sort order, date, time, numeric, and calendar conventions adapt automatically to any native language and locale.

Globalization support is provided in the Oracle Content Services repository so that the other dependent processes, such as the protocol servers, can share and use this support. The major globalization goal for the repository is to ensure efficient storage of documents of heterogeneous character sets and languages, and to allow effective update, retrieval, and search operations on these documents.

This appendix provides information about the following topics:

- [How to Choose the Database Character Set for Oracle Content Services](#)
- [How to Ensure Documents Are Properly Indexed in Oracle Content Services](#)
- [Globalization and the Oracle Content Services Protocols](#)
- [Character Sets Supported in Oracle Content Services](#)
- [Document Languages Supported in Oracle Content Services](#)

How to Choose the Database Character Set for Oracle Content Services

In the repository, all metadata strings, such as the name of the document or the description, are stored in the VARCHAR2 data type of Oracle Database. Strings stored in this data type are encoded in the database character set specified when a database is created. The document itself, however, is unstructured data and stored in one of the large object data types of Oracle Database, particularly the BLOB data type. The BLOB data type stores content as is, avoiding any character set conversion on document content. The LONG and CLOB data types store content in the database character set, which requires character set conversion. Conversions can compromise the data integrity and have the potential to convert incorrectly or lose characters.

The full-text search index built on the document content is encoded in the database character set. When the content of a document is indexed, the BLOB data is converted from the character set of the content to the database character set for creation of the index text tokens. If the character set of the content is not a subset of the database character set, then the conversion will yield garbage tokens. For example, a database character set of ISO-8859-1 (Western European languages) will not be able to index correctly a Shift-JIS (Japanese) document. To be able to search content effectively, the

character set of the documents stored by the users must be considered when selecting the database character set.

If your Oracle Content Services instance will contain multilingual documents, AL32UTF-8 is the recommended database character set. AL32UTF-8 supports characters defined in the Unicode standard. The Unicode standard solves the problem of many different languages in the same application or database. Unicode is a single, global character set that contains all major living scripts and conforms to international standards. Unicode provides a unique code value for every character, regardless of the platform, program, or language. AL32UTF-8 is the 8-bit encoding of Unicode. It is a variable-width encoding and a strict superset of ASCII. One Unicode character can be 1 byte, 2 bytes, 3 bytes, or 4 bytes in AL32UTF-8 encoding. Characters from the European scripts are represented in either 1 or 2 bytes. Characters from most Asian scripts are represented in 3 bytes. Supplementary characters are represented in 4 bytes. By using a Unicode-based file system, document content and metadata of different languages can be shared by users with different language preferences in one system.

How to Ensure Documents Are Properly Indexed in Oracle Content Services

To support documents in different character sets and languages in a single file system, the repository associates two globalization attributes with each document. They are the character set and language attributes.

Character Set

The character set of a document is used in several situations. When the document content is rendered to a file, the character set of the document is used as the character encoding of the file. When the document is displayed in the browser, the character set of the document is set in the HTTP content-type header. Finally, when a full-text search is built on a text document, Oracle Text uses the character set of the document to convert the data into the database character set before building the index. When a character set is updated, the content is reindexed.

If no character set is specified when a document is inserted, the repository determines a default character set by using the character set of the user's `LibrarySession` stored in the `Localizer` object. This is obtained from the `PrimaryUserProfile` information of the user when the `LibrarySession` of the user is initialized.

Language

The language of a document is used as a criterion to limit the search for documents of a particular language. It is also used to build a full-text search index on the document with Oracle Text. The multilexer feature of Oracle Text uses the language to identify the specific lexer to parse the document for searchable words. The language-specific lexers need to be defined and associated with a language before the index is built.

[Table G-1](#) describes the language-specific lexers.

Table G–1 Language-Specific Lexers

Language	Lexer	Lexer Option
Brazilian Portuguese	BASIC_LEXER	BASE LETTER
Canadian French	BASIC_LEXER	BASE LETTER INDEX THEME
Danish	BASIC_LEXER	BASE LETTER DANISH ALTERNATE SPELLING
Dutch	BASIC_LEXER	BASE LETTER
Finnish	BASIC_LEXER	BASE LETTER
French	BASIC_LEXER	BASE LETTER INDEX THEME THEME LANGUAGE=FRENCH
German	BASIC_LEXER	BASE LETTER GERMAN ALTERNATE SPELLING
Italian	BASIC_LEXER	BASE LETTER
Japanese	JAPANESE_VGRAM_LEXER	Not applicable
Korean	KOREAN_LEXER	Not applicable
Latin American	BASIC_LEXER	BASE LETTER
Spanish Portuguese	BASIC_LEXER	BASE LETTER
Simplified Chinese	CHINES_VGRAM_LEXER	Not applicable
Swedish	BASIC_LEXER	BASE LETTER SWEDISH ALTERNATE SPELLING
Tradition Chinese	CHINESE_VGRAM_LEXER	Not applicable
Others	BASIC_LEXER	INDEX THEME THEME LANGUAGE=ENGLISH INDEX TEXT

The BASIC_LEXER is used for single-byte languages using white space as a word separator. Asian language lexers cannot use white space as word separators. Instead, they use a V-gram algorithm to parse the documents for searchable keys. Languages that are not supported by Oracle Text are parsed as English. Oracle Content Services uses the multilexer feature of Oracle Text. It is a global lexer that contains German, Danish, Swedish, Japanese, Simplified Chinese, Traditional Chinese, and Korean sublexers.

