

Oracle® Files

Administration Guide

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ORACLE®

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Oracle Files Administration Guide Release 9.0.3

Part No. A97358-01

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Preface

Part of the Oracle Collaboration Suite, Oracle Files is a hosted content management application that supports user collaboration and file sharing. Oracle Files provides a sophisticated, Web-based user interface that enables users to easily share files of any kind with others in a workspace or across an enterprise.

Oracle Files runs with Oracle9i Application Server and an Oracle9i database. Oracle Files provides a highly scalable content management repository with a sophisticated Web-based user interface. This guide describes administration functions for Oracle Files.

Intended Audience

This guide is for system administrators, site administrators, subscriber administrators, or anyone involved in configuring, running, and maintaining an Oracle Files instance.

Augmenting this Administration Guide is extensive online Help built into the Oracle Files user interface for end users and the Site Administrator and Subscriber Administrator. To access Help:

On any Oracle Files page, click the Help icon. A table of contents displays.



Topics for administrators may only be viewed by logging in as an administrator.

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Accessibility of Code Examples in Documentation JAWS, a Windows screen reader, may not always correctly read the code examples in this document. The conventions for writing code require that closing braces should appear on an otherwise empty line; however, JAWS may not always read a line of text that consists solely of a bracket or brace.

Structure

This guide contains these chapters and appendices:

[Chapter 1, "Oracle Files Concepts"](#)

Introduces the components of Oracle Files, functions, and administration concepts and terminology.

[Chapter 2, "Oracle Files Overview and Administration"](#)

Describes the administrative roles, basic tasks, and how to use bulk administration tools. It shows how to specify access paths for the client software.

[Chapter 3, "Administration Tools Overview"](#)

Provides an overview of the tools provided to administer Oracle Files.

[Chapter 4, "Basic Administrative Operations"](#)

Covers runtime processes such as starting and stopping the domain controller, domains, and nodes. Shows how to monitor domain and node performance.

[Chapter 5, "Maintenance and Tuning"](#)

Discusses several methods for optimizing performance and scalability.

[Chapter 6, "Oracle Internet Directory and Credential Management"](#)

This chapter shows how to use the Oracle Files Credential Manager Configuration Assistant to create, edit, or delete credential managers.

[Chapter 7, "Troubleshooting"](#)

Provides information for solving administrative and globalization problems.

[Appendix A, "Oracle Text Reference"](#)

Explains strategies for maintaining the Oracle Text index.

[Appendix B, "Service Configuration Reference"](#)

Describes the service configuration properties.

[Appendix C, "Server Configuration Properties"](#)

Describes the server configuration properties.

[Appendix D, "Migrating Data to Oracle Files"](#)

Steps through several data migration scenarios: server consolidation and migrating data between Oracle Files instances.

[Appendix F, "FTP Quote Command Reference"](#)

Provides a description, syntax, and example of each FTP Quote command.

[Appendix E, "Oracle Files SQL View Reference"](#)

Describes the Oracle Files Schema SQL Views.

[Appendix G, "Globalization Support"](#)

Contains information on globalization issues.

Related Documents

For more information, see the following manuals in the Oracle Collaboration Suite, Oracle Files, Oracle9i Database Server, and Oracle9i Application Server documentation sets.

Oracle Collaboration Suite

- *Oracle Collaboration Suite Installation Guide*
- *Oracle Collaboration Suite Administrator's Guide*

Oracle Files

- *Oracle Files Release Notes*

Oracle9i Application Server

- *Oracle9i Application Server Administrator's Guide*
- *Oracle9i Application Server Installation Guide*
- *Oracle9i Application Server: Migrating from Oracle9i Application Server 1.x*
- *Oracle9i Application Server Concepts Guide*
- *Oracle9i Application Server Administrator's Guide*

Oracle9i Database Server

- *Oracle9i Database Administrator's Guide*
- *Oracle9i Backup and Recovery Concepts*

- *Oracle Enterprise Manager Administrator's Guide*
- *Oracle Enterprise Manager Concepts Guide*
- *Oracle9i Net Services Administrator's Guide*
- *Oracle9i Globalization Support Guide*
- *Oracle Internet Directory Administrator's Guide*

Conventions

The following conventions are used in this manual:

Convention	Description
<i>italic</i>	Italicized type identifies document titles.
Monospace	Monospace type indicates commands.
bold	Boldface type indicates script names, directory names, path names, and file names (for example, the <code>root.sh</code> script).
UPPERCASE	Uppercase letters indicate parameters or environment variables (for example, <code>ORACLE_HOME</code>).
.	In code examples, vertical ellipsis points indicate that information not directly related to the example has been omitted.
...	In command syntax, horizontal ellipsis points indicate repetition of the preceding parameters. The following command example indicates that more than one <code>input_file</code> may be specified on the command line. <code>command [input_file ...]</code>
< >	In command syntax, angle brackets identify variables that the user must supply. You do not type the angle brackets. The following command example indicates that the user must enter a value for the variable <code>input_file</code> : <code>command <input_file></code>
[]	In command syntax, brackets enclose optional clauses from which you can choose one or none. You do not type the brackets. The following command example indicates that the variable <code>output_file</code> is optional: <code>command <input_file> [output_file]</code>

Convention	Description
{ }	In command syntax, curly brackets indicate that a choice of two or more items separated by a vertical bar or pipe (). You do not type the curly brackets. The following command example indicates a choice of either a or b: command {a b}
\$	The dollar sign represents the shell prompt in UNIX. ¹

¹ In examples, an implied return occurs at the end of each line, unless otherwise noted. You must press the [Enter] key at the end of a line of input.

Oracle Files Concepts

Oracle Files is designed as an enterprise file server replacement, with added content management features (for example, versioning) that enable users to collaborate more productively.

Oracle Files includes:

- Support for file-sharing and collaboration protocols.
- A new Web UI, designed for large-scale deployments.
- Workspace-based collaboration.
- Content management features like extensible metadata, versioning, and content-based searching.
- Workflow integration for approval and routing.
- User and administrator options for single file recovery.
- Scalability, reliability, security, and platform independence.

These features and capabilities are designed to help IT managers lower costs through file server consolidation while simultaneously making employees more productive.

This chapter discusses basic concepts you should understand when administering Oracle Files. Topics include:

- [Industry-Standard Protocol Servers](#)
- [Integration with Key Oracle Technologies](#)
- [Basic Operations Concepts](#)

Industry-Standard Protocol Servers

Oracle Files supports a wide range of protocols through its various protocol server implementations, including:

- AFP, the AppleTalk Filing Protocol, which enables Macintosh users to use Oracle Files as if it were an AppleShare server. MacOS 9.x and above supports AFP over TCP, which allows AFP services to be made available over the Internet and networks that use TCP/IP as the underlying transport.
- FTP, the File Transfer Protocol, for file transfers across the Internet.
- HTTP, the Hypertext Transfer Protocol, for Web browser-based access. HTTP has been extended with WebDAV, a protocol designed for Internet collaboration. Currently, the most widespread WebDAV client is the Web Folders extension to Windows Explorer. This protocol is known as Network Places on Windows 2000 and Windows XP.
- NbServer, a NetBIOS name server that registers machine names in a local area network. NetBIOS is usually used by other, higher-level protocols, including SMB and NTFS.
- NFS, the Network File System, that provides file-sharing at the application layer (rather than FTP's session layer), and between a client machine and a server machine across a network.
- NTFS, the NT File System (for Windows NT only), allows the Oracle Files repository to appear as a local hard drive on the server machine.
- SMB, for UNIX only, the low-level server message block file-sharing protocol, that lets you map the Oracle Files as a network drive or browse to it via the Network Neighborhood.

All content is stored in an Oracle database, not on the file system of the server machine. No additional client software is required.

For example, Mac users can connect from the Chooser to Oracle Files as if it were any other AppleShare server. Windows users map a network drive or connect using Web Folders; UNIX clients can connect using NFS.

Integration with Key Oracle Technologies

Oracle Files is middle-tier software that leverages the capabilities of both Oracle9i Database Server and Oracle9i Application Server.

Integration with Oracle9i Database Server

Oracle Files uses the database to store all content and metadata about the content and the system itself.

Oracle9i Database and the Oracle Files Schema

All content and metadata about the Oracle Files instance is stored in an Oracle database. A database user owns all objects created in the database that comprise Oracle Files. These objects include the schema itself (*ifsSYS*, or whatever name you provide during installation), and several tablespaces, tables, indexes, and views owned by the schema that ultimately provide the unperpinnings of the fully functioning system.

User content—word processing files, spreadsheets, sound files, presentations, and all manner of other business content—is stored by Oracle Files in the database as LOBs (large objects).

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

Many operations, such as browsing a directory, join data across a wide range of tables in this schema. If you want read-only access to the data through a relational tool or application, you can do so through a set of predefined views (see [Appendix E, "Oracle Files SQL View Reference"](#)).

Although you can examine the tables by using the provided SQL views, direct access to the tables is not recommended—nor is it necessary.

Oracle Advanced Queueing

Oracle Advanced Queueing provides an infrastructure for distributed applications to communicate asynchronously using messages. Oracle Advanced Queueing is built into the Oracle9i Database Server. Oracle Files leverages this feature of the database and provides a queueing framework to enable you to build asynchronous, message-based communications in your custom content-management applications. For example, you can build in routing and approval functionality into your custom application using this framework.

For additional details, see the example that leverages the queueing framework to integrate Oracle Workflow in the `$Oracle_`
`Home/ifs/samplecode/oracle/ifs/examples/workflow` directory of the Oracle Files installation.

Oracle Text

Oracle Text is integrated full-text retrieval technology built into the Oracle9i Database Server for indexing, searching, and analyzing text and documents stored in the Oracle database. Oracle Text supports multiple languages and uses advanced relevance-ranking technology to improve search quality. Oracle Files uses many of the advanced text indexing and retrieval features of Oracle Text, including:

Document Services The Document Services feature of Oracle Text enables search results to be rendered in various formats including unformatted text, HTML with term highlighting, and original document format.

XML Indexing Metadata formatted in XML is easily indexed and queried using the Oracle Text syntax. Special components called Sectioners are used to limit the scope of a query according to XML tags, with the Autosectioner indiscriminately indexing every XML tag it encounters, and the XML Sectioner requiring more input in return for greater power and flexibility.

For more information about defining sections using XML, see the *Oracle Text Reference*.

Intermedia AVI Using the Oracle interMedia Annotator agent, Oracle Files automatically extracts color depth, play length, closed caption text, and other types of information encoded in audio, video, and image files, then makes this information into searchable and editable attributes of these files. Using Oracle Files Manager, you can search on categories then use the Property Inspector to view the attributes of the category.

Theme Indexing Oracle Text can generate themes based on a file's content. By default, Oracle Files disables theme indexing because of the overhead involved with indexing thematic content.

To use themes, you must enable the feature in Oracle Text; see "[Enabling Theme Indexing](#)" in [Appendix A, "Oracle Text Reference"](#) for how to do so. In addition to enabling the feature, you must do some coding because the themes are not exposed in any of the protocol servers. See the Javadoc for the "Document" class object for more information about the methods available to use in your application for generating themes and making use of other Oracle Text features: for example, `getThemes()`, `generateThemes()`.

Note that the methods refer to "Context," which is the previous name of the Oracle Text product.

Integration with Oracle9i Application Server

Oracle Files is supported by the Oracle9i Application Server (Oracle9iAS) and is especially designed to integrate with several important components from the Oracle9iAS product family, Oracle Internet Directory, Oracle Enterprise Manager Website, and Oracle9iAS Containers for J2EE (OC4J).

For detailed information on recommended Oracle Files installation and deployment models, please see the *Oracle Collaboration Suite Installation Guide*.

Oracle9iAS Containers for J2EE (OC4J)

Oracle9iAS Containers for J2EE (OC4J) is a J2EE-compliant application server provided by Oracle9i Application Server that supports Java Server Pages (JSP), Java servlets, Enterprise Java Beans, and many other APIs from the Java 2 Platform, Enterprise Edition (J2EE). OC4J is a middle-tier application server designed to support Enterprise Java Beans (EJB) components, Web components, and other services. Such services are deployed to an OC4J instance using XML-based configuration files as standard .WAR (Web Application Archive), .EAR (Enterprise Application Archive), and .JAR (Java Archive) files. Oracle Files uses the Java Servlet and the runtime environment of OC4J to support the HTTP/DAV servlet and the admin servlet (CMSDK).

(If you're familiar with prior releases of Oracle Files, note that OC4J replaces Apache JServ.)

OC4J is configured for the Oracle Files HTTP node automatically as part of the Oracle Files configuration process. Whether you install Oracle Files on one machine or multiple machines, you can use a browser to connect to the HTTP nodes in the domain on a server-by-server basis.

OC4J also supports Oracle Files servlets; specifically, the DAV servlet and the portlet servlet.

Deploying J2EE Applications OC4J provides a complete set of Java 2 Enterprise Edition containers that allow you to deploy all types of J2EE applications. Archive the .JAR and .WAR files that belong to the Java application into an .EAR file for deployment to OC4J. The J2EE specification defines the layout for an .EAR file. When you deploy an application within a .WAR file, the `application.xml` file is created for the Web application. When you deploy an application within an .EAR file, you must create the `application.xml` file. The `application.xml` file acts as a manifest file. See the *Oracle9i Application Server Administrator's Guide* for details.

Configuration Tools Each specific release of Oracle Files uses its own set of configuration files and deploys a specific set of servlets. In addition, OC4J supports the Oracle Enterprise Manager Website software across all Oracle9iAS components and integration products, including Oracle Files.

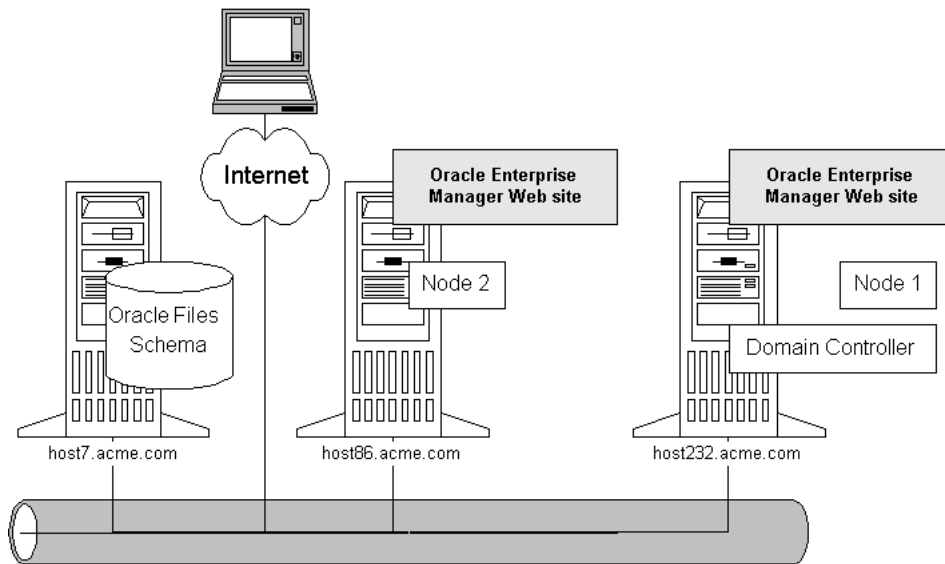
Oracle Enterprise Manager

Oracle Enterprise Manager is systems management software that enables you to manage and monitor Oracle9i Application Server instances and other Oracle server products. Oracle Files uses the Oracle Enterprise Manager Website to operate and monitor system processes associated with the Oracle Files domain and nodes.

Using a Web browser from anywhere on the network, you can connect to an Oracle9i Application Server instance Web site, from which you can launch the domain controller process; start nodes; stop nodes; and monitor the domain and nodes.

The administration page you see when you access an Oracle Files node is called the "Oracle9iAS Home page."

Figure 1-1 Oracle Enterprise Manager Enables Host-by-Host Management



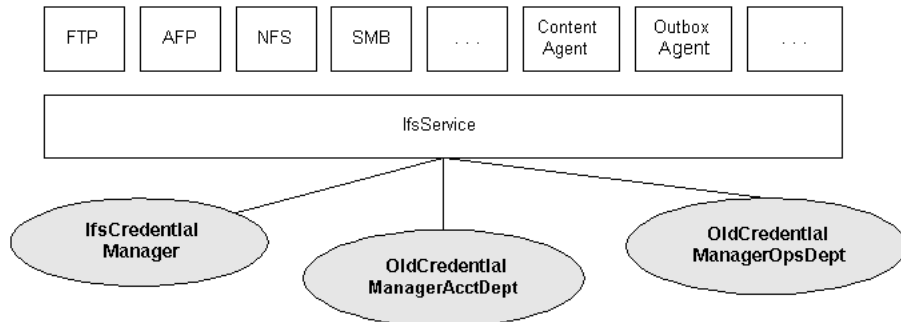
Oracle Internet Directory

Oracle Internet Directory is Oracle's LDAP (Lightweight Directory Access Protocol) v.3-compliant directory service implementation. Oracle Internet Directory can provide user authentication and other directory-service features to Oracle9i Application Server components, including Oracle Files.

User Authentication and Credential Management An Oracle Files service handles user authentication by means of a credential manager. A user's credentials authenticate the user to the system being accessed, in this case, any one of the many Oracle Files protocol servers. The credential manager associated with the service tells the service where and how to obtain the credential.

Services can use the native Oracle Files credential manager, which stores credential information in the Oracle Files schema. Or, services can use one or more Oracle Internet Directory instances for user authentication (see [Figure 1-2](#)).

Figure 1-2 *IfsCredentialManager and OidCredentialManagers*



For more information about Oracle9i Application Server and its components, see the *Oracle9i Application Server Installation Guide*; *Oracle Internet Directory Administrator's Guide*; and *Oracle Enterprise Manager Administrator's Guide*.

Oracle Workflow

Oracle Workflow is business-process automation software. Oracle Workflow lets you automate the process of routing and approving information, according to business rules you specify. Key components include Oracle Workflow Builder, a modeling tool that lets you define and model your business processes in a graphical environment; Workflow Engine, which coordinates the routing activities and approvals at runtime; a notifications system for sending notifications to and

receiving notifications from users (such as approvers) in a workflow; and a Web-based graphical monitoring tool for tracking workflow processes.

Basic Operations Concepts

Before installing, configuring, or attempting to operate an Oracle Files instance, you should understand how the domain controller, nodes, and other processes interact.

The Oracle Files Domain

An Oracle Files domain is a logical grouping of Oracle Files *nodes*, running under the control of the domain controller process, and an Oracle9i database instance, which contains the Oracle Files data.

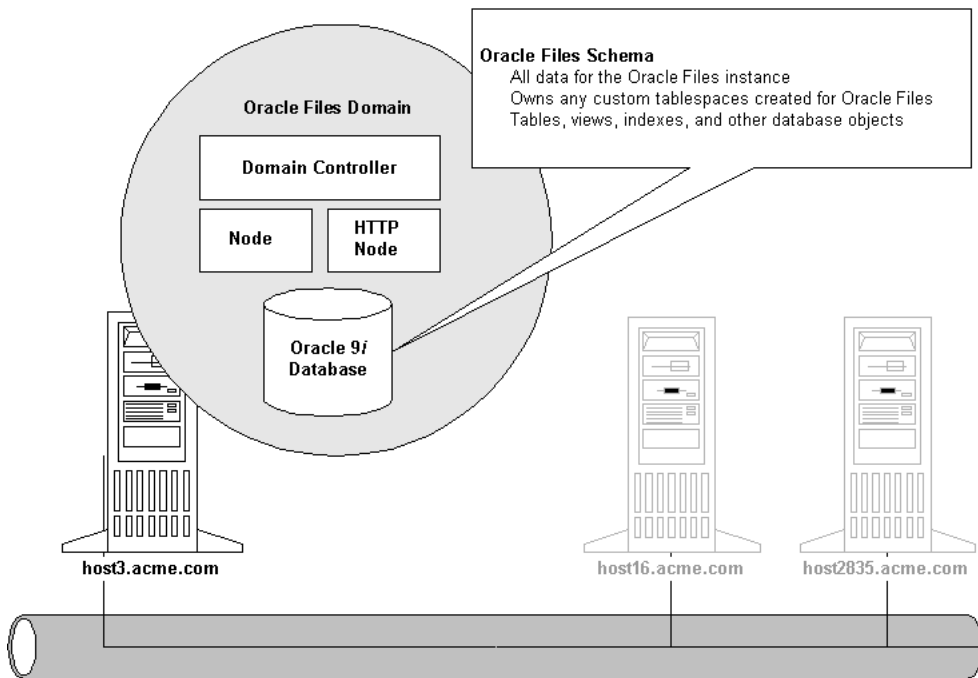
Oracle Files Schema

The Oracle Files schema is created in an Oracle database during the configuration process. The schema owns all database objects, including metadata about Oracle Files and configuration information (see [Figure 1-3](#)).

An Oracle Files node is the application software that comprises the product, and the underlying Java VM (virtual machine) required to support the software at runtime. The Oracle Files domain controller process (the "domain controller") controls and manages the nodes making up the domain.

Note: The single-machine configuration illustrated in [Figure 1-3](#) is not recommended for production environments.

Figure 1–3 A Single Machine Oracle Files Domain



Oracle Files Nodes

Important concepts to understand about nodes include:

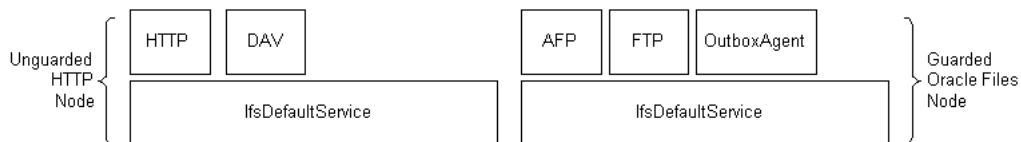
- An Oracle Files domain encompassing any number of nodes is controlled by one (and only one) domain controller process.
- An Oracle Files domain includes two nodes by default: one Oracle Files node, and one HTTP node (see [Figure 1–4](#)). You can also configure additional nodes on the same machine or on additional machines.
- The Oracle Files node supports AFP, FTP, NFS, SMB, and other types of protocol servers and agents.

Each Oracle Files node is monitored by a node guardian process, which automatically attempts recovery when error conditions occur. This means that the Oracle Files node has built-in fault tolerance.

- The HTTP node supports HTTP and WebDAV by means of a servlet that is configured to work with the Oracle9iAS Containers for J2EE (OC4J).

The HTTP node is not guarded by a separate guardian process. However, administrators can use Oracle Enterprise Manager Website to monitor the HTTP node and re-start it when necessary.

Figure 1-4 Nodes Comprise Services, Servers, and Agents



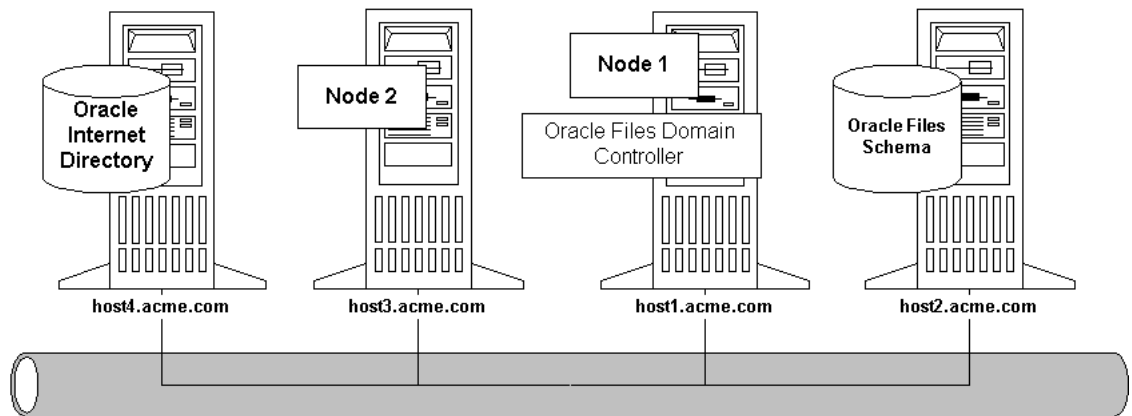
The relationship between the domain, the Oracle Files schema, and the domain controller is 1:1:1. However, the Oracle Files domain is a *logical* construct, not a physical one, which means that the Oracle Files domain controller process, node processes, and the database itself can be physically configured on a single host machine, as shown in [Figure 1-3](#), or across several, separate hosts, as shown in [Figure 1-5](#).

Users aren't aware of whether the Oracle Files instance is running across one machine or several machines. Users access content, such as folders and documents, using the appropriate client application for a particular Oracle Files protocol server.

For example, Macintosh users connect to the Oracle Files instance using the Mac Chooser, just as they do to connect to Macintosh-based AppleShare servers. Windows users map a network drive or use the Web folders feature (WebDAV) of Window's Map Network Drive dialog, or use a Windows-based NFS client to map to an NFS share. UNIX clients connect using NFS, FTP, or HTTP. And so on.

In addition, however, Windows users can take advantage of the Oracle Files client program, FileSync, to work offline, in disconnected mode, and then synchronize your file changes with a remote Oracle Files server. Windows and UNIX users can use the CUP client to quickly execute a variety of administrative and development tasks from the command line.

Figure 1–5 A Multiple Machine Oracle Files Domain using Oracle Internet Directory



When users connect to a specific protocol server, the underlying service on the node manages authentication of that end user (by means of the associated credential manager, either the `IfsCredentialManager` or one of possibly several `OidCredentialManagers`), and ultimately, manages the connection to the database where the content is actually stored.

Services, Servers, and Agents

Each node supports a *service* with specific configuration parameters, such as language, default character set, credential managers, and many other characteristics, including connections to the database and other features affecting performance. A node can support multiple services.

The service, in turn, supports the *servers*. Each server is either a protocol server or an agent. The protocol servers function as typical protocol servers in that they listen for requests from clients on a specific IP 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. For example, when inserting a file, FTP inserts the file, while SMB tries to create a 0-byte dummy version of the file before creating the actual file.

Agents adhere to the same design pattern as protocol servers, but rather than responding to requests from clients, agents perform operations periodically or in response to operations executed by other servers. For example, the Content

Garbage Collection Agent, which is installed automatically during configuration, deletes objects no longer associated with any document in Oracle Files. It does so based on an activation period parameter that you set for the server configuration object (see [Appendix C, "Server Configuration Properties"](#)). If you don't configure the Garbage Collection Agent to run, performance of your Oracle Files instance can be adversely affected.

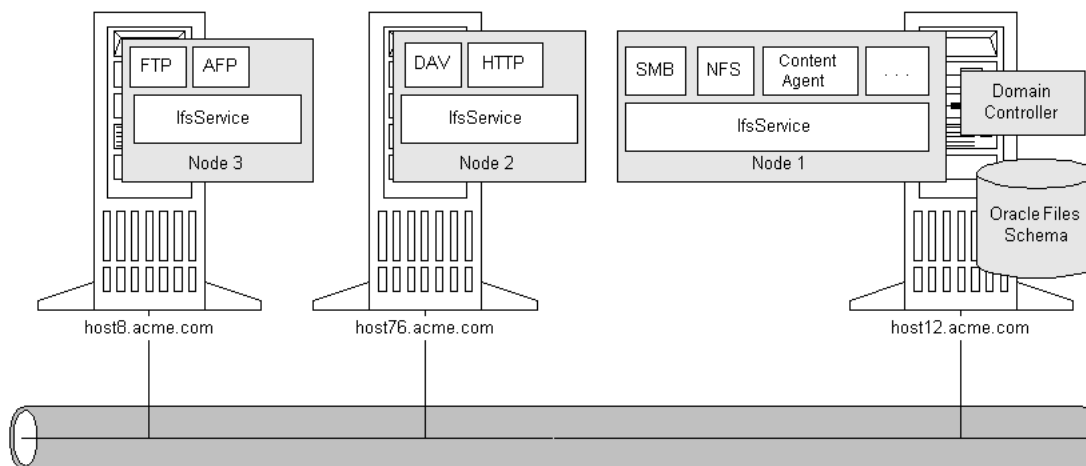
The Oracle Files architecture is flexible: services and servers are de-coupled so that you can configure services, protocol servers, and agents across a wide array of hardware to best meet your business needs. For example, you can run all protocol servers on one node, and run all agents on another node.

By default, a single service starts on each node, and that service supports all protocol servers selected during installation.

Given the flexibility and granularity of the deployment options, it's important to think about the physical configuration before you install and configure the system. You should plan how the various processes that comprise the system—the domain controller, nodes, agents, and so on—will be configured across your hardware.

The Oracle Files Configuration Assistant sets up an initial domain and node configuration for you, but you can change this later. You can configure the protocol servers however you like at any point by using the Oracle Enterprise Manager Website.

Figure 1–6 Nodes, Services, and Servers in a Typical Oracle Files Domain



You could configure a service on one node to support the Chinese language and character set or other languages, and configure another service on the same node to provide the same servers (on different port numbers) in English. You could also create an additional separate node to accomplish this, but the node comprises another JVM, which consumes more resources.

For information about viewing or modifying service parameters, see [Appendix B, "Service Configuration Reference"](#).

Oracle Files Overview and Administration

Oracle Files is a hosted content management application that supports user collaboration and file sharing. Oracle Files provides a sophisticated, Web-based user interface that enables users to easily share files of any kind with others in a workspace or across an enterprise. This chapter provides an overview of Oracle Files features and administrative functions. Topics include:

- [Oracle Files Concepts and Features](#)
- [Oracle Files Administrative Roles and Tasks](#)
- [Client Access Paths and Software](#)

Oracle Files Concepts and Features

Oracle Files is part of the Oracle Collaboration Suite. Oracle Files includes the following features:

Three Levels of Administration

In Oracle Files, a Subscriber is an organizational entity where users collaborate. Each Subscriber has its own Subscriber Administrator.

- The Subscriber Administrator, an enhanced user, is responsible for the management of quota, the specification of Subscriber settings, the administration of users, the restoration of files, folders, and workspaces, and the administration of categories.
- The Site Administrator is responsible for Subscriber management. The Site Administrator creates, modifies, and deletes Subscribers. The Site Administrator can manage one or more Subscribers.

- The System Administrator is responsible for managing the Oracle Files domain, starting and stopping the domain controller, the nodes, and the service and servers, and tuning the system to ensure reliability and performance.

Workspaces

A workspace is where a selected group of Oracle Files users store and collaborate on files and folders. The content of a workspace is visible and editable only by its members. A workspace includes at least one administrator, and can include participants and viewers.

Workspace Access Levels

- **Workspace Administrator.** The role of the Workspace Administrator is to manage the workspace. The management role includes such functions as adding and removing workspace members, modifying member access, requesting more workspace quota, and specifying the visibility and workspace type. The Workspace Administrator has full access to the files and folders of the workspace, and can unlock files that have been locked by other workspace members.
- **Participant.** A workspace participant can edit the contents and properties of files and folders in the workspace. A workspace participant can copy and move items to and from the workspace, and can delete files and folders from the workspace, and the workspace's Trash folder.
- **Viewer.** A workspace viewer is restricted to viewing workspace files and folders.

