

# **Oracle® Collaboration Suite**

Concepts Guide

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Oracle Collaboration Suite Concepts Guide, 10g Release 1 (10.1.1)

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Primary Author: Joseph Onorato

Contributing Author: Robin M. Clark, Raymond Gallardo, Neal Kaplan, Madhubala Mahabaleshwar, Ginger Tabora, Nick Taylor

Contributor: Charles Colt, Susan Shepard, Joshua Stanley, David Wood

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# Preface

This Preface contains these topics:

- [Audience](#)
- [Documentation Accessibility](#)
- [Related Documents](#)
- [Conventions](#)

## Audience

This manual is intended for administrators who would like a conceptual overview of Oracle Collaboration Suite. It provides information about Oracle Collaboration Suite's architecture, its Infrastructure, Application and Client tiers, and its main features. This guide should be read before planning a deployment of Oracle Collaboration Suite and thus should be read before *Oracle Collaboration Suite Deployment Guide* and *Oracle Calendar Administrator's Guide*.

## Documentation Accessibility

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## Related Documents

For more information about Oracle Collaboration Suite or its components, see these Oracle guides:

- ❑ *Oracle Collaboration Suite Administrator's Guide*
- ❑ *Oracle Collaboration Suite Deployment Guide*
- ❑ *Oracle Collaboration Suite Security Guide*
- ❑ *Oracle Calendar Administrator's Guide*
- ❑ *Oracle Calendar Reference Manual*
- ❑ *Oracle Content Services Administrator's Guide*
- ❑ *Oracle Mail Administrator's Guide*
- ❑ *Oracle Mobile Collaboration Administrator's Guide*
- ❑ *Oracle Real-Time Collaboration Administrator's Guide*
- ❑ *Oracle Voicemail & Fax Administrator's Guide*

## Conventions

The following text conventions are used in this document:

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

# Part I

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## What is Oracle Collaboration Suite?

Part I of this guide contains the following chapters:

- Chapter 1, "[Overview of Oracle Collaboration Suite](#)"
- Chapter 2, "[Oracle Collaboration Suite Architecture](#)"
- Chapter 3, "[Oracle Collaboration Suite High Availability Concepts](#)"



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# Overview of Oracle Collaboration Suite

Until recently, business managers implementing systems for departmental communication and collaboration have been forced to choose between using fragmented applications from separate vendors, or collaborative products that did not meet all of their scalability, reliability, manageability, and security concerns. Oracle meets these concerns with Oracle Collaboration Suite 10g, a secure and reliable communications solution built on Oracle Database 10g and Oracle Application Server 10g Infrastructure.

Oracle Collaboration Suite integrates unstructured content, documents, e-mail, calendaring, workspaces, discussion boards and real-time collaboration into enterprise business processes. Additionally, Oracle Collaboration Suite's time management, content management and real-time collaboration functionality of Oracle Collaboration Suite is accessible through a wide range of clients and wireless devices, like PDAs, voice handsets, and the newest mobile phones on the market.

This chapter contains the following topics:

- [Oracle Collaboration Suite Applications Overview](#)
- [Key Features and Functionality of Oracle Collaboration Suite](#)

## Oracle Collaboration Suite Applications Overview

Oracle Collaboration Suite Applications is composed of several components working together to provide a powerful collaborative business solution. For example, Oracle Collaboration Suite 10g Calendar enables users to schedule and join Web conferences directly from their calendars, and faxes sent to Oracle Collaboration Suite users arrive directly in their inboxes.

Oracle Collaboration Suite Applications includes:

- [Oracle Collaboration Suite 10g Calendar](#)
- [Oracle Collaboration Suite 10g Content Services](#)
- [Oracle Collaboration Suite 10g Discussions](#)
- [Oracle Collaboration Suite 10g Mail](#)
- [Oracle Collaboration Suite 10g Mobile Collaboration](#)
- [Oracle Collaboration Suite 10g Real-Time Collaboration](#)
- [Oracle Collaboration Suite 10g Voicemail & Fax](#)
- [Oracle Collaboration Suite 10g Workspaces](#)

## Oracle Collaboration Suite 10g Calendar

Oracle Calendar is the time management component of Oracle Collaboration Suite, combining group and resource scheduling functionality with a variety of access methods to give you up-to-date task management information.

Oracle Calendar is capable of free-time searches, multiple time zone support and UTF-8 encoding to support international deployments, e-mail and wireless alerts. Oracle Calendar supports multiple platforms and has an extensible Authentication, Compression and Encryption (ACE) framework for enhanced security.

See the [Oracle Collaboration Suite 10g Calendar Concepts](#) chapter in this guide for more information about Oracle Calendar.

See *Oracle Calendar Administrator's Guide* and *Oracle Calendar Reference Manual* for more information about Oracle Calendar administration, configuration, and troubleshooting.

### Oracle Calendar Application System

The Oracle Calendar application system (OCAS) provides a set of shared proprietary APIs that interface with the Oracle Calendar server and run alongside the Oracle HTTP Server (OHS). The Oracle Calendar application system extends the functionality of Oracle Calendar by supplying you with a Web client, Web services, and mobile access to your calendar data.

See the [Oracle Calendar Application System](#) section in the [Oracle Collaboration Suite 10g Calendar Concepts](#) chapter of this guide for more information about the Oracle Calendar application system.

### Oracle Calendar Sync

Oracle Calendar Sync is used to synchronize your Oracle Calendar data with your PDA, taking Oracle Calendar's functionality one step further. Oracle Calendar Sync works with Palm Desktop for Windows or Macintosh for Palm devices, or Microsoft ActiveSync with Pocket PCs.

See the [Data Synchronization with Oracle Calendar Sync](#) section in the [Oracle Collaboration Suite 10g Calendar Concepts](#) chapter of this guide for more information about synchronizing your Oracle Calendar data with your Palm or Pocket PC.

## Oracle Collaboration Suite 10g Content Services

Oracle Content Services is an enterprise file server replacement, with added content management features that enable users to collaborate more efficiently.

Oracle Content Services provides:

- Support for file-sharing and collaboration protocols
- Collaboration based on shared folders
- 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

See the [Oracle Collaboration Suite 10g Content Services Concepts](#) chapter in this guide for more information about Oracle Content Services.

See *Oracle Content Services Administrator's Guide* for more information about Oracle Content Services administration, configuration, and troubleshooting.

## Oracle Collaboration Suite 10g Discussions

Oracle Discussions is a scalable, manageable, and easy-to-use application for managing online discussion forums. Oracle Discussions enables you to post messages and questions, as well as share ideas on a particular theme or subject. The Oracle Collaboration Suite Discussions Web client is simple and intuitive, enabling you to perform simple or advanced searches through entire discussions, or within Favorites, Categories and Forums.

See the [Oracle Collaboration Suite 10g Discussions](#) chapter in this guide for more information about Oracle Discussions.

See "Managing Oracle Discussions" in Chapter 5 of *Oracle Collaboration Suite Administrator's Guide* for more about Oracle Discussions administration, configuration, and troubleshooting.

## Oracle Collaboration Suite 10g Mail

Oracle Mail is Oracle Collaboration Suite's open-standards-based solution for enterprise-wide e-mail, voice mail and faxes. Oracle Mail messages can be accessed using any client compliant with IMAP4 or POP3. Oracle Mail provides directory services using the Lightweight Directory Access Protocol (LDAP) standards-compliant Oracle Internet Directory.

The following Oracle Collaboration Suite clients can be used to access Oracle Mail messages:

- ❑ The Oracle Web Access client brings together a user-friendly design with a rich feature set to offer a desktop-like experience in your browser.
- ❑ Oracle Connector for Outlook extends the functionality of Microsoft Outlook, providing Oracle Collaboration Suite users with a familiar and unified environment for e-mail, voice mail, fax, Web conferencing and real-time calendaring.
- ❑ Oracle WebMail is a completely browser-based client that provides Oracle Collaboration Suite users with all of the advantages of Internet computing.

See the [Oracle Collaboration Suite 10g Mail Concepts](#) chapter in this guide for more information about Oracle Mail.

See *Oracle Mail Administrator's Guide* for more information about Oracle Mail administration, configuration, and troubleshooting.

## Oracle Collaboration Suite 10g Mobile Collaboration

Oracle Mobile Collaboration is a collection of applications that enables you to access your e-mail, voice mail, calendar, contacts, tasks, files and corporate directories from any device with wireless or voice access.

Oracle Collaboration Suite already includes the ability to access e-mail from wireless devices via any mobile browser or through voice commands. [Oracle Mobile Push Mail](#) extends this functionality, pushing e-mail messages to your mobile device in real time without requiring any intervention on your part.

Oracle Mobile Data Sync allows you to synchronize your handheld device over the air, without a cradle, desktop or corporate network. Oracle Mobile Access lets you use

voice commands to query information and Oracle Device Management provides you with provisioning functionality to get devices configured and running quickly. Administrators can activate user accounts, push mobile clients out to devices, and update devices with the latest upgrades using the functionality of these tools.

See the [Oracle Collaboration Suite 10g Mobile Collaboration Concepts](#) chapter in this guide for more information about Oracle Mobile Collaboration.

See *Oracle Mobile Collaboration Administrator's Guide* for more information about Oracle Mobile Collaboration system requirements, installation instructions, frequently asked questions and troubleshooting information.

## Oracle Collaboration Suite 10g Real-Time Collaboration

Oracle Real-Time Collaboration is the real-time messaging and conferencing component of Oracle Collaboration Suite. Oracle Real-Time Collaboration lets you participate in chats and Web conferences as well as publish your presence and availability. Oracle Real-Time Collaboration can be configured to support public or private conferences, online seminars, or live support that begins with a chat session and ends with a full Web conference and desktop sharing between a support agent and customer.

You can integrate Oracle Real-Time Collaboration features into your company's Web sites. You can also create multiple *sites* that are customized for your company's line of business, all served from the same Real-Time Collaboration system.

Oracle Real-Time Collaboration provides secure data exchange with built-in system scalability and high-availability of all system servers. Administrative support features include real-time monitoring of processes and system components, quality of service, use and system reports, and complete archiving of all conference and messaging data for compliance with corporate reporting requirements.

See the [Oracle Collaboration Suite 10g Real-Time Collaboration Concepts](#) chapter in this guide for more information about Oracle Real-Time Collaboration.

See *Oracle Real-Time Collaboration Administrator's Guide* for more information about Oracle Real-Time Collaboration administration, configuration, and troubleshooting.

## Oracle Collaboration Suite 10g Search

Oracle Collaboration Suite Search offers gives users of Oracle Collaboration Suite a configurable, all-in-one search solution across the following Oracle Collaboration Suite components: Oracle Mail, Oracle Calendar and Oracle Content Services. Oracle Collaboration Suite Search can also search across HTML pages that are accessible by Oracle Ultra Search.

See the [Oracle Collaboration Suite 10g Search Concepts](#) chapter in this guide and the Oracle Collaboration Suite Search online help for more information about Oracle Collaboration Suite Search.

## Oracle Collaboration Suite 10g Voicemail & Fax

Oracle Voicemail & Fax provides Oracle Collaboration Suite with centralized and secure message storage and retrieval for voice mail and faxes. It enhances the traditional voice mail system and fax capabilities with improved scalability, reliability, and accessibility features including e-mail access to voice and fax messages. In addition, it provides telephone processing, message delivery, browser based clients, and administration utilities.



Oracle Voicemail & Fax is designed to co-exist with legacy PBX systems, allowing your business to gradually migrate to the next generation of unified communication while using the Oracle Collaboration Suite data infrastructure.

See the [Oracle Collaboration Suite 10g Voicemail & Fax Concepts](#) chapter in this guide for more information about Oracle Voicemail & Fax.

See *Oracle Voicemail & Fax Administrator's Guide* for more information about Oracle Voicemail & Fax's system requirements, installation instructions, and troubleshooting information.

## Oracle Collaboration Suite 10g Workspaces

Oracle Workspaces leverages the applications of Oracle Collaboration Suite and makes them available to you as you need them. Within a Workspace, you can share documents, hold discussions, administer meetings and manage tasks. This occurs with no unnecessary duplication of content; the original collaborative content is accessed and modified where it resides.

The Oracle Workspaces SDK enables you to take advantage of Oracle Workspaces services within the scope of your own applications. Applications developed with the Oracle Workspaces SDK share core features with the Oracle Workspaces clients, allowing you to switch tools as you see fit.

See the [Oracle Collaboration Suite 10g Workspaces Concepts](#) chapter in this guide for more information about Oracle Workspaces.

See "Managing Oracle Workspaces" in Chapter 5 of *Oracle Collaboration Suite Administrator's Guide* for more about Oracle Workspaces administration, configuration, and troubleshooting.

## Key Features and Functionality of Oracle Collaboration Suite

This section describes the main features and benefits of Oracle Collaboration Suite:

- ❑ [Development and Integration Tools](#)
- ❑ [Centralized Management with Oracle Enterprise Manager](#)
- ❑ [End-User Documentation Portal](#)
- ❑ [Oracle Collaborative Portlets](#)
- ❑ [Security](#)
- ❑ [Simplified User Provisioning](#)
- ❑ [Suite-level Contacts](#)

### Development and Integration Tools

Oracle Collaboration Suite includes a robust set of Web services and SDKs. Developers can use these tools to enhance the functionality of an existing business to support the integration of additional collaboration functionality into the context of a business process, workflow, or technical application.

See the [Oracle Collaboration Suite Application Development Concepts](#) chapter in this guide for more information about the available Oracle Collaboration Suite Web services and APIs.

Click the **Collaboration Suite Development Center** link on the Oracle Collaboration Suite Welcome page for information and resources you need to extend, integrate, and customize your collaborative applications.

## Centralized Management with Oracle Enterprise Manager

Oracle Enterprise Manager is a tool for managing the components of Oracle Collaboration Suite. Enterprise Manager lets you perform all management tasks, including real-time use and performance monitoring, configuration, and control operations such as starting and stopping processes.

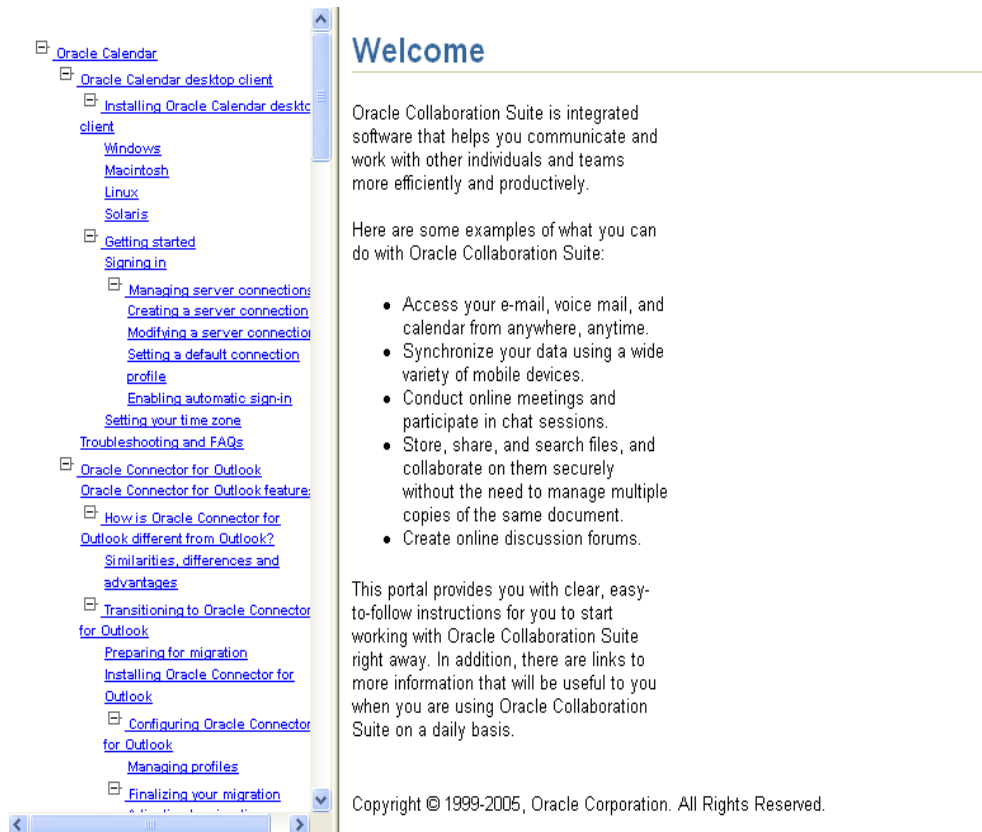
See the [Oracle Collaboration Suite Management Concepts](#) chapter in this guide for more information about Oracle Enterprise Manager.

See Chapter 3, "Oracle Collaboration Suite Management Tools", in *Oracle Collaboration Suite Administrator's Guide* for information about using Oracle Enterprise Manager to manage the Infrastructure and Applications tiers of Oracle Collaboration Suite.

## End-User Documentation Portal

The End-User Documentation Portal is a set of customizable HTML pages that provides an overview of Oracle Collaboration Suite's clients as well as information for downloading, installing, and configuring each Oracle Collaboration Suite client. The End-User Documentation Portal also includes links to the FAQ & Troubleshooting site on the Oracle Technology Network (OTN), as well as Oracle Collaboration Suite end-user tutorials.

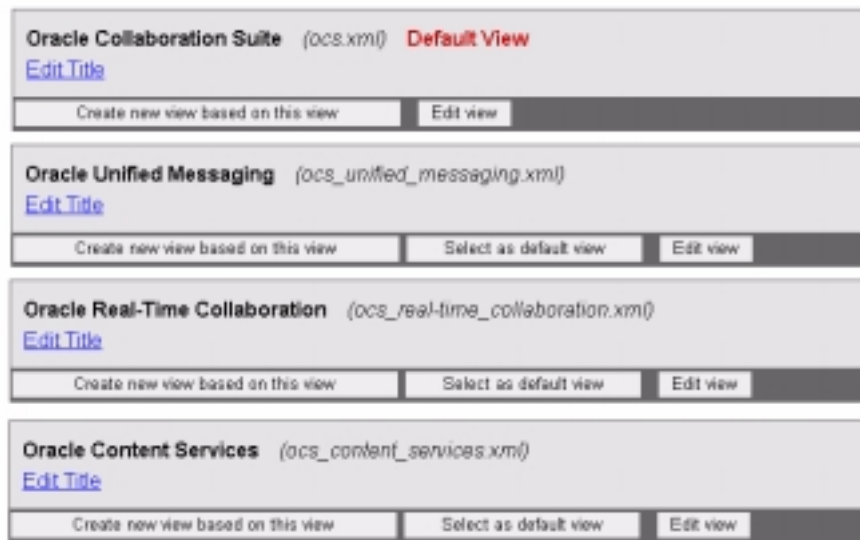
**Figure 1–1 End-User Documentation Portal**



Administrators can easily host the End-User Documentation Portal. They can also customize the default content to show or hide content based on the Oracle Collaboration Suite components they are deploying at their site.

**Figure 1–2 End-User Documentation Portal administrator's tool**

## Views



The image shows the End-User Documentation Portal administrator's tool, which includes buttons for adding, hiding and removing sections.

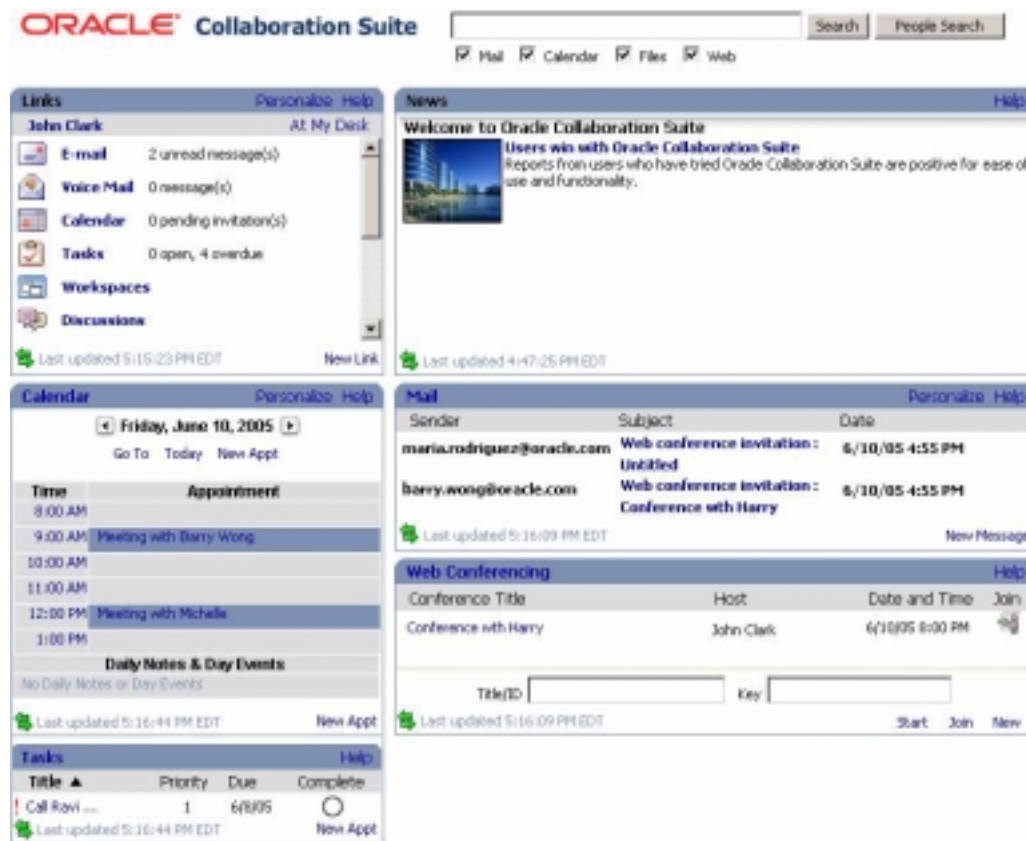
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For more information about the End-User Documentation Portal, see "Client Deployment Using the End-User Documentation Portal" in Chapter 1 of **Oracle Collaboration Suite Deployment Guide**.

## Oracle Collaborative Portlets

Oracle Collaborative Portlets is a set of portlet applications that combine to give users a summarized version of each Oracle Collaboration Suite component. Collaborative Portlets can be integrated into Oracle Application Server Portal to provide convenient access to Oracle Collaboration Suite's applications. Using Collaborative Portlets, you can see a snapshot of content directly in an Oracle Application Server Portal, or you can click the portlet header and open its Web client. For example, you can retrieve and open mail messages as well as prioritize mail messages within the Mail portlet itself or choose to click the Mail header and open the Oracle Web Access client.

Most portlets provide end-user level personalization options. For example, you can configure your Calendar portlet to display appointments in Day View or Week View. User personalization options are available from the Personalization link in most portlets and are available to users who have edit privileges.