If no language is specified when a document is inserted, the repository determines a default language as follows:

1. If the character set has been set, the language can most likely be obtained from a best-guess algorithm based on the character set value. For example, a document with a character set of Shift-JIS will most likely be in Japanese.
2. The default language is obtained from the Localizer of the user's LibrarySession. During initialization of the LibrarySession, the default language is obtained from the PrimaryUserProfile of the user.
3. The default language and default character set are specified when a new user is created in Oracle Internet Directory.

Oracle Content Services identifies languages using Oracle Globalization Support language abbreviations. See ["Document Languages Supported in Oracle Content Services"](#) on page G-7 for a list of Oracle Content Services-supported languages.

Globalization and the Oracle Content Services Protocols

Some protocols do not support multibyte user names. Access through WebDAV and HTTP is not available for user names that contain multibyte characters. FTP allows multibyte user names. In addition, some protocols require that user passwords be in ASCII format.

For FTP, you can use a protocol command character set that is different from the default document character set. A *protocol command character set* is the character set you use to enter commands in FTP or other protocols.

FTP

Oracle Content Services provides the following server configuration properties to specify the default FTP command character set:

- `IFS.SERVER.PROTOCOL.FTP.DefaultCommandCharacterSet`
- `IFS.SERVER.PROTOCOL.FTP.CommandCharacterSetIsUserCharacterSet`

The following precedence model determines a session's FTP command character encoding:

1. Explicitly specified (using `quote setcommandcharacter set`).
2. If `IFS.SERVER.PROTOCOL.FTP.CommandCharacterSetIsUserCharacterSet` is true, then use the default character set specified in the user's Oracle Internet Directory profile.
3. If `IFS.SERVER.PROTOCOL.FTP.CommandCharacterSetIsUserCharacterSet` is false, then use the value of `IFS.SERVER.PROTOCOL.FTP.DefaultCommandCharacterSet`.
4. If no character set is found, then use the value of the session default for the user specified in `IFS.SERVER.SESSION.User`.

The standard FTP protocol does not define the character set of the file names or directory names that are usually passed as arguments of FTP commands. The FTP server is responsible for interpreting the byte sequence of the FTP commands. To allow users to access documents of different character sets and languages, and to allow users to set and view the protocol command character set, the Oracle Content Services FTP server provides the following QUOTE commands:

- **Ftp> quote setcommandcharacter set:** Lets users specify the command character set for the FTP session. This character set specifies the character encoding to be used in subsequent FTP commands. The FTP protocol server converts FTP commands from this character encoding to Java String and the reverse. When the FTP session is first created, the FTP server uses the default character set of the session. Use the IANA naming standards to specify the character set.
- **Ftp> quote setcharacter set:** Lets users specify the character set of the documents to be uploaded. Called `setcharencoding` in previous releases of Oracle Content Services. Use the IANA naming standards to specify the character set.

- **Ftp> quote showcharacterset:** Displays both the current command character set and the current document character set of the FTP session. Called `showcharencoding` in previous releases of Oracle Content Services. The character set is displayed in the IANA naming standards.
- **Ftp> quote setlanguage:** Lets users specify the language for the FTP session. The language of an FTP session is then associated with the documents that are uploaded. Oracle Text uses the language information to determine the appropriate lexer to use to index the document. When the FTP session is first created, the FTP server uses the default language of the session. Use Oracle language names.
- **Ftp> quote showlanguage:** Displays the current language of the FTP session. The language is displayed with the Oracle naming standard.

When a quote command is issued to change the character set or language of the FTP session, the FTP server updates the settings in the Localizer object of the current LibrarySession. Subsequently, because quote commands cannot be issued until an FTP session is established, only user names in the character set or subset of the FTP server's default character set can be used to log in to the FTP server. See [Appendix F, "FTP Quote Command Reference"](#) for more information about quote commands.

Users can specify the character sets and languages of their environments using standard command-line FTP clients. Browser-based FTP clients, such as Internet Explorer or Netscape, do not allow quote commands to be used. FtpSession defaults will be used.

Character Sets Supported in Oracle Content Services

[Table G-2](#) is a summary of the character sets supported in Oracle Content Services.