Workspace Quota

Each workspace is allocated a quota. The contents of each workspace, including its Public folder and Trash folder, count against the workspace's allocated quota. Exceeding the workspace's quota prevents the workspace members from storing additional content into the workspace. The workspace's administrators can, however, request that the Subscriber Administrator increase the workspace's quota.

For detailed information, see "Workspace Management" in the Online Help for Oracle Files.

File Management

Each user has a My Public Files folder where he or she can store files, viewable by all Subscriber users.

Each user has a My Private Files folder where only he or she can access, store, and view files.

For detailed information, see "File Management" in the Online Help for Oracle Files.

Searching

Users can conduct simple or advanced searches. Advanced searching lets users refine and combine search criteria. In addition, as part of the Oracle Collaboration Suite, users can use the Collaboration Suite Search, an application that lets users search any and all configured applications in the Oracle Collaboration Suite.

For detailed information, see "Search Options" in the Online Help for Oracle Files.

Categories

By associating categories with files or folders and modifying the attributes of a category, users can organize and classify their information. Users can also search for files by category.

For detailed information, see "Categories" in the Online Help for Oracle Files.

Versioning

Users can retain a history of file modifications by creating and saving one or more snapshots of a file.

For detailed information, see "Versioning" in the Online Help for Oracle Files.

Review Process

Users can submit files for review, and select users to approve, reject, or just review these files.

The backbone of a review process in Oracle Files is Oracle Workflow. Using a review process, any workspace member can submit for review one or more files from their workspace to other members of their workspace. A review process ends in the approval or rejection of these files, or can expire or be cancelled prior to their approval or rejection. Members can either be Approvers or Reviewers of a review process:

- **Approver.** After receiving notification from Oracle Workflow that he or she has been asked to approve one or more files, an Approver must either approve or reject the files that have been submitted for review. An Approver cannot

approve or reject individual files associated with one Review Process, but must approve or reject the files as a whole. The workspace member, who initiated the Review Process, is notified of its approval or rejection.

- **Reviewer.** After receiving notification from Oracle Workflow that he or she has been asked to review one or more files, a Reviewer can review the files. He or she can neither approve or reject files that have been submitted for review.

When you complete the Review Process, the initiator is notified of the approval or rejection of the Review Process.

For detailed information, see "Review Processes and Workflow" in the Online Help for Oracle Files.

Trash

Files deleted in Private and Public folders are moved to Personal Trash. Files deleted in workspaces are moved to a corresponding Trash folder. A user can request to restore files that have been emptied from their trash.

For detailed information, see "File Management" in the Online Help for Oracle Files.

Edit-in-Place

Using Microsoft Web Folders, a user can open and edit an Oracle Files workspace file and save his or her changes directly back to Oracle Files. When a user opens a workspace file from Microsoft Web Folders to edit in Microsoft Office, the file is automatically locked in Oracle Files. Any changes made to the file are automatically saved back to Oracle Files. When the user closes the file in Microsoft Office, the file is automatically unlocked in Oracle Files.

For detailed information, see "File Management" in the Online Help for Oracle Files.

Oracle FileSync

Oracle FileSync synchronizes all file changes between a local machine and Oracle Files, ensuring that the contents of selected local folders and remote folders match.

For detailed information, see the Oracle Files "FAQ" in the Online Help for Oracle Files.

Oracle Files Administrative Roles and Tasks

There are three administrative roles in Oracle Files:

- [System Administrator](#)
- [Site Administrator](#)
- [Subscriber Administrator](#)

Depending on the role, different tasks are performed using tools specifically for the task at hand.

If you are a:	Your responsibilities include:	Consult these sources (chapters in this Guide, unless designated otherwise):
System Administrator	Installation and configuration of Oracle Files Management of the Oracle Files domain, nodes, services, and servers.	<i>Oracle Collaboration Suite Installation Guide</i> Chapter 3, "Administration Tools Overview" Chapter 4, "Basic Administrative Operations" Chapter 5, "Maintenance and Tuning" Chapter 6, "Oracle Internet Directory and Credential Management" Chapter 7, "Troubleshooting"
Site Administrator	Addition, deletion, and management of subscribers.	Chapter 2, "Oracle Files Overview and Administration" Chapter 6, "Oracle Internet Directory and Credential Management"
Subscriber Administrator	Management of users, quotas, categories, subscriber settings, and content.	Chapter 2, "Oracle Files Overview and Administration" Chapter 3, "Administration Tools Overview" Chapter 6, "Oracle Internet Directory and Credential Management" Chapter 7, "Troubleshooting"

System Administrator

The System Administrator plays an important role: installation and configuration of Oracle Files, management of the Oracle Files domain, system tuning, and troubleshooting. Each of these tasks is the subject of a chapter in this guide:

Task:	Consult:
Installation	<i>Oracle Collaboration Suite Installation Guide</i>
Configuration	<i>Oracle Collaboration Suite Installation Guide</i> Chapter 3, "Administration Tools Overview" Chapter 6, "Oracle Internet Directory and Credential Management"
Domain management	Chapter 1, "Oracle Files Concepts" Chapter 3, "Administration Tools Overview" Chapter 4, "Basic Administrative Operations"
System tuning	Chapter 5, "Maintenance and Tuning"
Troubleshooting	Chapter 7, "Troubleshooting"
Reference	Appendix A, "Oracle Text Reference" Appendix B, "Service Configuration Reference" Appendix C, "Server Configuration Properties" Appendix D, "Migrating Data to Oracle Files" Appendix E, "Oracle Files SQL View Reference" Appendix F, "FTP Quote Command Reference" Appendix G, "Globalization Support"

Oracle Enterprise Manager Website (see Chapter 4, Basic Administrative Operations) provides access to basic Oracle Files process management and monitoring functions, such as starting and stopping the domain, nodes, services, and servers. This tool also allows administrators to monitor and dynamically tune the domain's nodes, services, and servers.

After installing and initially configuring Oracle Files, you can monitor document storage, session usage, and memory usage so you can adjust service and server parameters to maintain optimum performance. For example, if the storage space consumed by users is approaching the quota allocated, you might want to take steps to add storage or reduce the number of documents stored. You can use the Server Configurations page to create a new server. You can use the Domain Performance & Statistics pages to monitor the domain and obtain an overall usage summary for the domain.

Skills Required to Administer Oracle Files

System administrators should have the following skills:

- **Basic Oracle RDBMS administration experience.** Since the file system is stored in an Oracle9i database, you need to understand the basics of how to administer the database.
- **Knowledge of Internet and Intranet protocols.** You need to understand how HTTP, SMB, WebDAV, and the other networking protocols Oracle Files uses work.
- **Familiarity with Internet technologies.** Since Oracle Files serves web pages representing the file system, relies on XML for system configuration data, and uses Java as the language of server-side application development, familiarity with these technologies is important.
- **Web Server administration experience.** You need to understand how to administer the Oracle HTTP Server, powered by Apache.

Site Administrator

The Site Administrator can manage one or more Subscribers. A Subscriber is a discrete organizational entity where users can collaborate on files and folders. Users in one Subscriber do not have access to the content of users in another Subscriber. The Site Administrator creates, modifies, and deletes Subscribers.

Subscribers are created through Oracle Files integration with Oracle Internet Directory; the System Administrator can check Oracle Internet Directory for new Subscribers. The System Administrator can select one or more Subscribers from Oracle Internet Directory for Oracle Files.

Site Administrators are expected to use Single Sign On for Oracle Files. Therefore, Site Administrators are limited to the default Subscriber when creating Subscribers. The Site Administrator and the Subscriber Administrator log on to Oracle Files through the Administration Logon Page.

Should Site Administrators want to disable Single Sign On, see "Site Administration" in the Online Help for Oracle Files.

General Tasks

The primary role of the Site Administrator is to manage Subscribers. The following list covers the primary tasks involved in managing Subscribers.

For detailed information, see "Site Administration" in the Online Help for Oracle Files.

Creating, Modifying, and Deleting Subscribers After the Credential Manager Configuration Assistant tool is used to create a new Oracle Files domain, you can configure Oracle Internet Directory Subscribers for Oracle Files so that they may be created in Oracle Files.

In addition, since the use of Single Sign On is expected, only the default Subscriber should be created in Oracle Files

Enabling and Disabling Subscribers Using the Oracle Files wizards, the Site Administrator can enable or disable a Subscriber.

For more information about Subscribers, see the [Subscriber Administrator](#) task.

Notification and Archive Settings The Site Administrator can specify notification and archive settings, including when a Site Administrator is notified of a Subscriber's expiration date, or the period in which archived files remain in the archive.

Emailing a Subscriber The Site Administrator can e-mail a Subscriber Administrator. The Site Administrator, for instance, may want to contact a Subscriber Administrator about a Subscriber's expiration date.

Viewing Subscriber Statistics The Subscriber Statistics page in Oracle Files is divided into two sections: Subscriber Information and User and Workspace Information. Both sections provide statistical information about their respective areas; for instance, the total space consumed by the Subscriber and the total space consumed by Workspaces.

Resetting a Subscriber Administrator Password The Site Administrator can reset a Subscriber Administrator's password.

Subscriber Administrator

In Oracle Files, a Subscriber is an organizational entity where users can collaborate on files and folders. Each Subscriber has its own Subscriber Administrator. The Subscriber Administrator, an enhanced user, administrates the Subscriber by managing quota, users, and categories; specifying Subscriber settings; and restoring files, folders, and Workspaces.

For detailed information, see "Subscriber Administration" in the Online Help for Oracle Files.

Setting Defaults

One of the critical roles of the Subscriber Administrator is specifying default settings for users. The following list summarizes tasks regarding default settings.

For detailed information, see "Subscriber Administration" in the Online Help for Oracle Files.

Specifying Default User Settings The Subscriber Administrator can specify default settings for all Subscriber users; for instance, whether their Public folder should by default be enabled or disabled.

Specifying Notification Settings The Subscriber Administrator can specify the number of days prior to a user's expiration date that the Subscriber Administrator is notified of the user's expiration.

Specifying Default Quota Settings The Subscriber Administrator can specify the default quota of each new user and Workspace.

Specifying Default Public Folder Settings The Subscriber Administrator can specify user and Workspace folder settings, such as whether the Public folder is enabled or disabled.

Specifying Default Language Settings The Subscriber Administrator can specify the default display language, document language, document character set, and time zone of a Subscriber.

Subscriber Information Tasks

Oracle Files provides two mechanisms for information: Subscriber statistics and communication with the Site Administrator.

For detailed information, see "Subscriber Administration" in the Online Help for Oracle Files.

Viewing Subscriber Statistics The Subscriber Administrator can view detailed information about the Subscriber.

Requesting to Modify Subscriber's Settings: The Subscriber Administrator can submit a request to the Site Administrator to extend or modify a Subscriber's settings. For example, the Subscriber Administrator can request to increase the Subscriber quota.

Contacting the Site Administrator The Subscriber Administrator can e-mail the Site Administrator regarding Subscriber-related issues.

User Management Tasks

The Subscriber Administrator manages users in the Subscriber. This might entail, for instance, the creation or deletion of users.

For detailed information, see "Subscriber Administration" in the Online Help for Oracle Files.

Creating a New User Users must be created in Oracle Internet Directory, not through Oracle Files.

Emailing Users The Subscriber Administrator can e-mail users in his or her Subscriber.

Modifying User Information A User Information page exists for each user in the Subscriber, where the Subscriber Administrator can modify the user's information and settings.

Updating User Quota The Subscriber Administrator can grant users quota increases upon request.

Enabling and Disabling Users The Subscriber Administrator can enable and disable users. Disabled users cannot access Oracle Files; enabled users can access Oracle Files.

Deleting Users The Subscriber Administrator can delete any user who has been deleted from Oracle Internet Directory, but only one at a time, and only when the user is unsubscribed from all Workspaces.

Category Management Tasks

The Subscriber Administrator creates, modifies, or deletes categories. Categories are a way for users to classify and manage content. When implemented and associated with content, categories can be used as search criteria.

Oracle Files provides a wizard to create, another to modify, and another to delete a category.

For detailed information, see "Subscriber Administration" in the Online Help for Oracle Files.

Trash Management Tasks

Trash is a collection of folders that contain deleted files and folders. Subscriber Administrators can view, copy, move, delete, and empty the contents of Trash generated by users and by Workspaces.

For detailed information, see "Subscriber Administration" in the Online Help for Oracle Files.

Archival File and Folder Management Tasks

Files and folders that are deleted from Trash are moved to the Archive. The Subscriber Administrator is responsible for handling file archival functions; that is, restoring deleted files and folders.

For detailed information, see "Subscriber Administration" in the Online Help for Oracle Files.

Recovering a File at a User's Request The Subscriber Administrator can restore a file or folder, deleted from Trash, at the e-mail request of a user.

Restoring a File or Folder from the Archive The Subscriber Administrator can restore four types of items that users empty or delete from Trash:

- Deleted files and folders of active users.
- Deleted files and folders of active Workspaces.
- Deleted files and folders of deleted users.
- Deleted files and folders of deleted Workspaces.

Workspace and File Management Tasks

The Subscriber Administrator is able to access Workspaces in the Subscriber to administer and to take advantage of the content management capabilities of Oracle Files.

For detailed information, see "Subscriber Administration" in the Online Help for Oracle Files.

Working with Workspaces Although the Subscriber Administrator cannot be a member of a Workspace, as an enhanced user the Subscriber Administrator has full administrative access to the files and folders in every Workspace.

Updating Workspace Quota The Subscriber Administrator can update Workspace quotas in response to a Workspace Administrator's e-mail requests.

Locking and Unlocking Files A Subscriber Administrator can lock and unlock files in any Workspace.

Client Access Paths and Software

Once Oracle Files has been configured and is running successfully, administrators should create user accounts and groups, and set up a directory structure under mount points that are appropriate for the working environment.

Client Access Paths

With an account name and password, users—developers, administrators, or regular end-users—can access Oracle Files using the client tool of their choice. Web users can use a Web browser for HTTP or FTP access; Windows users can map drives or use WebDAV; Macintosh users can use the Chooser to mount AFP (AppleTalk Filing Protocol) protocol server. [Table 2-1](#) lists some of the supported client platforms, access methods, and protocols supported. See the *Oracle Files Release Notes* for complete client certification information.

Table 2-1 Client Platforms and Protocol Support

Client Platform	Protocols Supported	Access Using
Windows	FTP, HTTP, SMB, WebDAV	Browser, Windows Explorer, FileSync utility
Macintosh	AFP, FTP, HTTP, WebDAV (Mac OS 10)	Macintosh Chooser (MacOS 9.x); Macintosh Go... Menu (Mac OSX)
Unix	FTP, NFS	mount, link commands
Red Hat Linux Adv. Server 2.1	FTP, NFS	mount

This section provides some additional information about client access to Oracle Files.

AppleTalk Filing Protocol (AFP) for Mac Clients

Oracle Files includes an AFP 2.2-compliant AppleTalk Filing Protocol (AFP) server. MacOS 9 and MacOS X clients can use the AFP Server just as if it were an

AppleShare server. The steps users must take to connect to the AFP server depend on the MacOS on the client. MacOS 9 clients use the Chooser, while MacOS X clients use the Go...menu from the desktop, as detailed below.

From MacOS 9.x Clients From MacOS 9.x clients, follow these steps:

1. Select Chooser...from the Apple menu. AppleShare servers, printers, and other resources display.
2. Click on the AppleShare icon. AppleShare servers display in the right pane.
3. Click the Server IP Address... button in the lower portion of the dialog. A subsequent dialog displays.
4. Enter the IP address of the Oracle Files machine running AFP Server.

The AppleShare icon displays on the client desktop.

From MacOS X Clients In MacOS X, the Chooser doesn't exist. Clients should connect using the new Go... menu, as follows:

1. Select Go...from the menu.
2. Select Connect to Server.... A dialog box displays.
3. Enter the address of the Oracle Files machine running AFP Server as a URL, as follows:

```
afp://machine-name
```

The AppleShare icon displays on the client desktop.

HTTP (Web Browser) and WebDAV Access

HTTP, WebDAV, and FileSync access to Oracle Files is as follows:

Server Platform	URL
UNIX	http://<server-name>:7778/files/content
Windows NT/2000	http://<server-name>:7778/files/content

Note: Port number may vary depending on whether or not webcache is configured.

The URL is required for access from:

- Web browser

- DAV applications, such as Web Folders
- Oracle FileSync utility

NFS (Network File System) Protocol

Oracle Files provides an NFS protocol server that is certified for use with several NFS clients, including:

- Solaris 7 and Solaris 8
- Red Hat Linux Adv. Server 2.1
- Windows 95, 98, NT, and 2000 Clients using Hummingbird Maestro NFS

If the Oracle Files NFS server has been configured as the primary NFS server, then UNIX clients (Solaris 7, Solaris 8, and Red Hat Linux Adv. Server 2.1) can access the server using the standard NFS mount command, as shown in [Table 2-2](#).

Table 2-2 Mount NFS Server (Configured as Primary NFS Server)

Syntax	Example
mount <host>:<pathname> <mount_point>	mount ifsserver:home /data/ifs

If the Oracle Files NFS server is configured as the secondary NFS server, or if the Oracle Files NFS server is not on the standard port number, Solaris clients must specify the 'public' option and Linux clients must specify the mount port, as described in [Solaris 7 and Solaris 8 Clients](#) and [Red Hat Linux Adv. Server 2.1 Clients](#).

Other caveats apply to Hummingbird Maestro clients, as detailed in "[Linking an NFS Directory Using the NFS Maestro Network Access Tool](#)".

In addition, given the nature of the NFS protocol itself, users should be aware of some [NFS Server Limitations](#).

NFS Server Limitations Permission mode bits used by native UNIX NFS are not used by the Oracle Files NFS protocol server. Instead, as it does with its other protocol servers, Oracle Files NFS uses ACLs (access control lists) to control access. That means that displaying the permission mode bits from an NFS client is meaningless.

The Oracle Files NFS server also does not support:

- UNIX symbolic and hard links.
- UNIX chown, chgrp, and chmod commands. (Use the [Command-line Utilities](#) to change the owner and access control list for a file.)

- UNIX lock manager. Handles returned by the Oracle Files NFS server are not compatible with the UNIX lock manager. Applications requiring UNIX lock manager services won't work with Oracle Files NFS server.

NFS clients cannot access the checked-out version of a versioned document. To avoid potential conflicts, the Oracle Files NFS server does not allow access by NFS clients to the checked-out version of a versioned document.

Versioned documents cannot be deleted, moved, or renamed. Some applications, including Microsoft Office applications, save files by first saving the data to a temporary file, deleting the original file, and then renaming the temporary file to the original name. If a document is versioned, this would result in the loss of previous versions.

Solaris 7 and Solaris 8 Clients If the Oracle Files NFS server is running as the primary NFS server on the host, users can enter the standard mount command as shown in [Table 2-2](#). If the Oracle Files NFS server is the secondary NFS server on the host, you must explicitly include the port number in the mount command:

```
mount nfs://<host>:<portno>/home /data/ifs
```

For example, `mount nfs://ifsserver:4049/<pathname> <mount_point>`

Alternatively, you can enter:

```
mount -o port=<portno>, public <host>:<pathname> <mount_point>
```

For example, `mount -o port=4049, public ifsserver:home /data/ifs`

Red Hat Linux Adv. Server 2.1 Clients If the Oracle Files NFS server is running as the primary NFS server on the host, users can enter the standard mount command as shown in [Table 2-2](#). If the Oracle Files NFS server is the secondary NFS server on the host, you must explicitly include the port number in the mount command, as shown below:

```
mount -o port=<portno>,mountport=<portno1> <host>:<pathname> <mountpoint>
```

For example, `mount -o port=4049, mountport=4048 ifsserver:home /data/ifs`

Windows Clients While client access to NFS is available on all UNIX operating systems, Windows systems require additional client software. Hummingbird Maestro NFS is one such client certified for use with Oracle Files NFS Server.

- Windows 2000 users who want to connect to Oracle Files NFS Server must use Hummingbird Maestro NFS 7.0.

- Windows 95, 98, and NT users who want to connect to Oracle Files NFS Server can use Hummingbird Maestro NFS 6.0.

See the *Oracle Files Release Notes* for other supported NFS client applications and version numbers.

Note: Enter the fully-qualified hostname (hostname.yourcompany.com) in the Windows client network configuration for the NFS client. Move the NFS client to the top of the list (network access in Network control panel, if you have more than one NFS client installed) to ensure that its driver is used for the connection.

Linking an NFS Directory Using the NFS Maestro Network Access Tool Before using the Hummingbird NFS Maestro client to access the Oracle Files NFS server, you should check that the NFS Maestro client is properly configured.

1. From the NFS Maestro folder, start the NFS Network Access tool. The NFS Network Access dialog displays.
2. Enter the host name of the Oracle Files NFS server and the pathname in the Network Path field using this format:

```
\\<hostname>\<pathname>
```
3. In the Authentication Details area, enter the UNIX username and password for accessing the Oracle Files NFS server. Select System/UNIX Authentication as the Authentication Protocol.
4. Set the Miscellaneous values:
 - DOS-style sharing: De-select DOS-style file sharing unless you have the HCLNFSD daemon running on the NFS server machine. HCLNFSD is required for DOS-style file sharing; If the HCLNFSD daemon is not running on the NFS server, response times in accessing files will be unacceptable.
 - UNIX lock manager: De-select UNIX lock manager if it's checked. The Oracle Files NFS server is not compatible with the UNIX lock manager.
 - CD-ROM: De-select this box if it's selected. (Used for CD-ROM or other read-only file system.)

5. Select the Advanced button to display the Advanced Connection Properties dialog.
6. Select Preserve Case for Filename Case.
7. If the Oracle Files NFS server is running as a secondary NFS server, change the NFS Port number from the standard port (2049) to the alternate port number that the Oracle Files NFS server is using.
8. To use TCP instead of UDP for connection to the NFS server, select the Use TCP box. (TCP uses the standard NFS port 2049. Do not select this box if the Oracle Files NFS server is running on an alternate port.)

Linking an NFS Directory Using the Command Line If the Oracle Files NFS server is the primary NFS server on the host, you can mount Oracle Files using the Maestro command-line syntax, as follows:

```
nfs link <drive>: \\<host>\<pathname> <username>
```

For example, `nfs link n: \\ifssserver\home scott`. If the Oracle Files NFS server is the secondary NFS server on the host, you must specify the Oracle Files NFS server port number in the command line, as follows:

```
nfs link <drive>: \\<host>\<pathname> <username> /n:4049
```

For example, `nfs link n: \\ifssserver\home scott /n:4049`.

The `nfs link` command uses the default values configured for the NFS Maestro Client, unless you specify options listed in [Table 2-3](#).

Table 2-3 Maestro Command Line Options

Option	Meaning	Usage Note
/L:s	Use DOS-style sharing,	Requires that the <code>hclnfsd</code> daemon run on the server.
/L:	Disables locking.	Use this parameter if the server does not have <code>hclnfsd</code> daemon running.
/M:p	Preserve case of filenames	
/A:u	Use System/UNIX authentication	Always use this setting.

Table 2–3 Maestro Command Line Options

Option	Meaning	Usage Note
/T	Use a TCP connection instead of a UDP connection (optional).	TCP connections always use port 2049. Do not use this option unless the Oracle Files NFS server is running port 2049 (the default).

Common problems are often due to incorrect port numbers. If the `hclnfsd` daemon is not running on the server, be sure that DOS-style locking and sharing is disabled on the client.

Maestro Error Messages [Table 2–4](#) lists some common error messages and other Maestro client problems.

Table 2–4 Maestro Client or Server Error Messages or Problem Symptoms

Problem	Corrective Action
"Access denied by server" message	Check that the correct port number is being used for the Oracle Files NFS server. Note: A TCP connection will always use the standard NFS port (2049). Do not use this option if the Oracle Files NFS server is running on an alternate port.
"Authorization Error" message	The username and password may have been specified incorrectly. Make sure that a UNIX username and password which are valid on the authentication server are specified.
"Bad Network Name" message	Verify that the host name and pathname are correctly specified. If they are, then use the NFS Maestro <code>Rpcinfo</code> tool and verify that the NFS server (process number 100003) is running on the host.
Maestro client appears to hang	Verify that the <code>hclnfsd</code> daemon is running on the server machine. If it's not, either start the daemon (if possible), or verify that DOS-style sharing UNIX lock manager have been de-selected in the Maestro client settings. For the Maestro command line, be sure to specify <code>'/L:'</code> on the command line when linking to disable locking. (You can check all current mapped drives by using Maestro's <code>nfs use</code> command.).
"Network Timeout or HCLNFSD/PCNFSD not running on Host" message	Verify that the default authentication server has been correctly configured in the NFS client. Verify that the <code>hclnfsd</code> daemon is running. Perform the verifications listed for the "Bad Network Name" message .

Table 2–4 Maestro Client or Server Error Messages or Problem Symptoms

Problem	Corrective Action
nfs link command hangs	Verify that the correct host name and port number are specified and that the Oracle Files NFS server is running.
"NFS service not responding" error message	Verify that the correct host name and port number are specified and that the Oracle Files NFS server is running.
"Permission denied" error message	Verify that the host name and pathname are correctly specified. Verify that the port is correctly specified for the Oracle Files NFS server.

Oracle FileSync Client Software

In addition to using the networking protocols or client applications native to the Windows operating system, Windows users can install and use Oracle FileSync to keep local directories on a desktop machine and folders in Oracle Files synchronized.

Installing Oracle FileSync

Oracle FileSync is Windows client software that enables users to keep files synchronized between their local machine and Oracle Files. To install FileSync, users should follow these steps:

1. Save and exit all Windows applications.
 - If you have a previous release of Oracle FileSync software installed, be sure to first uninstall it by using the Add/Remove Programs control panel.
2. Log in to Oracle Files and navigate to:
AllPublic/Users/Users-S/system-data/downloads
3. Double-click `FileSync.exe` to run the installation program.
4. Follow the instructions and accept the defaults. The application will be installed in the Windows client machine in the directory:
c:\Program Files\Oracle\Oracle 9iFS FileSync
5. To start the FileSync application, select Oracle FileSync from the Windows Start -> Programs menu.

Administration Tools Overview

A full range of administration tools are provided with Oracle Files to configure Oracle Files, start and stop domains and nodes, configure nodes, manage service and server objects, provide security for documents, work from the command line, migrate data and users to Oracle Files, import/export data and users from one Oracle Files schema to another, and monitor domain, service, and node performance. These include:

- [Configuration Wizards](#)
- [Management Tools](#)
- [Command-line Utilities, Scripts, and Other Tools](#)
- [Bulk Administration Tools for Oracle Files](#)

Configuration Wizards

Configuration wizards are used during installation to initially set up the Oracle Files domain and specify a default credential manager to associate with the domain. As you work with Oracle Files, you may wish to change these default settings. You can do this by running the various configuration wizards.

Oracle Files Configuration Assistant

The Oracle Files Configuration Assistant is an installation and configuration wizard that lets you create an Oracle Files domain.

The Configuration Assistant is specific for the release of Oracle Files. The tool performs these important functions:

- Create the domain controller.

- Create the nodes.
- Configure protocol servers.
- Create an Oracle Files schema and all associated objects in the Oracle9i database.

You launch the Configuration Assistant from the command line by executing the `ifscsa` script, located in the following directory:

```
$(ORACLE_HOME)/ifs/files/bin
```

You can also prepare or modify a response file and pass the filename to the Configuration Assistant as a parameter, for a non-interactive, or "silent," configuration. See the *Oracle Collaboration Suite Installation Guide* for details.

Oracle Files Credential Manager Configuration Assistant

The Oracle Files Credential Manager Configuration Assistant lets you create, edit, and configure IFS credential managers and Oracle Internet Directory (OID) credential managers. This wizard launches automatically during configuration and enables you to accept the default IFS credential manager or create an OID credential manager.

After initial installation and configuration of the domain, you can use this wizard to reconfigure credential managers. For example, if the Oracle Internet Directory associated with a particular credential manager you've created migrates to a different host on the network, you will need to reconfigure the OID credential manager accordingly. See [Chapter 6, "Oracle Internet Directory and Credential Management"](#) for more information.

Management Tools

Which management tool you use will depend on the function to be performed and whether you want to work with the Oracle Files domain as one of several middle-tier applications integrated with the Oracle Enterprise Manager Console.

- [Oracle Enterprise Manager Website](#)
- [Command-line Utilities, Scripts, and Other Tools](#)

Oracle Enterprise Manager Website

Oracle Enterprise Manager Website provides Web-based management tools designed specifically for Oracle9i Application Server. You can monitor and

configure the components of your Oracle9i Application Server installations as well as access basic Oracle Files domain and node functions. It also allows administrators to monitor and dynamically tune the domain's nodes, services, and servers. Using Oracle Enterprise Manager Website, you can:

- Start and stop the domain, nodes, services, and servers using a Web browser from any machine on the network;
- Configure protocol servers, agents, nodes, services, and change settings dynamically, for the current runtime session; change settings permanently; and change default settings to be used as the basis for new servers;
- Display runtime operational data about the domain, nodes, hosts, and servers at runtime, so you can monitor performance and change system configuration, if necessary.

Accessing the Oracle Enterprise Manager Website

From your web browser, access the Oracle Enterprise Manager Website by pointing your browser to:

```
http://hostname:1810/
```

The page you see depends on the components you configured and the choices you made during Oracle9iAS installation and whether or not you installed an Oracle9iAS Infrastructure. For example, you might see the Oracle9iAS Farm Home page listing all of the application server instances associated with a particular Oracle9iAS instance or the Application Servers Home page listing all of the application server instances installed on the current host.

Command-line Utilities, Scripts, and Other Tools

Command-line utilities and scripts are interfaces for administrators familiar with Oracle products who want to work directly from the command line.

ifsctl

ifsctl is a tool for starting, stopping, and monitoring Oracle Files domains and nodes from the command line. Details are provided in "[Starting Oracle Files from the Command Line](#)" in [Chapter 4](#).

Scripts

The following scripts may be used:

Script	Description
ifsca	Run the Oracle Files Configuration Assistant
ifscmca	Start the Oracle Credential Manager Configuration Assistant.
ifsctl	Manage domains and nodes.

Bulk Administration Tools for Oracle Files

A Subscriber Administrator can use the Bulk Creation and Update tools to administer users and workspaces in Oracle Files.

Each tool works in a similar manner: it reads an XML file containing a list of "actions" (for instance, create a workspace or update users), processes the list, and executes the actions.

The Bulk Creation and Update tools include:

- [User Administration Tool](#)
- [Workspace Administration Tool](#)
 - [Workspace Creation Tool](#)
 - [Workspace Update Tool](#)

User Administration Tool

The User Administration tool updates the profile of each user listed in an XML file, unless the user does not exist in the Subscriber. Some exceptions exist, however:

- **Quota:** The User Administration tool does not update a user's quota should the quota exceed the granted limit. Also, a user's quota is not updated if the new value is below that of the user's consumed storage.
- **Locking and Unlocking Files:** A user's Public Folder that is not empty cannot be disabled.

Note: User passwords cannot be changed using the User Administration tool.

Besides user profiles, the XML file also contains an "action" which, in the case of the User Administration tool, is an "update action":

```
<action label="update">
<class>oracle.ifs.files.admin.bulk.user.action.UpdateNormalUsersAction</class>
  <user>
    <userid>test.user</userid>
    <quota>25</quota>
    <locale>us</locale>
    <publicfolder enabled="yes" />
  </user>
</action>
```

The XML file must conform to the User Administration tool Document Type Definition (DTD).