**Figure 1–3 A portal composed of Oracle Collaborative Portlets**

For information about administering Oracle Collaborative Portlets, see "Managing Oracle Collaborative Portlets" in Chapter 5 of *Oracle Collaboration Suite Administrator's Guide*.

## Security

Oracle Collaboration Suite is built on top of Oracle Database Oracle 10g and Oracle Application Server 10g Infrastructure, so it offers the highest levels of security.

The network architecture for Oracle Collaboration Suite allows your information technology department to set up multiple security zones. Typically, this consists of an intranet, a demilitarized zone (DMZ), and networks external to the intranet and DMZ, such as the Internet. Each zone can be separated by a firewall that is configured to monitor other firewalls, so that if one firewall fails, another takes over its duties.

Oracle Collaboration Suite provides the following security services:

### Authentication

This service enables a system to verify the identity of users who request access to services or data. Authentication is a pre-requisite for other security services, such as access control, authorization, and accountability.

### Authorization and Access Control

Authorization ensures that a system grants access to resources in compliance with the security policies defined for those resources. Access decisions are based on the authenticated identity and the privileges given to the requesting user.

**Accountability and Intrusion Detection**

Accountability ensures that users who access the system can be held accountable for their use of the system and system resources. This enables you to monitor system use to identify unauthorized users. Intrusion detection services are similar to accountability services, but they also detect and react to unauthorized use, including unauthorized use by authorized users, in real-time.

**Data Protection**

This service prevents unauthorized users from accessing sensitive data. You can protect the confidentiality of data sent through a public network by using encryption. You can also use encryption to protect highly sensitive data from users who bypass access control mechanisms of a system.

For information about the security of Oracle Collaboration Suite, see *Oracle Collaboration Suite Security Guide*.

**Simplified User Provisioning**

The Oracle Identity Management Self-Service Console simplifies the process of adding and provisioning users in Oracle Collaboration Suite. From this console, administrators can create, delete, edit, and provision users for Oracle Collaboration Suite Applications access. Users will be able to review information about themselves, change their password, their local time zone and look up other users in the directory.

For more information about the Oracle Identity Management Self-Service Console, see Chapter 4, "Managing Oracle Collaboration Suite Users and Groups" in *Oracle Collaboration Suite Administrator's Guide*.

**Suite-level Contacts**

Oracle Collaboration Suite 10g Contacts is an address book that is stored in a central location on the Oracle Internet Directory. Personal contacts that are created in Oracle Contacts using various Oracle Collaboration Suite clients are subsequently accessible through other Oracle Collaboration Suite components, such as Oracle Mail and Oracle Calendar. Oracle Contacts features are not available in Oracle Calendar standalone deployments.

See *Oracle Contacts Java API Reference* for the Java API for Contacts.

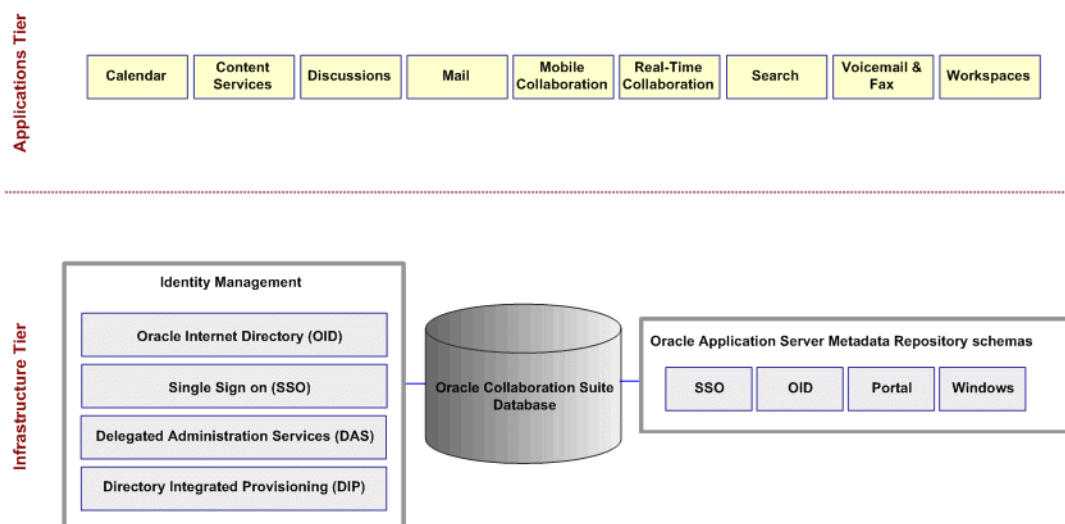


# Oracle Collaboration Suite Architecture

Oracle Collaboration Suite is composed of three conceptual tiers, or layers. The Infrastructure tier of Oracle Collaboration Suite consists of Oracle Database 10g and the necessary Oracle Internet Directory components to support the second tier, the Applications Tier. The Applications tier consists of the components that are the heart of Oracle Collaboration Suite's functionality.

The third conceptual tier of Oracle Collaboration Suite is the Client tier. The Client tier of Oracle Collaboration Suite consists of the end-user applications that reside on client devices, such as desktops, laptops, wireless phones, and PDAs.

**Figure 2–1 Oracle Collaboration Suite Architecture**



This chapter consists of the following sections:

- ❑ [Oracle Collaboration Suite Infrastructure Tier Concepts](#)
- ❑ [Oracle Collaboration Suite Applications Tier Concepts](#)

## Oracle Collaboration Suite Infrastructure Tier Concepts

The Infrastructure tier of Oracle Collaboration Suite is the base tier of Oracle Collaboration Suite and consists of the following components:

- ❑ [Oracle Database 10g and Oracle Collaboration Suite](#)

- ❑ [Oracle Identity Management Components](#)
- ❑ [Oracle Application Server Metadata Repository Schemas](#)

## Oracle Database 10g and Oracle Collaboration Suite

Oracle Database 10g serves as the repository for the Oracle Collaboration Suite component schema information and Oracle Application Server 10g Metadata Repository. Depending on your needs, it is also possible to install Oracle Database 10g and then install the Oracle Collaboration Suite component schema and Oracle Application Server 10g Metadata Repository into this database.

## Oracle Identity Management Components

Oracle Identity Management consists of the following components:

- ❑ [Oracle Internet Directory](#)
- ❑ [Oracle Application Server Single Sign-On](#)
- ❑ [Oracle Delegated Administration Services](#)
- ❑ [Oracle Directory Integration and Provisioning](#)

### Oracle Internet Directory

Oracle Internet Directory is a general-purpose directory service that stores security and management information for Oracle Collaboration Suite. It provides authentication and a centralized user model, which enables the creation and management of users on an enterprise scale. It also enables fast retrieval and centralized management of information about dispersed users and network resources.

As a result, Oracle Internet Directory offers the extensibility of LDAP v3 (Lightweight Directory Access Protocol Version 3) along with the high performance, security, scalability, robustness, and availability features of Oracle Database 10g.

Oracle Internet Directory uses Oracle Database 10g to support large amounts of directory information and uses shared LDAP servers and database connection pooling to support thousands of concurrent clients in sub-second search response times.

### Oracle Application Server Single Sign-On

Oracle Application Server Single Sign-On enables you to use a single user name and password and, optionally, a realm ID, to access all features, applications, and accounts of Oracle Collaboration Suite. By using Oracle Application Server Single Sign-On, you can access all applications for which you are authorized, without having to re-enter a user name and password for each application.

When a user tries to access an application in Oracle Collaboration Suite, the user is redirected to the Oracle Application Server Single Sign-On server module. This Oracle HTTP Server module provides authentication to Oracle Collaboration Suite applications.

Oracle Application Server Single Sign-On provides the following benefits:

- ❑ **Convenient login:** You do not have to maintain a separate user name and password for each application that you access.
- ❑ **Increased security:** When a password is required only once, you are less likely to use simple, easily exposed passwords or to write these passwords down.



## Oracle Delegated Administration Services

Delegated Administration Services (DAS) is a set of service units that enable directory administrators to delegate responsibilities to lower administrators or to end users.

The Oracle Internet Directory Self-Service Console is a tool that is built using Oracle Delegated Administration Services units. It comes prepackaged, but you can, if you wish, build your own tool using the same Oracle Delegated Administration Services units out of which the Oracle Internet Directory Self-Service Console is built.

## Oracle Directory Integration and Provisioning

The Oracle Directory Integration and Provisioning platform enables you to integrate applications and other directories with Oracle Internet Directory. It provides all the interfaces and infrastructure necessary to keep the data in Oracle Internet Directory consistent with that in Oracle Collaboration Suite's applications and connected directories. Oracle Directory Integration and Provisioning also makes it easier for third-party vendors and developers to develop and deploy their own connectivity agents.

Based on the nature of integration, the Oracle Directory Integration and Provisioning platform provides two distinct services:

- The synchronization integration service, which keeps connected directories consistent with the central Oracle Internet Directory.
- The provisioning integration service, which sends notifications to target applications to reflect changes made to entries of interest, such as users and groups

## Oracle Application Server Metadata Repository Schemas

The Oracle Application Server Metadata Repository is a part of any Oracle Collaboration Suite Infrastructure installation.

Essentially, the Oracle Application Server Metadata Repository is an Oracle Database 10g that is pre-seeded with schemas to support Oracle Collaboration Suite components and services. These stored schemas are used by Oracle Collaboration Suite components for organizing data in the Oracle Database.

Under the most common deployment scenarios, the Oracle Application Server Metadata Repository is created as part of a single Oracle Collaboration Suite Database. However, in deployments using several Oracle Collaboration Suite Databases, only one would contain the Oracle Application Server Metadata Repository.

Since the Oracle Application Server Metadata Repository is an Oracle Database 10g database, it can be managed using standard Oracle database procedures and tools.

See Chapter 3 "Deploying Oracle Collaboration Suite" in *Oracle Collaboration Suite Deployment Guide* for more information on deployment options for the Oracle Application Server Metadata Repository.

See the section "Managing the OracleAS Metadata Repository" in Chapter 6 of *Oracle Collaboration Suite Administrator's Guide* for information on managing the Oracle Application Server Metadata Repository.

## Oracle Collaboration Suite Applications Tier Concepts

The Applications tier of Oracle Collaboration Suite is composed of the components discussed in the section [Oracle Collaboration Suite Applications Overview](#) in Chapter

1, "[Overview of Oracle Collaboration Suite](#)". Each of these components is discussed in greater detail in the following chapters.

- [Oracle Collaboration Suite 10g Calendar Concepts](#)
- [Oracle Collaboration Suite 10g Content Services Concepts](#)
- [Oracle Collaboration Suite 10g Content Services Concepts](#)
- [Oracle Collaboration Suite 10g Mail Concepts](#)
- [Oracle Collaboration Suite 10g Mobile Collaboration Concepts](#)
- [Oracle Collaboration Suite 10g Real-Time Collaboration Concepts](#)
- [Oracle Collaboration Suite 10g Search Concepts](#)
- [Oracle Collaboration Suite 10g Voicemail & Fax Concepts](#)
- [Oracle Collaboration Suite 10g Workspaces Concepts](#)

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# Oracle Collaboration Suite High Availability Concepts

This chapter discusses concepts of high availability as they relate to Oracle Collaboration Suite. It contains the following sections:

- ❑ [Introduction](#)
- ❑ [High Availability Terminology](#)
- ❑ [Oracle Collaboration Suite High-Availability Features](#)
- ❑ [Oracle Collaboration Suite High-Availability Framework](#)
- ❑ [Oracle Collaboration Suite RAC-Enabled Architecture](#)
- ❑ [External Load Balancers](#)
- ❑ [Redundant Architectures in Oracle Collaboration Suite](#)
- ❑ [Causes of Downtime](#)

## Introduction

Database software and the Internet have introduced a new level of worldwide collaboration and information sharing by extending the reach of database applications throughout organizations and communities. This new level of information availability highlights the importance of high availability in data management solutions. Both small businesses and global enterprises have users all over the world who require access to data 24 hours a day. Without this access, operations can stop, and revenue is lost. This potential loss of revenue underscores the necessity of high availability in a business's infrastructure.

## What is Availability?

Availability is the degree to which an application, service, or functionality is available upon user demand. Oracle Collaboration Suite is designed to provide a wide variety of high-availability solutions, ranging from load balancing and basic clustering to providing maximum system availability during catastrophic hardware and software failures.

The following are the primary characteristics of a highly available solution:

- ❑ **Reliability:** Reliable hardware is only one component of a high availability solution. Reliable software, including the database, Web servers, and applications, are just as critical to implementing a highly available solution.

- ❑ **Recoverability:** It is important to determine what types of failures may occur in your high availability environment, and how to recover from those failures in the time that meets your business requirements.
- ❑ **Timely error detection:** If a component in your architecture fails, fast detection is an essential component in recovering from a possible unexpected failure.
- ❑ **Continuous operations:** Continuous access to data is essential when very little or no downtime is acceptable to perform maintenance activities. Activities such as moving a table to another location within the database, or adding additional CPUs to your hardware should be transparent to the end user in a high availability architecture.

## High Availability Terminology

The definitions of the following terms are useful for understanding the concepts of high availability in Oracle Collaboration Suite.

If you are already familiar with high availability terminology, you can skip this section and begin reading [Oracle Collaboration Suite High-Availability Features](#):

- ❑ **Active-Active:** A system is termed as active-active if all the equivalent members of that system are actively servicing requests concurrently and are not on any standby mode.
- ❑ **Active-Passive:** A system is termed as active-passive if some members of that system actively service requests and some members are inactive. These inactive members are known to be passive. They are not activated until one or more of the active nodes have failed.
- ❑ **Hardware Cluster:** A hardware cluster is a collection of computers that appears to clients as a single system and provides network services (for example: an IP address) or application services (for example: databases, Web servers).

A hardware cluster achieves high availability and scalability through the use of specialized hardware (cluster interconnect, shared storage) and software (health monitors, resource monitors). The cluster interconnect is a private link used by the hardware cluster for heartbeat information to detect node death. Heartbeat is the periodic message sent between nodes to detect system failure of any node. Due to the need for specialized hardware and software, hardware clusters are commonly provided by hardware vendors, such as SUN, HP, IBM, and Dell. The number of nodes that can be configured in a hardware cluster is vendor dependent. For the purpose of high availability of Oracle Collaboration Suite, only two nodes are required.

- ❑ **Cluster Agent:** It is a software that runs on a node member of a hardware cluster that coordinates availability and performance operations with other nodes. A cluster agent can automate the service failover.
- ❑ **Clusterware:** It is a software that manages the operations of the members of a cluster as a system. Clusterware provides resource grouping, monitoring, and the ability to move services between cluster members.
- ❑ **Primary Node:** It is the node that actively carries out one or more infrastructure installations at any given time. If this node fails, the infrastructure is failed over to the secondary node. Because the primary node runs the active infrastructure installations, it is considered the *hot node*.
- ❑ **Secondary Node:** This is the node that takes over the execution of the infrastructure if the primary node fails. Since the secondary node does not

originally run the infrastructure, it is considered the cold node. And, because the application fails over from a *hot node* (primary) to a *cold node* (secondary), this type of failover is called cold failover.

- **OracleAS Cluster (Identity Management):** In this configuration, Oracle Identity Management components (Oracle Internet Directory, OracleAS Single Sign-On, Oracle Delegated Administration Services, and Oracle Directory Integration and Provisioning) are deployed together in two or more nodes. Each node runs all of the Oracle Identity Management components. The traffic to these nodes is load balanced by a redundant load balancer.
- **Failover:** In a high-availability system, the transfer of operations of a failed node to an equivalent node is termed as failover. This is done to ensure the continuity of services to customers.

If the system is an active-passive system, the passive member is activated during the failover operation and requests are directed to it instead of the failed member. If the system is an active-active system, the load balancer detects the failure and automatically redirects requests for the failed member to the surviving active members.

- **Failback:** After a system undergoes a successful failover operation, the process of repairing the failed node and restoring it back as an active node is termed as failback. This process reverts the system back to its pre-failure configuration.
- **Switchover:** During normal operation, active members of Oracle Collaboration Suite may require maintenance or upgrading. A switchover process can be initiated to let a substitute member take over the workload of the member that requires maintenance or upgrading (scheduled outage). The switchover operation ensures continued service to clients of Oracle Collaboration Suite.
- **Switchback:** After a switchover operation, the process of activating the upgraded member is known as switchback. This process brings the system back to the pre-switchover configuration.
- **Physical Host Name:** Physical host name is used to refer to the internal name of the current machine. In UNIX, this is the name returned by the command `hostname`.
- **Network Host Name:** Network host name is a name assigned to an IP address either through the `/etc/hosts` file (in UNIX) or `C:\WINDOWS\system32\drivers\etc\hosts` file (in Windows), or through DNS resolution. Often, the network host name and physical host name are identical. However, each system has only one physical host name but may have multiple network host names. Thus, a system's network host name may not always be its physical host name.
- **Virtual IP:** It is also known as cluster virtual IP and load balancer virtual IP. Generally, a virtual IP can be assigned to a hardware cluster or load balancer. To present a single system view of a cluster to network clients, a virtual IP serves as an entry point IP address to the group of servers which are members of the cluster. A hardware cluster uses a cluster virtual IP to present the entry point into the cluster. It can also be set up on a standalone machine.

The hardware cluster's software manages the movement of this IP address between the two physical nodes of the cluster, while clients connect to this IP address without knowing which physical node this IP address is currently active on.

A load balancer also uses a virtual IP as the entry point to a set of servers. These servers tend to be active at the same time. This virtual IP address is not assigned to

any individual server but to the load balancer which acts as a proxy between servers and their clients.

- **Virtual Host Name:** Virtual host name is a network-addressable host name that maps to one or more physical machines through a load balancer or a hardware cluster. For load balancers, virtual server name is used interchangeably with virtual host name. A load balancer can hold a virtual host name on behalf of a set of servers, and clients communicate indirectly with the systems using the virtual host name.

For example, if the two physical host names of the hardware cluster are `node1.mycompany.com` and `node2.mycompany.com`, the single view of this cluster can be provided by the name `selfservice.mycompany.com`. In the DNS, `selfservice.mycompany.com` maps to the virtual IP address of the Oracle Collaboration Suite Infrastructure, while Oracle Collaboration Suite Applications connect to the IP address without knowing which physical node is active and actually servicing a particular request.

## Oracle Collaboration Suite High-Availability Features

Scheduled outages can disrupt operations, especially in global enterprises that support users in multiple time zones. In this case, it is important to design a system to minimize planned interruptions. It is important to consider not only the time to perform the upgrade but also the effect the changes may have on the overall application.

Oracle Collaboration Suite offers high-availability solutions as local solutions that provide high availability in a single data center deployment. Process, node, and media failures as well as human errors can be prevented by local high-availability solutions. Local physical disasters can be prevented by geographically distributed disaster recovery solutions. To ensure high availability, a number of technologies and best practices are recommended.

In addition to architectural redundancies, the following local high-availability solutions are also necessary in Oracle Collaboration Suite:

- **Process Death Detection and Automatic Restart:** Processes may stop unexpectedly due to configuration or software problems. A proper process monitoring and restart system monitors all system processes constantly and restart them should problems appear. A system process also maintains the number of restarts within a specified time interval. This is important because restarting continuously within short time periods may lead to additional faults or failures.
- **Clustering:** You can cluster the nodes together to allow the nodes to be viewed functionally as a single entity from the perspective of a client for run-time processing and manageability. A cluster is a set of processes, that share the same workload, running on single computer or multiple computers.
- **Configuration Management:** Similar components of a clustered group often need to share a common configuration. Proper configuration management ensures that Oracle Collaboration Suite nodes provide the same reply to the same incoming request, allows these nodes to synchronize their configurations, and provides highly available configuration management for less administration downtime.
- **Server Load Balancing and Failover:** Client requests to the nodes of Oracle Collaboration Suite Applications can be load balanced to ensure that the nodes have roughly the same workload. With a load-balancing mechanism in place, and a set of redundant nodes, if any of the nodes or Oracle Collaboration Suite

Applications instances fail, the load balancer will route requests to the surviving nodes or instances.

## Oracle Collaboration Suite High-Availability Framework

Oracle Collaboration Suite consists of different components deployed on multiple tiers. The availability of each component has a direct impact on the availability of the system. Besides providing high-availability features, Oracle Collaboration Suite must also be secure. This would ensure that both the Internet and intranet users can use the system without compromising availability and security.

### High Availability in Oracle Collaboration Suite Applications

Oracle Collaboration Suite provides several features for ensuring application-level high availability. Oracle Collaboration Suite Applications is installed on separate systems outside Oracle Collaboration Suite Infrastructure.

In cluster architecture, Oracle Collaboration Suite Applications is installed independently on each node of the farm. Oracle Collaboration Suite Applications can also be installed on a dedicated set of redundant machines from Oracle Collaboration Suite Infrastructure.

### High Availability in Oracle Collaboration Suite Infrastructure

Oracle Collaboration Suite provides a completely integrated infrastructure and framework for development and deployment of enterprise applications. Oracle Collaboration Suite Infrastructure provides centralized product metadata, security and management services, and configuration information and data repositories for Oracle Collaboration Suite Applications. The time and effort for developing enterprise applications are reduced by integrating the infrastructure services required by the applications. In turn, the total cost of developing and deploying these applications is reduced, and the deployed applications are more reliable.

For Oracle Collaboration Suite Infrastructure to provide all essential services, all of these components must be available. Any high-availability solution must be able to detect and recover from software failures of the processes associated with the Oracle Collaboration Suite Infrastructure components. Solutions must also be able to detect and recover from hardware failures on the hosts that are running Oracle Collaboration Suite Infrastructure.

To ensure high availability, Identity Management is installed separately against the Oracle Collaboration Suite Database on multiple nonclustered systems. All the components of Identity Management can either be co-located on the same system or distributed on separate systems.

## Oracle Collaboration Suite RAC-Enabled Architecture

An Oracle Collaboration Suite cluster is a set of Oracle Collaboration Suite nodes configured to act in concert to deliver greater scalability and availability than a single node can provide. While a single Oracle Collaboration Suite node can only leverage the operating resources of only a single host, a cluster can span multiple hosts, and distribute application execution over a greater number of CPUs. While a single Oracle Collaboration Suite node is vulnerable to the failure of its host and operating system, a cluster continues to function despite the loss of an operating system or host, hiding any such failure from clients.

Clusters leverage the combined power and reliability of multiple Oracle Collaboration Suite nodes while maintaining the simplicity of a single Oracle Collaboration Suite node. For example, browser clients of applications running in a cluster interact with the applications as if the applications were running on a single server. With appropriate front-end load balancing, any node in an Oracle Collaboration Suite cluster can serve client requests. This simplifies configuration and deployment across multiple nodes and enables fault tolerance among clustered nodes.