Table G-2 Character Sets Supported in Oracle Content Services

Language	IANA Preferred MIME Character Set	IANA Additional Aliases	Java Encodings	Oracle Character Set
Arabic (ISO)	iso-8859-6	ISO_8859-6:1987, iso-ir-127, ISO_8859-6, ECMA-114, ASMO-708, arabic, csISOLatinArabic	ISO8859_6	AR8ISO8859P6
Arabic (Windows)	windows-1256	none	Cp1256	AR8MSWIN1256
Baltic (ISO)	iso-8859-4	csISOLatin4, iso-ir-110, ISO_8859-4, ISO_8859-4:1988, l4, latin4	ISO8859_4	NEE8ISO8859P4
Baltic (Windows)	windows-1257	none	Cp1257	BLT8MSWIN1257
Central European (DOS)	ibm852	cp852, 852, csPcp852	Cp852	EE8PC852
Central European (ISO)	iso-8859-2	csISOLatin2, iso-ir-101, iso8859-2, iso_8859-2, iso_8859-2:1987, l2, latin2	ISO8859_2	EE8ISO8859P2
Central European (Windows)	windows-1250	x-cp1250	Cp1250	EE8MSWIN1250
Chinese	iso-2022-cn It is not defined in IANA, but use in MIME documents.	csISO2022CN	ISO2022CN	ISO2022-CN

Table G-2 (Cont.) Character Sets Supported in Oracle Content Services

Language	IANA Preferred MIME Character Set	IANA Additional Aliases	Java Encodings	Oracle Character Set
Chinese Simplified (GB2312)	gb2312	chinese, csGB2312, csISO58GB231280, GB2312, GB_2312-80, iso-ir-58	EUC_CN	ZHS16CGB231280
Chinese Simplified (GB18030)	GB18030	none	GB18030	ZHS32GB18030
Chinese Simplified (Windows)	GBK	windows-936	GBK	ZHS16GBK
Chinese Traditional	big5	csbig5, x-x-big5	Big5	ZHT16BIG5
Chinese Traditional	windows-950	none	MS950	ZHT16MSWIN950
Chinese Traditional (EUC-TW)	EUC-TW	none	EUC_TW	ZHT32EUC
Chinese Traditional (Big5-HKSCS)	Big5-HKSCS	none	Big5_HKSCS	ZHT16HKSCS
Cyrillic (DOS)	ibm866	cp866, 866, csIBM866	Cp866	RU8PC866
Cyrillic (ISO)	iso-8859-5	csISOLatinCyrillic, cyrillic, iso-ir-144, ISO_8859-5, ISO_8859-5:1988	ISO8859_5	CL8ISO8859P5
Cyrillic (KOI8-R)	koi8-r	csKOI8R, koi	KOI8_R	CL8KOI8R
Cyrillic Alphabet (Windows)	windows-1251	x-cp1251	Cp1251	CL8MSWIN1251
Greek (ISO)	iso-8859-7	csISOLatinGreek, ECMA-118, ELOT_928, greek, greek8, iso-ir-126, ISO_8859-7, ISO_8859-7:1987, csISOLatinGreek	ISO8859_7	EL8ISO8859P7
Greek (Windows)	windows-1253	none	Cp1253	EL8MSWIN1253
Hebrew (ISO)	iso-8859-8	csISOLatinHebrew, hebrew, iso-ir-138, ISO_8859-8, visual, ISO-8859-8 Visual, ISO_8859-8:1988	ISO8859_8	IW8ISO8859P8
Hebrew (Windows)	windows-1255	none	Cp1255	IW8MSWIN1255
Japanese (JIS)	iso-2022-jp	csISO2022JP	ISO2022JP	ISO2022-JP
Japanese (EUC)	euc-jp	csEUCPkdFmtJapanese, Extended_UNIX_Code_Packed_Format_for_Japanese, x-euc, x-euc-jp	EUC_JP	JA16EUC
Japanese (Shift-JIS)	shift_jis	csShiftJIS, csWindows31J, ms_Kanji, shift-jis, x-ms-cp932, x-sjis	MS932	JA16SJIS
Korean	ks_c_5601-1987	csKSC56011987, korean, ks_c_5601, euc-kr, csEUCKR	EUC_KR	KO16KSC5601
Korean (ISO)	iso-2022-kr	csISO2022KR	ISO2022KR	ISO2022-KR