DTD for the User Administration Tool

```
<!DOCTYPE users [
  <!ELEMENT users (defaults?, (action|condition)+)>
  <!ELEMENT defaults (property+)>

  <!ELEMENT condition (condition|action)+>
  <!ATTLIST condition type NMTOKEN #REQUIRED>
  <!ATTLIST condition op NMTOKEN #REQUIRED>
  <!ATTLIST condition left CDATA #REQUIRED>
  <!ATTLIST condition right CDATA #REQUIRED>

  <!ELEMENT action (class, property*, user+)>
  <!ATTLIST action label ID #REQUIRED>
  <!ATTLIST action description CDATA #IMPLIED>

  <!ELEMENT class (#PCDATA)>

  <!ELEMENT property EMPTY>
  <!ATTLIST property name NMTOKEN #REQUIRED>
  <!ATTLIST property value CDATA #REQUIRED>
```

```
<!ELEMENT user (userid, password?, email?, firstname?, lastname?, quota?,
locale?, publicfolder?)>

<!ELEMENT userid (#PCDATA)>
<!ATTLIST userid enabled (yes|no) #IMPLIED>

<!ELEMENT password (#PCDATA)>

<!ELEMENT email (#PCDATA)>

<!ELEMENT firstname (#PCDATA)>

<!ELEMENT lastname (#PCDATA)>

<!ELEMENT quota (#PCDATA)>

<!ELEMENT locale (#PCDATA)>

<!ELEMENT publicfolder EMPTY>
<!ATTLIST publicfolder enabled (yes|no) "yes">
```

Running the User Administration Tool

To run the User Administration tool, the Subscriber Administrator must run:

```
oracle.ifs.admin.bulk.user.UsersAdministrationTool
```

Before running the User Administration tool, the following parameters must be specified in the following order:

1. Oracle Files Domain; for example,
ifs://user-sun.us.company.com:1521:seamus:ifuser
2. Service Configuration Name; for example, MediumServiceConfiguration
3. Oracle Files Password
4. Oracle Files User Password
5. sba=<Subscriber Administrator username>; for example,
sba=subscriber_admin
6. pwd=<Subscriber Administrator password>
7. file=<XML file containing the list of actions to perform>

For example, to invoke the User Administration tool, enter the following:

```
JAVA_HOME/bin/java -Xmx512m -DIFS.DOMAIN.NODE.OracleHome=$ORACLE_HOME
```

```
-DIFS.DOMAIN.NODE.IfsHome=$IFSHOME
oracle.ifs.files.admin.bulk.user.UsersAdministrationTool $IFSDOMAIN
MediumServiceConfiguration $IFS_SCHEMA_PASSWORD $IFS_SYSTEM_USER $IFS_SYSTEM_
USER_PASSWORD sba=$1 pwd=$2 file=$3
```

Workspace Administration Tool

Running the Workspace Administration tool will "determine" whether the Workspace Creation tool or the Workspace Update tool will be invoked. If the Workspace Creation tool is invoked, one or more workspaces are created. If the Workspace Update tool is invoked, one or more workspaces are updated. The Workspace Update tool will use the workspace information contained in the XML file to update or create workspaces in Oracle Files.

Running the Workspace Administration Tool

The Subscriber Administrator invokes the Workspace Administration tool by running:

```
oracle.ifs.files.admin.bulk.workspace.WorkspacesAdministrationTool
```

To run the Workspace Administration tool, the following parameters must be specified in the following order:

1. Oracle Files Domain; for example,
ifs://user-sun.us.company.com:1521:seamus:ifuser
2. Service Configuration Name; for example, MediumServiceConfiguration
3. Oracle Files Password
4. Oracle Files User Password
5. sba=<Subscriber Administrator username>; for example, sba=subscriber_admin
6. pwd=<Subscriber Administrator password>
7. file=<XML file containing the list of actions to perform>

Sample XML File

This XML file contains one "action" for updating workspaces and another "action" for creating workspaces:

```
<action label="create">
```

```
<class>oracle.ifs.files.admin.bulk.workspace.action.CreateWorkspacesAction</
class>
<workspace name="test_workspace" type="public">
  <description>Test Workspace for the administration tool</description>
  <member name="test.user" access="admin" />
</workspace>
</action>

<action label="update">

<class>oracle.ifs.files.admin.bulk.workspace.action.UpdateWorkspacesAction</
class>
<workspace name="test_workspace">
  <quota>40</quota>
  <publicfolder enabled="no" />
</workspace>
</action>
```

DTD for the Workspace Administration Tool

The XML file must conform to a Workspace Administration tool DTD. The following is a DTD file for the Workspace Administration tool:

```
<!DOCTYPE workspaces [

  <!ELEMENT workspaces (defaults?, (action|condition)+)>

  <!ELEMENT defaults (property+)>

  <!ELEMENT condition (condition|action)+>
  <!ATTLIST condition type NMTOKEN #REQUIRED>
  <!ATTLIST condition op NMTOKEN #REQUIRED>
  <!ATTLIST condition left CDATA #REQUIRED>
  <!ATTLIST condition right CDATA #REQUIRED>

  <!ELEMENT action (class, property*, workspace+)>
  <!ATTLIST action label ID #REQUIRED>
  <!ATTLIST action description CDATA #IMPLIED>

  <!ELEMENT class (#PCDATA)>

  <!ELEMENT property EMPTY>
  <!ATTLIST property name NMTOKEN #REQUIRED>
  <!ATTLIST property value CDATA #REQUIRED>
```



```

<!ELEMENT workspace (description?, quota?, publicfolder?, member*)>
<!ATTLIST workspace name NMTOKEN #REQUIRED>
<!ATTLIST workspace type (public|private) #IMPLIED>

<!ELEMENT description (#PCDATA)>

<!ELEMENT quota (#PCDATA)>

<!ELEMENT publicfolder EMPTY>
<!ATTLIST publicfolder enabled (yes|no) "no">

<!ELEMENT member EMPTY>
<!ATTLIST member name NMTOKEN #REQUIRED>
<!ATTLIST member access (admin|RW|RO|delete) #REQUIRED>

```

Workspace Creation Tool

The Workspace Creation tool is invoked by the Workspace Administration tool to create new workspaces in Oracle Files. The Workspace Creation tool creates each workspace that is listed in the XML file unless it encounters errors. Such errors include:

- A pre-existing Workspace name in the Subscriber.
- A Workspace name containing any of the following characters: \ / : * ? " < > |
- A Workspace Administrator is not specified in the list of members.
- Creation of the Workspace(s) in the Subscriber exceeds the Subscriber's total quota.

Table 3–1 XML File Workspace Property Settings

Property	Attributes	Required	Valid Input	Default if Optional
Workspace	N/A	Yes	N/A	N/A
N/A	Name	Yes	N/A	N/A
N/A	Type	No	Public Private	Private
Description	N/A	No	N/A	N/A
Quota	N/A	No	MB	Subscriber's default Workspace quota

Table 3–1 XML File Workspace Property Settings

Property	Attributes	Required	Valid Input	Default if Optional
Publicfolder	N/A	No	N/A	Enabled if the Workspace type is public; disabled, otherwise
N/A	Enabled	No	Yes No	No
Member	N/A	No	N/A	N/A
N/A	Name	Yes	N/A	N/A
N/A	Access	Yes	Admin RO RW Delete	N/A

Note: The delete value for the member access property is valid only for the Bulk Workspace Update tool.

Workspace Update Tool

The Workspace Update tool updates each workspace listed in the XML file if the workspace does not exist in the Subscriber. Some exceptions exist, however:

- **Quota:** A workspace cannot be updated if the new value causes the Subscriber's total quota to exceed the granted limit, or if the new value is less than the workspace's consumed storage.
- **Public Folder:** A workspace public folder that is not empty cannot be disabled.
- **Members:** A workspace must have at least one member and at least one Administrator. If not, the Workspace cannot be updated.

Basic Administrative Operations

Administering Oracle Files includes starting and stopping the system; monitoring the system; and reconfiguring system components—changing port numbers on a specific protocol server, for example. To perform such tasks, you use the Oracle Enterprise Manager Website provided by Oracle9i Application Server. This chapter tells you how to use Oracle Enterprise Manager Website to perform these tasks. Topics include:

- [Starting and Stopping an Oracle Files Domain](#)
- [Configuration Settings and How to Change Them](#)
- [Oracle Files Configuration Options](#)
- [Monitoring Domain, Node, and Service Performance](#)

Starting and Stopping an Oracle Files Domain

The *domain controller* manages the set of nodes comprising the domain. The domain controller controls which nodes are running, tracks nodes' statuses, and allows nodes to be monitored and administered. The Oracle Files software runs on the database machine and as a set of middle-tier processes, called *nodes*. Each node executes on a particular computer, or *host*. Although a domain's nodes are often split across a set of hosts, a single host can have more than one Oracle Files node. Each node has a name, which is unique across the Oracle Files domain. Oracle Files nodes are processes of Oracle Files managing one or more services and servers (agents and protocols).

Because the HTTP Server runs as part of an OC4J process and is controlled outside of Oracle Files, the HTTP Server runs in its own node. Typically, each Oracle Files node will have an associated HTTP node.

The domain controller polls the nodes that are configured to run under its control. Once all the nodes are identified, you'll see them under the list of nodes for the specific domain.

Controlling the domain and the nodes using the Oracle Enterprise Manager Website requires that the Oracle Enterprise Manager server-side software (basically, Java servlets that have been deployed to the OC4J instance running on each host) is running on each host that comprises the domain.

Starting the Oracle Files Domain Controller Process

1. If it's not running already, start the Oracle Enterprise Manager server-side software by executing its startup script from the command line ([Table 4-1](#)).

Table 4-1 Starting the Oracle Enterprise Manager Web Server

UNIX-based Hosts	Windows NT/2000/MX Hosts
<code>\$ORACLE_HOME/bin/emctl start</code>	Start the NT service from the Oracle Enterprise Manager Website.

2. Using a Web browser, access the Oracle9iAS Home page by entering:

`http://hostname:1810/`

where *hostname* is the name of the middle-tier machine running the Oracle9i Application Server software on which Oracle Files has been installed and configured.

The Application Server Home page displays, listing all of the system components that have been configured on the host.

Select Name	Status	Uptime (days)	CPU Usage (%)	Memory Usage (MB)
OC4J	✓			
Clickstream Collector	✗			
HTTP Server	✗	0.107	0.2	99.758
iFS_shubha-sun.us.oracle.com:1521:shubha:IFSUSER	✗			
OC4J_Demos	✗	0.107	0.1	38.391
OC4J_home	✗	0.107	1.2	49.062
OC4J_iFS_emsdk	✗			
OC4J_Portal	✗	0.107	0.1	32.734
OC4J_Wireless	✗	0.107	0.1	37.938
Web Cache	✓	0.117	0.9	4.398

Among these components, you'll find the Oracle Files domain targets with type Internet File System. The domain is:

```
iFS_shubha-sun.us.oracle.com:1521:shubha:IFSUSER
```

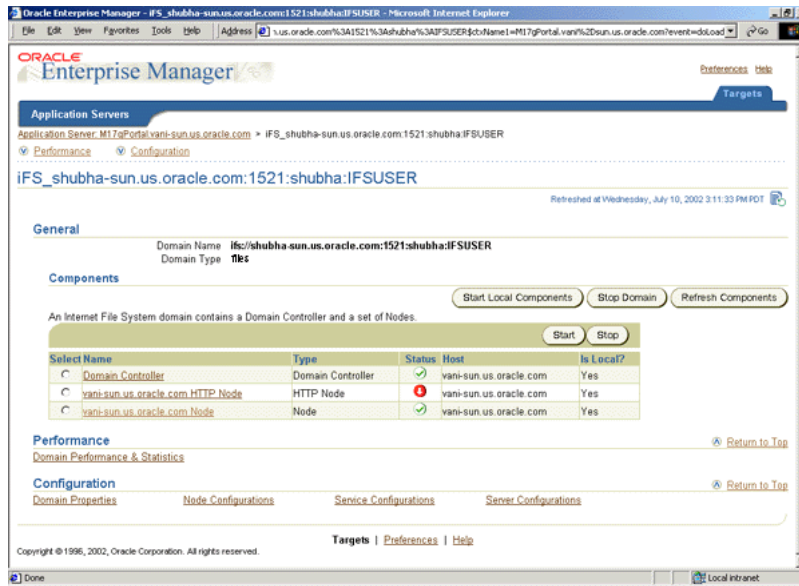
The Oracle9iAS instance is:

```
M17gPortal.vani-sun.us.oracle.com
```

- From the Application Server Home page, click the Internet File System link, in this example:

```
iFS_shubha-sun.us.oracle.com:1521:shubha:IFSUSER
```

- The Oracle Files Top-level page displays, showing the status of the domain controller and the set of nodes. The green checkmark in the Status column means the component has been started.



Some operations are performed on local domain components, others are performed on the entire domain.

- To start or refresh the local components, click the Start Local Components button.
- To start a single component, select it and click the Start button.
- To stop a single component, select it and click the Stop button.
- To stop the entire domain, click the Stop Domain button. This action stops everything, including the local components. The presence of the Stop Domain button indicates that the domain is running. If the domain isn't running, the Start Domain is displayed so you can start the domain.
- To refresh the entire domain, click the Refresh Components button.

If a component's selection button is greyed out, that component is not located on the local host.

Oracle Enterprise Manager identifies domain controllers, nodes, and other resources using the Uniform Resource Locator (URL) format:
`ifs://<host>:<port>:<service>:<schema>`.

Starting the Node Processes

There are two types of nodes: Non-HTTP nodes and HTTP nodes. Although the domain can contain nodes on multiple middle-tier machines, you can only start and stop nodes that are on your local machine.

For Non-HTTP Nodes

1. On the Oracle Files Top-level page, select the non-HTTP node from the Components table.
2. Click Start.
3. The Node status changes to a green checkmark icon, which means the node is up.

For HTTP Nodes

You need to know the corresponding OC4J instance name. For the Oracle Files domain, the default OC4J instance name is `OC4J_iFS_files`.

1. Go to the Application Server Home page.
2. Select the OC4J instance for the HTTP node from the Components table.
3. Click Start, if the node has not already been started.
4. On the Confirmation page, click OK.

Starting, Stopping, Suspending, and Resuming and Servers

A *node configuration* defines the behavior of a particular node. Which servers start up with the node are determined by the node configuration selected. Each Oracle Files node can have one or more services and one or more servers. These services and servers are started automatically when you start the domain, unless you specify otherwise.

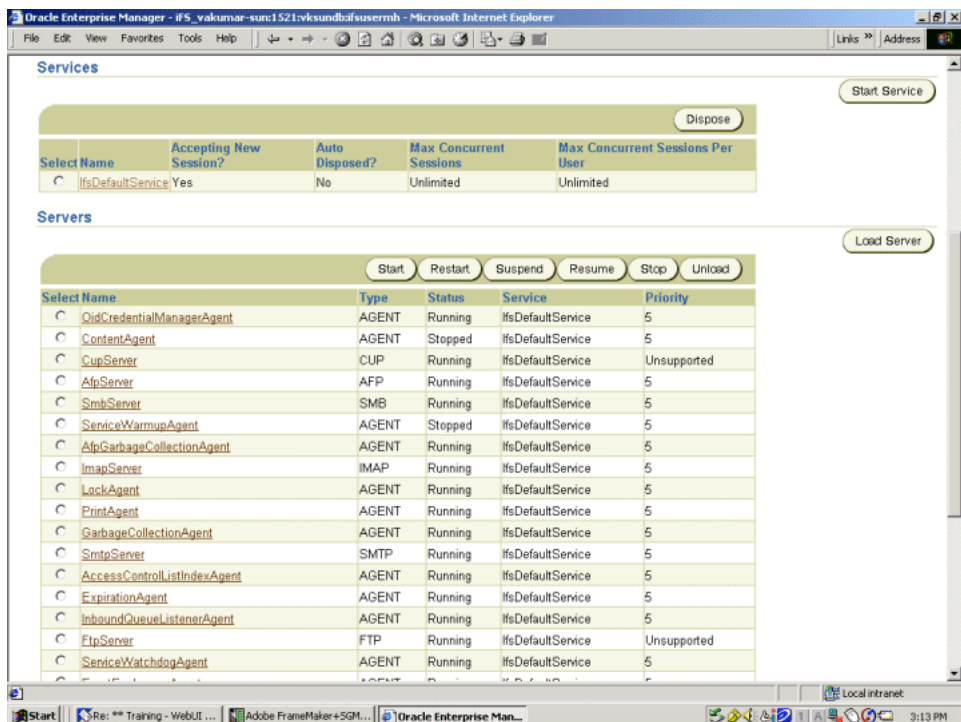
To view the status of the servers:

1. On the Oracle Files Top-level page, click the name of the Oracle Files node. The Node page displays showing the service and servers that comprise the node (see [Figure 4-1](#)).
2. Examine the Status column for the servers to see which servers are running or are stopped.
3. Use the buttons provided to:

- Start
- Restart
- Suspend
- Resume
- Stop
- Unload

the servers. Any changes you make remain active for this session only. To permanently change which servers start up automatically and the server properties, see "[Configuration Settings and How to Change Them](#)".

Figure 4–1 Services and Servers Sections of Node Page



Starting Oracle Files from the Command Line

As an alternative to using the Oracle Enterprise Manager Website to start the domain and nodes, you can use the `ifsctl` command-line tool. The general syntax is:

```
ifsctl command [switch ...] [argument ...]
```

Some commands require a schema password. For those, `ifsctl` prompts for the password, either on the terminal (UNIX) or using a dialog box (Windows).

The commands include:

Table 4–2 *ifsctl* Commands

Command	Use
<code>ifsctl start [-n] [domain]</code>	Launches any local Oracle Files nodes for the specified domain. ("Local nodes" are those configured to run on the computer where <code>ifsctl</code> is invoked.) If the domain controller for the specified domain runs locally, it is also launched. If domain is omitted, all local Oracle Files nodes and domain controllers for all domains for which the computer is registered are launched. The command also starts the domain controller if it has been launched (either locally or remotely) but is not yet started.
<code>ifsctl stop [domain]</code>	Stops the specified domain. The domain controller and all nodes, whether local or remote, are stopped. If only one domain is registered for the computer, the domain may be omitted.
<code>ifsctl stoplocalnodes [domain]</code>	Stops the local nodes for the specified domain. Nodes running on other computers are not affected. The domain controller is not stopped. If only one domain is registered for the computer, the domain may be omitted.
<code>ifsctl status [-n] [domain]</code>	Displays the status of the specified domain. If the domain is omitted, displays the status for all domains for which the computer is registered.

Table 4–2 ifscctl Commands

Command	Use
ifscctl validateconfiguration [-p] [domain]	Synchronizes the Oracle Files registry file (on the local computer) with the domain registry (in the Oracle Files schema). This is normally done automatically; however, if the local computer's file system was restored from a backup (for example, after a disk failure), explicit synchronization might be required. -p means "prune". If the registry file contains a domain that no longer exists (namely, if Oracle Files cannot connect to the database schema for that domain), the computer is deregistered from that domain.

Including `-n` requests non-interactive operation; ifscctl does not prompt for the schema password. In this case, the Oracle Files nodes and domain controllers are still launched, but the domain controller is not started (since starting an Oracle Files domain requires a schema password).

All commands support a `-v`, "verbose" switch. This displays additional diagnostic information. ifscctl generates a log file. In the installed environment, this is located at:

```

$ORACLE_HOME/ifs/files/log/ifscctl.log

```

ifscctl and OC4J

Oracle Files HTTP nodes run in OC4J processes. Because OC4J processes are not owned by Oracle Files (and might also be running non-Oracle Files servlets), ifscctl does not launch or stop OC4J processes. Use the Oracle Enterprise Manager Website for this purpose, or `dcctl` from the command line. When an OC4J process is launched, any Oracle Files HTTP nodes configured to run in that OC4J instance are automatically started, if the domain controller is running and started. When an OC4J process is stopped, the HTTP nodes are stopped. Although it doesn't start and stop HTTP nodes, ifscctl does display their status.

Oracle Process Management and Notification

Oracle Process Management and Notification (OPMN) manages Oracle HTTP Server and OC4J processes within an application server instance. It channels all

events from different components to all components interested in receiving them. OPMN consists of two components:

- Oracle Process Manager (PM) is the centralized process management mechanism in Oracle9iAS and manages all Oracle HTTP Server- and OC4J-related processes. It starts, stops, restarts, and detects death of these processes. When these processes are configured to start up, the characteristics of each set is specified in a configuration file called `opmn.xml`. The PM starts and then waits for a command to start specific processes or all processes. At shutdown, the PM receives a request to stop one or more processes, or all processes and itself.
- Oracle Notification System (ONS) is the transport mechanism for failure, recovery, startup, and other related notifications between components in Oracle9iAS.

To start Oracle HTTP Server and OC4J processes, you can:

- Use the Oracle Enterprise Manager Website. On the Application Server Home page, select the HTTP Server or OC4J processes and click Start.

Or:

- Use the OPMN command line in:

```
$ORACLE_HOME/opmn/bin/opmnctl
```

Type `opmnctl` to see the supported syntax.

Configuration Settings and How to Change Them

The default domain configuration is based initially on the settings you selected during installation and configuration. The specific settings are stored in the Oracle Files repository, in different configuration objects, specifically:

- [Domain Properties](#)
- [Node Configuration](#)
- [Service Configuration](#)
- [Server Configuration](#)

When the domain is started, it uses the settings contained in the repository to determine which nodes it should control (what nodes comprise the domain). The node configuration defines the runtime behavior of the nodes. The service configuration specifies the size of service each node supports (small, medium, or

large). The server configuration determines the protocol servers and agents (AFP, FTP, NFS, and so on) that each service offers for use of the system.

You can change these settings by using the Oracle Enterprise Manager Website to access a specific configuration object and modify the various properties that each comprises.

Domain Properties

To make changes to the domain configuration properties:

1. From the Application Server Home page, click the Internet File System link. The Oracle Files Top-level page displays.
2. In the Configuration section, select Domain Properties.
3. On the Domain Properties, click the name of the property you want to change. Only those properties that are underlined may be changed.
4. Make the changes to the property and click OK.

You can change these properties:

- `IFS.DOMAIN.DOMAINCONTROLLER.LogFilename`. The absolute path to the domain controller's log file. Optional. If not specified, logs are generated to the console (stdout).
- `IFS.DOMAIN.DOMAINCONTROLLER.OverwriteLog`. Whether any existing log file is overwritten each time the domain controller starts. Optional. Defaults to false and appends the log to any existing log file.
- `IFS.DOMAIN.DOMAINCONTROLLER.LogLevel`. The verbosity of the domain controller log. Optional. Must be one of the following values:
 - 0 = disabled (no logging)
 - 2 = low (error conditions only)
 - 4 = medium (normal operation; default)
 - 6 = high (debug information)Defaults to 2.
- `IFS.DOMAIN.DOMAINCONTROLLER.RemoterLogLevel`. The verbosity of the inter-process communication log. Optional. Must be one of the following values:
 - 0 = disabled (no logging)

- 2 = low (error conditions only; default)
- 4 = medium (normal operation)
- 6 = high (debug information)

Defaults to 4.

- `IFS.DOMAIN.DOMAINCONTROLLER.CheckNodesPeriod`. The interval between successive checks of the domain's nodes, in seconds. Optional. Defaults to 15 seconds.
- `IFS.DOMAIN.CREDENTIALMANAGER.AnonymousUserName`. The name for the domain controller. Required. Defaults to: `guest`.
- `IFS.DOMAIN.DOMAINREGISTRY.PasswordRequired`. Defaults to `false`.
- `IFS.DOMAIN.LIBRARYOBJECT.SERVICECONFIGURATION.DefaultServiceConfiguration`. Defaults to `SmallServiceConfiguration`.
- `IFS.DOMAIN.PROTOCOL.NFS.OidToUserMap`. See the *Oracle Collaboration Suite Installation Guide* for information.

You must restart the domain controller for changes to take effect.

Node Configuration

The runtime behavior of any node is specified in a *node configuration* object. On the Oracle Files Website, you can dynamically change the node configuration, change to a different configuration, alter a node configuration permanently, create a new node configuration, or delete a node configuration that is no longer needed. Depending on whether you select the HTTP node or a non-HTTP node, different properties are changeable.

Changing a Node Configuration

1. From the Configuration section on the Oracle Files Top-level page, click Node Configurations.
2. On the Node Configurations page, click the Name of the node configuration you want to change, either the HTTP node or the non-HTTP node. The Edit page displays.
3. Change the node configuration. You can make the following modifications:

Property	HTTP Node	Non-HTTP Node
Description of the node configuration.	Yes	Yes
Access Control level associated with the node configuration.	Yes	Yes
Active status. Deselect to make inactive.	Yes	Yes
Guarded. Whether the node's guardian runs as a separate process. Defaults to true.	N/A	Yes
Java Command. For guarded nodes, the command issued by the node guardian to create a node manager process. Defaults to "java".	N/A	Yes Edit the value to specify command-line arguments for the Java VM, such as "java -Xmx512M" to increase the maximum size of the Java VM's heap.
Log File to which to generate logs. If not specified, logs are generated to the console.	N/A	Yes
Log Level. Verbosity level of the node log. 0 = disabled (no logging) 2 = low (error conditions only) 4 = medium (normal operation; default) 6 = high (debug information)	Yes	Yes
Remoter Log Level. Verbosity level of the inter-process communication log. 0 = disabled (no logging) 2 = low (error conditions only; default) 4 = medium (normal operation) 6 = high (debug information)	Yes	Yes
Log Rotation Interval. The interval in hours that the log file is archived and rotated. Specify 0 to disable log rotation.	N/A	Yes
Overwrite Log. Whether any existing log file is overwritten each time the node starts. Defaults to false and appends the log to the existing log file.	N/A	Yes

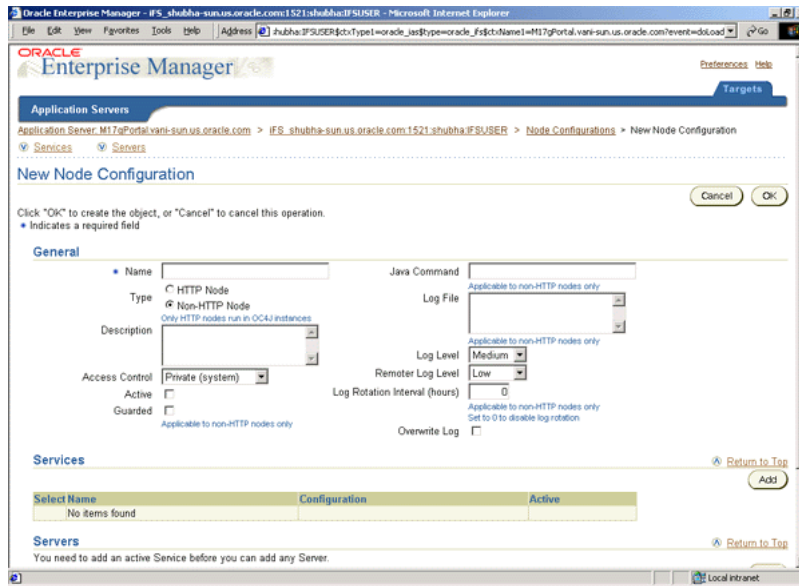
4. In addition to the above properties, you can add, edit, and remove services and servers for this node.
5. Click OK to save the changes.

Note: Changes take effect when the node is loaded or re-started.

Creating a Non-HTTP Node Configuration

1. From the Configuration section on the Oracle Files Top-level page, click Node Configurations.
2. On the Node Configurations page, decide whether to create a new node from scratch or to base it on the properties of an existing node.
 - To create the node from scratch, click the Create button.
 - To base the node on an existing node, select that node's checkbox and click Create Like.

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



3. Enter or change the node information:

- Name of the node.
- Type of the node; select Non-HTTP Node.
- Whether the node is currently active.
- Default services for the node. For each, the node configuration records:
 - Service name.
 - Which service configuration object provides the service's configuration properties.
 - Whether the service is currently active. Inactive services are not automatically started by the node.
- The node's default servers. For each, the node configuration records:
 - Server name.
 - Which server configuration object provides the server's configuration parameters.

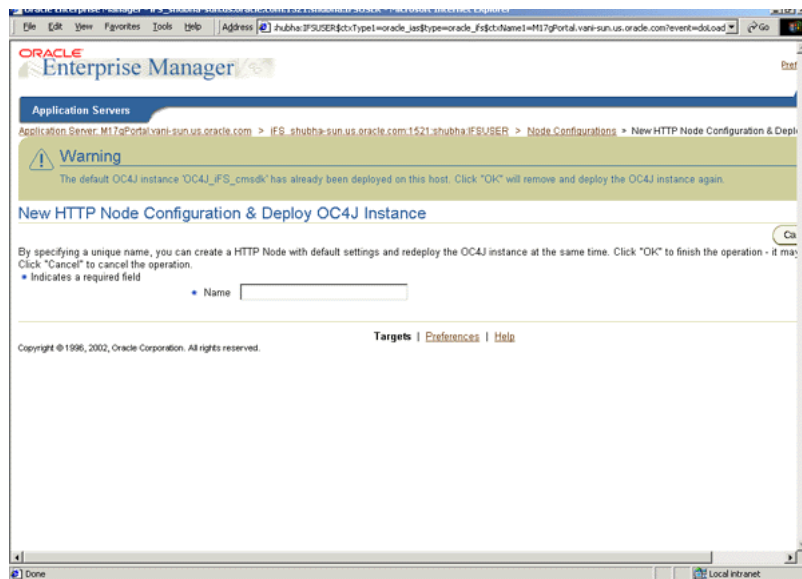
- Whether the server is currently active. Inactive servers are not automatically loaded by the node.
- Name of the service against which the server should operate.
- Priority of the server.
- Whether the server is automatically started once loaded.

4. Click OK.

Creating an HTTP Node Configuration

You cannot follow exactly the same procedure as in "[Creating a Non-HTTP Node Configuration](#)" to create an HTTP node configuration. You need to create and deploy a correspondent OC4J instance for the HTTP node. To create an HTTP node and also deploy its OC4J instance:

1. From the Configuration section on the Oracle Files Top-level page, click Node Configurations.
2. On the Node Configurations page, click the Create and Deploy HTTP Node button. The New HTTP Node Configuration & Deploy OC4J Instance page displays:



3. Enter the HTTP node name.

4. Click OK.

Note: This operation will deploy a default OC4J instance. Any custom changes that were made to the existing OC4J instance will be lost. If you already have an HTTP node on the host, this operation removes the currently deployed OC4J instance and redeploys the default OC4J instance again. This results in the original HTTP node not functioning anymore. You should delete the node configuration for the original HTTP node.

Service Configuration

A *service configuration* holds the default values used when a service is started for an Oracle Files node. Each service configuration specifies values for properties such as the database instance and schema name of the repository, the sizes of the cache and database connection pools, the maximum number of sessions, and the service's default language and character set. (See [Appendix B, "Service Configuration Reference"](#) for a complete list of service configuration parameters.) Service configurations are uniquely named across the domain.