## What is RAC?

Oracle Real Application Clusters (RAC) allows the Oracle database to run any packaged or custom application unchanged across a set of clustered servers. This capability provides the highest levels of availability and the most flexible scalability. If a clustered server fails, the Oracle database will continue running on the surviving servers. When more processing power is needed, another server can be added without interrupting user's access to data.

RAC enables multiple instances that are linked by an interconnect to share access to an Oracle database. In a RAC environment, the Oracle database runs on two or more systems in a cluster while concurrently accessing a single shared database. The result is a single database system that spans multiple hardware systems yet appears as a single unified database system to the application. This enables RAC to provide high availability, scalability, and redundancy during failures within the cluster. RAC accommodates all system types, from read-only data warehouse (DSS) systems to update-intensive online transaction processing (OLTP) systems.

High availability configurations have redundant hardware and software that maintain operations by avoiding single points-of-failure. To accomplish this, the Oracle Clusterware is installed as part of the RAC installation process. Oracle Clusterware is a portable solution that is integrated and designed specifically for the Oracle database. In a RAC environment, Oracle Clusterware monitors all Oracle components (such as instances and listeners). If a failure occurs, Oracle Clusterware will automatically attempt to restart the failed component. Other non-Oracle processes can also be managed by Oracle Clusterware. During outages, Oracle Clusterware relocates the processing performed by the inoperative component to a backup component. For example, if a node in the cluster fails, Oracle Clusterware will cause client processes running on the failed node to reconnect and resume running on a surviving node.

The Oracle Clusterware requires two files, the Oracle Cluster Registry (OCR) and the voting disk. To avoid single points-of-failure, the Oracle Clusterware automatically maintains redundant copies of these files. Oracle Clusterware also enables you to replace a damaged copy of the OCR online. Oracle's recovery processes quickly re-master resources, recover partial or failed transactions, and rapidly restore the system.

RAC provides the following benefits:

- Ability to tolerate and quickly recover from computer and instance failures
- Fast, automatic, and intelligent connection and service relocation and failover
- Rolling patch upgrades for qualified one-off patches
- Rolling release upgrades of Oracle Clusterware
- Load balancing advisory
- Runtime connection load balancing
- Flexibility to scale up processing capacity using commodity hardware without downtime or changes to the application



- Comprehensive manageability integrating database and cluster features

## RAC Configuration for Oracle Collaboration Suite

The RAC configuration for Oracle Collaboration Suite consists of Oracle Collaboration Suite Database deployed on a cluster with two or more nodes. Each Oracle Collaboration Suite Database node has a local copy of the Oracle Collaboration Suite software installed. There is a single Oracle Collaboration Suite Database which is shared by all the nodes.

Oracle database instances exist on each node and concurrently open the database for read or write operations. All Oracle Collaboration Suite database-related processes as well as the database listener on all the nodes use the same network port numbers for any communication. Thus each node is equivalent to another in terms of configuration and is active concurrently with other nodes.

Oracle Collaboration Suite Applications requests for Oracle Collaboration Suite Database services are equally met from all the nodes.

If a load balancer is required, it will be configured to direct incoming requests to any one of the Oracle Collaboration Suite Database nodes. The load balancer will only be used for all non-Oracle Net traffic (HTTP, LDAP, HTTPS, and so on). Oracle Net traffic is expected to go directly to the node and is balanced across the nodes using Oracle Net connect descriptors with multiple addresses in its address list. RAC uses high speed interprocess communication for internode communications.

Oracle Calendar Server does not support RAC because Oracle Calendar Server supports only active-passive configuration.

## Outages in RAC

Some of the unscheduled outages in RAC can be due to Oracle instance failure or database node failure. In case of Oracle instance failure, the load balancer is notified. The load balancer stops the non-Oracle Net traffic to this node and redirects the traffic to another active node. In case of database node failure, the load balancer detects that the node is gone, stops the traffic to the node, and redirects the traffic to another active node.

Some scheduled outages in RAC can be due to configuration changes on a node or maintenance of nodes. The configuration changes are implemented on all nodes either manually or through a process or command interface. For node maintenance, all processes on the node are brought down and the load balancer is notified of the unavailability of the node. The node is brought up after maintenance and all processes are restarted. Then the load balancer is notified of the availability of the node.

## External Load Balancers

Load balancers can be employed to improve the availability of both clustered and non-clustered Oracle Collaboration Suite nodes.

Clients access the cluster through a load balancer that hides the cluster configuration. Since any node can service any request, the load balancer can send requests to any Oracle Collaboration Suite nodes in the cluster. Administrators can raise the capacity of the system by introducing additional Oracle Collaboration Suite nodes to the cluster.

Load balancers can also be used to increase the availability of non-clusterable Oracle Collaboration Suite nodes. So long as the load balancer is configured to serve a set of nodes, it will route requests accordingly.

## Benefits of External Load Balancers

The three main benefits of using external load balancers in Oracle Collaboration Suite are as follows:

**Scalability:** Load balancers improve scalability by providing an access point through which requests are routed to one of the available nodes. Nodes can be added to the group that the load balancer serves to accommodate additional users.

**Availability:** Load balancers improve availability by routing requests to the most available nodes. If one node goes down, or is too busy, a load balancer can send requests to another active node instead.

**Manageability:** Load balancers improve manageability by routing application deployment and system configuration requests to the most available node.

## Types of External Load Balancers

There are three main types of external load balancers that can be used with Oracle Collaboration Suite nodes:

### Hardware Load Balancer

Hardware load balancing involves placing a hardware load balancer in front of a group of Oracle Collaboration Suite nodes. The hardware load balancer routes requests to the nodes in a client-transparent fashion.

### Leveraging Web Cache as an External Load Balancer

Web Cache supports content-aware load balancing and failover detection for Web based applications. These features ensure that cache misses are directed to the most available and highest performing application server.

## Redundant Architectures in Oracle Collaboration Suite

Oracle Collaboration Suite provides support for redundant nodes as follows:

- ❑ Database node redundancy through RAC
- ❑ Identity Management node redundancy through OracleAS Cluster (Identity Management)
- ❑ Middle Tier redundancy through the use of an external load balancer in front of multiple middle tiers

These redundant configurations provide increased availability either through a distributed workload, a failover setup or both. The configuration can be an active-active configuration or an active-passive configuration. These configurations are discussed in detail below.

## Oracle Collaboration Suite Active-Active Configurations

The active-active configuration deploys two or more active Oracle Collaboration Suite nodes and can be used to improve scalability as well as to provide high availability. All nodes handle requests concurrently. The preceding redundancies provide Oracle Collaboration Suite components are active on all nodes in the at the same time.

Active-active solutions provide a robust cluster architecture for Oracle Collaboration Suite and are a transparent high availability solution. Because all the nodes are active, failover from one node to another is quick and requires no manual intervention. Active-active setups also provide scalability for Oracle Collaboration Suite. This configuration leverages the Real Application Cluster (RAC) feature of the Oracle database for running the Oracle Collaboration Suite database. Each node in the hardware cluster has its own `ORACLE_HOME`, which contains the configuration files and binaries needed to run Oracle Collaboration Suite on that node. Oracle Collaboration Suite installation across nodes is accomplished in one process. Additionally, all nodes access a set of shared files on the RAC database.

### Features of an Active-Active Configuration

The features of an Oracle Collaboration Suite active-active configuration are as follows:

- ❑ **Identical Node Configuration:** The nodes are meant to serve the same workload or application. Their configuration guarantees that they deliver the same reply to the same request. Some configuration properties may be identical and others may be node-specific, such as local host name information.
- ❑ **Equivalence Management:** Changes made to one node will usually need to be propagated to the other nodes in an active-active configuration. This is done to maintain equivalence among all the nodes.
- ❑ **Independent Operation:** To provide maximum availability, the loss of one Oracle Collaboration Suite node in an active-active configuration should not affect the ability of the other nodes to serve requests.

### Advantages of an Active-Active Configuration

The advantages of an Oracle Collaboration Suite active-active configuration are as follows:

- ❑ **Increased Availability:** An active-active configuration is a redundant configuration. Loss of one node can be tolerated because another node can continue to serve the same requests.
- ❑ **Increased Scalability and Performance:** Multiple identically-configured nodes provide the capability to have a distributed workload shared among different machines and processes. If configured correctly, new nodes can also be added as the demand of the application grows.

## Oracle Collaboration Suite Active-Passive Configurations

The active-passive configuration deploys an active node of Oracle Collaboration Suite that handles requests, and a passive Oracle Collaboration Suite node, which is on standby. In addition, a heartbeat mechanism is set up between these two nodes. This mechanism is provided and managed through vendor-specific clusterware. Generally, vendor-specific cluster agents are also available to automatically monitor and failover between cluster nodes. When the active node fails, an agent shuts down the active node completely, brings up the passive node, and enables application services to successfully resume processing. As a result, the active-passive roles are now switched. Active-passive configurations in a cluster are also generally referred to as cold failover clusters.

Oracle Collaboration Suite is only active on one node in the cluster at any time. When the Oracle Collaboration Suite on the active node goes down, the cluster software brings up the Oracle Collaboration Suite on one of the inactive nodes, with the same

virtual host name as the failed node. Although there will be some minimal down time, this allows for faster recovery times on the middle tier, as it need not be reconfigured to point to a new Oracle Collaboration Suite node. From the perspective of middle tier applications, the new active node in the active-passive configuration is identical to the node that failed.

### Features of an Active-Passive Configuration

The features of an Oracle Collaboration Suite active-passive configuration are as follows:

- ❑ **Shared Storage:** The passive Oracle Collaboration Suite node in an active-passive configuration has access to the same Oracle binaries, configuration files, and data as the active node.
- ❑ **Failover Procedure:** An active-passive configuration usually requires a set of scripts and procedures to detect failure of the active instance and to failover to the passive instance while minimizing downtime.

### Advantages of an Active-Passive Configuration

The advantages of an Oracle Collaboration Suite active-passive configuration are as follows:

- ❑ **Availability:** If the active node fails for any reason or must be taken offline, an identically configured passive node can take over instantly.
- ❑ **Reduced Operation Costs:** In an active-passive configuration, only one set of processes is up and servicing requests. Management of the active node is generally less than managing an array of active nodes.
- ❑ **Application Independence:** Some applications may not be suited to an active-active configuration. This includes applications which rely heavily on application state or on information stored locally. An active-passive configuration has only one node serving requests at any particular time.

## Causes of Downtime

One of the challenges in designing a high availability solution is examining and addressing all the possible causes of downtime. It is important to consider causes of both unplanned and planned downtime when designing a fault tolerant and resilient IT infrastructure. Planned downtime can be just as disruptive to operations, especially in global enterprises that support users in multiple time zones.

The following table describes the outage categories and provides examples of each outage type.

Category	Outage Type	Description	Examples
Unplanned	Computer failure	A computer failure outage occurs when the system running the database becomes unavailable because it has shut down or is no longer accessible.	Database system hardware failure
			Operating system failure
			Oracle instance failure
			Network interface failure

Category	Outage Type	Description	Examples
	Storage failure	A storage failure outage occurs when the storage resource holding some or all of the database contents becomes unavailable because it has shut down or is no longer accessible.	Disk drive failure Disk controller failure Storage array failure
	Human error	A human error outage occurs when unintentional (or perhaps malicious) actions are committed that cause data within the database to become logically corrupt or unusable.	Dropped database object Inadvertent data changes Malicious data changes
	Data corruption	A data corruption outage occurs when a hardware or software component causes corrupt data to be read or written to the database. The service level impact of a data corruption outage can vary from a small portion of the database (down to a single database block) to a large portion of the database (rendering it essentially unusable).	Operating system or storage device driver, host bus adapter, disk controller, or volume manager error causing bad disk read or writes Stray writes by operating system or other application software
	Site failure	A site failure outage occurs when an event causes a significant portion of an application to stop processing or to slow to an unusable service level. A site failure may affect all processing at a data center or a subset of applications supported by a data center.	Extended site-wide power failure Site-wide network failure Natural disaster making a data center inoperable Terrorist or malicious attack on operations or the site
<b>Planned</b>	System changes	Planned system changes occur when performing routine and periodic maintenance operations as well as new deployments. Planned system changes include any scheduled changes to the operating environment that occur outside the organizational data structure within the database. The service level impact of a planned system change varies significantly depending on the nature and scope of the planned outage, the testing and validation efforts made prior to implementing the change, and the technologies and features in place to minimize the impact.	Adding/removing processors to/from an SMP server Adding/removing nodes to/from a cluster Adding/removing disks drives or storage arrays Changing configuration parameters Upgrading/patching system hardware and software Upgrading/patching Oracle software Upgrading/patching application software System platform migration Database relocation

Category	Outage Type	Description	Examples
	Data changes	Planned data changes occur when there are changes to the logical structure or physical organization of Oracle database objects. The primary objective of these changes is to improve performance or manageability.	Table definition changes Adding table partitioning Creating and rebuilding indexes

# Part II

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## Oracle Collaboration Suite Applications

Part II of this guide contains the following chapters:

- Chapter 4, "[Oracle Collaboration Suite 10g Calendar Concepts](#)"
- Chapter 5, "[Oracle Collaboration Suite 10g Content Services Concepts](#)"
- Chapter 6, "[Oracle Collaboration Suite 10g Discussions Concepts](#)"
- Chapter 7, "[Oracle Collaboration Suite 10g Mail Concepts](#)"
- Chapter 8, "[Oracle Collaboration Suite 10g Mobile Collaboration Concepts](#)"
- Chapter 9, "[Oracle Collaboration Suite 10g Real-Time Collaboration Concepts](#)"
- Chapter 10, "[Oracle Collaboration Suite 10g Search Concepts](#)"
- Chapter 11, "[Oracle Collaboration Suite 10g Voicemail & Fax Concepts](#)"
- Chapter 12, "[Oracle Collaboration Suite 10g Workspaces Concepts](#)"





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# Oracle Collaboration Suite 10g Calendar Concepts

Oracle Collaboration Suite 10g Calendar is the time management and resource scheduling component of Oracle Collaboration Suite. The Oracle Calendar server centrally maintains and provides access to up-to-the-minute scheduling information for all Oracle Calendar users and resources. This centralization of information ensures that users are able to check each other's schedules with complete accuracy. This means there are no lags or message queues, and there is no replication for any calendar-related data. Oracle Calendar features e-mail and wireless alerts, support for multiple operating systems, desktop clients, a Web client, synchronization tools for hand-held devices and a framework for enhanced security. Additionally, Oracle Calendar can be deployed as a "standalone" product.

This chapter contains the following sections:

- [Oracle Calendar Features](#)
- [Oracle Calendar Clients](#)
- [Oracle Calendar Application System](#)
- [Related Documentation for Oracle Calendar](#)

## Oracle Calendar Features

The following sections describe the key features of Oracle Calendar:

- [Meetings, Tasks, Daily Notes and Contacts](#)
- [Real-time Conflict Checking and Resolution Capabilities](#)
- [Resource Coordination](#)
- [Access and Designate Rights](#)
- [Standalone Deployment Capabilities](#)
- [Alerts, Notifications and Web Conferencing Integration](#)
- [Data Synchronization with Oracle Calendar Sync](#)
- [Global Address List](#)
- [Administration Tools](#)

## Meetings, Tasks, Daily Notes and Contacts

The building blocks of your agenda in will be Meetings. Meetings are blocks of reserved time in your schedule for any type of activity with a start and end time. You can use meetings to block off time in your Agenda for any amount of time, or even an entire day.

Oracle Calendar enables you to create tasks to keep track of ongoing projects and work that must be completed within a specific time frame. You can set reminders, add details and attach documents to those tasks.

Daily notes and day events can be created to keep track of who is out of the office, statutory holidays, a co-worker's birthday and more. You can make sure that no event is forgotten by setting reminders and notifications for your agenda entries.

You can keep track of your business and personal contacts using the Oracle Calendar desktop client or Oracle Connector for Outlook address book. Add notes to your contacts if you want to be reminded of deadlines or other important events.

## Real-time Conflict Checking and Resolution Capabilities

Oracle Calendar offers real-time conflict checking and resolution capabilities to help ease the process of scheduling meetings and decrease the likelihood of absent invitees. When scheduling a meeting using the Oracle Calendar Web client or desktop client, click the Check Conflicts button to view scheduling conflicts with users or resources. If a conflict is found, you can use the Suggest Date and Time feature to have Oracle Calendar suggest a series of available times for all invitees. The AutoPick feature in Oracle Connector for Outlook offers similar functionality.

Before you schedule a meeting, use the Group View to quickly check what date and time best suits the schedules of the invitees, including resources. The Group View displays the agendas of the included users and resources, with unavailable time marked in red and mutually free time clearly indicated.

## Resource Coordination

Administrators can designate shared property, such as a conference room or projector, as a resource, available for all connected users to reserve. You can perform a search for a resource based on a set of parameters (location, size, resource type) and "invite" the resource as you would any other user, thereby booking the resource and making it unavailable for other users to book during that time.

Resources can be set up to be reserved on a first-come, first-serve basis. Oracle Calendar also supports the booking of resources that require approval from an administrator. If you book a resource that requires approval, an e-mail is sent to the resource's administrator who then approves or rejects your request.

## Access and Designate Rights

You can control how much of your calendar can be accessed by other users through the use of access rights. For example, you can grant one user access rights to view all your agenda entries marked as Normal while you grant another user access rights to view all your agenda entries marked as Normal and Personal.

Granting designate rights to other users allows them to create, modify, and reply to calendar events on your behalf. When granting designate rights, you can choose which type of calendar entries a particular designate has permission to create and modify. For example, you can grant one user the right to modify your meetings, notes, day events and tasks while you grant another user the right to modify only your tasks.

## Standalone Deployment Capabilities

When the Oracle Calendar server is installed, by default it is integrated with the Oracle Internet Directory server and other components of Oracle Collaboration Suite. However, the Oracle Calendar server can also be deployed as a "standalone" application.

In such installations, the Calendar server can be configured to use either an external or an internal directory. With an external directory, all user information is stored in a third-party LDAP directory server. With an internal directory, all user information is stored in the Oracle Calendar server database.

For more on deploying the Oracle Calendar as a standalone product, see chapter 5, "Deploying Oracle Calendar" in *Oracle Collaboration Suite Deployment Guide*.

## Alerts, Notifications and Web Conferencing Integration

As part of a suite of collaborative applications, Oracle Calendar enables users to schedule and join Web conferences directly from their Calendars as well as send notifications. You can also set alert reminders for an alternate e-mail address, or even a wireless account.

## Data Synchronization with Oracle Calendar Sync

Oracle Calendar Sync synchronizes your Oracle Calendar data with your PDA using Palm Desktop for Windows or Macintosh (Palm devices), or Microsoft ActiveSync (Pocket PC devices). This enables you to download meetings, contacts, daily notes, day events, holidays, and tasks to your PDA. You can make updates and then synchronize them back to Oracle Calendar through your device's synchronization process.

## Global Address List

The Global Address List (GAL) is used by Oracle Calendar clients to select users (including non-calendar users), resources, distributions lists and event calendars from the directory server. The Global Address List is periodically downloaded from the server automatically by the Oracle Calendar desktop client and Oracle Connector for Outlook.

## Administration Tools

The Oracle Calendar Administrator is a Web-based application management tool that provides easy access to basic system administration tasks on the Calendar server.

Using the Oracle Calendar administrator tool, you can:

- ❑ Start or stop Oracle Calendar server.
- ❑ Start or stop a node located on a server.
- ❑ Check the status of a remote calendar server.
- ❑ Add, delete, or edit user accounts, resources, event calendars, groups and holidays in the Oracle Calendar server database.

## Oracle Calendar Clients

Oracle Calendar offers several clients for communicating with the Calendar server. Although each client offers the same core functionality, each has unique advantages as

well. Since all calendar information is stored centrally, you can install and use the clients interchangeably.

You can schedule meetings and events with other Calendar users, regardless of the platform or Oracle Calendar client they are using.

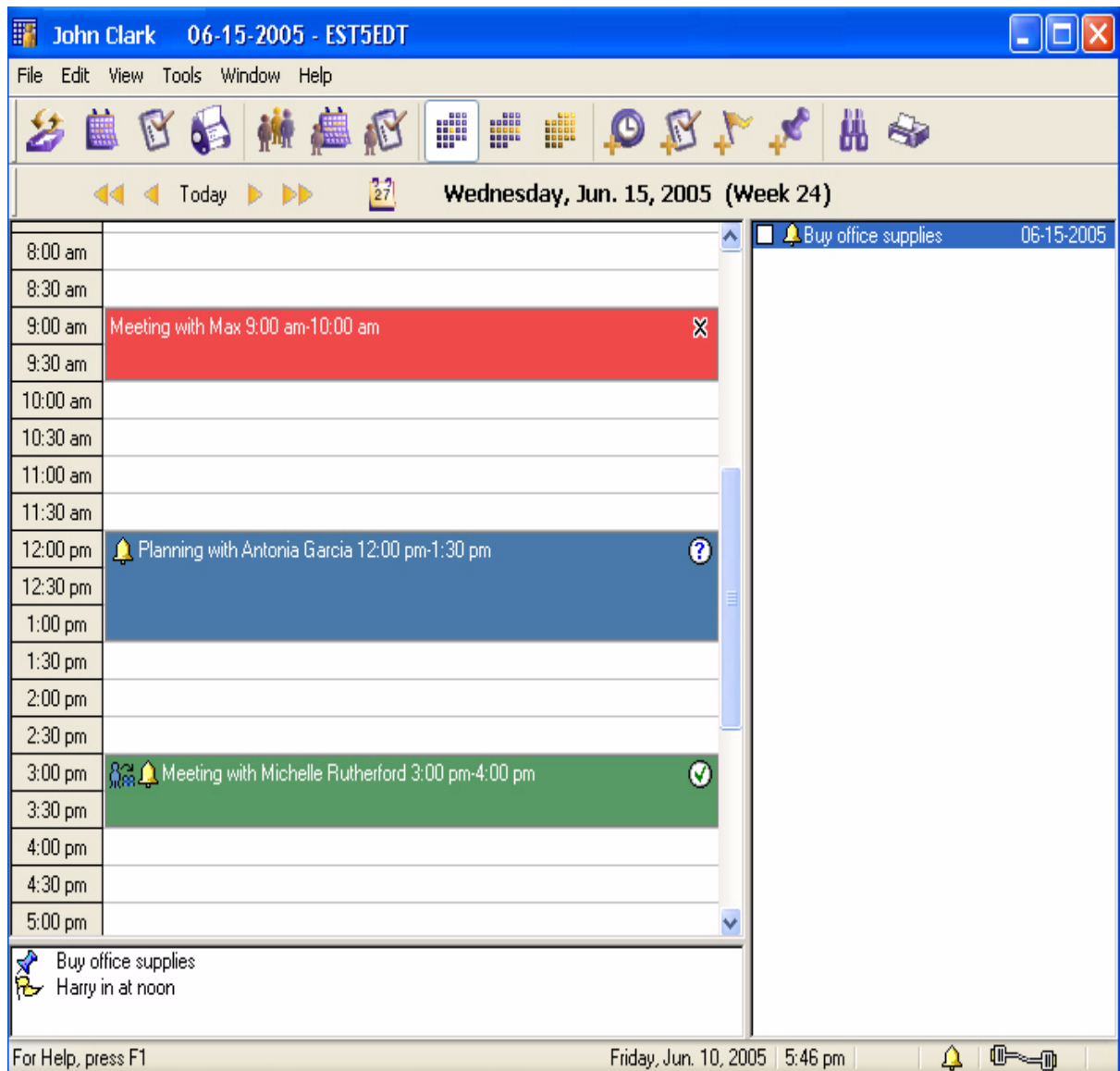
The following clients are available for Oracle Calendar:

- [Oracle Calendar Desktop Client](#)
- [Oracle Connector for Outlook](#)
- [Oracle Calendar Web Client](#)

## Oracle Calendar Desktop Client

The Oracle Calendar desktop client provides the most full-featured access to your calendar data, with personal information management functionality and group and resource scheduling capabilities. With support for the latest Windows and Macintosh platforms, as well as Linux and Solaris, the Oracle Calendar desktop client fits into any multiple operating system environment, enabling users on different operating systems to schedule with each other seamlessly.