Table G–2 (Cont.) Character Sets Supported in Oracle Content Services

Language	IANA Preferred MIME Character Set	IANA Additional Aliases	Java Encodings	Oracle Character Set
Korean (Windows)	windows-949	none	MS949	KO16MSWIN949
South European (ISO)	iso-8859-3	ISO_8859-3, ISO_8859-3:1988, iso-ir-109, latin3, l3, csISOLatin3	ISO8859_3	SE8ISO8859P3
Thai	TIS-620	windows-874	TIS620	TH8TISASCII
Turkish (Windows)	windows-1254	none	Cp1254	TR8MSWIN1254
Turkish (ISO)	iso-8859-9	latin5, l5, csISOLatin5, ISO_8859-9, iso-ir-148, ISO_8859-9:1989	ISO8859_9	WE8ISO8859P9
Universal (UTF-8)	utf-8	unicode-1-1-utf-8, unicode-2-0-utf-8, x-unicode-2-0-utf-8	UTF8	UTF8
Unicode (UTF-16BE)	UTF-16BE	none	UTF-16BE	AL16UTF16
Unicode (UTF-16LE)	UTF16LE	none	UTF-16LE	AL16UTF16LE
Vietnamese (Windows)	windows-1258	none	Cp1258	VN8MSWIN1258
Western Alphabet	iso-8859-1	cp819, ibm819, iso-ir-100, iso8859-1, iso_8859-1, iso_8859-1:1987, latin1, l1, csISOLatin1	ISO8859_1	WE8ISO8859P1
Western Alphabet (DOS)	ibm850	cp850, 850, csIBM850	Cp850	WE38PC850
Western Alphabet (Windows)	windows-1252	x-ansi	Cp1252	WE8MSWIN1252

Document Languages Supported in Oracle Content Services

[Table G–3](#) is a summary of the document languages supported in Oracle Content Services. Note that the supported document languages are different from the languages supported in the Oracle Content Services application.

Table G–3 Document Languages Supported in Oracle Content Services

Oracle Language Name	Java Locale	ISO Locale
Arabic	ar	ar
Bengali	bn	bn
Brazilian Portuguese	pt_BR	pt-br
Bulgarian	bg	bg
Canadian French	fr_CA	fr-CA
Catalan	ca	ca
Croatian	hr	hr
Czech	cs	cs
Danish	da	da

Table G-3 (Cont.) Document Languages Supported in Oracle Content Services

Oracle Language Name	Java Locale	ISO Locale
Dutch	nl	nl
Egyptian	ar_EG	ar-eg
American	en	en
English	en_GB	en-gb
Estonian	et	et
Finnish	fi	fi
French	fr	fr
German	de	de
Greek	el	el
Hebrew	he	he
Hungarian	hu	hu
Icelandic	is	is
Indonesian	id	in
Italian	it	it
Japanese	ja	ja
Korean	ko	ko
Latin American Spanish	es	es
Latvian	lv	lv
Lithuanian	lt	lv
Malay	ms	ms
Mexican Spanish	es_MX	es-mx
Norwegian	no	no
Polish	pl	pl
Portuguese	pt	pt
Romanian	ro	ro
Russian	ru	ru
Simplified Chinese	zh_CN	zh-cn
Slovak	sk	sk
Slovenian	sl	sl
Spanish	es_ES	es-es
Swedish	sv	sv
Thai	th	th
Traditional Chinese	zh_TW	zh-tw
Turkish	tr	tr
Ukrainian	uk	uk
Vietnamese	vi	vi

Glossary

administrator

One of two types of administrators in Oracle Content Services: [system administrators](#) or [application administrators](#).

Administration Mode

Provides access to Oracle Content Services application administration functions such as allocating quota and assigning roles.

Advanced Queuing (AQ)

Provides an infrastructure for distributed applications to communicate asynchronously using messages. Advanced Queuing is built into Oracle Database and supports sophisticated queuing features, including subscriptions, inter-queue message propagation, message latency, message expiration, structured payloads, and exception queues. Full name: Oracle Streams Advanced Queueing.

agents

Processes that perform operations periodically (time-based) or in response to events generated by other Oracle Content Services servers or processes (event-based). An agent is a type of Oracle Content Services [server](#).

application administrators

Administrators who are responsible for tasks related to a particular [Site](#), such as managing users, quotas, categories, and content. There are a variety of application administration roles, including User Administrator, Category Administrator, Container Administrator, Content Administrator, and Quota Administrator. See *Oracle Content Services Application Administrator's Guide* for more information about application administration roles and tasks.

Applications tier

The tier of Oracle Collaboration Suite that runs the server applications that provide specific functionality to end users. The term Applications tier replaces the term middle tier, which was used in previous releases. Each Applications tier corresponds to an instance of Oracle Application Server. See also [Oracle Collaboration Suite Applications](#).

Archive

Location where items are stored that have been deleted from user or Library trash. Each [Site](#) contains an Archive folder. Depending on how the Site has been configured, items in the Archive may be automatically deleted after a specified period of time.

Files and folders in the Archive can be restored by the Content Administrator of the Site.

BFILE

A read-only Oracle data type consisting of a directory object and a file name. Oracle Content Services provides transparent access to content stored as either a **BLOB** (online storage) or a BFILE (near-line storage). If BFILEs are enabled for your Oracle Content Services **domain**, you can configure content archiving or content aging.

BLOB

A type of large object (**LOB**) provided by the database. All documents in Oracle Content Services are stored as BLOBs. Full name: binary large object.