Whenever a new Oracle Files schema is created, three service configuration objects are generated: `SmallServiceConfiguration`, `MediumServiceConfiguration`, and `LargeServiceConfiguration`. These objects are named to reflect the sizes of their data caches.

Use the Oracle Enterprise Manager Website to create or edit service configuration objects (see [Figure 4-2, "Service Configurations Page"](#)). The services read their service configuration properties only when they start. You must stop and re-start a service 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 particular service while it is running.

Figure 4–2 Service Configurations Page

Application Servers

Application Server: [iasm17q.mhonoq-sun.us.oracle.com](#) > [IFS_vakumar-sun:1521.vksundb:ifsusermh](#) > Service Configurations

Service Configurations

Refreshed at Monday, June 10, 2002 1

Below is a list of all Service Configurations. To edit, click the appropriate object's name. To create a new Service Configuration, click 'Create'. To create a Configuration by cloning an existing one, select its checkbox and click 'Create Like'. To remove an entry, select its checkbox and click 'Delete'.

Select	Name	Owner	ACL	Modified
<input type="radio"/>	LargeServiceConfiguration	system	Private (system)	Friday, June 7, 2002 3:32:19 PM PDT
<input type="radio"/>	MediumServiceConfiguration	system	Private (system)	Friday, June 7, 2002 3:32:14 PM PDT
<input type="radio"/>	SmallServiceConfiguration	system	Private (system)	Friday, June 7, 2002 3:32:09 PM PDT

Create Like Delete

[Targets](#) | [Preferences](#) | [Help](#)

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Like the node configuration, you can dynamically change the service configuration properties, change to a different configuration, alter a service configuration permanently, or create a new service configuration.

Changing a Service Configuration

1. From the Configuration section on the Oracle Files Top-level page, click Service Configurations.
2. On the Service Configurations page, click the Name of the service configuration you want to change. The Edit page displays.
3. You can change general information about the service as well as the properties of the service.

General information. Change the description of the service or the access control assigned to the service.

Properties. Click the name of the property you want to change to display the Edit page. Change the values shown as desired.

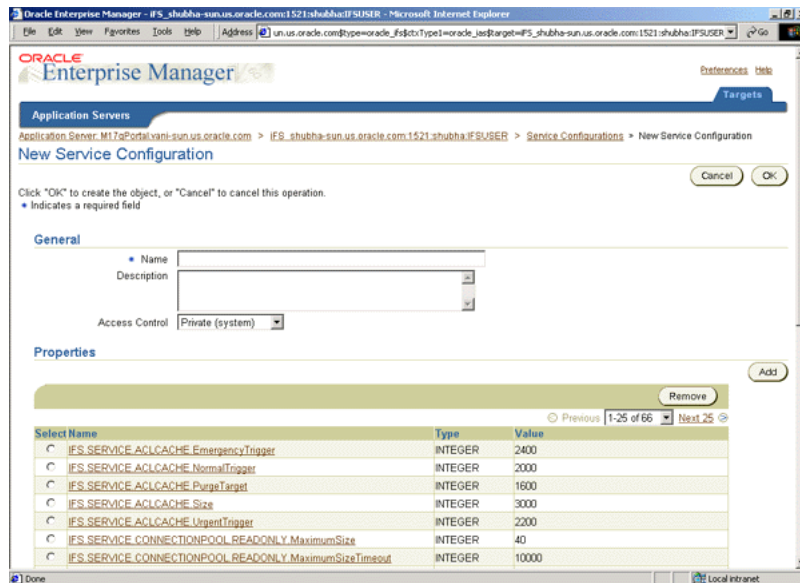
4. Click OK to save the changes.

Note: Changes take effect when the node is loaded or re-started.

Creating a Service Configuration

1. From the Configuration section on the Oracle Files Top-level page, click Service Configurations.
2. On the Service Configurations page, decide whether to create a new service from scratch or to base it on the properties of an existing node.
 - To create the service from scratch, click the Create button.
 - To base the service on an existing service, select that service's checkbox and click Create Like.

In both cases, the New Service Configuration page displays. If you selected Create Like, the properties have been filled in with those of the selected existing service.



3. Enter a description of the service.

4. Assign an access level to the configuration by selecting from the Access Level list.
5. Add, remove, or update the new service's properties.
6. Click OK.

Runtime Service Configuration

You can also dynamically configure the committed data cache, readonly connection pool, and the writeable connection pool while the service runs.

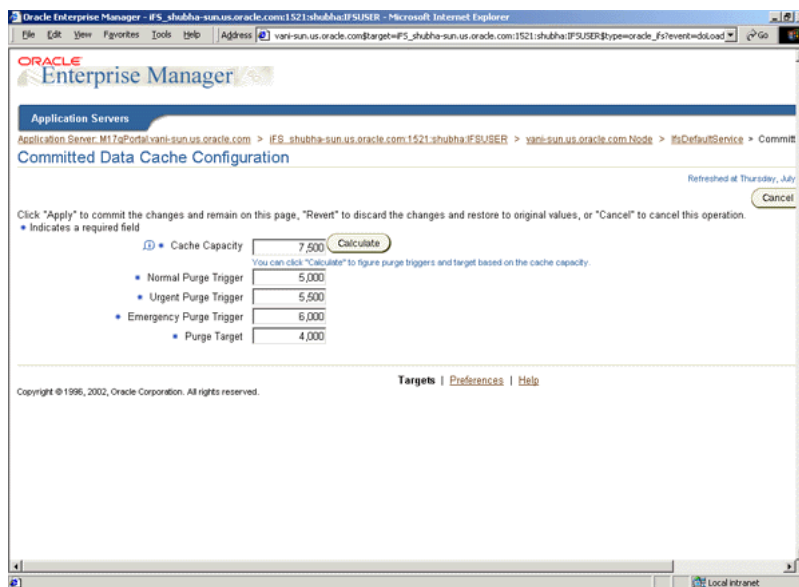
- **The Committed Data Cache** dynamically provides information about the percentage of cache hits and cache size and capacity and allows you to reset the cache statistics or change the cache configuration. Caching this data allows sessions to get the attribute values of frequently used LibraryObjects without a database request, greatly improving performance and scalability. Data that has not been recently used is periodically purged from the cache.
 - **The Read-only Connection Pool** dynamically displays the total and allocated connections and the average time to allocate connection and allows you to reset the Read-only Connection Pool statistics or change the configuration. The Read-only Connection Pool is a set of database connections shared by the sessions to perform database read operations. A minimum number of connections are created when the Oracle Files domain 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.
 - **The Writable Connection Pool** dynamically displays the total and allocated connections and the average time to allocate connection and allows you to reset the Writable Connection Pool statistics or change the configuration. The Writable Connection Pool is a set of database connections shared by the sessions to perform database read/write operations. A minimum number of connections are created when the Oracle Files domain 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.
1. On the Oracle Files Top-level page, click the node whose service you want to configure.
 2. On the Node page, click the service.
 3. On the Service page, scroll to the Configuration section.

4. To configure the committed data cache, click **Committed Data Cache Configuration** to display the **Committed Data Cache Configuration** page. Continue with Step 5.

Or:

To configure the readonly or writeable connection pool, click **Connection Pool Configuration**. Continue with Step 6.

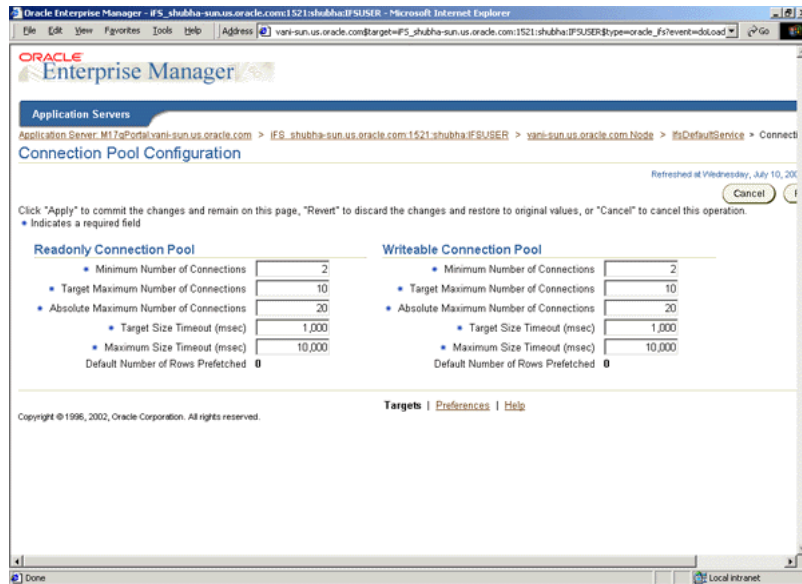
5. Change the parameters on the **Committed Data Cache Configuration** page as desired.



Parameter	Description
Cache Capacity	The absolute maximum size of the service is data cache, in LibraryObjects. The service data cache holds the attribute values of recently used LibraryObjects. Optional; defaults to 7500.
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. Optional; defaults to 5000.

Parameter	Description
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. Must be greater than IFS.SERVICE.DATACACHE.NormalTrigger. Optional; defaults to 5500.
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. Must be greater than IFS.SERVICE.DATACACHE.UrgentTrigger but less than IFS.SERVICE.DATACACHE.Size. Optional; defaults to 6000.
Purge Target	The target cache size, in LibraryObjects, upon completion of a purge cycle. Must be less than IFS.SERVICE.DATACACHE.NormalTrigger. Optional; defaults to 4000.

6. Change the parameters on the Connection Pool Configuration page as desired.



The Readonly Connection Pool properties include:

Property	Description
Minimum Number of Connections	The initial number of database connections in the read-only connection pool. Optional; defaults to 2.
Target Maximum Number of Connections	The target maximum number of database connections in the read-only connection pool. Must be greater than or equal to <code>IFS.SERVICE.CONNECTIONPOOL.READONLY.MinimumSize</code> . Optional; defaults to 5.
Absolute Maximum Number of Connections	The absolute maximum number of database connections in the read-only connection pool. Must be greater than or equal to <code>IFS.SERVICE.CONNECTIONPOOL.READONLY.TargetSize</code> . Optional; defaults to 10.
Target Size Timeout	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. Optional; defaults to 1000.
Maximum Size Timeout	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 be thrown. Optional; defaults to 10000.

The Writeable Connection Pool properties include:

Property	Description
Minimum Number of Connections	The initial number of database connections in the writable connection pool. Optional; defaults to 2.
Target Maximum Number of Connections	The target maximum number of database connections in the writable connection pool. Must be greater than or equal to <code>IFS.SERVICE.CONNECTIONPOOL.WRITEABLE.MinimumSize</code> . Optional; defaults to 5.
Absolute Maximum Number of Connections	The absolute maximum number of database connections in the writable connection pool. Must be greater than or equal to <code>IFS.SERVICE.CONNECTIONPOOL.WRITEABLE.TargetSize</code> . Optional; defaults to 10.

Property	Description
Target Size Timeout	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 writable 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. Optional; defaults to 1000.
Maximum Size Timeout	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 writable 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 be thrown. Optional; defaults to 10000.

Server Configuration

A server configuration holds the default values used when a server is started for an Oracle Files node. 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 C, "Server Configuration Properties"](#)). For example, a server configuration for the Oracle Files FTP server specifies the FTP port number, whether anonymous FTP connections are allowed, and the connection time-out 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 Files 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 Enterprise Manager Website. Any changes you make will be reflected the next time the server is loaded or started.

To change to a different server configuration, you must stop the server and unload it, make the changes, then load and restart the server.

Abstract versus Non-abstract Server Configuration

Server configuration objects get created for each protocol server and agent as part of the configuration of Oracle Files. These objects in turn have a number of properties that are used by the respective servers and agents. These are assigned certain values by default.

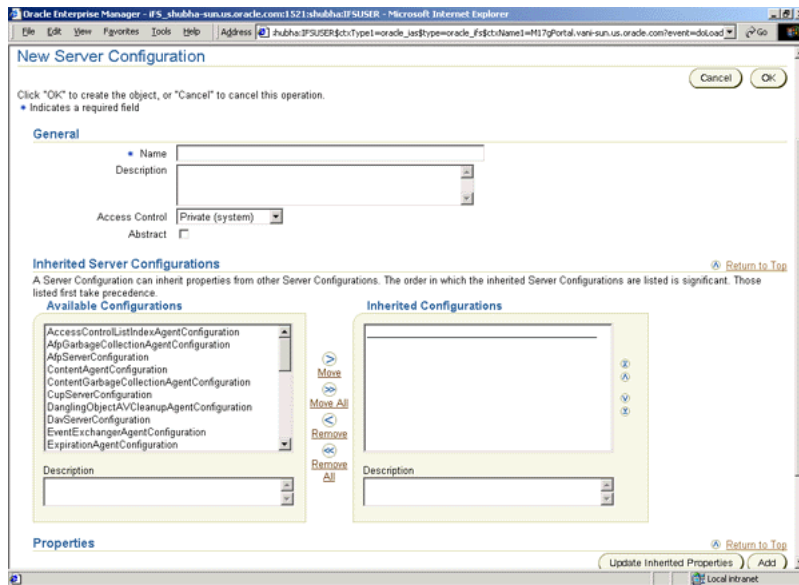
Server configuration objects themselves are of two types:

- The abstract type is used to set base values for the properties, that can be inherited by some other configuration. You cannot start a server from any abstract server configuration.
- The non-abstract type can be used to start servers.

When you create a new server configuration, you can choose to inherit the properties from one or more server configurations. These in turn bring into play their own properties and their respective values. You could choose to use the same values as inherited or, alternatively, use different values. This is done by creating a new attribute with the same name for the new server configuration object that you just created.

Inheritance operations are accessed from the New Server Configuration page (Figure 4-3).

Figure 4-3 *Inheritance Operations on the New Server Configuration Page*



Change Values of Properties Create a new property in the inherited server configuration object that is identical in name to the one in the parent, but has values that override those in the parent server configuration object.

View 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.

Stopping and Unloading Servers

1. In the Servers section of the Node page, select the checkbox of the server you want to unload.
2. Click Stop. The status should now be "Stopped."
3. If you want to delete the server from the configuration, select the server and click Unload. The server is removed from the Servers list.
4. You can now make the desired changes to the server configuration. Click the Name of the server. On the Edit page, only properties that are underlined may be edited. When your edits are complete, click OK.
5. Click Load.
6. Click Start.

Changing a Server Configuration

1. From the Configuration section on the Oracle Files Top-level page, click Server Configurations.
2. On the Server Configurations page, click the Name of the server configuration you want to change.
3. On the Edit page, you can change general information about the server as well as the properties of the server.
 - In the General section, change the description of the server or the access control assigned to the server. Select or de-select Abstract.
 - In the Inherited Server Configurations section, select or de-select the existing configurations from which the configuration should inherit properties.
 - In the Properties section, click the Show Inherited Properties button to display the properties of the inherited server configurations.

- Delete any of the properties by selecting the checkbox and clicking Remove.
 - You can edit any property that is underlined by clicking the property name to display the Edit page. Change the values and click OK.
 - To add a new property, in the Properties section, click the Add button.
 - On the Add Property page, enter the values shown and click OK.
4. When the server configuration is complete, click OK.

Note: Changes take effect when the server is loaded or re-started.

Creating a Server Configuration

1. From the Configuration section on the Oracle Files Top-level page, click Server Configurations.
2. On the server Configurations page, decide whether to create a new server configuration from scratch or to base it on the properties of an existing server.
 - To create the server configuration from scratch, click the Create button.
 - To base the server configuration on an existing server configuration, select that server checkbox and click Create Like.

In both cases, the New Server Configuration page displays. If you selected Create Like, the properties have been filled in with those of the selected existing server.

3. On the New Server Configuration page, in the General section, enter a name for the new server configuration.
4. Check the Abstract box to make this server configuration not instantiable.
5. In the Inherited Server Configurations section, select the existing configurations from which the new configuration should inherit properties. Select configurations from the Available Configurations list and move them to the Selected Configurations list.
6. In the Properties section, click the Update Inherited Properties button to display the properties of the inherited server configurations.
 - Delete any of the properties by selecting the checkbox and clicking Remove.

- You can edit any property that is locally defined (not inherited) by selecting the property and clicking Edit to display the Edit page. Change the values and click OK.
 - To add a new property, in the Properties section, click the Add button.
 - On the Add Property page, enter the name, type, and value and click OK.
7. When the server configuration is complete, click OK.

Oracle Files Configuration Options

Oracle Enterprise Manager Website provides three additional configuration options critical to the Oracle Collaboration Suite. These components include:

- [Oracle Collaboration Suite Search Configuration](#)
- [Oracle Files Domain Configuration Property](#)
- [Printing Services](#)
- [MimeType Formats](#)

Oracle Collaboration Suite Search Configuration

Oracle Collaboration Suite Search is an application that lets users search any and all configured applications in the Oracle Collaboration Suite. If all the applications are configured, Oracle Collaboration Suite Search will search Oracle Files, Unified Messaging, and Oracle UltraSearch (searches internal web sites).

Enabling Oracle Collaboration Suite Search is a post-configuration step dependent on Oracle Email and Oracle UltraSearch configuration. Oracle Files must be configured to enable Oracle Collaboration Suite Search.

To begin configuring Oracle Collaboration Suite Search:

1. From the Configuration section of the Oracle Files Domain Controller page, click Oracle Collaboration Suite Search.
2. On the Oracle Collaboration Suite Search Configuration page, you can begin setting search configuration parameters.

Figure 4–4 Oracle Collaboration Suite Search Configuration Page

ORACLE Enterprise Manager Preferences Help

Targets

Application Servers

Application Server: m17core.ifsqa3-sun.us.oracle.com > IFS_ifsqa2-sun.us.oracle.com.1521_ifsqa2-HKFILES > Federated Search Configuration

Federated Search Configuration

Click "Apply" to commit the changes and remain on this page, "Revert" to discard the changes and restore to original values, or "Cancel" to cancel this operation.

Mail Configured Yes
 No

Ultra Search Configured Yes
 No

Web Mail Base URL

Ultra Search Schema Name

Ultra Search Schema Password

Confirm Password

Ultra Search Connection String

Ultra Search Mail Page

Cancel Revert Apply

Configuration Search Parameters

To configure and enable Oracle Collaboration Suite Search, the administrator must enter search parameters in the Oracle Collaboration Suite Search Configuration page. Besides the Oracle UltraSearch Schema Password parameter, all properties are stored as Oracle Files domain properties. The Oracle UltraSearch Schema Password is stored as an encrypted repository parameter.

Table 4–3 Oracle Collaboration Suite Search Configuration Search Properties

Property	Description
Oracle Email Configured	Click Yes to configure the Oracle Email application. Click No if you do not wish to configure the application.
Oracle UltraSearch Configured	Click Yes to configure the Oracle UltraSearch application. Click No if you do not wish to configure the application.
Oracle WebMail Base URL	The base URL to access Oracle WebMail messages.
Oracle UltraSearch Schema Name	The Oracle UltraSearch schema name.
Oracle UltraSearch Schema Password	The Oracle UltraSearch password.

Table 4–3 Oracle Collaboration Suite Search Configuration Search Properties

Property	Description
Confirm Password	Confirmation of the Oracle UltraSearch password.
Oracle UltraSearch Connection String	A JDBC connection string for the database which contains the Oracle UltraSearch installation. For example, <code>jdbc:oracle:thin:@sunmachine4200:1520:test</code>
Oracle UltraSearch Mail Page	The base URL for Oracle UltraSearch email results. Results pass to <code>oracle.ultrasearch.query.QueryInstance.setMailPagePath()</code>

Oracle Files Domain Configuration Property

Oracle Files uses an additional Domain Configuration Property, specific to Oracle Files:

Table 4–4 Oracle Files Domain Configuration Property

Property	Type	Description
<code>IFS.DOMAIN.APPLICATION.FILES.WorkflowSchemaName</code>	String	Enter a value that is set to the Workflow schema name. The value represents how the application has been configured for Oracle Files.

To access this property:

1. Click Domain Configuration under the Configuration section on the Oracle Files Administration page.
2. From the Domain Configuration page, click `IFS.DOMAIN.APPLICATION.FILES.WorkflowSchemaName`.
3. On the `IFS.DOMAIN.APPLICATION.FILES.WorkflowSchemaName` page, enter a value.
4. Click OK.

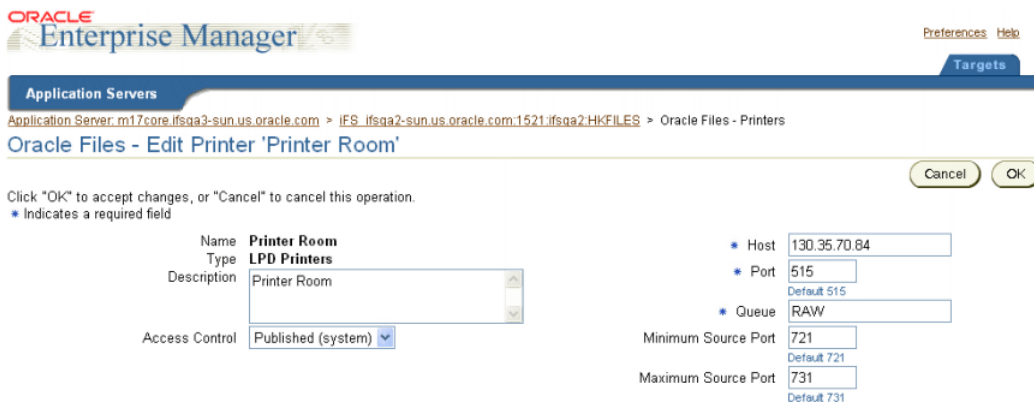
Printing Services

Oracle Files supports printing to line printer daemon (LPD) printers using the SMB protocol. To integrate with—and allow users to print from—the Oracle Collaboration Suite, a printer must be physically connected to the network using the TCP/IP protocol. This means that a host name or an IP address is required to establish a connection with the network.

Administrators can add, modify, and delete printers:

1. On the Oracle Files Domain Controller page, select Printers from the Oracle Files Administration section.
2. On the Printers page, you can:
 - Click New Printer, and on the Printers page enter the printer configuration information.
 - Select a printer and click Delete.
 - Click an existing printer name to modify the printer configuration information.

Figure 4–5 Adding and Configuring a Printer



For information on entering the printer configuration information and completing the process of adding, modifying, or deleting a printer, see the Online Help for the Oracle Enterprise Manager Website.

Notes

- After adding and modifying a printer, both the SMB server and the Printer agent must be stopped and then restarted before the new settings are enabled. Click the node from the Oracle Files Domain Controller page and then stop and start the Print agent and the SMB server from the Node page.
- After a printer is configured, Windows users must use the "Add Printer" wizard in the Windows Control Panel to add and enable the printer.

- Although the Online Help for the Oracle Files indicates that an administrator can choose any ACL for a printer, only the Published (system) ACL is currently supported.

MimeType Formats

Oracle Files associates a format (MIME type) with each document. The format of a document specifies the way document information is encoded. To determine how to store content, Internet browsers require document formats (for example, binary or text/xml).

Specifying document formats becomes especially important when indexing a format type; in Oracle Files, indexing a format type is the basis of content searching. If a format is not indexed, searches will fail. However, searches for content can also fail when indexed incorrectly. For example, on the New Format page an Administrator can add a new format called .fm, a binary Adobe FrameMaker file. However, an administrator can then erroneously associate a text/plain format to the binary .fm file. As a result, searches will not return any content contained in a FrameMaker file because Oracle Files "expects" to find text/plain format content in a binary file.

Administrators can create, modify, and delete formats.

1. From the Oracle Files Administration section of the Oracle Files Domain Controller page, select Formats.
2. On the Formats page, you can:
 - Click New Format, and on the New Format page enter the MimeType format information. Using the default system format requires no administration; using supplemental and custom formats does.
 - Select a format and click Delete.
 - Click an existing format name and edit the MimeType format information.

Figure 4–6 Adding a New MimeType Format

For information on entering the MimeType format configuration information and completing the process of adding, modifying, or deleting MimeType formats, see the Online Help for the Oracle Enterprise Manager Website.

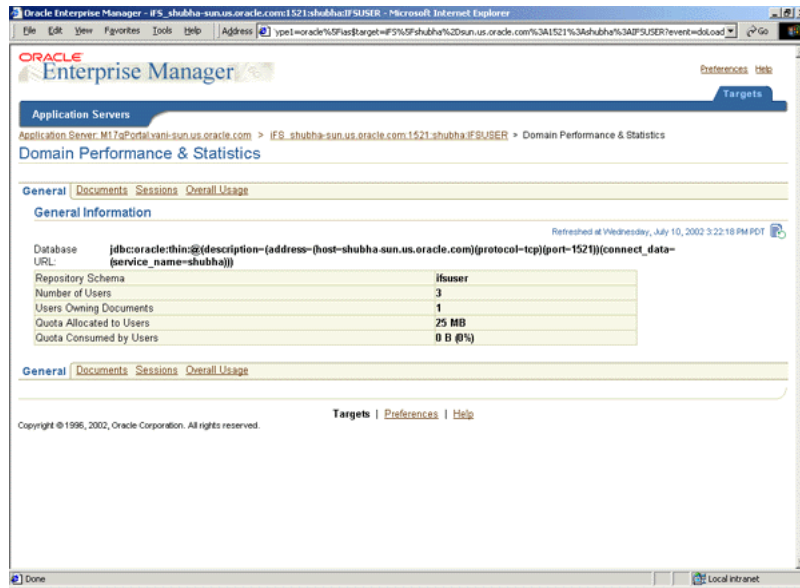
Monitoring Domain, Node, and Service Performance

In addition to starting and stopping the domain and nodes and changing properties of services and servers, you can monitor domain, node, and service performance on the Oracle Enterprise Manager Website.

You can use this information to get an overall picture of the domain's performance or determine whether the domain's configuration needs modification.

Monitoring Domain Performance

1. From the Performance section on the Oracle Files Top-level page, click Domain Performance and Statistics. The Domain Performance & Statistics page displays.



From this page, you can access various statistics and usage charts, tables, and summaries to evaluate system performance and guide you in making changes to your configuration, if necessary. Table 4-5 lists the various charts, graphs, and tables and shows you which subtab and view names you should select to access the information.

2. Select one of the four subtabs:
 - The General subtab for general information and information about document storage.
 - The Documents subtab for systemwide information about documents.
 - The Sessions subtab for a viewing the connected sessions by server type
 - The Overall Usage subtab for monitoring sessions, threads, and memory by node and host.
3. To refresh the information, click the Refresh icon.
4. To navigate between pages, make a selection from the Select a View list and click the Go button.

Table 4–5 Reference to Statistical Information about the Domain and Node

Chart, Graph, or Table Name	Statistics or information Displayed	Subtab	Select a View item
Document Table	Document distribution 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 document type	Documents	Consumption Chart
General Information	<p>A tabular display listing:</p> <ul style="list-style-type: none"> ▪ Database URL (connect string) for the database containing the Oracle Files schema where the statistics are calculated) ▪ Schema name for the Oracle Files instance ▪ Total number of user accounts ▪ Total users who own documents in the system ▪ Quota allocated for all users ▪ Quota consumed by all users 	General	N/A
Session Table	Tabular display of the total number of connected sessions per protocol server (AFP, FTP, and so on). Agents display as having 0 connections.	Sessions	Table
Session Chart	Pie chart of total number of connected sessions per protocol server. (The same information as the Session Table but in a graphical pie chart display.)	Sessions	Chart
Overall Usage Table by Node	Total connected sessions, threads, and memory consumed by each node in the domain.	Overall Usage	Table by Node
Overall Usage Table by Host	Total connected sessions, threads, and memory consumed by each host in the domain.	Overall Usage	Table by Host

Table 4-5 Reference to Statistical Information about the Domain and Node

Chart, Graph, or Table Name	Statistics or information Displayed	Subtab	Select a View item
Overall Session Usage Chart by Node	Bar graph showing the total number of connected sessions and consumed threads by each node.	Overall Usage	Session Chart by Node
Overall Session Usage Chart by Host	Bar graph showing the total number of connected sessions and consumed threads by each host	Overall Usage	Session Chart by Host
Overall Memory Usage Chart by Node	Bar graph showing the total amount of memory consumed by each host	Overall Usage	Memory Chart by Node
Overall Memory Usage Chart by Host	Bar graph showing the total amount of memory consumed by each node	Overall Usage	Memory Chart by Host

Monitoring Node Performance

1. From the Oracle Files Node Page, click the Node Performance & Statistics link to display the summary-level information about the node.

The screenshot shows the Oracle Enterprise Manager interface for monitoring a node. The browser title is "Oracle Enterprise Manager - Internet File System Node: samman-sun:53141 - Performance & Statist - Microsoft Internet Explorer". The page content includes:

- Application Servers** subtab.
- Navigation path: [Application Server: iasinfra](#) > [Internet File System: samman-sun:53140](#) > [Internet File System Node: samman-sun:53141](#) > [9FS Node Performance & Statistics](#)
- Page title: **Internet File System Node: samman-sun:53141 - Performance & Statistics**
- Last Updated Time: Thursday, January 10, 2002 11:08:09 AM PST
- Overview** section:
 - Allocated Heap Size: **22008KB**
 - Total Heap Size: **27824KB**
 - Thread Count: **77**
- Properties** table:

Name	Value
9FS Version (beans-side)	9.0.1.73.0
9FS Version (server-side)	9.0.1.73.0
Java VM Default Timezone	America/Los_Angeles
Java VM Default Locale	en
IP Address	samman-sun/130.35.69.170
Java Vendor	Sun Microsystems Inc.
Java Version	1.3.1
Java Home	/private/home/oracle/OraHome1/jdk/jre
OS Name	SunOS
OS Architecture	sparc
OS Version	5.8
- Footer: Copyright 2001, Oracle Corp. | [Targets](#) | [Preferences](#) | [Help](#)

Monitoring Service Performance

1. On the Oracle Files Top-level page, click the node whose service you want to monitor.
2. On the Node page, click the service.
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 4–7 Committed Data Cache Statistics



Figure 4–8 Connection Pool Statistics

Log Files

Oracle Enterprise Manager Website Logs

The Oracle Enterprise Manager Website logs are located in:

```
$ORACLE_HOME/sysman/log: em-servlet.log, emd.log, em-application.log
```

Oracle Files Logs

Log files are generated by the domain controller and each node.

- The domain controller log records major state transitions of its nodes; for example, started, failed, or restarted, and provides centralized data on overall domain health. By default, `DomainController.log` is located in:

```
$ORACLE_HOME/ifs/files/log/<transferred domain name>/DomainController.log
```

- The non-HTTP node log records the same type of information for each node. All errors are logged with stack traces. The log file is specified in its NodeConfiguration, by default:

```
$ORACLE_HOME/ifs/files/log/<transferred domain name>/<node name>.log
```

- The HTTP node log records the same type of information for each HTTP node. All errors are logged with stack traces. By default, the log file is located in:

```
$ORACLE_HOME/j2ee/OC4J_ifs_files/application-deployments/files/OC4J_ifs_files_default_island_1/application.log
```

- The ifscctl log is located in:

```
$ORACLE_HOME/ifs/files/log/ifscctl.log
```

- The Oracle Files Java Browser log is located in:

```
$ORACLE_HOME/ifs/files/log/ifsbrowser.log
```

You can set various options for these log files; for example, whether to overwrite the log each time the domain is started through the domain and node configuration properties (see "[Domain Properties](#)" and "[Node Configuration](#)").