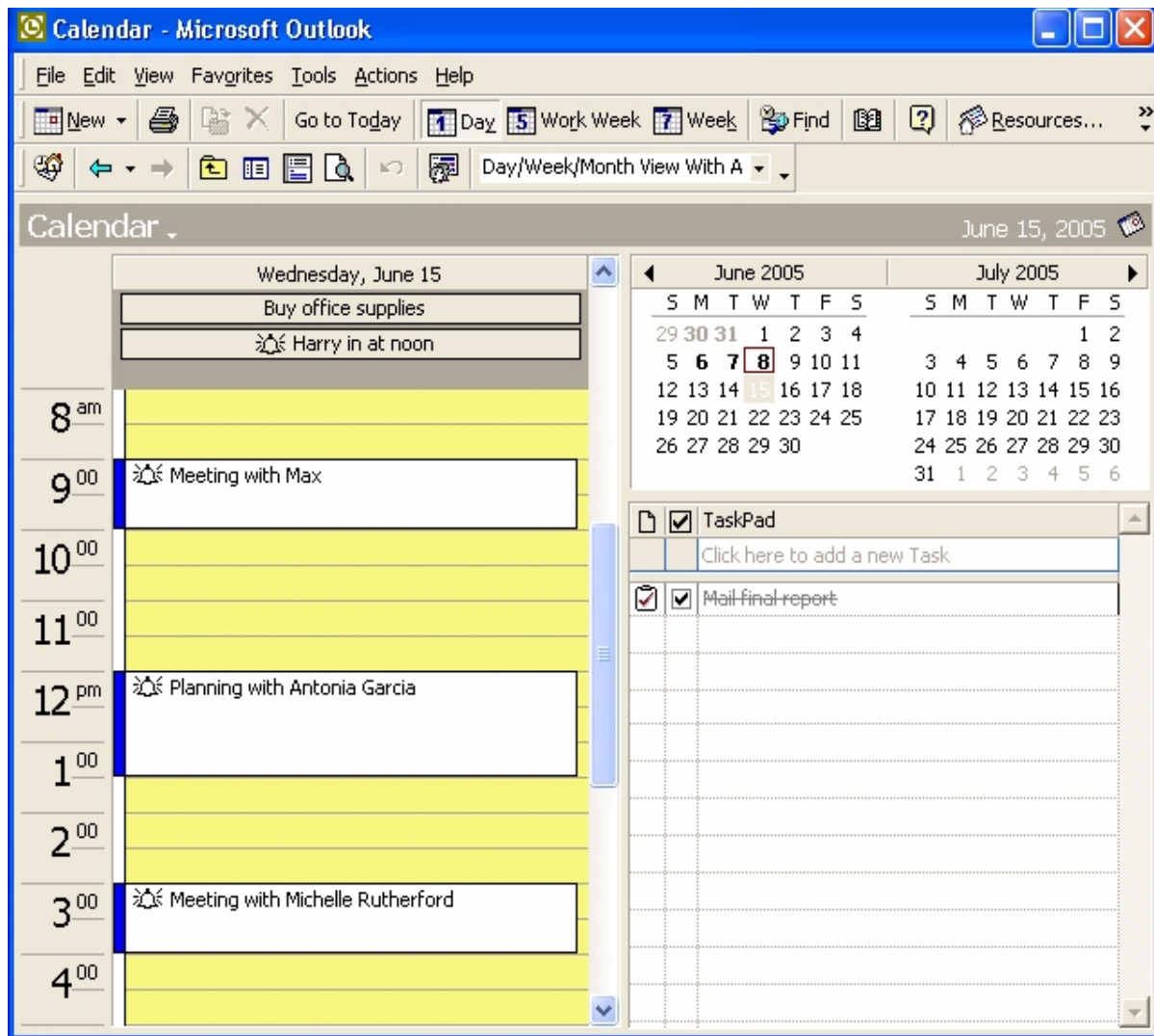
Figure 4–1 Oracle Calendar Desktop Client



## Oracle Connector for Outlook

Oracle Connector for Outlook extends the functionality of Microsoft Outlook by providing Oracle Collaboration Suite users with a unified environment for e-mail, voice mail, fax, Web conferencing and real-time calendaring. As a MAPI service provider, Oracle Connector for Outlook communicates directly with the Oracle Calendar and Oracle Mail servers. Oracle Connector for Outlook enables the following:

- ❑ **Contact sharing:** Oracle Connector for Outlook users can share their contacts with others, or view and search address books that have been shared with them.
- ❑ **Public folders:** Oracle Connector for Outlook administrators can share calendar, task and journal folders throughout the organization.
- ❑ **Browse and view membership of mail distribution lists:** Oracle Connector for Outlook enables you to browse through distribution lists in the **Global Address List (GAL)** and view the memberships of distribution list.

**Figure 4–2 Oracle Connector for Outlook**

For more information about Oracle Connector for Outlook, see the section "Deploying Oracle Calendar" in Chapter 5 of *Oracle Collaboration Suite Deployment Guide*.

## Oracle Calendar Application System

Oracle Calendar includes several components, or plug-ins, that are managed in an application server framework called the Oracle Calendar application system (OCAS). OCAS provides a set of shared proprietary APIs that interface with the Oracle Calendar server and run alongside the Oracle HTTP Server (OHS). As with the Oracle Calendar server, the Oracle Calendar application system can also be deployed as a standalone application.

The following are the components of Oracle Calendar application system:

- ❑ [Oracle Calendar Web Client](#)
- ❑ [Oracle Mobile Data Sync](#)
- ❑ [Oracle Calendar Web Services](#)

For more on deploying the Oracle Calendar application system, see chapter 5 "Deploying Oracle Calendar in *Oracle Collaboration Suite Deployment Guide*.

## Oracle Calendar Web Client

The Oracle Calendar Web client provides all the time management tools you need to manage your time in an application you can access from anywhere using the Internet. You can use the Oracle Calendar Web client's intuitive interface to schedule meetings with other users, check for conflicts, book resources, create notes and manage tasks. Agendas can also be published for people without an Oracle Calendar account, offering added functionality such as sending a schedule to a partner or publishing resource availability for all employees.

**Figure 4–3 Oracle Calendar Web Client**

**ORACLE Collaboration Suite Calendar** Preferences Logout Help

**Daily View** | Planner Mode | List Mode Agenda of John Clark

Friday 10 June 2005 « Today » Printable Page

30 min.	Friday	Other Meetings
08:00 a.m. (+)		12:00 a.m. - 01:00 a.m. Meeting with Maria
09:00 a.m. Meeting with Barry Wong ✓ 09:00 a.m.-10:00 a.m. B		05:00 a.m. - 06:00 a.m. Meeting with Maria
10:00 a.m. (+)		<b>Daily Notes &amp; Day Events</b>
11:00 a.m. (+)		No Daily Notes or Day Events
12:00 p.m. Meeting with Michelle ✓ 12:00 p.m.-01:00 p.m.		<b>Tasks</b>
01:00 p.m. (+)		<input checked="" type="checkbox"/> (100%) task 1
02:00 p.m. (+)		<input type="checkbox"/> (0%) task 2 - <i>Overdue</i>
03:00 p.m. (+)		<input type="checkbox"/> (0%) Mail the tax forms - <i>Overdue</i>
04:00 p.m. (+)		<input checked="" type="checkbox"/> (100%) Call Ravi about the report
05:00 p.m. (+)		

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## Oracle Mobile Data Sync

Oracle Mobile Data Sync delivers remote synchronization of data stored in Oracle Collaboration Suite, including Calendar events, tasks and contacts, with any OMA-DS-enabled (formerly SyncML) device.

Users connect their devices to Oracle Mobile Data Sync through the Internet, using any standard HTTP connection. Based on its own capabilities, and your preferences, your

device will automatically select the least expensive and most efficient method of establishing this connection (such as GPRS, Bluetooth or WiFi).

Dependencies on connections to the data server over a Local Area Network (LAN) or Virtual Private Network (VPN) are also no longer necessary. End-users maintain the flexibility to choose the OMA-DS-compliant device that best suits their needs, with the assurance that they will not lose any synchronization functionality. Oracle Mobile Data Sync is certified for most devices that support OMA-DS. PDAs that do not support OMA-DS out of the box synchronize with the Oracle Collaboration Suite using Synthesis AG's Synthesis SyncML Clients for PalmOS, Pocket PC, and MS Smartphone (Windows Mobile) PDA platforms. The Synthesis SyncML Clients are certified against the Oracle Sync Server.

Oracle Mobile Data Sync can be deployed to accept secure (SSL) connections. This means all your connections are encrypted, providing secure transmission of data from your device to Oracle Mobile Data Sync.

## Oracle Calendar Web Services

Oracle Calendar Web services includes SOAP-based Web services and a set of Java APIs that facilitate the use of these Web services.

See more about Oracle Calendar Web Services in the chapter [Oracle Collaboration Suite Application Development Concepts](#).

## Related Documentation for Oracle Calendar

See *Oracle Calendar Administrator's Guide* and *Oracle Calendar Reference Manual* for more information about Oracle Calendar administration, configuration, and troubleshooting.



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# Oracle Collaboration Suite 10g Content Services Concepts

Oracle Collaboration Suite 10g Content Services is a database-centric content management application that provides users with a comprehensive, integrated solution for file and document lifecycle management and business process automation. All Oracle Content Services content is stored in an Oracle database.

## Oracle Content Services Features

Oracle Content Services provides the following capabilities:

- ❑ Collaboration based on Libraries
- ❑ Folder and document-level security
- ❑ Group and role-based access control
- ❑ The ability to create multiple secure sites within a single instance of the product
- ❑ Web Services application programming interfaces
- ❑ Check-in, check-out, and policy-based automatic versioning of files
- ❑ Automated workflow processes
- ❑ The ability to integrate with Symantec Antivirus Scan Engine for automatic and manual virus scanning
- ❑ The ability to associate attributes to files automatically, controlled by folder-based policies
- ❑ The ability to create links to files and folders
- ❑ Integration with Microsoft Windows for file access and offline file management
- ❑ Files lifecycle management features to manage electronic records
- ❑ Scalability, reliability, security, and platform independence
- ❑ The ability to define custom workflows through Oracle BPEL Process Manager

These features and capabilities give the enterprise greater control over its business critical content, while simultaneously making employees more productive.

This chapter discusses basic concepts that you should understand when using Oracle Content Services. Topics include the following:

- ❑ [Oracle Content Services Features](#)
- ❑ [Using Protocol Servers to Access Oracle Content Services](#)

## Oracle Content Services Features

The following sections describe the key features of Oracle Content Services:

- [Oracle Content Services Folder Hierarchy](#)
- [Administration Levels](#)
- [Accessing Folders](#)
- [Group Management](#)
- [User Reports](#)
- [Quota](#)
- [Setting User Preferences](#)
- [Searching](#)
- [Categories](#)
- [Automatic and Manual Versioning](#)
- [File Locking](#)
- [Review Process](#)
- [Automatic Workflows](#)
- [Custom Workflows](#)
- [Edit-in-Place](#)
- [Integrated Antivirus Solution](#)
- [Trash and Archive](#)
- [Records Management](#)
- [Oracle Drive](#)
- [Links](#)

### Oracle Content Services Folder Hierarchy

Users log in to a single Site and can then see only the contents of that Site, regardless of whether they are members of other Sites. A user can only be logged in to one Site at a time. A Site folder can contain Containers, Libraries, or a combination of the two.

#### Containers

A Container is a special kind of folder that can contain other Containers or Libraries. Containers let Oracle Content Services administrators organize the folder hierarchy in a logical way. For example, Containers could be created for geographical regions or by department. Only Container Administrators can create and delete Containers. Containers can have default folder configuration settings that are inherited by Libraries created in the Container. In addition, a Container can be configured to disallow the creation of Libraries, or to limit who can create Libraries by enforcing a workflow for that Container.

#### Libraries

Libraries are the first level in the folder hierarchy where content is added. Members must be added to a Library, and only Configuration Administrators and members of a particular Library can see that Library inside of a Container or the Site folder. Libraries

and Personal Libraries are the only folders that contain a trash folder. Libraries can contain files and folders, and have a quota associated with them.

## Administration Levels

There are two types of administration for Oracle Content Services: system administration and application administration.

- The System administration manages the Oracle Content Services domain by starting and stopping the nodes, services, and servers, tuning the system to ensure reliability and performance, creating, modifying, and deleting sites, as well as registering custom workflows. System Administration uses the Oracle Enterprise Manager 10g Application Server Control for Oracle Collaboration Suite to manage Oracle Content Services.
- Application administration involves managing users, quota, Libraries, categories, content, and records at the Site and Container level. Application administration is divided into multiple administrator roles that can be assigned at the Site level only, or at both the Site and Container level.

A single user can act in multiple roles. In addition, each role has a different set of access privileges.

See "About File Sharing and Access" in the *online help for Oracle Content Services* and *Oracle Content Services Application Administrator's Guide* for detailed information about administration levels and roles in Oracle Content Services. See *Oracle Content Services Administrator's Guide* for more information about administering Oracle Content Services.

## Accessing Folders

Oracle Content Services provides users with control over access to their work. Users can specify who may access any file, folder, or Library they manage. Oracle Content Services also contains a type of folder called a Container; Containers are accessible to all users. See [Oracle Content Services Folder Hierarchy](#) for more information.

If enabled, all Oracle Content Services users have a Personal Library. Each user has complete control over access to this Library.

By default, a file, folder, or Container inherits its sharing settings from its parent folder. An administrator of the file, folder, or Container can change inherited sharing settings.

### Access Roles

Oracle Content Services security is based on roles. Oracle Content Services includes a set of default access roles that administrators can assign to users.

See "About File Sharing and Access" in the *online help for Oracle Content Services* and the *Oracle Content Services Application Administrator's Guide* for detailed information about roles.

## Group Management

Oracle Content Services user groups let users communicate and collaborate efficiently. Users can create a group for the members of a project team, a special interest group, or any other collection of users.

Any Oracle Content Services user can create a new group, or search for and request to be added to existing groups.

These groups are not Oracle Internet Directory groups. They are logical groupings that users can create within an Oracle Content Services Site to streamline collaborative work in Oracle Content Services.

## User Reports

Oracle Content Services provides reports that allow users to generate dynamic views of information. Oracle Content Services provides the following reports:

- ❑ **My Recent Files:** The My Recent Files report displays a list of the user's most recently accessed files.
- ❑ **Locked Files:** The Locked Files report displays all files that the user has locked.
- ❑ **Checked-Out Files:** The Checked-Out Files report displays all files that the user has checked out.
- ❑ **My Requests:** The My Requests report displays a filtered list of workflow requests.

## Quota

Quota is the measurement of storage use in Oracle Content Services. Each Library is allocated a quota by the Quota Administrator. The contents of each Library, including its Trash folder, count against the Library's allocated quota. When the Library's quota is exceeded, Library members cannot store additional content in the Library. The Library's administrators can, however, request that the Quota Administrator increase the Library's quota.

Oracle Content Services provides a user interface for the Quota Administrator to view and change quotas, as well as a facility to browse or search for a Library by name. The Quota Administrator can view the allocated and used quota, and change the allocated quota for any Library.

The Quota Administrator has access to the names and quotas of all Libraries, but does not have access to the content or configuration of all Libraries.

See "About Folder and Library Management" in the online help for Oracle Content Services for detailed information.

## Setting User Preferences

Oracle Content Services users can customize account preferences from the User Preferences pages. Users can change the following options:

- ❑ The number of files to list in My Recent Files
- ❑ The default document language and character set
- ❑ Their FTP password

Users can set their user preferences (or accept the default values) when they first log in to Oracle Content Services.

See "User Preferences" in the online help for Oracle Content Services for detailed information.

## Searching

Users can conduct simple or advanced searches. A simple search searches for specified text in file names. Advanced searching lets users add, refine, and combine search criteria.

Users can also refine the search by using a Category Search to find files, based on their associated categories, and the attribute values of those categories. See [Categories](#) for more information.

See "Search Options" in the online help for Oracle Content Services for detailed information.

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**Note:** In addition to the Oracle Content Services search feature, Oracle Collaboration Suite users can take advantage of Oracle Collaboration Suite Search.

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## 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 and a Category's attributes. The Oracle Content Services Category Administrator creates Categories.

Users can categorize files, folders, and links, by applying Categories to them on the File or Folder Properties window. Users that have been granted the permission to add, modify, or delete category information on a folder can also specify one or more required Categories for folders. Users must enter information for these Categories when uploading or checking in files.

Categories can be divided into Subcategories, and can have one or more attributes. Categories are created and configured for a Site by the Category Administrator.

See "About Categories" in the online help for Oracle Content Services for detailed information.

## Automatic and Manual Versioning

Users can retain a history of file modifications by creating and saving one or more versions of a file. Oracle Content Services lets users manage file versions with check-in/check-out functionality. The check-out functionality can only be performed on versioned files. To create a new version manually, users can check out a file. This locks the file and prevents other users from seeing changes by other users until the file is checked back in, which versions the file. Users can also set folders to version files automatically when they update files.

If automatic versioning is enabled, any overwrite operation creates a version of the overwritten document.

Users that have been granted Manager role on a folder can enable versioning for their folders, and set the versioning type: automatic or manual. By default, a folder inherits the versioning configuration of its parent folder. Managers of a folder can also set the version numbering format for automatic versioning, and the maximum number of automatically created versions that can be retained in the folder.

The Version History table has a Type column, and the Version Properties page has a Version Type parameter that specifies whether a version is an automatic or manual version.

See "About Versioning" in the online help for Oracle Content Services for detailed information.

## File Locking

When users lock a file, they obtain exclusive access to that file. Other Oracle Content Services users are unable to edit the content and properties of the locked file. Users can lock a file manually, and files are locked automatically when they are edited through a client application, when the files are checked out, or when they are part of a review process. If a versioned file is locked, its version history is also locked.

See "About File Management," "About Workflow," and "About Review Processes" in the online help for Oracle Content Services for detailed information.

## Review Process

Users can submit files for review to a specified set of reviewers. These reviewers fall into two categories: Approvers, who can approve or reject the file, or reviewers, who can view the file but cannot approve or reject it.

Oracle Workflow is the key component of a review process in Oracle Content Services. Using a review process, any Library member can submit for review one or more files to other members of their Library. A review process ends in the approval or rejection of these files, or the process can expire or be canceled prior to their approval or rejection. Members can be either approvers or reviewers of a review process:

- ❑ *Approvers* are asked to approve files through notifications sent from Oracle Workflow. Approvers must either approve or reject the files that have been submitted for review. The Library member who initiated the review process is notified of the approval or rejection of the files.

Approvers cannot approve or reject individual files associated with one review process, but must approve or reject all files included in the review process as a whole.

- ❑ *Reviewers* are asked to review files through notifications sent from Oracle Workflow. Reviewers can only review the files, and cannot approve or reject files that have been submitted for review.

Users can also specify that files approved in a review process be automatically moved to a new location, copied to a new location, versioned, or deleted.

When you complete the review process, the initiator is notified of the approval or rejection of the review process.

See "About Review Processes" and "About Workflow" in the online help for Oracle Content Services for detailed information.

### Custom Review Processes

The System Administrator can create custom review processes, also called workflow processes, to use in Oracle Content Services. A *workflow designer*, a person with the necessary skills to design a workflow process in Oracle JDeveloper, creates the custom workflow process. Then, the Instance Administrator registers the custom workflow process with Oracle Content Services.

When users use the review process functionality in Oracle Content Services, they can select any custom workflow process registered by the Instance Administrator.

See "Review Processes and Workflow" in the online help for Oracle Content Services for detailed information.

## Automatic Workflows

Oracle Content Services includes user-initiated and automatic workflows. Automatic workflows can be initiated upon the occurrence of events within Oracle Content Services. These workflows can be configured so that the event (such as a check in or copy) does not complete until the workflow is satisfied. They can also be started after the event completes, which provides functions such as user notification. Workflows can also invoke the Oracle Application Server Web Services APIs, which allow further custom automation of business processes and application functions.

## Custom Workflows

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**Note:** Oracle BPEL Process Manager must be licensed separately.

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Oracle BPEL Process Manager is used by Oracle Content Services to provide the capability to create custom flows that automate the processes that are unique to your organization.

Custom BPEL workflows can be defined in Oracle BPEL Process Manager, then registered for use in Oracle Content Services. Custom workflows are only available to the default Site in Oracle Content Services; additional Sites cannot use the custom workflows.

Oracle BPEL Process Manager provides a framework for easily designing, deploying, monitoring, and administering processes based on BPEL standards.

The Business Process Execution Language (BPEL) is an XML-based language for enabling task-sharing across multiple enterprises using a combination of Web services. BPEL is based on the XML Schema, simple object access protocol (SOAP), and Web services description language (WSDL). Using BPEL, users can design a business process that integrates a series of discrete services into an end-to-end process flow.

The Oracle BPEL Process Manager consists of:

- A Designer tool that runs in JDeveloper to graphically create the flows required for automating the various business process of an organization
- A highly scalable run-time server that is deployed in Oracle Application Server
- A management console for deploying, testing, and debugging BPEL flows running in the BPEL server
- A Worklist application for managing user tasks

See *Oracle BPEL Process Manager Developer's Guide* for more information about BPEL and Oracle BPEL Process Manager

## Edit-in-Place

Using Oracle Drive or Microsoft Web Folders, a user can open and edit an Oracle Content Services file and save changes directly back to Oracle Content Services. When a user opens a file from Oracle Drive or Microsoft Web Folders to edit, the file is automatically locked in Oracle Content Services. Any changes made to the file are automatically saved in Oracle Content Services. When the user closes the file, it is automatically unlocked in Oracle Content Services.