BPEL

An XML-based markup language for composing a set of discrete Web services into an end-to-end process flow. Full name: Business Process Execution Language. See also [Oracle BPEL Process Manager](#).

Client tier

The tier of Oracle Collaboration Suite that consists of the end-user applications that are on client devices, such as desktops, laptops, wireless phones, and PDAs. See also [Oracle Collaboration Suite Applications](#).

Committed Data Cache

A feature that provides caching of the attribute values of frequently used objects without a database request, greatly improving performance and scalability.

custom workflow

A customized workflow process created in the BPEL Designer (a component of [Oracle BPEL Process Manager](#)). Custom workflows must be registered with Oracle Content Services before they can be used.

domain

A logical grouping of Oracle Content Services **nodes**, and an Oracle Database instance (called the [Oracle Collaboration Suite Database](#)) that contains the Oracle Content Services data.

domain properties

Settings that apply to the entire Oracle Content Services **domain**. For example, the domain property `IFS.DOMAIN.SEARCH.AttemptContextSearchRewrite` determines whether or not Oracle Content Services tries to generate fast-response SQL for text searches.

EMC Centera

A partner solution that provides retention hardware support. You can integrate Oracle Content Services with EMC Centera to provide retention storage for [Oracle Records Management](#).

formats

Attributes that indicate document file type (for example, .doc or .zip). The format of a document determines how its content is indexed. Also known as MIME types.

FTP

One of three [protocols](#) supported by Oracle Content Services, used for file transfers across wide area networks, such as the Internet. [FTPS](#) is also supported. Full name: File Transfer Protocol.

FTPS

[FTP](#) over SSL. FTPS defines a mechanism to implement the FTP Security Extensions based on the TLS protocol. Two types of FTPS are supported by Oracle Content Services:

- Implicit FTPS secures the channel on connection.
- Explicit FTPS (Auth TLS) secures the connection when the client issues an AUTH command. An Explicit FTPS connection starts out as a regular FTP connection; the connection becomes secure only after the client issues an AUTH command.

Do not confuse FTPS with SFTP, a service of the Secure Shell that is not related to FTP.

Group tool

One of the [Oracle Content Services command-line tools](#). Allows you to create and update groups.

HTTP

One of three [protocols](#) supported by Oracle Content Services, used for Web-based access. HTTP has been extended with [WebDAV](#), a protocol designed for wide area networks such as the Internet. Full name: Hypertext Transfer Protocol.

HTTP nodes

One of two types of Oracle Content Services [nodes](#). The Oracle Content Services HTTP node runs as part of an [OC4J](#) process called OC4J_Content. The [Oracle Records Management](#) HTTP node runs as part of an OC4J process called OC4J_RM. Through servlets that are configured to work with OC4J, the HTTP nodes provide the following support:

- The Oracle Content Services HTTP node supports the Oracle Content Services application, portlet, and [WebDAV](#).
- The Oracle Records Management HTTP node supports the Oracle Records Management application and WebDAV.

identity management

The process by which various components in an identity management system manage the security life cycle for network entities in an organization. Most commonly refers to the management of application users in an enterprise organization. See also [Oracle Identity Management](#).

Infrastructure tier

The tier of Oracle Collaboration Suite that consists of the components that provide services, such as identity management and metadata storage, for the [Applications tier](#). Components of the Infrastructure tier include [Oracle Collaboration Suite Database](#) and [Oracle Identity Management](#). See also [Oracle Collaboration Suite Infrastructure](#).

Libraries

Configurable folders for storing and sharing content with an allocated quota. Libraries were known as Workspaces in previous releases.

Library tool

One of the [Oracle Content Services command-line tools](#). Lets you create or update Libraries.

LDAP

An Internet protocol that applications use to look up contact information from a server, such as a central directory. LDAP servers index all the data in their entries, and filters can be used to select just the person or group you want, and return just the information you want. Full name: Lightweight Directory Access Protocol.

LOB

The majority of data stored in Oracle Content Services is stored as LOBs in database tablespaces. Full name: large object.

loggers

Functional areas with configurable logging levels for each [node](#). For example, you can specify a more detailed level of logging for a particular protocol server or agent logger in which you are interested.

Network Appliance SnapLock

A partner solution that provides retention hardware support. You can integrate Oracle Content Services with Network Appliance SnapLock to provide retention storage for Oracle Records Management.

nodes

The application software that comprises the product, along with the underlying Java Virtual Machine (JVM) required to support the software at runtime. There are two types of nodes: [regular nodes](#), and [HTTP nodes](#). Each node is based on a particular [node configuration](#).

node configuration

A configuration object that specifies the run-time behavior of a particular [node](#). Each node has its own corresponding node configuration. If you want to make permanent changes to a node, such as changing [servers](#) or [services](#), modify the node configuration for the node. If you want to make temporary (run-time) changes to a node, modify the node itself. Changes made at run time are lost when the node is restarted. You cannot create a node directly; instead, you must first create an active node configuration, and then a corresponding node will be created automatically.

node manager

The actual process that gets started when a [node](#) is started. It is responsible for starting the default [service](#) and [servers](#) for a node. It also provides an administrative API for the node that lets you to find information about node log levels, locale information, available free memory, and the Oracle home of the node.