Maintenance and Tuning

This chapter includes important information about on-going system maintenance, tuning, and recovery. As with any production system, your implementation of Oracle Files should include a basic disaster recovery plan that ensures 24x7 operations, regardless of system failures. To manage potentially exponential growth of data in an Oracle Files instance, the system provides some unique capabilities, such as LOB (large objects) file aging. This chapter includes these topics.

- [Backup and Recovery](#)
- [LOB \(Large Objects\) Management](#)
- [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 right into the database.

Always back up the system before upgrading, migrating new data, or making other major changes.

See *Oracle9i Backup and Recovery Concepts* for additional information.

LOB (Large Objects) Management

Oracle Files data is comprised of content and metadata. The majority of data stored in Oracle Files is content and is stored online in LOBs (Large Objects). Content

stored in Oracle Files is stored in database tablespaces. Oracle Files makes use of the Large Object (LOB) facility of the Oracle database. All documents are stored as Binary Large Objects (BLOBs), which is one type of LOB provided by the database. See "[Provide Adequate Storage to Improve Performance](#)".

Through LOB management, Oracle Files provides data archiving. Content that has not been accessed for a specified interval is then automatically moved from BLOBs to BFILE. The content is still accessible, of course, and is visible as any normal content would be when users are browsing or searching.

Moving Content Off-line or Near-line

As the amount of content stored increases, it may become desirable to move content to a cheaper medium. BFILE support provides off-line and near-line storage.

In both offline and near-line storage, content that is infrequently accessed is moved from expensive online media, such as a disk array, to a cheaper off-line medium, such as tape. The metadata and search indexes are kept online and are readily available. The difference between off-line and near-line storage is in the automation and transparency of moving the data between storage media. Near-line storage is also known as a Hierarchical Storage Manager (HSM) system.

Oracle Files provides transparent access to content stored as either a LOB (online storage) or a BFILE (near-line storage). Writing to a BFILE results in the content being stored in a BLOB. A BFILE is a read-only Oracle data type consisting of an Oracle Directory object and a filename. When an application writes to a document whose content is stored in a read-only BFILE, the content ends up being stored in a BLOB. The new content will be indexed.

End users will be unaware of where their content is stored. Administrators, however, must be aware of where content is stored. For example, when managing indexing by Oracle Text, administrators need to know that content can be indexed only in a LOB. Once a document is indexed, the read-only nature of BFILES allows Oracle Files to maintain the index indefinitely.

Implementing BFILE Aging

BFILE aging is not implemented by default. You must activate the Content agent and configure the frequency value. The Content agent moves content that has not been accessed in a specified amount of time to a BFILE. See the Content agent properties in [Appendix C, "Server Configuration Properties"](#).

Performance Tuning The file the BFILE points to is located in the database's `$ORACLE_HOME/ifsbfiler/<ifsschema>`. UNIX users may configure the real

location of the BFILE using symbolic links. Windows users must use this BFILE base path.

Specify the Relative Path From the base path, the Content agent associates a relative path (the complete path to the BFILE's file is the base path plus a relative path). The path now looks like this:

```
$ORACLE_HOME/ifsfiles/<schemaname>/<yyyy>/<dd>/<mm>/hhmmss/ifsfile_<id>
```

where:

`/<yyyy>/<dd>/<mm>/hhmmss/` is the relative path created by the Content agent based on the server configuration properties you set for the Content agent.

`ifsfile_<id>` is the filenaming pattern that associates a unique ID to each piece of content.

Use Symbolic Linking to Change the Storage Location (UNIX only) You can create a symbolic link to connect the base file location to a different location—an HSM system, a tape backup system, etc.—rather than limit your BFILE storage to the database's `Oracle_Home`.

Performance Tuning

Performance is typically affected by network input/output (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 bottleneck to a new location, so you must approach the tuning task in a logical manner and ensure that you're not simply moving a bottleneck to a new location.

The performance tips in this section cover the basics and include:

- [Run the Oracle Files 'analyze.sql' Script Frequently](#)
- [Provide Adequate Storage to Improve Performance](#)

See the *Oracle9i Database Performance Tuning Guide and Reference* for complete information.

Run the Oracle Files 'analyze.sql' Script Frequently

Oracle Files uses Oracle's Cost-Based Optimizer (CBO) to determine the most efficient way to execute SQL statements. For the CBO to work properly, the Oracle Files 'analyze.sql' script should be run as part of regular Oracle Files operations,

especially after large volume changes to the data, such as after users have loaded a large number of files into the instance. For more information about the Cost-Based Optimizer, see the *Oracle9i Database Performance Tuning Guide and Reference*.

Run the script during non-busy periods to avoid impeding performance for users.

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](#)". To run the script:

```
cd $ORACLE_HOME/files/admin/sql
sqlplus ifssys/<password> @analyze.sql ifssys
```

where: `ifssys/<password>` is the schema user name and password and `ifssys` is the name of the schema to analyze.

This script may take awhile to run, especially if Oracle Files contains a large number of documents.

Restoring Prior Statistics

If, for any reason, you want to restore previous statistics, you can do so by executing the following statements:

```
SQL> select stat_id from my_stat_backup_table;
SQL> call dbms_stats.import_schema_stats
      ('ifssys', 'my_stat_backup_table', <name of stat id>,'ifssys');
```

Before gathering new statistics, the `analyze.sql` script exports backup statistics to the `IFS_BACKUP_STATS` table, marking the set of statistics with a timestamp. You can query the table for existing saved sets by executing this SQL statement:

```
SQL> select distinct statid from ifs_backup_stats;
```

This query returns a list of all statistics by `statid` (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 your performance was better. For example, if you find that after using the statistics from

your 8:00 pm running of `analyze` that performance is no better or worse, then you can restore your statistics from earlier that day, or from a prior set altogether.

```
SQL> @import_backup_stats.sql <user_name> '08-MAY-02 06:21.40'
```

Provide Adequate Storage to Improve Performance

The largest consumption of disk space occurs on the disks that actually contain the documents residing in Oracle Files, 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

LOBs provide for transactional semantics much like the normal data stored in a database. To meet the criteria of transactional semantics, LOBs must be broken down into smaller pieces which are individually modifiable and recoverable. These smaller pieces are referred to as chunks. Chunks are actually a group of one or more sequential database blocks from a tablespace that contains a LOB 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 LOB header, and the block checksum. Oracle Files configures its LOBs 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 impose an overhead of 240 bytes. The usable space within a chunk would be $32768 - 240 = 32528$ bytes.

Each document stored in Oracle Files will consist of some integral number of chunks. Using the previous example, a 500K document will actually use $512000 / 32528 = 15.74 = 16$ chunks. Sixteen chunks will take up $16 * 32 \text{ K} = 524288$ bytes. The chunking overhead for storing this document would then be $524288 - 512000 = 12288$ bytes which is 2.4 percent of the original document's size. The chunk size used by Oracle Files is set to optimize access times for documents. Note that small documents, less than one chunk, will incur a greater disk space percentage overhead since they must use at least a single chunk.

Another structure required for transactional semantics on LOBs is the LOB Index. Each lob index entry can point to eight chunks of a specific LOB 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 upon how fragmented that index becomes.

The last factor affecting LOB space utilization is the PCTVERSION parameter used when creating the LOB column. For information about how PCTVERSION works, please consult the *Oracle9i SQL Reference Guide*.

Oracle Files uses the default PCTVERSION of 10 percent for the LOB 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 10 percent increase in chunking space must be added in to the expected disk usage to allow for persistent PCTVERSION chunks.

For large systems where disk space is an issue, Oracle recommends that you set the PCTVERSION to 1 to reduce disk storage requirements. This may be done at any time in a running system with these SQL commands:

```
alter table odmm_contentstore modify lob (globalindexedblob) (pctversion 1);
alter table odmm_contentstore modify lob (emailindexedblob) (pctversion 1);
alter table odmm_contentstore modify lob (emailindexedblob_t) (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 LOB 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 the example from above, $\text{chunks} = 4$, $\text{ChunkSize} = 32768$, $\text{PctversionFactor} = 1.1$, $\text{NumLobPerIndexEntry} = 8$, and $\text{LobIndexEntryOverhead} = 46$, so $\text{FileDiskSpaceInBytes} = \text{roundup}(4 * 32768 * 1.1) + (\text{roundup}(4/8) * 46) = 144226 \text{ FileDiskSpaceInBytes}$.

4. Calculate the total disk space used for file storage by summing up the application of the above formulas for each file to be stored in the LOB.

`TableSpaceUsage = sum(FileDiskSpaceInBytes) for all files stored`

Oracle Files creates multiple LOB columns. The space calculation must be made for each tablespace based upon the amount of content that will qualify for storage in each tablespace.

Oracle Files Metadata and Infrastructure

The Oracle Files 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 Files 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 should be very similar to operations on a normal Oracle database installation. You should plan for approximately 6 K of overhead per 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 should be much larger.

The initial disk space allocated for this 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 Files as part of the installation. Different tables and indexes within this tablespace will grow at different rates depending on which features of Oracle Files get used in a particular installation.

Analyzing Performance Problems

After ensuring that you've run statistics properly and have enough free hard-disk drive to support the tablespaces, you may still have performance problems. If that's

the case, you must determine whether the performance bottleneck is caused by the Oracle9i Database Server or by Oracle Files.

To isolate the problem, start by looking at which processes are running and how many resources they are consuming.

1. Run `top` (on UNIX) or Task Manager (on Windows NT/2000) 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 the Bottleneck

If the bottleneck is the Oracle shadow process, get the SQL statement which is causing the largest number of buffer gets, and run Explain Plan on it.

If you see full table scans, then that's the cause of the problem; the optimizer isn't choosing an appropriate plan. Report that problem to Oracle Support. Additional work must be done to isolate the problem.

If the Java Processes are the Bottleneck

You may have too little memory. For example, if you see any "java.lang.OutOfMemoryError" errors in your log files, increase your MX settings for that JVM.

If users are complaining about poor response times, and `top` (on UNIX) or its equivalent (for example, Task Manager on Windows NT/2000), shows a Java process running at 100 percent of a CPU for a minute or longer, then the MX setting for Java may be too small.

1. Turn on verbose garbage collection (verbosegc):

```
% java -verbosegc
```

An example of a return message is:

```
GC[1] in 305 ms: (6144kb, 6% free) -> (14Mb, 61% free)
```

GC[1] indicates a complete garbage collection. GC[0] indicates a young space only garbage collection. In this example, the collection took 305 ms. At the start of the collection, heap size was 6144 kb, with 6 percent free. The heap expanded during collection 14 Mb heap with 61 percent free.

2. If complete GCs occur more than once every 10 minutes (not just after startup), increase your MX settings for that JVM.
 - In JRE 1.3, complete (or "major") GC's show up as "GC(1)". In other JVMs, they may show up as "major GC".
 - A major GC occurs when the Garbage Collector has exhausted all available memory in the "nursery", and has to go into the heap to reclaim memory.

Obtaining Oracle Files Java Cache Statistics

If the bottleneck is an Oracle Files Java process, start by checking the percentage of cache hits for the Oracle Files service. Starting from the Oracle Enterprise Manager Application Server home page (<http://hostname:1810>):

1. In the System Components list, click the Oracle Files. The Top-level page displays, listing the components of the Oracle Files installation: Domain Controller, HTTP Node, and Node.
2. Click the Name of the node. The Node page displays, showing the current status of the node (Up or Down), the service running and its status, and a list of server objects running on this node.
3. Click the Name of the service. Typically, this will be "IfsDefaultService." The Service page displays.
4. Scroll to the Performance section and click the Committed Data Cache Statistics link. The Committed Data Cache Statistics page displays showing Cache Size, Cache Puts, Cache Removes, 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 95 percent, the size of the Committed Data Cache may be too small.

5. To change the Cache settings for the current session, return to the previous page (the "IfsDefaultService" page) using the Back button in the browser or the previous link in the path displayed on the page. In the Configuration section, click Committed Data Cache Configuration.
6. Proportionately increase all Cache settings (Cache Capacity, Normal purge trigger, Urgent purge trigger, Emergency purge trigger, Purge target), and click the Apply button when you're finished.

This will increase your memory usage on the middle-tier machine by approximately 3 K per object.

7. Run the test again, and observe the results.

Obtaining Oracle Files Connection Pool Statistics For the ReadOnly or Writable connection pool, increase the "Target max. number of connections" and "Absolute max. number of connections" if any of the following is true:

- "Failed allocation" is greater than zero.
- "Total Connections" is greater than two higher than "Target max number of connections."
- "Deferred allocations" is greater than 5 percent and "Average time to allocate" is more than 10 milliseconds.

Each additional Target or Absolute connection will use approximately 8 MB per connection on the middle tier and 1 MB per connection on the database.

Oracle Files Connection Pool Tuning For the ReadOnly or Writable Connection Pool, increase the "TargetSize" and "MaximumSize" if any of the following is true:

- "FailedAllocationCount" is greater than zero.
- "CurrentSize" is greater than two higher than "TargetSize."
- "DeferredAllocationCount" is greater than 5 percent of ImmediateAllocationCount and "AverageAllocationTime" is more than 10 milliseconds.

Note that each additional CurrentSize connection will use approximately 8 MB per connection on the middle tier and 1 MB per connection on the database.

The log file will have connection pool statistics similar to these:

```
Cache performance for S_LibraryObject cache
```

```
CACHESIZE=409
OBJECTCOUNT=409
PUTCOUNT=818
REMOVECOUNT=0
FINDCOUNT=14617
HITCOUNT=13949
MISSCOUNT=668
HITRATIO=0.9542997879181775
MISSRATIO=0.04570021208182254
```

```
Cache performance for FolderPath cache
```

```
CACHESIZE=15
CacheSizeEstimate=15
ACCESSSEQUENCE=599
SequenceAtLastPurge=0
PUTCOUNT=15
```

```
REMOVECOUNT=0
PURGECOUNT=0
FINDCOUNT=557
HITCOUNT=433
MISSCOUNT=124
HITRATIO=0.77737881508079
MISSRATIO=0.22262118491921004
```

Cache performance for committed S_LibraryObjectData cache

```
CACHESIZE=473
CacheSizeEstimate=576
ACCESSSEQUENCE=6821
SequenceAtLastPurge=0
PUTCOUNT=576
REMOVECOUNT=0
PURGECOUNT=0
FINDCOUNT=27092
HITCOUNT=26338
MISSCOUNT=754
HITRATIO=0.972168905950096 <=== THIS IS THE NUMBER TO WATCH
MISSRATIO=0.02783109404990403
```

Cache performance for LibraryObject cache

```
CACHESIZE=221
OBJECTCOUNT=221
PUTCOUNT=221
REMOVECOUNT=0
FINDCOUNT=1473
HITCOUNT=1252
MISSCOUNT=221
HITRATIO=0.8499660556687033
MISSRATIO=0.1500339443312967
```

Getting Oracle Files Statistics for a Custom Java Application If you have written a custom Java application, you can use any of the following to get statistics about a session or service (the session variable is your authenticated LibrarySession):

```
// LO data cache
System.out.println(session.invokeServerMethod("DYNGetCommittedLibraryObjectData
CachePerformanceString", null));

// Folder path cache
System.out.println(session.invokeServerMethod("DYNGetFolderPathCachePerformances
tring", null));
```

```
// L0 cache
System.out.println(session.getLibraryObjectCachePerformance().toString());

// Writeable connection pool
System.out.println(session.invokeServerMethod("DYNGetWriteableConnectionPoolPerformanceString", null));

// Readonly connection pool
System.out.println(session.invokeServerMethod("DYNGetReadonlyConnectionPoolPerformanceString", null));
```

To Permanently Change the Service Configuration The changes you make on this page apply only to the running service session. To change settings permanently, so that they are used each time you restart the domain or this particular node, you must:

1. Return to the Top-level Node page.
2. Stop the node.
3. Look under Node Configurations to determine the configuration of the service (small, medium, large).
4. Change the properties in the corresponding Service Configuration.
5. Start the node.

Thread Count Issues and Custom Applications

If the Thread Count on a custom application continues to increase over time, and never decreases, you may have a thread leak in your software. Be sure that your code is calling `LibrarySession.disconnect()` whenever a user disconnects or is timed out.

Oracle Internet Directory and Credential Management

This chapter discusses use of Oracle Internet Directory to authenticate users and the use of the Credential Manager Configuration Assistant to create credential managers. Topics include:

- [Credential Managers Authenticate Users](#)
- [Using the Credential Manager Configuration Assistant](#)

Credential Managers Authenticate Users

An Oracle Files service handles user authentication by means of a credential manager. A user's credentials prove, or "authenticate," the user to the system that user is attempting to use, in this case, any one of the many Oracle Files protocol servers. The credential manager associated with the service tells the service where and how to obtain the credential.

Services can use the native Oracle Files credential manager, which stores credential information in the Oracle Files schema. Or, services can use one or more Oracle Internet Directory (OID) instances for user authentication. Each Oracle Files service has a set of configuration properties that specify the credential managers used by that service. Only one IFS credential manager per service is allowed, but multiple OID credential managers are supported. You must add the OID credential managers to the service by using the Credential Manager Configuration Assistant, provided with Oracle Files.

Initial Configuration of Credential Managers

During configuration of Oracle Files, you selected either the IFS credential manager or Oracle Internet Directory. If you selected the IFS credential manager, an instance, "IfsCredentialManager," was created. If you chose Oracle Internet Directory, the Oracle 9iFS Configuration Assistant launched, enabling you to select an Oracle Internet Directory to be used with the credential manager. Then it created the `OidCredentialManager` instance.

When an OID credential manager is created during installation, it is created with these default characteristics:

- It can accept Cleartext, SMB Challenge/Response, HTTP Digest, or token credentials for authentication.
- Protocols that support Cleartext authentication (AFP, CUP, FTP, and IMAP) are required to use an Oracle Files-specific password, rather than the default Oracle Internet Directory password, for enhanced security.

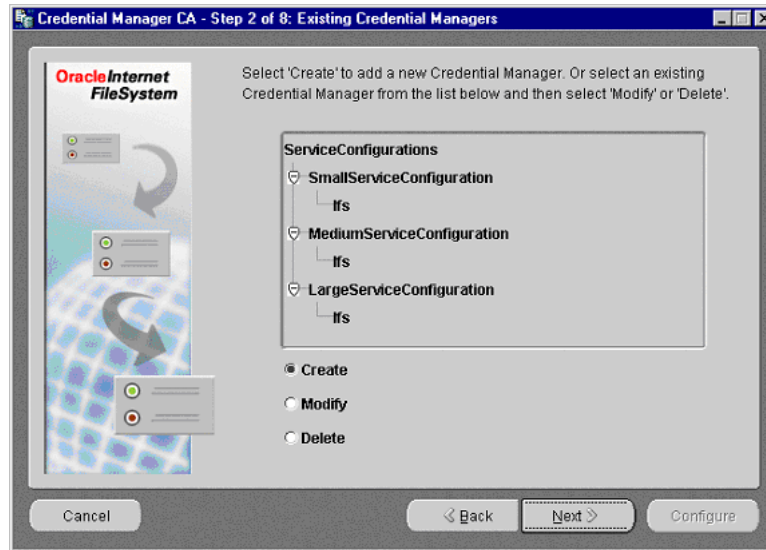
Using the Credential Manager Configuration Assistant

You can use the Credential Manager Configuration Assistant to create credential managers of either type, or to delete or edit the settings for credential managers. Each service can use only one Oracle Files credential manager, but can use multiple OID credential managers, each associated with a different Oracle Internet Directory instance.

To identify and configure a specific OID instance for use with Oracle Files as an OID credential manager during configuration, Oracle Internet Directory must already be configured and running, and you must know the administrative user name and password.

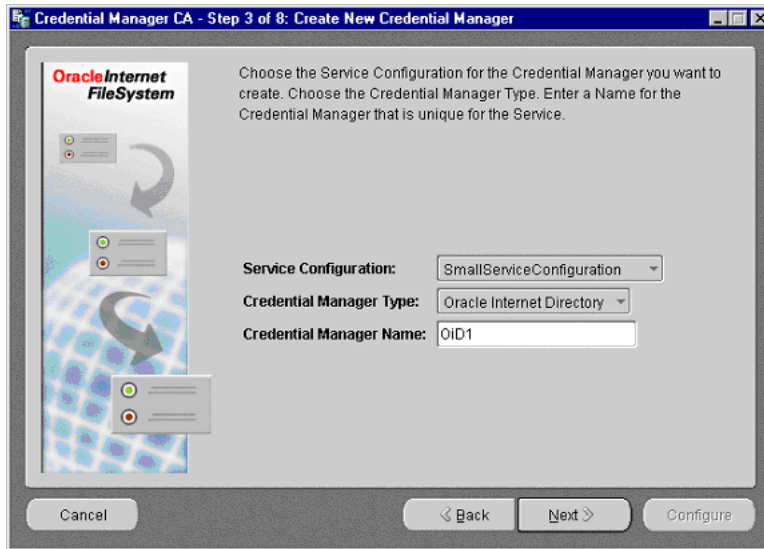
The Credential Manager Configuration Assistant (`ifscmca`) is located in the `$ORACLE_HOME/ifs/files/bin` directory. To run the script, you must be logged on to the system as the user who installed and configured all other Oracle software (probably "oracle").

1. At the Welcome page, click Next to start the wizard.
2. On the Login to Oracle Files page, enter the schema name (default is `IFSSYS`), schema password, database host name, listener port number (typically 1521 for Oracle database server), and service name for the Oracle Files instance for which you want to manage credential managers.
3. Click Next. The Existing Credential Managers page displays.



The page above shows that Oracle Files credential managers (IfsCredentialManagers) already exist for all three ServiceConfigurations. This means that whenever a SmallServiceConfiguration, MediumServiceConfiguration, or LargeServiceConfiguration is used to create the service at runtime, an IfsCredentialManager will also be created for the instance of the service type selected.

4. To create a new credential manager, select Create, then click Next to continue. The Create New Credential Manager page displays.



5. Select the service configuration for which you want to define a credential manager.
6. From the Credential Manager Type list, select Oracle Internet Directory to define an OidCredentialManager or Internet File System to create an IfsCredentialManager.

Note: To make the newly added credential manager on a specific service configuration take effect, you must restart the nodes that use the service configuration.

To use the new credential manager in Oracle Files Manager for creating new users, you must also add/register it to the Value Domain "Credential Managers."

7. Enter a name for the credential manager in the Credential Manager Name field. This name must be unique to the service configuration to which you are applying the entry, but it need not be unique across your domain.
8. Click Next to continue.

9. (OidCredentialManager Only) On the OiD Login page, enter the login information for the Oracle Internet Directory instance that you want to use for credential management.
 - Enter the hostname for the server on which Oracle Internet Directory is installed.
 - Accept the default port number for LDAP(389). Check SSL if single-signon is supported.
 - Accept the default Oracle Internet Directory super user name and password (cn=orcladmin/welcome) or change them only if appropriate.
 - Accept the default OiD root Oracle context (cn=OracleContext). Change this only if you changed the directory context in Oracle Internet Directory.

Credential Manager CA - Step 4 of 8: OiD Login

Oracle Internet File System

Enter the logon information for the Oracle Internet Directory server that you want to configure as a Credential Manager for Oracle 9iFS. All fields are required.

Server:

Port: Uses SSL

Super User:

Super User Password:

Root Oracle Context:

Cancel < Back Next > Configure

See *Oracle Internet Directory Administrator's Guide* for complete information about Oracle Internet Directory.

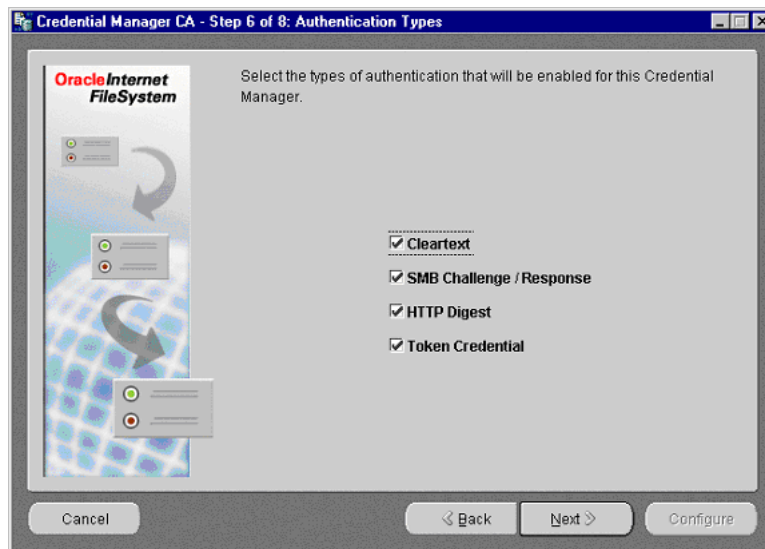
10. Click Next to continue. The Supported Functions page displays.



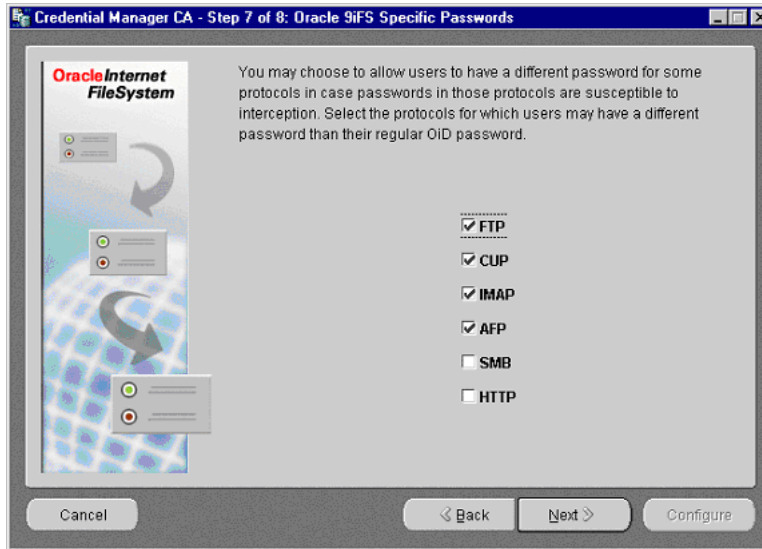
11. Select checkboxes in the Supported Functions page according to your needs.
 - Do not select any functions if you use Oracle Internet Directory for other Oracle databases and applications in addition to Oracle Files.
 - Select all checkboxes if you use Oracle Internet Directory solely for Oracle Files and if you want to manage users through Oracle Files Manager (using the Users tab).

Because Oracle Files Manager and APIs capture only a subset of the information managed by Oracle Internet Directory required for using Oracle Files, Oracle recommends that you use Oracle Internet Directory user management tools. (You can still use Oracle Files APIs to enable existing Oracle Internet Directory users for Oracle Files.) In addition, if you use Oracle Internet Directory for other Oracle databases and applications in addition to Oracle Files, you should definitely use Oracle Internet Directory management tools to manage users.

12. Click Next to continue. The Authentication Types page displays.



13. Select the types of authentication mechanisms that you want this credential manager to support. (You can accept the default setting, which is to enable all authentication types.)
14. Click Next to continue. The Oracle Files Specific Passwords page displays.

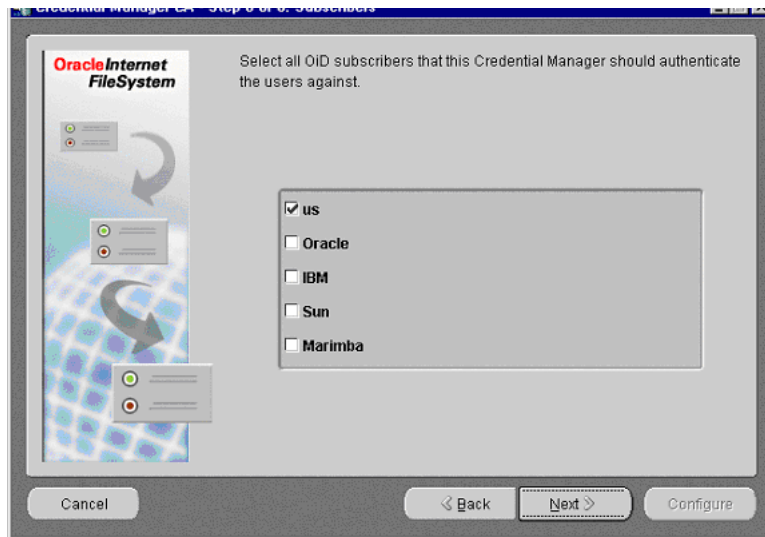


15. Select protocols with which to associate Oracle Files-specific passwords. The protocol servers all send passwords in Cleartext, which means if one of these is intercepted it could potentially provide access to all systems controlled by OiD for that user. To provide more security, you can use an Oracle Files-specific password (rather than the default OiD password) to authenticate users of the selected protocol servers.

If you select any protocol servers on this page, you must also create a private password for all users who will access these protocols. Otherwise, the protocol server will not work. See *Oracle Collaboration Suite Installation Guide* for details.

16. Click Next to continue. The Subscribers page displays.

Oracle Internet Directory supports an application-service provider (ASP) or "hosted" model, in which multiple organizations can use the same directory service. If you are not working in such an environment, your company will be the only subscriber name listed on this page. This is the default subscriber.



17. Select the subscribers against which the credential manager should authenticate users.
18. Click Next to continue. The Summary page displays, listing the Create operation you specified.
19. Click Configure. A credential manager is created according to the specifications you entered.

Post-configuration in Oracle Files Manager

After you create a new credential manager using the Credential Manager Configuration Assistant, it is not immediately reflected in the Oracle Files Manager. First, you need to restart the HTTP node so its service can be initialized with the new credential manager. Second, to use this new Credential Manager for creating users, you need to register the new credential manager in the ValueDomain 'CredentialManagers'. Follow these steps:

1. In the Oracle Files Manager, click the Advanced tab.
2. In the side navigation bar, click Value Domains.
3. Locate the value domain, Credential Managers, and click its name.
4. Edit the value to contain the new credential manager you just created, and click OK.

Troubleshooting

This chapter provides information on troubleshooting general problems.

- [Troubleshooting General Problems](#)

Troubleshooting General Problems

This section contains information to assist with general problems and performance issues. The probable cause and a corrective action are provided for each problem.

Table 7–1 Troubleshooting General Problems

Problem	Probable Cause	Corrective Action
An out-of-memory exception is raised when running Oracle Files	The maximum Java heap size is too low.	Increase the heap size by modifying the <code>-xmx</code> setting for that node configuration.
Server is generally slow for read and write activity	Probable cause #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 your database's <code>init.ora</code> file:</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 Files server into a two-tier configuration.</p> <p>For more information on adjusting the parameters in the <code>init.ora</code> file, see the the <i>Oracle Collaboration Suite Installation Guide</i>.</p>
	Probable cause #2: CTXHX is using 100 percent of your CPU.	See Appendix A, "Oracle Text Reference" .
Server is slow only on read or search activity	Large volumes of data have been loaded but the CBO statistics weren't updated.	If the Oracle9i Cost-Based Optimizer is using stale statistics data, performance suffers. Run the <code>analyze.sql</code> script located in the <code><ORACLE_HOME>\9ifs\admin\sql</code> directory to refresh the statistics.
Server is slow only on content-based search activity	Oracle Text tablespaces are on the same disk as other database files.	Move the Oracle Text tablespaces to other disks. See the <i>Oracle Collaboration Suite Installation Guide</i> and the <i>Oracle9i Administrator's Guide</i> for more information on moving tablespaces.
	Oracle Text indexes have become fragmented.	Regularly optimize the Oracle Text Oracle index <code>IFS_TEXT</code> . For more information, see the "Maintaining the IFS_TEXT Index By Using the Oracle Text PL/SQL Packages" in Appendix A, "Oracle Text Reference" .

Problem	Probable Cause	Corrective Action
<p>Server is slow only on write activity</p>	<p>Large amounts of documents are being loaded and the Redo logs are too small.</p>	<p>Add two or more 100 MB or larger Redo logs. See the <i>Oracle9i Administrator's Guide</i> for more information. In general, Redo logs should be switching every hour or less frequently. See the ORACLE_HOME/rdbms/<sid>/bdump directory for the latest logs which indicate the frequency of Redo log switching.</p>
	<p>Large amounts of documents are being loaded and the Redo logs are on the same disk as the database files.</p>	<p>Place the Redo logs on a separate disk from the database files. See the <i>Oracle9i Administrator's Guide</i> and the <i>Oracle9i Database Performance Guide and Reference</i> for more information.</p> <p>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 Sun SPARC Solaris, you may choose raw partitions or UNIX file systems for the disks. If you choose UNIX file systems on Solaris 2.6 or above, 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.</p>
<p>Content queries through the Web and Windows return no rows.</p>	<p>Oracle Text indexing of the documents has not occurred.</p>	<p>See "Maintaining the IFS_TEXT Index By Using the Oracle Text PL/SQL Packages" in Appendix A, "Oracle Text Reference".</p>
<p>Problems with outbound FTP on UNIX.</p>	<p>You are using /usr/bin/ftp on UNIX and the default port number in /etc/services is a port other than 21, such as 2100.</p>	<p>Specify the port number explicitly, for example, "ftp ifs.us.oracle.com 21", where "21" is the port assigned.</p>
<p>Want to reset the Oracle Files system password without knowing what it is.</p>	<p>Have forgotten the Oracle Files system password.</p>	<p>You will need to contact Oracle Support or, if not, you must re-install the database. If you choose to re-install the database, you will need to make sure that you have copied any files stored in the Oracle Files database out to a local hard drive before starting the re-install process. The re-install will result in the loss of all information currently stored in the database.</p>
<p>When creating a class object in a language other than English, the following exception is encountered: "Exception IFS-30002 - Unable to create new LibraryObject."</p>	<p>Class object and attribute names must be in English.</p>	<p>Names for class objects and attributes must be in English.</p>

Problem	Probable Cause	Corrective Action
<p>The administrator has uploaded LOB files and removed them and doesn't see the space retrieved in the tablespace.</p>	<p>The Initial Time of Day and Activation Period has been set incorrectly for the ContentGarbageCollection Agent.</p>	<p>Use Oracle Files Manager to look at the Initial Time of Day and Activation Period entries for the Content Garbage Collection Agent.</p> <p>Also check the Node.log and see if the Content Garbage Collection Agent is getting activated at the periodic intervals.</p>
<p>A custom Web (HTTP) application (not using the Oracle Files DAV/HTTP servlet) manifests slow performance (> 2 seconds for small folder opens or small document gets).</p>	<p>Application is re-connecting to Oracle Files (and establishing a new session) for each HTTP request.</p>	<p>Implement a pool of guest sessions which can be re-used whenever an unauthenticated ("guest") HTTP request arrives. As an example, the HTTP/DAV servlet uses a "minimum," "target," "maximum" approach. See the IfsDavServlet.properties file for more information. Implement the ability to map new authenticated HTTP requests to existing LibrarySessions through the HTTP credential, or some other means.</p>
<p>A custom web (HTTP) application (not using the Oracle Files DAV/HTTP servlet) manifests apparent memory leaks and eventually runs out of JVM heap memory.</p>	<p>Oracle Files sessions are not being disconnected and garbage collected.</p>	<p>Implement the HttpSessionBindingListener.valueUnbound method, which is called whenever the HTTP session times out. In this method, disconnect the Oracle Files Session to ensure it gets garbage collected.</p>

Oracle Text Reference

Oracle Files 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 Files (IFS_TEXT), free space on the disk for objects required during the search, and other such details. In addition, the end user's experience of the "performance" of the search can depend on how much time you let elapse before an in-progress search times out.

This appendix provides information about how to maintain the Oracle Text index to ensure optimal Oracle Files performance, and includes these topics:

- [Oracle Text Tablespaces and Disk Utilization](#)
- [Creating and Maintaining the Oracle Text Index](#)
- [Enabling Theme Indexing](#)
- [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 nomenclature. For example, the database schema that owns all Oracle Text objects, such as the indexes, is CTXSYS.

For detailed information about Oracle Text, visit the Oracle Technology Network (<http://otn.oracle.com/products/text/>).

Oracle Text Tablespaces and Disk Utilization

Disk space for Oracle Text is divided among three distinct tablespaces:

- The **Oracle Text Data** 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 Keymap** tablespace contains the tables and indexes required to translate from the Oracle Files locator of a document (the Oracle Files 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 per indexed document.
- The **Oracle Text Index** tablespace contains the B*tree database index that is used against the text token information stored in the Oracle Text Data tablespace. This will grow as a function of the ASCII content just as the Oracle Text Data 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.

Use this information to estimate and plan disk storage needs for your Oracle Files instance.

Creating and Maintaining the Oracle Text Index

At the end of the configuration process for Oracle Files, the Configuration Assistant uses the SQL scripts shown in [Table A-1](#) to create and populate the IFS_TEXT index.

These scripts are located in the `\install\admin\sql` directory of the Oracle Collaboration Suite CD. If the installation process fails and you need to run these scripts manually, you should execute the scripts at a SQL*Plus prompt after logging on as the Oracle Files schema user (by default, IFSSYS).

Table A-1 SQL Scripts for Creating Oracle Text Index

Script	Usage
CreateContextFunnelProcedure.sql	Creates the procedure used by USER DATASTORE.
GrantContextToIFS.sql	Grants the Oracle Files user (schema) privileges on the Oracle Text-specific commands required to maintain the index.
CreateContextPreferences.sql	Tablespace and other text preferences are created by the Oracle Files user.
CreateContextIndex.sql	Creates the IFS_TEXT index based on the text preferences.

Maintaining the IFS_TEXT Index By Using the Oracle Text PL/SQL Packages

Oracle recommends using the PL/SQL packages provided with Oracle Text for maintaining the index. Unlike a regular database index, an Oracle Text index is not dynamically updated with each insert or update of information. Rather, you must refresh (or synchronize) the index periodically, using the Oracle Text stored procedure `ctx_ddl.sync_index`.

The `ctx_ddl.sync_index` procedure does not rebuild the entire index, but adds and delete records that have changed since the last synchronization. Since the changes are incremental, the more frequently you run this procedure, the faster it goes. However, over the course of time, the index can become fragmented, so a companion procedure (`ctx_ddl.optimize_index`) is provided to optimize the index.

These two stored procedures to sync and optimize the IFS_TEXT index can be run automatically and simultaneously by configuring either the DBMS_JOB package or by using the job system of Oracle Enterprise Manager. See the *Oracle9i Database Administrator's Guide* for information.

Sync Existing IFS_TEXT Index