Edit-in-place is available from the Web UI when the Oracle Drive client is running.

See [Using Protocol Servers to Access Oracle Content Services](#) for more information about Oracle Drive and Microsoft Web Folders, and "Editing Files in Place" in the online help for Oracle Content Services for detailed information about the edit-in-place feature.

## Integrated Antivirus Solution

Oracle Content Services can integrate with Symantec Antivirus Scan Engine. When virus scanning is enabled, Oracle Content Services scans for viruses when a file is downloaded from Oracle Content Services (this includes opening the file in an application). Virus checking can also be invoked manually to scan files already in Oracle Content Services.

If a file contains a virus, the file is put into quarantine. While in quarantine, the document can be deleted or overwritten, but cannot be opened.

The virus scanner attempts to fix the file, up to the maximum number of attempts as specified by the System Administrator.

## Trash and Archive

Every Library has a Trash folder, located in the top-level folder of the Library. When users delete files and folders from a Library, the files and folders are moved to the Trash folder. These can then be deleted from the Trash folder manually.

Files in Trash folders count against the parent folder's quota until you remove them permanently.

Every Site also has an Archive folder, located in the root folder of the Site. Files and folders moved into the Archive folder are ordered by the date and time when the file or folder was moved into the Archive folder. Only users that have been granted the Content Administrator role may access the Archive folder.

See "About File Management" in the online help for Oracle Content Services for detailed information.

### Deleting Files and Folders

When users delete files or folders in a Library, Oracle Content Services moves the files and folders into the Trash folder. When users delete versioned files, Oracle Content Services moves the files into the Trash folder and maintains the structure of the files, including version history or subfolder hierarchy. When users delete a particular version of a versioned file, Oracle Content Services moves that version into the Trash folder as a non-versioned document.

Users can delete files and folders from the Trash folder for which they have write access.

### Archiving Files and Folders

Every Site has an Archive folder that is located in the root folder of the Site. Users cannot create files and folders directly in the Archive folder. Only Content Administrators can access the Archive.

When users delete files and folders from any Trash folder, the files and folders are moved to the Archive folder. In addition, when a checkout operation is cancelled, the working copy is moved to the Archive folder.

When Libraries are deleted, the entire Library (including its Trash folder) is moved into the Archive folder. When a Container is deleted the Libraries inside the Container



are moved to the Archive folder, but the Containers themselves are deleted from the system.

Any Content Administrator can set an expiration time on the Archive folder. Files and folders that have been in the Archive longer than the expiration time are deleted. In addition, Content Administrators can manually delete files or folders from the Archive folder.

## Records Management

Records management is the systematic and comprehensive control of the creation, capture, maintenance, filing, use, and disposition of records.

Oracle Records Management is a records management application that ships with Oracle Content Services.

Record Administrators can perform the following:

- ❑ Define *File Plans*. A File Plan is a hierarchical set of subjects or business activities.
- ❑ Search and browse records.
- ❑ Define, classify, and manage records.

## Oracle Drive

Oracle Drive is the desktop client for Oracle Content Services. Oracle Drive appears as a drive mapped to Oracle Content Services in Windows Explorer. Oracle Drive provides SMB-like capabilities while using WebDAV as the back-end protocol. See [Using Protocol Servers to Access Oracle Content Services](#) and the online help for Oracle Content Services for more information.

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**Note:** Oracle Drive only works with Microsoft Windows operating systems.

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## Links

A link in Oracle Content Services is a navigational shortcut that points to a folder, file, file version, Library, or Container. Users can open, copy, move, and delete links, as long as the links are unlocked. Moving or overwriting the target item does not break the link.

A link inherits its security settings from the folder where it is created. Users cannot create versions of a link.

## Using Protocol Servers to Access Oracle Content Services

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

Oracle Content Services supports the following protocols:

- ❑ HTTP, the Hypertext Transfer Protocol, is used for Web browser-based access.
- ❑ FTP, the File Transfer Protocol, is used for file transfers across Wide Area Networks such as the Internet.

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

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

- WebDAV, Web-based Distributed Authoring and Versioning, is an HTTP-related protocol that is designed for Wide Area Networks such as the Internet. Currently, the most widespread WebDAV client is the Web Folders extension to Windows Explorer, also known as Network Places in Windows 2000/XP.

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

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# Oracle Collaboration Suite 10g Discussions Concepts

This chapter discusses the concepts of Oracle Collaboration Suite 10g Discussions and contains the following sections:

- [About Oracle Discussions](#)
- [The Oracle Discussions Web UI](#)
- [Related Documentation for Oracle Discussions](#)

## About Oracle Discussions

Oracle Discussions is Oracle Collaboration Suite's online discussion forum for browsing message boards, posting messages and viewing responses. As a component of Oracle Collaboration Suite, Oracle Discussions leverages the proven and scalable foundation of Oracle Database 10g.

This section contains the following topics:

- [Support for E-mail, Portal and Web Integration](#)
- [Storage and Security](#)
- [RSS Feeds](#)

## Support for E-mail, Portal and Web Integration

Oracle Discussions tightly integrates with Oracle Mail so that users can use Discussions from within e-mail.

E-mail clients accessing the Oracle Mail IMAP Server can access the Discussions Boards as Shared Folders. This allows you to read board messages in your e-mail client and, with the Mail Participation feature, post new threads and replies.

### **E-mail enabling a forum:**

With Oracle Discussions, a Forum can be e-mail enabled so that users can send an e-mail to the forum e-mail address and the contents of that e-mail will be automatically posted on the Forum.

### **Browse Discussions using an e-mail program:**

Oracle Discussions stores categories and forums as shared IMAP folders in the e-mail repository. Similarly, postings are stored as messages. Because of this, popular e-mail programs like Microsoft Outlook, Mozilla Thunderbird or the Oracle's Web Access

client can be used to browse the postings on any forum by accessing the shared folder for that forum.

#### **Email Notifications**

Users can subscribe to forums and receive an automatic e-mail notification whenever there is a posting on the subscribed forum.

#### **Portal and Web site Access**

In addition to e-mail clients, Oracle Discussions can be made accessible through other applications like portals and Web sites. Users will be able to collaborate within the business context for increased personal productivity.

### **Storage and Security**

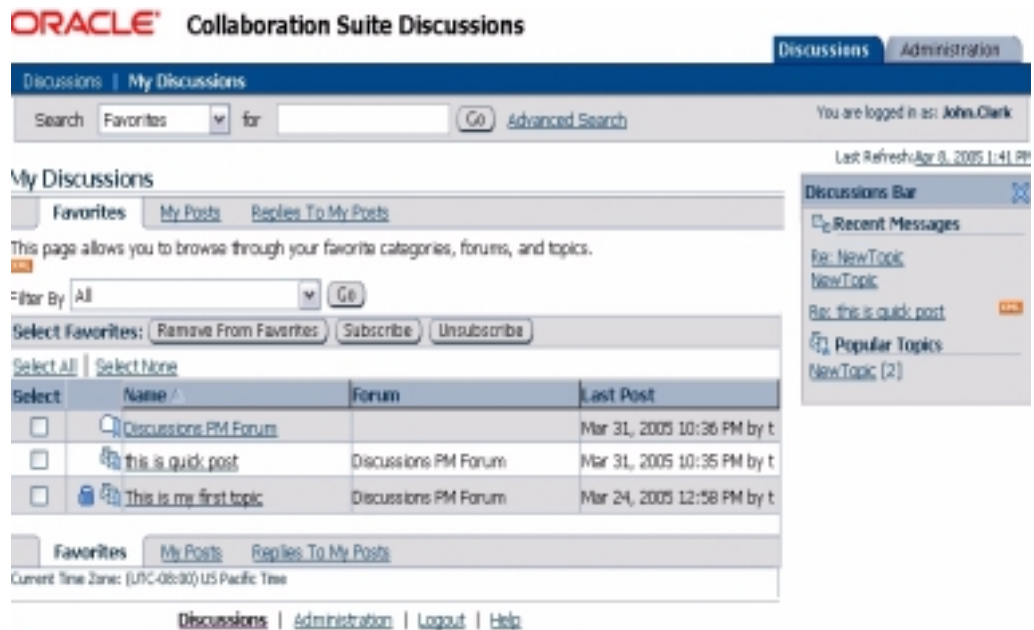
All Discussions content is stored in the Oracle Database 10g, the leading database for manageability, performance, availability, scalability, and value. Users and Administrators can search and retrieve information from Discussions using powerful search technology. Discussions content can be secured at both the storage level and the access level. This is accomplished through e-mail access and public access settings as well as root category creation rights.

### **RSS Feeds**

Oracle Discussions provides RSS feeds to access and browse its boards and discussions. Desktop RSS readers can be used to browse boards and threads. RSS feeds can also be leveraged for basic application integration. Access to the RSS feeds is protected by HTTP Basic Authentication.

### **The Oracle Discussions Web UI**

The Oracle Discussions Web UI is an intuitive Web-based application that enables users to participate in a running log of questions, responses, comments and opinions within the structure of categories, forums and topics.

**Figure 6–1 Oracle Discussions Web UI**

The Oracle Discussions Web UI has the following features:

### My Discussions

Select My Discussions to show Favorites, My Posts and Replies to My Posts to quickly access topics that particularly interest you. Favorites show the categories, forums and messages that the user has bookmarked.

### Discussions Bar

The Discussions Bar provides a snapshot view of Announcements, Favorites, Recent Messages and Popular Topics that will enable users to quickly navigate to any of these areas.

### Discussion View

Users can view the topic and replies either as a flat view or threaded view.

### Attachments

Users can attach relevant documents to their postings.

### Search

Postings are automatically indexed so users can use keywords to quickly search all the postings that they have access to. Advanced Search allows users to search using keywords, author, message size, number of replies and date ranges.

## Related Documentation for Oracle Discussions

See "Managing Oracle Discussions" in Chapter 5 of *Oracle Collaboration Suite Administrator's Guide* for more about Oracle Discussions administration, configuration, and troubleshooting.

See Chapter 7, "Deploying Oracle Discussions" in *Oracle Collaboration Suite Deployment Guide* for information about Oracle Discussions deployment.



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# Oracle Collaboration Suite 10g Mail Concepts

Oracle Collaboration Suite 10g Mail is a reliable, scalable, and secure messaging system that uses Oracle Database 10g to store and manage your organization's e-mail, voice mail and fax messages. Oracle Mail provides message delivery, browser-based clients, and administration utilities by taking advantage of the Oracle core competencies in providing access to, storing, and managing all types of information.

This chapter contains the following sections:

- [Oracle Mail Features](#)
- [Oracle Mail Clients](#)
- [Related Documentation for Oracle Mail](#)

## Oracle Mail Features

The Oracle Mail system can be customized based on how many messages need to be stored, how many users access the system under peak loads, and how many messages are sent and received over a period of time. The Oracle Mail Internet computing architecture enables administrators to support thousands of users on a single system, if necessary. Administrators have the option of creating a two-tier system with a single host supporting a few thousand users, or a three-tier system with protocol access servers separate from the message database supporting many thousands of users. This architecture enables administrators to add hardware to any tier, expanding the system to support a virtually unlimited number of users.

The following sections describe the key features of Oracle Mail:

- [Simplified Administration](#)
- [Oracle 10g Database Message Store](#)
- [Open-Standards-Based Messaging](#)
- [Routing Control and Anti-Virus Features](#)
- [Server-Side Filters](#)
- [Archiving](#)
- [Integration with Other Applications](#)

## Oracle 10g Database Message Store

Oracle Mail stores all messages in an Oracle 10g Database. This enables Oracle Mail users to access and manage all their messages from the interface of their choice, including a Web browser, phone and PDA. Using the Oracle Database also lets Oracle Mail offer data availability, data integrity, low recovery time, and fault-tolerance as well as multithreading, parallel processing, high availability support, and high performance.

## Simplified Administration

Oracle Mail simplifies administration and management by integrating with Oracle Enterprise Manager 10g, enabling consolidated, Web-based management of the total Oracle environment as well as integration into existing system-monitoring infrastructures. Oracle Mail also supports multiple domains with delegated administration on the same system, enabling hosting.

Oracle Mail administrators can use Oracle Enterprise Manager 10g Grid Control for monitoring and tuning Oracle Mail processes. The following utilities for advanced administrative functionality are also provided with Oracle Mail.

### Enhanced plug-in interface

Oracle Mail simplifies applying custom plug-ins to incoming and outgoing messages. This makes it easier for developers to apply their own functionality such as e-mail monitoring, anti-spam, and archiving to messages in transit.

### Simplified Installation

By using default values and service discovery there are fewer installation steps.

### Delivery Status Notifications

Delivery status notification messages are available in multiple languages.

## Open-Standards-Based Messaging

Oracle Mail enables users to access messages with the standards-based messaging client of their choice. Messages can be accessed using any client compliant with IMAP4 or POP3. Oracle Mail provides directory services using Oracle's LDAP (Lightweight Directory Access Protocol) compliant Oracle Internet Directory.

## Routing Control and Anti-Virus Features

Oracle Mail provides robust protection against virus and unwanted e-mail (spam). Administrators can configure Oracle Mail to reject a message based on specific information contained in the message header. For example, e-mails with specific words in the "Subject" field can be blocked. Additionally, administrators can define a list of inappropriate attachments in Oracle Mail, such as executable files, to prevent unwanted attachments from entering the messaging system.

## Server-Side Filters

Oracle Mail provides a wide range of server-side filters that enable certain actions to be taken at various events. A variety of built-in actions, such as move, delete, and forward can be used to quickly assemble complex filtering logic with optimized e-mail actions. Filters can be defined to cover a wide range of actions, such as delivery, copy, delete, and relay, enabling fine-grained control over a message's life span. In addition



to built-in actions, server-side filters include a PL/SQL API, enabling end-users to write their own customized actions and conditions.

## Archiving

Oracle Mail provides functionality to enable Oracle Mail administrators to save e-mail messages in an archive for later retrieval. Additionally, third-party vendors can provide end-users with archiving capabilities. Oracle Mail administrators can easily enable message archiving on a per user basis through the administration interface.

## Integration with Other Applications

PL/SQL and Java programmers can create custom applications to integrate Oracle Mail with other applications. Oracle Mail APIs enable applications to directly manipulate stored messages as well as create outgoing messages that follow the MIME standard. Combined with server-side rules, large numbers of messages can be processed and managed by applications integrated with Oracle Mail.

See the [Oracle Collaboration Suite Application Development Concepts](#) chapter in this guide for more information about Oracle Mail APIs.

See *Oracle Mail Application Developer's Guide* for more information about developing for Oracle Mail.

## Oracle Mail Clients

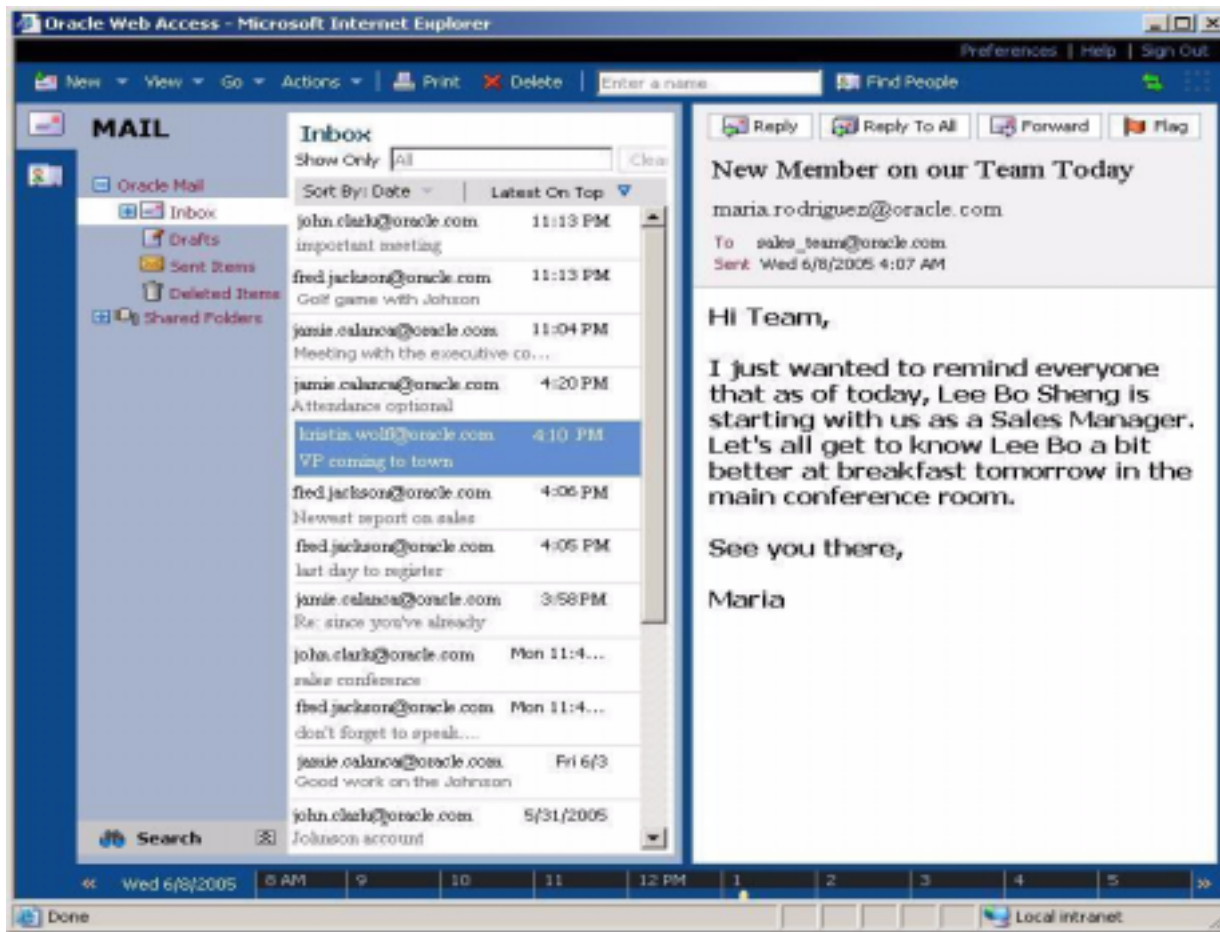
Oracle Mail includes the following three clients to meet your e-mail needs:

- [Oracle Web Access Client](#)
- [Oracle Connector for Outlook](#)
- [Oracle WebMail](#)

### Oracle Web Access Client

Oracle Mail features the Oracle Web Access client, a browser-based application that brings together user-friendly design with a rich feature set to offer a desktop-like experience. The user interface incorporates Dynamic-HTML technology, enabling ease of use through desktop-like interactions. The Oracle Web Access client supports standard Web browsers, including Internet Explorer, and Mozilla Firefox.

Figure 7-1 Oracle Web Access Client



Key features of the Web Access client:

- **Drag-and-drop:** Users can move items as they wish with convenient drag and drop functionality.
- **Quick sorting and search:** Mail searching is made easy by entering just a few letters of a person's name or a subject title to display all relevant entries.
- **Calendar integration:** Users can launch the Oracle Calendar Web client from any time slot in the Web Access client TimeBar; clicking on an empty slot in the time bar brings up a new meeting request page.
- **Contacts:** Access to personal address books and corporate directory look-up, including an organizational chart and daily view of another user's agenda.

## Oracle Connector for Outlook

Oracle Connector for Outlook extends the functionality of Microsoft Outlook, providing Oracle Collaboration Suite users with a familiar and unified environment for their calendaring and e-mail tasks.

For more information about Oracle Connector for Outlook, see [Oracle Collaboration Suite 10g Calendar Concepts](#) chapter in this guide and "Deploying Oracle Calendar" in Chapter 5 of *Oracle Collaboration Suite Deployment Guide*.

## Oracle WebMail

Oracle WebMail provides Internet access to Oracle Mail through a standard Web browser. Browser-based clients provide all of the advantages of internet computing: increased reliability because no dedicated client is needed; decreased support and administration costs due to the system being maintained in a professional data center; and increased message access because there are no local message storage requirements. Users can access and manage all aspects of their Oracle Mail account from Oracle WebMail.

Oracle WebMail also supports spell checking in several languages, multilingual character sets, and the Read Receipt feature, which enables users to send read receipt requests to track when their e-mails have been read by recipients. These features are also available in the Oracle Web Access client.

Figure 7–2 Oracle WebMail

**ORACLE Collaboration Suite Mail** [Preferences](#) [Logout](#) [Help](#)

**Mail** [Directory](#)

**Messages** | [Folders](#) | [Mailing Lists](#)

Search  for  [Go](#) [Advanced Search](#) You are logged in as: John Clark

[All Folders](#) > [Sent Items](#) >

**Sent Items**

View Folder:  [Go](#) [Get Mail](#) [Compact](#) [New Message](#)

**All Messages** [E-Mail](#) [Voice Mail](#) [Faxes](#)

[Delete](#) [Undelete](#) [Mark Unread](#)  [Move](#)

[Select All](#) | [Select None](#)

Select	From	Subject	Date	Size
<input type="checkbox"/>	john.clark@oracle.com	Progress Report	Jun 3, 2005 3:22 AM	744 b
<input type="checkbox"/>	john.calrk@oracle.com	New Membership	May 31, 2005 11:42 AM	731 b
<input type="checkbox"/>	john.clark@oracle.com	Important Meeting	May 31, 2005 11:28 AM	3.57 Kb

**All Messages** [E-Mail](#) [Voice Mail](#) [Faxes](#)

Current time zone: (UTC-05:00) US Eastern Time [Get Mail](#) [Compact](#) [New Message](#)

[Mail](#) | [Directory](#) | [Preferences](#) | [Logout](#) | [Help](#)

## Related Documentation for Oracle Mail

See *Oracle Mail Administrator's Guide* for more information about Oracle Mail administration, configuration, and troubleshooting.

See Chapter 8, "Deploying Oracle Mail" in *Oracle Collaboration Suite Deployment Guide* for more information about Oracle Mail deployment.

See *Oracle Mail Application Developer's Guide* for more information about developing for Oracle Mail.

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## Oracle Collaboration Suite 10g Mobile Collaboration Concepts

Oracle Collaboration Suite 10g Mobile Collaboration provides users of Oracle Collaboration Suite with wireless access to e-mail, voice mail, calendar data, contacts, tasks, files and corporate directories. With Oracle Mobile Collaboration, you can use a mobile phone or other wireless device for tasks like receiving and answering e-mail, sending a white paper to a colleague, or looking up the phone numbers of other employees in a corporate directory.