OC4J

A complete set of J2EE containers written entirely in Java that run on the Java Virtual Machine (JVM) of the standard Java Development Kit (JDK). OC4J supplies the following J2EE containers: a servlet container that complies with the servlet 2.3 specification, and a JSP container that complies with the Sun JSP 1.2 specification. Full name: Oracle Application Server Containers for J2EE.

OmniPortlet

A declarative portlet-building tool that lets you build portlets against a variety of data sources, including XML files, comma-delimited value files (for example, spreadsheets), Web Services, databases, Web pages, and SAP data sources. OmniPortlet users can also choose a prebuilt layout for the data. Prebuilt layouts include tabular, news, bullet, form, or chart. You can use the OmniPortlet to build a custom Oracle Content Services portlet. Full name: OracleAS [Portal](#) OmniPortlet.

OPMN

Manages all the components within an application server instance, including [Oracle HTTP Server](#), [OC4J](#) processes, and OracleAS [Web Cache](#). It channels all events from different components to all components interested in receiving them. Use OPMN to manage Oracle Content Services processes like [HTTP nodes](#) and [regular nodes](#). Full name: Oracle Process Manager and Notification Server.

OracleAS Infrastructure

An application server installation type that provides centralized product metadata and security services, configuration information, and data repositories for Oracle Application Server middle tiers and Oracle Collaboration Suite Applications tiers. Oracle Collaboration Suite Applications tiers use the OracleAS Infrastructure for three main services: Product Metadata Service, [Oracle Identity Management](#) Services, and the Management Service. The OracleAS Infrastructure is part of the [Oracle Collaboration Suite Infrastructure](#). Full name: Oracle Application Server Infrastructure.

Oracle BPEL Process Manager

A component of Oracle Application Server. It includes the BPEL Server, the BPEL Console, the BPEL Worklist application for human-centric workflows, and the BPEL Designer. You can use the BPEL Designer, an Oracle JDeveloper-based design tool, to graphically create custom workflows for use in Oracle Content Services. See also [BPEL](#).

Oracle Collaboration Suite

An integrated suite of software applications to enable communication, messaging, and content sharing in an enterprise environment. At an architectural level, it includes three tiers: an [Applications tier](#), which consists of server applications that provide the basic functionality, a [Client tier](#), which consists of applications on desktops, laptops, and wireless devices, and an [Infrastructure tier](#), which provides centralized services, such as identity management and metadata storage, for the applications.

Oracle Collaboration Suite Applications

The applications that make up Oracle Collaboration Suite, namely:

- Oracle Calendar
- Oracle Collaboration Suite Search
- Oracle Content Services
- Oracle Discussions
- Oracle Mail
- Oracle Mobile Collaboration
- Oracle Real-Time Collaboration
- Oracle Voicemail & Fax

- Oracle Workspaces

Each of the preceding applications is a component of Oracle Collaboration Suite Applications. These applications rely on the services provided by the [Infrastructure tier](#). See also [Applications tier](#).

Oracle Collaboration Suite Control

A Web-based management interface used to manage Oracle Collaboration Suite [Applications tier](#) hosts. Oracle Content Services system administrators can use the Oracle Collaboration Suite Control to operate and monitor system processes associated with the Oracle Content Services [domain](#) and [nodes](#). Full name: Oracle Enterprise Manager 10g Application Server Control for Collaboration Suite.

Oracle Collaboration Suite Database

The default database included with Oracle Collaboration Suite to hold application data and metadata. The Oracle Collaboration Suite Database is part of the [Oracle Collaboration Suite Infrastructure](#).

Oracle Collaboration Suite Infrastructure

The underlying components that support Oracle Collaboration Suite and provide centralized product metadata and security services, configuration information, and data repositories for [Oracle Collaboration Suite Applications](#). Oracle Collaboration Suite Infrastructure uses and builds on OracleAS Infrastructure. It includes the [Oracle Collaboration Suite Database](#) and [Oracle Identity Management](#). See also [Infrastructure tier](#).

Oracle Content Management SDK

A robust development platform for content management applications that was used to build Oracle Content Services. Oracle CM SDK provides a set of Java APIs that expose file system functionality such as file storage and searching, as well as document delete, move, and rename operations. The APIs also provide content management features unique to Oracle CM SDK, such as document versioning, controlling access to documents, and advanced queuing to facilitate communication between applications.

Oracle Content Services command-line tools

Administrative tools that can be used to manage groups and Libraries in Oracle Content Services. There are two tools: the [Group tool](#) and the [Library tool](#). Each tool reads an XML file containing a list of actions, processes the list, and performs the actions. Previously known as the Bulk Tools. See "Oracle Content Services Command-line Tools" in Chapter 9 of *Oracle Collaboration Suite Migration and Coexistence Guide* for information about how to use these tools.