```
ctx_ddl.sync_index(indexname);
```

Optimize IFS_TEXT Index

```
ctx_ddl.optimize_index(indexname, 'FAST'|'FULL', maxtime);
```

Monitoring Oracle Text Indexing of Oracle Files Documents

Oracle Files provides some utility-type SQL scripts to facilitate interaction with Oracle Text (see [Table A-2](#)). Read each `.sql` file for additional usage details. All scripts are available in:

```
$ORACLE_HOME/9ifs/admin/sql
```

Table A-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 enables you to monitor the Oracle Text synchronization process. Uncomment the first two lines in the script, which includes call to <code>ctx_output.add_event()</code> , to monitor on a rowid by rowid basis.
<code>ViewDocumentByRowID.sql</code>	Script that enables you to view additional information about a document that is indexed by Oracle Text. Use the docid from the Oracle Text log with this script.

Indexing Non-Standard Content Types

Oracle Files does not by default index every file that's moved into the system, but you can configure it to index any type of content you choose by designating the MIME type as "To Be Indexed" on the Create Format (or Format page, if it already exists).

For example, you may want to index all your `.java` source code files. To do so:

1. Use the Oracle Files Manager tool to add the `.java` mimetype and designate it as "To Be Indexed" using the Create Format dialog.
2. Insert the files into the repository.
3. Sync the index using the procedure discussed in ["Sync Existing IFS_TEXT Index"](#).

Enabling Theme Indexing

Enabling or disabling Oracle Text theme indexing causes all documents in Oracle Files to be re-indexed, which can take considerable time. To reduce the impact on your user community, be sure to perform either of these tasks after hours or when system usage is low.

Use SQL*Plus to connect as the Oracle Files schema user, and enter:

```
exec ctx_ddl.set_attribute('ifs_default_lexer', 'index_themes', 'yes');
exec ctx_ddl.set_attribute('ifs_default_lexer', 'theme_language','english');
alter index ifs_text rebuild parameters('replace lexer ifs_global_lexer');
```

Disabling Theme Indexing

In SQL*Plus, connect as the Oracle Files schema user, and enter:

```
exec ctx_ddl.set_attribute('ifs_default_lexer', 'index_themes', 'no');
alter index ifs_text rebuild parameters('replace lexer ifs_global_lexer');
```

The index is rebuilt and theme indexing is disabled.

For more information on themes, see *Oracle Text Application Developer's Guide*.

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. Increase this value and 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.

Troubleshooting Oracle Text Problems

This section provides Oracle Text troubleshooting information.

Table A-3 Troubleshooting Oracle Text Problems

Problem	Probable Cause	Corrective Action
Cannot search on document contents of any documents.	Oracle Text server is not running.	Start the database instance and make sure that Oracle Text is running.
Server is slow only on content-based search activity.	<p>Probable cause #1: Oracle Text tablespaces are on the same disk as other database files.</p> <p>Probable cause #2: Oracle Text indexes have become fragmented.</p>	<p>Move the Oracle Text tablespaces to other disks. See the <i>Oracle Collaboration Suite Installation Guide</i>. See the Oracle9i Administrator's Guide for more information on moving tablespaces.</p> <p>Regularly optimize the text Oracle index GLOBALINDEXEDBLOB_I (for new schemas). For more information, see "Optimize IFS_TEXT Index".</p>
Oracle Files rows never get processed and never leave the Oracle Text view <code>ctx_user_pending</code> .	Oracle Files documents are corrupt or do not have the correct extension.	<ol style="list-style-type: none"> 1. Follow the steps in "Oracle Files rows show up in the Oracle Text view ctx_user_index_errors." to determine which Oracle Files documents are being referred to, substituting <code>ctx_user_pending</code> for <code>ctx_user_index_errors</code> and <code>pnd_rowid</code> for <code>err_textkey</code>. 2. Examine this document, looking for these problems: <ul style="list-style-type: none"> ■ 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 Representative for further diagnosis. 4. Delete the document from Oracle Files.

Problem	Probable Cause	Corrective Action
<p>Searching on the contents of new documents stops working.</p>	<p>A recent document has caused Oracle Text server to fail.</p>	<ol style="list-style-type: none"> <li data-bbox="786 317 1319 418">1. Log into SQL*Plus as ifssys/<schema-pwd>, and issue: <pre>select count(*) from ctx_user_pending;</pre> <li data-bbox="786 435 1319 618">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 Files documents these rows refer to, see the problem "Oracle Files rows show up in the Oracle Text view ctx_user_index_errors." <li data-bbox="786 635 1319 847">3. Still in SQL*Plus, issue the command: <pre>select * from ctx_user_index_errors;</pre> to see if there are any recent errors. Resolve any of these errors. To determine which Oracle Files documents these rows refer to, see the problem "Oracle Files rows show up in the Oracle Text view ctx_user_index_errors." <li data-bbox="786 864 1319 939">4. Check again to see if there are any rows in ctx_user_pending and, if so, that the rows are changing. <li data-bbox="786 956 1319 1031">5. If this does not resolve the issue, contact your Oracle Support representative for further assistance.

Problem	Probable Cause	Corrective Action
<p>Oracle Files rows show up in the Oracle Text view <code>ctx_user_index_errors</code>.</p>	<p>Oracle Files documents are corrupt or do not have the correct extension.</p>	<ol style="list-style-type: none"> <li data-bbox="736 265 1279 916"> <p>1. Determine which Oracle Files document is being referred to.</p> <pre>SQL*Plus ifssys/ifssys select du.uniquename, vd.name, co.contentsize, cs.id, vd.id from odmv_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> <li data-bbox="736 930 1279 956"> <p>2. <code>cd \$ORACLE_HOME/9ifs/bin</code></p> <li data-bbox="736 970 1279 996"> <p>3. <code>ifslogin system/manager</code></p> <li data-bbox="736 1010 1279 1140"> <p>4. <code>ifsshowallpaths -id <vd.id></code> replacing <code><vd.id></code> with the <code>vd.id</code> returned from the Select statement above. This command will display the absolute path of the document.</p> <li data-bbox="736 1154 1279 1354"> <p>5. Examine this document, looking for these problems:</p> <ul style="list-style-type: none"> <li data-bbox="782 1222 1279 1248">Is the file damaged in any way? <li data-bbox="782 1262 1279 1314">Is the file name extension correct for this document? <li data-bbox="782 1328 1279 1354">Is the character set of the document correct? <li data-bbox="736 1367 1279 1446"> <p>6. If no obvious problems are found, send the document to your Oracle Support Representative for further diagnosis.</p>

Service Configuration Reference

An Oracle Files 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 is in the number of connections and sessions supported.

Table B–1 IFS.SERVICE.* Properties

Property	Description and Usage Note	Default	Required ?
IFS.SERVICE.DefaultCharacterSet	Default character set, in IANA format, for sessions hosted by this service. Can be overridden on a per-session basis. Provides the default character set for text documents created by the session (if not explicitly specified in creating a document).	Character set of the database instance ISO-8859-1	No
IFS.SERVICE.DefaultLanguage	Default language, as an Oracle language name, for sessions hosted by this service. Can be overridden on a per-session basis. Provides the default language for text documents created by the session (if not explicitly specified in creating a document and if the language cannot be determined from the document's character set). Also provides the default language for content-based searches (if not explicitly specified in performing the search).	Based on configuration.	No
IFS.SERVICE.MaximumConcurrentSessions	Maximum number of sessions the service can support concurrently. Default of 0 means unlimited.	0	No
IFS.SERVICE.MaximumConcurrentSessionsPerUser	Maximum number of sessions per user the service can support. Default of 0 means unlimited. If set to other than 0 and maximum is exceeded, service throws IFS-20132 error.	0	No
IFS.SERVICE.CheckForOrphanSessionsPeriod	Number of seconds between which the service 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 session's resources.) Default is 60 seconds between heartbeats. Set to 0 to disable the checking.	60	No

Table B-1 IFS.SERVICE.* Properties

Property	Description and Usage Note	Default	Required ?
IFS.SERVICE.SessionOperationTimeoutPeriod	Number of seconds after which certain Oracle Files API calls are terminated, even if incomplete. If an operation times out in this manner, it is terminated, its transaction is aborted, and an exception is thrown. The session performing the operation remains valid. Set to 0 to disable session operation timeout period.	300	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 period.	600	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 Files repository. Set to 0 to disable heartbeat.	60	No
IFS.SERVICE.PollForEventsFromOtherServicesPeriod	Seconds between checks for incoming events from other services. Set to 0 to disable inter-service event polling.	2	No
IFS.SERVICE.TransportEventsToOtherServicesPeriod	Length of time (seconds) for which outgoing events are buffered before sending. Set to 0 to disable outgoing event buffer.	2	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

Table B-1 IFS.SERVICE.* Properties

Property	Description and Usage Note	Default	Required ?
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.Urgent Trigger but less than IFS.SERVICE.DATACACHE.Size.	6000 - Small 24000 - Medium 60000 - Large	No
IFS.SERVICE.DATACACHE.PurgeTarget	The target cache size, in LIBRARYOBJECTs, upon completion of a purge cycle. Must be less than IFS.SERVICE.DATACACHE.Normal Trigger.	4000 - Small 16000 - Medium 40000 - Large	No
IFS.SERVICE.ACLCACHE.Size	The absolute maximum size of the service's ACL cache, in LIBRARYOBJECTs. The service ACL cache holds the attribute values of recently used LIBRARYOBJECTs.	750 - Small 3000 - Medium 7500 - Large	No
IFS.SERVICE.ACLCACHE.NormalTrigger	The cache size, in LIBRARYOBJECTs, 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.UrgentTrigger	The cache size, in LIBRARYOBJECTs, 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.DATACACHE.Normal Trigger.	550 - Small 2200 - Medium 5500 - Large	No
IFS.SERVICE.ACLCACHE.EmergencyTrigger	The cache size, in LIBRARYOBJECTs, at which the service ACL cache performs an immediate purge of data that has not been recently used. Must be greater than IFS.SERVICE.DACLCACHE.Urgent Trigger but less than IFS.SERVICE.ACLCACHE.Size.	600 - Small 2400 - Medium 6000 - Large	No
IFS.SERVICE.ACLCACHE.PurgeTarget	The target cache size, in LIBRARYOBJECTs, upon completion of a purge cycle. Must be less than IFS.SERVICE.ACLCACHE.Normal Trigger.	400 - Small 1600 - Medium 4000 - Large	No

Table B-1 IFS.SERVICE.* Properties

Property	Description and Usage Note	Default	Required ?
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.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.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
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.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 be thrown.	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

Table B-1 IFS.SERVICE.* Properties

Property	Description and Usage Note	Default	Required ?
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.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
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.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 be thrown.	10000	No
IFS.SERVICE.CaseSensitiveAuthentication	Whether, in performing authentication, user names and passwords are case sensitive.	false	No
IFS.SERVICE.CREDENTIALMANAGER.Names	The names of the credential managers used by this service. (Comma-delimited for service configuration files.) Required.	Based on configuration	Yes
IFS.SERVICE.CREDENTIALMANAGER.Ifs.Classname	The fully qualified Java classname of the default Oracle Files credential manager. Required.	Based on configuration	Yes

Table B-1 IFS.SERVICE.* Properties

Property	Description and Usage Note	Default	Required ?
IFS.SERVICE.CREDENTIALMANAGER.Ifs.RdbmsUserMustExist	Whether, to authenticate using the default Oracle Files credential manager, a user must also be a database user in the database instance used by Oracle Files.	false	No
IFS.SERVICE.CREDENTIALMANAGER.Ifs.AcceptCleartextCredential	Whether the default Oracle Files credential manager allows authentication by clear-text username and password.	false	No
IFS.SERVICE.CREDENTIALMANAGER.Ifs.AcceptChallengeResponseCredential	Whether the default Oracle Files credential manager allows SMB challenge/response authentication.	false	No
IFS.SERVICE.CREDENTIALMANAGER.Ifs.AcceptHttpDigestCredential	Whether the default Oracle Files credential manager allows HTTP 1.1 Message Digest challenge/response authentication.	false	No
IFS.SERVICE.CREDENTIALMANAGER.Ifs.AcceptTokenCredential	Whether the default Oracle Files credential manager allows authentication using token credentials.	false	No
IFS.SERVICE.CREDENTIALMANAGER.CredentialNameTokenizer	The fully qualified classname of the CredentialNameTokenizer.	oracle.ifs.common.IfsCredentialNameTokenizer	No
IFS.SERVICE.CREDENTIALMANAGER.Oid.OidUrl	The LDAP URL of the Oracle Internet Directory instance. Required. Name is the administrator-specified name of the Oracle Internet Directory credential manager, which defaults to Oid.		
IFS.SERVICE.CREDENTIALMANAGER.Oid.Ssl	Whether the Oracle Internet Directory connection uses SSL security. Optional. Defaults to false.		
IFS.SERVICE.CREDENTIALMANAGER.Oid.OidRootOracleContext	The distinguished name of the Root Oracle Context. Required.		
IFS.SERVICE.CREDENTIALMANAGER.Oid.OidApplicationEntityName	The name of the application entity used by the CredentialManager to connect to Oracle Internet Directory. Required.		
IFS.SERVICE.CREDENTIALMANAGER.Oid.SupportsCreateUser	Whether the CredentialManager allows creation of minimally defined Oracle Internet Directory users through its createUser API.	false	No

Table B-1 IFS.SERVICE.* Properties

Property	Description and Usage Note	Default	Required ?
IFS.SERVICE.CREDENTIALMANAGER.Oid.SupportsDeleteUser	Whether the CredentialManager allows Oracle Internet Directory users to be deleted through its deleteUser API.	false	No
IFS.SERVICE.CREDENTIALMANAGER.Oid.SupportsSetPassword	Whether the CredentialManager allows the SSO password of Oracle Internet Directory users to be set through its setPassword API.	false	No
IFS.SERVICE.CREDENTIALMANAGER.Oid.SupportsListUsers	Whether the CredentialManager allows a list of Oracle Internet Directory users to be generated through its listUser API.	false	No
IFS.SERVICE.CREDENTIALMANAGER.Oid.AcceptCleartextCredential	Whether the CredentialManager allows authentication by Cleartext username and password.	false	No
IFS.SERVICE.CREDENTIALMANAGER.Oid.AcceptChallengeResponseCredential	Whether the CredentialManager allows SMB challenge/response authentication.	false	No
IFS.SERVICE.CREDENTIALMANAGER.Oid.AcceptHttpDigestCredential	Whether the CredentialManager allows HTTP 1.1 Message Digest challenge/response authentication.	false	No
IFS.SERVICE.CREDENTIALMANAGER.Oid.AcceptTokenCredential	Whether the CredentialManager allows authentication using token credentials.	false	No
IFS.SERVICE.CREDENTIALMANAGER.Oid.Subscribers	The names of the Oracle Internet Subscribers that are enabled for use with Oracle Files. Required. (Comma-delimited for Service configuration files.)		
IFS.SERVICE.CREDENTIALMANAGER.Oid.IfsPasswordApplications	The names of the applications that authenticate using users' Oracle Files-specific passwords instead of their SSO passwords. The application names are those specified in the ConnectOptions argument in creating an Oracle Files session.	null. (Comma-delimited for configuration on Oracle Files.)	No
IFS.SERVICE.JDBC.Schema	Oracle Files database schema name. DEPRECATED.	none	No
IFS.SERVICE.JDBC.DatabaseUrl	URL of the database instance containing the Oracle Files schema JDBC connect string. See the <i>Oracle9i JDBC Developer's Guide and Reference</i> for syntax and examples.	<" ">	Yes

Table B-1 IFS.SERVICE.* Properties

Property	Description and Usage Note	Default	Required ?
IFS.SERVICE.JDBC.DriverType	Specifies ????	oci8	
IFS.SERVICE.JDBC.TracingEnabled	Prints JDBC debugging information to the standard output.	false	No
IFS.SERVICE.JDBC.DefaultRowPrefetch	Number of result set rows prefetched. If set to null or 0, prefetches 10 rows.	0	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 session's "heartbeat." Must be either oracle.ifs.beans.LibrarySessionEventPollerThreadPerProcess (recommended) or oracle.ifs.beans.LibrarySessionEventPollerThreadPerSession.	oracle.ifs.beans.LibrarySessionEventPollerThreadPerSession.	No
IFS.SERVICE.SESSION.EventPollerPeriod	The period, in milliseconds, of the session's "heartbeat." In addition to indicating the session's health to the service, the heartbeat allows an idle session to process events generated by other sessions or services.	2500	No
IFS.SERVICE.SESSION.DefaultSearchTimeout Period	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 is thrown. The session performing the search remains valid. A value of 0 disables search timeouts.	60	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 session's folder path cache, 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

Table B-1 IFS.SERVICE.* Properties

Property	Description and Usage Note	Default	Required ?
IFS.SERVICE.SESSION.FOLDERPATHCACHE.UrgentTrigger	The cache size, in folder paths, at which the session's folder path cache 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, upon completion of a purge cycle. Must be less than IFS.SERVICE.SESSION.FOLDERPATHCACHE.NormalTrigger.	80	No
IFS.SERVICE.SESSION.SERVEROBJECTCACHE.IsUnbounded	Whether the session object caches are unbounded in size. The session object caches hold references to LIBRARYOBJECTs discovered by the session. For Java 1.1, the session object caches are always unbounded, regardless of this value.	false	No
IFS.SERVICE.SESSION.BEANSOBJECTCACHE.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.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. Not enforced if IFS.SERVICE.SESSION.SERVEROBJECTCACHE.IsUnbounded is true.	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. Ignored if IFS.SERVICE.SESSION.SERVEROBJECTCACHE.IsUnbounded is true.	500	No

Table B-1 IFS.SERVICE.* Properties

Property	Description and Usage Note	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. Ignored if IFS.SERVICE.SESSION.SERVER OBJECTCACHE.IsUnbounded is true. Must be greater than IFS.SERVICE.SESSION.SERVER OBJECTCACHE.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. Ignored if IFS.SERVICE.SESSION.SERVER OBJECTCACHE.IsUnbounded is true. Must be greater than IFS.SERVICE.SESSION.SERVER OBJECTCACHE.UrgentTrigger but less than IFS.SERVICE.SESSION.SERVER OBJECTCACHE.Size.	600	No
IFS.SERVICE.SESSION.SERVEROBJECTCACHE.PurgeTarget	The target cache size, in LIBRARYOBJECTs, upon completion of a purge cycle. Ignored if IFS.SERVICE.SESSION.SERVER OBJECTCACHE.IsUnbounded is true. Must be less than SERVICE.SESSION.SERVEROBJECT CACHE.NormalTrigger.	400	No
IFS.SERVICE.TRACING.ChannelCount	The number of trace logger channels. Oracle reserves channels 0 to TraceLogger.LAST_RESERVED_CHANNEL. Refer to 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

Table B-1 IFS.SERVICE.* Properties

Property	Description and Usage Note	Default	Required ?
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 n. Refer to the Javadoc for class oracle.ifs.common.TraceLogger for a list Oracle-defined trace levels.		
IFS.SERVICE.TRACING.TraceLevelChannel10		5	
IFS.SERVICE.TRACING.TraceLevelChannel11		9	

Table B-1 IFS.SERVICE.* Properties

Property	Description and Usage Note	Default	Required ?
IFS.SERVICE.TRACING.DefaultTraceLevel	Default tracing verbosity for all trace channels. See <code>oracle.ifs.common.TraceLogger</code> Javadoc for a list trace levels.		
IFS.SERVICE.DefaultCharacterSet	Default character set, in IANA format, for sessions hosted by this service. Can be overridden on a per-session basis. Provides the default character set for text documents created by the session (if not explicitly specified in creating a document).	Character set of the database instance	No
IFS.SERVICE.DefaultLanguage	Default language, as an Oracle language name, for sessions hosted by this service. Can be overridden on a per-session basis. Provides the default language for text documents created by the session (if not explicitly specified in creating a document and if the language cannot be determined from the document's character set). Also provides the default language for content-based searches (if not explicitly specified in performing the search).	null ("unspecified")	No

Server Configuration Properties

Each server has an `IFS.SERVER.Class` property that identifies the Java class that the node uses to instantiate the server or agent. You cannot change the name of the class; if you do, the protocol server or agent will not run.

The properties listed in these tables are all required for an agent or protocol server to run properly. When you install and configure an Oracle Files instance, the properties are configured using the default values shown in the tables in this section. You can change these in the base class and then create new servers or agents based on the changes, or you can change the values in the running server or agent. See [Chapter 4, "Basic Administrative Operations"](#) for additional information.

- [Access Control List Index Agent](#)
- [AppleTalk Filing Protocol \(AFP\) Server](#)
- [AfpGarbageCollection Agent](#)
- [Content Agent](#)
- [Content Garbage Collection Agent](#)
- [Dangling Object AV Cleanup Agent](#)
- [Distributed Authoring and Versioning \(DAV\) Server Configuration](#)
- [Event Exchanger Agent](#)
- [Expiration Agent](#)
- [FolderIndexAnalyzerAgent](#)
- [File Transfer Protocol \(FTP\) Server](#)
- [Garbage Collection Agent](#)
- [HTTP Admin Server](#)

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- Inbound Queue Listener Agent
 - Lock Agent
 - NbServer [NetBIOS]
 - Network File System (NFS) Protocol Server
 - NT File System Protocol Server
 - OiD Credential Manager Agent
 - Print Agent
 - Quota Agent
 - Service Warmup Agent
 - Service Watchdog Agent
 - Server Message Block (SMB) Protocol Server
 - Oracle Files Server Configuration Parameters

Access Control List Index Agent

The Access Control List Index agent...

IFS.SERVER.Class that instantiates the agent is:

```
oracle.ifs.management.servers.AccessControlListIndexAgent
```

Table C-1 Access Control List Index Agent Required Properties

Property	Description and Usage Note	Default
IFS.SERVER.SESSION.User	Username for server session. Must be a user with Oracle Files administrator privileges.	system
FS.SERVER.TIMER.InitialDelay	The initial delay when the agent will first run; this allows the agents' first trigger to be staggered. h = hours, m = minutes, s = seconds	10s
IFS.SERVER.TIMER.ActivationPeriod	Time interval between agent activation. Default setting of 24h activates the agent every 24 hours. Set time in h (hours), m (minutes), or s (seconds).	24h
IFS.SERVER.AGENT.ACCESSCONTROLLISTINDEXAGENT.MaxDeferredEntryCount	Maximum number of entries to process in a single batch. The default value should rarely be modified.	10000
FS.SERVER.AGENT.ACCESSCONTROLLISTINDEXAGENT.PublishStatisticsPeriod	Time interval at which agent statistics are published. Set time in h (hours), m (minutes), or s (seconds).	1m

AppleTalk Filing Protocol (AFP) Server

AppleTalk Filing Protocol (AFP) is the remote filing system protocol that enables Macintosh users to store, access, and share files over a network. AppleShare is the AFP file server that is implemented on Macintosh computers. The Oracle Files AFP server enables Macintosh users to access an Oracle Files as if it were an AppleShare server.

The IFS.SERVER.Class that instantiates the AFP Server is:

```
oracle.ifs.protocols.afp.AfpServer.
```

Table C-2 AFP (AppleTalk Filing Protocol) Server Required Properties

Property	Description and Usage Note	Default
IFS.SERVER.SESSION.User	Username for server session. Must be a user with Oracle Files administrator privileges.	system
IFS.SERVER.PROTOCOL.AFP.AcceptGuest Connections	Allows or prevents unauthenticated guest connections. Set to true to allow unauthenticated users (guests) to connect. Set to false to require authentication (thus disabling guest access). By default, guest access (unauthenticated user access) is enabled.	true
IFS.SERVER.PROTOCOL.AFP.Disable FolderIcons	Disables or enables custom Macintosh folder icons. Set to true to disable folder icons. Set to false to enable custom folder icons. By default, custom folder icons are disabled to provide faster file browsing.	true
IFS.SERVER.PROTOCOL.AFP.Disable PkgInfo	Whether or not to "vanish" the special Macintosh "contents/PkgInfo" file. Set to true to hide all PkgInfo files. Set to false to display PkgInfo files. By default, PkgInfo files are not displayed to provide faster file browsing.	true
IFS.SERVER.PROTOCOL.AFP.Encoding	The encoding to use (Java or IANA code name) to convert Macintosh strings.	MacRoman
IFS.SERVER.PROTOCOL.AFP.LocalBind Address	The IP address that the server will use (bind to) when listening for incoming connections. This value is set to the server IP address by default. It should not be modified except in unusual cases, for example, a multi-homed server.	IP address or DNS name
IFS.SERVER.PROTOCOL.AFP.MaxOpen Files	Maximum number of open file forks for each connected session. Macintosh files consist of up to two forks. A connected session can open only up to this number of forks simultaneously.	1024
IFS.SERVER.PROTOCOL.AFP.Port	The AFP port; fixed and set to 548.	If not specified, Oracle Files uses the local host address and port 548.

AfpGarbageCollection Agent

The AFP server creates additional objects and attaches them to every folder and document in the Oracle Files repository that is viewed, edited, or created by Macintosh clients. When folders or documents are deleted, these additional objects are not deleted; they are left dangling. The AfpGarbageCollection agent deletes these dangling objects; it does so at periodic intervals.

IFS.SERVER.Class that instantiates the agent is:

```
oracle.ifs.protocols.afp.agent.AfpGarbageCollectionAgent
```

The AfpGarbageCollection agent requires the following information must be included in the server configuration to run the agent:

Table C-3 AFPGarbageCollection Agent Required Properties

Property	Description and Usage Note	Default
IFS.SERVER.SESSION.User	Username for server session. Must be a user with Oracle Files administrator privileges.	system
IFS.SERVER.TIMER.ActivationPeriod	Time interval between agent activation. Default setting of 24h activates the agent every 24 hours. Set time in h (hours), m (minutes), or s (seconds).	24h
IFS.SERVER.TIMER.InitialTimeOfDay	First event. Set time based on a 24 hour clock.	01:30:00

Content Agent

These properties control the management of document content. Document content is stored in the database as LOBs. Content is moved to BFILES if it has not been accessed after the retention period. For information on using this feature, see [Appendix 5, "Maintenance and Tuning"](#).

The IFS.SERVER.Class used to instantiate this agent:

```
oracle.ifs.management.servers.ContentAgent
```

The following information must be included in the server configuration file to run the Content agent:

Table C-4 Content Agent Required Properties

Property	Description and Usage Note	Default
IFS.SERVER.AGENT.CONTENTAGENT.MaxFilesPerFolder	For every relative path created, the maximum number of files that can be moved to a folder.	500

Property	Description and Usage Note	Default
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 no one accesses it.	30d
IFS.SERVER.AGENT.CONTENTAGENT.ContentToBfileManager	The fully qualified classname of ContentToBfileManager interface.	oracle.ifs.management.servers.Content.IfsContentToBfileManager

Content Garbage Collection Agent

File attributes and content are stored separately. The Content Garbage Collection agent identifies content that no longer is referenced and deletes it. 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. This agent runs at specific times of the day as specified in the server configuration file.

IFS.SERVER.Class used to instantiate the agent:

```
oracle.ifs.management.servers.ContentGarbageCollectionAgent
```

The following information must be included in the server configuration file to run the Content Garbage Collection agent:

Table C-5 Content Garbage Collection Agent Required Properties

Property	Description and Usage Note	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

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 directory object which was deleted and is now invalid.

IFS.SERVER.Class used to instantiate this agent:

```
oracle.ifs.management.servers.DanglingObjectAVCleanupAgent
```

The following information must be included in the server configuration file to run the Dangling Object AV Cleanup agent:

Table C-6 Dangling Object AV Cleanup Agent Required Properties

Property	Description and Usage Note	Default
IFS.SERVER.AGENTS.DANGLING OBJECTAVCLEANUPAGENT.Excluded AttributeList	A list of attributes for which invalid references to Library Objects 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:LAST MODIFIER VERSIONSERIES: RESERVOR

Distributed Authoring and Versioning (DAV) Server Configuration

Through WebFolders (WebDAV) and WebFolders-enabled applications, can edit Microsoft Office documents stored in Oracle Files in place with Windows Office 2000. A new document can be created in Oracle Files this way. Customers can then delete this document in a web folder. This servlet also serves documents over HTTP (browser).

IFS.SERVER.Class used to instantiate this server:

```
oracle.ifs.protocols.dav.impl.server.IfsServletServer
```

The following parameters must be included in the server configuration file to run the DAV server.

Table C-7 DAV Server Required Properties

Property	Description and Usage Note	Default
IFS.SERVER.PROTOCOL.DAV.GuestPool.Size.Min	The minimum size of the anonymous session pool. This is allocated immediately upon startup.	1
IFS.SERVER.PROTOCOL.DAV.GuestPool.Size.Target	The target size of the anonymous session pool. This is allocated immediately if the target size is not sufficient to service traffic volume.	5
IFS.SERVER.PROTOCOL.DAV.GuestPool.Size.Max	The maximum size of the anonymous session pool. This is allocated if the target size is not sufficient to service traffic volume, but will wait IFS.SERVER.PROTOCOL.DAV.GuestPool.Timeout.Target milliseconds before allocating.	10
IFS.SERVER.PROTOCOL.DAV.GuestPool.Timeout.Target	The targeted time before the anonymous session pool times out. The DavServer will wait this amount of time before allocating a new session if the Target size has been reached.	500
IFS.SERVER.PROTOCOL.DAV.GuestPool.Timeout.Max	The maximum time before the anonymous session pool times out. The DavServer will wait this amount of time before returning Server Busy if the Max size has been reached.	1500
IFS.SERVER.PROTOCOL.DAV.LoginBeanName	The name by which the IfsHttpLogin bean is bound to the HttpSession.	IfsHttpLogin
IFS.SERVER.PROTOCOL.DAV.DAV.Browse.Enabled	Enables and disables directory browsing. By default, directory browsing is enabled.	true
IFS.SERVER.PROTOCOL.DAV.Welcome	The welcome files, in the order they will be searched.	index.html
IFS.SERVER.PROTOCOL.DAV.Rendering.Enabled	Enables and disables rendering. Set to true to enable rendering.	false
IFS.SERVER.PROTOCOL.DAV.Parsing.Enabled	Enables and disables parsing for WebFolders. Set to true to enable parsing.	true
IFS.SERVER.PROTOCOL.DAV.Webfolders.DefaultCharset	The charset the server should use if the client connecting is MS Web Folders.	IFS service-wide default charset
IFS.SERVER.PROTOCOL.DAV.ContextServletPath	The context/servlet path to which the IfsDavServlet is bound. If left unset, this will be computed automatically.	<null>
IFS.SERVER.PROTOCOL.DAV.IfsServer.Auth.TokenCredential.Timeout	When the DavServer generates a TokenCredential, how long should it be good for.	864000
IFS.SERVER.PROTOCOL.DAV.UserLoginPool.Max	How many concurrent connections a given user can have.	3

Property	Description and Usage Note	Default
IFS.SERVER.PROTOCOL.DAV.Jsp.Enabled	Is JSP execution enabled? Must always be false. Do not change.	false
IFS.SERVER.PROTOCOL.DAV.Jsp.AllowedDirs	The directories in which JSPs are allowed to be executed. (Includes the directory and all of its subdirectories).	/ifs/webui/jsp /ifs/jsp-bin
IFS.SERVER.PROTOCOL.DAV.Jsp.Lookup.BundleName	The name of the property bundle in the iFS repository containing the JspLookup mappings.	JspLookup
IFS.SERVER.PROTOCOL.DAV.Jsp.Lookup.ParameterName	The parameter name the IfsDavServlet will use for the original request URL when redirecting to a JSP via the JspLookup mechanism.	path

Event Exchanger Agent

This agent periodically purges expired events from the event queue.

IFS.SERVER.Class used to instantiate this agent:

```
oracle.ifs.management.servers.EventExchangerAgent
```

The following information must be included in the server configuration file to run the Event Exchanger agent:

Table C-8 *Event Exchanger Agent Required Properties*

Property	Description and Usage Note	Default
IFS.SERVER.EventLifespan	The time, in seconds, after which an event is assumed to have been delivered and become eligible for purging. Unit of measure is seconds.	1800

Expiration Agent

All public objects have an attribute called ExpirationDate. Once 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. This agent runs at specific times of the day as specified in the server configuration parameter,

```
IFS.SERVER.TIMER.ACTIVATIONPERIOD.
```

IFS.SERVER.Class used to instantiate this agent:

```
IFS.SERVER.Class:
oracle.ifs.management.servers.ExpirationAgent
```

The following information must be included in the server configuration file to run the Expiration agent:

Table C–9 Expiration Agent Required Properties

Property	Description and Usage Note	Default
IFS.SERVER.SESSION.User	Username for server session. Must be a user with Oracle Files administrator privileges.	system
IFS.SERVER.TIMER.InitialTimeOfDay	First event. Set time based on a 24 hour clock.	02:00:00
IFS.SERVER.TIMER.ActivationPeriod	Defines the time interval between when the agent will be triggered. h = hours, m = minutes, s = seconds.	24h

FolderIndexAnalyzerAgent

Oracle Files uses a scheme called FolderIndexService 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 FolderIndex in a suboptimal state. FolderIndexAnalyzer agent runs periodically to detect and correct any such state, and return the FolderIndex to an optimal state

IFS.SERVER.Class used to instantiate this agent:

```
oracle.ifs.management.servers.FolderIndexAnalyzerAgent
```

You should never modify this value.

Table C–10 FolderIndex Analyzer Agent Required Properties

Property	Description and Usage Note	Default
IFS.SERVER.AGENTS.FOLDERINDEXANALYZERAGENT.MaxParentsThreshold	The threshold for max number of parents after which FIS is considered suboptimal. ANDed with the MaxChildren Threshold.	10
IFS.SERVER.AGENTS.FOLDERINDEXANALYZERAGENT.MaxChildrenThreshold	The threshold for max number of children, after which FIS is considered suboptimal. This condition is ANDed with the MaxParentsThreshold.	10

File Transfer Protocol (FTP) Server

The FTP server allows users to easily transfer files between one file system and the Oracle Files repository. FTP is particularly useful when performing bulk transfers; in regards to both ease and performance. In addition to the common FTP commands, the Oracle Files server also has built-in parsing and versioning support.

IFS.SERVER.Class used to instantiate this server:

```
oracle.ifs.protocols.ftp.server.FtpServer
```

The following parameters must be included in the server configuration file to run the FTP server.

Table C–11 FTP (File Transfer Protocol) Server Required Properties

Property	Description and Usage Note	Default
IFS.SERVER.PROTOCOL.FTP.Localhost	Optionally, specify the host name if the host is multi-homed in the network.	Default_Hostname
IFS.SERVER.PROTOCOL.FTP.AnonymousAllowed	If set to true, allows anonymous connections.	false
IFS.SERVER.PROTOCOL.FTP.DateFormat	Specifies the default date format.	MMM dd HH:mm
IFS.SERVER.PROTOCOL.FTP.Timeout	Amount of time between activity before the connection times out; default is 900 seconds or 15 minutes. Unit of measure is milliseconds.	900000
IFS.SERVER.PROTOCOL.FTP.Delimiter	Specifies the Folder Path Delimiter.	/
IFS.SERVER.PROTOCOL.FTP.Port	The port on which the server is running.	21 (Windows NT), 2100 (Unix)

Property	Description and Usage Note	Default
IFS.SERVER.PROTOCOL.FTP.AcceptQueueSize	The number of server requests back-logged before denying requests. Do not modify.	50
IFS.SERVER.PROTOCOL.FTP.AnonymousPool Size	Initial pool size for anonymous connections.	0
IFS.SERVER.PROTOCOL.FTP.BannerText	The string that will be displayed when the FTP client is started.	Oracle Internet File System FTP Server ready

Garbage Collection Agent

The Garbage Collection agent runs at specific times of the day as specified in the server configuration file. Currently, this agent fixes invalid public object owners, creators, deletors, and modifiers. It uses the following four parameters for this purpose, which are specified in the server configuration file:

- IFS.SERVER.AGENT.GARBAGECOLLECTIONAGENT.ReplacementOwner
- IFS.SERVER.AGENT.GARBAGECOLLECTIONAGENT.ReplacementCreator
- IFS.SERVER.AGENT.GARBAGECOLLECTIONAGENT.ReplacementModifier
- IFS.SERVER.AGENT.GARBAGECOLLECTIONAGENT.ReplacementDeletor

For example, a document is created and modified by "ssmith." The creator, owner, and last modifier attribute of document are set to ssmith's object id. If "ssmith" is deleted, the attribute value becomes invalid. The agent replaces these invalid attribute values with the ID of the replacement owner, creator, or deletor specified in the server configuration file.

IFS.SERVER.Class used to instantiate this agent:

```
oracle.ifs.management.servers.GarbageCollectionAgent
```

The following information must be included in the server configuration file to run the Garbage Collection agent:

Table C–12 *Garbage Collection Agent Required Properties*

Property	Description and Usage Note	Default
IFS.SERVER.AGENT.GARBAGECOLLECTION AGENT.ReplacementOwner	User to be replaced as owner. Modify as needed.	system
IFS.SERVER.AGENT.GARBAGECOLLECTION AGENT.ReplacementDeletor	User to be replaced as deletor. Modify as needed.	system
IFS.SERVER.AGENT.GARBAGECOLLECTION AGENT.ReplacementCreator	User to be replaced as creator. Modify as needed.	system
IFS.SERVER.AGENT.GARBAGECOLLECTION AGENT.ReplacementModifier	User to be replaced as modifier. Modify as needed.	system

HTTP Admin Server

The HTTP Admin server must be running to use the Oracle Files Manager tool.
 [Dragos had deleted this server, another developer supplied the Files values. What is this used for with Files?]

IFS.SERVER.Class used to instantiate this server:

```
oracle.ifs.protocols.dav.impl.server.IfsServletServer
```

Table C–13 HTTP Admin Server Required Properties

Property	Description and Usage Note	Default
IFS.SERVER.PROTOCOL.DAV.LoginBeanName	The Login bean name. If it is different from the name that the Dav Server uses, the user will be required to log in once per servlet.	IfsHttpLogin
IFS.SERVER.APPLICATION.UIX.MaximumUniqueSessionsPerUser	The maximum number of distinct sessions a web user can get. After the maximum number has been reached, the sessions are shared in a round-robin fashion.	3
IFS.SERVER.APPLICATION.UIX.ApplicationHost	The host name of the site (where a user connects; e.g., files.oracle.com)	Configurable at installation.
IFS.SERVER.APPLICATION.UIX.ApplicationUseHttps	Whether the site uses SSL/HTTPS; e.g., https://file.oracle.com.	Configurable at installation.
IFS.SERVER.APPLICATION.UIX.ApplicationPort	The port number of the site (usually 80).	Configurable at installation.
IFS.SERVER.APPLICATION.UIX.ApplicationServletMount	The mount point for the application servlet	/files/app
IFS.SERVER.APPLICATION.UIX.ContentServletMount	The mount point for the content/DAV servlet.	/files/content
IFS.SERVER.APPLICATION.UIX.StaticResourcesMount	The mount point for the static images used to render web pages.	/files/static
IFS.SERVER.APPLICATION.UIX.HttpAuthManagerClass	The HTTP Authentication Manager to use (do not edit).	oracle.ifs.files.servlet.FilesHttpAuthManager
IFS.SERVER.APPLICATION.UIX.AdministratorEmail	The email address of the person who administers the system and receives alerts and error reports.	Configurable at installation.

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 Files can act upon the messages placed on inbound queues. The InboundQueueListener agent can dequeue a message and delegate the work of processing to the message object itself.

IFS.SERVER.Class used to instantiate this agent:

```
oracle.ifs.management.servers.InboundQueueListenerAgent
```

Table C–14 Inbound Queue Listener Agent Required Properties

Property	Description and Usage Note	Default
IFS.SERVER.AGENT.INBOUNDQUEUE LISTENERAGENT.Queues +	Holds a list of queues that the agent will listen on.	IFS_IN

Lock Agent

The Lock agent is a time-based agent that releases locks that are timed out. The agent needs to be running at all times for the lock auto-expiration function to work.

IFS.SERVER.Class used to instantiate this agent:

```
oracle.ifs.management.servers.LockAgent
```

NbServer [NetBIOS]

The NbServer is a DNS server for Windows NetBIOS names. It tells client machines that its name is registered to a particular IP address.

IFS.SERVER.Class used to instantiate this server:

```
oracle.ifs.protocols.smb.server.NbServer
```

The following parameters must be included in the server configuration file to run the Nb server.

Table C–15 *Nb or Agent Required Properties*

Property	Description and Usage Note	Default
IFS.SERVER.NB.Workgroup	Name of the workgroup this server is in.	"WORKGROUP"
IFS.SERVER.NB.ServerComment	This holds the SMB server description that shows up in properties in Windows.	"Oracle Internet File Server"
IFS.SERVER.NB.IpAddr	If host is multi-homed, use this to choose the IP address if necessary.	<IP Address returned by Socket.getInetAddress(>)
IFS.SERVER.NB.Netmask	NetMask for the name server. This is used to derive the broadcast address. No need to set this if the broadcast address is specified explicitly.	255.255.252.0
IFS.SERVER.NB.Broadcast	Broadcast address. Use this if you know the broadcast address or want to override the address derived from the netmask. This is specified as a standard IP string, e.g. "144.25.103.255".	<Derived from the IP address and netmask>
IFS.SERVER.NB.StatusInterval	Number of packets between each status message to trace file.	100
IFS.SERVER.NB.HostAnnouncer	Enable Host Announcement.	true

Network File System (NFS) Protocol Server

The Network File System (NFS) protocol is used to provide file sharing between a client machine and a server machine across a network. The NFS protocol is a standard protocol which is widely used for file sharing on UNIX platforms. Although used primarily on UNIX platforms, the NFS protocol is designed to be operating system-independent and implementations of the NFS protocol exist for other platforms, such as Windows.

IFS.SERVER.Class used to instantiate this server:

```
oracle.ifs.protocols.nfs.server.NfsServer
```

The following parameters must be included in the server configuration file to run the NFS server.

Table C–16 NFS Protocol Server Required Properties

Property	Description and Usage Note	Default
IFS.SERVER.PROTOCOL.NFS.Localhost	Specifies the IP address the server will listen on if the server machine is capable of listening on multiple IP addresses. This is the same as the Localhost parameter on other protocol servers.	Null
IFS.SERVER.PROTOCOL.NFS.PortmapUdpServers	Specifies the number of UDP server threads to be started for the Portmap server. The number of UDP server threads determines how many simultaneous UDP requests the Portmap server can handle.	1
IFS.SERVER.PROTOCOL.NFS.PortmapTcpEnabled	specifies whether or not the Portmap server will accept TCP connections in addition to UDP connections.	true
IFS.SERVER.PROTOCOL.NFS.MountUdpServers	Specifies the number of UDP server threads to be started for the Mount server. The number of UDP server threads determines how many simultaneous UDP requests the Mount server can handle.	1
IFS.SERVER.PROTOCOL.NFS.MountTcpEnabled	Specifies whether or not the Mount server will accept TCP connections in addition to UDP connections.	true
IFS.SERVER.PROTOCOL.NFS.MountPort	Specifies the port number which the Mount server will listen on. A value of zero will use any available port. The Mount server will normally use any available port number and then register the port number being used with the Portmap server. A specific port number should be specified if the Mount server is a secondary server and does not register the port with the Portmap server.	4048 for Unix; 0 for NT
IFS.SERVER.PROTOCOL.NFS.UdpServers	Specifies the number of UDP server threads to be started for the NFS server. The number of UDP server threads determines how many simultaneous UDP requests the NFS server can handle.	16
IFS.SERVER.PROTOCOL.NFS.TcpEnabled	Specifies whether or not the NFS server will accept TCP connections in addition to UDP connections.	true

Property	Description and Usage Note	Default
IFS.SERVER.PROTOCOL.NFS.Port	Specifies the port number which the NFS server will listen on. The standard port number for the NFS server is port 2049. On Unix systems, the standard Unix NFS server will be running on the standard port, therefore the iFS NFS server is configured to be a secondary NFS server running on a different port number.	4049 for Unix; 2049 for NT
IFS.SERVER.PROTOCOL.NFS.TrustedClientsEnabled	Enable Trusted Client List feature.	false
IFS.SERVER.PROTOCOL.NFS.TrustedClientList+	List of trusted NFS clients.	<"">
IFS.SERVER.PROTOCOL.NFS.NISEnabled	Used to indicate if HIS is used for user management.	false
IFS.SERVER.PROTOCOL.NFS.NISServiceProvider	Provider of NIS service. This is an NIS server.	<"">
IFS.SERVER.PROTOCOL.NFS.CharacterEncoding	Specifies the character encoding to be used to interpret string such as file names that the NFS server receives from the clients. The value is the name of a Java character encoding. For example: ASCII, ISO8859_1, or Cp437. A null value indicates that the default character encoding should be used.	Null
IFS.SERVER.PROTOCOL.NFS.UserCacheMax	Specifies the number of iFS user sessions the NFS server will keep open. This value should be set to the expected number of simultaneous active users.	16
IFS.SERVER.PROTOCOL.NFS.AllowAnonymousUser	Allows users to login as anonymous/guest.	true
IFS.SERVER.PROTOCOL.NFS.ResetUserCache	Used to control the resetting of the user cache. Used when privileges are changed.	0
IFS.SERVER.PROTOCOL.NFS.ioBufferSize	Specifies the I/O buffer size. The I/O buffer size determines the largest amount of data that can be read or written in a single request to the NFS server.	32768
IFS.SERVER.PROTOCOL.NFS.ioBufferCacheTargetSize	Specifies the number of I/O buffers that the NFS server will try to allocate. This should be set to the expected number of simultaneous I/O operations.	8

Property	Description and Usage Note	Default
IFS.SERVER.PROTOCOL.NFS. ContentCacheFlush	Specifies the write flush time-out value in milliseconds. The default value of 2000 means that writes to an iFS document will be committed to the database after 2 seconds. Setting too low of a time-out value may cause additional database commits resulting in slower performance. Setting too high a time-out value will cause a delay before the data is committed and is available to other protocols.	2000
IFS.SERVER.PROTOCOL.NFS. ContentCacheKeep	Specifies the keep time-out value in milliseconds. The default value of 10000 means that once a document is opened, the NFS server will attempt to cache its contents for 10 seconds.	10000
IFS.SERVER.PROTOCOL.NFS. ContentCacheMax	Specifies the maximum number of documents the NFS server will keep in its content cache. Increasing the content cache size improves performance but will use additional database connections.	8
IFS.SERVER.PROTOCOL.NFS. RpcRequestCacheBufferSize	Specifies the size of the request cache buffer. The request cache maintains a history of recent requests and is used to return a reply when a duplicate request is received from a client.	65535
IFS.SERVER.PROTOCOL.NFS. RpcRequestCacheMax	Specifies the maximum number of requests to be kept in the request cache. The request cache maintains a history of recent requests and is used to return a reply when a duplicate request is received from a client.	64
IFS.SERVER.PROTOCOL.NFS. RpcRequestCacheMaxReply Len	Specifies the maximum length of a reply to be kept in the request cache. The request cache maintains a history of recent requests and is used to return a reply when a duplicate request is received from a client.	16384
IFS.SERVER.PROTOCOL.NFS. SafeWriteMode	Specifies whether or not SafeWriteMode is enabled. If true, data written to NFS will be logged to the local disk in addition to being written to the database.	false
IFS.SERVER.PROTOCOL.NFS. SafeWriteLogs	Specifies the directory where the recovery log files will be written if SafeWriteMode is enabled. The directory path specified in relative to the iFS home directory where Oracle Files was installed.	nfs/ Recovery Logs
IFS.SERVER.PROTOCOL.NFS. SafeWriteActivationPeriod	Specifies the activation period for the SafeWriteMode recovery thread in minutes. The default value of 20 indicates that the SafeWriteMode recovery thread will run every 20 minutes.	20

NT File System Protocol Server

Windows NT/2000 platforms only.

The NT File System (NTFS) allows the Oracle Files repository to appear as a local hard drive on the server machine. When using the NTFS, the Oracle Files repository will be mapped to a drive letter on the server machine and can be accessed using the file system as if it were a local hard drive.

IFS.SERVER.Class used to instantiate this server:

```
oracle.ifs.protocols.ntfs.server.NtfsServer
```

The following parameters must be included in the server configuration file to run the NTFS server.

Table C-17 Ntfs Required Properties

Property	Description and Usage Note	Default
IFS.SERVER.PROTOCOL.NTFS.DriveLetter	The drive letter used to map the Oracle Files drive. An available and valid drive letter (a-z).	o
IFS.SERVER.PROTOCOL.NTFS.LogLevel	Specifies the type of information listed in the log file. A number from 1 to 4. 1 is the minimum and 4 is the maximum information in the log file.	1
IFS.SERVER.PROTOCOL.NTFS.LogStackTrace	Specifies if the Java stack trace is listed in the log file. true = list Java stack trace. false = do not list Java stack trace.	false
IFS.SERVER.PROTOCOL.NTFS.SessionCache	Specifies the number of user sessions the NTFS server will keep open. This value should be set to the expected number of simultaneously opened files.	40
IFS.SERVER.PROTOCOL.NTFS.ifsproxy	Specifies the location of the ifsproxy.dll library. The path specified in relative to the Oracle Files home directory where Oracle Files was installed.	lib\ifsproxy.dll

OiD Credential Manager Agent

The OiD Credential Manager agent is a time-based agent that polls for changes and notifies the system administrator whenever a new OiD subscriber is added. The

agent used the `OidCredentialManager` APIs to obtain a list of subscribers in OiD and the list of those that are supported by the credential manager.

IFS.SERVER.Class used to instantiate this agent:

```
oracle.ifs.management.servers.OidCredentialManagerAgent
```

Table C–18 *Oid Credential Manager Agent Required Properties*

Property	Description and Usage Note	Default
IFS.SERVER.SESSION.User	Username for server session. Must be a user with Oracle Files administrator privileges.	system
IFS.SERVER.TIMER.InitialDelay	The initial delay when the agent will first run; this allows the agents' first trigger to be staggered. h = hours, m = minutes, s = seconds	6m
IFS.SERVER.TIMER.ActivationPeriod	Time interval between agent activation. Default setting of 24h activates the agent every 24 hours. Set time in h (hours), m (minutes), or s (seconds).	15m

Print Agent

The Print agent makes printing through Oracle Files indistinguishable from printing to a normal Windows NT server.

IFS.SERVER.Class used to instantiate this agent:

```
oracle.ifs.management.servers.print.PrintAgent
```

Quota Agent

The Quota agent is triggered by an event to check for any users who may have used up their quota. This agent also periodically checks all users who are active, according to a specified timer period. The agent updates the user's consumed storage. When the consumed storage is over the allocated quota, then the user will not be able to add any more documents to Oracle Files.

A user's quota is calculated upon the content already consumed. Therefore, a user will go over quota by adding the final file that pushes the consumed storage over the allocated storage. When setting users' allocated quota, remember that a users' last file will put them over quota before being denied.

Quotas will not be enforced if:

- The Quota agent has not been started or running.
- The user's quota has not been enabled.

IFS.SERVER.Class used to instantiate this agent:

```
oracle.ifs.management.servers.QuotaAgent
```

Service Warmup Agent

When a node is started, this agent automatically preloads the service's data cache. It expects the following entries in the Server Configuration file.

IFS.SERVER.Class used to instantiate this agent:

```
oracle.ifs.management.servers.ServiceWarmupAgent
```

Table C-19 *Service Warmup Agent Required Properties*

Property	Description and Usage Note	Default
IFS.SERVER.AGENT.SERVICEWARMUP.WarmupSetAdmin	If the warmup is done in administration mode.	true
IFS.SERVER.AGENT.SERVICEWARMUP.WarmupUsers	If set to true, warms up user collection.	false
IFS.SERVER.AGENT.SERVICEWARMUP.WarmupAcls	If set to true, warms up ACL collection.	false
IFS.SERVER.AGENT.SERVICEWARMUP.WarmupFormats	If set to true, warms up format collection.	true
IFS.SERVER.AGENT.SERVICEWARMUP.WarmupMedias	If set to true, warms up Media collection.	true

Service Watchdog Agent

ServiceWatchdogAgent cleans up after the Oracle Files services that do not shut down cleanly. This functionality is also used by SMB servers to keep track of WCP servers that are currently running, and the Web interface to keep track of FTP servers that are currently running.

IFS.SERVER.Class used to instantiate this agent:

```
oracle.ifs.management.servers.ServiceWatchdogAgent
```

Table C–20 Service Watchdog Agent Required Properties

Property	Description and Usage Note	Default
IFS.SERVER.AGENT.SERVICEWATCHDOG AGENT.ServiceTimeoutPeriod	The time before the Server Manager will kill an unresponsive protocol server. Unit of measure is seconds.	120

Server Message Block (SMB) Protocol Server

The SMB server allows Windows users to easily copy files between their local drives and the Oracle Files repository. It also allows users to browse and edit files and even execute programs directly from the Oracle FilesOracle Files repository. SMB is best suited for interactive browsing and modifying documents.

IFS.SERVER.Class used to instantiate this server:

```
oracle.ifs.protocols.smb.server.SmbServer
```

Table C-21 *SMB Protocol Server Required Properties*

Property	Description and Usage Note	Default
IFS.SERVER.PROTOCOL.SMB.ServerComment	Holds the SMB server description that shows up in the Windows Properties window.	"Oracle Internet File Server"
IFS.SERVER.PROTOCOL.SMB.PrimeServer	Primes the server with a simple login.	true
IFS.SERVER.PROTOCOL.SMB.EnableOplocks	If this parameter is true, it lets client cache their reads and writes and results in improved performance. If set to true, this may cause problems with consistency across all the protocols; however, true yields better performance.	true
IFS.SERVER.PROTOCOL.SMB.MaxOplocks	Maximum number of op locks per mount point. See Microsoft documentation for information about OpLocks.	8
IFS.SERVER.PROTOCOL.SMB.KeepStats	If true, keeps statistics on various server operations.	true
IFS.SERVER.PROTOCOL.SMB.PrintStats	If true, prints statistics on SMB commands into the log file after the user disconnects. Defaults to true if the log level for the node is medium or greater.	
IFS.SERVER.PROTOCOL.SMB.ShareMyHome	Specifies if the virtual MyHome mount point is shared as a mount point. true = MyHome the list of mount points. false = only administer defined mount points.	true
IFS.SERVERPROTOCOL.SMB.Workgroup	Windows workgroup. This determines the workgroup where the SMB server will appear in the Network Neighborhood.	WORKGROUP
IFS.SERVER.PROTOCOL.SMB.Port	Port for the SMB server to listen on. All Windows clients require the SMB server to listen on the default port, 139. Only processes with root privileges can listen on low-numbered ports, so the SMB server must be run as root.	139
IFS.SERVER.PROTOCOL.SMB.AllowGuest IfNot User	Allows users who do not have valid accounts on this server to browse as a guest. true = allows non-guest users as guest. false = forces a valid username.	true
IFS.SERVER.PROTOCOL.SMB.MaxOpenFiles	The maximum number of files a user can have open on a single mountpoint.	30

Property	Description and Usage Note	Default
IFS.SERVER.PROTOCOL.SMB.MaxAllOpenFiles	The total number of open files the SMB server allows across all users. The total is also limited by the number of connections configured for the SMB server and database.	100
IFS.SERVER.PROTOCOL.SMB.EnableParsing	Enables the parsing feature when saving Oracle Files files. true = enables parsing. false = disables parsing.	true
IFS.SERVER.PROTOCOL.SMB.EnableRendering	Enables the rendering feature when reading Oracle Files files. true = enables rendering. false = disables rendering.	true
IFS.SERVER.PROTOCOL.SMB.SessionTimeout	The server will disconnect idle sessions after this timeout. Unit of measure is in milliseconds.	43200000 (12 hours)
IFS.SERVER.PROTOCOL.SMB.IpAddress	The IP address that is advertised as the location for the SMB server. This value is defaulted from the server IP address and should not be modified except in unusual cases, for example, multi server.	server IP address
IFS.SERVER.PROTOCOL.SMB.HostName	Name of the SMB server. This value is defaulted from the socket information.	
IFS.SERVER.PROTOCOL.SMB.ForceLowerCase	Forces lowercase filenames.	

Oracle Files Server Configuration Parameters

Oracle Files uses four additional server configuration properties, specific to Oracle Files. These properties are inherited and locally defined:

Table C–22 Oracle Files Server Configuration Properties

Property	Description and Usage Note
IFS.SERVER.APPLICATION.FILES.PortalUrl	URL for the Back to Portal global button.
IFS.SERVER.APPLICATION.FILES.PrivacyStatement	Location of primary statement relative to the system data folder.
IFS.SERVER.APPLICATION.FILES.PublicBrowsingAllowed	Whether users can browse public folders without logging in.
IFS.SERVER.APPLICATION.FILES.WorkflowUrl	URL for the workflow global button.

To access the Oracle Files Server Configuration Properties page:

1. Click the Server Configuration under the Configuration section on the Oracle Files Administration page.
2. From the Server Configuration page, click `FilesHttpServerConfiguration`.
3. In the Properties section on the Properties page, begin working with Oracle Files Server Configuration Properties.

If you make changes to the inherited Server Configurations, click Update Inherited Properties to revise the inherited properties. Click Add, Edit, or Remove to manage locally defined properties.

Migrating Data to Oracle Files

This appendix tells you how to migrate content and users from legacy systems to Oracle Files. Topics include:

- [Migrating Data from Other File Servers](#)

Migrating Data from Other File Servers

Many Oracle Files administrators migrate data by scheduling downtime for the weekend, when file system usage is at a low point. The administrator can then perform the migration, shut down the old servers, and give the new server the same IP address, name, and other characteristics of the old system. When users arrive on Monday morning, they see the same file, FTP, or Web server they saw before. Some differences users may notice will be different paths to their files.

Server Consolidation Checklist

Consolidating users, folder hierarchy, content, and access privileges from other file server systems to Oracle Files involves moving:

- The user list from the old system to the new one. In short, you need to recreate each user as an Oracle Files user (by creating users using Oracle Internet Directory).
- The group list. You need to recreate the groups and add members to them.
- Content. The actual files and folders need to be copied from the old system to the new one.
- Applications. Any applications you run on the server or that you run remotely from the server need to move to the new system.

- Network configuration. You need to build the same network configuration around the new file server that you had around the old one. Issues like assigning an IP address or server name are covered in the *Oracle Files Installation Guide*

Migrate the Users

The first task in moving to a new Oracle Files server is creating the user list. For each user you want to migrate to Oracle Files, you will need to create a new user using Oracle Internet Directory. For detailed information on this process, see the *Oracle Internet Directory Administrator's Guide*.

Recreate the Groups

Recreating the groups requires creating the groups, then adding the users to them.

Scripted Group Creation

If your management tools let you export group information to a file, you could then write a translation script to convert the groups into XML format and then load them into Oracle Files.

Migrate the Content

After creating users and groups, the next step is to move the files and folders into Oracle Files.

What actually gets moved? The files and folders themselves, as well as the basic metadata about them that any Copy command would support during a copy operation through FTP, Windows networking, or some other protocol. The filename, size, and date last modified are the key attributes that get copied along with the content.

However, there may be metadata that you cannot migrate from the old system to Oracle Files. For example, if your old file system or document repository stores owner information, this type of metadata may not be copied with the file. The owner in this case becomes the Oracle Files user copying the file, not the original owner in the old system.

Similarly, if applications running on the old system maintain metadata about files, this information will not be copied with the files. For example, a document management system may point to files in the old file system and add attributes to

these files. Since this information is intrinsic to the document management system, not the file system, the extra metadata will not get copied along with the files.

Protocols for Copying Data

When copying the files, you'll use one of the network protocols:

- **FTP:** The most lightweight protocol, FTP will move large amounts of data faster than the other protocols. For bulk operations, such as migrating from an existing system, FTP is the protocol of choice. You need to use either command line FTP or a GUI FTP client for this step. For more information about the FTP Quote commands, see [Appendix F, "FTP Quote Command Reference"](#).

To FTP your files into Oracle Files, the following requirements must be met:

- An FTP client must be installed on your local machine.
- You must know the port number for FTP, which is chosen during configuration.
- An account on the Oracle Files server must be already set up.

To FTP your files into Oracle Files:

1. Using an FTP client, log into the Oracle Files server. You can use either the hostname of the Oracle Files server or its IP address.
2. Navigate to the files on your local machine that you want to load into Oracle Files and use your FTP client's utilities to load the files.

Note: If you have trouble logging into Oracle Files using your FTP client, make sure to enter the correct port, which is chosen during configuration of Oracle Files.

- **SMB:** The Windows file-sharing protocol SMB provides the ease of drag-and-drop copy operations from one system to another. However, SMB itself is a more complex protocol than FTP, performing extra operations like attempting to create a 0 kilobyte version of a file before actually copying the file. Therefore, SMB requires some sacrifice of performance for ease of use. In Windows:
 1. Map a network drive.
 2. Select the files from your local directory.

3. Drag and drop the files into a folder on the Oracle Files drive.

To retain the file structure:

1. Click and drag the entire directory structure from the original file system into Oracle Files, or drag different parts of the directory tree separately, confirming that each part of the tree has been copied before copying the next one.
 2. Log into Oracle Files through Windows as a test user and verify that all the files and folders are accessible.
 3. From the Start menu, select Oracle Files from the Find option and perform a series of searches—on both filename and contents—to ensure that users can find files easily.
- **Web Folders:** A protocol designed for Internet and intranet collaboration on files, WebDav lets you drag and drop data from one system to another.
 - **NFS:** The Network File System (NFS) protocol is used to provide file sharing between a client machine and a server machine across a network. The NFS protocol is a standard protocol which is widely used for file sharing on UNIX platforms.

Oracle Files SQL View Reference

This appendix describes the eight SQL views installed with Oracle Files. Topics include:

- [Using SQL Views](#)
- [The Views](#)

Using SQL Views

Oracle Files provides eight SQL views that you can examine to see the effects of changes made to the Oracle Files schema. For example, if you use XML to quickly add new users, you can examine the view to confirm the changes. Typically, you would use the views as you're developing and debugging custom code. The views provide a means to confirm programmatic changes to the schema.

The eight default views are owned by the Oracle Files schema owner, `ifssys` (default schema name; yours may be different). These read-only SQL views are created with the Oracle Files schema and are for informational purposes only. Grant the `SELECT` permission to users who need access to these views.

Note: The Oracle Files views should be used exclusively by system administrators. The data in the views bypasses the Oracle Files ACL security; therefore, caution should be taken in granting users access to these views.

The names of objects in the view may not be unique. Therefore, IDs are provided. Any column of type `date` has two columns in the view, for example:

- `CREATE_DATE`—An internal representation of the create date.
- `CREATE_DATE_GMT`—The standard Oracle9i platform date format, based on Greenwich Mean Time.

The Views

These eight schema views are provided. Each view is described in a separate table which provides the name of the column, whether the column can be null, the type of column, and the length for each column.

- View: `ifs_versioned_documents`
- View: `ifs_all_documents`
- View: `ifs_folders`
- View: `ifs_folder_items`
- View: `ifs_users`
- View: `ifs_groups`
- View: `ifs_group_members`
- View: `ifs_acls`

View: `ifs_versioned_documents`

This view shows a list of all documents which are versioned.

Column Name	Null?	Type of Column and Length
<code>Modified_By</code>	Yes	<code>VARCHAR2 (700)</code>
<code>Modifier_ID</code>	Yes	<code>NUMBER (20)</code>
<code>Creator</code>	Yes	<code>VARCHAR (700)</code>
<code>Creator_ID</code>	Yes	<code>NUMBER (20)</code>
<code>Owner</code>	Yes	<code>VARCHAR (700)</code>
<code>Owner_ID</code>	Yes	<code>NUMBER (20)</code>
<code>FAMILY</code>	Yes	<code>VARCHAR2(700)</code>
<code>FAMILY_ID</code>	Yes	<code>NUMBER(20)</code>
<code>FORMAT</code>	Yes	<code>VARCHAR2(700)</code>

Column Name	Null?	Type of Column and Length
FORMAT_ID	Yes	NUMBER (20)
DOCUMENT_SIZE	Yes	NUMBER (20)
CHARACTERSET	Yes	VARCHAR2 (40)
LANGUAGE	Yes	VARCHAR2 (40)
MEDIA	Yes	VARCHAR2 (700)
MEDIA_ID	Yes	NUMBER (20)
ACL	Yes	VARCHAR2 (700)
ACL_ID	Yes	NUMBER (20)
NAME	Yes	VARCHAR2 (700)
DOCUMENT_ID	Yes	NUMBER (20)
DESCRIPTION	Yes	VARCHAR2 (2000)
CREATE_DATE	Yes	NUMBER (20)
CREATE_DATE_GMT	Yes	DATE
MODIFIED_DATE	Yes	NUMBER (20)
MODIFIED_DATE_GMT	Yes	DATE
EXPIRATION_DATE	Yes	NUMBER (20)
EXPIRATION_DATE_GMT	Yes	DATE
LOCKED	Yes	NUMBER (1)
READ_BY_OWNER	Yes	NUMBER (1)

View: ifs_all_documents

This view shows a list of all documents.

Column Name	Null?	Type of Column and Length
MODIFIED_BY	Yes	VARCHAR2 (700)
MODIFIER_ID	Yes	NUMBER (20)
CREATOR	Yes	VARCHAR (700)
CREATOR_ID	Yes	NUMBER (20)

Column Name	Null?	Type of Column and Length
OWNER	Yes	VARCHAR (700)
OWNER_ID	Yes	NUMBER (20)
FORMAT	Yes	VARCHAR2(700)
FORMAT_ID	Yes	NUMBER(20)
DOCUMENT_SIZE	Yes	NUMBER(20)
CHARACTERSET	Yes	VARCHAR2(40)
LANGUAGE	Yes	VARCHAR2(40)
MEDIA	Yes	VARCHAR2(700)
MEDIA_ID	Yes	NUMBER(20)
ACL	Yes	VARCHAR2(700)
ACL_ID	Yes	NUMBER(20)
NAME	Yes	VARCHAR2(700)
DOCUMENT_ID	Yes	NUMBER(20)
DESCRIPTION	Yes	VARCHAR2(2000)
CREATE_DATE	Yes	NUMBER(20)
CREATE_DATE_GMT	Yes	DATE
MODIFIED_DATE	Yes	NUMBER(20)
MODIFIED_DATE_GMT	Yes	DATE
EXPIRATION_DATE	Yes	NUMBER(20)
EXPIRATION_DATE_GMT	Yes	DATE
LOCKED	Yes	NUMBER(1)
READ_BY_OWNER	Yes	NUMBER(1)

View: ifs_folders

This view shows all folders and their attributes.

Column Name	Null?	Type of Column and Length
MODIFIED_BY	Yes	VARCHAR2 (700)

Column Name	Null?	Type of Column and Length
MODIFIER_ID	Yes	NUMBER (20)
CREATOR	Yes	VARCHAR (700)
CREATOR_ID	Yes	NUMBER (20)
OWNER	Yes	VARCHAR (700)
OWNER_ID	Yes	NUMBER (20)
ACL	Yes	VARCHAR2(700)
ACL_ID	Yes	NUMBER (20)
NAME	Yes	VARCHAR2(700)
FOLDER_ID	Yes	NUMBER (20)
DESCRIPTION	Yes	VARCHAR2(2000)
CREATE_DATE	Yes	NUMBER (20)
CREATE_DATE_GMT	Yes	DATE
MODIFIED_DATE	Yes	NUMBER (20)
MODIFIED_DATE_GMT	Yes	DATE
EXPIRATION_DATE	Yes	NUMBER (20)
EXPIRATION_DATE_GMT	Yes	DATE
LOCKED	Yes	NUMBER (1)

View: ifs_folder_items

This view lists all folders and the top level items.

Column Name	Null?	Type of Column and Length
CREATOR	Yes	VARCHAR (700)
CREATOR_ID	Yes	NUMBER (20)
OWNER	Yes	VARCHAR (700)
OWNER_ID	Yes	NUMBER (20)
TYPE	No	VARCHAR2(700)
NAME	Yes	VARCHAR2(700)

Column Name	Null?	Type of Column and Length
DESCRIPTION	Yes	VARCHAR2 (2000)
CREATE_DATE	Yes	NUMBER (20)
CREATE_DATE_GMT	Yes	DATE
OBJECT_ID	Yes	VARCHAR2 (700)
ACL	Yes	VARCHAR2 (700)
ACL_ID	Yes	NUMBER (20)
FOLDER_NAME	Yes	VARCHAR2 (700)
FOLDER_ID	Yes	NUMBER (20)

View: ifs_users

This view lists all users.

Column Name	Null?	Type of Column and Length
MODIFIED_BY	Yes	VARCHAR2 (700)
MODIFIER_ID	Yes	NUMBER (20)
CREATOR	Yes	VARCHAR (700)
CREATOR_ID	Yes	NUMBER (20)
OWNER	Yes	VARCHAR (700)
OWNER_ID	Yes	NUMBER (20)
ACL	Yes	VARCHAR2 (700)
ACL_ID	Yes	NUMBER (20)
NAME	Yes	VARCHAR2 (700)
USER_ID	Yes	NUMBER (20)
DESCRIPTION	Yes	VARCHAR2 (2000)
CREATE_DATE	Yes	NUMBER (20)
CREATE_DATE_GMT	Yes	DATE
DISTINGUISHED_NAME	Yes	VARCHAR2 (700)
ADMIN_ENABLED	Yes	NUMBER (1)

Column Name	Null?	Type of Column and Length
CREDENTIAL_MANAGER	Yes	VARCHAR2 (700)
UNIQUE_NAME	Yes	VARCHAR2 (700)
HOME_FOLDER_NAME	Yes	VARCHAR2 (700)
HOME_FOLDER_ID	Yes	NUMBER (20)

View: ifs_groups

This view lists all groups.

Column Name	Null?	Type of Column and Length
MODIFIED_BY	Yes	VARCHAR2 (700)
MODIFIER_ID	Yes	NUMBER (20)
CREATOR	Yes	VARCHAR (700)
CREATOR_ID	Yes	NUMBER (20)
OWNER	Yes	VARCHAR (700)
OWNER_ID	Yes	NUMBER (20)
NAME	Yes	VARCHAR2 (700)
GROUP_ID	Yes	NUMBER (20)
DESCRIPTION	Yes	VARCHAR2 (2000)
CREATE_DATE	Yes	NUMBER (20)
CREATE_DATE_GMT	Yes	DATE
ACL	Yes	VARCHAR2 (700)
ACL_ID	Yes	NUMBER (20)

View: ifs_group_members

This view lists groups and their direct members.

Column Name	Null?	Type of Column and Length
MEMBER_NAME	Yes	VARCHAR2 (700)
MEMBER_ID	Yes	NUMBER (20)

Column Name	Null?	Type of Column and Length
MEMBER_DESCRIPTION	Yes	VARCHAR (700)
MEMBER_CREATE_DATE	Yes	NUMBER (20)
MEMBER_CREATE_DATE_GMT	Yes	DATE
GROUP_ID	Yes	NUMBER(20)
TYPE	No	VARCHAR2(2000)

View: ifs_acls

This view lists all ACLs in Oracle Files.

Column Name	Null?	Type of Column and Length
CONTROLLING_ACL_NAME	Yes	VARCHAR2 (700)
CONTROLLING_ACL_ID	Yes	NUMBER (20)
NAME	Yes	VARCHAR2(700)
ACL_ID	Yes	NUMBER(20)
DESCRIPTION	Yes	VARCHAR2(2000)
CREATE_DATE	Yes	NUMBER(20)
CREATE_DATE_GMT	Yes	DATE
MODIFIED_BY	Yes	VARCHAR (700)
MODIFIER_ID	Yes	NUMBER (20)
CREATOR	Yes	VARCHAR (700)
CREATOR_ID	Yes	NUMBER (20)
OWNER	Yes	VARCHAR2(700)
OWNER_ID	Yes	NUMBER(20)

Example: Selecting Attributes of a Document

This example uses `ifs_versioned_documents` to select attributes. To accomplish this, the following command is run:

```
SQL> select name, format, document_size, media, document_id, acl, owner from
ifs_versioned_documents
```


The following table displays the output.

Name	Format	Document_ Size	Media	ACL	Document_ ID	Owner
Business Plan	MS Word	11954	IndexedBlob	Published	7902	jsmith
June Report	Postscript	121	NonIndexedBlob	Private	7936	lfrench
Oracle logo	JPEG	121	NonIndexedBlob	Published	7926	pbrown

FTP Quote Command Reference

This appendix provides information on using the FTP quote commands.

Topics include:

- [CASCADEOFF](#)
- [CASCADEON](#)
- [DELIM](#)
- [SETLANGUAGE](#)
- [SETCHARENCODING](#)
- [SHOWCHARENCODING](#)
- [SHOWLANGUAGE](#)

CASCADEOFF

When deleting a folder (`rmdir`), turns off cascade delete for the session. Only empty folders will be deleted by the `rmdir` command. If folders under the directory are not empty, the `rmdir` will not succeed.

Syntax	Example
<code>quote cascadeoff</code>	<code>quote cascadeoff</code>

CASCADEON

When deleting a folder ("rmdir"), turns on cascade delete for the session so that the folder and all its contents, including any non-empty folders, are deleted. The example shows that any folder and its contents will be deleted.

Syntax	Example
quote cascadeon	quote cascadeon

DELIM

Sets the folder path delimiter for the current session. The example sets the character "\" to delimit folder paths.

Syntax	Example
quote delim [character]	quote delim \

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 the *Oracle9i National Language Support Guide*.

Syntax	Example
quote setlanguage [language]	quote setlanguage French
	quote setlanguage "Latin American Spanish"

The list of valid languages is below. For languages that are longer than one word, the language needs to be enclosed in quotes as shown in the table above.

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

SETCHARENCODING

Sets the character encoding to an IANA character set name for the session when loading documents. Should be used 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 on character encodings, see the *Oracle9i National Language Support Guide*.

Syntax	Example
quote setcharencoding [characater encoding]	quote setcharencoding UTF-8

Valid character encodings include:

BIG5	ISO-2022-KR	KOI8-R	WINDOWS-1252
EUC-JP	ISO-8859-1	KS_C_5601-1987	WINDOWS-1253
EUC-TW	ISO-8859-2	SHIFT_JIS	WINDOWS-1254
GB2312	ISO-8859-3	TIS-620	WINDOWS-1255
IBM850	ISO-8859-4	UTF-8	WINDOWS-1256
IBM852	ISO-8859-5	WINDOWS-936	WINDOWS-1257
IBM857	ISO-8859-6	WINDOWS-949	WINDOWS-1258

IBM866	ISO-8859-7	WINDOWS-950	
ISO-2022-CN	ISO-8859-8	WINDOWS-1250	
ISO-2022-JP	ISO-8859-9	WINDOWS-1251	

SHOWCHARENCODING

Displays the current character encoding setting for the session.

Syntax	Example
<code>quote showcharencoding</code>	<code>quote showcharencoding</code>

SHOWLANGUAGE

Displays the current language setting for the session.

Syntax	Example
<code>quote showlanguage</code>	<code>quote showlanguage</code>

Globalization Support

Globalization Support Overview

Oracle Files globalization support enables users to store and search documents of heterogeneous character sets and languages in a single Oracle Files instance. In addition, the foundation is provided for development of multilingual applications that can be accessed and run from anywhere in the world simultaneously. The content of the user interface would be rendered and the data processed in the native users' languages and locale preferences. The globalization infrastructure ensures that the resource strings, error messages, sort order, date, time, monetary, numeric, and calendar conventions automatically adapt to any native language and locale.

The Repository

The repository is the implementation of the core of Oracle Files, on which the protocol servers and applications are built. Globalization support is provided in the repository so that the other dependent components can share and utilize 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 on these documents.

How to Choose the Database Character Set for Oracle Files

In the repository, all metadata strings, such as the name of the document, description, etc., are stored in the VARCHAR2 data type of the Oracle9i 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 the Oracle9i 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 a document's content is indexed, the BLOB data is converted from the content's character set to the database character set for creation of the index text tokens. If the content's character set is not a subset of the database character set, 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 should be considered when selecting the database character set.

If your Oracle Files instance will contain multilingual documents, UTF-8 is the recommended database character set. UTF-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 which 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. UTF-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 UTF-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.

The Oracle9i database introduces the new character set, AL32UTF-8. In Release 1, AL32UTF-8 was the default character set for Unicode 3.0 deployment. In Release 2, AL32UTF-8 is conformant to the latest Unicode 3.1 standard, which contains the supplementary characters, particularly additional Chinese, Japanese, and Korean ideographs. AL32UTF-8 is the default character set of an Oracle9i database installation.

Note: Oracle Files does not support an AL32UTF-8 database because Oracle Text does not support Chinese, Japanese, and Korean lexers on an AL32UTF-8 database. UTF-8 is the recommended database character set for an Unicode-based file system. If Oracle Files is installed in an AL32UTF-8 database, Chinese, Japanese, and Korean documents will not get indexed and, thus, will not be searchable.

The Oracle Files Configuration Assistant will fail in a Chinese, Japanese, or Korean locale against an AL32UTF-8 database. This is because Oracle Text behaves differently when the database session language is initialized to an Asian language as opposed to American. JDBC initializes the database session language according to the locale of the running application, which in this case is the configuration tool.

How to Make Sure Documents Are Properly Indexed in Oracle Files

To support documents in different character sets and languages in a single file system, the repository associates two globalization attributes per 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 upon insertion of a document, the repository determines a default character set as follows: The character set of the user's `LibrarySession` stored in the `Localizer` object is first used. This is obtained from the user's `PrimaryUserProfile` information at initialization of the user's `LibrarySession`. During initialization, if a character set default value is not found in the user's `PrimaryUserProfile`, the default is obtained from the Oracle Files systemwide default character set, which is specified in the service configuration property, `IFS.SERVICE.DefaultCharacterSet`.

The various naming conventions for character sets are not trivial. Oracle Files Java API standardizes on the Java naming convention for character sets. Any GUI end-user application should expose the more publicly known IANA naming convention. See [Table G-2, "Character Sets Supported in Oracle Files"](#) for character set names.

Language

The language of a document is used in mainly two ways. First, as a criterion to limit the search for documents of a particular language. The more significant usage, however, is for building a full-text search index on the document with Oracle Text. Oracle Text's multilexer feature 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. They are defined as follows:

Table G-1 Language-Specific Lexers

Language	Lexer	Lexer Option
Brazilian Portugese	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	
Korean	KOREAN_LEXER	
Latin American	BASIC_LEXER	BASE LETTER

Table G-1 (Cont.) Language-Specific Lexers

Language	Lexer	Lexer Option
Spanish Portugese	BASIC_LEXER	BASE LETTER
Simplified Chinese	CHINES_VGRAM_LEXER	
Swedish	BASIC_LEXER	BASE LETTER SWEDISH ALTERNATE SPELLING
Tradition Chinese	CHINESE_VGRAM_LEXER	
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 separator.s Instead, they use a V-gram algorithm to parse the documents for searchable keys. Languages that have not been supported by Oracle Text are parsed as English. Oracle Files uses the multilexer feature of Oracle Text. It is a global lexer containing German, Danish, Swedish, Japanese, Simplified Chinese, Traditional Chinese, and Korean sublexers.

If no language is specified upon insertion of a document, 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.
2. A document with a character set of Shift-JIS will most likely be in Japanese.
3. 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 user's PrimaryUserProfile. The last resort is the 9iFS system-wide default language which is specified in the service configuration property, IFS.SERVICE.DefaultLanguage.

The naming convention for language is simply one flavor, the Oracle NLS language abbreviation. See [Table G-3, "Languages Supported in Oracle Files"](#) for a list of Oracle Files-supported languages.

Service Configuration Properties

There are two service configuration properties that hold default character set and language values for the Oracle Files instance. The properties are:

- `IFS.SERVICE.DefaultCharacterSet`
- `IFS.SERVICE.DefaultLanguage`

These two properties are initialized with the Oracle Files Configuration assistant tool and can be later modified through the Oracle Files Manager. The Oracle Files default character set should be the same or a subset of the database character set. The character set should be specified in accordance with the IANA standard naming convention. The language should be specified in accordance with Oracle naming for languages. See [Table G-2, "Character Sets Supported in Oracle Files"](#) and [Table G-3, "Languages Supported in Oracle Files"](#) for a list of Oracle Files-supported character sets and languages.

How to Search for Multilingual Documents

To accurately search for a document based on linguistic characteristics, Oracle Text needs to know the language of the string to be searched. In this regard, the Oracle Files Java API provides a new method to the `oracle.ifs.bean.search` class, namely `search.open(String language)`, to allow applications to specify the language of the search string.

When a language is specified to the `search.open()` method to indicate a language-sensitive search, the Oracle Files repository issues the following SQL statement to the database to alter the `NLS_LANGUAGE` session parameter before issuing the `SELECT` statement to start the context search.

```
ALTER SESSION SET NLS_LANGUAGE=<nls_language>
```

Oracle Text looks at the `NLS_LANGUAGE` variable and determines the language on which the search string should be parsed. After the search has been completed or the `search.close()` method is called, the Oracle Files repository will issue another `ALTER SESSION SQL` command to change the `NLS_LANGUAGE` session parameter back to its original value.

A query is parsed using the sublexer appropriate to the database session language. If the database session language is German, for example, the contains query gets parsed using the German sublexer preferences.

Oracle Files Protocols

Oracle Files does not support multi-byte user names for certain protocols. Access through WebDAV (Web Folders and File Sync), HTTP, and SMB is not available for user names that contain multi-byte characters. FTP allows multi-byte user names.

FTP

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, the Oracle Files FTP server provides the following QUOTE commands to support this.

- **Ftp> quote setcharencoding:** Setcharencoding allows users to specify the character set for the FTP session. This character set specifies the character encoding to be used in subsequent FTP commands and the character set of the documents to be uploaded. 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 [Table G-2, "Character Sets Supported in Oracle Files"](#) for a list of character sets.
- **Ftp> quote showcharencoding:** Showcharencoding displays the current character set of the FTP session. The character set is displayed in the IANA naming standards. See [Table G-2, "Character Sets Supported in Oracle Files"](#) for a list of character sets.
- **Ftp> quote setlanguage:** Setlanguage allows users to specify the language for the FTP session. The language of a 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. Oracle language names should be used. See [Table G-3, "Languages Supported in Oracle Files"](#) for a list of languages.
- **Ftp> quote showlanguage:** Showlanguage displays the current language of the FTP session. The language is displayed with the Oracle naming standard. See [Table G-3, "Languages Supported in Oracle Files"](#) for a list of languages.

When a quote command is issued to change the character set or language of the FTP session, the FTP server actually updates the settings in the Localizer object of the current LibrarySession. Subsequently, since quote commands cannot be issued until

a FTP session is established, only usernames in the character set or subset of the FTP server's default character set can be used to login to the FTP server.

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 issuance of quote commands. FtpSession defaults will be used.

SMB

The Server Message Block (SMB) protocol server implements the SMB protocol to allow mounting of Oracle Files as a disk drive in Microsoft Windows Explorer. Microsoft has included Unicode support for the SMB protocol since LanManager Version 0.12.

The SMB protocol does not allow users to pass the character set and language information to the server. The session defaults will be used for documents inserted into the repository via the SMB protocols.

Table G-2 Character Sets Supported in Oracle Files

Language	IANA Preferred MIME Charset	IANA Additional Aliases	Java Encodings	Oracle Charset
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		Cp1256	AR8MSWIN1256
Baltic (ISO)	iso-8859-4	csISOLatin4, iso-ir-110, ISO_8859-4, ISO_8859-4:1988, 14, latin4	ISO8859_4	NEE8ISO8859P4
Baltic (Windows)	windows-1257		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, 12, latin2	ISO8859_2	EE8ISO8859P2

Table G–2 (Cont.) Character Sets Supported in Oracle Files

Language	IANA Preferred MIME Charset	IANA Additional Aliases	Java Encodings	Oracle Charset
Central European (Windows)	windows-1250	x-cp1250	Cp1250	EE8MSWIN1250
Chinese Simplified (GB2312)	gb2312	chinese, csGB2312, csISO58GB231280, GB2312, GB_2312-80, iso-ir-58	EUC_CN	ZHS16CGB231280
Chinese Simplified (Windows)	GBK	windows-936	GBK	ZHS16GBK
Chinese Traditional	big5	csbig5, x-x-big5	Big5	ZHT16BIG5
Chinese Traditional	windows-950		MS950	ZHT16MSWIN950
Chinese	iso-2022-cn (It is not defined in IANA, but use in MIME documents.)	csISO2022CN	ISO2022CN	ISO2022-CN
Chinese Traditional (EUC-TW)	EUC-TW		EUC_TW	ZHT32EUC
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

Table G–2 (Cont.) Character Sets Supported in Oracle Files

Language	IANA Preferred MIME Charset	IANA Additional Aliases	Java Encodings	Oracle Charset
Greek (ISO)	iso-8859-7	csISOLatinGreek, ECMA-118, ELOT_928, greek, greek8, iso-ir-126, ISO_8859-7, ISO_8859-7:1987, csISOLatin-Greek	ISO8859_7	EL8ISO8859P7
Greek (Windows)	windows-1253		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		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-jjis, 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
Korean (Windows)	windows-949		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		Cp1254	TR8MSWIN1254

Table G–2 (Cont.) Character Sets Supported in Oracle Files

Language	IANA Preferred MIME Charset	IANA Additional Aliases	Java Encodings	Oracle Charset
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
Vietnamese (Windows)	windows-1258		Cp1258	VN8MSWIN1258
Western Alphabet (windows)	windows-1252	x-ansi	Cp1252	WE8MSWIN1252
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

Table G–3 Languages Supported in Oracle Files

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
Dutch	nl	nl

Table G-3 (Cont.) Languages Supported in Oracle Files

Oracle Language Name	Java Locale	ISO Locale
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	lt
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

Table G-3 (Cont.) Languages Supported in Oracle Files

Oracle Language Name	Java Locale	ISO Locale
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

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