Oracle Mobile Collaboration provides the mobile and voice access to such browser-based applications as Oracle Calendar, Oracle Mail and Oracle Content Services through the following services:

- ❑ [Oracle Mobile Push Mail](#)
- ❑ [Oracle Mobile Data Sync](#)
- ❑ [Oracle Mobile Access](#)
- ❑ [Oracle Device Management](#)
- ❑ [Related Documentation for Oracle Mobile Collaboration](#)

### Oracle Mobile Push Mail

Oracle Mobile Push Mail is a Push IMAP (P-IMAP) solution that provides powerful standards-based real-time access to e-mail. "Always on" push mail delivers messages to devices as they arrive, without a user's intervention. Users can decide which messages are delivered; all of them, or just the ones that satisfy specific criteria.

Because the user's device stores the received e-mail, users can read and compose e-mail without a connection. Oracle Mobile also delivers cradle-free two-way synchronization of messages, ensuring that any changes on the mobile device, such as read e-mails or deleted messages, are wirelessly synchronized with the server and vice versa.

### Oracle Mobile Data Sync

Oracle Mobile Data Sync delivers remote synchronization of data stored in Oracle Collaboration Suite, such as Oracle Calendar events, tasks and contacts, with any OMA-DS-enabled (formerly SyncML) device.

For more on [Oracle Mobile Data Sync](#), see the [Oracle Collaboration Suite 10g Calendar Concepts](#) chapter in this guide.

## Oracle Mobile Access

Oracle Mobile Access is composed of four options for connecting wirelessly to your Oracle Collaboration Suite data.

- ❑ [Oracle Mobile Text Access](#)
- ❑ [Oracle Mobile Browser Access](#)
- ❑ [Oracle Mobile Voice Access](#)
- ❑ [Oracle Mobile Notifications](#)

### Oracle Mobile Text Access

Oracle Mobile Text Access allows you to access Oracle Collaboration Suite through Short Message Service (SMS) messages. You can send simple SMS commands to retrieve your appointments for the day, modify or cancel a meeting, look up employee information in a corporate directory or personal address book, or browse a catalog of files to select a file to fax or send by e-mail.

### Oracle Mobile Browser Access

Oracle Mobile Browser Access enables access to corporate collaboration data over any wireless network from mobile devices that support browsers for such markup languages as HTML, XHTML, WML, and HDML. Oracle Mobile Browser Access communicates with all content sources, defined in the Identity Management service registry, to format and render the content based on the device type (user-agent).

### Oracle Mobile Voice Access

Oracle Mobile Voice Access allows you to use any type of phone (wired or wireless) to send, receive and reply to e-mail, manage appointments, call a contact, or receive notifications regarding important messages or meetings. You can access Oracle Collaboration Suite components such as Oracle Mail, Oracle Content Services and Oracle Calendar by calling a gateway from a phone and interacting with a voice-based interface. The Oracle Collaboration Suite voice-enabled applications respond to both voice and touch-tone commands, and run on any Oracle-supported VoiceXML gateway with speaker-independent speech recognition.

### Oracle Mobile Notifications

Oracle Mobile Notifications enables users of Oracle Collaboration Suite to receive notifications of their appointments and tasks on any mobile device. For example, a user can set preferences to receive alerts for email, voice mail and calendar for whatever they think is critical; a calendar reminder for meetings, an alert for urgent e-mails or e-mails that originate from their manager.

## Oracle Device Management

Oracle Device Management is a set of self-service tools that lets users configure and maintain their own mobile devices over-the-air.

The use of these centrally-managed tools increases the accuracy of the settings over traditional user-based methods and reduces costs related to helpdesk requests from frustrated users.

For example, a user with a new phone might not know how to set it up. This user could go to the Oracle Mobile Collaboration preferences page, select their new phone from a list and select the capabilities available on the device that they want to use. By clicking the **Configure** button on the Web site, the required clients are downloaded to the device and the settings are provisioned.

Also, if a user loses their device or it is stolen, they can go to the Oracle Mobile Collaboration Web site and delete the devices profile. This will automatically deactivate all access points for that device and wipe out the data stored on it.

## Related Documentation for Oracle Mobile Collaboration

See Chapter 9, "Deploying Oracle Mobile Collaboration" in *Oracle Collaboration Suite Deployment Guide* for information about Oracle Mobile Collaboration deployment.

See *Oracle Mobile Collaboration Administrator's Guide* for more information about Oracle Mobile Collaboration system requirements, installation instructions, frequently asked questions and troubleshooting information.

See the **Oracle Mobile Data Sync Troubleshooting and FAQs Web site** at [http://www.oracle.com/technology/products/cs/user\\_info/omobile\\_collaboration/mobile\\_data\\_sync\\_index.html](http://www.oracle.com/technology/products/cs/user_info/omobile_collaboration/mobile_data_sync_index.html) for more information Oracle Mobile Data Sync and specific handheld devices.





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## Oracle Collaboration Suite 10g Real-Time Collaboration Concepts

Oracle Collaboration Suite 10g Real-Time Collaboration is a secure, presence-aware, integrated platform designed to meet all the real-time collaboration needs of an enterprise. With its Web Conferencing, Instant Messaging, Chat Conferencing, and Voice over IP features, Oracle Real-Time Collaboration lets individuals and groups meet, communicate, and collaborate in a seamless and unified manner.

Oracle Real-Time Collaboration features can be enabled throughout Oracle Collaboration Suite. For example, Oracle Calendar meetings can be specified as Web conferences, automatically scheduling the Web conference in the Oracle Real-Time Collaboration Web client. Users can enter the conference directly through the Oracle Calendar invitation. Oracle Mail can display a contact's current availability (presence) as set by that contact in Oracle Messenger. Users of Oracle Mail can start instant messaging sessions with available contacts directly from Oracle Mail.

This chapter provides an overview of the Oracle Real-Time Collaboration product and features and contains the following sections.

- [What Is Real-Time Collaboration?](#)
- [Real-Time Collaboration Sites](#)

### What Is Real-Time Collaboration?

Oracle Real-Time Collaboration consists of client and server applications that let you identify a user's availability for any Oracle Collaboration Suite task, create and participate in online conferences, and participate in chat sessions with one or more users. Any users in your company's Oracle Internet Directory or other LDAP system can use Oracle Real-Time Collaboration features.

You can set your current availability or *presence* through Oracle Messenger, showing whether you are available, away, or should not be disturbed. That availability is visible to other users either through their Oracle Messenger window or, if enabled, through their Oracle Mail contacts list.

Oracle Messenger lets you hold real-time instant messaging or "chat" sessions with individual users or groups. In addition, two Oracle Messenger users can hold a full-duplex voice chat. You can also use integration services to enable users outside your company security system (firewall) to send chat messages to specific individuals in your company, for example, to let end-users chat with support engineers.

You can hold Web conferences with others both within and outside the company's firewall. You can schedule Web conferences either through Oracle Real-Time Collaboration Web client, or through Oracle Calendar. You can also invite others to a

Web conference from an Oracle Messenger chat session. Attendees can enter a conference directly from an e-mailed invitation sent by either of the scheduling applications, or directly from a Oracle Real-Time Collaboration chat session.

Oracle Real-Time Collaboration provides audio services that let you:

- ❑ Broadcast a Web conference host's voice from a telephone that is connected to an external phone conference service, to Oracle Web Conferencing attendees.
- ❑ Broadcast a Web conference host's voice (using Voice over IP) from a PC microphone to listen-only Oracle Web Conferencing attendees.
- ❑ Start a full-duplex voice chat between two Oracle Web Conferencing attendees using PC speakers and microphones when there are only two attendees present.
- ❑ Play back a Web conference recording that includes the conference audio.
- ❑ Start a full-duplex voice chat between two Oracle Messenger users, within a company intranet.

From a user's perspective, there are four main interfaces to the Oracle Real-Time Collaboration system, described in the following sections.

- ❑ [The Oracle Real-Time Collaboration Web Client](#)
- ❑ [The Web Conferencing Console](#)
- ❑ [Oracle Messenger Console](#)
- ❑ [Oracle Real-Time Collaboration Add-in for Microsoft Office](#)

## The Oracle Real-Time Collaboration Web Client

The Oracle Real-Time Collaboration Web client is a series of pages displayed in a Web browser that lets users download the Oracle Real-Time Collaboration clients for conferencing or instant messaging, schedule or join conferences, view archived files of past conferences or instant messages, and identify materials to be shared during conferences.

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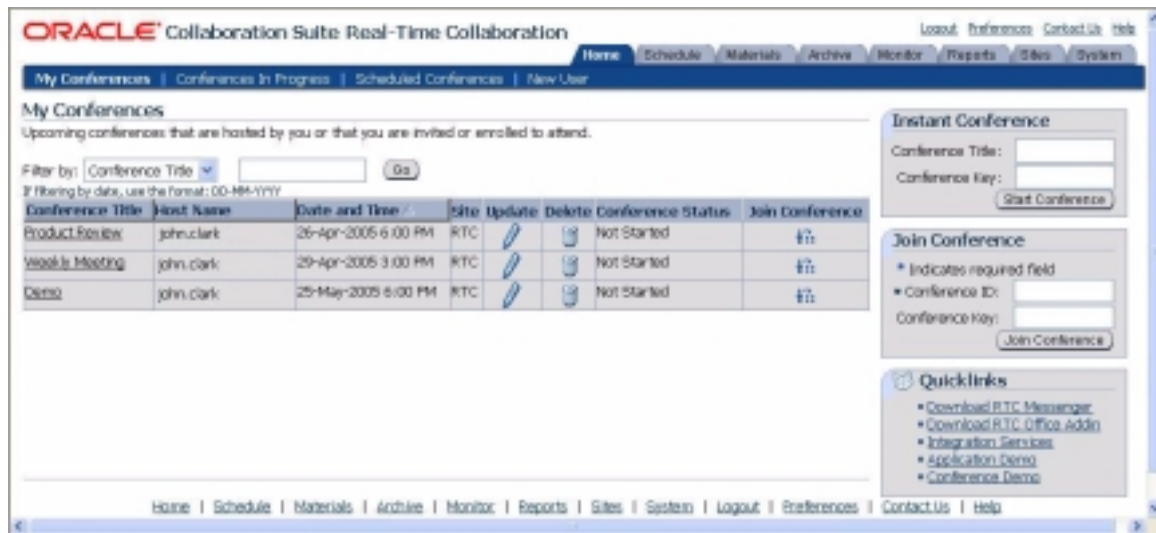
---

**Note:** If you enable Web conferencing from Oracle Calendar, users can use Oracle Calendar as an alternative method for scheduling Web conferences.

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System administrators can also use the Oracle Real-Time Collaboration Web client pages to monitor the status of the system and review statistics about conferences and chat sessions.

**Figure 9–1 Real-Time Collaboration Web Client: System Administrator's View**

## The Web Conferencing Console

The Web Conferencing console is a Windows client that lets users hold Web conferences. The console automatically downloads when a user starts or joins a Web conference.

The console lets users share their desktops and applications with others and use a virtual *whiteboard* with software drawing tools. During a conference, users can stream voice data from any telephone or teleconference system, or through each attendee's PC speakers. A conference host can send attendees polls and display poll results in real-time, and hold live chat sessions with all or selected attendees. A host can also authorize presenting privileges for other users, let users interact with the host's desktop, or designate another person as host. All conferences can be recorded, including synchronizing any streaming voice data with onscreen data collaboration.

**Figure 9–2 Web Conferencing Console**

## Oracle Messenger Console

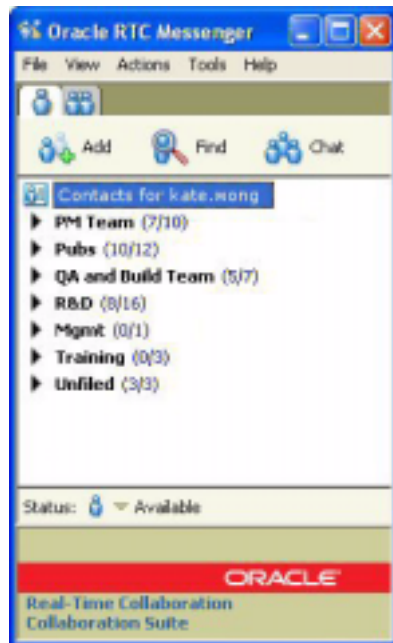
The Oracle Messenger console is a Windows client that users download from the Oracle Real-Time Collaboration Web client pages described previously. Users can set a message showing their own availability, and view the availability of any contacts they have chosen from the list of users you authorized through your company's Oracle Internet Directory or other LDAP directory.

Users can start a chat session from the Oracle Messenger console or from the Oracle Mail contact list (if enabled). They can also hold voice chat sessions with a single individual. Users can invite other users to participate in a group chat session, or escalate that chat session to a Web conference directly from the chat window. They can also broadcast chat messages to multiple users.

Users can send and receive files during chat sessions with others within the company intranet (for security reasons, this feature is not available outside the company firewall). All chat sessions are automatically recorded and users and administrators

can view the chat archive files from the Oracle Messenger console or the Oracle Real-Time Collaboration Web client.

**Figure 9–3 Oracle Messenger Console**

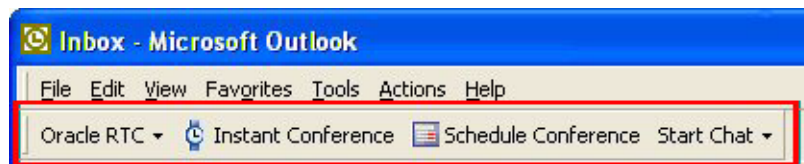


## Oracle Real-Time Collaboration Add-in for Microsoft Office

The Oracle Real-Time Collaboration Add-in for Microsoft Office is a toolbar that users download and install from the Real-Time Collaboration New User page. Installing the add-in adds the RTC toolbar to the top of any Microsoft Office document.

The RTC Add-in toolbar lets users schedule Web conferences, start instant conferences, and join conferences directly from Microsoft Office applications. The RTC toolbar also lets users see their Oracle Messenger online contacts and start a chat session from a Microsoft Office application. Users must be signed in to Oracle Messenger in order to start a chat session from Microsoft Office.

**Figure 9–4 Oracle Real-Time Collaboration Add-in for Microsoft Office**



## Real-Time Collaboration Sites

Oracle Real-Time Collaboration lets users create individual *sites* for different lines of business (for example, sales and support) and customize system, application, and conference properties for those sites. Many of the features previously described for Web conferencing or messaging can be customized for these sites. Users can also be assigned specific administrative or end-user privileges for a particular site.

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# Oracle Collaboration Suite 10g Search Concepts

This chapter contains the following sections:

- [Overview of Oracle Collaboration Suite Search](#)
- [Related Documentation for Oracle Collaboration Suite Search](#)

## Overview of Oracle Collaboration Suite Search

Oracle Collaboration Suite 10g Search is Oracle Collaboration Suite's cross-application search tool. Oracle Collaboration Suite Search uses the Oracle Ultra Search framework for conducting searches of Oracle Content Services, Oracle Mail, Oracle Calendar, and an Oracle Ultra Search Web crawler instance, combining the results into a single set. The searches of Oracle Content Services, Oracle Mail, and Oracle Calendar are managed through a set of indexes created by searchlets.

These searchlets regularly update their respective indexes, allowing Oracle Collaboration Suite Search to produce combined results quickly. Users can perform searches which will check all of this indexed content to present a combined set of results. Users can also specify which source or sources they wish to search.

You can administer Oracle Collaboration Suite Search by using the Oracle Ultra Search administration page, which is available to you when you log in to the Oracle Ultra Search Web application with administration privileges. You can configure the application searchlets individually to create indexes of the following:

- **Oracle Content Services:** Contents of files that are in public folders and your shared folders
- **Oracle Mail:** Subjects and, if so configured, body text of your e-mail messages
- **Oracle Calendar:** Titles and locations of your meetings, as well as titles of your tasks, daily notes and day events
- **Oracle Web pages:** Titles, authors, subjects and descriptions of HTML pages that are accessible by Oracle Ultra Search

**Figure 10–1 Oracle Collaboration Suite Search**

The screenshot displays the Oracle Collaboration Suite Search web interface. At the top, the Oracle logo is followed by the text 'Collaboration Suite Search'. To the right are links for 'Logout' and 'Help'. Below this is a search bar with the text 'invitation' and a 'Go' button. Under the search bar are checkboxes for 'Mail' (checked), 'Calendar' (checked), 'Files' (unchecked), and 'Web' (checked). A status message indicates 'You are logged in as John Clark.' Below the search bar is a 'Results' section with tabs for 'Mail [3]', 'Calendar [2]', and 'Web [1]'. The 'Mail' tab is selected, showing a table of search results. The table has four columns: 'Subject', 'From', 'Received', and 'Size'. It lists three items, all of which are 'Web conference invitation' messages. At the bottom of the results section are the same tabs: 'Mail [3]', 'Calendar [2]', and 'Web [1]'. Below the tabs is a footer with the text 'Copyright © 2005, Oracle. All rights reserved.' and links for 'Logout' and 'Help'.

Subject	From	Received	Size
Web conference invitation : Executive meeting	kate.wong@oracle.com	5/31/05 11:25 AM	18.8kb
Web conference invitation : Director's Address	jamie.calencia@oracle.com	5/31/05 11:25 AM	25.6kb
Web conference invitation : Convention	kate.wong@oracle.com	5/31/05 11:30 AM	16.3kb

## Related Documentation for Oracle Collaboration Suite Search

See Chapter 11, "Deploying Oracle Collaboration Suite Search " in *Oracle Collaboration Suite Deployment Guide* for information about Oracle Collaboration Suite Search deployment.

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## Oracle Collaboration Suite 10g Voicemail & Fax Concepts

Oracle Collaboration Suite 10g Voicemail & Fax 10g is a standards-based voice mail system that integrates tightly with other Oracle Collaboration Suite components, providing a centralized message and retrieval store for voice mail and faxes, as well as telephone processing, message delivery, browser-based clients, and administration utilities.

Oracle Voicemail & Fax provides access to voice mail through multiple channels including telephones, standards-based e-mail clients (either IMAP4 or POP3), and the Web. Oracle Voicemail & Fax stores messages in industry standard formats (.wav for voice mail and .tif for fax), so the choice of audio players and image viewing applications is left to end-users. The use of standard formats provides end-users with greater flexibility in accessing messages from any computer system and forwarding them to anyone with e-mail access.

This chapter contains the following sections:

- [Oracle Voicemail & Fax Features](#)
- [Oracle Voicemail & Fax End User Benefits](#)
- [Related Documentation for Oracle Voicemail & Fax](#)

### Oracle Voicemail & Fax Features

The following sections describe the key features of Oracle Voicemail & Fax:

- [Unified Message Store](#)
- [Voice Over IP Deployment Flexibility](#)
- [Adherence to Industry Standards](#)
- [Fax Capabilities](#)
- [Wireless Notifications](#)
- [Voice Interface](#)
- [Centralized Management](#)
- [Development Tools](#)
- [Simplified Administration](#)

## Unified Message Store

Oracle Voicemail & Fax uses the Oracle Mail message store (which is the Oracle Collaboration Suite database), for storage of voice mail and fax messages. The Oracle Collaboration Suite database provides the storage and common access methods for e-mail, voice mail, and fax messages in standard MIME format within the same repository. Using the Oracle Collaboration Suite Database as the base, all messages (including voice mails) are available through standard IMAP4 or POP3 e-mail clients.

## Voice Over IP Deployment Flexibility

Oracle Voicemail & Fax provides additional deployment flexibility by allowing all voice mail applications to be consolidated in one place. A centralized, SIP-based Voicemail & Fax Server supports one or more Voice Over IP (VoIP) gateways connected to legacy PBX systems. Distributed telephony card-based deployments are supported as well.

## Adherence to Industry Standards

Oracle Voicemail & Fax telephone applications are built on the Enterprise Computer Telephony Forum (ECTF) standards. These standards define the infrastructure needed to build and support platform-independent CT applications and enable Oracle Voicemail & Fax applications to easily integrate with a variety of enterprise and carrier class switches.

## Fax Capabilities

Oracle Voicemail & Fax provides users with inbound fax capabilities. Faxes sent to an Oracle Collaboration Suite user's phone number are delivered directly into the user's inbox. Faxes are stored as MIME compliant `.tif` attachments that can be viewed, printed or forwarded to any e-mail address using standards-based desktop or Web clients.

## Wireless Notifications

In conjunction with Oracle Mobile Collaboration and Oracle Mail, Oracle Voicemail & Fax can send e-mail notifications to other e-mail accounts and wireless devices enabled for e-mail. Oracle Collaboration Suite also includes direct one-way and two-way communication with a number of popular SMS systems and pager networks.

## Voice Interface

Oracle Voicemail & Fax provides a basic dual tone multi-frequency (DTMF) voice-mail interface and the ability to change user preferences through the telephone interface. Since Oracle Voicemail & Fax uses a single message store, actions taken on a message or changes made to account preferences through the voice channel are visible through all channels.

## Centralized Management

Oracle Voicemail & Fax administration is integrated into Oracle Enterprise Manager, allowing consolidated management of the entire Oracle environment, providing support for integration into systems-monitoring infrastructure. Oracle Voicemail & Fax supports multiple domains in the same system and allows for central or distributed administration in a hosted environment.



## Development Tools

A comprehensive set of PL/SQL and Java APIs are provided to integrate Oracle Mail and Oracle Voicemail & Fax with other core eBusiness infrastructures. These APIs provide the ability to read, retrieve, copy, and move messages. A complete set of server-side rules and filters allows end-users and administrators to execute actions on voice mail messages with defined characteristics (for example, "notify me when a voice mail from my spouse has been received").

## Simplified Administration

Oracle Voicemail & Fax provides an at-a-glance status of all voice mail systems with drill-down capabilities, allowing administrators to quickly diagnose and resolve issues. Oracle Voicemail & Fax provides over one hundred and fifty metrics and allows administrators to create additional metrics based on their specific requirements. Alerts and associated warning levels can be set for each metric.

An administrator can quickly determine the behavior and status of each process as well as stop, start, and reload all processes associated with the system or an individual site.

## Oracle Voicemail & Fax End User Benefits

Oracle Voicemail & Fax provides voice mail and directory features to end-users with the added benefit of integrated unified messaging.

### **Forward Voice mails to Personal Address Book Aliases**

Oracle Voicemail & Fax makes personal address book contacts available for addressing through the voice menu. These address book listings can contain any e-mail address.

### **Distribution List Support**

Oracle Voicemail & Fax allows users to address messages to personal distribution lists containing both phone numbers and e-mail addresses. Recipients can be Oracle Collaboration Suite users (email only, e-mail and voice mail, or voice mail only) or external e-mail addresses.