Oracle Drive

The Windows desktop client for Oracle Content Services. Oracle Drive appears as a mapped drive to Oracle Content Services in Windows Explorer. Oracle Drive provides SMB-like capabilities while using [WebDAV](#) as the back-end protocol.

Oracle Enterprise Manager

A systems management software application that enables you to manage and monitor Oracle Application Server instances and other Oracle server products. See also [Oracle Collaboration Suite Control](#).

Oracle HTTP Server

The Web server component of Oracle Application Server, based on the Apache HTTP Server, version 1.3.28. Do not confuse with the Oracle Content Services HTTP protocol server (EcmHttpServer).

Oracle Identity Management

An integrated set of components that provide distributed security to Oracle products and make it possible to centrally and securely manage enterprise identities and their access to applications in the enterprise. It includes the following components: [Oracle Internet Directory](#), Oracle Directory Integration and Provisioning, Oracle Delegated Administration Services, OracleAS [Single Sign-On](#), and Oracle Application Server Certificate Authority.

Oracle Internet Directory

An [LDAP](#) service that combines Oracle Database technology with the LDAP v3 directory standard. Oracle Internet Directory is a component of [Oracle Identity Management](#). It is also closely integrated with Oracle Database. All Oracle Collaboration Suite users are created and managed in Oracle Internet Directory.

Oracle RAC

Two or more computers configured to interact to provide the appearance of a single Oracle Database. These two or more nodes are linked by an interconnect. The interconnect serves as the communication path between each node in the cluster database. Each Oracle instance uses the interconnect for the messaging that synchronizes each instance's use of shared resources. Oracle also uses the interconnect to transmit data blocks that are shared by the multiple instances. The datafiles accessed by all the nodes are the primary type of shared resource. Oracle RAC requires that all nodes have simultaneous access to the shared disks to give the instances concurrent access to the database. Full name: Oracle Real Application Cluster.

Oracle Records Management

A new component of Oracle Content Services that provides support for compliance solutions such as enforced record creation and retention policies. Records Administrators can use Oracle Records Management to specify file plans and create record categories.

Oracle Text

A full-text retrieval technology built into Oracle Database for indexing and searching text and documents. Oracle Text supports mixed languages and character sets in the same index. Oracle Content Services uses the text indexing and retrieval features of Oracle Text. To enable content-based searching, Oracle Text indexes each file you store in Oracle Content Services.

Oracle Workflow

A system that supports business process definition, automation, and integration. Its technology enables automation and continuous improvement to business processes, by routing information of any type according to user-defined rules. The internal Oracle Content Services workflows, such as Request for Quota, were created in Oracle Workflow. The two default approvals workflow processes, Parallel Vote and Serial Approval, were also created in Oracle Workflow.

OUI

The installation wizard through which you can install Oracle products, including Oracle Database, Oracle Application Server, and Oracle Collaboration Suite. Full name: Oracle Universal Installer.

Portal

A component of Oracle Application Server that is used for the development, deployment, administration, and configuration of enterprise class portals. OracleAS Portal incorporates a portal building framework with self-service publishing features to enable you to create and manage information accessed within your portal. Full name: Oracle Application Server Portal.

protocols

Means by which users can connect to Oracle Content Services. Oracle Content Services supports three protocols: [FTP](#), [HTTP](#), and [WebDAV](#). The Oracle Content Services protocol servers listen for requests from clients on a specific port and respond to requests according to the rules of the protocol specification. Each protocol may interact with Oracle Content Services in a different way. A protocol server is a type of Oracle Content Services [server](#).

quote commands

Special FTP commands that you can use with the Oracle Content Services [FTP](#) server. They include SETCHARACTERSET, SETCOMMANDCHARACTERSET, SETLANGUAGE, SHOWCHARACTERSET, and SHOWLANGUAGE.

Read-Only Connection Pool

A set of database connections shared by the [sessions](#) to perform database read operations. A minimum number of connections are created when the [service](#) is started. Depending on the number of concurrent operations performed by the sessions, and the nature of these operations, additional connections may be added to the pool, up to a specified maximum. See also [Writable Connection Pool](#).

realms

A collection of identities and associated policies that is typically used when enterprises want to isolate user populations and enforce different identity management policies for each population. Oracle Content Services [Sites](#) are based on realms. Realms are created and managed in [Oracle Internet Directory](#). Also known as identity management realms.

regular nodes

One of two types of Oracle Content Services [nodes](#). The regular node supports protocol servers, such as [FTP](#), and [agents](#), such as the Garbage Collection Agent. You can configure additional regular nodes on the same computer or on additional computers.