### **Message Listen Controls**

Oracle Voicemail & Fax users can speed up, slow down, skip back, skip forward and pause while listening to voice mail messages using phone keys.

### **Web-based Preference Management**

Oracle Voicemail & Fax users can manage their voice preferences via the Oracle Collaboration Suite Web client or Oracle Connector for Outlook. This includes choosing the distribution lists accessible to the voice menu, voice menu language choice, dial-out extension, voice mail password, and active greeting.

### **Reduced Message Access Time**

Using a single, unified messaging system means a user's content is stored and organized in the same location. This unification reduces a user's daily message access time.

### **Simplified Fax Delivery**

Having faxes delivered directly to their inboxes means users do not have to make that extra trip to the fax machine while simultaneously providing them with a greater level of privacy.

## **Related Documentation for Oracle Voicemail & Fax**

See *Oracle Voicemail & Fax Administrator's Guide* for information about Oracle Voicemail & Fax system requirements, installation instructions, frequently asked questions and troubleshooting information.

See Chapter 12, "Deploying Oracle Voicemail & Fax" in *Oracle Collaboration Suite Deployment Guide* for information about Oracle Voicemail & Fax deployment.

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# Oracle Collaboration Suite 10g Workspaces Concepts

This chapter contains the following sections:

- ❑ [About Oracle Workspaces](#)
- ❑ [Re-use of Oracle Collaboration Suite Data](#)
- ❑ [The Oracle Workspaces Web UI](#)
- ❑ [Related Documentation for Oracle Workspaces](#)

## About Oracle Workspaces

Oracle Collaboration Suite 10g Workspaces is an online component of Oracle Collaboration Suite that provides users with comprehensive tools for organizing and managing documents, people, meetings, tasks and discussions.

By assembling the relevant content for a project, workspace members have a powerful framework for organizing their collaborative efforts.

In addition, workspace administration is user-driven with minimal involvement by the global system administrator. Essentially, a workspace creator becomes the workspace administrator, enabling him to manage all workspace configuration issues such as membership and resource configuration. A user can create a workspace, add members with the appropriate roles, connect to all required resources and start collaborating without the need for intervention by a system administrator.

## Re-use of Oracle Collaboration Suite Data

Oracle Workspaces enables users to manage content in their native services, thus leveraging the capabilities of the Oracle Collaboration Suite Applications. For example, documents stored in Oracle Content Services are manipulated where they reside. This enables Oracle Workspaces users to edit and manage content without duplicating it unnecessarily. This also allows Oracle Workspaces to benefit from Oracle Content Services features like auto-versioning, default attribution, and policies for documents.

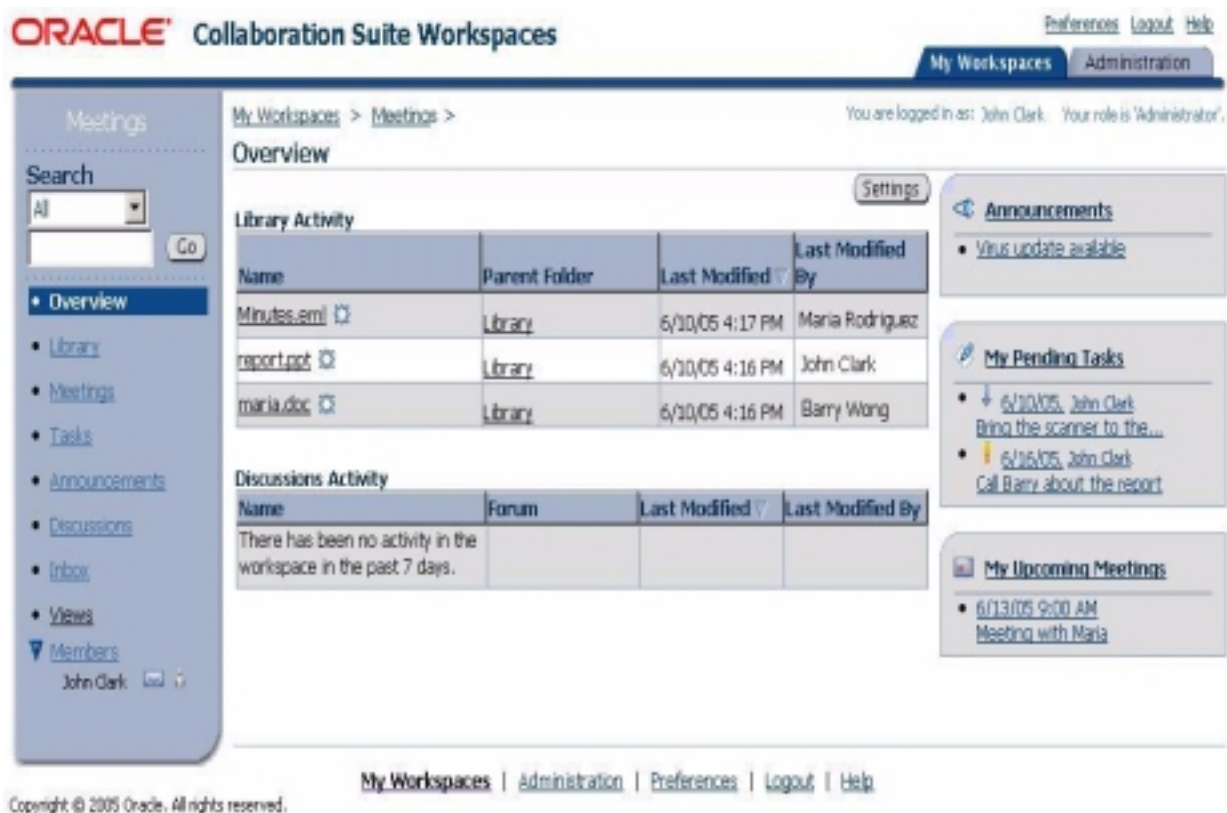
## The Oracle Workspaces Web UI

The Oracle Workspaces Web UI enables users to:

- ❑ Share, organize and collaborate on documents in a secure environment.

- Communicate easily and securely in a number of different ways: scheduling meetings, discussion forums and e-mail messages.
- Manage complex projects using hierarchical workspace containers.
- Collaborate in real time through Web conferencing and instant messaging.
- Track the timeline and progress of a project using the workspace calendar and task list.
- Manage content access via workspace roles.
- Extended access through familiar desktop tools.

**Figure 12–1 Oracle Workspaces Web UI**



## Related Documentation for Oracle Workspaces

See "Managing Oracle Workspaces" in Chapter 5 of *Oracle Collaboration Suite Administrator's Guide* for more about Oracle Workspaces administration, configuration, and troubleshooting.

See Chapter 13, "Deploying Oracle Workspaces" in *Oracle Collaboration Suite Deployment Guide* for information about Oracle Workspaces deployment.

See the Oracle Workspaces online help for information on using the Oracle Workspaces Web UI.

# Part III

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## Oracle Collaboration Suite Management and Development

Part III of this guide contains the following chapters:

- ❑ Chapter 13, "[Oracle Collaboration Suite Management Concepts](#)"
- ❑ Chapter 14, "[Oracle Collaboration Suite Application Development Concepts](#)"



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## Oracle Collaboration Suite Management Concepts

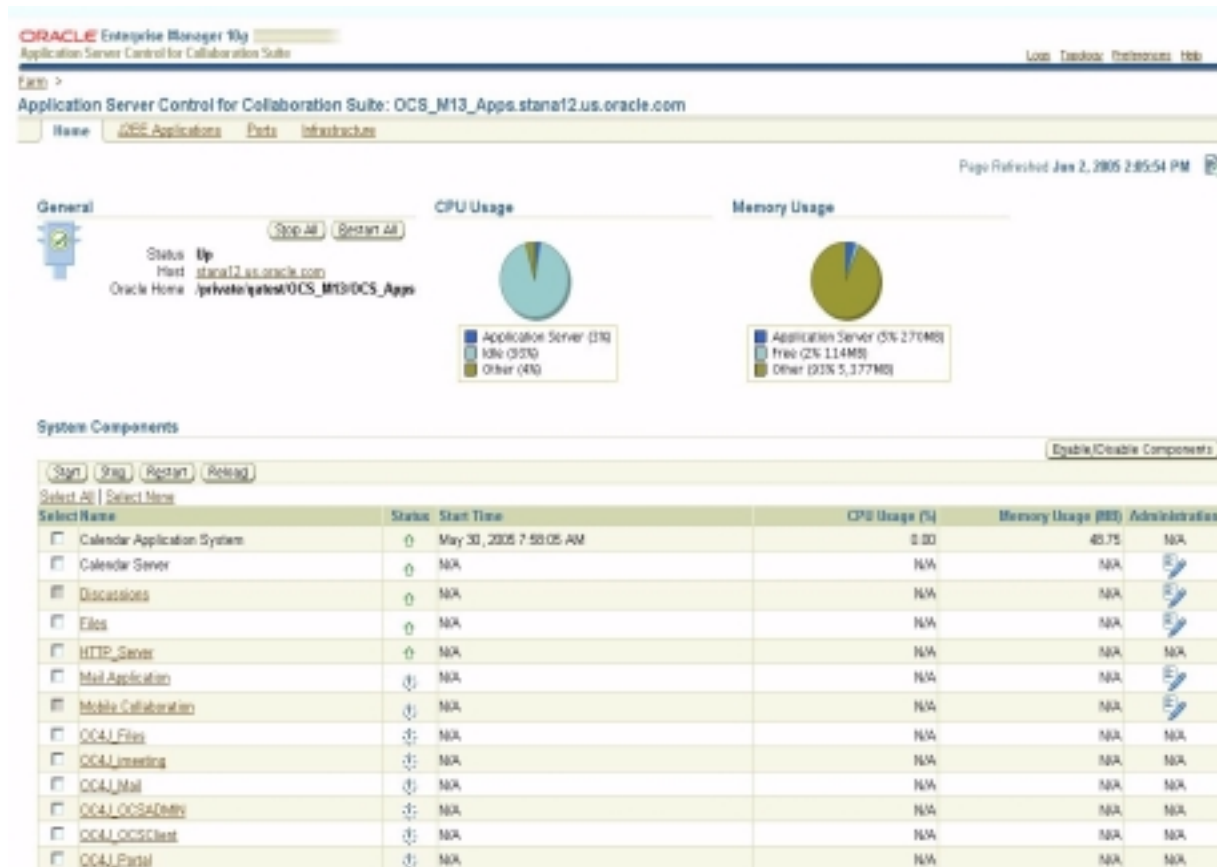
Since Oracle Collaboration Suite is a robust product, it makes sense that it is equipped with robust management functionality. Oracle Collaboration Suite provides three Web interfaces for managing your Oracle Collaboration Suite installation. These three controls are known collectively as Oracle Enterprise Manager 10g.

Enterprise Manager uses a Web-based architecture which is robust, reliable, globally scalable, and easy to deploy and operate. Oracle Collaboration Suite administrators can perform all necessary management tasks, including real-time use and performance monitoring, configuration, and control operations such as starting and stopping processes. Enterprise Manager offers the option of cooperative management since it makes Oracle Collaboration Suite accessible from anywhere, using a standard Web browser.

### Oracle Enterprise Manager 10g Application Server Control Console for Collaboration Suite Concepts

Oracle Enterprise Manager 10g Application Server Control Console for Collaboration Suite is an extension of Application Server Control that enables you to locally monitor and manage Oracle Collaboration Suite Applications tier components: Oracle Calendar, Oracle Discussions, Oracle Mail, Oracle Content Services, Oracle Real-time Collaboration, Oracle Mobile Collaboration, Oracle Voicemail & Fax, Oracle Workspaces and Oracle Collaboration Suite Search. Each of these components provides you with a home page where you can administer them remotely.

See the section, "Introduction to Application Server Control for Collaboration Suite" in Chapter 3 of ***Oracle Collaboration Suite Administrator's Guide*** for more information about Oracle Enterprise Manager 10g Application Server Control Console for Collaboration Suite.

**Figure 13–1 Oracle Enterprise Manager 10g Application Server Control Console for Collaboration Suite**

## Oracle Enterprise Manager 10g Grid Control Concepts

Grid Control is an optional add-on tool which links to all of your Application Server and Oracle Collaboration Suite instances, allowing you to centrally manage all the Applications tier components of Oracle Collaboration Suite.

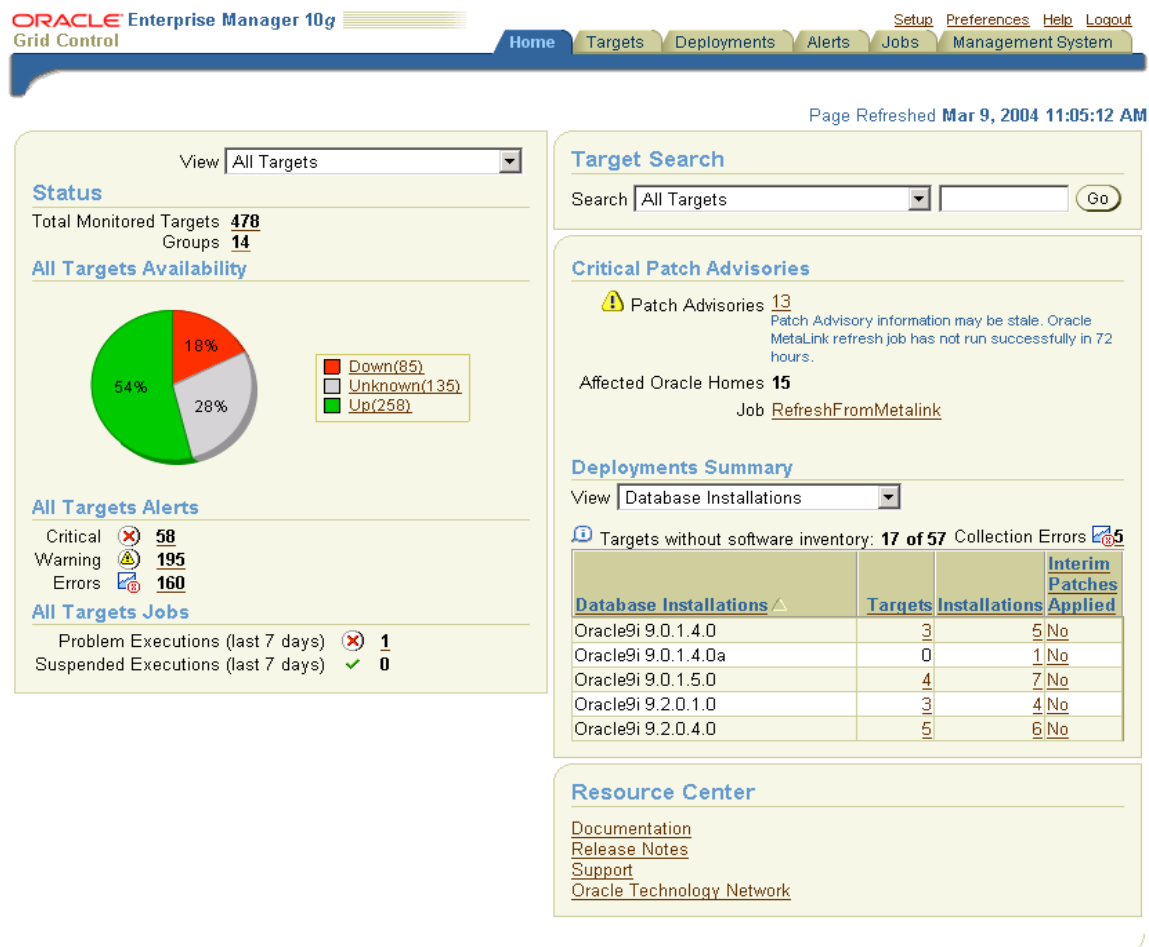
Grid Control is not installed with Oracle Collaboration Suite, but it can be installed from a separate installation CD-ROM that is part of the Oracle Collaboration Suite CD-ROM pack.

The Grid Control Console provides administrators with a wider view of their enterprise so they can manage multiple Oracle Collaboration Suite instances. In addition, the Grid Control Console provides a robust feature set designed to help you manage all aspects of your enterprise, including your Oracle databases, hosts, listeners, and other components.

See the section, "Introduction to Grid Control" in Chapter 3 of *Oracle Collaboration Suite Administrator's Guide* for more information about Oracle Enterprise Manager 10g Grid Control.



Figure 13-2 Oracle Enterprise Manager 10g Grid Control Console



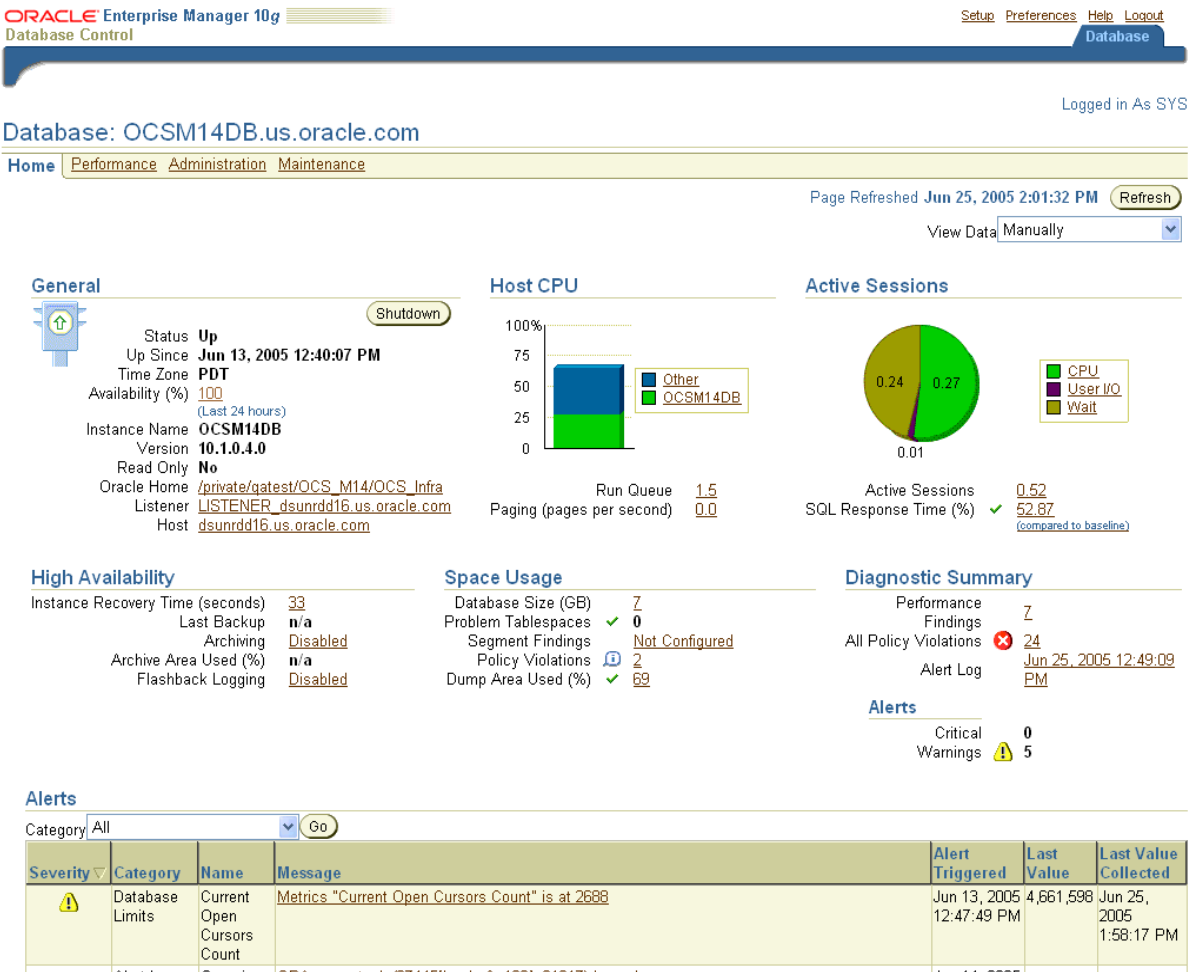
## Oracle Enterprise Manager 10g Database Control Concepts

Oracle Enterprise Manager 10g Database Control is installed and configured when you install the Oracle Collaboration Suite database. As a result, you can use Database Control Console to manage the OracleAS Metadata Repository database. The functionality for managing the OracleAS Metadata Repository database can also be found in Grid Control.

The Database Control Console is similar to the Enterprise Manager Application Server Control Console, but it is used strictly for managing your Oracle Database. The Database Control Console provides a Web-based user interface for performing a wide variety of database management tasks.

See the section, "Introduction to the Database Control Console" in Chapter 3 of **Oracle Collaboration Suite Administrator's Guide** for more information about Oracle Enterprise Manager 10g Database Control.

Figure 13–3 Oracle Enterprise Manager 10g Database Control Console



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## Oracle Collaboration Suite Application Development Concepts

Oracle Collaboration Suite includes APIs that enable developers to embed and enable the functionality of Oracle Collaboration Suite components in their e-business applications.

This chapter contains the following sections:

- [About Oracle Collaboration Suite Development Tools](#)
- [The Collaboration-Enabled Enterprise](#)

### About Oracle Collaboration Suite Development Tools

The following sections describe the development tools available in Oracle Collaboration Suite:

- [Oracle Contacts Development Tools](#)
- [Oracle Calendar Development Tools](#)
- [Oracle Content Services Development Tools](#)
- [Oracle Discussions Development Tools](#)
- [Oracle Mail Development Tools](#)
- [Oracle Real-Time Collaboration Development Tools](#)
- [Oracle Workspaces Development Tools](#)

### Oracle Contacts Development Tools

Oracle Contacts provides single-repository contact management services which can be accessed by various Oracle Collaboration Suite components and clients. The Oracle Contacts API allows developers to create applications to operate on an address book repository.

See *Oracle Contacts Java API Reference* for the Java API for Address book.

### Oracle Calendar Development Tools

Oracle Calendar includes an SDK, a Web Services toolkit, and comprehensive development documentation.

### Oracle Calendar SDK

The Oracle Calendar SDK is a set of functions, written in C/C++ with corresponding Java functions, that developers can use to create applications that interface with Oracle Calendar. Using a native C interface, the SDK enables implementation using any language that can call C functions natively.

Using standard iCalendar objects to represent meetings and events, a developer can use the SDK functions to create programs that read and write calendar data, storing the information on the Oracle Calendar server.

The Oracle Calendar SDK includes the following:

- Shared library implementing the APIs
- C header file
- Java .jar file
- Javadoc HTML documentation for the SDK.
- Oracle Calendar client libraries
- Oracle Calendar ACE (authentication, compression, encryption) modules
- Sample/Demo programs.

Examples of programs that can be created include automated calendar subscriptions, custom interfaces to the Oracle Calendar server, or even migration utilities that allow for data extraction from any other system capable of producing iCalendar output.

See Chapter 1, "Overview of Calendar SDK" of *Oracle Calendar Application Developer's Guide* for more information about using the Calendar SDK C and Java API.

See *Oracle Calendar SDK Java API Reference* for Oracle Calendar SDK Javadoc.

### Oracle Calendar Web Services

Oracle Calendar also provides developers with the Oracle Calendar Web services, which includes SOAP-based Web services and a set of Java APIs that facilitate the use of these Web services.

- **Oracle Calendar portlet look and feel:** Active content will be displayable through Oracle Calendar portlets, including unconfirmed event count and the number of open or overdue tasks.
- **Reuse personal settings:** The Web services toolkit enables applications to reuse personal default settings of other Calendar clients.
- **Oracle Calendar searchlet:** An Ultra Search-based searchlet that provides powerful content filtering.

See Chapter 9, "Oracle Calendar Web Services Toolkit Overview" of *Oracle Calendar Application Developer's Guide* for more information about using Oracle Calendar web Services.

See *Oracle Calendar Web Services Java API Reference* for Oracle Calendar Web services Javadoc.

## Oracle Content Services Development Tools

Oracle Content Services provides a set of SOAP-based Web services, and a set of Java API that facilitate the use of these Web services, that allow you to develop custom applications for sharing content. These Web services can be accessed using a fixed

URL, and provide interfaces to file and folder manipulation, group maintenance, and workflow methods.

See *Oracle Content Services Web Services API Reference* for more information about Content Services Web services.

See *Oracle Content Services Web Services Java API Reference* for Oracle Content Services Javadoc.

## Oracle Discussions Development Tools

Oracle Discussions provides a set of APIs for developing applications that use threaded discussion forums.

See *Oracle Discussions Java API Reference* for more information.

## Oracle Mail Development Tools

Oracle Mail provides a comprehensive e-mail development platform, with a set of APIs for mail operations through PL/SQL, C, the Oracle JavaMail API (OJMA), and XML. The APIs allow custom server rules for processing mail messages, a plug-in framework, and a complete set of PL/SQL mail store operations.

See *Oracle Mail Application Developer's Guide* for more information about developing for Oracle Mail.

## Oracle Real-Time Collaboration Development Tools

Oracle Real-Time Collaboration provides developers with Oracle Real-Time Collaboration Integration Services. These are a set of SOAP-based Web services that allow developers to extend any enterprise or desktop application with the capabilities of Oracle Real-Time Collaboration. They are implemented as a set of servlets that can be accessed using a URL. They can also be called from a Java client by using the appropriate proxy JAR file.

See the Oracle Real-Time Collaboration Integration Services Web site, which can be accessed from the Oracle Real-Time Collaboration Web site Quicklinks section, for more in-depth information about using Oracle Real-Time Collaboration Integration Services, including URLs to WSDL files, proxy JAR files, and endpoints for each Web service, as well as demos and tutorials.

See *Oracle Real-Time Collaboration Application Developer's Guide* for general information about Oracle Real-Time Collaboration Integration Services.

## Oracle Workspaces Development Tools

Oracle Workspaces provides you with the Oracle Workspaces SDK that consists of Java APIs that allows you to manage workspaces, their resources, and users.

See *Oracle Workspaces Application Developer's Guide* for information about developing applications with Workspaces SDK.

See *Oracle Collaboration Suite Workspaces Java API Reference* for Workspaces SDK Javadoc.

## The Collaboration-Enabled Enterprise

This section describes some possible ways you can develop applications with Oracle Collaboration Suite development tools.

- ❑ [Content Management and Scheduling for Human Resources](#)
- ❑ [Scheduling for Education Facilities](#)
- ❑ [Content for E-Business Applications](#)
- ❑ [Secure Communications](#)
- ❑ [Portals](#)
- ❑ [Workspace Services](#)

## Content Management and Scheduling for Human Resources

Suppose your organization has built an application that manages its human resources. In addition to handling information about your organization's employees, the application also stores data about job applicants.

You can extend this application with Oracle Collaboration Suite APIs so that a hiring manager can use Oracle Collaboration Suite components directly from it. Use Oracle Calendar SDK or Oracle Calendar Web services so that the hiring manager can schedule interviews on Oracle Calendar between the applicant and other employees. Use Oracle Content Services Web services so that the hiring manager can store each applicant's resume in an Oracle Content Services shared folder. The user interface of this application could look like the following:

**Figure 14–1** A sample application using Oracle Content Services and Calendar APIs

The screenshot shows a web application titled "Recruitment". It includes a navigation bar with icons for document, folder, and calendar. The main form contains the following elements:

- Applicant Information:**
  - Applicant Name:
  - Resume: [link to Files Workspace](#)
  - Position:
- Interview Scheduling Table:**

	Interviewer	Summary	Appointment	
	Hiring Mgr	B+	<a href="#">12/8/03 2pm</a>	
	Grp Mgr		<a href="#">12/10/03 3pm</a>	
	Director		<input type="button" value="Create Appt"/>	
	VP		<input type="button" value="Create Appt"/>	
- Debrief Table:**

Debrief	Interviewer	Complete?
	Hiring Mgr	Yes
	Grp Mgr	Scheduled
	Director	Not Scheduled
	VP	Not Scheduled
- Group Debrief Section:**
  - 
  -

## Scheduling for Education Facilities

A university requires a system in which students can log in and schedule appointments with their career counselor. You can use Oracle Calendar SDK or Oracle Calendar Web services to build a Web site where a student can view the availability of the counselor through a combo box and schedule an appointment with the click of a button. The appointment would then appear on both the student's and the counselor's schedule. The Web site might look like the following:

**Figure 14–2 A sample schedule created with Oracle Calendar integration**

Jacquelyn Michel Gist has these appointment slots available in the next two weeks. To schedule an appointment, select a time under your desired date and click "Schedule."

Tue Feb 22	<input type="text" value="Select a Time"/>	<input type="button" value="Schedule"/>
Wed Feb 23	<input type="text" value="Select a Time"/>	<input type="button" value="Schedule"/>
Thu Feb 24	<input type="text" value="Select a Time"/>	<input type="button" value="Schedule"/>
Fri Feb 25	<div> <div>Select a Time</div> <div> 12:30PM-01:00PM  01:00PM-01:30PM  01:30PM-02:00PM  02:00PM-02:30PM  03:00PM-03:30PM  04:00PM-04:30PM </div> </div>	<input type="button" value="Schedule"/>
Mon Feb 28		<input type="button" value="Schedule"/>

## Content for E-Business Applications

You can embed Oracle Content Services in Product Lifecycle Management (PLM), an Oracle E-Business Suite application. Suppose your organization needs to store and manage all documents related to product market research, customer requirements, schematics and specifications, and marketing and training materials. Rather than create a separate database specifically for PLM to store this material, you can embed Oracle Content Services in PLM. This would allow other business processes to access this documentation archive, since it is managed by Oracle Content Services, not PLM. However, you can define policies specific to PLM; For example, you could require that specifications have enforced metadata, or that marketing and training materials expire after two years.

## Secure Communications

A financial institution needs to maintain secure electronic communications between their private clients and their account representatives. You can use Oracle Mail APIs for secure communication and storage, and Oracle Mail's server side rules for custom message routing. In addition, you can use Oracle Real-Time Collaboration Integration Services to implement secure instant messaging.

## Portals

Role-based Portals provide a common way for all users to access business applications, content, and collaboration, personalized and secured for the business needs of the individual user. In a Role-based Portal, each individual's role in the workforce defines which applications are available. Content and collaboration can be made available alongside business applications to facilitate team interactions. For instance, a Purchasing Manager may need access to legacy inventory applications, documents such as materials data sheets and supplier quotes, as well as team communications including a list of team members, project calendar, contacts, and supporting documents. A Role-based Portal provides access to all of the business applications, content and communication required to perform day-to-day activities. The Portal becomes the common source of business information for all employees, customers and suppliers.

**Figure 14–3 A Sample business portal**

The screenshot displays a business portal with a top navigation bar containing 'Collaboration', 'Project Directory', and 'Project Intelligence'. The main content area is divided into several sections:

- Project List:** A sidebar on the left showing a list of projects: 'ABC-Financials Implementation', 'Engineering + Construction-100', and 'Software Systems'. Each project has links for 'Workspace' and 'Project'.
- Search:** A search bar with a 'Go' button.
- Event Calendar:** A table showing appointments:
 

Date and Time	Appointment
4/27-11:00 AM	Status Meeting
4/28-1:00 PM	Project Review
4/29-10:00 AM	Client Engagement
5/3-1:00 PM	Project Review

 Below the calendar is a section for 'Daily Notes & Day Events' with the text 'No Daily Notes or Day Events'.
- Web Conferences:** A section for scheduling meetings, including fields for 'Title', 'Password', and 'Start Meeting' button. Below it is a 'Join Meeting' section with fields for '\* ID', 'Password', and a 'Join Meeting' button.
- Project Members:** A table listing team members:
 

Name	Role	Work Phone	Time Zone
Gray, Donald R	Director	617-556-4563	U.S. Eastern (GMT-5)
Hamilton, Ms. Anne	Business Analyst	914-456-6788	U.S. Eastern (GMT-5)
Heather, Ms. Emily	Business Analyst	206-301-1039	U.S. Pacific (GMT-8)
Marin, Ms. Amy	Project Manager	339-669-0867	U.S. Eastern (GMT-5)
Scott, Francis	Developer		U.S. Pacific (GMT-8)

 Below the table are buttons for 'Send Email', 'Send Instant Message', 'Schedule Meeting', and 'View Agenda'.
- Project Documents:** A table listing documents:
 

Document Name	Size	Last Modified
ABC-Financials Implementation-Public		03/21/05
Design Documents		04/27/05
Project folder		04/27/05
Requirements		04/27/05
Standards		04/27/05
Strategy		04/27/05
ABC Financials Bid Proposal.doc	752 KB	04/27/05
ABC-Financials-Implementation (902752) revised.mpp	840 KB	03/21/05
Detailed Business Processes Flow.vsd	0 KB	04/24/05
E Bus Suite Summary Descriptions.doc	696 KB	03/21/05
Financials Project Overview.ppt	240 KB	04/24/05

## Workspace Services

A technical support organization can use Oracle Workspaces API to augment an existing support system with a workspace for every support issue. Within the same workspace, the organization can do the following:

- Share all data about the support issue with the customer, and engage the customer in discussions, presentations, and e-mail exchanges.
- Archive the resolved issue, or escalate the same workspace to another team.
- Use in-house analysis tools and data and information collected from the customer to resolve the issue.



**Figure 14–4** A Sample application created with the Oracle Workspaces API

**Welcome to University ABC's application page**

Name

Email address

Please schedule a 1-hr interview with one of our alumni:

Choose a date

Choose a time

Please upload your application and personal essay:

Application Form

Personal Essay



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# Glossary

## **access roles**

Oracle Content Services security is based on access roles, which specify what kind of access a user has to files, folders, Libraries, Containers, and links in Oracle Content Services. Each role is made up of a set of permissions — a permission represents the ability to perform a specific Oracle Content Services action or operation.

## **ACE**

Authentication, Compression, and Encryption framework for the calendar server.

## **API**

Application Program Interface (API) is a set of code or tools that is required for developing an application. All the commonly used operating environments like Linux provide APIs that can be used to develop applications that are consistent across a particular operating environment.

## **agenda or calendar**

The scheduling calendar of a user or resource.

## **Applications Tier**

The tier of Oracle Collaboration Suite that runs the server applications that provide specific functionality to end-users. The term "Applications tier" replaces the term "middle tier" that was used in previous releases. Each Applications tier corresponds to an instance of Oracle Application Server. See also [Oracle Collaboration Suite Applications](#).

## **availability**

Availability is the percentage or amount of time that a computing system provides application service.

## **BindDN**

Distinguished name used to authenticate to the Directory Server when performing an operation. See your Directory Server documentation for more information.

## **BPEL**

The Business Process Execution Language (BPEL) is an XML-based markup language for composing a set of discrete Web services into an end-to-end process flow.

## **BPEL Process Manager**

Oracle BPEL Process Manager is a component of Oracle Application Server. It includes the BPEL Server, the BPEL Console, the BPEL Worklist application for human-centric

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workflows, and the BPEL Designer. You can use the BPEL Designer, an Oracle JDeveloper-based design tool, to graphically create custom workflows for use in Oracle Content Services.

**Calendar Administrator**

A Web-based tool for online Oracle Calendar administration.

**Clients Tier**

The tier of Oracle Collaboration Suite that consists of the end-user applications that reside on client devices, such as desktops, laptops, wireless phones, and PDAs. See also [Oracle Collaboration Suite Applications](#).

**Collaboration Suite Database**

The default database shipped with Oracle Collaboration Suite to hold application data.

**Committed Data Cache**

The Committed Data Cache provides caching of the attribute values of frequently used objects without a database request, greatly improving performance and scalability.

**CT Server**

A standard developed by the Enterprise Computer Telephony Forum that defines the infrastructure required to build platform-independent computer telephony applications.

**Directory service**

A database application designed to manage descriptive, attribute-based information about people and resources within an organization.

**Distinguished Name**

String representation of an entry's name and location in an LDAP directory.

**Document Conversion Server**

The server that converts supported document types to HTML for viewing in document presentation mode.

**DMZ**

The "demilitarized zone" is a subnetwork located between a company's corporate intranet and the Internet.

**End User**

A person who accesses an Oracle Collaboration Suite 10g service from a client device.

**FTP**

FTP, the File Transfer Protocol, is one of the three protocols supported by Oracle Content Services. It is used for file transfers across Wide Area Networks such as the Internet. FTPS, also known as secure FTP, is also supported.

**HTTP**

HTTP, the Hypertext Transfer Protocol, is one of the three protocols supported by Oracle Content Services. It is used for Web browser-based access. HTTP has been extended with WebDAV, a protocol designed for Wide Area Networks such as the Internet.

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## HTTP Server

The Oracle HTTP Server, not to be confused with the Oracle Content Services HTTP protocol server (EcmHttpServer), is the Web server component of Oracle Application Server. It is based on the Apache HTTP Server, version 1.3.28.

## Identity Management

Identity management is the process by which various components in an identity management system manage the security life cycle for network entities in an organization, and most commonly refers to the management of an organization's application users. Oracle Identity Management is an integrated infrastructure that provides distributed security to Oracle products. Oracle Identity Management includes the following components: Oracle Internet Directory, Oracle Directory Integration and Provisioning, Oracle Delegated Administration Services, OracleAS Single Sign-On, and Oracle Application Server Certificate Authority.

## IMAP

Internet Message Access Protocol is an Internet protocol for accessing e-mail on a remote server from a local client. It enables efficient operation such as downloading only essential data by first getting the e-mail header before the actual e-mail download. This makes the protocol well suited to remote environments.

## Infrastructure Tier

The tier of Oracle Collaboration Suite that consists of the components that provide services, such as identity management and metadata storage, for the [Applications Tier](#). Components of the Infrastructure tier include [Oracle Collaboration Suite Database](#) and [Oracle Identity Management](#). See also [Oracle Collaboration Suite Infrastructure](#).

## LDAP

Lightweight Directory Access Protocol or LDAP, is an Internet protocol that applications use to look up contact information from a server, such as a central directory. LDAP servers index all the data in their entries, and "filters" may be used to select just the person or group you want, and return just the information you want.

## Load Balancer

A very fast network device which can distribute Web requests to a large number of physical servers. The purpose of a load balancer (LBR) is to provide a single published address to the client browsers, and, in the case of Oracle Real-Time Collaboration, provide multiple Oracle Real-Time Collaboration Core Components Applications tiers which actually service the requests, based on the distribution of the requests done by the LBR.

## Management Agent

The Oracle Management Agent is an Oracle Enterprise Manager Grid Control process deployed on each monitored host. The Oracle Management Agent is responsible for monitoring all targets on the host, for communicating that information to the Applications tier Management Service, and for managing and maintaining the host and its targets. Each Management Agent needs to be installed in its own Oracle home.

## Node

An Oracle node is the application software that comprises the product, along with the underlying Java Virtual Machine (JVM) required to support the software at runtime. There are two types of nodes: regular nodes, and HTTP nodes. Each node is based on a particular node configuration.

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## Oracle Application Server Control for Collaboration Suite

The Oracle Enterprise Manager 10g Application Server Control for Oracle Collaboration Suite (short name: Application Server Control for Collaboration Suite) is a Web-based management interface used to manage Oracle Collaboration Suite Applications tier hosts. Oracle Content Services system administrators can use the Application Server Control for Collaboration Suite to operate and monitor system processes associated with the Oracle Content Services domain and nodes.

## OC4J

Oracle Application Server Containers for J2EE (OC4J) is a complete set of J2EE containers written entirely in Java that execute on the Java Virtual Machine (JVM) of the standard Java Development Kit (JDK). OC4J supplies the following J2EE containers: a servlet container that complies with the servlet 2.3 specification, a JSP container that complies with the Sun JSP 1.2 specification, and an EJB container that complies with the EJB 2.0 specification.

## Oracle Collaboration Suite

An integrated suite of software applications to enable communication, messaging, and content sharing in an enterprise environment. At an architectural level, it includes three tiers: an [Applications Tier](#), which consists of server applications that provide the basic functionality, a [Clients Tier](#), which consists of applications on desktops, laptops, and wireless devices, and an [Infrastructure Tier](#), which provides centralized services, such as identity management and metadata storage, for the applications.

## Oracle Collaboration Suite Applications

The applications that make up Oracle Collaboration Suite, namely:

- ❑ Oracle Calendar
- ❑ Oracle Collaboration Suite Search
- ❑ Oracle Content Services
- ❑ Oracle Discussions
- ❑ Oracle Mail
- ❑ Oracle Mobile Collaboration
- ❑ Oracle Real-Time Collaboration
- ❑ Oracle Voicemail & Fax
- ❑ Oracle Workspaces

Each of the preceding applications is a component of Oracle Collaboration Suite Applications. These applications rely on the services provided by the [Infrastructure Tier](#). See also [Applications Tier](#).

## Oracle Collaboration Suite Database

The default database included with Oracle Collaboration Suite to hold application data and metadata. The Oracle Collaboration Suite Database is part of the [Oracle Collaboration Suite Infrastructure](#).

## Oracle Collaboration Suite Infrastructure

The underlying components that support [Oracle Collaboration Suite](#) and provide centralized product metadata and security services, configuration information, and data repositories for [Oracle Collaboration Suite Applications](#). [Oracle Collaboration Suite Infrastructure](#) uses and builds on OracleAS Infrastructure. It includes the [Oracle](#)

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[Collaboration Suite Database](#) and [Oracle Identity Management](#). See also [Infrastructure Tier](#).

### **Oracle Enterprise Manager**

Oracle Enterprise Manager is a systems management software application that enables you to manage and monitor Oracle Application Server instances and other Oracle server products. Oracle Enterprise Manager has three separate Web-based interfaces: the Application Server Control, the Application Server Control for Collaboration Suite, and the Grid Control.

### **Oracle Identity Management**

An integrated set of components that provide distributed security to Oracle products and make it possible to centrally and securely manage enterprise identities and their access to applications in the enterprise. It includes the following components: Oracle Internet Directory, Oracle Directory Integration and Provisioning, Oracle Delegated Administration Services, OracleAS Single Sign-On, and Oracle Application Server Certificate Authority.

### **Oracle Universal Installer**

The Oracle Universal Installer (OUI) is the installation wizard through which you can install Oracle products, including the Oracle database, Oracle Application Server, and Oracle Collaboration Suite.

### **OPMN**

Oracle Process Manager and Notification Server (OPMN) manages all the components within an application server instance, including Oracle HTTP Server, OC4J processes, and OracleAS WebCache. It channels all events from different components to all components interested in receiving them. Use OPMN to manage Oracle Content Services processes like HTTP nodes and regular nodes.

### **Oracle Enterprise Manager Grid Control**

The Oracle Enterprise Manager Grid Control is a Web-based management interface used for centralized management of Oracle Collaboration Suite Applications tiers, Oracle Collaboration Suite Infrastructure tiers, and Oracle database hosts. Oracle Content Services system administrators can use the Grid Control for access to Oracle Content Services metrics, such as document statistics, node statistics, and users, including access to historical metric data.

### **Oracle Internet Directory**

Online directories are used by enterprises with distributed computer systems for fast searches, cost-effective management of users and security, and a central integration point for multiple applications and services. Oracle Internet Directory is an LDAP (Lightweight Directory Access Protocol) service that combines Oracle's database technology with the LDAP v3 directory standard. Oracle Internet Directory is a component of Oracle Identity Management. It is also tightly integrated with the Oracle Database. All Oracle Collaboration Suite users are created and managed in Oracle Internet Directory.

### **POP**

Post Office Protocol is a standard protocol used by a client to receive e-mail that has been sent to the client over the Internet. The protocol is used to retrieve the client's e-mail from the server.

POP3 is the most recent version of this protocol and is typically included in software e-mail applications such as Outlook Express. POP is also built into popular browsers

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like Microsoft Explorer and Netscape. POP3 is usually employed with SMTP. IMAP is the alternative protocol to POP3, with more features for handling e-mail on the server.

### **Portal**

OracleAS Portal is a component of Oracle Application Server that is used for the development, deployment, administration, and configuration of enterprise class portals. OracleAS Portal incorporates a portal building framework with self-service publishing features to enable you to create and manage information accessed within your portal.

### **presence**

The current availability of a contact, displayed in the Oracle RTC Messenger window. A contact can be "available" to receive chat messages or invitations to Web conferences, or "away." Contacts can customize their presence categories. See also group presence.

### **RAC**

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

### **Resource**

An inanimate object, such as a conference room or a piece of equipment, that has its own calendar. When creating an event in their calendar, users can invite resources in the same way that they invite other users. Resources are managed by users who act as designates. Resources can also be used to create a calendar for tracking related enterprise-wide information, such as company holidays or employees' travel schedules.

### **Single Sign-On**

OracleAS Single Sign-On is a component of Oracle Application Server that enables users to log in to all features of the Oracle Application Server product suite, as well as to other Web applications, using a single user name and password. Oracle Content Services users log in to Oracle Content Services using their SSO password.

### **SYSOP**

The administrator of a calendar server node.

### **VoIP**

Voice over IP is a category of hardware and software that uses the Internet as the transmission medium for telephone calls. Voice data is sent in digital form in packets rather than in the traditional circuit-committed protocols of the public switched telephone network (PSTN). A major advantage of VoIP and Internet telephony is that it eliminates ordinary toll charges.

### **WebCache**

OracleAS WebCache is a component of Oracle Collaboration Suite that improves the performance, scalability, and availability of frequently used Web sites. By storing frequently accessed URLs in memory, OracleAS WebCache eliminates the need to



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repeatedly process requests for those URLs on the Web server. OracleAS WebCache uses invalidation-based caching.

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