SAVSE

A partner solution that provides options to verify that content is virusfree and to clean files that are found to be infected. After antivirus integration has been enabled and configured, files are scanned for viruses whenever they are opened for read access, using the latest available virus definitions. Full name: Symantec AntiVirus Scan Engine.

schema

A collection of database objects, including logical structures such as tables, views, sequences, stored procedures, synonyms, indexes, clusters, and database links. A schema has the name of the database user who controls it. The Oracle Content Services schema is created in an Oracle database during the configuration process. The schema owns all database objects, including metadata about Oracle Content Services and configuration information.

servers

Processes that support protocol access to Oracle Content Services (protocol servers) or that perform important internal functions ([agents](#)). Each Oracle Content Services [node](#) can support multiple servers. Each server is based on a particular [server configuration](#).

server configuration

A configuration object that holds the default values used when a [server](#) is started for an Oracle Content Services [node](#). In addition to the server type, each server configuration specifies values for parameters relevant to that type. For example, the [FTP](#) server configuration specifies the FTP port number, whether anonymous FTP connections are allowed, and the connection timeout period. If you want to make permanent changes to a server, modify its server configuration. If you want to make temporary (run-time) changes to a server, modify the server itself. Changes made to servers at run time are lost when the node is restarted.

services

Processes that manage user [sessions](#) and that allow those sessions to access data in the Oracle Content Services repository. Each [node](#) must have at least one active service. A node can support multiple services, but typically you require only one for each node. Each service is based on a particular [service configuration](#).

service configuration

A configuration object that holds the default values used when a [service](#) is started for an Oracle Content Services [node](#). There are three default service configurations, named to reflect the size of their data caches: SmallServiceConfiguration, MediumServiceConfiguration, and LargeServiceConfiguration. If you want to make permanent changes to a service, modify its service configuration. If you want to make temporary (run-time) changes to a service, modify the service itself. Changes made to services at runtime are lost when the node is restarted.

sessions

A specific connection of a user to Oracle Content Services through a user process. A session lasts from the time the user logs in until the time the user logs out. Sessions can also time out. User sessions are supported by Oracle Content Services [services](#).

Single Sign-On

A component of Oracle Application Server that enables users to log in to all features of Oracle Collaboration Suite using a single user name and password. Oracle Content Services users log in to Oracle Content Services using their [SSO password](#). Full name: Oracle Application Server Single Sign-On.

SSO password

The password assigned to each Oracle Collaboration Suite user in [Oracle Internet Directory](#). Users provide this password to authenticate against the OracleAS [Single](#)

Sign-On server. Oracle Content Services users use the SSO password to sign in to Oracle Content Services. Full name: Single Sign-On password.

Sites

A discrete organizational entity in Oracle Content Services whose users can collaborate on files and folders. Users in one Site do not have access to the content of users in another Site. Oracle Content Services Sites are based on **realms**.

system administrators

Administrators in Oracle Content Services that are typically responsible for the following tasks:

- Installing and configuring Oracle Content Services
- Customizing their Oracle Content Services deployment by enabling virus checking, the FTP server, the OmniPortlet, retention hardware, or other options
- Managing the Oracle Content Services domain, nodes, services, and servers
- Performing system tuning and troubleshooting
- Adding, deleting, and managing Sites
- Registering custom workflows

tablespace

A database storage unit that groups related logical structures together.

Web Folders

The Microsoft operating system extension that supports the **WebDAV** protocol. Using Web Folders, you can drag and drop files into Oracle Content Services and browse your files through Windows Explorer. On Microsoft Windows 2000 and Microsoft Windows XP, Web Folders appears in Network Places.

WebDAV

One of three **protocols** supported by Oracle Content Services. It lets clients browse and edit files on Oracle Content Services as if they were on the local machine. WebDAV is designed for wide area networks such as the Internet. Currently, the most widespread WebDAV client is the **Web Folders** extension to Windows Explorer, also known as Network Places in Windows 2000/XP. **Oracle Drive** uses WebDAV as its back-end protocol. Oracle Content Services also provides WebDAV support for Macintosh users. Full name: Web-based Distributed Authoring and Versioning.

Web Cache

A component of Oracle Application Server that improves the performance, scalability, and availability of frequently used Web sites. By storing frequently accessed URLs in memory, OracleAS Web Cache eliminates the need to repeatedly process requests for those URLs on the Web server. OracleAS Web Cache uses invalidation-based caching. Full name: Oracle Application Server Web Cache.

workflow designer

A person with the necessary skills to design a workflow process in Oracle BPEL Process Manager. The workflow designer creates the **custom workflow** process, then the system administrator registers the custom workflow process with Oracle Content Services.

Writable Connection Pool

A set of database connections shared by the [sessions](#) to perform database read and write operations within a database transaction. A minimum number of connections are created when the [service](#) is started. Depending on the number of concurrent operations performed by the sessions, and the nature of these operations, additional connections may be added to the pool up to a specified maximum. See also [Read-Only Connection Pool](#).

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